FINAL
SITE INSPECTION REPORT
RAVENNA ARMY AMMUNITION PLANT, OHIO

MILITARY MUNITIONS RESPONSE PROGRAM
SITE INSPECTION
MUNITIONS RESPONSE SITES

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CENWO-PM-HA
106 S. 15th STREET
OMAHA, NE 68102-1618

Prepared By:

engineering-environmental Management, Inc.
2751 Prosperity Avenue, Suite 200
Fairfax, VA 22031

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May 2008

Prepared by: _____
Courtney K. Van Tassell
e²M Staff Scientist

Reviewed by: _____
Lynn K. Lutz
e²M MMRP QA/QC Manager

Approved by: _____
Phil Werner
e²M Technical Project Manager

EXECUTIVE SUMMARY

Under contract with the United States Army Corps of Engineers (USACE), Omaha District; engineering-environmental Management, Inc. (e^2M) has prepared the following Site Inspection (SI) Report for the other than operational ranges and other sites with known or suspected munitions and explosives of concern (MEC), munitions debris, or munitions constituents (MC) at Ravenna Army Ammunition Plant (RVAAP), located in Portage and Trumbull Counties, Ohio. These Munitions Response Sites (MRSs) are being addressed under the United States (US) Army Military Munitions Response Program (MMRP). The work performed for this SI was completed in accordance with the USACE, Omaha District project Scope of Work (SOW), Contract Number DACA63-03-D-0009, dated June 2005.

This SI Report includes the findings of the Historical Records Review (HRR); the decisions made at the Technical Project Planning Meeting Number 2 (TPP 2) on 10 August 2006; the SI field sampling results; and the proposed recommendations for the 17 MRSs identified at RVAAP. Originally, 19 MRSs were identified during the US Army inventory of closed, transferring and transferred (CTT) military ranges and defense sites (US Army CTT Range/Site Inventory) with the potential to contain unexploded ordnance (UXO), discarded military munitions (DMM) or MC. Since completion of the US Army CTT Range/Site Inventory, Winklepeck Burning Grounds (RVAAP-005-R-01) has been addressed under Base Realignment and Closure (BRAC) and Installation Restoration Program (IRP) funding. Chemical contamination at the MRS was addressed under the IRP, whereas BRAC funding was used to address explosive safety. Further, the MRS is no longer eligible for the MMRP since the parcel has been developed as an operational range (Mark 19 Range) by the Ohio Army National Guard (OHARNG). Therefore, this MRS has been removed from the MMRP. The number of MRSs was further reduced to seventeen when the operational status of the Old Hayfield MRS (RVAAP-064-R-01), which was formerly known as the "Field at the NE Corner of Intersection", was changed to operational range. As such, this MRS became ineligible for the MMRP and was subsequently removed.

After reviewing the information collected during the SI, the following conclusions have been made for the MRSs at RVAAP:

- **Ramsdell Quarry Landfill MRS (Army Environmental Database Restoration [AEDB-R] number [RVAAP-001-R-01])**: The MRS is comprised of two separate sections: a northern section (Area 1) where open burn/open detonation (OB/OD) operations were conducted in a former quarry, and a southern section (Area 2) that contains a small inactive soil

borrow pit and wooded area where installation personnel had found munitions debris. Area 1 is collocated with an IRP Area of Concern (AOC) that was a former landfill; this area is not part of the MRS. For the SI field work, a magnetometer and metal detector assisted UXO survey was conducted in the northern quarry area and at the southern soil borrow pit, where little historical data exists. Subsurface anomalies were detected at the northern quarry, specifically around the pond; however, no evidence of MEC was observed at the MRS. One empty 105millimeter (mm) ceremonial shot cartridge and one empty 155mm shot round were found at two locations in the southern soil borrow pit during the SI field work. The potential presence of MEC in the pond in the northern quarry area will require additional investigation under future Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) actions.

Four (4) multi-incremental (MI) surface soil samples were collected from the southern soil borrow pit and analyzed for explosives, propellants, and Target Analyte List (TAL) metals. For the MC3 area sample, lead and manganese concentrations were greater than RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen Environmental Protection Agency (USEPA) Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil. Lead and manganese are considered MC. There fore, additional characterization work will be required at the southern soil borrow pit to address this concern. Thallium concentrations were above one-tenth non-carcinogen the USEPA Region 9 Residential Soil PRG comparison values in all four samples. (Note: Thallium concentrations appear to be naturally occurring and not related to munitions.) None of the samples contained explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. However, an estimated concentration (i.e., below the method detection limit) of 2,4,6-trinitrotoluene (TNT) was detected. Ramsdell Quarry Landfill MRS is recommended for Further Characterization based on the presence of MC in the southern soil borrow pit and the potential for MEC in and around the pond at the northern quarry area. In the northern quarry area, MC will continue to be addressed under the IRP.

- **Erie Burning Grounds MRS (RVAAP-002-R-01)**: This MRS was used from 1941 to 1951 to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (e.g., railcars) through open burning on the ground surface. The MRS is collocated with an IRP AOC. For the SI field work, a meandering path magnetometer and metal detector assisted UXO survey was conducted of all accessible dry areas of the MRS, totaling approximately 14 acres. Several subsurface anomalies were detected in the northwest

and central portions of the MRS; however, no MEC was observed. Further, several subsurface anomalies were detected in the southwest portion of the MRS and one possible MEC item was found partially buried northwest of the wooded area. MEC is also expected in the flooded sections of the MRS and will require further investigation under future MMRP actions. Based on the results of this SI, the entire Erie Burning Grounds MRS is recommended for Further Characterization. Note: MC characterization was not conducted under this SI; however, MC in wet sediments will require additional investigation under future MMRP action. Chemical contamination in all other environmental media (i.e., surface water, groundwater, soil, and dry sediment) has been addressed under the IRP.

- **Open Demolition Area #2 MRS (formerly Demolition Area #2) (RVAAP-004-R-01)**: Based on a request by the OHARNG, the name of the MRS was changed in the AEDB-R database on 4 April 2008 from "Demolition Area #2" to "Open Demolition Area #2". The Open Demolition Area #2 MRS was used from 1948 until 1991 to detonate large caliber munitions and off-specification bulk explosives and for burial of white phosphorus and bombs of unknown type. The MRS is collocated with an IRP AOC. The MRS consists of the former demolition area; Burial Sites 1 and 2; Rocket Ridge; the Bomb Disposal Area located adjacent to the northwestern section of the MRS; and all areas in between. For the SI field work, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the Bomb Disposal Area, Burial Sites 1 and 2, Rocket Ridge, and associated surrounding areas, as well as along the current boundary of the MRS footprint, totaling approximately 12 acres. MEC was found at Rocket Ridge, the Bomb Disposal Area, Burial Site 2, and on the hill across Sand Creek from Rocket Ridge. At Rocket Ridge, MEC observed included T-bar fuzes (model unknown), white phosphorus grenades, and possibly 500-lb bombs. One partially buried fuze (model unknown), considered MEC, was found at the Bomb Disposal Area. This area was not included in the HRR MRS footprint, but was added during this SI phase. A partially buried fuze (model unknown), considered MEC, was also found at Burial Site 2. On the hill directly across (i.e., north) from Rocket Ridge, two 40mm cartridges (considered MEC) with intact primers were found. Munitions debris was found throughout the MRS and consisted of demilitarized 155mm projectiles, remnants of 40mm rounds, casing fragments from large caliber projectiles, and remnants of donor charge bags. Based on the results of this SI, Further Characterization will be required at the MRS under the MMRP to address MEC. MC will continue to be

addressed under the IRP, but additional characterization work will be required at Rocket Ridge, Bomb Disposal Area, and Burial Site #2 (given safety precautions).

- **Load Line #1 MRS (RVAAP-008-R-01)**: Load Line #1 was used to melt and load TNT and Composition B explosives into large-caliber shells during World War II (WWII) and the Korean War. The MRS consists of approximately five acres of the load line site and is composed of several areas associated with Buildings CB-13/CB-13B, the elevated building slab of Building CB-14, and areas where triple base propellants still exist. The MRS is collocated with an IRP AOC. For the SI field work, a meandering path UXO survey was conducted surrounding the CB Buildings. Three pieces of triple base propellant (1-inch by ¼-inch in size) were found during the survey. One (1) MI surface soil sample was collected from the area west of the Building CB-14 elevated slab, where one piece of suspected triple base propellant was found. The sample was analyzed for explosives, propellants, and TAL metals. Lead was found in both the sample and duplicate at concentrations greater than RVAAP Background Values and one-tenth the non-carcinogen PRG for residential soil. Thallium was detected in both the sample and duplicate at concentrations greater than one-tenth the non-carcinogen PRG for residential soil, but has been dismissed as non-munitions related. The sample and duplicate did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or the carcinogen USEPA Region 9 Residential Soil PRGs. However, estimated concentrations (i.e., below the method detection limit) of nitrobenzene and TNT were detected. Based on the UXO survey and MC results from the SI field work, the Load Line #1 MRS is recommended for Further Characterization to address MEC and MC. It is also recommended that the MRS footprint be reduced to include only the western area adjacent to the Building CB-14 elevated building slab (0.41 acres) where the MI sample was collected. The western side of the Building CB-14 building slab can be dismissed (i.e., excluded from the MRS footprint) since removal activities are being completed at this location.

- **Load Line #12 MRS (RVAAP-012-R-01)**: Load Line #12 consisted of multiple buildings while operational, none of which remain currently standing. In 1999, 110 90mm rounds were discovered just below the ground surface north of the access road in the northwest corner of the load line site. The MRS consists of the area immediately surrounding the location where the 90mm rounds were found. For the SI field work, a line abreast magnetometer and metal detector assisted UXO survey was conducted around the area where the 90mm rounds were

discovered, totaling approximately one acre. There was no sign of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. The magnetometer and metal detector survey did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the instruments highest sensitivity level. Based on the results of this SI, the Load Line #12 MRS is recommended for No Further Action (NFA).

- **Fuze and Booster Quarry MRS (RVAAP-016-R-01)**: The Fuze and Booster Quarry MRS consists of three elongated ponds separated by berms, constructed within an abandoned rock quarry, which was used for open burning of various types of munitions from 1945 to 1975. The MRS is collocated with an IRP AOC. For the SI field work, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the banks and surrounding areas at all three ponds, totaling approximately four acres. No suspect MEC was observed during the survey; however, munitions debris was found on the southeastern side of the southern pond. Further, multiple, closely spaced subsurface anomalies were detected along the south and east sides of the southern pond, the east side of the central pond, and the eastern and northern sides of the north pond. It is suspected that these anomalies represent buried munitions debris and possibly MEC. Additionally, RVAAP personnel have indicated presence of potential MEC in the northern and southern ponds when water levels are low. However, the bottoms of the ponds were not investigated during this SI and the presence of MEC remains unknown. Based on the findings of the UXO survey, further characterization work under future MMRP action will be required to assess the buried anomalies (i.e., MEC) located on the banks of the three ponds and of the submerged portions of the three ponds. There is no historical or physical evidence uncovered during this SI to suggest that MEC is present outside this area; that is, the banks and submerged portion of the ponds. As such, the MRS footprint can be reduced to the 4.92 acres that encompass the banks and three ponds. MC will continue to be addressed under the IRP.

- **Landfill North of Winklepeck MRS (RVAAP-019-R-01)**: The Landfill North of Winklepeck is an unlined landfill that accepted general plant refuse, explosive wastes residue, and open burn waste including flares and booster cups from Winklepeck Burning Grounds. The landfill, which is located adjacent to an IRP AOC, is situated on top of a small bluff that overlooks an unnamed stream to the east. The MRS consists of the landfill and the slope area and adjacent small stream where MEC was reportedly found. For the SI field work, a

meandering path magnetometer and metal detector assisted UXO survey was conducted along the hillside, creek bed, wooded area to the southeast, and downstream area of the MRS. No MEC was discovered during the UXO survey, although munitions debris was found. Munitions debris observed included the following: empty flare canisters were discovered on the hillside adjacent to the former landfill; a partially buried fragment of an unidentified bomb casing was found adjacent to the creek in the southeastern portion of the MRS; and one empty 105mm projectile (i.e., empty of energetic material) was found lying on the ground surface in the southeastern wooded area. The 105mm projectile was discovered along the path of a former roadway that leads to the landfill area. It was surmised that the 105mm projectile had fallen off a truck delivering rubbish to the landfill. Multiple closely spaced (i.e., concentrated) subsurface anomalies were detected along the length of the hillside adjacent to the former landfill. Although the hillside was littered with metal rubbish (i.e., metal cans, scrap metal, etc.), the potential presence of MEC cannot be dismissed due to historical data and the discovery of munitions debris during the SI UXO survey. Few subsurface anomalies were detected in the remaining areas surveyed; that is, downstream of the former landfill and in the wooded area in the southeastern portion of the MRS. Further, there was no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) observed in these areas that would indicate potential burial sites.

One composite surface soil sample was collected using the Cold Regions Research and Engineering Laboratory (CRREL) seven-wheel method from the slope where the flare canisters were found and was analyzed for explosives, propellants, and TAL metals. Concentrations of lead and iron exceeded RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRGs. Again, thallium was found at concentrations that exceeded one-tenth the non-carcinogen residential soil US EPA Region 9 Residential Soil PRG, but has been dismissed as non-munitions related. The sample did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. However, an estimated concentration (i.e., below the method detection limit) of 2,6-dinitrotoluene was detected. Based on the results of this SI, it is recommended that the MRS footprint be decreased to include the area adjacent and along the length of the former landfill extending down and including the unnamed stream. This area includes the location where the flare canisters were discovered, the location of the suspected booster cups, and where most of the refuse from the landfill is located. This reduced MRS is recommended for Further Characterization to address MC and MEC concerns.

- **40mm Firing Range MRS (RVAAP-032-R-01)**: The 40mm Firing Range MRS is a former test range for the 40mm cartridge and is surrounded by forest. The impact area was sited in the western portion of the MRS while the firing point was sited at the opposite end. UXO was reported to be present beyond the impact area, on the slope that leads down to the Fuze and Booster Quarry MRS. For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted at the firing point, range floor, impact area, and down range of the impact area. No MEC was discovered during the UXO survey; however, munitions debris was found scattered from the target point to a point approximately 100 feet (ft) beyond the former impact area. The munitions debris consisted of aluminum nose caps and casings for the 40mm rounds. The MRS had originally been included in the IRP, but as of February 2008 was placed solely under the jurisdiction of the MMRP. Therefore, all future investigation of MEC and MC will be conducted under the MMRP. Based on the results of this SI, it is recommended that the MRS size be decreased to include only the impact area and 100 ft beyond, and that this reduced MRS undergo Further Characterization to address MEC and MC concerns.

- **Firestone Test Facility MRS (RVAAP-033-R-01)**: The Firestone Test Facility MRS consisted of two buildings used as test chambers for tube-launched, optically-tracked, wire-guided (TOW) missiles and Dragon missiles, and a pond and test chamber where shaped charges were tested under water. The former test chambers have been demolished and all of the debris removed. Another suspect area was included in the SI field work that consists of a small clearing and piles of dirt and large timbers. The MRS is collocated with an IRP AOC. For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted around the former test chambers and at the small clearing in the eastern end of the MRS, totaling approximately a half acre. A meandering path magnetometer and metal detector assisted UXO survey was also conducted around the pond area, totaling another half acre. MEC and/or munitions debris was not discovered during the UXO survey of the two former missile test chambers locations and the small clearing, and only a few subsurface anomalies were recorded. It's surmised that the anomalies were related to cultural interference associated with the remaining building debris. MEC and/or munitions debris was not observed lying on the ground surface at the pond and associated location of the former shaped charge test chamber; however, multiple closely spaced subsurface anomalies were detected around the pond and the location of the test chamber. UXO surveys of the submerged portion of the pond were not conducted.

One MI surface soil sample was collected from the small clearing and analyzed for explosives, propellants, and TAL metals. Thallium was found in the sample at a concentration greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. The result was dismissed as being non-munitions related. The sample did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. No samples were collected around the former test chambers, as chemical contamination in this area is being investigated under the IRP. Based on the UXO survey results of this SI, Further Characterization is recommended around the perimeter and bottom of the pond, and adjacent former shaped charge test chamber to address MEC concerns. No additional characterization is required to address MC. As such, it is recommended that the MRS footprint be decreased to 0.41 acres and include the areas around the pond and former shaped charge test chamber.

- **Sand Creek Dump MRS (RVAAP-034-R-01):** The Sand Creek Dump MRS, which is collocated with an IRP AOC, encompasses approximately 0.85 acres of undeveloped land that stretches along the banks of Sand Creek for approximately 1,000 ft. Debris remains at the site from its use as a former construction dump. For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted of all open areas along Sand Creek and within the dump area, totaling approximately one acre. No MEC was discovered during the survey; however, what appeared to be one empty 105mm projectile (i.e., munitions debris) was discovered in Sand Creek downstream of the former dump area. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP. At the former dump area, multiple subsurface anomalies were recorded, which was expected due to the presence of metal construction debris that was observed. However, a clear-cut determination of the nature of the subsurface anomalies could not be made. Based on the historical findings and SI field observations made, the possible presence of MEC could not be completely ruled out. As such, additional characterization work will be required under CERCLA to address MEC concerns. MC will continue to be addressed under the IRP.

- **Building #F-15 and F-16 MRS (RVAAP-046-R-01)**: The Building #F-15 and F-16 MRS was formerly used to test miscellaneous explosives and propellants and is collocated with an IRP AOC. All buildings at the MRS have been demolished but elevated slabs and debris remains on the site. For this SI, a meandering path magnetometer and metal detector assisted UXO survey

was conducted of the entire MRS, encompassing approximately 12 acres. No MEC or munitions debris was found during the survey. Very few subsurface anomalies were recorded in the open areas surrounding and between the two buildings. Subsurface anomalies were recorded around the buildings and along the railroad tracks, but were dismissed as non-munitions related. Rather, these findings were attributed to demolition debris/underground utilities and remnants of the railroad tracks. Based on the historical information concerning the activities conducted at the site (i.e., dismantling of munitions for inspection) and observations and findings made during the SI field work, MEC is not expected to be present at the MRS and a NFA is recommended. MC will continue to be addressed under the IRP.

- **Anchor Test Area MRS (RVAAP-048-R-01)**: The Anchor Test Area MRS, which is collocated with an IRP AOC, is a heavily forested site currently consisting of several dirt mounds and a nearby sand pit. Little is known about the actual function of the MRS, but available information suggests that it was used to test fire experimental explosively-charged anchors into the ground. For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately three acres. There was no sign of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. The magnetometer and metal detector survey did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the detectors. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP. Based on the results of this SI, the MRS is recommended for NFA.

- **Atlas Scrap Yard MRS (RVAAP-050-R-01)**: The Atlas Scrap Yard MRS, which is included in an IRP AOC, encompasses approximately 66.04 acres of mostly open land that contains a network of roads. Originally used as a construction camp, the MRS was used for scrap storage and currently consists of scattered piles of debris; however, UXO was reportedly uncovered in the southwest corner of the MRS. Information provided by the Installation while conducting this SI indicated that 40mm fragmentation shells had been buried at the MRS. The Installation could only provide a general location of the buried munitions, which has been identified on the site figures. Since this information was disclosed after completion of the field work, the area in question was not investigated during this SI. For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted in the south-central section of the MRS where

MEC and munitions debris were reported, and a meandering path survey was conducted around remaining debris piles in the northern and eastern sections, totaling approximately 12 acres. In the south-central section, the presence of demolition debris limited access and, consequently, the entire area could not be surveyed; as such, a complete assessment could not be completed. In accessible areas that were surveyed, no MEC or munitions debris were found lying on the ground surface and only a few scattered subsurface anomalies were detected. In the north-central section, no MEC or munitions debris were observed lying on the ground surface around or on top of the debris piles. However, multiple subsurface anomalies were detected around each of the three piles. No MEC or munitions debris were observed lying on the ground surface in the east-central section of the MRS and very few subsurface anomalies were recorded. Based on the historical information indicating that the MRS was used to dump munitions, the detection of multiple subsurface anomalies (specifically around the northern section), and that the UXO survey was limited due to surface debris, additional characterization work will be required at the MRS under the MMRP to address MEC. MC will continue to be addressed under the IRP.

- **Block D Igloo MRS (RVAAP-060-R-01)**: The Block D Igloo MRS consists of the area (circle with a 3,000 ft radius) contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. The MRS boundary was established by the USACE, Huntsville District to capture the probable debris field resulting from the explosion and was based on the type of munitions stored in the bunker at the time of the explosion. For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted within and around the former igloo and at four documented locations where explosion-related debris was found. No MEC or munitions debris were found lying on the ground surface within the interior of the former igloo and within a circumference of approximately 100 feet surrounding this area. Several subsurface anomalies were recorded within the former igloo and may be attributed to the remnants of the reinforced concrete floor, while no subsurface anomalies were detected in the 100 foot circumference surrounding the igloo. (Note: of the historically documented debris locations, no MEC or munitions debris were discovered within the HRR MRS footprint.) At the four documented debris locations, no visual evidence of MEC and/or munitions debris was found and very few subsurface anomalies were detected. At locations were subsurface anomalies were recorded; the findings were attributed to cultural artifacts from the former rail lines and roadway. Based on the observations and findings of the UXO survey, MEC and/or munitions debris are not present at these locations.

However, no such declaration can be made for the remaining areas that were not included in the SI field work.

One composite surface soil sample was collected using the CRREL seven-wheel method from within the former igloo footprint and was analyzed for explosives and TAL metals. Arsenic and lead concentrations in the sample exceeded RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil. Thallium exceeded one-tenth the non-carcinogen Residential Soil USEPA Region 9 Residential Soil PRG, but was dismissed as non-munitions related. The sample did not contain explosives at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. However, an estimated concentration (i.e., below method detection limit) of tetryl was detected. Based on the UXO survey and the analytical results of this SI, the former igloo will require further characterization work under the MMRP to address MC concerns. In addition, all remaining debris locations (and areas between) that were not investigated during this SI will require additional characterization work under future MMRP action to address MEC concerns. Finally, it is recommended that the following areas be removed from the HRR MRS boundary: debris locations that were surveyed and areas in between; and the area contained within the Huntsville derived MRS boundary since there is no historic information documenting discovery of any MEC or munitions debris. Therefore, the revised MRS footprint would include approximately 340.2 acres.

- **Block D Igloo–TD MRS (RVAAP-061-R-01)**: The Block D Igloo–TD consists of the portion of the circle centered on Igloo 7-D-15 (Block D Igloo MRS RVAAP-060-R-01) that exploded on 24 March 1943 that extends beyond the Installation boundary. This property, which encompasses 19.25 acres, is considered separately as a "transferred" site; that is, the site is located on private property. For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, which included five off-Installation privately owned properties. No MEC or munitions debris was found lying on the ground surface at any of the properties and very few subsurface anomalies were recorded at each of the properties surveyed. The subsurface anomalies detected were attributed to cultural artifacts associated with metal debris associated with farming equipment. Further, according to the property owners interviewed during the SI field work, nothing suspicious had been found while they owned and farmed the properties. Therefore, MEC is not a concern at the MRS and the site will not require further characterization to address this concern.

Two composite surface soil samples were collected using the CRREL seven-wheel method from two private properties. Lead was present at a concentration greater than RVAAP Background Value and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG in a sample from the property located adjacent to a busy thoroughfare, while thallium was found in both samples at concentrations greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. The lead result was attributed to anthropogenic impacts (attributed to the adjacent highway), while thallium has been dismissed as naturally occurring and non-munitions related. The samples did not contain explosives at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. However, estimated concentrations (i.e., below the method detection limit) of 2,6-dinitrotoluene and 1,3,5-trinitobenzene were detected.

Based on the results of this SI, there are no MEC or MC concerns at the current location of this MRS. However, based on information collected and analyzed during the performance of this SI, two new off-post areas have been identified where munitions debris or MEC may be present as a result of the accidental explosion at Igloo 7-D-15. These new areas were not surveyed during this SI. Therefore, the MRS, as identified in the US Army CTT Range/Site Inventory and HRR, has been revised to include these new locations, sizes, and shapes. The MRS is composed of two separate areas located outside the Installation boundary, approximately 2.2 (Area 1) and 2.9 miles (Area 2) to the northeast of Igloo 7-D-15. Area 1 consists of privately owned agricultural land that includes approximately 12 acres, and is located at 41° 13" 51" N and 81° 03' 53" W. Area 2 is a densely wooded area encompassing 2.13 acres and is located at 41° 14' 20" N and 81° 03' 15 W. Combined, the MRS consists of 14.13 acres. These new locations will require additional characterization work under a future MMRP action.

- **Water Works #4 Dump MRS (RVAAP-062-R-01)**: The Water Works #4 Dump MRS is an approximate 0.77 acre open area located immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were reportedly found scattered throughout the wooded portion of the former MRS footprint lying on the ground surface and partially buried, as were metal parts defined as ogives from WWI 155mm shrapnel projectiles. During the SI field activities, it was determined that the MRS boundary identified in the US Army CTT Range/Site Inventory and the HRR Report was not accurate. The actual MRS is located approximately 400 ft to the east. The location has been corrected in this report. For

this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the open area of the MRS and a meandering path UXO survey was conducted of the remaining area in the wooded area to the north. No MEC was discovered during the survey; however, approximately 20 inert ogives were discovered scattered throughout the wooded area of the MRS. These munitions debris items were void of energetic material. Several subsurface anomaly detections were also made in the open field. One composite surface soil sample was collected using the CRREL seven-wheel method from the open field of the MRS and analyzed for explosives, propellants, and TAL metals. Thallium was the only metal detected at a concentration greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. The result has been dismissed as non-munitions related. No propellants or explosives constituents were detected in the sample. Based on the results of this SI, it is recommended that the MRS footprint be decreased to include only the open field of the MRS where subsurface anomalies were detected. This new MRS footprint is recommended for Further Characterization.

- **Group 8 MRS (formerly known as Area Between Buildings 846 and 849) (RVAAP-063-R-01)**: The Group 8 MRS consists of most of the area between Buildings 846 and 849. This area is disturbed land currently being used as an OHARNG vehicle staging area, though it may have historically been used for debris and rubbish burning. In 1996, one anti-personnel fragmentation bomb (referred to as a "hammerhead" anti-personnel bomb) loaded with high explosives (HE) was found at the MRS. In addition, one demilitarized (i.e., cut into two halves) 175mm projectile was found on the ground surface at the MRS. For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS. At the MC3 area of the MRS, two unidentifiable T-bar fuzes considered potential MEC were discovered. While no other MEC was discovered, a large amount of munitions debris was found in the MC3 and MC4 areas of the MRS, and some munitions debris was found in the MC2 area as well. All three of these areas were littered with large amounts of debris including metal trash, fencing materials, and wood scrap. The two remaining areas of the MRS, MC1 and MC5, were clear of visible debris and had very few subsurface anomaly detections. MI surface soil samples were collected for each of the five MC areas of the MRS and were analyzed for explosives, propellants, and TAL metals. Lead and thallium were found in all five samples at concentrations greater than the comparison values. Thallium has been dismissed as non-munitions related. Antimony, arsenic, aluminum, cadmium, copper, iron, and manganese were also detected in some but not all samples at concentrations greater than the comparison values.

The samples did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. However, estimated concentrations (i.e., below method detection limit) of 2,4-dinitrotoluene, 2,6-dinitrotoluene, 1,3,5-trinitrobenzene, and TNT were detected. Based on the results of this SI, it is recommended that the MRS undergo Further Characterization.

Table ES-1: Summary of Findings and Recommendations

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Ramsdell Quarry Landfill (RVAAP-001-R-01)	3.79	13.43	13.43	Further Characterization required to assess MC at the southern section. Further Characterization required to assess presence of MEC buried in the northern quarry area and submerged in the pond.	Although MEC was not found during the SI field work, multiple subsurface anomalies were detected in northern quarry area. Historically, munitions were demilitarized in the northern quarry.	Results of surface soil sampling for TAL metals indicated concentrations of two constituents above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil. MC at the northern quarry will be addressed under the IRP AOC RVAAP-01.
Erie Burning Grounds (RVAAP-002-R-01)	33.93	33.93	33.93	Further Characterization required to assess the presence of MEC in flooded sections and potentially buried at the MRS.	One possible MEC item was found during the SI field work. Submerged portions of the MRS were not investigated during the SI and have not been characterized.	MC characterization was not conducted under this SI; however, MC in wet sediments will require additional investigation under future MMRP action. All other media (soil, surface water, groundwater, dry sediments) has been addressed under IRP AOC RVAAP-02.

Table ES-1: Summary of Findings and Recommendations (continued)

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Open Demolition Area #2 (formerly Demolition Area #2) (RVAAP-004-R-01)	14.91	32.95	35.4	Further Characterization required to assess MEC at the Bomb Disposal Area, Burial Sites 1 & 2, Rocket Ridge, and surrounding areas. Increase MRS footprint to include Bomb Disposal Area.	MEC items including two 40mm cartridges with intact primers, fuzes, and white phosphorous grenades were found at the MRS. In addition, there are potentially 500 lb bombs present at Rocket Ridge.	MC will be covered under IRP AOC RVAAP-04. However, further characterization work will be required at Rocket Ridge, Bomb Disposal Area, and Burial Site #2 (given safety precautions).
Winklepeck Burning Grounds (RVAAP-005-R-01)	317.01	317.01	317.01	None. MRS is no longer MMRP eligible.	Removed from MMRP during the HRR.	Removed from MMRP during the HRR.
Load Line #1 (RVAAP-008-R-01)	163.62	4.63	0.41	Further Characterization required to assess the presence of MEC (i.e., propellant grains) and MC. Reduce MRS footprint to 0.41 acres (area where propellant and MC is located).	MEC in the form of propellant grains was found during the SI field work.	Surface soil sample contained lead at a concentration above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.
Load Line #12 (RVAAP-012-R-01)	77.58	1.0	1.0	No Further Action. No evidence of MEC or munitions debris present at the MRS.	No known or suspect MEC items or UXO were found at the MRS during the SI field work.	MC will continue to be addressed under IRP AOC RVAAP-12.

Table ES-1: Summary of Findings and Recommendations (continued)

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Fuze and Booster Quarry (RVAAP-016-R-01)	12.74	12.74	4.92	Further Characterization required to assess the presence of buried MEC and MEC submerged in the pond. Decrease footprint of MRS to only include the three ponds and associated banks.	Munitions debris observed at the MRS and multiple subsurface anomalies detected. Submerged portions of the ponds not investigated and are believed to contain MEC.	MC will continue to be addressed under the IRP AOC RVAAP-16.
Landfill North of Winklepeck (RVAAP-019-R-01)	7.55	14.05	2.32	Further Characterization required to assess the presence of MEC and MC. Decrease MRS footprint to only include area adjacent to the former landfill where munitions debris were found.	Munitions debris found on hill adjacent to former landfill. Multiple subsurface anomalies detected in same area.	Surface soil sample contained two metals above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil.
40mm Firing Range (RVAAP-032-R-01)	5.17	5.17	1.27	Further Characterization required to assess the presence of MEC and MC at the MRS. Decrease MRS footprint to include only impact/target area and 100 ft beyond.	Munitions debris observed at the MRS. Multiple subsurface anomalies detected.	MC will be addressed under the MMRP.

Table ES-1: Summary of Findings and Recommendations (continued)

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Firestone Test Facility (RVAAP-033-R-01)	0.25	0.91	0.41	Further Characterization required to assess the presence of MEC at the pond and former shape charge test chamber. MC is not a concern. Decrease MRS footprint to only include these areas.	No MEC or munitions debris found at the locations of the former missile test chambers or open field. Multiple subsurface anomalies detected around the pond and location of the former shape charge test chamber.	Results of surface soil sampling for TAL metals indicated no constituent concentrations above RVAAP Background Values or one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil at the open field. Remainder of the MRS will continue to be covered under the IRP AOC RVAAP-33.
Sand Creek Dump (RVAAP-034-R-01)	0.85	0.85	0.85	Further Characterization required to assess the presence of buried MEC in the former dump.	Munitions debris found in Sand Creek downstream of the former dump. Former dump area not completely assessed.	MC will continue to be addressed under the IRP AOC RVAAP-34.
Building #F-15 and F-16 (RVAAP-046-R-01)	12.23	12.23	12.23	No Further Action required.	No MEC or munitions debris found at the MRS during the SI field work.	MC will continue to be addressed under the IRP AOC RVAAP-46.
Anchor Test Area (RVAAP-048-R-01)	2.57	2.57	2.57	No Further Action required.	No MEC or munitions debris found at the MRS during the SI field work.	MC will continue to be addressed under the IRP AOC RVAAP-48.
Atlas Scrap Yard (RVAAP-050-R-01)	66.04	66.04	66.04	Further Characterization required to assess the presence of MEC.	No MEC or munitions debris were found at the MRS, but subsurface anomalies were detected.	MC will continue to be addressed under the IRP AOC RVAAP-50.

Table ES-1: Summary of Findings and Recommendations (continued)

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Block D Igloo (RVAAP-060-R-01)	622.24	622.24	340.2	Further Characterization required to assess MEC at the MRS and MC at the former igloo location. Decrease MRS footprint to eliminate areas surveyed and areas where debris from the explosion have not been found and documented.	No MEC or munitions debris were found at any of the areas surveyed during the SI field work. Areas not included in the SI survey will need to be investigated.	Surface soil sample contained two metal constituents above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil.
Block D Igloo–TD (RVAAP-061-R-01)	19.25	19.25	14.131	Further Characterization required at revised MRS. Revised MRS encompasses approximately 14.13 acres.	No MEC or munitions debris found at the surveyed areas during the SI field work. Additional investigation required at debris locations not surveyed during the SI field work.	Surface soil sample contained lead above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil at a private property. This detection has been dismissed as anthropogenic due to the proximity of the property to the highway.
Water Works #4 Dump (RVAAP-062-R-01)	6.15	6.15	0.77	Further Characterization required to assess potentially buried MEC in the open field. Decrease MRS footprint to include only the open field in the MRS footprint.	No MEC were found at the MRS. However, subsurface anomalies were recorded at the open field.	No TAL metals, propellants, or explosives were found in excess of the RVAAP Background Values or one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil.

Table ES-1: Summary of Findings and Recommendations (continued)

MRS	Phase 3 Range/Site Inventory Acreage	HRR Acreage	SI Acreage	Recommendation	Basis for Recommendation	
					MEC	MC
Group 8 MRS (RVAAP-063-R-01)	2.65	2.65	2.65	Further Characterization required to assess MEC at areas MC2, MC3, and MC4, and MC across the entire MRS.	MEC items were found in the MC3 area of the MRS during the SI field work. Munitions debris was observed in the MC2, MC3, and MC4 areas of the MRS.	Results of surface soil sampling for TAL metals indicated concentrations of several constituents above RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil across the MRS.
Old Hay Field MRS (RVAAP-065-R-01) (formerly Field at the NE Corner of Intersection)	91.86	91.86	91.86	None. MRS is no longer MMRP eligible.	Removed from MMRP during the SI.	Removed from MMRP during the SI.

[1] The location, size, and description of the Block D Igloo – TD has been revised to capture the debris locations situated to the northeast outside the installation which were not included in the US Army CTT Range/Site Inventory and HRR defined MRS footprint. These areas were not investigated during this SI. This site will require Further Characterization to address MC and MEC concerns. The revised MRS footprint is estimated to be14.13 acres.

Abbreviations and Acronyms	
Acronym	**Definition**
AEDB-R	Army Environmental Database-Restoration
AOC	Area of Concern
bgs	Below Ground Surface
BRAC	Base Realignment and Closure
CENWO-PM	USACE, Omaha District Project Manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
CTC	Cost to Complete
CTT	Closed, Transferring, and Transferred
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DoD	Department of Defense
DQCR	Daily Quality Control Report
DQO	Data Quality Objective
DSA	Diane Short and Associates, Inc
e^2M	engineering-environmental Management, Inc
ERIS	Environmental Restoration Information System
F&O	Final Findings and Orders
FPM	Field Project Manager
FS	Feasibility Study
FSP	Field Sampling Plan
ft	Feet
FY	Fiscal Year
GPS	Global Positioning System
HE	High Explosives
HRR	Historical Records Review
IRP	Installation Restoration Program
JMC	Joint Munitions Command

Abbreviations and Acronyms	
Acronym	**Definition**
LCS	Laboratory Control Sample
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
MI	Multi-Incremental
mm	Millimeter
MMRP	Military Munitions Response Program
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
MRS-PP	Munitions Response Site Prioritization Protocol
MS	Matrix Spike
NDAA	National Defense Authorization Act
NFA	No Further Action
NGB	National Guard Bureau
No.	Number
NRHP	National Register of Historic Places
OB/OD	Open Burn/Open Detonation
ODA 1	Open Demolition Area 1
OE	Ordnance and Explosives
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
OSD	Office of Secretary of Defense
PA	Preliminary Assessment
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity
PETN	Pentaerythritol tetranitrate
PPE	Personal Protective Equipment
PRG	Preliminary Remediation Goal

Abbreviations and Acronyms	
Acronym	**Definition**
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
RI	Remedial Investigation
RPD	Relative Percent Difference
RTLS	Ravenna Training and Logistics Site
RVAAP	Ravenna Army Ammunition Plant
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SOW	Scope of Work
TAL	Target Analyte List
TD	Transferred
TNT	Trinitrotoluene
TOW	Tube-launched, optically-tracked, wire-guided missile
TPP	Technical Project Planning
USC	United States Code
US	United States
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance
WP	Work Plan
WWI	World War I
WWII	World War II

Glossary of Terms

Closed Range – A military range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a Department of Defense (DoD) component.

Defense Sites – Locations that are or were owned by, leased to, or otherwise possessed or used by the Department of Defense. The term does not include any operational range, operating, storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions. (10 USC 2710(e)(1))

Discarded Military Munitions (DMM) – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 USC 2710(e)(2))

Explosive Ordnance Disposal (EOD) – The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. It may also include explosive ordnance that has become hazardous by damage or deterioration.

Explosives Safety – A condition where operational capability and readiness, personnel, property, and the environment are protected from the unacceptable effects or risks of potential mishaps involving military munitions.

Formerly Used Defense Site (FUDS) – A DoD program that focuses on compliance and cleanup efforts at sites that were formerly used by the DoD. A FUDS property is eligible for the Military Munitions Response Program (MMRP) if the release occurred prior to October 17, 1986; the property was transferred from DoD control prior to October 17, 1986; and the property or project meets other FUDS eligibility criteria.

Glossary of Terms (continued)

Military Munitions – All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof.

The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 USC 2011 et seq.) have been completed. (10 USC 2710(e)(3)(A))

Munitions Constituents (MC) – Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 USC 2710(e)(4))

Munitions Debris – Remnants of munitions (e.g., penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

Munitions and Explosives of Concern (MEC) – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: Unexploded Ordnance (UXO), as defined in 10 USC 2710(e)(9); Discarded Military Munitions (DMM), as defined in 10 USC 2710 (e)(2); or Munitions Constituents (MC) present in high enough concentrations to pose an explosive hazard.

Glossary of Terms (continued)

Munitions Response (MR)- Response actions, including investigation, removal and remedial actions to address the explosives safety, human health, or environmental risks presented by unexploded ordnance (UXO), Discarded Military Munitions (DMM), or munitions constituents (MC), or to support a determination that no removal or remedial action is required.

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites.

Munitions Response Site (MRS) – A discrete location within a MRA that is known to require a munitions response.

Operational Range – A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities (10 USC 101 (e)(3)). Also includes "military range," "active range," and "inactive range" as those terms are defined in 40 Code of Federal Regulations (CFR) 266.201.

Range – A designated land or water area that is set aside, managed, and used for range activities of the Department of Defense. The term includes firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access and exclusionary areas. The term also includes airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration. (10 USC 101 (e)(1)(A) and (B))

Transferred Range – A range that is no longer under military control and had been leased by the DoD, transferred, or returned from the DoD to another entity, including federal entities. This includes a military range that is no longer under military control, but that was used under the terms of an executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager. Additionally, property that was previously used by the military as a range, but did not have a formal use agreement, also qualifies as a transferred range.

Glossary of Terms (continued)

Transferring Range – A range that is proposed to be leased, transferred, or returned from the DoD to another entity, including federal entities. This includes a military range that was used under the terms of a withdrawal, executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager or property owner. An operational range will not be considered a transferring range until the transfer is imminent (generally defined as the transfer date is within 12 months and a receiving entity has been notified).

Unexploded Ordnance (UXO) – Military munitions that (A) have been primed, fuzed, armed, or otherwise prepared for action; (B) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (C) remain unexploded whether by malfunction, design, or any other cause. (10 USC 101 (e)(5)(A) through (C))

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Appendix A Historical Records Review (on compact disc)
Appendix B TPP Meeting Minutes
Appendix C Field Documentation (Daily Quality Control Reports, Field Notes, Chains of Custody)
Appendix D Photo Journal
Appendix E Draft Munitions Response Site Prioritization Protocols
Appendix F Laboratory Analytical Reports (on compact disc)
Appendix G Data Validation Reports
Appendix H Waste Manifest

1.0 INTRODUCTION

Under contract with the United States (US) Army Corps of Engineers (USACE), Omaha District; engineering-environmental management (e^2M) has prepared this Site Inspection (SI) Report for the other than operational ranges and sites with known or suspected munitions and explosives of concern (MEC), munitions debris, or munitions constituents (MC) at Ravenna Army Ammunition Plant (RVAAP), Ohio. These Munitions Response Sites (MRSs) are being addressed under the US Army Military Munitions Response Program (MMRP). The work performed for this SI was completed in accordance with the USACE, Omaha District project Scope of Work (SOW), Contract Number DACA63-03-D-0009, dated June 2005.

The MMRP Preliminary Assessment (PA)/SI methodology follows Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) guidance. The CERCLA PA is represented by the Final Phase 3 Closed, Transferred and Transferring (CTT) Range/Site Inventory Report (whereas the CERCLA SI is represented by the MMRP SI, which includes the Historical Records Review (HRR) and SI.

Originally, nineteen potentially eligible MMRP sites were identified during the US Army CTT Range/Site Inventory. A determination was made, based on information gathered during the HRR, that two MRSs were not MMRP-eligible and were removed. The MRSs included Winklepeck Burning Grounds (Army Environmental Database-Restoration [AEDB-R] Number RVAAP-005-R-01) and the Old Hayfield (RVAAP-064-R-01). It was determined that Winklepeck Burning Grounds had been addressed under Base Realignment and Closure (BRAC) and Installation Restoration Program (IRP) funding. Chemical contamination at the MRS was addressed under the IRP, whereas BRAC funding was used to address explosive safety. Further, it was determined that the MRS is no longer eligible for the MMRP since the area is being developed as an operational range (Mark 19 Range) by the Ohio Army National Guard (OHARNG). It was also determined that the Old Hayfield MRS was classified as an operational range. As such, this MRS became ineligible for the MMRP and was subsequently removed. The following is a list of the 17 MRSs at RVAAP evaluated under this SI:

- Ramsdell Quarry Landfill MRS (RVAAP-001-R-01)[1]
- Erie Burning Grounds MRS (RVAAP-002-R-01)
- Open Demolition Area #2 MRS (formerly Demolition Area #2) (RVAAP-004-R-01)

[1] Army Environmental Database – Restoration Number

- Load Line #1 MRS (RVAAP-008-R-01)
- Load Line #12 MRS (RVAAP-012-R-01)
- Fuze and Booster Quarry MRS (RVAAP-016-R-01)
- Landfill North of Winklepeck MRS (RVAAP-019-R-01)
- 40mm Firing Range MRS (RVAAP-032-R-01)
- Firestone Test Facility MRS (RVAAP-033-R-01)
- Sand Creek Dump MRS (RVAAP-034-R-01)
- Building #F-15 and F-16 MRS (RVAAP-046-R-01)
- Anchor Test Area MRS (RVAAP-048-R-01)
- Atlas Scrap Yard MRS (RVAAP-050-R-01)
- Block D Igloo MRS (RVAAP-060-R-01)
- Block D Igloo-TD MRS (RVAAP-061-R-01)
- Water Works #4 Dump MRS (RVAAP-062-R-01)
- Group 8 MRS (RVAAP-063-R-01)

This SI Report includes a summary of the HRR findings, the decisions made at the Technical Project Planning meeting number 2 (TPP 2) on 10 August 2006, and the SI fieldwork, as well as recommendations for the 17 RVAAP MRSs.

This SI Report includes the following specific information:

- Introduction, Regulatory Framework and Project Objectives;
- Project Team;
- Site Background;
- SI Field Activites;
- MRS Historical Site Summaries and SI Findings;
- Conceptual Site Model (CSM);
- Conclusions and Recommendations.

The following appendices are attached to and considered part of this SI report: Final HRR (**Appendix A**, on compact disc); TPP Meeting Minutes (**Appendix B**); Field Documentation (**Appendix C**); Photo Journal (**Appendix D**); Draft Munitions Response Site Prioritization Protocols (MRS-PPs) (**Appendix E**); Laboratory Analytical Reports (**Appendix F**, on compact disc) and Data Validation Reports (**Appendix G**).

1.1 Regulatory Framework

The regulatory structure for managing MRSs at RVAAP is guided by a mixture of federal, state, and local laws, as well as Department of Defense (DoD) and US Army regulations and guidance. Key legislative and administrative precedents to date will likely influence the final regulatory framework for the MMRP. The key legislative and administrative precedents include the following:

- The Office of the Secretary of Defense (OSD), Defense Environmental Restoration Program (DERP) Guidance (September 2001) established an MMRP element for defense sites with known or potential unexploded ordnance (UXO) or discarded military munitions (DMM). The history of DERP dates back to the Superfund Amendments and Reauthorization Act of 1986 (SARA) and is defined in 10 United States Code (USC) §2701(b), which states the goals of the program shall include the following:
    - The identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants; and
    - Correction of other environmental damage (such as detection and disposal of UXO) which creates an imminent and substantial endangerment to the public health or welfare, or to the environment.
- 10 USC §2703(b), which states "The Secretary of Defense shall establish a program element for remediation of unexploded ordnance, discarded military munitions, and munitions constituents within each environmental restoration account established under subsection (a)."
- 10 USC §2710(a)(1), which states "The Secretary of Defense shall develop and maintain an inventory of defense sites that are known or suspected to contain unexploded ordnance, discarded military munitions, or munitions constituents."
- 10 USC §2710(b)(1), which states "The Secretary shall develop, in consultation with representatives of the States and Indian Tribes, a proposed protocol for assigning to each defense site a relative priority for response activities related to unexploded ordnance, discarded military munitions, and munitions constituents based on the overall conditions at the defense site."
- Sections 311-312 of the National Defense Authorization Act (NDAA) of Fiscal Year (FY) 02 changed the OSD 2001 DERP Guidance by tasking the DoD to develop and maintain an inventory of defense sites that are known or suspected to contain UXO, DMM, or MC. Together, UXO and DMM are categorized as MEC; when MC is present at concentrations greater than 10 percent in a medium, that medium is also categorized as MEC.

- Section 311 requires the DoD to develop a protocol for prioritizing defense sites for response activities in consultation with state regulators and tribal members.
- Section 312 requires the DoD to create a separate program element to ensure the DoD can identify and track MMRP funding.

The OSD 2001 DERP Guidance and the NDAA FY 2002, described above, established the MMRP. The DERP and the MMRP provide guidance and methods for conducting a baseline inventory of defense sites known or suspected to contain UXO, DMM, or MC.

RVAAP is also bound to the "Final Findings and Orders" (F&O) issued June 10, 2004 by the Ohio Environmental Protection Agency (Ohio EPA) pursuant to the authority vested under Chapters 3734, 3745, and 6111 of the Ohio Revised Code (ORC). The objective of the Orders is to ensure that the public health, safety, and welfare, as well as the environment, is protected from the disposal, discharge, or release of contaminants (including MEC which includes UXO, DMM, or MC at explosive concentrations) and MC at or from the Installation, through the implementation of a CERCLA based environmental remediation program. Pursuant to the Orders, the Installation is required to develop and implement the following:

- a Remedial Investigation/Feasibility Study (RI/FS), a Proposed Plan, a Record of Decision or other appropriate document, and a remedy for each Area of Concern (AOC) or appropriate group of AOCs at RVAAP; and
- a Facility-Wide Ground Water Investigation, Monitoring, and Remediation Program at RVAAP.

1.2 Project Objectives

The primary objective of the MMRP SI is to collect the appropriate amount of information to support one or more of the following recommendations concerning the presence of MEC and/or MC:

- No Further Action (NFA);
- Immediate Response; or
- Further Characterization.

The secondary objectives of the SI are to:

- Collect information that allows for the refinement of the MMRP Cost to Complete (CTC) estimates by the US Army;
- Upload SI analytical data into the Environmental Restoration Information System (ERIS); and

- Populate the MRS-PPs with background information and analytical data, as appropriate, and calculate a draft Protocol score for each MRS. In compliance with 32 Code of Federal Regulations (CFR) §179.5, the MRS-PP scores for the MRSs are considered interim pending stakeholder input.

2.0 PROJECT TEAM

The role of the Project Team is to execute this MMRP SI in accordance with Federal, State, and local regulatory requirements. The Project Team consists of the following:

- Regulatory Agencies – Ohio EPA;
- Program Manager – US Army Environmental Command (USAEC);
- Executing Agency – USACE, Omaha District;
- Installation Personnel – RVAAP Facility Management Division; and
- SI Consultant – e^2M.

3.0 BACKGROUND

3.1 Installation Description and History

RVAAP (Federal Facility Identification number: OH213820736) is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east-northeast of the city of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the city of Newton Falls. The MRSs are solely located within Portage County. The Installation is approximately 17.7 kilometers (11 miles) long and 5.6 kilometers (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see **Figure 3-1**). The Installation is surrounded by several communities: Windham on the north; Garrettsville 9.6 kilometers (6 miles) to the northwest; Newton Falls 1.6 kilometers (1 mile) to the southeast; Charlestown to the southwest; and Wayland 4.8 kilometers (3 miles) to the south.

As of February 2006, a total of 20,403 acres of the former 21,683 acre RVAAP have been transferred to the National Guard Bureau (NGB) from the US Army and subsequently licensed to the OHARNG for use as a military training site. The current RVAAP consists of 1,280 acres scattered throughout the OHARNG Ravenna Training and Logistics Site (RTLS). These 1,280 acres consist of former industrial facilities that are being remediated and managed by the Base Realignment and Closure (BRAC) Office who have, among other responsibilities, the task of overseeing inactive status installations.

Currently, the Installation is known as the RTLS. During the operational years, prior to the RTLS, the entire 21,683-acre property was a government-owned, contractor-operated industrial facility. The RVAAP MMRP encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP, and therefore references to the RVAAP in this document are considered to be inclusive of the historical extent of the RVAAP, which is inclusive of the combined acreages of the current RTLS and RVAAP, unless otherwise specifically stated.

INSTALLATION LOCATION
Ravenna Army Ammunition Plant, OH

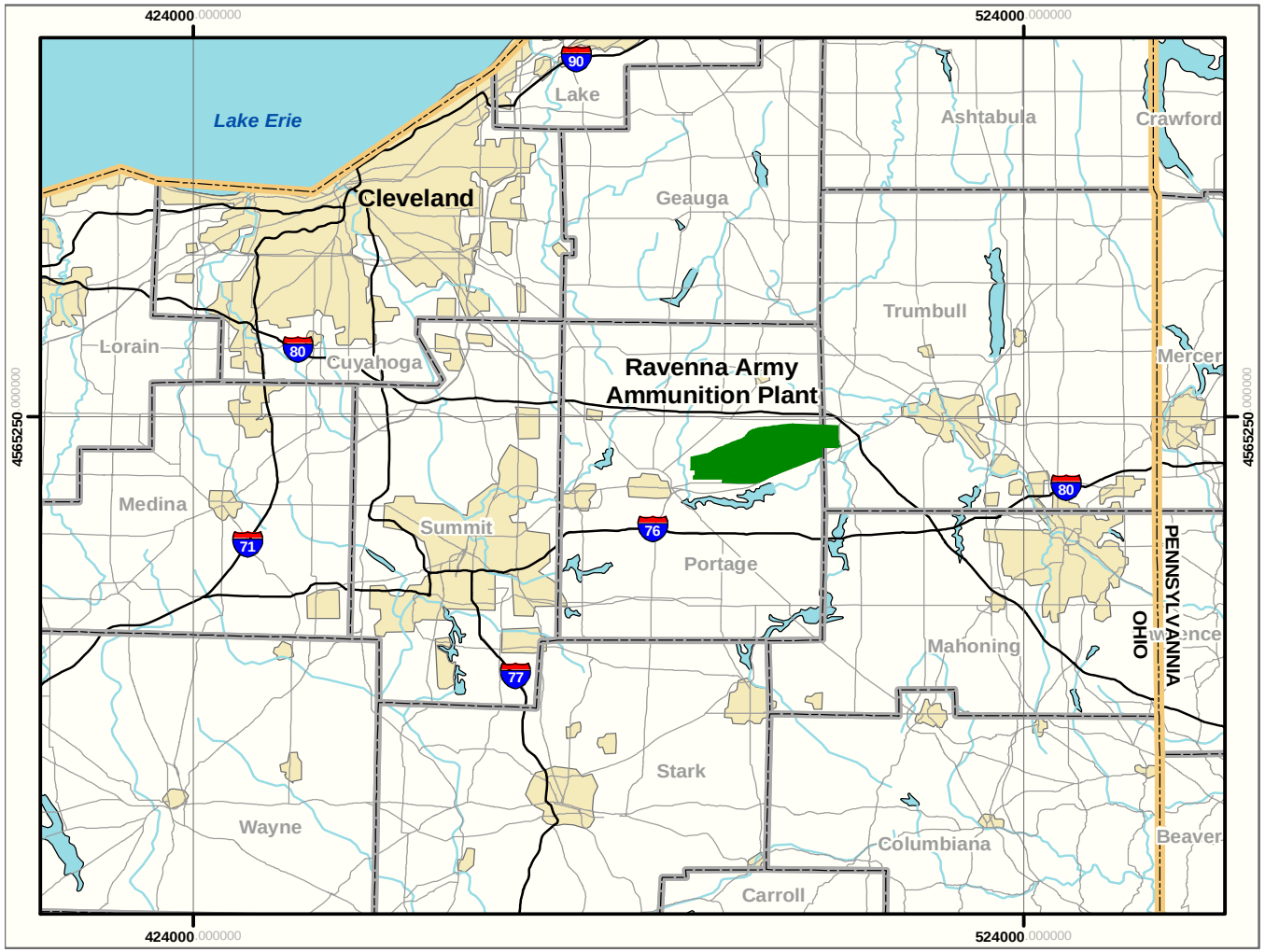


Figure 3-1

N
W E
S

- State Boundary
- County Boundary
- Urban Area
- Installation
- Interstate Highway
- Major Highway
- Stream
- Water

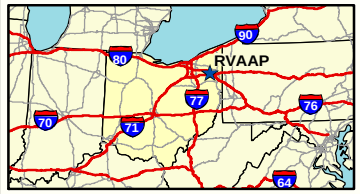
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**100,000 Meter**

1:850,000

0 5 10 15 Miles

0 10 20 30 Kilometers

Installation Location
Ohio



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

3.2 Meeting Conclusions and Recommendations

The TPP 2 Meeting took place at RVAAP on 10 August 2006. The findings from the records review, which were summarized in the HRR and CSM, were presented at the meeting by e²M. Representatives from Ohio EPA, USAEC, USACE, RVAAP, and e²M discussed the findings, and made recommendations for the SI. A proposed SI soil sampling project was presented during the TPP 2 Meeting. **Table 3-1** summarizes decisions made to address MEC and MC at each MRS. The TPP 2 meeting minutes are provided in **Appendix B**.

A subsequent meeting was held on 25 July 2007 to discuss and address comments on the Stakeholder Draft SI Work Plan. In attendance were representatives from Ohio EPA, USAEC (via teleconference), USACE, National Guard Bureau, and the Restoration Advisory Board. The Response to Comments meeting minutes are provided in **Appendix B**.

Table 3-1: Summary of MEC and MC TPP Decisions

MRS	MEC	MC
Ramsdell Quarry Landfill (RVAAP-001-R-01)	Meandering path UXO survey of old open burn/open detonation (OB/OD) area in quarry and line abreast/metal detector UXO survey of open northeastern section of southern borrow area.	Surface soil sampling for target analyte list (TAL) metals, propellants, and explosives from distinct areas within southern soil borrow pit.
Erie Burning Grounds (RVAAP-002-R-01)	Meandering path UXO survey of accessible dry areas.	MC adequately characterized under the Installation Restoration Program (IRP). MC will require further characterization under future MMRP actions.
Open Demolition Area #2 (formerly Demolition Area #2) (RVAAP-004-R-01)	Meandering path UXO survey of Bomb Disposal Area, Burial Sites 1 and 2, Rocket Ridge, MRS footprint, and associated areas.	MC adequately characterized under the IRP. MC will require further characterization under future MMRP actions.
Load Line #1 (RVAAP-008-R-01)	Meandering path UXO survey around Buildings CB-13, CB-13B, CB-14 elevated building slab, the popping furnace and areas where propellants are discovered.	Surface soil sampling for TAL metals, propellants, and explosives from distinct areas where propellant is found.
Load Line #12 (RVAAP-012-R-01)	Line abreast UXO survey of area where inert 90millimeter (mm) projectiles were recovered.	MC adequately characterized under the IRP and will not be further investigated under the MMRP.

Table 3-1: Summary of MEC and MC TPP Decisions (continued)

MRS	MEC	MC
Fuze and Booster Quarry (RVAAP-016-R-01)	Meandering path UXO survey of banks and surrounding area at all three ponds.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Landfill North of Winklepeck (RVAAP-019-R-01)	Meandering path UXO survey of hillside and creek bottom adjacent and downstream of former landfill area.	Surface soil sampling for TAL metals, propellants, and explosives from within new MRS footprint.
40mm Firing Range (RVAAP-032-R-01)	Meandering path UXO survey of down range target area, overshot area, and firing point.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Firestone Test Facility (RVAAP-033-R-01)	Line abreast UXO survey around former test chambers and at open field at eastern end of MRS. Meandering path UXO survey around pond area.	Surface soil sampling for TAL metals, propellants, and explosives from open field at eastern end of MRS.
Sand Creek Dump (RVAAP-034-R-01)	Meandering path UXO survey of open areas and within dump area.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Building #F-15 and F-16 (RVAAP-046-R-01)	Meandering path UXO survey of accessible areas of MRS.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Anchor Test Area (RVAAP-048-R-01)	Line abreast UXO survey of entire MRS.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Atlas Scrap Yard (RVAAP-050-R-01)	Line abreast UXO survey of south-central section of MRS where MEC and munitions debris reported. Meandering path UXO survey around remaining debris piles at MRS.	MC being addressed under the IRP and will not be further investigated under the MMRP.
Block D Igloo (RVAAP-060-R-01)	Meandering path UXO survey around former igloo and documented locations of debris, not to exceed one percent of MRS.	Surface soil sampling for TAL metals and explosives from former igloo area.
Block D Igloo–TD (RVAAP-061-R-01)	Meandering path UXO survey of entire MRS and areas where debris historically found.	Surface soil sampling for TAL metals and explosives at two locations within MRS, including one from the private residences.
Water Works #4 Dump (RVAAP-062-R-01)	Line abreast UXO survey of open northeastern section of MRS. Meandering path UXO survey of remaining wooded area.	Surface soil sampling for TAL metals, propellants, and explosives from within MRS.
Group 8 MRS (RVAAP-063-R-01)	Line abreast UXO survey of entire MRS.	Surface soil sampling for TAL metals, propellants, and explosives at distinct areas within MRS footprint.

4.0 SITE INSPECTION FIELD ACTIVITIES

4.1 UXO Surveying

A Schonstedt handheld magnetic gradiometer and White Matrix M6 metal detector were used by the UXO survey team to assist in locating buried ferrous and non-ferrous metallic items and items lying on the ground surface obscured by vegetation. The primary factors that affect the ability of magnetic gradiometers to detect objects or features include: size and mass of the object, orientation, distance from the sensor (depth), and the material properties contrast between the object or feature and the surrounding materials. However, the general operating capabilities of a Schonstedt GA-52Cx can detect a small nail (i.e. 1-1/4 inch PK nail) buried at 12 inches below ground surface (bgs) and an 18-inch length of 3/4-inch diameter pipe buried at 9 feet (ft). The sweep team, consisting of two UXO Technicians, used the line abreast and a random meandering (drunken sailor) method to conduct the surveys at the MRSs.

The line abreast method was used to assess small areas (i.e., generally less than 10 acres) to achieve 100 percent coverage of the area of concern. This method involved team members walking side by side, separated by a distance not exceeding coverage of the adjoining person's field of view (approximately 5 to 6 feet [ft] in open areas). Each team member visually examined and swept his search area with a magnetometer and/or metal detector to locate metallic objects that may be MEC, munitions debris, or miscellaneous metal debris. To assist the field teams in maintaining relatively straight survey lines and achieving 100 percent coverage of the survey area, Global Positioning System (GPS) referenced end and intermediate points were marked with pin flags.

In large open areas (i.e., greater than 10 acres), the random meandering survey method was used to assess the site. This approach was performed by randomly walking across the MRS in an unsystematic pattern. Each team member visually examined and swept his search area with a magnetometer and/or metal detector to locate metallic objects that may be MEC, munitions debris, or miscellaneous metal debris.

Visual surveys only were conducted in areas that inherently had significant cultural interference or were known only to contain propellant (i.e., Load Line #1). This included areas that were covered with an impervious surface (e.g., reinforced concrete), had been altered and contained fill (e.g., road ways, railroad tracks, etc.), or had extensive buried utilities.

Items that were discovered lying on the ground surface or protruding through the ground surface were identified, to the extent possible, and had their location recorded with a GPS unit. A Trimble GEO XT handheld sub-meter GPS unit was used during the field investigation. Buried anomalies that were detected were noted but not excavated to determine their identity. As MEC items were discovered, the team members marked their location in the field with a pin flag for identification, took a digital photograph and recorded the finding in a bound notebook and recorded their location. At the end of each field day Daily Quality Control Reports (DQCRs) were filled out recording each day's events and findings. Inert munitions debris items were counted and reported on a per area basis.

4.2 Surface Soil Sampling

Surface soil samples were collected to determine the presence or absence of MC at eight MRSs. Composite surface soil samples were collected from four MRSs: Landfill North of Winklepeck, Block D Igloo, Water Works #4 Dump, and Block D Igloo–TD (i.e. the Smith and Deitz residences). Multi-incremental (MI) surface soil samples were collected from four MRSs: Ramsdell Quarry Landfill, Load Line 1, Group 8 MRS, and Firestone Test Facility. Sampling protocols are discussed in detail in the Field Sampling Plan (FSP; Appendix B of the Work Plan [WP]). The samples were collected using proper field quality control (QC) procedures and analyzed according to the procedures stated in the Quality Assurance Project Plan (QAPP) (Appendix C of the WP).

The composite surface soil samples were collected using disposable plastic scoops while wearing nitrile gloves. At each sampling location a new plastic scoop and gloves were used to prevent cross-contamination and maintain QC. Prior to soil collection, grass, leaves, and other surface debris was removed. Soil was collected from zero to six inches below ground surface (bgs at each location and was homogenized in a previously decontaminated large bowl. Sampling was completed using the Cold Regions Research and Engineering Laboratory (CRREL) seven-wheel method (see the FSP for details on this method), compositing seven total soil samples. The homogenized soil was placed into labeled Ziploc bags, tape was placed over the labels, and the bags were stored in a cooler for shipping.

MI surface soil samples were collected using steel step probes while wearing nitrile gloves. At each MI sampling location, a clean (i.e. previously decontaminated) step probe and new gloves were used to prevent cross-contamination and maintain QC. Surface debris was removed prior to sample collection, and soil was collected from zero to six inches bgs. Thirty (30) individual step probe samples were collected and composited at each MI sampling location. Soil was transferred directly from the step

probe into labeled Ziploc bags where it was composited, tape was placed over the labels, and the bags were stored in a cooler for shipping. After all locations were sampled, the coolers were filled with double-bagged ice to maintain a maximum temperature of 4 degrees Celsius (°C) and the chain-of-custody (COC) form was filled out and placed in a sealed bag taped to the inside of the cooler lid. COC seals were placed on the coolers, and the coolers were taped shut and picked up by the TestAmerica Laboratories courier.

All of the investigative surface soil samples were sent to TestAmerica Laboratories in North Canton, Ohio for analysis. Two split surface soil samples, selected by Ohio EPA, were sent to Kemron Laboratories by TestAmerica for quality assurance (QA) purposes. Coordinates for each composite sampling location were established and recorded using a GPS receiver.

4.3 Field QA/QC Documentation

Field QC was accomplished for sample collection by using new scoops, decontaminated stainless steel step probes, and nitrile gloves, and by homogenizing composite samples in a pre-cleaned bowl. Soil was placed into unused Ziploc baggies. Field QA/QC samples were collected and included duplicate and split soil samples.

Field documentation included a field notebook, DQCRs, sample labels, and COC forms. All field documentation was completed in indelible ink and any corrections were made by drawing a single line through the text, initialing, dating, and legibly writing the correction. Field notes regarding all sampling and field activities were kept in a bound notebook. Field notes were filled out for each day of fieldwork, and include all of the information reported on the DQCR forms. Copies of the field notes are provided in **Appendix C**.

A DQCR was prepared by the Field Project Manager (FPM) for each day of fieldwork. DQCRs document daily site conditions and all activities completed. DQCRs also identify any QC issues concerning site inspection activities. Copies of the DQCRs are provided in **Appendix C**.

Correct sample labeling and the corresponding notation of the sample identification (ID) numbers in the field notebook and on the COC forms were utilized to prevent misidentification of samples and their eventual results. All sample labels were completed legibly with indelible ink. The labels were affixed to each Ziploc bag and included the following information: project name, company name, name/initials of the collector, date and time of collection, sample identification, and analyses required.

COC procedures were completed in accordance with the approved work plan. COC procedures are used to document and track samples from collection through reporting of analytical results, and serve as permanent records of sample handling and shipment. Strict COC protocol was maintained for all samples collected during this project. The COC forms were filled out with indelible ink by the FPM, and any corrections were crossed out with a single line and initialed and dated. Copies of the COC forms are included in **Appendix C** and are also included as part of the laboratory reports in **Appendix F**.

4.4 Investigation Derived Waste

Investigation derived waste (IDW) included used personal protective equipment (PPE) and decontamination water/rinse water. PPE was containerized (i.e., double-bagged) and disposed as solid waste. Excess surface soil that was collected, but not submitted for sample preparation and analysis, was returned to the sample hole immediately.

Due to the small volume (1.5 gallons), decontamination/rinse water was stored in a labeled polyethylene storage container and warehoused at Building 1037. One sample was submitted to TestAmerica for TCLP analysis of Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, and Corrosivity. All metal analytical results were estimated values, below the method reporting limit. Corrosivity was 9.6. The analytical results are provided in **Table 4-1**. The decontamination/rinse water was transported by Emerald Environmental Services, Inc. to Hukill Chemical Corporation for disposal. The analytical data is provided in **Appendix F** and the manifest is provided in **Appendix H**.

Table 4-1: IDW Analytical Results

Analyte	Reporting Limit (mg/L)	Result (mg/L)
Arsenic	0.50	0.0053B
Barium	10.0	0.031B, E
Cadmium	0.10	0.0027B
Chromium	0.50	0.055B
Lead	0.50	0.12B
Mercury	0.0020	0.001B
Selenium	0.25	0.011B
Silver	0.50	ND
Corrosivity	No Units	9.6

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
B: Concentration of inorganic constituent is estimated.
E: Matrix Interference.
mg/L: Milligrams per Liter.

5.0 MRS HISTORICAL SITE SUMMARIES AND SI FINDINGS

The following sections provide summaries of historical information and the findings of the SI field work for each of the 17 MMRP-eligible MRSs at RVAAP. **Figure 5-1** provides the locations of all MRSs within the Installation boundaries. **Attachment A** provides locations of the IRP AOCs that are collocated with the MRSs.

5.1 Ramsdell Quarry Landfill MRS (RVAAP-001-R-01)

The Ramsdell Quarry Landfill MRS is described in the US Army CTT Range/Site Inventory and the HRR as a 3.79 acre unlined landfill situated along the southwestern edge of the quarry that is collocated with an IRP AOC (AEDB-R #, RVAAP-01). However, it was determined during research for the HRR that the original MRS footprint did not encompass the former open burn/open detonation (OB/OD) area in the bottom of the quarry (Area 1) and an area to the south of the quarry (Area 2) that was identified by the Installation as potentially containing MEC. Further, under the MMRP, any MEC that may be present in a capped and closed landfill is not eligible since this is considered a response complete action under the IRP. In such cases, the IRP action fully addressed all MEC/MC co-located at the IRP site. Therefore, the capped former landfill area was removed from the MRS footprint. Based on agreement among the Installation, Ohio EPA, OHARNG, USAEC, and USACE the MRS footprint was revised in the HRR and encompassed the entire quarry including the former OB/OD area and the area located to the south of the quarry. The layout of the MRS is provided in **Figure 5-2**.

Originally Area 1 was mined to recover rock material, consisting of a quartz pebble conglomerate, which was used for road and construction ballast. It is reported that the excavation reached a depth of 30 to 40 ft below existing grade. After discontinuing quarry operations in 1941, the quarry was used (1946 through 1950) to thermally treat waste explosives from Load Line #1, and approximately 18,000 500-pound (lb) incendiary or napalm bombs through surface burning. Starting in 1976, the MRS was reported to have been used strictly as a non-hazardous solid waste landfill; and in 1978 to its closure in 1990, operated under a sanitary landfill permit issued by the State of Ohio. No information was available for the period from 1950-1976. Regarding activities conducted at Area 2, no information could be located.

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MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

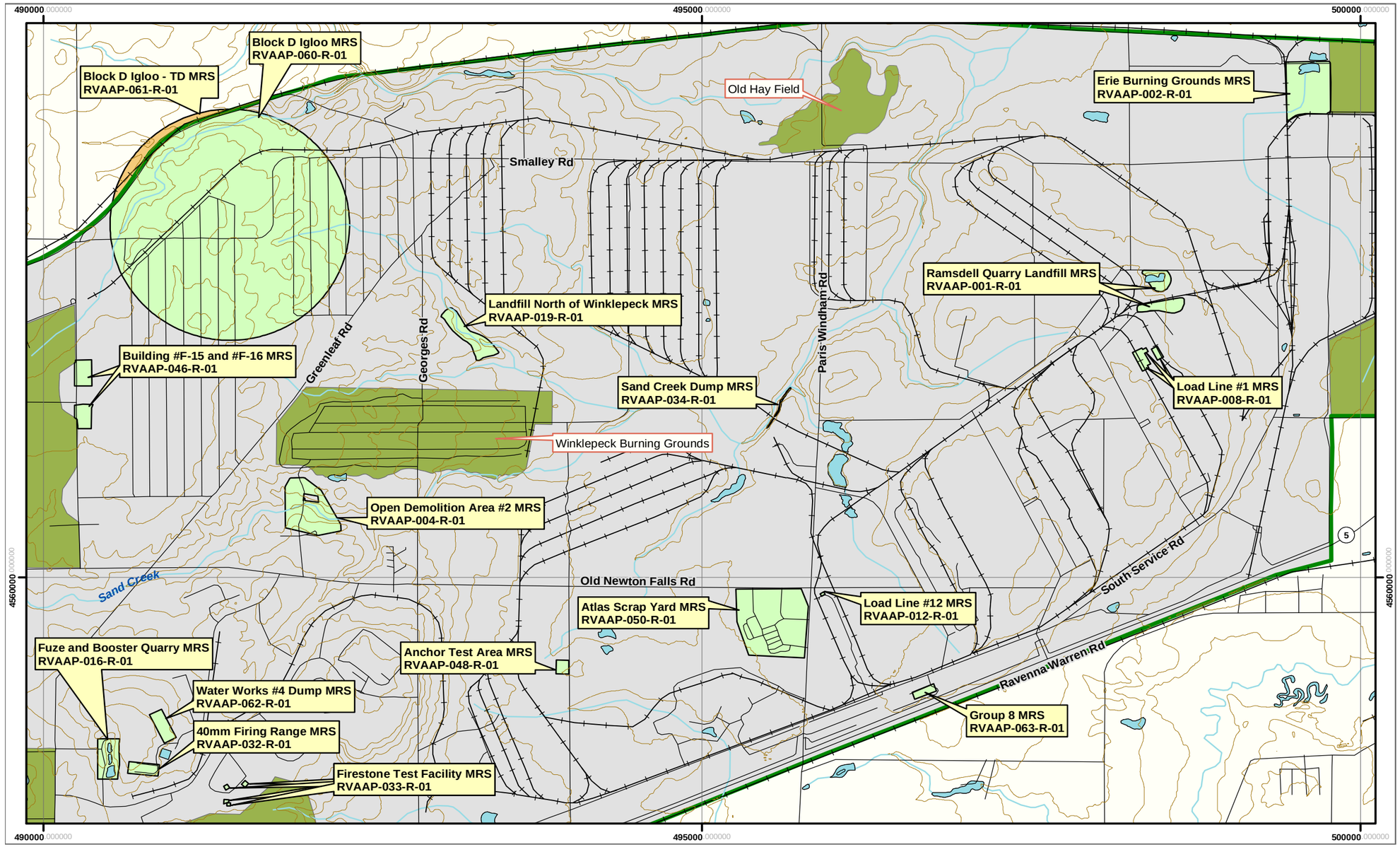


Figure 5-1

N
W E
S

- Installation Boundary
- Railroad
- Road
- Elevation Contour
- Stream
- Water

Area Status

- Operational Range
- Other than Operational Range
- MRS, Closed
- MRS, Transferred

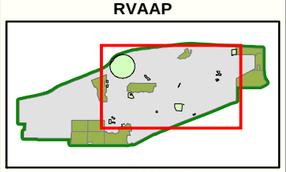
Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**5,000 Meter**
Contour Interval:	**5 Meter**

1:32,000

0 1,500 3,000 Feet
0 500 1,000 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

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RAMSDELL QUARRY LANDFILL and LOAD LINE #1 MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

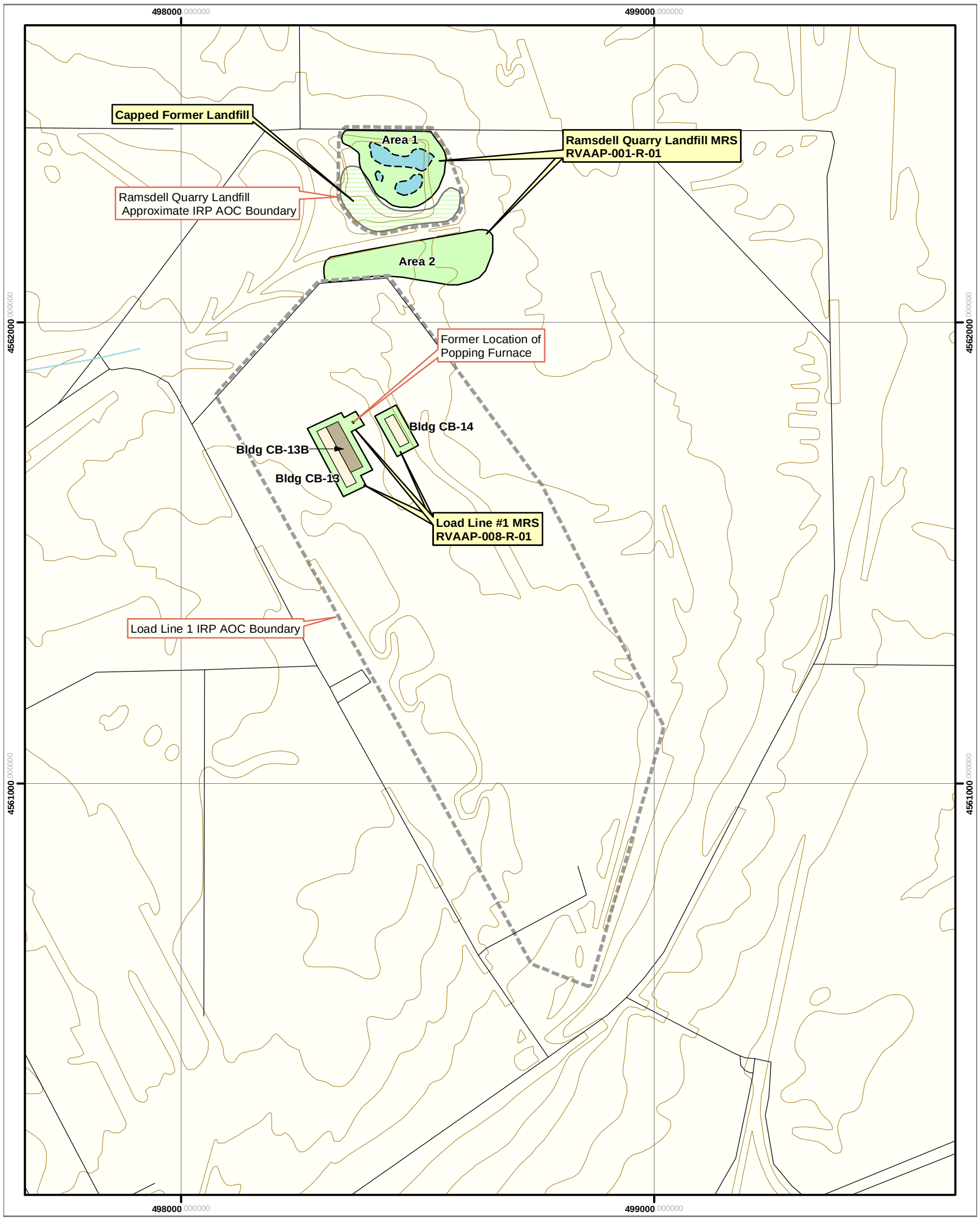


Figure 5-2

N
W E
S

Projection: UTM Zone 17
Datum : WGS 84
Units: Meters
Grid: 500 Meter

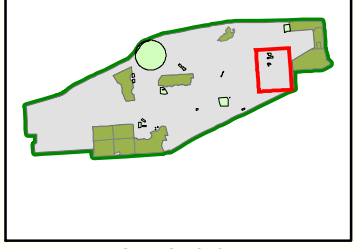
1:9,000
0 500 1,000 Feet
0 200 400 Meters

Elevation Contour
Road
Stream
Water (fluctuates in depth and extent)
Building Locations, Existing
Building Locations, Demolished

Area Status
MRS, Closed
Capped Former Landfill
IRP Area of Concern

Data Source:
e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH
Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)
Date: May 2008
Edition: Final

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5.1.1 SI Field Work

For this SI, a magnetometer assisted UXO survey was conducted in Area 1 and Area 2. In addition, four (4) MI surface soil samples were collected from Area 2 and analyzed for explosives, propellants, and target analyte list (TAL) metals.

5.1.2 UXO Surveying

On 3 October 2007, a meandering path UXO survey was conducted at Area 1, totaling approximately three acres. At Area 2, both a line abreast and meandering path UXO survey were conducted, totaling approximately two acres. All UXO surveys were performed using both a magnetometer and metal detector. Multiple subsurface anomalies were detected at several locations in Area 1 around the pond, but no evidence of MEC lying on the ground surface was observed at the MRS. It should be noted that the bottom pond area within Area 1 was heavily overgrown with cattails and other emergent vegetation which limited visibility of the ground surface. Regardless, it is suspected that the buried anomalies represent either MEC or munitions debris.

In Area 2, one empty 105mm ceremonial shot cartridge (i.e., munitions debris) was found in the easternmost portion of section MC 1 (See **Figure 5-3**), while one empty 155mm shot round (i.e., munitions debris) was found in the northeastern portion of section MC 4 (See **Figure 5-3**). With the exception of the MC 1 section, Area 2 is heavily wooded with mature forest, but with little to no ground cover. Sample area MC 1 (former soil borrow pit) is situated on top of exposed bedrock; therefore, the possibility of buried items is remote. Magnetometer and metal detector assisted UXO surveys of Area 2 revealed only a few buried anomalies within sections MC 2, MC 3, and MC 4 (See **Figure 5-3**). The locations of the two munitions debris found in Area 2 and the paths of the UXO surveys are shown in **Figure 5-3**. Findings of the UXO surveys are presented in **Table 5-1**.

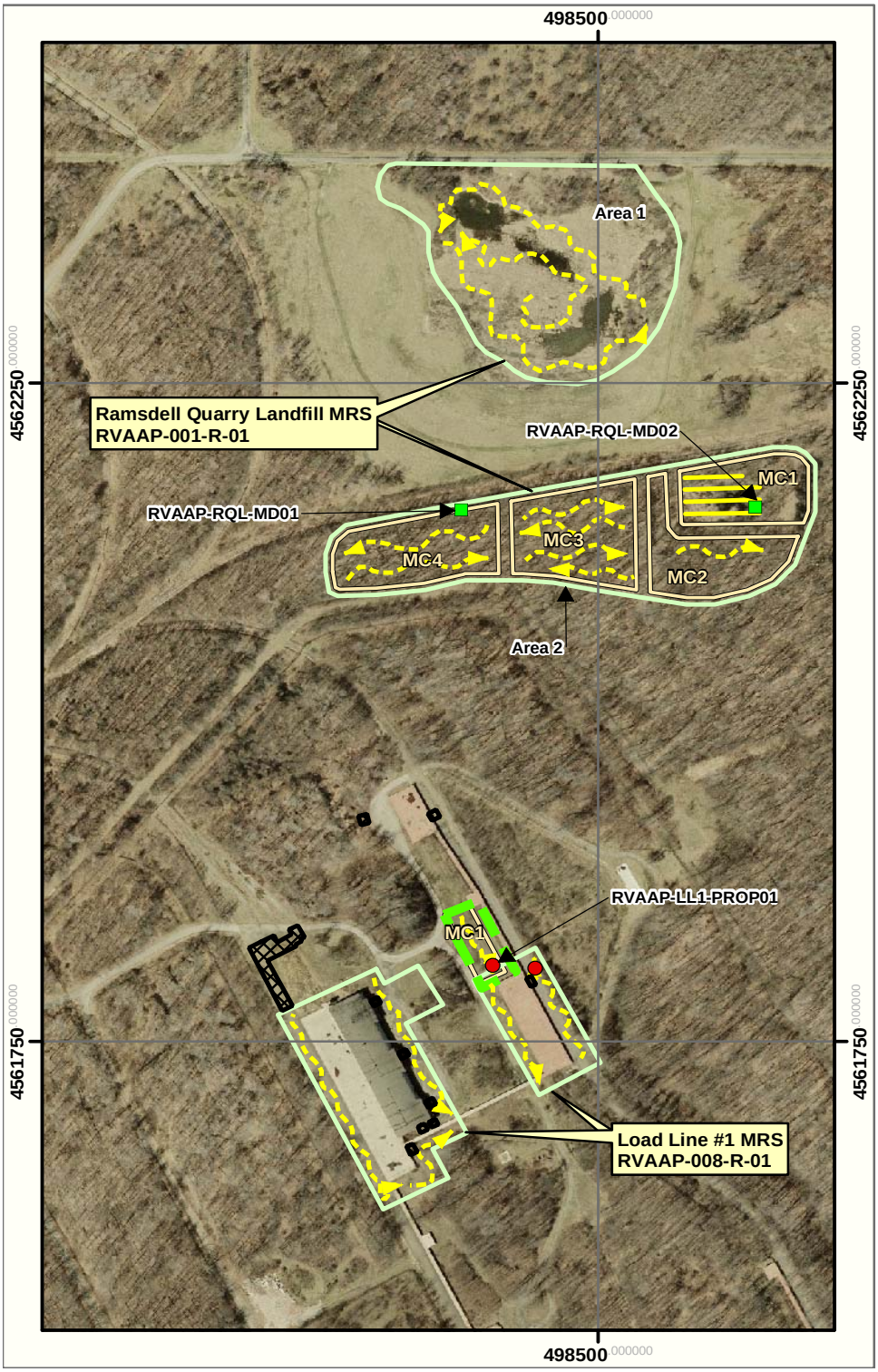
Table 5-1: Ramsdell Quarry Landfill SI Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-RQL-MD01	155mm projectile, round appeared fired and was empty of energetic material. Classified as munitions debris.	3
RVAAP-RQL-MD02	105mm cartridge, cartridge was a blank used for ceremonial purposes. Cartridge was empty of energetic material. Classified as munitions debris.	4

Refer to **Figure 5-3** for locations of the munitions debris and Appendix D for photographs of the munitions debris.

RAMSDELL QUARRY LANDFILL MRS and LOAD LINE #1 MRS
Ravenna Army Ammunition Plant, OH

Figure 5-3



N
W E
S

- Munitions Debris Location
- Triple Base Propellant Location
- Line Abreast Survey Area
- Meandering Path Survey Transects
- IRP Soil/Dry Sediment Removal Area
- Multi-incremental Sample Area (MC1, MC2, MC3, MC4)
- Old CTT/HRR MRS Footprint Boundary
- Proposed New MRS Footprint Boundary

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

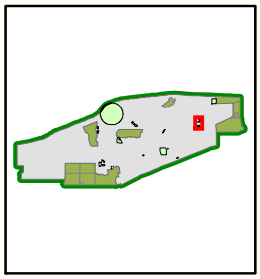
Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:5,000

0 150 300 Feet

0 60 120 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

Based on the findings of the UXO survey, buried MEC or munitions debris is suspected to be present around the pond in Area 1. Conversely, buried MEC or munitions debris is not suspected to be present at Area 2. This is founded on the lack of concentrated subsurface anomalies (multiple anomalies detected in a restricted area) and physical condition of the area; that is, heavily wooded area with mature forest and exposed bedrock at the MC 1 section.

5.1.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-2**.

Four MI surface soil (0-6" bgs) samples were collected on 3 October 2007 from within Area 2; one per MC section as depicted on **Figure 5-3**. Samples RVAAP-RQL-MC1, -MC2, -MC3, and –MC4 were collected and analyzed for explosives, propellants, and TAL metals using USEPA Methods 6010C and 8330B. Samples were not collected from Area 1 since contamination (chemical) is being addressed under the IRP.

Table 5-2: Ramsdell Quarry Landfill MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-RQL-MC1	Suspected Former OB/OD Area
RVAAP-RQL-MC2	Possible Kick-out Area From OB/OD Operations
RVAAP-RQL-MC3	Possible Kick-out Area From OB/OD Operations
RVAAP-RQL-MC4	Possible Kick-out Area From OB/OD Operations

Table 5-3 presents the TAL metals concentration results for the Ramsdell Quarry Landfill MRS samples in comparison to the RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil Preliminary Remediation Goals (PRGs). For the MC3 area sample, lead and manganese concentrations were above both comparison values. Thallium concentrations were above both comparison values in all four samples. Regarding thallium levels, the concentrations detected were fairly consistent across the Installation where samples were collected from the MRSs. In most cases at the MRSs, the samples were collected from locations absent of visible MEC and/or munitions debris. The lack of a probable source, along with the consistent concentrations detected

across the Installation suggests that the levels are not related to munitions but rather are indigenous to the area. As such, the thallium results for the Ramsdell Quarry Landfill MRS and the other MRSs have been dismissed as non-munitions related. Regardless, lead and manganese can be considered MC.

Table 5-4 shows the propellants and explosives concentration results for the Ramsdell Quarry Landfill MRS samples in comparison to one-tenth the non-carcinogen and carcinogen USEPA Region 9 Residential Soil Preliminary Remediation Goals (PRGs). For all MI samples collected, explosives and propellants were not detected above the method detection limit, with the exception of 1,3,5-Trinitrobenzene, which was detected at a estimated concentration in samples RVAAP-RQL-MC2 and RVAAP-RQL-MC3. Regardless, none of the MI samples contained constituents that exceeded PRG values.

Based on the findings of the SI field work, the MRS foot print encompasses 13.43 acres (same as the HRR footprint) and includes the former OB/OD in the quarry situated in Area 1 and the wooded area and former soil borrow pit in Area 2.

Table 5-3: Ramsdell Quarry Landfill Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-RQL-MC1	RVAAP-RQL-MC2	RVAAP-RQL-MC3	RVAAP-RQL-MC4
Antimony	0.96	3.1	ND	ND	ND	ND
Arsenic	15.4	0.039	8.7	10	9.5	9.8
Lead	26.1	40	23.8	27.7	**40.9**	29.5
Selenium	1.4	39	ND	0.53B	0.57B	0.32B
Thallium	N/A	0.52	0.59B	1.8B	2.4	1.8B
Aluminum	17,700	7,600	2,430	10,900	10,700	10,600
Barium	88.4	540	12.9	81.3	88.7	71.9
Beryllium (ca)	0.88	150	0.12B	0.66B	0.74B	0.54B
Cadmium	N/A	3.7	ND	0.15B	0.22B	0.15B
Cobalt	10.4	90	1.5B	13.1	16.5	15.4
Chromium (ca)	17.4	210	30.8	14.8	14.6	16.9
Copper	17.7	310	7.1E	11.5	10.9	11.1
Iron	23,100	2,300	13,100	17,900	16,600	18,100
Manganese	1,450	180	52.5	1,290	**1,860**	1,400
Nickel	21.1	160	22.1	19.3	16.4	14.9
Vanadium	31.1	7.8	6.7	20.4	19.3	21.3
Zinc	61.8	2,300	22.6	58.0	60.9	48.7
Mercury	0.04	2.3	0.035B	0.099B	0.12	0.095B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

B: Concentration of inorganic constituent is estimated.

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

N/A: Not Applicable, No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

mg/kg: milligrams per kilogram

Table 5-4: Ramsdell Quarry Landfill Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-RQL-MC1	RVAAP-RQL-MC2	RVAAP-RQL-MC3	RVAAP-RQL-MC4
Nitroguanidine	610	ND	ND	ND	ND
2-Amino-4,6-dinitrotoluene	1.2	ND	ND	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND	ND	ND
2,4-Dinitrotoluene	12	ND	ND	ND	ND
2,6-Dinitrotoluene (ca)	61	ND	ND	ND	ND
HMX	310	ND	ND	ND	ND
Nitrobenzene	2	ND	ND	ND	ND
2-Nitrotoluene	0.088	ND	ND	ND	ND
3-Nitrotoluene	73	ND	ND	ND	ND
4-Nitrotoluene	1.2	ND	ND	ND	ND
RDX (ca)	4.4	ND	ND	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND	ND	ND
1,3,5-Trinitrobenzene	180	ND	0.032J	0.025J	ND
2,4,6-Trinitrotoluene (ca)	16	ND	ND	ND	ND
Nitroglycerin	3.5	ND	ND	ND	ND

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: milligrams per kilogram

J: Concentration of organic constituent is estimated.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.2 Erie Burning Grounds MRS (RVAAP-002-R-01)

Erie Burning Grounds (see **Figure 5-4**) is described principally as an undeveloped wetland area that covers 33.93 acres located on the northeastern corner of the facility next to the Portage/Trumbull County line. The MRS is also collocated with an IRP site (AEDB-R #, RVAAP-02). The MRS, which operated between 1941 and 1951, was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosives contaminated items (e.g., railcars) through open burning on the ground surface. Prior to its acquisition by the US Army in 1940, the area may have been used for brick manufacturing. Aerial photos of the site from the 1940s and 1950s depict open boxcars staged at the end of the rail spur, known as Track 49. Presumably, materials were tipped out of the cars on either side of the embankment to be burned. Ash residue was left on site after the burn. Engineering drawings from 1941 also identify two additional burning areas: one 200 ft to the northeast that was fed by a chute and another (known as the "T-Area") to the south of the rail spur.

5.2.1 SI Field Work

For this SI, a magnetometer assisted UXO survey was conducted across the entire MRS within accessible dry areas. A survey of the submerged areas was not undertaken because these areas will require additional characterization under the MMRP. Samples were not collected from the MRS during this SI because, with the exception of wet sediments, site contamination has been addressed under the IRP. The investigation of MC in wet sediments will be required future investigations conducted under the MMRP.

5.2.2 UXO Surveying

On 4 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted of all accessible dry areas of the MRS, totaling approximately 14 acres. Dry portions of the MRS investigated during the SI were overgrown with emergent vegetation and shrubs limiting visibility of the ground surface. Several subsurface detections were recorded by the magnetometer and metal detector in the northwest, central, and southwest portions of the MRS. Some non-munitions metal debris was also found throughout the MRS. One possible MEC item was found partially buried in the south-central portion of the MRS. The item consisted of a large caliber casing, with only one half the length of the munitions visible. Since both ends were buried, a determination could not be made whether or not the item contained energetic material or was fuzed. (Note: excavation of buried items is not within the scope of the SI phase, therefore a positive determination on whether or not it was MEC could not be made.) The location of the partially buried munitions found at the MRS and the

paths of the UXO surveys are shown in **Figure 5-5**. Findings of the UXO surveys are presented in **Table 5-5**.

Table 5-5: Erie Burning Grounds SI Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-EBG-MEC01	Partially buried large caliber casing, potentially MEC.	6

Based on the findings of the SI field work, the MRS foot print encompasses 33.93 acres (same as the HRR footprint) and includes the northern and southern surface water basins, former borrow area located in the northwest section of the site, centrally located former burn areas (A, B, C, and D), centrally located T-Area, Track 49 embankment, and wooded/swampy area located in the southeastern section of the site.

ERIE BURNING GROUNDS MRS LOCATION
Ravenna Army Ammunition Plant, OH

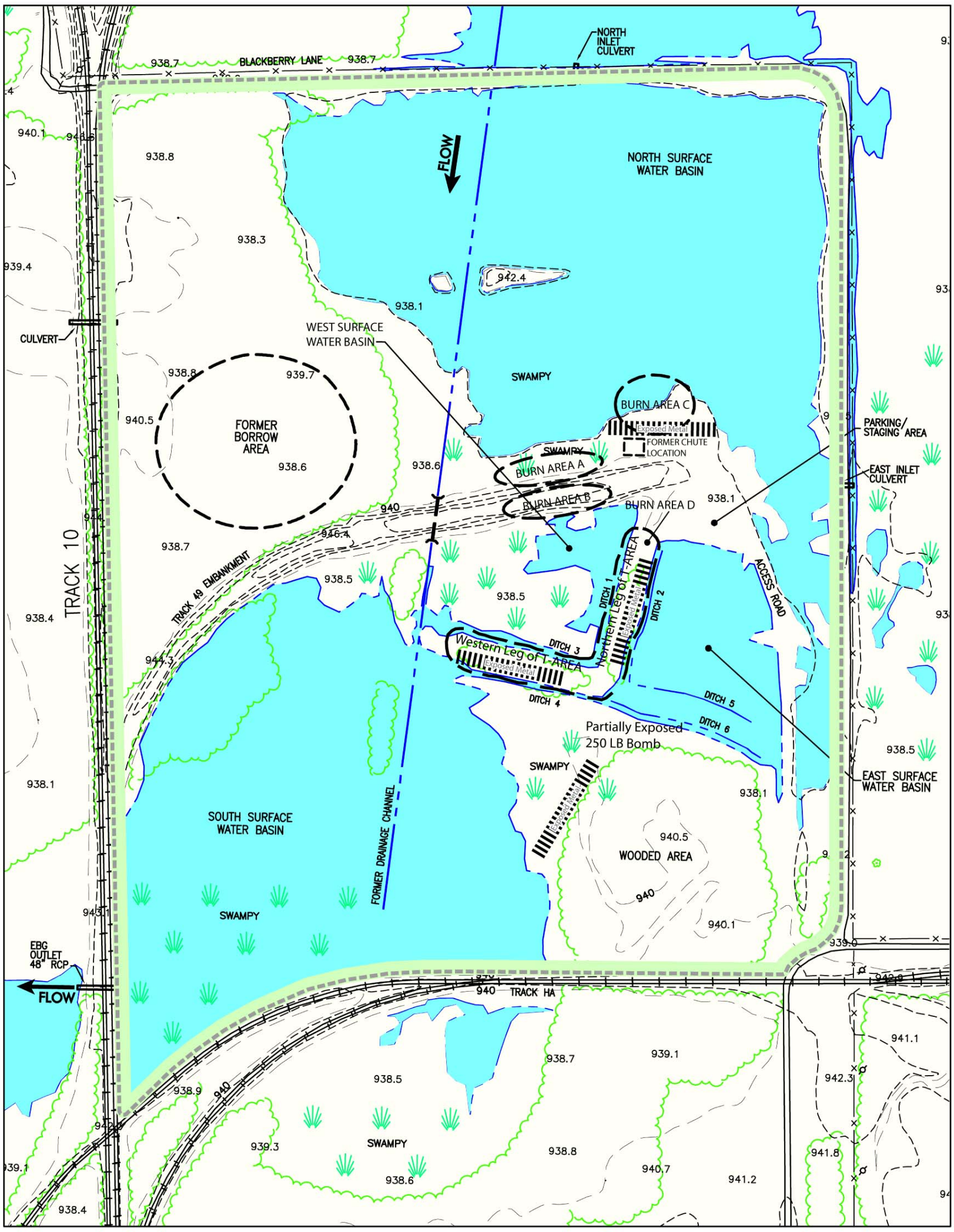


Figure 5-4

N
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Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

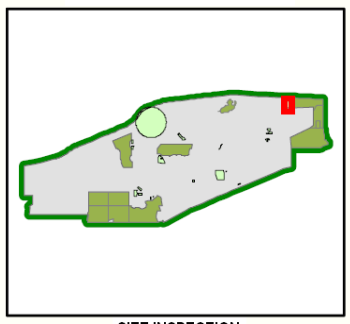
1:2,000

0 50 100 150 200 250 Feet
0 25 50 75 Meters

Road, Gravel
Railroad
Contour, 10-Foot Interval
Contour, 2-Foot Interval
923.8 Spot Elevation
Tributary
Stream
Treeline
MRS Boundary
IRP Area of Concern

Data Source:
e²M, Final Military Munitions Reponse Program Historical Records Review, Ravenna Army Munitions Plant, Ohio, October 2006.

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH
Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)
Date: May 2008
Edition: Final

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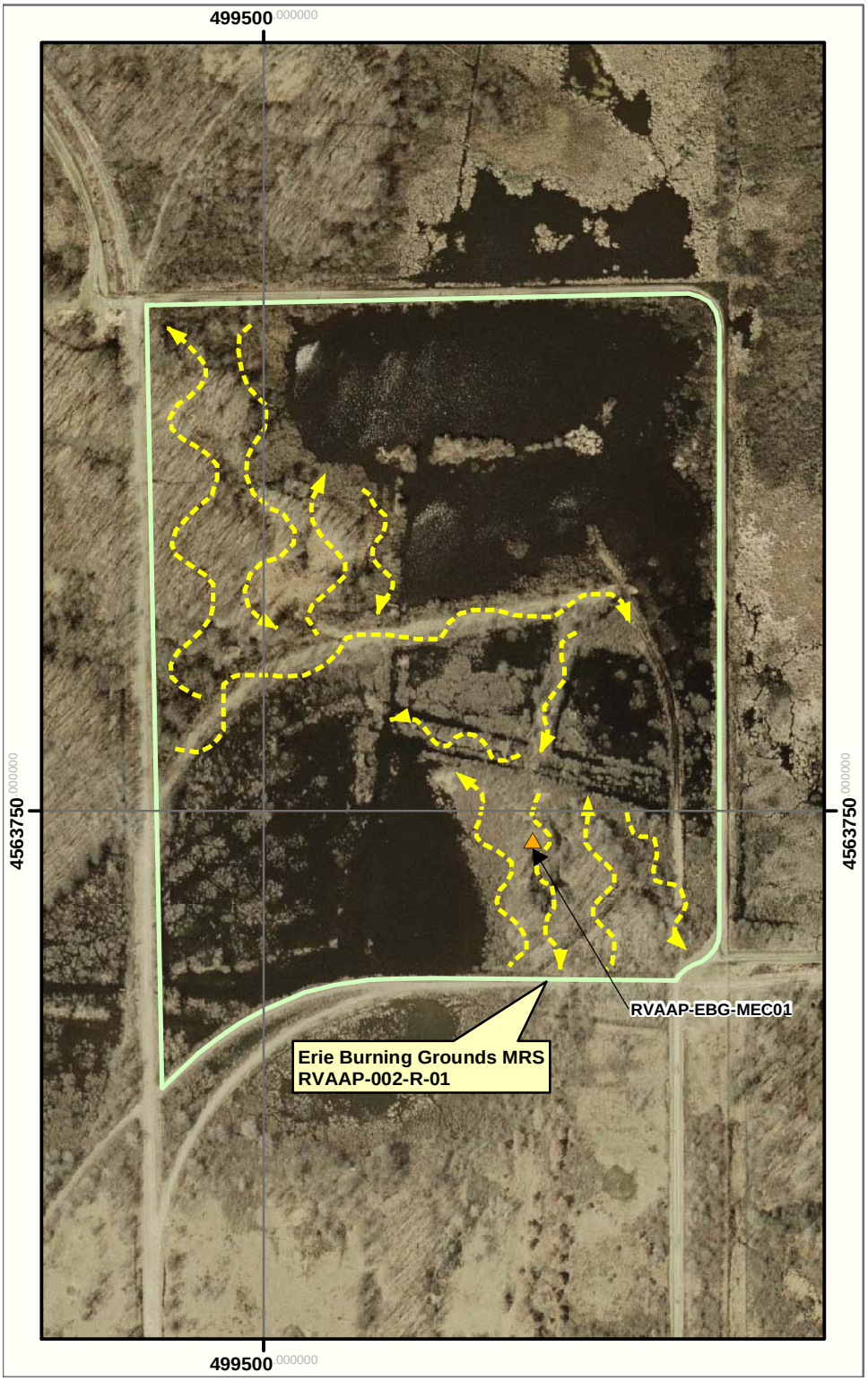
ERIE BURNING GROUNDS MRS
Ravenna Army Ammunition Plant, OH

Figure 5-5



N
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Suspect MEC Location

Meandering Path Survey Transects

Area Status

MRS, Closed

Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

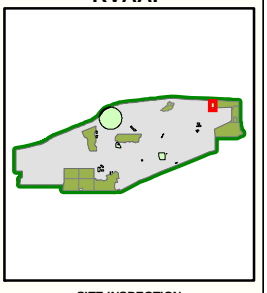
Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet

0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
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Date: May 2008
Edition: Final

5.3 Open Demolition Area #2 MRS (formerly Demolition Area #2) (RVAAP-004-R-01)

The MRS was a former OB/OD area, dumping ground, and burial site that was used from 1948 until 1991. During this period, the MRS was used to detonate large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized by any other means due to their condition. It was also reported that the MRS was used to bury white phosphorus and bombs. The types of bombs buried at the MRS were not disclosed. Detonation activities were conducted in pits excavated by a backhoe to a minimum depth of four ft bgs. After detonation, the area was policed and metal parts were picked up and removed, and the pit filled, mulched, and seeded. New pits were excavated for each activity. The MRS is also collocated with an IRP site (Open Demolition Area #2, AEDB-R #, RVAAP-04). During the HRR research, additional areas were identified and the MRS boundary was expanded to encompass 32.95 acres; increased from the 14.91 acres reported in the US Army CTT Range/Site Inventory. Based on the HRR information, the MRS consisted of the following components:

- The former Demolition Area (excluding the non-MMRP eligible interim Resource Conservation and Recovery Act [RCRA] unit).
- The portion of the 40mm prototype test range that extends to the north and outside of the interim RCRA unit.
- Burial Sites 1 and 2 where possible MEC may have been buried. Burial Site 1 is approximately two acres in size and located approximately 200 ft northeast of Building 1501 (explosives storage bunker). Burial Site 2 is approximately one acre in size and is located approximately 100 ft north of Building 1503 (explosives storage bunker).
- Rocket Ridge Area where rocket bodies and various other potential MEC items have been discarded on the ground surface and into Sand Creek. Rocket Ridge is located along a 70-foot embankment northeast of Building 1503 overlooking Sand Creek. (Note: In June 2007, a white phosphorous (WP) grenade detonated in the Rocket Ridge area, likely triggered by animal contact. Because of this incident, the Ohio EPA has required a time-critical removal action for the Rocket Ridge area.)
- Bomb Disposal Area located outside and adjacent to the northwestern section of the MRS. This area is outside the current MRS boundary; however, the Stakeholders agreed that it should be included in the SI.
- The MRS also includes all of the area located between the areas identified in the previous bullets.

Not included in the MRS but located just south of the site are Buildings 1501, 1502, and 1503, which were former storage bunkers, and a former popping furnace.

Figure 5-6 depicts the boundary of Open Demolition Area #2 reported in the HRR.

5.3.1 SI Field Work

For this SI, magnetometer assisted UXO surveys were conducted at the Bomb Disposal Area, at the two Burial Sites, and at Rocket Ridge. These areas were selected since adequate documentation exists for the remaining areas within the MRS. No samples were collected from the MRS during this SI because adequate analytical data identifying the presence of MC was collected under the IRP. However, MC at the MRS (especially at the burial sites, bomb disposal area, and Rocket Ridge where no data exists) will require future investigation under the MMRP.

5.3.2 UXO Surveying

On 4 October 2007, meandering path magnetometer and metal detector assisted UXO surveys were conducted at the Bomb Disposal Area, Burial Sites 1 and 2, Rocket Ridge, and associated surrounding areas, as well as along the boundary of the MRS footprint. Further, a UXO survey of the Sand Creek stream bed was conducted over several hundred feet downstream of Rocket Ridge. A total of approximately 12 acres were surveyed for UXO.

MEC was found at Rocket Ridge, the Bomb Disposal Area, Burial Site 2, and on the hill across Sand Creek from Rocket Ridge. At Rocket Ridge, MEC observed included T-bar fuzes (model unknown), white phosphorus grenades, and possibly a 500-lb bomb. The suspect 500-lb bomb was partially buried and only somewhat visible through the vegetation. As such, a positive determination could not be made. A survey of Sand Creek extending approximately 300 feet down stream of Rocket Ridge did not reveal any MEC items. One partially buried fuze (model unknown), considered MEC, was found at the Bomb Disposal Area. This area is heavily overgrown making visibility of the ground surface difficult; as such, other munitions may be present. This area was not included in the HRR MRS footprint, but will be added during this SI phase. A partially buried fuze (model unknown), considered MEC, was also found at Burial Site 2. This area is open field with good ground visibility; no other MEC or munitions debris were discovered at this location. On the hill directly across (i.e., north) from Rocket Ridge, two 40mm cartridges (considered MEC) with intact primers were found. These items were discovered lying on the ground surface and are the result of kick-out from demilitarization activities.

Munitions debris was found throughout the MRS and consisted of demilitarized 155mm projectiles, remnants of 40mm rounds, casing fragments from large caliber projectiles, and remnants of donor charge bags. All of the empty 155mm and casing fragments were found along Sand Creek (within the flood plain) just upstream (i.e., west) of Rocket Ridge. The demilitarized 40mm rounds were found just north and east of the former demolition area (i.e., central open area) and are attributed to kick-out from demilitarization activities. Casing fragments were also found 200 feet north of Burial Site 1. MEC discovered during the survey and the survey paths are identified on **Figure 5-7**. Findings of the UXO surveys are presented in **Table 5-6**.

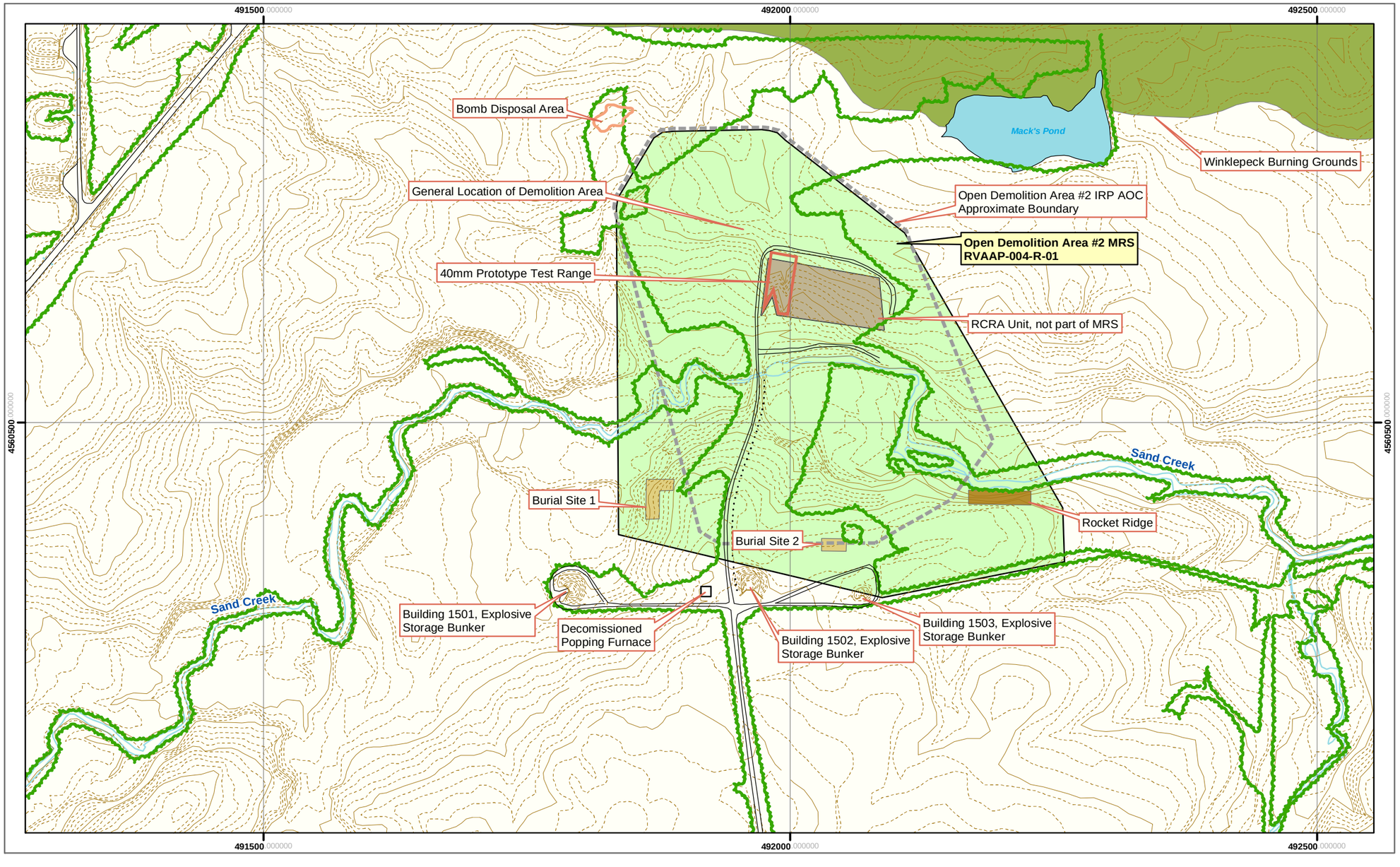
Table 5-6: Open Demolition Area #2 SI Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-ODA2-MEC01	Buried fuze, MEC.	7
RVAAP-ODA2-MEC02	Buried fuze, MEC.	8
RVAAP-ODA2-MEC03	40mm rounds with intact primers, MEC	9

Based on the findings of the SI field work, the MRS foot print has been increased to 35.4 acres to include the Bomb Disposal Area. The new MRS footprint now includes the former Demolition Area (excluding the non-MMRP eligible interim RCRA unit); portion of the 40mm prototype test range that extends to the north and outside of the interim RCRA unit; Burial Sites 1 and 2; Rocket Ridge Area; Bomb Disposal Area; and all space between these areas.

OPEN DEMOLITION AREA #2 MRS LOCATION
Ravenna Army Ammunition Plant, OH

Figure 5-6



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- Contour, 10-Foot Interval
- Contour, 2-Foot Interval
- Road
- Stream
- Water
- Vegetation
- Burial Site
- RCRA Unit, MMRP Non-eligible
- Rocket Ridge
- 40mm Prototype Test Range
- Bomb Disposal Area
- Out-of-service electric lines used to remotely detonate munitions
- Explosive Storage Bunker

Area Status

- Operational Range
- MRS, Closed
- IRP Area of Concern, Approximate Boundary

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

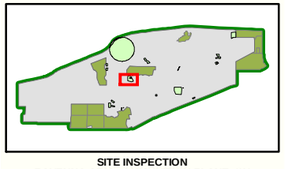
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:4,000

0 200 400 Feet

0 75 150 Meters

Reference Location Map
RVAAP



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OPEN DEMOLITION AREA #2 MRS
Ravenna Army Ammunition Plant, OH

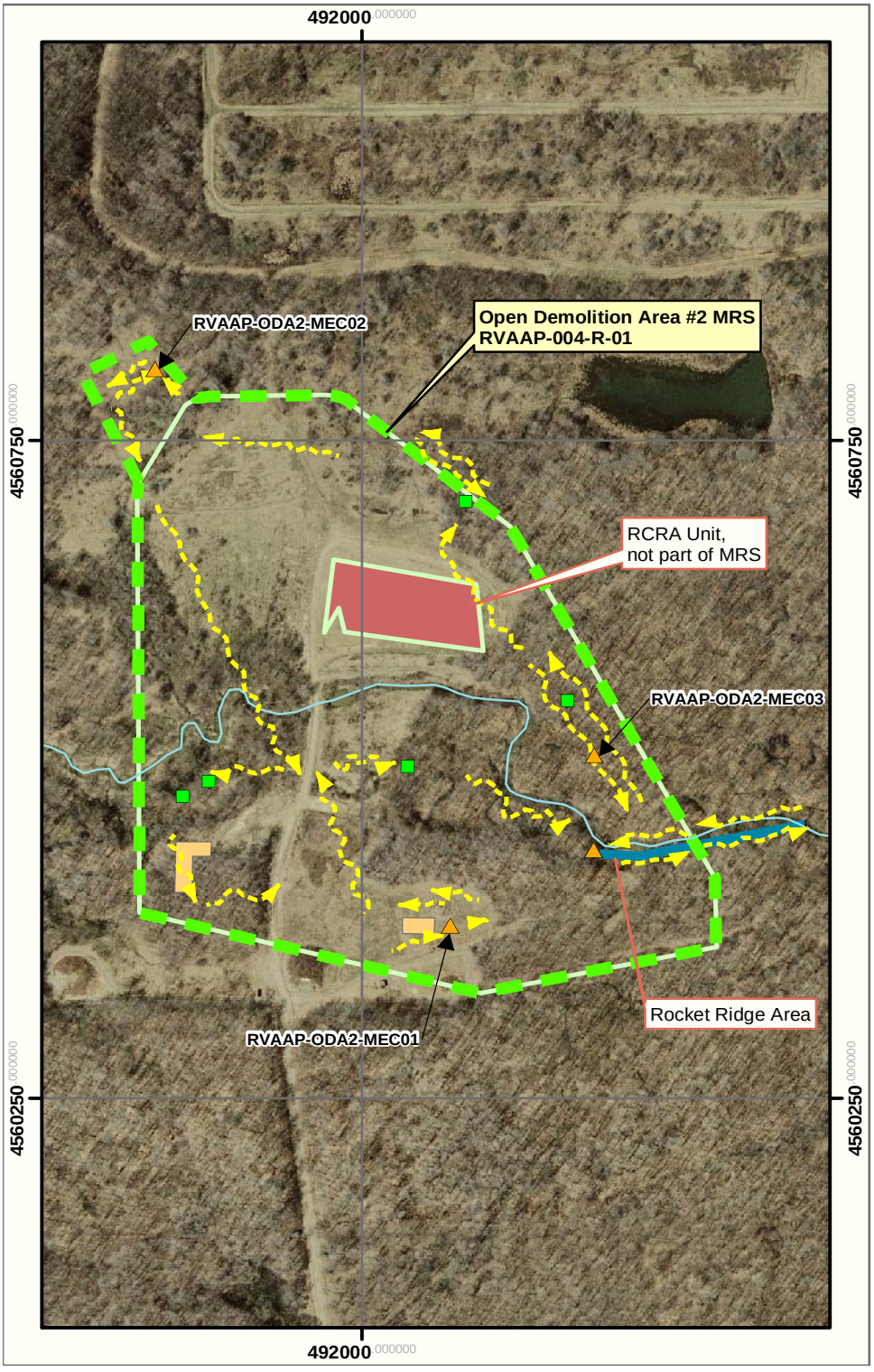

Figure 5-7

N
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- Munitions Debris Location
- Suspect MEC Location
- Burial Site
- RCRA Unit, MMRP Non-eligible
- Rocket Ridge Extent
- Meandering Path Survey Transects
- Stream
- Old CTT/HRR MRS Footprint Boundary
- Proposed New MRS Footprint Boundary

Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

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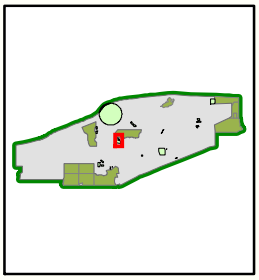
0 150 300 Feet

0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

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Date: May 2008
Edition: Final

5.4 Load Line #1 MRS (RVAAP-008-R-01)

Load Line #1was used to melt and load trinitrotoluene (TNT) and Composition B explosives into large-caliber shells during World War II (WWII) and the Korean War. As a result of the load operation, explosive dust, spills, and vapors collected on the floors and walls of several buildings, which were periodically washed from the walls and floors with water and steam. In 1971, the load line was declared inactive when the buildings with residual explosive dust were washed down, and the freestanding equipment was removed. From 1996 through 1998, salvage operations continued with the removal of the overhead steam lines and major rail spurs, and the removal of all telephone lines. By FY 2000, the majority of the buildings were demolished and removed. Currently, the only remaining buildings include CB-13/CB-13B and the CB-14 elevated building slab. Floor slabs of the demolished buildings, walkways, and all below-grade infrastructures remain on site. However, some of the manholes and storm/sanitary sewer access points were filled in or obstructed during the demolition activities. The MRS is also collocated with an IRP AOC (Load Line 1, AEDB-R #, RVAAP-08). Currently, removal actions are underway to address propellant contamination around Buildings CB-13/CB-13B and the elevated building slab at CB-14. Removal activities at Buildings CB-13/CB-13B and along the eastern side of the Building CB-14 elevated building slab have been completed.

Based on the findings of the HRR, the potential presence of MEC and/or MC was restricted to several areas associated with Buildings CB-13/CB-13B and the elevated building slab at CB-14, the former popping furnace, and to areas where triple base propellants still exist. As such, the MRS acreage identified in the US Army CTT Range/Site Inventory (163.62 acres) was reduced during the HRR to approximately five acres. The HRR MRS boundaries are presented in **Figure 5-2**.

5.4.1 SI Field Work

For the SI field work, a meandering path UXO survey was conducted surrounding the CB Buildings. In addition, one (1) MI surface soil sample was collected from within the grassy area on the northwestern side of the elevated building slab at CB-14 and analyzed for explosives, TAL metals, and propellants. The remaining areas at Load Line #1 are being investigated and remediated under the IRP.

5.4.2 UXO Surveying

On 3 October 2007, a meandering path UXO survey was conducted of the areas surrounding Buildings CB-13/CB-13B, elevated building slab at CB-14, and the location where the former popping furnace was located. Approximately one acre was surveyed. One piece of triple base propellant was found on the

northwestern side of the elevated building slab at CB-14, and two more pieces of propellant were found along the railroad track on the eastern side of the building where removal activities were being conducted by Shaw Environmental. The northwestern area was a former loading area consisting of a gravel road base that was overgrown with weeds. The combined area where the propellants were found totals approximately 0.41 acres. The pieces measured approximately 1-inch in length by ¼-inch in diameter and are consistent with propellants loaded into large caliber projectiles. **Figure 5-3** shows the survey and sample area for the MRS. **Table 5-7** provides a reference for the location of the propellant found on the eastern side of the elevated building slab at CB-14.

Table 5-7: Load Line #1 SI Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-LL1-PROP01	Triple Base Propellant Grain, MEC.	11

5.4.3 Surface Soil Sampling

Sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-8**.

One MI surface soil (0-6" bgs) sample and a duplicate were collected on 3 October 2007 from the Load Line #1 MRS. Sample RVAAP-LL1-MC1 was collected from the MC1 area on the western side of the elevated building slab at CB-14 where one piece of triple base propellant was observed lying on the ground surface during the UXO survey. The duplicate MI sample was taken from the same MC area and labeled RVAAP-LL1-MC2. Samples were analyzed for TAL metals, propellants, and explosives using USEPA Methods 6010C and 8330B. Test America performed the sample analyses. The MI sample area is illustrated on **Figure 5-2**.

Table 5-8: Load Line #1 MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-LL1-MC1	Suspected Location of Triple-Base Propellant
RVAAP-LL1-MC2	Duplicate for QA/QC Purposes

Table 5-9 presents the TAL metal results for Load Line #1samples in comparison to the RVAAP Installation-Wide Background Values and USEPA Region 9 Residential Soil PRGs. Lead was present in both the sample and duplicate at concentrations greater than RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRGs. Thallium was detected above the one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but has been dismissed as non-munitions related. Lead is considered a component of MC.

Table 5-10 presents the propellants and explosives results for the Load Line #1 samples in comparison to the USEPA Region 9 Residential Soil PRGs. Although none of the results exceeded one-tenth the non-carcinogen and/or full carcinogen PRG values for residential use, Nitrobenzene and 2,4,6-Trinitrotoluene were detected at estimated concentrations (i.e., below the method detection limit). Based on the findings of the SI field work, triple based propellant was only observed at the former loading area located on the northwestern side of CB-14. The MI sample collected from this area also revealed lead concentrations in excess of the RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRGs. Further, a removal action was being conducted by Shaw Environmental at the time of the SI field work. The work was being completed, in part, to remove triple base propellant along the northern and eastern side of CB-13/CB-13B and the eastern side of CB-14. These areas were within the MRS footprint, but have been removed since they are being addressed under the IRP. Therefore, the MRS foot print has been reduced from the HRR acreage of 4.63 acres to 0.41 acres and includes the former loading area on the northwestern side CB-14 where one piece of triple base propellant was found and elevated lead levels were detected.

Table 5-9: Load Line #1 Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-LL1-MC1	RVAAP-LL1-MC2
Antimony	0.96	3.1	ND	ND
Arsenic	15.4	0.039	7.0	9.0
Lead	26.1	40	**85.8**	**74.8**
Selenium	1.4	39	0.65B	ND
Thallium	N/A	0.52	1.8B	1.5B
Aluminum	17,700	7,600	15,000	12,900
Barium	88.4	540	149	117
Beryllium (ca)	0.88	150	2.7	1.9
Cadmium	N/A	3.7	0.61B	0.68B
Cobalt	10.4	90	4.8	7.0
Chromium (ca)	17.4	210	27.4	25.5
Copper	17.7	310	17.2	22.5
Iron	23,100	2,300	16,300	17,000
Manganese	1,450	180	1,200	1,110
Nickel	21.1	160	23.1	21.5
Vanadium	31.1	7.8	12.4	14.4
Zinc	61.8	2,300	69.6	85.5
Mercury	0.04	2.3	0.054B	0.051B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.

N/A: Not Applicable

B: Concentration of inorganic constituent is estimated.

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

Blank Cell: No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-10: Load Line #1 Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-LL1-MC1	RVAAP-LL2-MC2
Nitroguanidine	610	ND	ND
2-Amino-4,6-dinitrotoluene	1.2	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND
2,4-Dinitrotoluene	12	ND	ND
2,6-Dinitrotoluene (ca)	61	ND	ND
HMX	310	ND	ND
Nitrobenzene	2	0.050J	ND
2-Nitrotoluene	0.088	ND	ND
3-Nitrotoluene	73	ND	ND
4-Nitrotoluene	1.2	ND	ND
RDX (ca)	4.4	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND
1,3,5-Trinitrobenzene	180	ND	ND
2,4,6-Trinitrotoluene (ca)	16	0.048J	ND
Nitroglycerin	3.5	ND	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.5 Load Line #12 MRS (RVAAP-012-R-01)

Load Line #12 was used from 1941 to 1943, and again in 1946, to produce ammonium nitrate. From 1949 to 1993, munitions were periodically demilitarized in a bomb melt out facility. Due to contamination associated with the production and demilitarization activities, this site is also an IRP AOC (Load Line 12, AEDB-R #, RVAAP-12). Multiple buildings were located at the MRS during its operational years which included a neutral liquor building (FE-19), seven evaporation/crystallization units (Buildings 900, 901, 902, 903, 904, 905, and 906), Water Works Number (No.) 2, Power House No. 3

(FE-17), a bagging and shipping building (FN-54), a compressor building (FA-20), an administration building (FE-53), a change house (FEWP-22), a laboratory (FE-52), and a clock house (4-51). Currently, no above-grade structures remain at the MRS, except for a small portion of the floor slab at Building FF-19. Buildings 901, 902, FF-19, and 906 were removed between 1973 and 1975 by open burning. Building FN-54 was demolished in the 1980s, and the remaining structures were removed between 1998 and 2000. During the recent demolition activities, a former blast berm at Building 903 was removed and placed as fill/ground cover around portions of Buildings FE-17 and 903. Structural features that remain on site include gravel access roads, man-made ditches, sanitary sewer lines, manholes, and the remains of three main rail tracks and several secondary tracks. Further, building foundations remain buried at 1 foot bgs at the MRS.

In 1999, 110 90mm rounds were discovered just below the ground surface (covered with a small amount of topsoil) just north of the access road in the northwest corner of the MRS. The rounds were each composed of a casing and projectile, but were void of HE. The rounds were removed by MKM Engineers in March 2004 and placed in storage at Igloo 1500. It is unknown who was responsible for dumping and covering the items. On-site personnel indicate the contractor screened the immediate area where the projectiles were found for UXO/ordnance and explosives (OE), but did not extend this search any further. There are no other reports of munitions debris (or MEC) having been found at the MRS. Based on the one reported finding of munitions debris, the breadth of IRP investigations conducted to date at the load line, and input from Installation personnel, the size of the MRS boundary was reduced in the HRR to the area immediately surrounding the location where the 90mm rounds were found (i.e., one acre). The layout of the MRS is provided in **Figure 5-8**.

5.5.1 SI Field Work

For this SI, a magnetometer assisted UXO survey was conducted at the location and surrounding area where the 90mm rounds were found. Surface soil sampling was not conducted because adequate analytical data identifying the presence of MC at the MRS was collected under the IRP, which is addressing all onsite contamination.

5.5.2 UXO Surveying

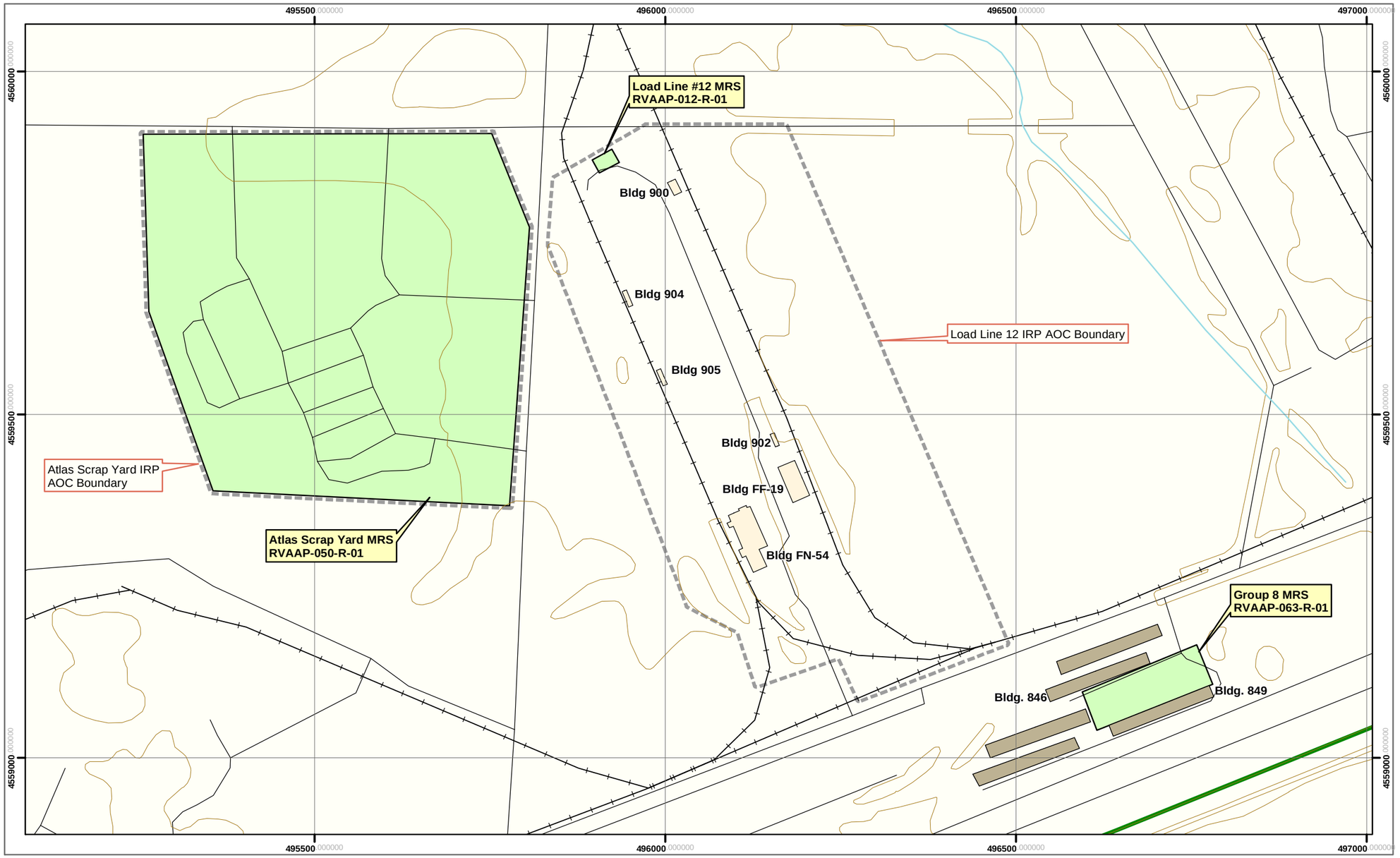
On 8 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted at the MRS where the 90mm munitions debris had been found and the surrounding area, totaling one acre. There was no sign of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of

potential burial sites. The magnetometer and metal detector survey did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the instruments highest sensitivity level.

Based on the findings of the SI UXO survey, it is believed there are no MEC or munitions debris remaining in this area. **Figure 5-9** shows the area surveyed at the MRS.

ATLAS SCRAP YARD, LOAD LINE #12, and GROUP 8 MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

Figure 5-8



N
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- Elevation Contour
- Installation Boundary
- Railroad
- Road
- Stream
- Building Locations, Existing
- Building Locations, Demolished

Area Status

- MRS, Closed
- IRP Area of Concern

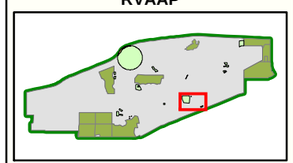
Data Source: e², Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 300 600 Feet
0 100 200 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

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ATLAS SCRAP YARD MRS and LOAD LINE #12 MRS
Ravenna Army Ammunition Plant, OH

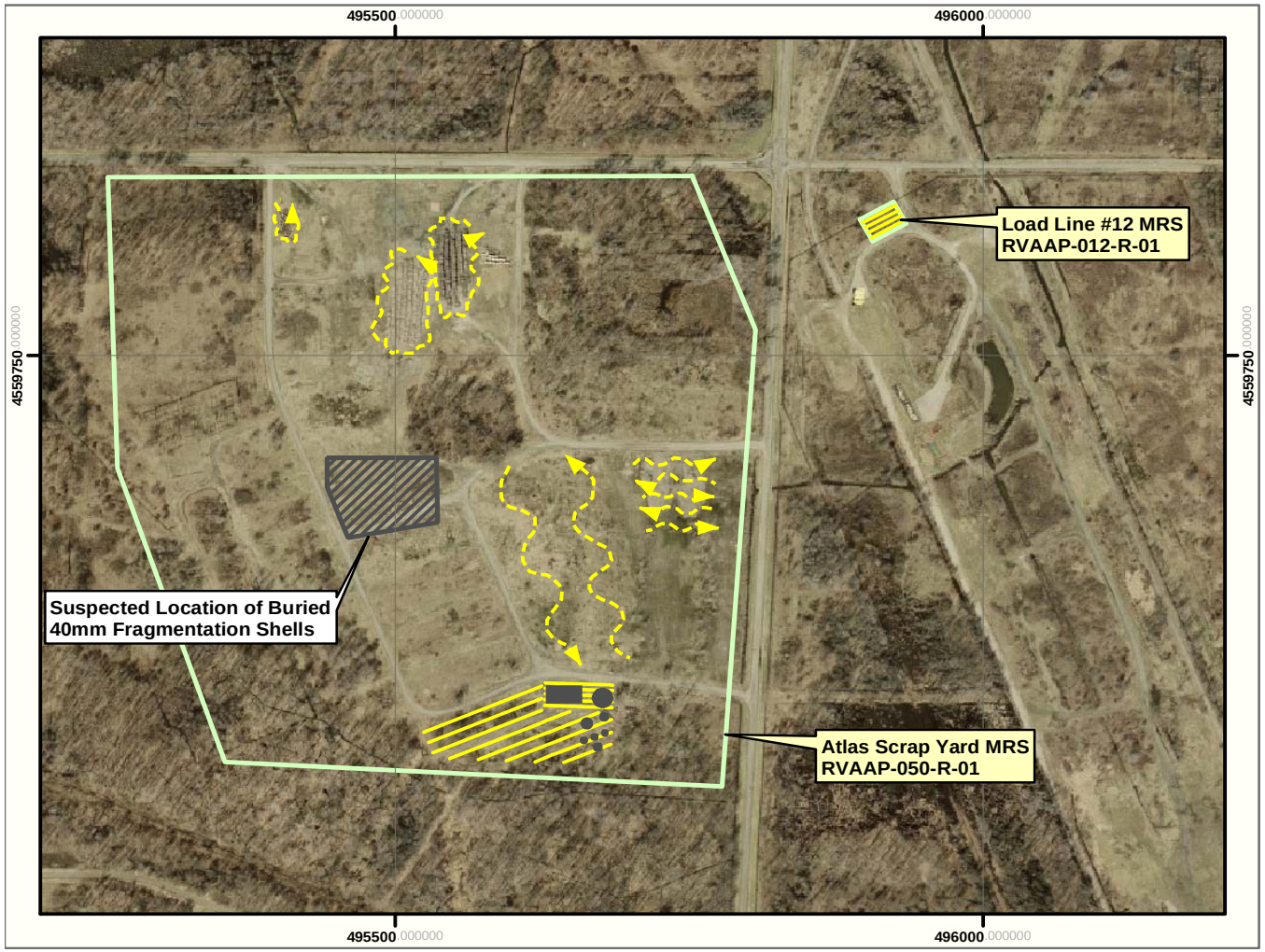

Figure 5-9

N
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Line Abreast Survey Area

Meandering Path Survey Transects

Debris Locations

Suspected Location of Buried 40mm Fragmentation Shells

Area Status

MRS, Closed

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

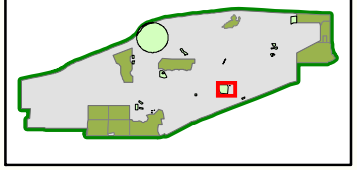
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 300 600 Feet

0 100 200 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

5.6 Fuze and Booster Quarry MRS (RVAAP-016-R-01)

The HRR described the Fuze and Booster Quarry as an undeveloped area that encompasses 12.74 acres located in the southwestern portion of RVAAP, approximately 1.25 miles southwest of Open Demolition Area #2. The MRS is also collocated with an IRP AOC (Fuze and Booster Quarry Landfills/Ponds, AEDB-R #, RVAAP-16). The MRS, which operated from 1945 to 1975, consists of three elongated ponds, situated end to end and separated by berms, which were constructed within an abandoned rock quarry. Prior to the construction of the ponds, the quarry was reported to have been used for open burning of munitions. According to information reported in the US Army CTT Range/Site Inventory and HRR, any munitions produced at the Installation could have been disposed at the MRS. This would include rockets, bombs, fuzes, detonators, flares, missiles, grenades, landmines, medium and large caliber ammunition, explosives, mortars, propellant, practice ordnance, pyrotechnics, and small arms. Installation personnel have stated that the northern and southern ponds contain MEC, while there is uncertainty about the contents of the middle pond. At the northern pond, MEC is reportedly visible when the water level is low. At the southern pond, MEC is apparently visible on the banks at all times. **Figure 5-10** shows the boundary for the Fuze and Booster Quarry MRS, as reported in the HRR.

5.6.1 SI Field Work

During this SI, a magnetometer and metal detector assisted UXO survey of the banks and immediate surrounding area was conducted. Further characterization of potential submerged MEC was not conducted under this SI, but will be addressed under future MMRP actions. No sampling was conducted because chemical contamination at the MRS is being covered under the IRP and will not be investigated further under the MMRP.

5.6.2 UXO Surveying

On 4 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted along the banks and surrounding area at all three ponds, totaling approximately four acres. No suspect MEC were observed on the ground surface or along the water's edge at any of the three ponds during the survey; however, munitions debris (i.e., casing fragments and other non-discernible pieces of metal) was found on the southeastern side of the southern pond. Multiple closely spaced subsurface anomalies were detected by the magnetometer and metal detectors concentrated along the south and east sides of the southern pond, the east side of the central pond, and the eastern and northern sides of the north pond. It is suspected that these anomalies are attributed to buried

munitions debris and possibly MEC. Again, the submerged portions of the ponds were not investigated during this SI.

Based on the findings of the SI field work, the MRS foot print has been reduced from the HRR acreage of 12.74 acres to 4.92 acres and encompasses the banks and three ponds. **Figure 5-11** presents the areas surveyed and locations of the munitions debris that were discovered.

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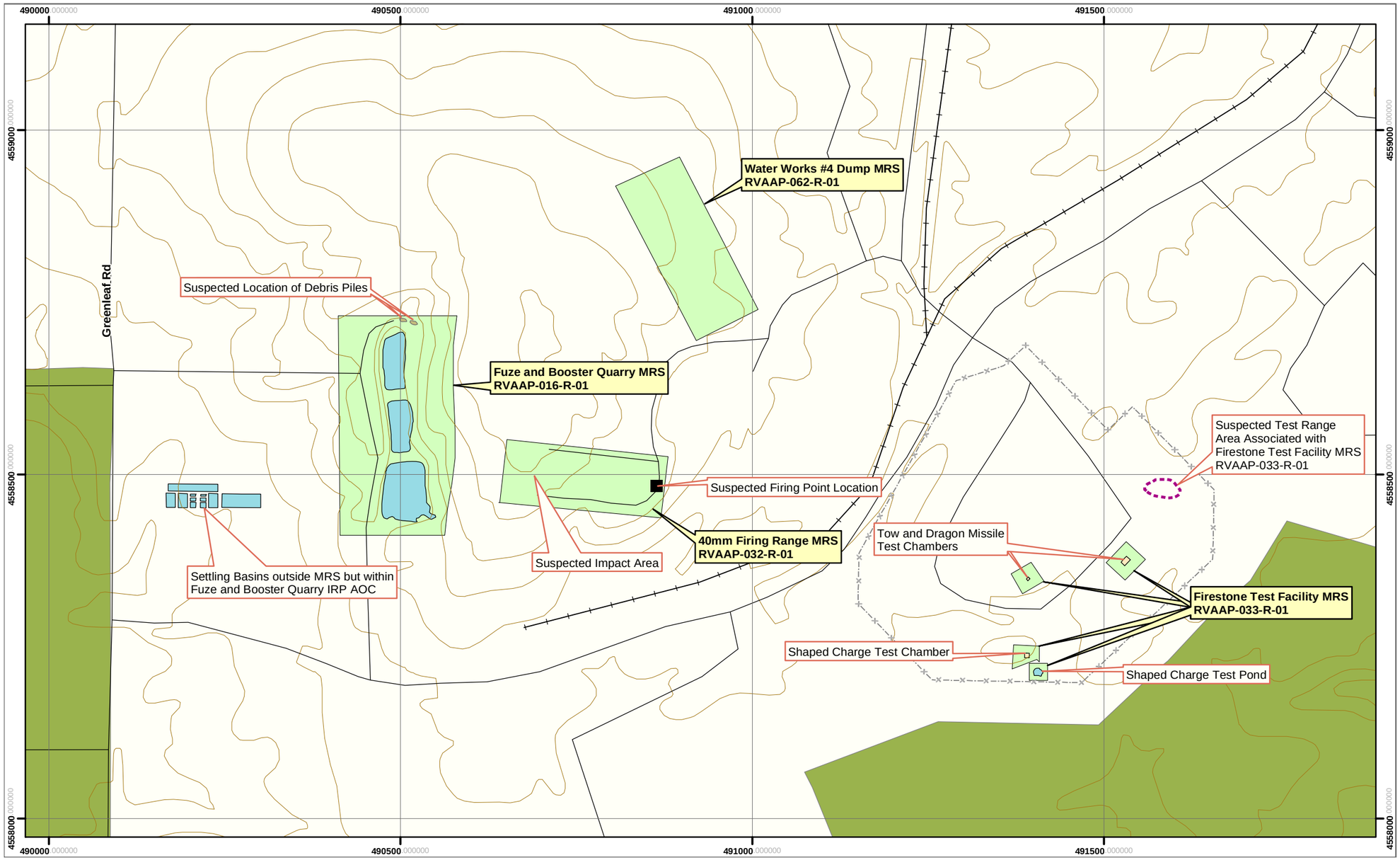
FUZE AND BOOSTER QUARRY, WATER WORKS #4 DUMP, 40mm FIRING RANGE, and FIRESTONE TEST FACILITY MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

Figure 5-10



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- Elevation Contour
- Railroad
- Fence
- Road
- Water
- Former Location of Test Chamber Buildings
- Suspected Location of Debris Piles
- Suspected Test Range
- Suspected Firing Point Location

Area Status

- Operational Range
- MRS, Closed

Data Source: e^2, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

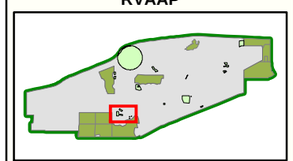
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 300 600 Feet

0 100 200 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

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FUZE AND BOOSTER QUARRY MRS, WATER WORKS #4 DUMP MRS, and 40mm FIRING RANGE MRS
Ravenna Army Ammunition Plant, OH

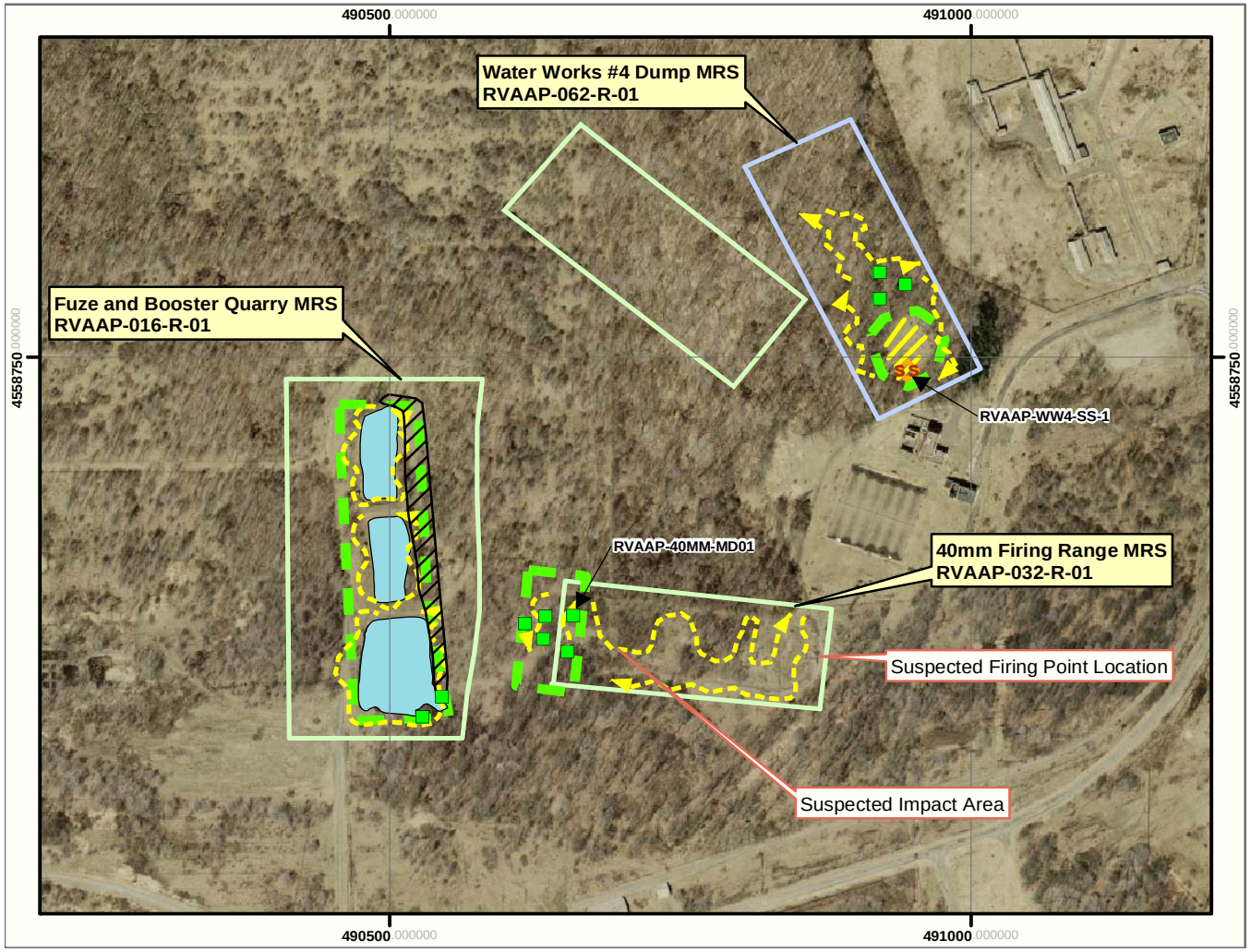

Figure 5-11

N
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- Munitions Debris Location
- Soil Sample Location
- Water
- Line Abreast Survey Area
- Meandering Path Survey Transects
- Location of Subsurface Anomalies
- Old CTT/HRR MRS Footprint Boundary
- Revised MRS Footprint Boundary
- Proposed New MRS Footprint Boundary

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

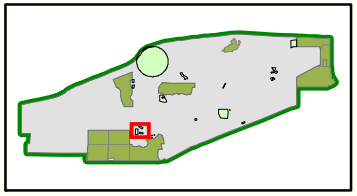
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 300 600 Feet

0 100 200 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

5.7 Landfill North of Winklepeck MRS (RVAAP-019-R-01)

This MRS was described in the US Army CTT Range/Site Inventory as a 7.55 acre unlined landfill that accepted general plant refuse, explosive wastes residue, and open burn waste including flares and booster cups from Winklepeck Burning Grounds. The landfill, which is collocated with an IRP site (Landfill North of Winklepeck Burning Grounds, AEDB-R #, RVAAP-19), is situated on top of a small bluff that overlooks an unnamed stream to the east. However, based on information collected during the HRR, it was determined: 1) that MEC (booster cups, aluminum liners, and other nondescript items) is present on the slope leading down to the small stream and within the stream course, which is outside of the MRS boundary identified in the US Army CTT Range/Site Inventory; and 2) that the landfill has been excluded from the MRS footprint and will continue to be covered under the IRP. Therefore, the MRS boundary was revised and expanded to 14.05 acres to include the slope area and the adjacent small stream. **Figure 5-12** shows the HRR boundary for the Landfill North of Winklepeck MRS.

5.7.1 SI Field Work

A magnetometer and metal detector assisted UXO survey was conducted along the hillside, creek bed, and downstream area of the MRS for this SI. One composite surface soil sample was collected using the CRREL seven-wheel method and analyzed for explosives, propellants, and TAL metals.

5.7.2 UXO Surveying

On 1 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted over approximately 15 acres that included the length of the hillside and creek bottom adjacent to the former landfill, the downstream area of the former landfill area, and the wooded area to the southeast of the landfill. No MEC was discovered during the UXO survey, although munitions debris was found. Munitions debris observed included the following: empty flare canisters were discovered on the hillside adjacent to the former landfill; a partially buried fragment of an unidentified bomb casing was found adjacent to the creek in the southeastern portion of the MRS; and one empty 105mm projectile (i.e., empty of energetic material) was found lying on the ground surface in the southeastern wooded area. The 105mm projectile was discovered along the path of a former roadway that leads to the landfill area. It was surmised that the 105mm projectile had fallen off a truck delivering rubbish to the landfill.

Multiple concentrated subsurface anomalies were detected along the length of the hillside adjacent to the former landfill. Although the hillside was littered with metal rubbish (i.e., metal cans, scrap metal,

etc.), the potential presence of MEC can not be dismissed due to historical data and the discovery of munitions debris during the SI UXO survey. Few subsurface anomalies were detected in the remaining areas surveyed; that is, downstream of the former landfill and in the wooded area in the southeastern portion of the MRS. Further, there was no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) observed in these areas that would indicate potential burial sites. Munitions debris discovered are identified on **Figure 5-13** and in **Table 5-11**.

Table 5-11: Landfill North of Winklepeck SI Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-LNWBG-MD01	Fragmented bomb casing SW portion of MRS, munitions debris.	17
RVAAP-LNWBG-MD02	Empty flare canisters, munitions debris.	18
RVAAP-LNWBG-MD03	Empty 105mm projectile, munitions debris.	19

5.7.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Lead is considered a MC, as such; the MRS will require further characterization work.
Sample location rationale can be found in **Table 5-12**. The location of the surface soil sample is illustrated on **Figure 5-13.**

One composite surface soil (0-6" bgs) sample was collected on 1 October 2007 using the CRREL seven-wheel method from the Landfill North of Winklepeck MRS. Sample RVAAP-LNWBG-SS-1 was collected upslope and adjacent to the location where the empty flare canisters were found and analyzed for TAL metals, propellants, and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analysis.

Table 5-12: Landfill North of Winklepeck MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-LNWBG-SS-1	Location of empty flare canisters where sample collected
RVAAP-LNWBG-SS-1 DUP	Duplicate Sample for QA/QC Purposes

Table 5-13 presents the TAL metals results in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Concentrations of lead and iron exceeded RVAAP Background Values and one-tenth the non-carcinogen USEPA Residential Soil PRG. Thallium exceeded one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but was dismissed as naturally occurring and non-munitions related.

Table 5-14 presents the propellants and explosives results in comparison to one-tenth the non-carcinogen and/or the full carcinogen USEPA Region 9 Residential Soil PRGs. Although propellants and explosives were not detected at concentrations that exceeded the PRG values for residential soils, 2,6-Dinitrotoluene was detected at an estimated concentration (i.e., below the method detection limit).

Based on historical data and the findings of the SI UXO survey there is no evidence, historical or physical, which indicates the presence of MEC south of the former landfill area. The isolated finding of munitions debris in the south is believed to have fallen off haul trucks leading to the former landfill. As such, the MRS footprint has been reduced from the HRR acreage of 14.05 acres to 2.32 acres and encompasses the area on the hillside adjacent to the former landfill and the stream directly below.

LANDFILL NORTH OF WINKLEPECK, BUILDING #F-15 AND #F-16, BLOCK D IGLOO, and BLOCK D IGLOO - TD MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

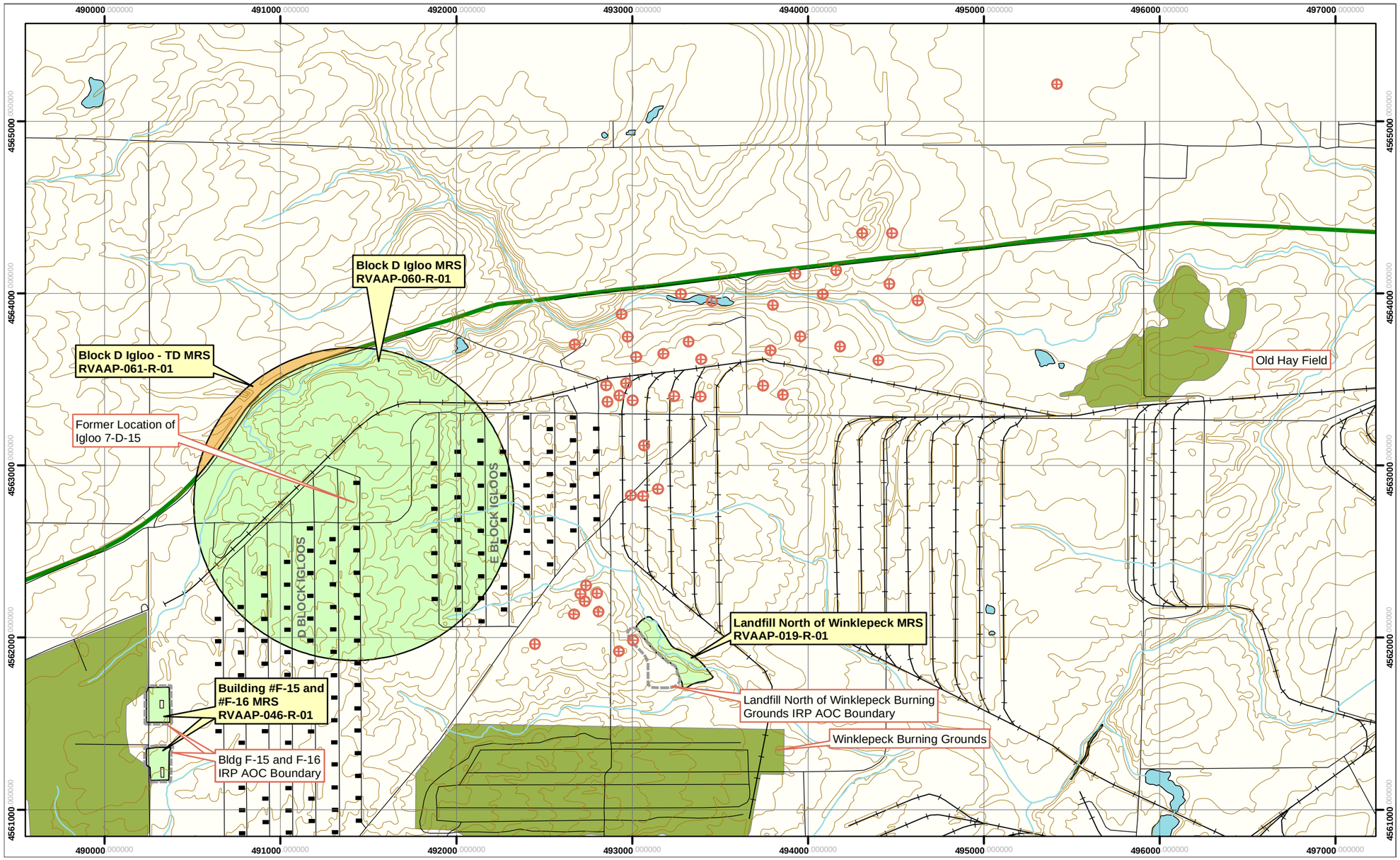


Figure 5-12

N
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- Elevation Contour
- Installation Boundary
- Railroad
- Road
- Stream
- Water
- Building Locations, Demolished
- Igloo Location
- Location of Fragments Found from the 1943 Explosion of Igloo 7-D-15

Area Status

- Operational Range
- MRS, Closed
- MRS, Transferred
- IRP Area of Concern

Data Source: e^2M, Final Military Munitons Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

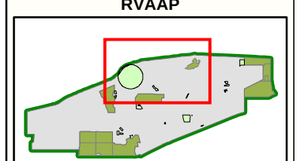
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**1,000 Meter**

1:24,000

0 1,200 2,400 Feet

0 400 800 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

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LANDFILL NORTH of WINKLEPECK MRS
Ravenna Army Ammunition Plant, OH

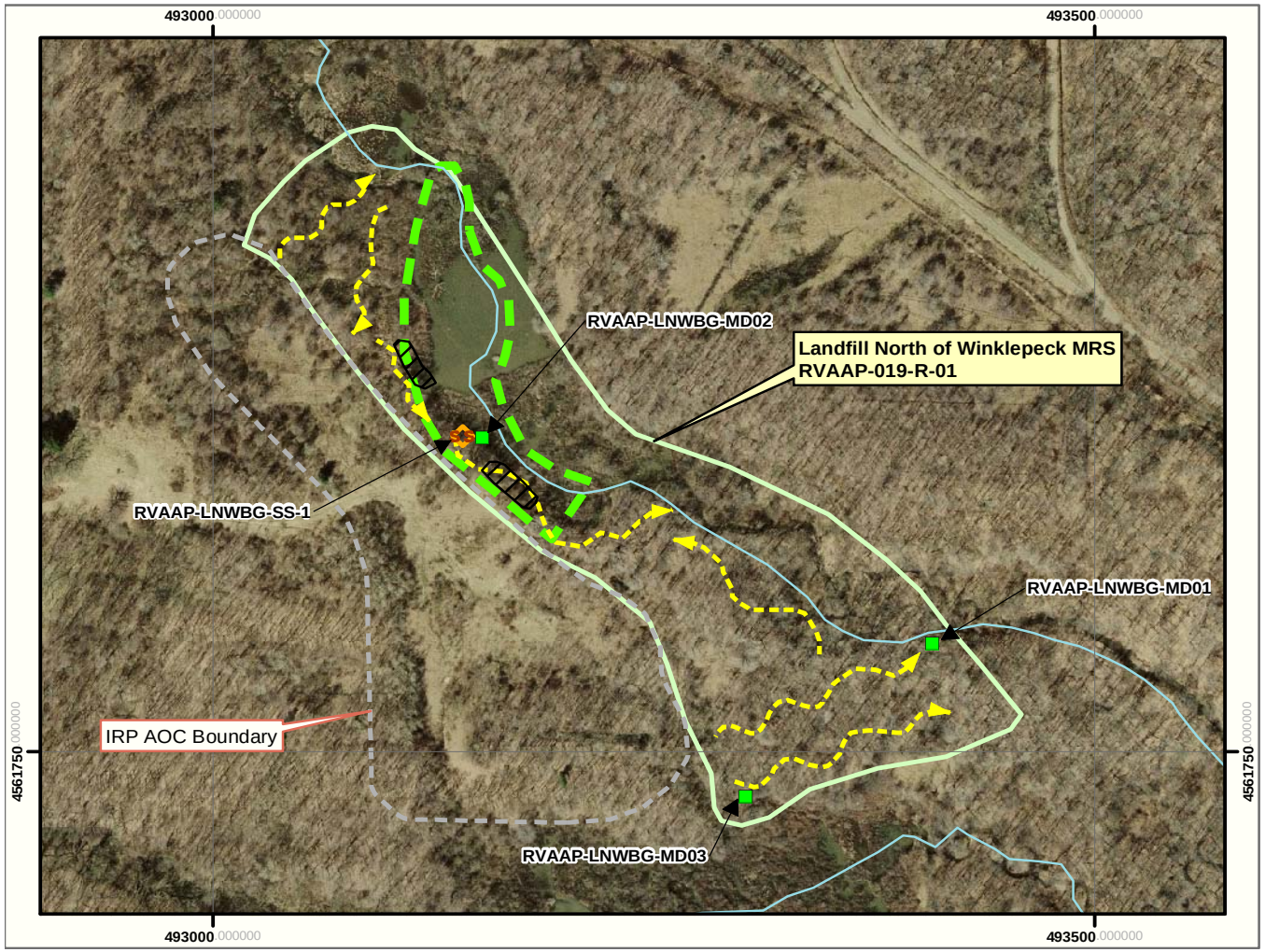

Figure 5-13

N
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- Munitions Debris Location
- Soil Sample Location
- Stream
- Meandering Path Survey Transects
- Location of Subsurface Anomalies
- Old CTT/HRR MRS Footprint Boundary
- Proposed New MRS Footprint Boundary
- IRP Area of Concern

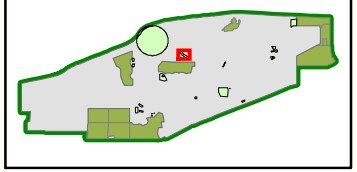
Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:4,000

0 200 400 Feet
0 75 150 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

Table 5-13: Landfill North of Winklepeck Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-LNWBG-SS-1
Antimony	0.96	3.1	0.63B
Arsenic	15.4	0.039	12.5
Lead	26.1	40	**94.9**
Selenium	1.4	39	ND
Thallium	N/A	0.52	1.4B
Aluminum	17,700	7,600	7,460
Barium	88.4	540	44.5
Beryllium (ca)	0.88	150	0.38B
Cadmium	N/A	3.7	0.43B
Cobalt	10.4	90	6.9
Chromium (ca)	17.4	210	22.3
Copper	17.7	310	33.1
Iron	23,100	2,300	**36,200**
Manganese	1,450	180	404
Nickel	21.1	160	22.4
Vanadium	31.1	7.8	13.2
Zinc	61.8	2,300	92.3
Mercury	0.04	2.3	0.068B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.

N/A: Not Applicable

B: Concentration of inorganic constituent is estimated.

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

Blank Cell: No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-14: Landfill North of Winklepeck Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-LNWBG-SS-1
Nitroguanidine	610	ND
2-Amino-4,6-dinitrotoluene	1.2	ND
4-Amino-2,6-dinitrotoluene	1.2	ND
1,3-Dinitrobenzene	0.61	ND
2,4-Dinitrotoluene	12	ND
2,6-Dinitrotoluene (ca)	61	0.032J
HMX	310	ND
Nitrobenzene	2	ND
2-Nitrotoluene	0.088	ND
3-Nitrotoluene	73	ND
4-Nitrotoluene	1.2	ND
RDX (ca)	4.4	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND
1,3,5-Trinitrobenzene	180	ND
2,4,6-Trinitrotoluene (ca)	16	ND
Nitroglycerin	3.5	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.8 40mm Firing Range MRS (RVAAP-032-R-01)

This undeveloped MRS, as described in the HRR, encompasses an open field approximately 5.17 acres in size, which is surrounded by forest. A wooden structure located at the firing point believed to be the former storage shed, the gun mount foundation, and the chronograph foundation are the only remnants from the operational years still present at the MRS. The impact area was sited in the western portion of the MRS, just uphill from the ponds at the Fuze and Booster Quarry. The impact area consisted of a single impact berm, which has since been removed. The MRS had originally been included in the IRP,

but as of February 2008 was placed solely under the jurisdiction of the MMRP. Therefore, all future investigation of MEC and MC will be conducted under the MMRP. **Figure 5-10** shows the layout of the 40mm Firing Range MRS, as presented in the HRR.

The MRS was used during the Viet Nam conflict (i.e., 1969 – 1971) to test the 40mm cartridge. During this period, the rounds tested may have included both the M407A1 practice round and the M406 HE round. The practice rounds contain yellow marker dye, M9 propellant, and royal demolition explosive (RDX) booster pellets, while the M406 HE round contains Composition B and M9 propellant. RVAAP personnel report that UXO is present beyond the impact point, on the slope that leads down to the Fuze and Booster Quarry MRS.

5.8.1 SI Field Work

For this SI, a magnetometer and metal detector assisted UXO survey was conducted at the firing point, the area between the firing point and impact area, the impact area, and down range of the impact area. At the time the SI Work Plans were developed, chemical contamination was still being covered under the IRP; as such, no samples were planned for collection.

5.8.2 UXO Surveying

On 3 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the down range target area, overshot area, and firing point, totaling approximately three acres. MEC and munitions debris were not observed at the firing point or within the area between the firing point and impact area. Further, no subsurface anomalies were detected by the metal detector. Munitions debris consisting of aluminum 40mm nose caps and casings were found at the impact area and beyond. The munitions debris was found scattered from the impact area to approximately 100 ft beyond the impact area, and is attributed to overshoot. MEC was not found in this area. Multiple anomalies were detected by the metal detector in this area, particularly at the impact area. Upon investigation, the majority of the detections were remnants of 40mm rounds (casing and nose fragments) covered by leafs and other forest duff. It is likely the remaining detections represent munitions debris and possibly MEC that lie just below the ground surface. The path of the UXO survey and locations where the 40mm munitions debris were found are presented on **Figure 5-11**. **Table 5-15** provides the results of the UXO findings.

Table 5-15: 40mm Firing Range UXO Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-40MM-MD01	40mm round caps and casings, empty of energetic material, munitions debris.	21

Due to the lack of physical evidence that munitions debris or MEC is present between the firing point and impact area, this area has been removed reducing the HRR acreage from 5.17 acres to 1.27 acres. The new MRS footprint encompasses the impact area and 100 feet beyond where munitions debris was found lying on the ground surface and numerous subsurface anomaly detections were recorded.

5.9 Firestone Test Facility MRS (RVAAP-033-R-01)

The Firestone Test Facility MRS consisted of two buildings and a pond that were situated on the southeastern side of the Load Line 6 Fuze and Booster Area. The buildings were used as a test chamber for tube-launched, optically-tracked, wire-guided (TOW) missiles and Dragon missiles, while shaped charges were tested under water at the pond. It was also determined that there was an additional building located adjacent to the pond that was used for testing shaped charges. The building, which measured 10 ft high and 10 ft square, was constructed of reinforced concrete and fitted with steel plates, and was surrounded by a barricade constructed of railroad ties. All three buildings have been removed and the areas cleared. In addition, Installation personnel identified a suspected test range area located to the northeast of the former test chambers, along the eastern fence line. The area comprises a small clearing and piles of dirt and large timbers. Further, the MRS is collocated with an IRP AOC (Load Line 6, AEDB-R #, RVAAP-33). **Figure 5-10** shows the layout of the Firestone Test Facility MRS, as provided in the HRR.

5.9.1 SI Field Work

Under this SI, a magnetometer and metal detector assisted UXO survey was conducted around the former test chambers, open field, and the immediate area surrounding the pond. A UXO survey of the submerged portion of the pond was not conducted because it is out of scope for the SI phase, which will require future characterization work. Surface soil samples were not collected around the former test chambers or pond, as chemical contamination in this area is being investigated under the IRP. Regardless, one (1) MI surface soil sample was collected from the open field where the operation of a former test range was suspected and analyzed for explosives, propellants, and TAL metals.

5.9.2 UXO Surveying

On 3 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted at the former location of the three former test chambers and at the open field in the eastern end of the MRS with the suspected test range, totaling approximately a half acre. A meandering path magnetometer and metal detector assisted UXO survey was also conducted around the pond area, totaling another half acre. There was no visible evidence of MEC or munitions debris discovered at the former test chamber locations, open field, or around the pond. Further, relatively few subsurface anomalies were detected at the former missile test chambers locations or the open field. The few subsurface anomalies that were recorded were attributed to construction debris (metal wire, rebar, nails) that remain at these locations. Regardless, multiple subsurface anomalies were recorded at the location of the former shape charge test chamber and around the pond. These concentrated recordings possibly represent buried munitions debris or MEC. The paths of the UXO surveys are provided in **Figure 5-14**.

5.9.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC at the suspected former test range located in the eastern field. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-16**. The location of the surface soil sample is illustrated on **Figure 5-14**.

Table 5-16: Firestone Test Facility MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-FTF-MC1	Suspected Test Range Area
RVAAP-FTF-MC2	Duplicate for QA/QC Purposes

One MI surface soil (0-6" bgs) sample and one duplicate were collected on 3 October 2007 from the open field at the eastern end of the Firestone Test Facility MRS. Sample RVAAP-FTF-MC1 and duplicate RVAAP-FTF-MC2 were collected and analyzed for TAL metals, propellants, and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analyses.

FIRESTONE TEST FACILITY MRS
Ravenna Army Ammunition Plant, OH

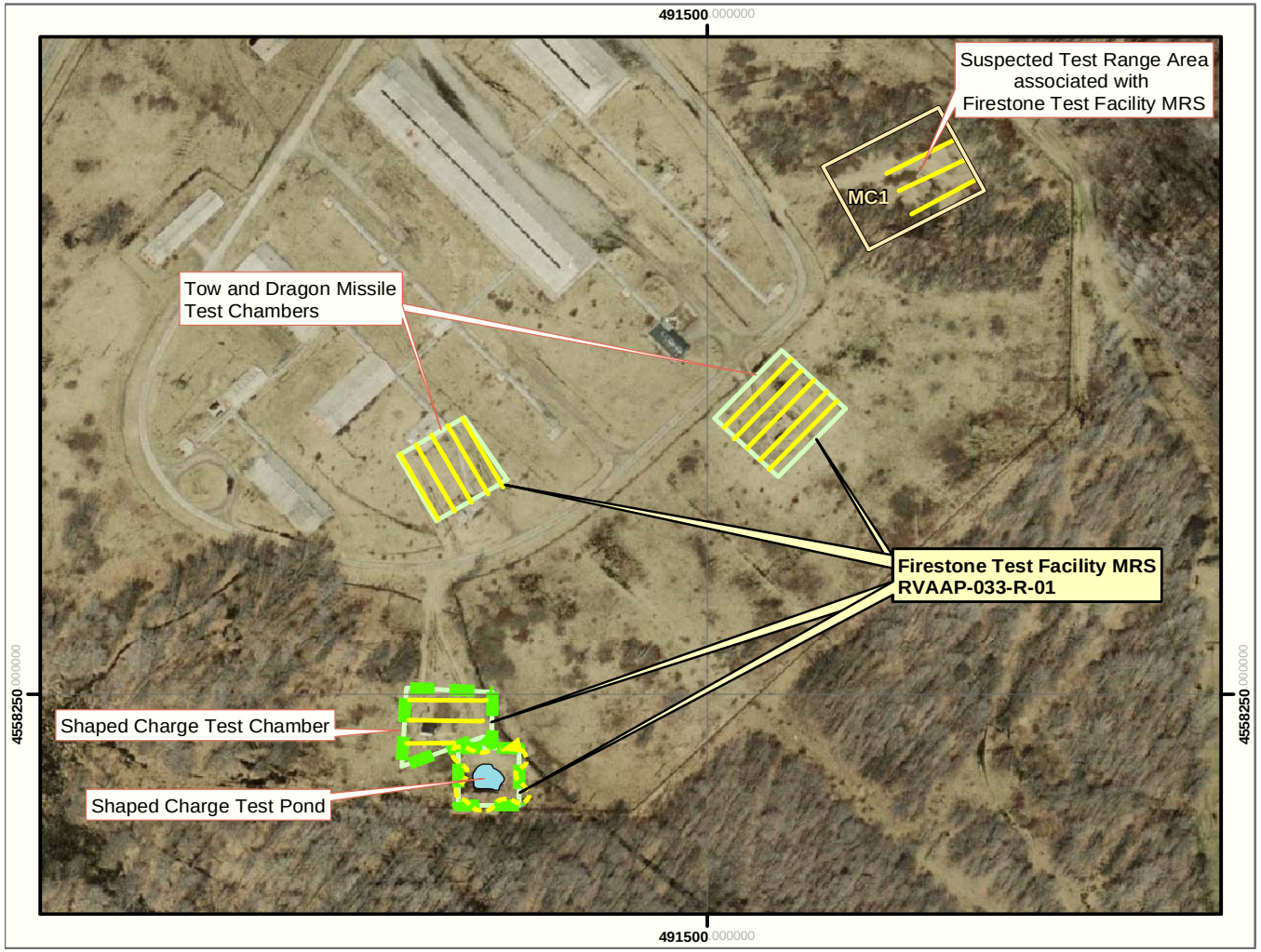


Figure 5-14

N
W E
S

- Stream
- Water
- Multi-incremental Sample Area
- Line Abreast Survey Area
- Meandering Path Survey Transects
- Old CTT/HRR MRS Footprint Boundary
- Proposed New MRS Footprint Boundary

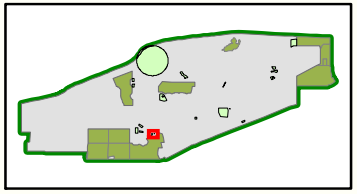
Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:3,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

Table 5-17 shows the TAL metals concentration results for the Firestone Test Facility MRS sample and duplicate in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Thallium was found in both the sample and the duplicate at concentrations greater than one-tenth the non-carcinogen USEPA Residential Soil PRG, but has been dismissed as non-munitions related. Based on the sample results, there are no TAL metals MC concerns at the open field area.

Table 5-18 presents the propellants and explosives concentration results for the Firestone Test Facility MRS sample and duplicate in comparison to one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs. None of the propellants and explosives were detected in either sample above the method detection limit. Considering the lack of propellant, explosives, and TAL metal concentrations in excess of the screening criteria, MC is not a concern at the open field.

Based on the findings of this SI, there is no physical evidence to suggest that MEC is present at the two former missile test chambers or at the suspected former test range located in the open field. However, the magnetometer and metal detector UXO survey results from the pond and former shape charge test chamber indicate dense concentrations of buried metallic items that could represent MEC or munitions debris. The possibility also remains that MEC may be present in the pond. In light of the findings, the MRS acreage has been reduced from the HRR acreage of 0.91 acres to 0.41 acres. The new MRS footprint encompasses the pond and surrounding area, and the former location of the adjacent shape charge test chamber.

Table 5-17: Firestone Test Facility Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-FTF-MC1	RVAAP-FTF-MC2
Antimony	0.96	3.1	ND	ND
Arsenic	15.4	0.039	8.2	8.6
Lead	26.1	40	25.0	23.8
Selenium	1.4	39	ND	ND
Thallium	N/A	0.52	1.4B	1.2B
Aluminum	17,700	7,600	9,440	9,290
Barium	88.4	540	68.0	68.7
Beryllium (ca)	0.88	150	0.90B	0.83B
Cadmium	N/A	3.7	0.21B	0.31B
Cobalt	10.4	90	6.1	6.4
Chromium (ca)	17.4	210	27.7	23.8
Copper	17.7	310	21.4	21.4
Iron	23,100	2,300	17,900	17,300
Manganese	1,450	180	651	569
Nickel	21.1	160	22.6	22.5
Vanadium	31.1	7.8	13.5	13.7
Zinc	61.8	2,300	50.6	52.0
Mercury	0.04	2.3	0.039B	0.033B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.

N/A: Not Applicable

B: Concentration of inorganic constituent is estimated.

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

Blank Cell: No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-18: Firestone Test Facility Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-FTF-MC1	RVAAP-FTF-MC2
Nitroguanidine	610	ND	ND
2-Amino-4,6-dinitrotoluene	1.2	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND
2,4-Dinitrotoluene	12	ND	ND
2,6-Dinitrotoluene (ca)	61	ND	ND
HMX	310	ND	ND
Nitrobenzene	2	ND	ND
2-Nitrotoluene	0.088	ND	ND
3-Nitrotoluene	73	ND	ND
4-Nitrotoluene	1.2	ND	ND
RDX (ca)	4.4	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND
1,3,5-Trinitrobenzene	180	ND	ND
2,4,6-Trinitrotoluene (ca)	16	ND	ND
Nitroglycerin	3.5	ND	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.10 Sand Creek Dump MRS (RVAAP-034-R-01)

The Sand Creek Dump MRS, which is collocated with an IRP AOC (Sand Creek Disposal Road Landfill, AEDB-R #, RVAAP-34), encompasses approximately 0.85 acres of undeveloped land that stretches along the banks of Sand Creek for approximately 1,000 ft. The MRS is split into two sections by a railroad track. The area is heavily overgrown with trees, shrubs, and ground cover. Debris remains at the site and is reportedly entering Sand Creek due to erosion. The dump, which was in operation from 1950 to 1960, was reported by former workers to have been a construction landfill for concrete, wood,

asbestos debris, lab bottles, 55-gallon drums, and fluorescent light tubes. In October 2003, a Removal Action was performed under the IRP to remove all surface and subsurface debris in order to eliminate source contamination to protect human health and the environment. The Removal Action was conducted across the entire IRP and collocated MRS footprint, and involved a visual UXO site survey and anomaly avoidance for confirmation sampling. While performing the confirmation sampling, two demilitarized 75mm projectiles (i.e., munitions debris) were found at the MRS. The projectiles were removed by MKM Engineers and taken to Building 1501. Other items found and removed during the Removal Action included transite building materials (roofing and panels), concrete rubble, masonry debris, drywall and plaster, scrap metal, glass bottles and fluorescent light tubes, and wood debris. No other discoveries of MEC at the MRS have been reported since the completion of the Removal Action. **Figure 5-15** shows the layout of the Sand Creek Dump MRS, as presented in the HRR.

5.10.1 SI Field Work

For this SI, a magnetometer assisted UXO survey of the entire MRS was conducted. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP.

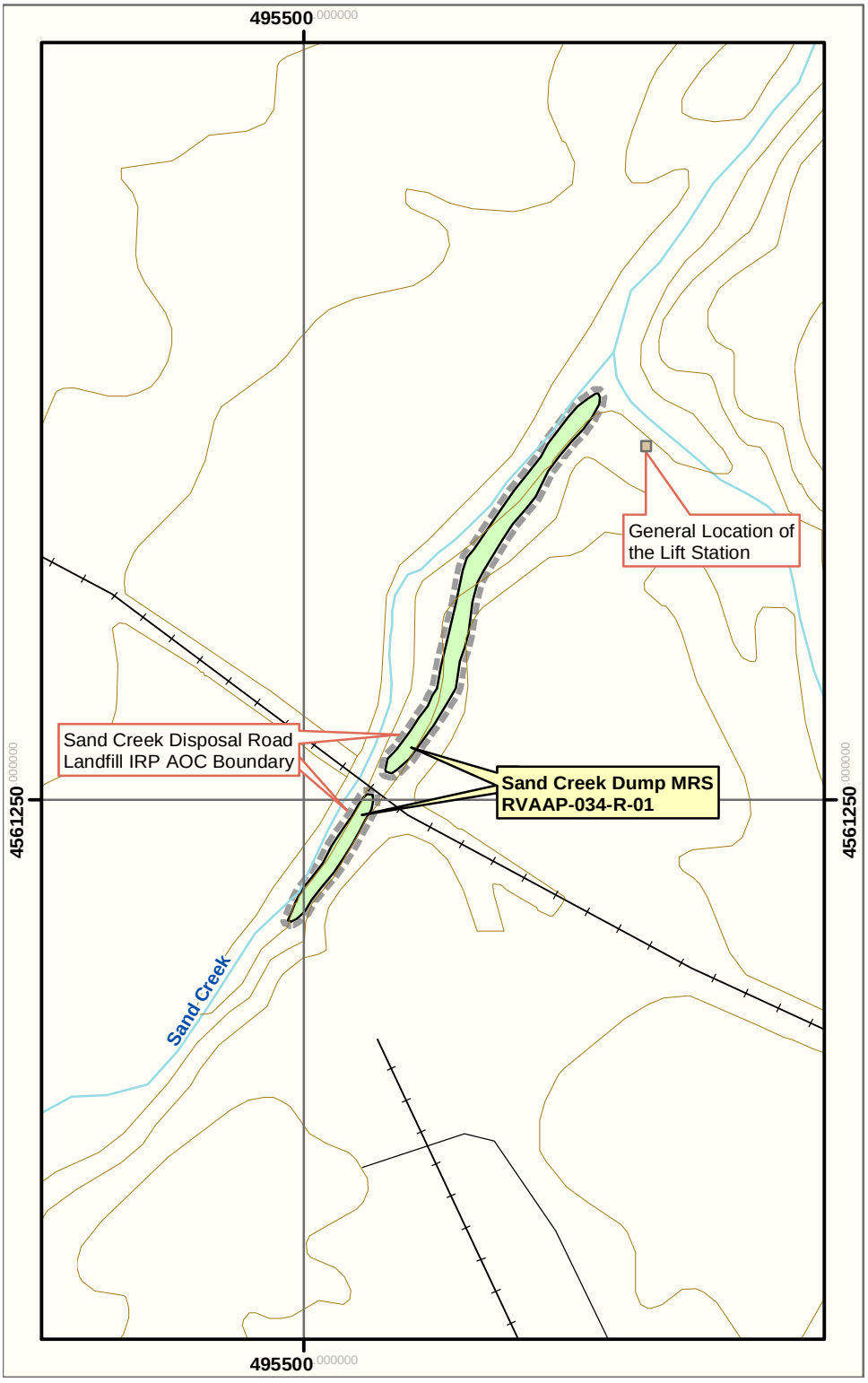
5.10.2 UXO Surveying

On 4 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted of all open areas along Sand Creek and within the dump area, totaling approximately one acre. No MEC was discovered during the survey, although what appeared to be an one empty 105mm projectile (munitions debris) was observed lying on the creek bottom down gradient from the former dump area. The presence of the 105mm projectile may be attributable to a release from the dump. At the former dump area, multiple subsurface anomalies were recorded, which was expected due to the presence of metal construction debris that was observed. However, a clear-cut determination of the nature of the subsurface anomalies could not be made.

Based on the historical findings and SI field observations made, the possible presence of MEC could not be completely ruled out. As such, the MRS footprint will remain the same as identified in the HRR and include the entire dump area. **Figure 5-16** presents the path of the UXO survey taken at this MRS.

SAND CREEK DUMP MRS LOCATION
Ravenna Army Ammunition Plant, OH

Figure 5-15



N
W E
S

Elevation Contour
Railroad
Road
Stream

Area Status
MRS, Closed
IRP Area of Concern

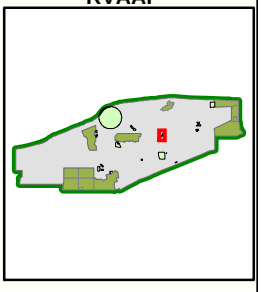
Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

SAND CREEK DUMP MRS
Ravenna Army Ammunition Plant, OH

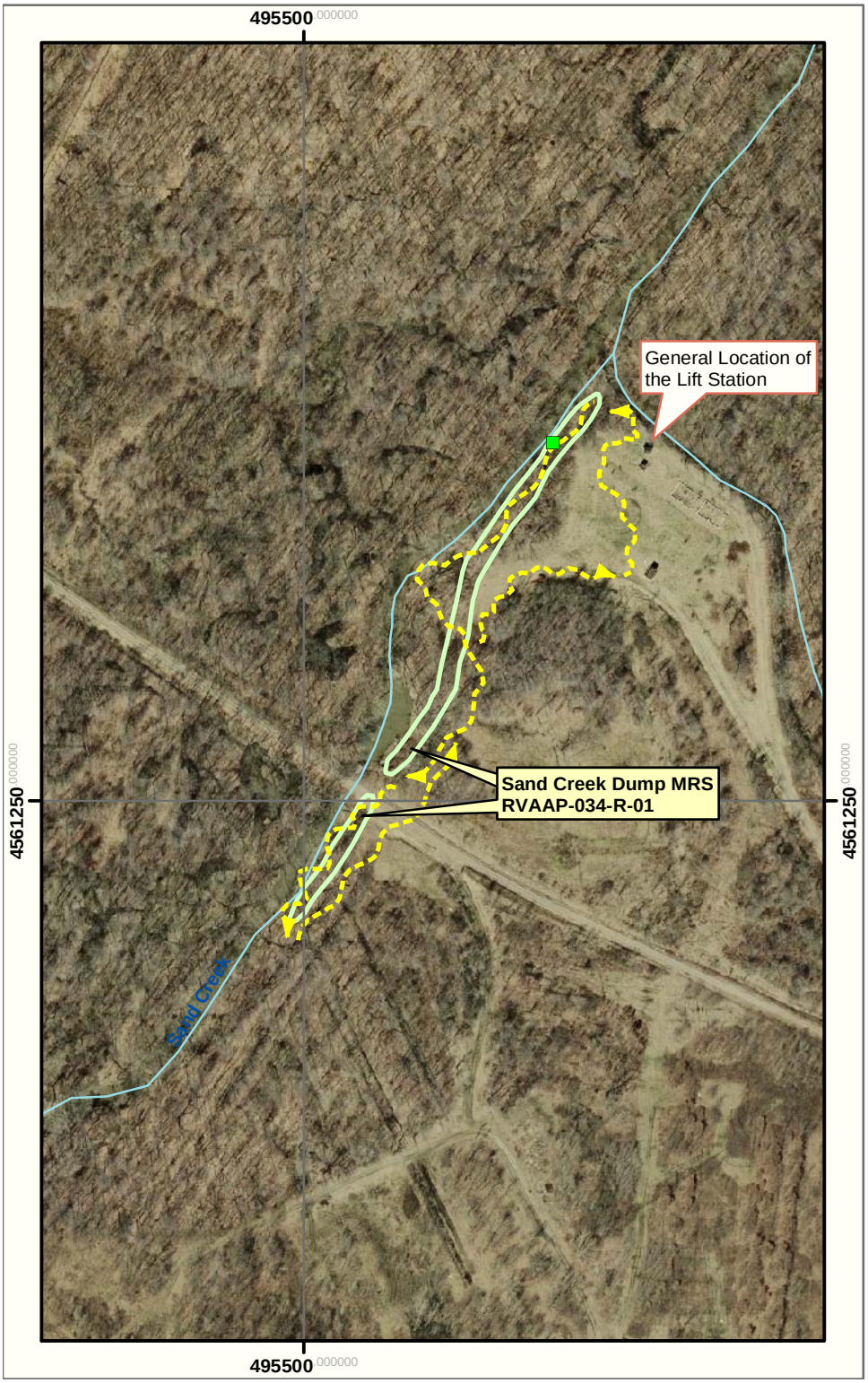


Figure 5-16

N
W E
S

Munitions Debris Location
Stream
Meandering Path Survey Transects

Area Status
MRS, Closed

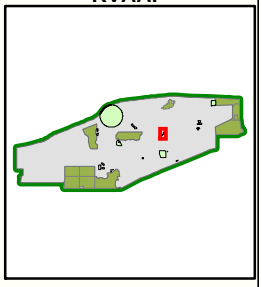
Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

5.11 Building #F-15 and F-16 MRS (RVAAP-046-R-01)

The MRS encompasses approximately 12.23 acres of undeveloped land and is collocated with an IRP AOC (BLDGS F-15 and F-16, AEDB-R #, RVAAP-46). The MRS was included in the MMRP during the US Army CTT Range/Site Inventory due to concerns that MC may be present in the form of explosives and metals. It was also disclosed in the US Army CTT Range/Site Inventory that large caliber casings, void of HE, have been found lying on the ground surface somewhere in the vicinity of the buildings. Dates when the munitions debris was found were not disclosed. Further, no additional information was uncovered during the HRR concerning the type of ordnance or the exact location where the items were found. Other than the large caliber munitions debris, no MEC has been discovered at the MRS. Since the completion of the US Army CTT Range/Site Inventory, the buildings at the MRS have been demolished. At Building F-15, the only remaining feature is the raised foundation and possibly buried utilities (e.g., water and sewer). Both the foundation and building debris remain at Building F-16. The possibility that buried utilities are present at this location also exists. Prior to their demolition, each building measured approximately 60 ft wide by 120 ft long. The area surrounding the buildings is forested land.

Additional information disclosed in the HRR described the activities that were conducted at the MRS. Based on interviews with Installation personnel, the facility was used during WWII, the Korean War, and Vietnam War to test miscellaneous explosives and propellants. Buildings F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds (type not specified) were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage, which were subsequently dismantled for inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE). Information concerning the final disposition of the tested components was not disclosed. It could be surmised that since the projectiles were dismantled and rendered non-operational, the components would have been taken to any one of the burning grounds to be demilitarized. This seems reasonable, since the site is not littered with individual components, propellant, or HE. **Figure 5-12** provides the layout of the MRS presented in the HRR.

5.11.1 SI Field Work

For this SI, a magnetometer assisted UXO survey was conducted of the MSR. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP.

5.11.2 UXO Surveying

On 9 October 2007, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately 12 acres. No MEC or munitions debris were found during the survey. Very few subsurface anomalies were recorded in the open areas surrounding and between the two buildings. Subsurface anomalies were recorded around the buildings and along the railroad tracks, but were dismissed as non-munitions related. Rather, these findings were attributed to demolition debris/underground utilities and remnants of the railroad tracks.

Based on the historical information concerning the activities conducted at the site (i.e., dismantling of munitions for inspection) and observations and findings made during the SI field work, MEC is not expected to be present at the MRS. **Figure 5-17** shows the UXO survey paths taken at the MRS.

BUILDING #F-15 and #F-16 MRS
Ravenna Army Ammunition Plant, OH

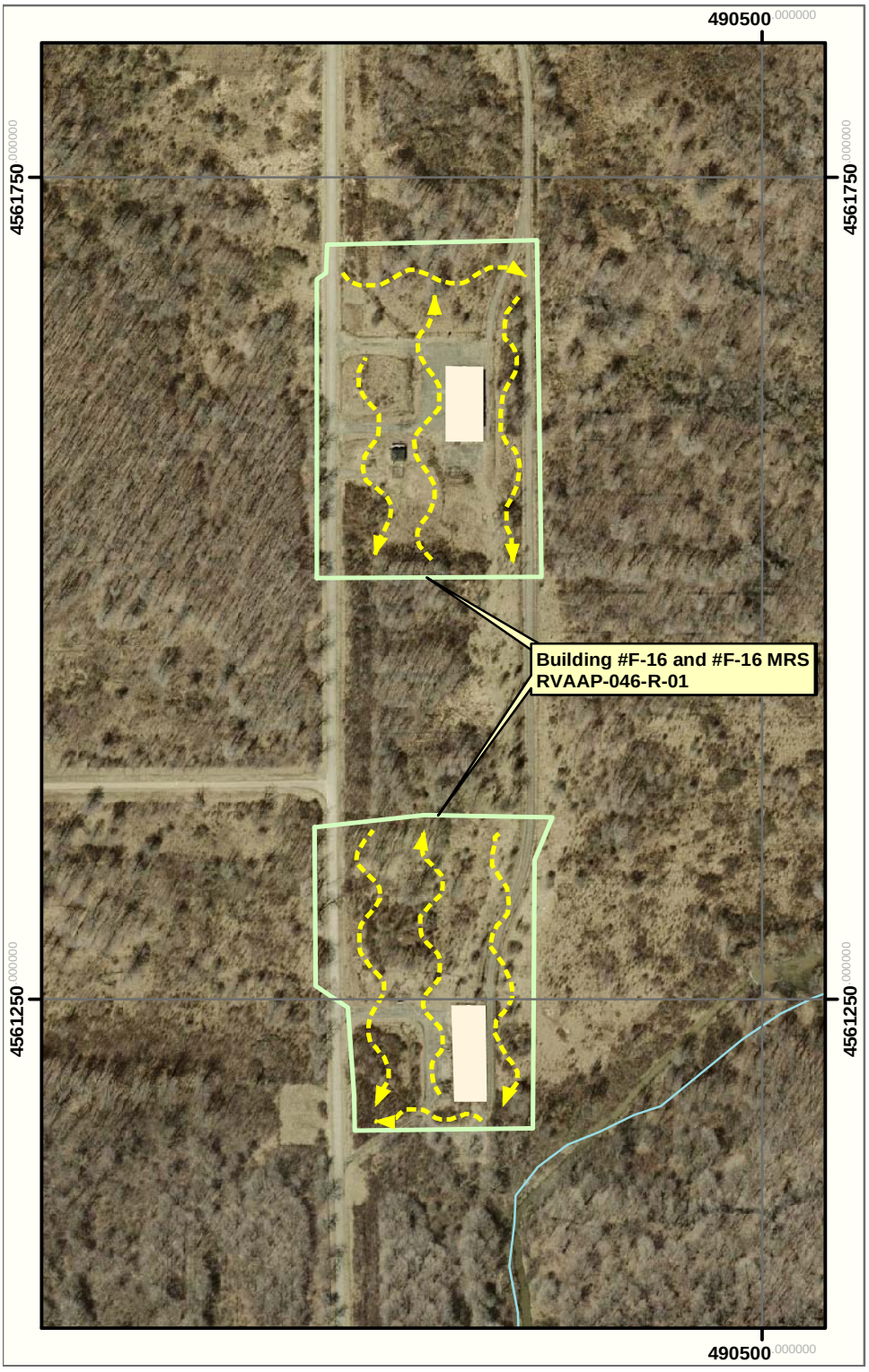


Figure 5-17

N
W E
S

Stream
Meandering Path Survey Transects
Footprint of Former Building

Area Status
MRS, NFA

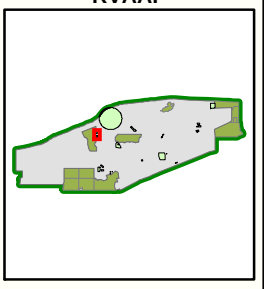
Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

5.12 Anchor Test Area MRS (RVAAP-048-R-01)

The Anchor Test Area, which is collocated with an IRP AOC (AEDB-R #, RVAAP-48), encompasses approximately 2.57 acres of heavily forested land located west and adjacent to Wilcox-Wayland Road. Due to the overgrown conditions, very few remnants of the original facility are visible at the MRS. Identifiable features at the MRS include several dirt mounds and a nearby sandpit. Little is known about the actual function of the MRS, but available information suggests that it was used to test fire experimental explosively-charged anchors into the ground. RVAAP personnel also believe the experimental munitions were used to drive anchors for ropes or cables into the ground. While some metal debris of unknown origin has been found in the area, the MRS has not been evaluated for the presence of MEC. **Figure 5-18** provides the layout of the Anchor Test Area MRS presented in the HRR.

5.12.1 SI Field Work

A magnetometer assisted UXO survey was conducted of the entire MRS for this SI. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP.

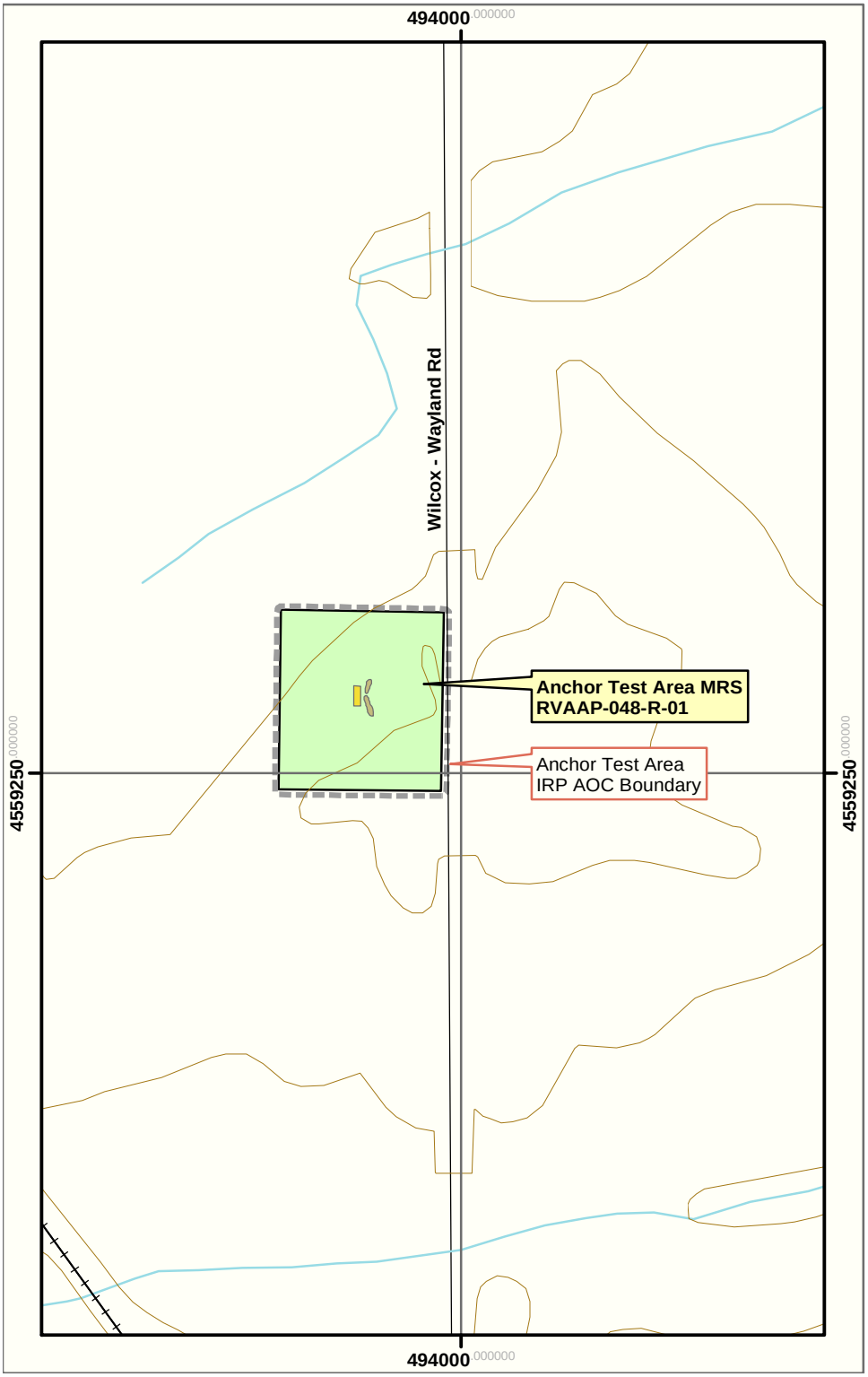
5.12.2 UXO Surveying

On 9 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately three acres. There was no sign of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. The magnetometer and metal detector survey did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the detectors.

Based on the findings of the SI UXO survey, it is believed there are no MEC or munitions debris remaining in this area. **Figure 5-19** shows the UXO survey paths taken at this MRS.

ANCHOR TEST AREA MRS LOCATION
Ravenna Army Ammunition Plant, OH

Figure 5-18



N
W E
S

Elevation Contour
Railroad
Road
Stream
Dirt Mounds
Sand Pit

Area Status

MRS, Closed
IRP Area of Concern

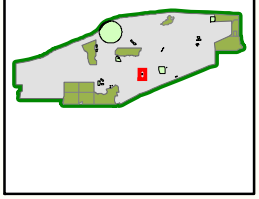
Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



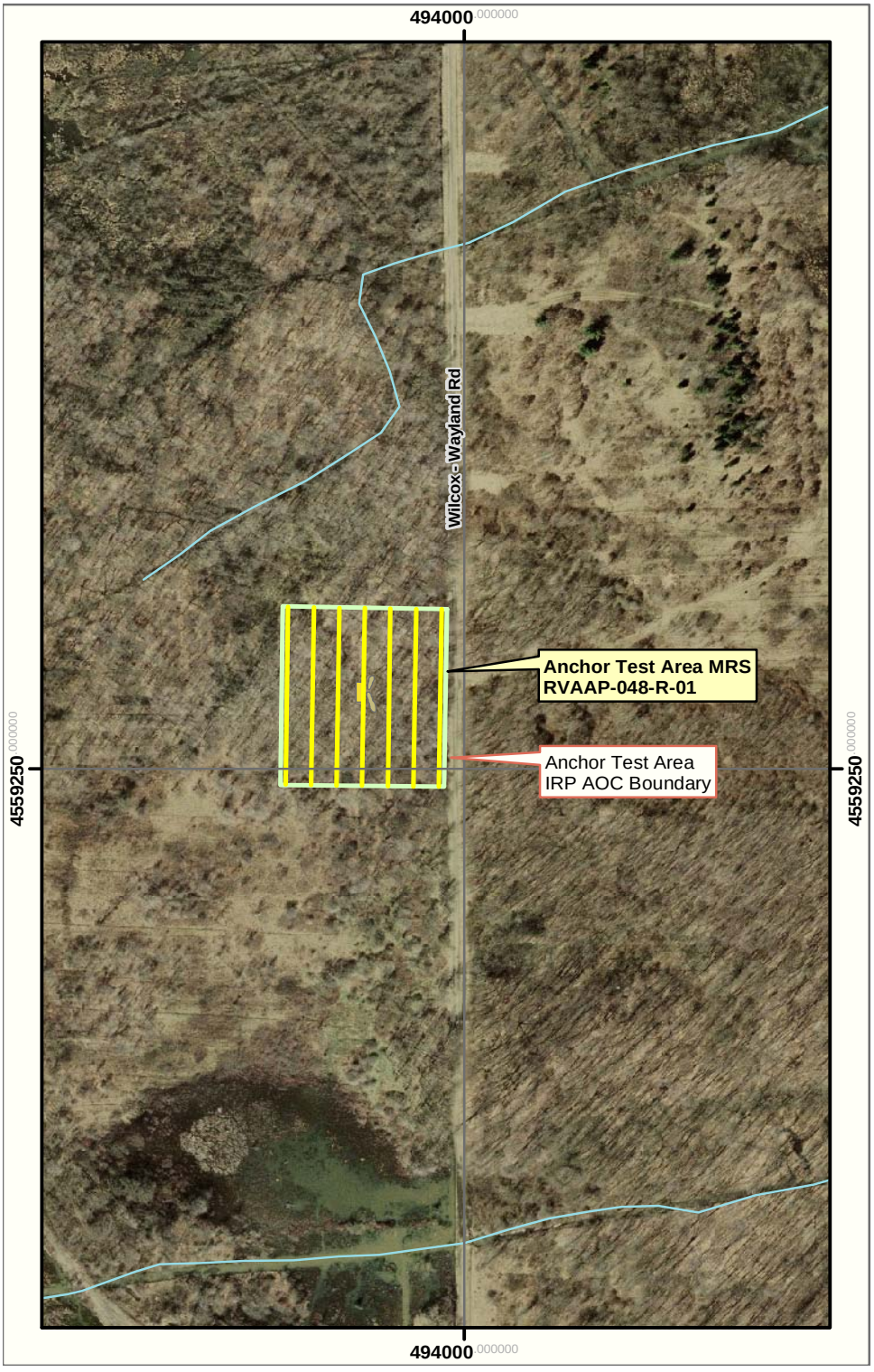
SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

ANCHOR TEST AREA MRS
Ravenna Army Ammunition Plant, OH

Figure 5-19



N
W E
S

Stream
Line Abreast Survey Area
Dirt Mounds
Sand Pit

Area Status
MRS, NFA

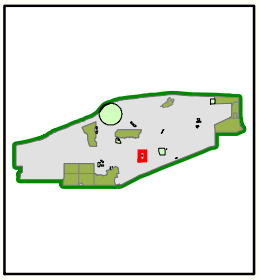
Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

Projection:	UTM Zone 17
Datum :	WGS 84
Units:	Meters
Grid:	500 Meter

1:4,000

0 150 300 Feet
0 50 100 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

5.13 Atlas Scrap Yard MRS (RVAAP-050-R-01)

The Atlas Scrap Yard MRS, which is included in an IRP AOC (AEDB-R #, RVAAP-50), encompasses approximately 66.04 acres of mostly open land that contains a network of roads. Originally used as a construction camp, the MRS became a storage area for non-explosive scrap starting in 1969. Currently, the MRS is heavily overgrown with tall grasses, isolated stands of trees, and shrubs. There are scattered piles of debris located throughout the site that appear to be comprised of construction debris, dunnage, and metal scraps. The layout and general location of the MRS, as presented in the HRR, is provided in **Figure 5-8**.

According to interviews with various RVAAP personnel, any of the munitions made or stored at the plant may have been disposed of in this area including: small arms, explosives, pyrotechnics, propellants, mortars, medium and large caliber munitions, landmines, hand grenades, flares, bombs, detonators, or fuzes. The US Army CTT Range/Site Inventory reported that UXO had been uncovered in the southwest corner of the MRS. This disclosure was based on information provided in a removal report funded by the Joint Munitions Command (JMC); however, the name of the reference was not provided and could not be verified. The report further stated that the OE, OE scrap, and UXO had been sorted and removed from the site in 2003. Again, this information could not be verified. During the SI phase, it was also disclosed by Installation personnel that 40mm fragmentation shells and been buried in the central portion of the MRS. The Installation could only provide a general location of the purported burial site (See **Figure 5-9**).

5.13.1 SI Field Work

During this SI, magnetometer assisted UXO surveys were conducted in the south-central, north-central, and eastern portions of the MRS. No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP.

5.13.2 UXO Surveying

On 8 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted in accessible areas located in the south-central section of the MRS where MEC and munitions debris were reportedly found. A meandering path magnetometer assisted UXO survey was also conducted around debris piles remaining in the north central and east-central portions of the MRS. In total, approximately 12 acres of the MRS were surveyed. It should be noted that there were a large amount of building and railroad debris scattered throughout the MRS, especially around the debris piles

north-central section. This area coincided with the purported location of the buried 40mm fragmentation shells. In the south-central section, the presence of demolition debris limited access and, consequently, the entire area could not be surveyed; as such, a complete assessment could not be completed. In accessible areas that were surveyed, no MEC or munitions debris were found lying on the ground surface and only a few scattered subsurface anomalies were detected. In the north-central section, no MEC or munitions debris were observed lying on the ground surface around or on top of the debris piles. However, multiple subsurface anomalies were detected around each of the three piles. No MEC or munitions debris were observed lying on the ground surface in the east-central section of the MRS and very few subsurface anomalies were recorded.

Based on the findings of the SI UXO survey and additional information collected, the MRS foot print will remain the same as the HRR acreage (i.e., 66.04 acres). **Figure 5-9** shows the UXO survey paths taken at the Atlas Scrap Yard MRS.

5.14 Block D Igloo MRS (RVAAP-060-R-01)

This MRS, as presented in the HRR, consists of the area (circle with a 3,000 ft radius) contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. The MRS boundary was established by the USACE, Huntsville District to capture the probable debris field resulting from the explosion and was based on the type of munitions stored in the bunker at the time of the explosion. The layout of the MRS is provided in **Figure 5-12**.

The explosion was attributed to a combination of rough handling and a faulty design of the M-110 fuze which left the fuze in the armed position. The result was the detonation of 2,516 clusters (M-1A1) of 20 lb fragmentation bombs (M-41) that were being loaded into the storage magazine. The igloo, which was 60 ft long and constructed of reinforced concrete, was filled to 95 percent capacity at the time of the detonation while a few of the bomb crates remained on the semi-trailer from which the bombs were being off loaded. The trailer completely disintegrated in the blast while remnants of the associated truck were hurled forward 500 to 600 ft. Other items found and the distances recorded included the igloo's steel door, which was propelled forward approximately 1,800 ft; a concrete fragment that was propelled 1,800 ft to the north striking a small sawmill; and a concrete fragment that hit igloo 2-E-6 located approximately 2,100 ft forward of igloo 7-D-15.

Observations made at the scene determined that the earthen embankments held the force of the explosion at the base so that the side-walls of the igloo sheared off at the footings. It was reported that

the blast formed two fans: the first and smaller fan was roughly circular in shape and extended to the right, to the rear, and to the left of the igloo, while the larger fan extended forward from the igloo in an easterly direction toward the "E" block of igloos. The major force was directed along a median line in conjunction with the long axis of the igloo. Large sections of concrete were lifted up and over the earthen embankments, while smaller sections traveled in the fan shaped blast to the right and left of the median line on an approximate sixty to eighty degree angle. Some of the concrete fragments were propelled forward in the larger of the two fans up to 3,800 ft. There was no mention of the distance that the smaller fan stretched. After conducting searches of the Installation some time after the detonation, RVAAP personnel indicated that the site was considered clean of UXO. However, no documentation was found during the HRR to support this statement. For this SI, therefore, the entire MRS was considered to potentially contain MEC or munitions debris.

5.14.1 SI Field Work

A UXO survey of the entire MRS (e.g., 622 acres) was outside the scope of this SI; therefore, a magnetometer assisted UXO survey was only conducted in and around the area where the former igloo was located and at documented/mapped locations where debris from the March 1943 explosion were found. One (1) composite surface soil sample was collected from the former igloo area and analyzed for explosives and TAL metals.

5.14.2 UXO Surveying

On 2 October 2007, a meandering path magnetometer assisted UXO survey was conducted within and around the former Igloo location, and at four documented locations where debris from the blast were found, totaling approximately six acres or one percent of the MRS. A little over one acre was inspected at the former igloo location and at each of the debris locations surveyed. It should also be noted that the interior of the former igloo area was overgrown with trees and shrubs, and was used by deer as a bedding area.

No MEC or munitions debris were found lying on the ground surface within the interior of the former igloo and within a circumference of approximately 100 feet surrounding this area. Several subsurface anomalies were recorded within the former igloo and may be attributed to the remnants of the reinforced concrete floor, while no subsurface anomalies were detected in the 100 foot circumference surrounding the igloo. (Note: of the historically documented debris locations, no MEC or munitions debris were discovered within the HRR MRS footprint.)

At the four documented debris locations, no visual evidence of MEC and/or munitions debris was found and very few subsurface anomalies were detected. At locations were subsurface anomalies were recorded; the findings were attributed to cultural artifacts from the former rail lines and roadway. **Figure 5-20** provides the locations and survey paths taken during the SI field work.

5.14.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-19**.

Table 5-19: Block D Igloo MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-BDI-SS-1	Former Location of Igloo 7-D-15

One composite surface soil (0-6" bgs) sample was collected on 2 October 2007 using the CRREL seven-wheel method from within the former igloo footprint and analyzed for TAL metals and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analysis. The location of the surface soil sample is illustrated on **Figure 5-20**.

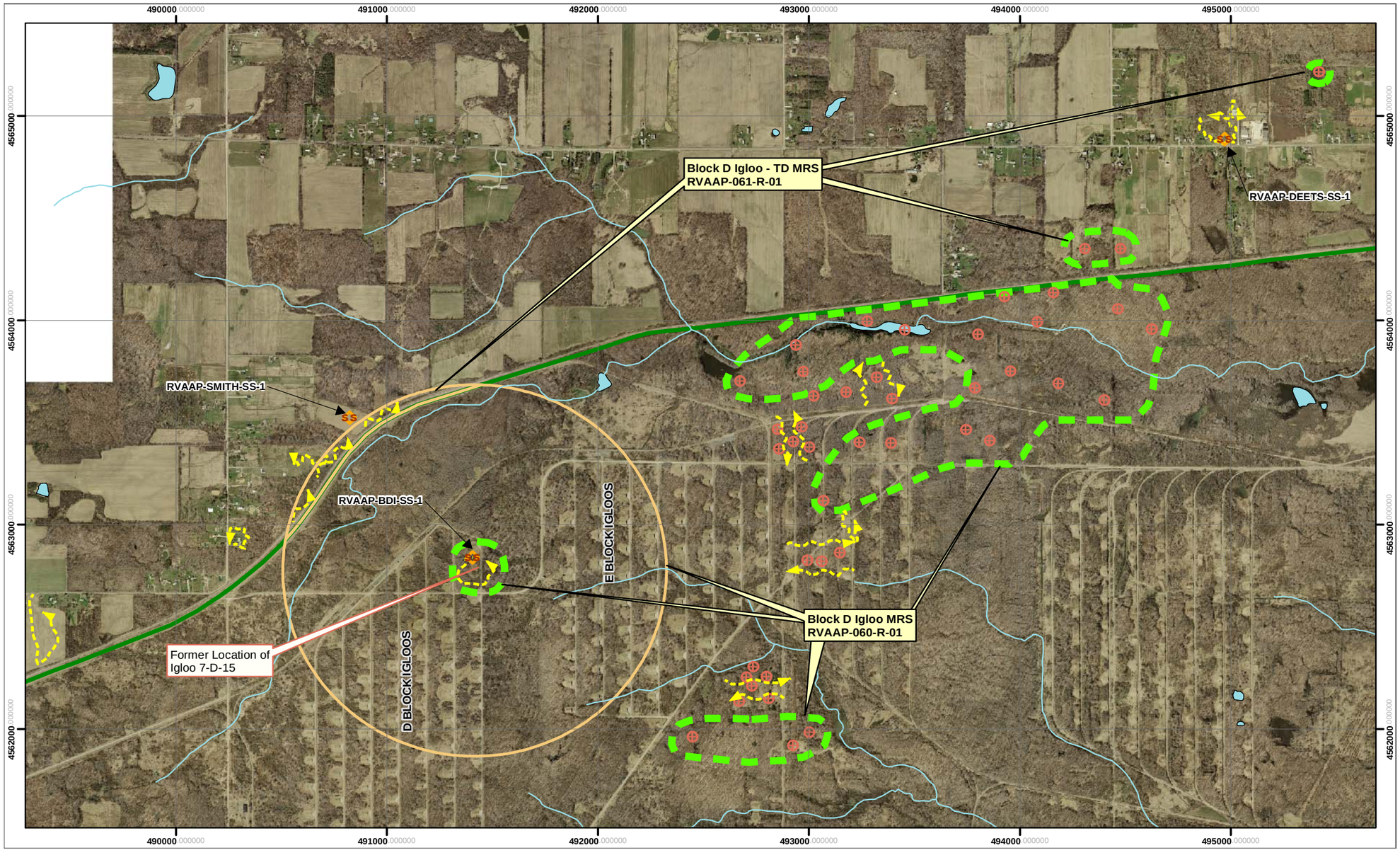
Table 5-20 shows the TAL metals concentration results for the Block D Igloo MRS sample in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Arsenic and lead concentrations in the sample exceeded RVAAP Background Values and one-tenth the non-carcinogen USEPA Residential Soil PRGs. Thallium was detected at a concentration that exceeded one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but has been dismissed as non-munitions related. Based on the TAL metal results, lead and arsenic detections are MC related.

Table 5-21 shows the explosives concentration results for the Block D Igloo MRS sample in comparison to one-tenth the non-carcinogen and/or carcinogen USEPA Region 9 Residential Soil PRGs. Although none of the explosives results exceeded the PRG values for residential soils, Tetryl was detected at an estimated concentration (i.e., below the method detection limit).

Based on the findings of the SI field work, there is no evidence to indicate the presence of munitions debris or MEC lying on the ground surface or buried at the documented debris locations that were surveyed. However, no such declaration can be made for the remaining area that was not included in the SI field work. Therefore, the MRS footprint has been reduced from the HRR acreage of 622.24 acres to 340.2 acres and encompasses the area not surveyed during this SI and the historical footprint of Igloo 7-D-15. The Igloo 7-D-15 footprint has been included based on the presence of lead and arsenic at concentrations that exceeded RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil.

BLOCK D IGLOO MRS and BLOCK D IGLOO - TD MRS
Ravenna Army Ammunition Plant, OH

Figure 5-20



N
W E
S

- Soil Sample Location
- Location of Fragments Found from the 1943 Explosion of Igloo 7-D-15
- Installation Boundary
- Water
- Stream
- Meandering Path Survey Transects
- Proposed New MRS Footprint Boundary

Area Status

- MRS, NFA

Data Source: e²M, Final Military Munitons Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

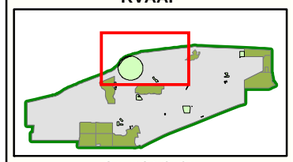
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**1,000 Meter**

1:20,000

0 1,000 2,000 Feet

0 350 700 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

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Table 5-20: Block D Igloo Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-BDI-SS-1
Antimony	0.96	3.1	0.46B
Arsenic	15.4	0.039	**21.9**
Lead	26.1	40	**81.0**
Selenium	1.4	39	0.56B
Thallium	N/A	0.52	0.74B
Aluminum	17,700	7,600	6,450
Barium	88.4	540	50.2
Beryllium (ca)	0.88	150	0.40B
Cadmium	N/A	3.7	0.17B
Cobalt	10.4	90	6.2
Chromium (ca)	17.4	210	27.0
Copper	17.7	310	19.5
Iron	23,100	2,300	22,100
Manganese	1,450	180	376
Nickel	21.1	160	20.1
Vanadium	31.1	7.8	13.9
Zinc	61.8	2,300	65.1
Mercury	0.04	2.3	0.054B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.

B: Concentration of inorganic constituent is estimated.

N/A: Not Applicable

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

Blank Cell: No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-21: Block D Igloo Analytical Results for Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-BDI-SS-1
2-Amino-4,6-dinitrotoluene	1.2	ND
4-Amino-2,6-dinitrotoluene	1.2	ND
1,3-Dinitrobenzene	0.61	ND
2,4-Dinitrotoluene	12	ND
2,6-Dinitrotoluene (ca)	61	ND
HMX	310	ND
Nitrobenzene	2	ND
2-Nitrotoluene	0.088	ND
3-Nitrotoluene	73	ND
4-Nitrotoluene	1.2	ND
RDX (ca)	4.4	ND
Tetryl (trinitrophenylmethylnitramine)	61	0.040J
1,3,5-Trinitrobenzene	180	ND
2,4,6-Trinitrotoluene (ca)	16	ND
Nitroglycerin	3.5	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.15 Block D Igloo–TD MRS (RVAAP-061-R-01)

The Block D Igloo–TD consists of the portion of the circle centered on Igloo 7-D-15 (Block D Igloo MRS RVAAP-060-R-01) that exploded on 24 March 1943 that extends northwest beyond the Installation boundary. This property, which encompasses 19.25 acres, is considered separately as a "transferred" site; that is, the site is situated on private property. The MRS is located to the northwest of Igloo 7-D-15 and consists of residences, farm fields that are separated by stands of woodlands, railroad tracks, and a right-of-way. The right-of-way runs adjacent to the RVAAP property boundary, separating the wooded areas, residences, and farm fields from the Installation. This area represents the debris field of

the smaller of the two fans that resulted from the explosion. Additional information (USACE Rock Island District map) discovered during the HRR revealed that debris was also found off the installation to the north and east of the former igloo. This debris field is attributed to the larger of the two fans that resulted from the explosion. This area was not included in the SI field work. Since the initial findings, no additional discoveries of debris have been reported. **Figure 5-12** shows the layout of the Block D Igloo–TD MRS, as presented in the HRR.

5.15.1 SI Field Work

For this SI, magnetometer and metal detector assisted UXO surveys were conducted within three private residences and one farm field located within the MRS footprint and at one private parcel located to the northeast. The private parcel located to the northeast is situated within the confines of the larger blast fan that resulted from the March 1943 explosion. One composite and one duplicate surface soil sample were collected from the MRS and one composite surface soil sample was collected from the private parcel located to the northeast. The samples were analyzed for explosives and TAL metals.

5.15.2 UXO Surveying

On 5 October 2007, meandering path magnetometer and metal detector assisted UXO surveys were conducted at three private residences and one farm field located within the MRS footprint (approximately 19 acres) and at the private parcel located along the Installations northeastern property boundary. Evidence of MEC and munitions debris were not found lying on the ground surface at any of the properties and few subsurface anomalies were recorded. The few subsurface anomalies detected were attributed to metal debris associated with old fences and farming equipment. Further, according to the property owners interviewed during the SI field work, no suspicious items have been found while they have owned the properties. Therefore, MEC is not a concern at the MRS. However, additional documented debris locations have been identified, which are located to the northeast of the installation boundary. These areas were not included in the SI field work, but will require further investigation under the MMRP. **Figure 5-20** provides the location of the UXO surveys and paths taken.

5.15.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-22**. The location of the surface soil samples is illustrated on **Figure 5-20**.

Table 5-22: Block D Igloo–TD MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-SMITH-SS-1	Possible Kick-out Area From Igloo Explosion
RVAAP-SMITH-SS-1	Duplicate for QA/QC Purposes
RVAAP-DEETS-SS-1	Possible Kick-out Area From Igloo Explosion

One composite surface soil (0-6" bgs) sample and a duplicate were collected on 5 October 2007 from a private residence located in the off-Installation Block D Igloo-TD MRS: samples RVAAP-SMITH-SS-1 and the duplicate sample, RVAAP-SMITH-SS-2. In addition, sample RVAAP-DEETS-SS-1 was collected from a property located in line with the mapped historic debris field along the northern boundary of the installation. The Block D Igloo–TD samples were analyzed for TAL metals and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analysis.

Table 5-23 presents the TAL metals concentration results for the Block D Igloo–TD MRS samples in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Lead was present at a concentration greater than RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG in sample RVAAP-DEETS-SS-1. Thallium was detected in sample RVAAP-SMITH-SS-1 and the duplicate RVAAP-SMITH-SS-2, and sample RVAAP-DEETS-SS-1 at concentrations greater than one-tenth the non-carcinogen USEPA Residential Soil PRG. Both lead and thallium were dismissed as non-munitions related due to the lack of MEC or munitions debris. Lead at the northeastern property was attributed to anthropogenic impacts from the adjacent roadway. Based on the sample results, TAL metals related to MC are not a concern at the MRS.

Table 5-24 shows the explosives concentration results for the Block D Igloo–TD MRS samples in comparison to the USEPA Region 9 Residential Soil PRGs. None of the explosives results exceeded the non-carcinogen and/or full carcinogen PRG values for residential soils. Two explosives, 1,3,5-Trinitrobenzene and 2,6-Dinitrotoluene, were detected at estimated concentrations (i.e., below the method detection limit). As such, explosives related to MC are not a concern at the MRS.

Based on the results of this SI, there are no MEC or MC concerns at the US Army CTT Range/Site Inventory and HRR defined MRS footprint. However, based on information collected and analyzed during the performance of this SI, two new off-post areas have been identified where munitions debris or MEC may be present as a result of the accidental explosion at Igloo 7-D-15. These new areas were

not surveyed during this SI. Therefore, the MRS, as identified in the US Army CTT Range/Site Inventory and HRR, has been revised to include these new locations, sizes, and shapes. The MRS is composed of two separate areas located outside the Installation boundary, approximately 2.2 (Area 1) and 2.9 miles (Area 2) to the northeast of Igloo 7-D-15. Area 1 consists of privately owned agricultural land that includes approximately 12 acres, and is located at 41° 13" 51" N and 81° 03' 53" W. Area 2 is a densely wooded area encompassing 2.13 acres and is located at 41° 14' 20" N and 81° 03' 15 W. Combined, the MRS consists of 14.13 acres.

Table 5-23: Block D Igloo–TD Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-SMITH-SS-1	RVAAP-SMITH-SS-2	RVAAP-DEETS-SS-1
Antimony	0.96	3.1	ND	ND	ND
Arsenic	15.4	0.039	8.2	7.5	7.3
Lead	26.1	40	22.5	19.1	**41.9**
Selenium	1.4	39	0.78B	ND	1.1
Thallium	N/A	0.52	0.96B	1.4B	1.2B
Aluminum	17,700	7,600	11,900	10,900	14,400
Barium	88.4	540	62.1	55.9	334
Beryllium (ca)	0.88	150	0.54B	0.48B	0.94B
Cadmium	N/A	3.7	0.22B	0.17B	1.3
Cobalt	10.4	90	7.8	6.5	4.1
Chromium (ca)	17.4	210	16.8	15.2	16.2
Copper	17.7	310	7.1	6.3	42.1
Iron	23,100	2,300	19,200	17,300	9,770
Manganese	1,450	180	689	573	193
Nickel	21.1	160	11.6	10.7	20.6
Vanadium	31.1	7.8	23.2	21.4	20.4
Zinc	61.8	2,300	50.5	46.6	105
Mercury	0.04	2.3	0.076B	0.067B	0.13

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
B: Concentration of inorganic constituent is estimated.
N/A: Not Applicable
Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.
Blank Cell: No value assigned.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-24: Block D Igloo–TD Analytical Results for Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-SMITH-SS-1	RVAAP-SMITH-SS-2	RVAAP-DEETS-SS-1
2-Amino-4,6-dinitrotoluene	1.2	ND	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND	ND
2,4-Dinitrotoluene	12	ND	ND	ND
2,6-Dinitrotoluene (ca)	61	ND	ND	0.046J
HMX	310	ND	ND	ND
Nitrobenzene	2	ND	ND	ND
2-Nitrotoluene	0.088	ND	ND	ND
3-Nitrotoluene	73	ND	ND	ND
4-Nitrotoluene	1.2	ND	ND	ND
RDX (ca)	4.4	ND	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND	ND
1,3,5-Trinitrobenzene	180	ND	0.020J	0.034J
2,4,6-Trinitrotoluene (ca)	16	ND	ND	ND
Nitroglycerin	3.5	ND	ND	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.16 Water Works #4 Dump MRS (RVAAP-062-R-01)

The Water Works #4 Dump is an approximate 6.15 acre wooded area located immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were found scattered throughout the MRS lying on the ground surface and partially buried, as were metal parts defined as ogives from WWI 155mm shrapnel projectiles. According to RVAAP personnel, the dates of disposal are estimated to be between 1941 and 1949. The type and origin of the casings is unknown. **Figure 5-10** provides the layout of the MRS, presented in the MRS.

5.16.1 SI Field Work

For this SI, a magnetometer assisted UXO survey was conducted at the MRS and one (1) composite surface soil sample was collected and analyzed for explosives, propellants, and TAL metals. During the course of the SI field work, it was determined that the HRR MRS boundary had mistakenly been situated too far to the west of the location where munitions debris had historically been reported. The error was determined by observations made in the field (i.e., based on the location of the open field) and input from installation personnel on the correct location. This was corrected and the UXO survey and surface soil sampling efforts were subsequently moved to cover the area of interest.

5.16.2 UXO Surveying

On 1 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the open field of the MRS, and a meandering path magnetometer and metal detector assisted UXO survey was conducted of the remaining wooded area to the west, north/northwest, and east. The total area surveyed was approximately six acres. MEC was not discovered lying on the ground surface during the UXO survey; however, approximately 20 inert ogives were discovered scattered throughout the wooded area along the northern perimeter of the open field (see **Figure 5-11**). These munitions debris items were void of energetic material. The magnetometer and metal detector survey of this forested area did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the detectors. Further, there was no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. Conversely, multiple subsurface anomaly detections were made in the open field indicating the presence of multiple buried ferrous items.

5.16.3 Surface Soil Sampling

The sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-25**. The location of the surface soil sample is illustrated on **Figure 5-11**.

Table 5-25: Water Works #4 Dump MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-WW4-SS-1	Possible Disposal/Burial Location
RVAAP-WW4-SS-2	Duplicate for QA/QC Purposes

One composite surface soil (0-6" bgs) sample and a duplicate were collected using the CRREL seven-wheel method on 1 October 2007. Sample RVAAP-WW4-SS-1 and duplicate RVAAP-WW4-SS-2 were collected from the open field of the MRS. The sample and duplicate were analyzed for TAL metals, propellants, and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analyses.

Table 5-26 shows the TAL metals concentration results for the Water Works #4 Dump MRS sample and duplicate in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Only thallium concentrations in the sample and duplicate were greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. Thallium, however, was dismissed as non-munitions related. As such, MC related TAL metals are not a concern at this MRS.

Table 5-27 shows the propellants and explosives concentration results for the Water Works #4 Dump MRS sample and duplicate in comparison to the USEPA Region 9 Residential Soil PRGs. None of the propellants and explosives constituents were detected in the sample or duplicate. As such, MC related propellants and explosives are not a concern at this MRS.

Based on the findings of the SI field work (i.e., no indication of the presence of MEC), the forested area surrounding the open field has been removed from the MRS footprint reducing the HRR acreage of 6.16 acres to 0.77 acres. The new MRS footprint encompasses the open field where multiple subsurface anomalies were recorded.

Table 5-26: Water Works #4 Dump Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-WW4-SS-1	RVAAP-WW4-SS-2
Antimony	0.96	3.1	ND	ND
Arsenic	15.4	0.039	12.6	11.5
Lead	26.1	40	13.8	13.4
Selenium	1.4	39	ND	ND
Thallium	N/A	0.52	1.1B	0.95B
Aluminum	17,700	7,600	7,680	7,190
Barium	88.4	540	47.3	43.7
Beryllium (ca)	0.88	150	0.49B	0.46B
Cadmium	N/A	3.7	0.13B	0.060B
Cobalt	10.4	90	7.3	6.6
Chromium (ca)	17.4	210	18.7	16.5
Copper	17.7	310	15.8	14.2
Iron	23,100	2,300	18,800	17,200
Manganese	1,450	180	446	405
Nickel	21.1	160	21.6	19.1
Vanadium	31.1	7.8	13.9	12.9
Zinc	61.8	2,300	57.0	52.1
Mercury	0.04	2.3	0.039B	0.030B

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.

B: Concentration of inorganic constituent is estimated.

N/A: Not Applicable

Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.

Blank Cell: No value assigned.

ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-27: Water Works #4 Dump Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-WW4-SS-1	RVAAP-WW4-SS-2
Nitroguanidine	610	ND	ND
2-Amino-4,6-dinitrotoluene	1.2	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND
2,4-Dinitrotoluene	12	ND	ND
2,6-Dinitrotoluene (ca)	61	ND	ND
HMX	310	ND	ND
Nitrobenzene	2	ND	ND
2-Nitrotoluene	0.088	ND	ND
3-Nitrotoluene	73	ND	ND
4-Nitrotoluene	1.2	ND	ND
RDX (ca)	4.4	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND
1,3,5-Trinitrobenzene	180	ND	ND
2,4,6-Trinitrotoluene (ca)	16	ND	ND
Nitroglycerin	3.5	ND	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.17 Group 8 MRS (RVAAP-063-R-01)

Based on a request by the OHARNG, the name of the MRS was changed in the Army Environmental Database-Restoration (AEDB-R) database on 29 March 2007 from the "Area Between Buildings 846 and 849" to "Group 8 MRS". This name change was instituted in the HRR phase.

The MRS encompasses 2.65 acres and consists of the area between Buildings 846 and 849. This area is disturbed land currently being used as an OHARNG vehicle staging area. In the past, the land between the buildings may have been used for burning of construction debris and rubbish. In 1996, one anti-

personnel fragmentation bomb (referred to as a "hammerhead" anti-personnel bomb) loaded with HE was found at the MRS. The bomb was taken to Open Demolition Area #2 and detonated at the RCRA unit by an Ordnance Company that had been dispatched from Wright-Patterson Air Force Base. OHARNG personnel discovered the bomb. In addition, one demilitarized (i.e., cut into two halves) 175mm projectile was found on the ground surface at the MRS. The demilitarized projectile was removed and taken to Building 1501. **Figure 5-8** provides the layout of the MRS, as presented in the HRR.

5.17.1 SI Field Work

During this SI, a magnetometer and metal detector assisted UXO survey was conducted for the entire MRS. Five (5) MI surface soil samples were also collected for this SI and analyzed for explosives, propellants, and TAL metals. For this purpose, the MRS was divided into five sections (MC1 – MC5) each section representative of one MI sample.

5.17.2 UXO Surveying

On 2 October 2007, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, totaling approximately three acres. At the MC3 area of the MRS, two partially buried fuzes considered potential MEC were discovered, along with a large amount of munitions debris. The munitions debris consisted of metal fragments of casings and projectiles, burster tubes, and fragments of fuzes. Based on appearances, all MEC and munitions debris discovered at the MC3 area had been pressed into the soil by the tracks of heavy equipment. A large amount of munitions debris was also observed in the MC2 and MC4 areas of the MRS. Again, it appeared that the items had been pressed into the soil by the tracks of heavy equipment. All three of these areas (MC2, MC3, and MC4) were also littered with large amounts of debris including metal debris, fencing materials, and wood scrap. The two remaining areas of the MRS, MC1 and MC5, were clear of MEC, munitions debris, and miscellaneous rubbish. All potential MEC was left on site, undisturbed.

An assessment of buried anomalies at MC2, MC3, and MC4 was made difficult due to the cultural interference caused by the large amount of metal debris located at these areas. Therefore, the presence of munitions debris and possibly MEC in the subsurface cannot be dismissed. Conversely, only scattered subsurface anomalies were detected at the MC1 and MC5 areas. **Figure 5-21** provides the areas surveyed during the SI field work. **Table 5-28** provides references to the potential MEC items found at the MRS.

GROUP 8 MRS
Ravenna Army Ammunition Plant, OH

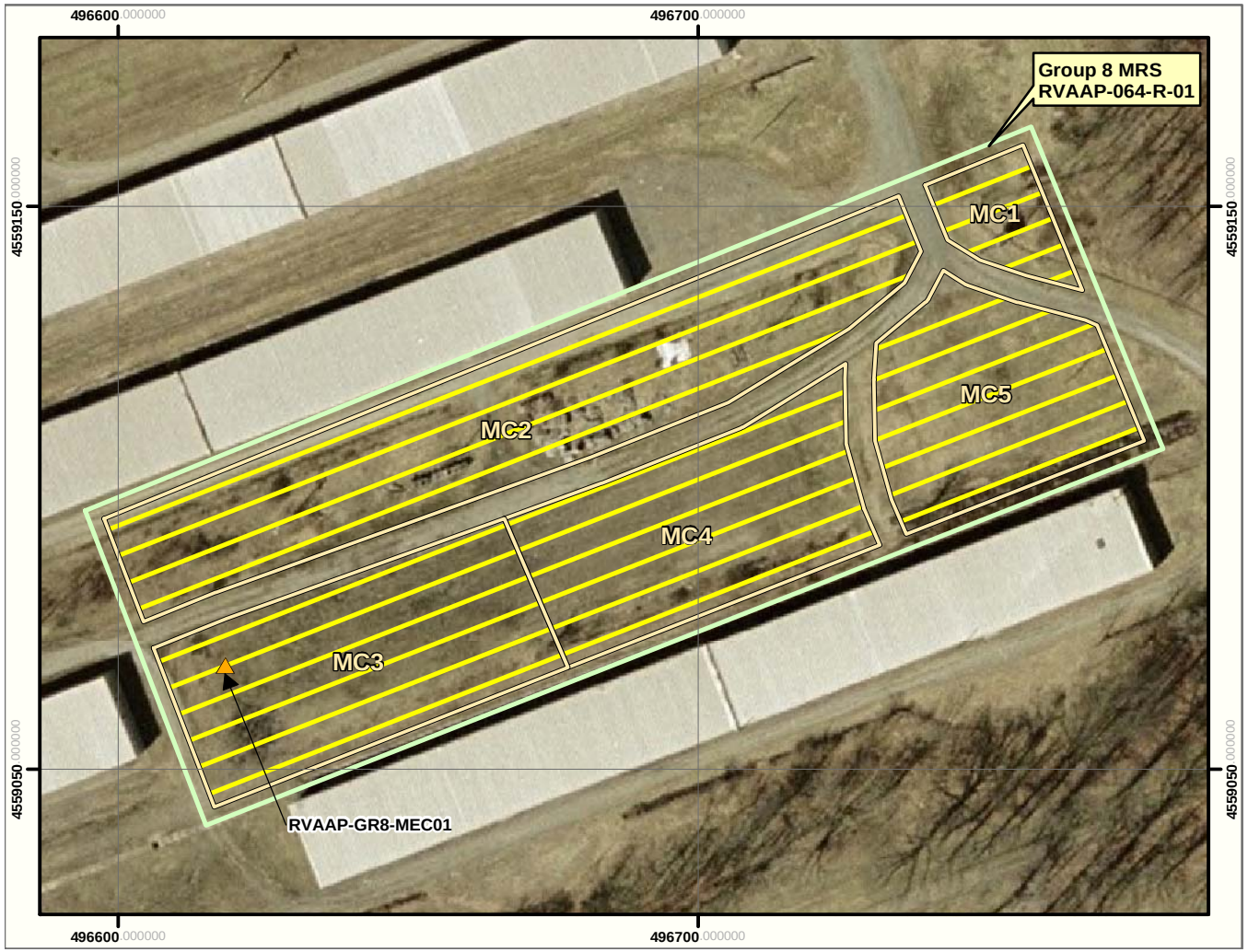


Figure 5-21

N
W E
S

Suspect MEC Location

Line Abreast Survey Area

MC Multi-incremental Sample Area

Area Status

MRS, Closed

Data Source: e^2M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

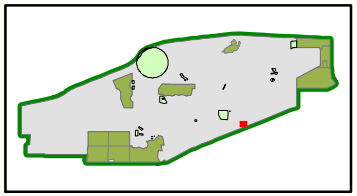
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**100 Meter**

1:1,200

0 50 100 Feet

0 20 40 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: May 2008
Edition: Final

Table 5-28: Group 8 MRS UXO Survey Results

Figure ID	Item Description	Photolog Reference
RVAAP-GR8-MEC01	Location of two fuzes in MC3 area	None

5.17.3 Surface Soil Sampling

Sampling rationale and design for this MRS was to collect sufficient data to confirm the presence or absence of MC. The USACE TPP process was used to gain a consensus regarding the sampling approach. Sample location rationale can be found in **Table 5-29**.

Table 5-29: Group 8 MRS Surface Soil Sampling Rationale

Sample Number	Location
RVAAP-GR8-MC1	Distinct Area of MRS
RVAAP-GR8-MC2	Distinct Area of MRS
RVAAP-GR8-MC3	Distinct Area of MRS
RVAAP-GR8-MC4	Distinct Area of MRS
RVAAP-GR8-MC5	Distinct Area of MRS

Five MI surface soil (0-6" bgs) samples were collected on 2 October 2007 at the Group 8 MRS. Samples RVAAP-GR8-MC1, -MC2, -MC3, -MC4, and -MC5 were collected from the proposed MC locations and analyzed for TAL metals, propellants, and explosives using USEPA Methods 6010C and 8330B. TestAmerica performed the sample analyses. The location of the MI surface soil sample areas are presented in **Figure 5-21**.

Table 5-30 shows the TAL metals concentration results for the Group 8 MRS samples in comparison to the RVAAP Installation-Wide Background Values and the USEPA Region 9 Residential Soil PRGs. Lead and thallium were found in all five samples at concentrations greater than both comparison values. Thallium has been dismissed as non-munitions related. Further, antimony, arsenic, aluminum, cadmium, copper, iron, and manganese were also detected in at least one sample at concentrations greater than both comparison values. These metals are considered MC related.

Table 5-31 shows the propellants and explosives concentration results for the Group 8 MRS samples in comparison to the USEPA Region 9 Residential Soil PRGs. None of the propellants and explosives

results exceeded one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRG values. Four explosives (2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 1,3,5-Trinitrobenzene, and 2,4,6-Trinitrotoluene) were detected at estimated concentrations (i.e., below the method detection limit).

Based on the findings of the SI field work, both MEC and MC are concerns at the MRS. As such, the MRS footprint will remain the same as identified in the HRR, encompassing all 2.65 acres.

Table 5-30: Group 8 MRS Analytical Results for TAL Metals

Analyte (mg/kg)	RVAAP Installation-Wide Background Value	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-GR8-MC1	RVAAP-GR8-MC2	RVAAP-GR8-MC3	RVAAP-GR8-MC4	RVAAP-GR8-MC5
Antimony	0.96	3.1	ND	1.8B	**13.0**	**36.8**	**24.3**
Arsenic	15.4	0.039	9.5	**20.2**	**18.7**	13.5	8.1
Lead	26.1	40	**59.4**	**217**	**1,160**	**1,230**	**951**
Selenium	1.4	39	0.70B	ND	ND	ND	0.32B
Thallium	N/A	0.52	1.6B	1.7B	1.7B	2.4	2.6
Aluminum	17,700	7,600	12,200	13,200	7,250	**17,700**	**20,300**
Barium	88.4	540	110	106	218	356	215
Beryllium (ca)	0.88	150	1.5	1.1	0.91B	2.4	2.9
Cadmium	N/A	3.7	0.94B	**9.8**	**16.5**	**47.8**	**36.2**
Cobalt	10.4	90	5.7	8.2	8.4	7.8	5.0
Chromium(ca)	17.4	210	25.9	52.5	92.6	94.2	47.1
Copper	17.7	310	34.1	**575**	**525**	**2,520**	**333**
Iron	23,100	2,300	17,300	**26,900**	**53,000**	**53,300**	**33,000**
Manganese	1,450	180	1,150	915	842	**2,250**	**2,440**
Nickel	21.1	160	28.0	46.2	158	66.6	27.4
Vanadium	31.1	7.8	12.3	16.3	11.4	11.3	10.8
Zinc	61.8	2,300	99.3	527	1,420	2,280	1,740
Mercury	0.04	2.3	0.046B	0.18	0.68	1.4	0.20

Notes:

ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.

mg/kg: Milligrams per kilogram.
B: Concentration of inorganic constituent is estimated.
N/A: Not Applicable
Bold: Analytical result is above the RVAAP Installation-Wide Background Value and one-tenth the non-carcinogen USEPA Region 9 PRG for Residential Soil.
Blank Cell: No value assigned.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

Table 5-31: Group 8 MRS Analytical Results for Propellants and Explosives

Analyte (mg/kg)	One-Tenth USEPA Region 9 PRG Residential Soil	RVAAP-GR8-MC1	RVAAP-GR8-MC2	RVAAP-GR8-MC3	RVAAP-GR8-MC4	RVAAP-GR8-MC5
Nitroguanidine	610	ND	ND	ND	ND	ND
2-Amino-4,6-dinitrotoluene	1.2	ND	ND	ND	ND	ND
4-Amino-2,6-dinitrotoluene	1.2	ND	ND	ND	ND	ND
1,3-Dinitrobenzene	0.61	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	12	ND	ND	0.038J	0.040J	0.034J
2,6-Dinitrotoluene (ca)	61	0.031J	ND	0.061J	0.068J	0.055J
HMX	310	ND	ND	ND	ND	ND
Nitrobenzene	2	ND	ND	ND	ND	ND
2-Nitrotoluene	0.088	ND	ND	ND	ND	ND
3-Nitrotoluene	73	ND	ND	ND	ND	ND
4-Nitrotoluene	1.2	ND	ND	ND	ND	ND
RDX (ca)	4.4	ND	ND	ND	ND	ND
Tetryl (trinitrophenylmethylnitramine)	61	ND	ND	ND	ND	ND
1,3,5-Trinitrobenzene	180	ND	ND	0.041J	0.075J	0.027J
2,4,6-Trinitrotoluene (ca)	16	ND	ND	0.057J	0.069J	ND
Nitroglycerin	3.5	ND	ND	ND	ND	ND

Notes:
ND: Not Detected; the constituent was analyzed and its concentration was below the method detection limit.
mg/kg: Milligrams per kilogram.
J: Concentration of organic constituent is estimated.
ca: Constituent is carcinogenic according to MRS-PP Primer. The PRG value for these constituents is the full PRG, not one-tenth as for non-carcinogens.

5.18 Data Quality Review Summary

The laboratory data for the RVAAP MRSs were reviewed for data quality by Diane Short and Associates, Inc (DSA). Copies of the Organic and Inorganic Data Quality Review Reports are included in **Appendix G**. It has been determined that the data are usable for their intended purpose of supporting the conclusions of the SI as well as for the population of the ERIS database and the draft MRS-PPs. Below is a summary of the findings of the data review and conclusions based upon

interpretation of the case summaries as a whole using professional judgment in accordance with the USEPA Contract Laboratory Program (CLP) Functional Guidelines for Inorganic Review (2002), Functional Guidelines for Organic Review (1999), and the USEPA SW-846 Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition.

5.18.1 Organic Data (Explosives and Propellants) Analysis

Holding Times

Holding times were evaluated by comparing sampling dates, extraction dates, and analysis dates. All contract holding times were met for all analyses; therefore, no qualification of data was required based on holding times.

Shipping and Handling

Samples were received in proper condition and at appropriate temperatures. Therefore, no qualification of the data was deemed necessary based on delivery temperature.

Laboratory Blanks

No blank contamination was found in the laboratory method blanks. Therefore, no qualification of the data was necessary based on method blank analyses.

Matrix Spikes

Matrix spike (MS) and matrix spike duplicate analyses are completed by the laboratory as part of good laboratory practice protocol. One site specific MS sample was designated by the laboratory, RVAAP-LNWBG-SS-1. The MS data was in control. Therefore, qualification of the data was not deemed necessary based on MS analyses.

Laboratory Control Samples (LCS)

The LCS percent recoveries for the investigation sample analyzed by TestAmerica Laboratories were within acceptable limits. Therefore, qualification of the data was not deemed necessary based on LCS analyses.

Surrogates

The surrogate recoveries were in control in accordance with the QAPP and USACE quality criteria. Therefore, qualification of the data was not deemed necessary based on surrogate analyses.

5.18.2 Inorganic Data (TAL Metals) Analysis

Holding Times

Holding times were evaluated by comparing sampling dates, extraction dates, and analysis dates. All samples were prepared or analyzed within the required holding times; therefore, qualification of data was not required based on holding times.

Shipping and Handling

Samples were received in proper condition and at appropriate temperatures. Therefore, qualification of the data was not deemed necessary based on delivery temperature.

Laboratory Blanks

Concentrations of potassium and sodium were detected in the calibration blank, at 16.3 and 89 mg/kg, respectively. Undetected data and data less than 5 times the absolute value of the blank are qualified JK to indicate a potential low bias or the reporting of false undetected data at very low levels.

Matrix Spikes

The MS percent recovery for antimony in all three samples used as QC samples was outside of the required control limits of 75 to 125 percent. The percent recoveries were 45, 53, and 34 percent. All samples were qualified JS#, where # is the percent recovery. Zinc in one MS had a percent recovery of 72 percent and was qualified JS72.

Laboratory Control Samples (LCS)

The LCS percent recoveries were within the required control limits of 80 to 120 percent. Therefore, qualification of the data was not deemed necessary based on LCS analyses.

5.18.3 Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity (PARCCS) Parameters Summary

Precision and Accuracy

Precision and accuracy were quantitatively assessed by evaluating QC data, including LCS and surrogate data. No organics data were qualified based on precision criteria. For inorganics, antimony was out of limits in all three MS samples, while zinc was out of limits in one MS sample. The data were qualified to indicate low percent recovery. Data could be biased low proportional to the spike recovery for these constituents. Overall, it was concluded that the precision and accuracy results were satisfactory for this data set and will not impact the data for its intended use.

Representativeness

Representativeness expresses the degree to which data accurately and precisely represent the characteristic population. Representativeness was assessed by the use of duplicate samples. Three surface soil duplicate samples were collected and analyzed for TAL metals, explosives, and propellants. One surface soil duplicate sample was collected and analyzed for TAL metals and explosives. The samples met the evaluation criteria outlined in the WP for TAL metals, explosives, and propellants and were within acceptable relative percent difference (RPD) criteria . Therefore, it was concluded that representativeness for the dataset was satisfactory and determined to be representative for its intended use.

Comparability

Comparability expresses the confidence with which one data set can be compared to another. Data are comparable if collection techniques, analysis methods, and reporting procedures are equivalent. Throughout this investigation, appropriate procedures were implemented; therefore, it was concluded the results of the surface soil data were comparable to one another.

Completeness

Completeness is defined as the percentage of the total number of analytical results requested which are judged to be valid (including estimated J values). One hundred percent of the explosives and propellants analyses were complete. One hundred percent of the metals analyses were complete. The overall dataset was considered to be complete for its intended use.

Sensitivity Reporting Limits

Reporting limits were reviewed to evaluate whether the level of sensitivity was achieved to meet the data quality objectives (DQOs). For the explosives and propellants analyses, no dilutions were required during the analyses and the data was satisfactory for its intended use. For metals analyses, due to matrix interference for certain analytes, serial dilutions were required. However, the resulting reporting limits were below regulatory criteria or not applicable and therefore, determined to be usable for their intended purpose. No qualifications were necessary based on sensitivity.

5.19 MRS-PP Summaries

The MRS-PP evaluates the following potential explosive safety and environmental hazards for the purpose of prioritizing sites:

- Explosive hazards posed by UXO, DMM and MC, if present in concentrations great enough to present an explosive threat (generally 10% explosives or higher).
- Hazards associated with the effects of chemical warfare materiel (CWM), and
- The chronic health and environmental hazards posed by MC or other chemical constituents.

DoD recognizes the different hazards inherent to each class of materials. To address these differences, the Protocol has three hazard evaluation modules, each of which is specific to one type of hazard, specifically:

- Explosive hazards are evaluated using the Explosives Hazard Evaluation (EHE) module,
- CWM-related hazards are evaluated using the Chemical Warfare Materiel Hazard Evaluation (CHE) module, and
- Health and environmental hazards posed by MC are evaluated using the Health Hazard Evaluation (HHE) module.

Each hazard evaluation model is assigned a module rating consisting of a priority number. A "1" priority would represent the highest priority rating, and an "8" priority would represent the lowest priority. The CHE module is given more weight than the other two modules. A conservative approach is applied when completing the modules. An overall rating is then assessed consisting of the highest priority rating of the three modules. A brief description is provided at the bottom of each table in the modules to support the assigned scoring value. The procedures for determining MRS-PP ratings are detailed in the *Munitions Response Site Prioritization Protocol* document by the Office of the Deputy Undersecretary of Defense, Installations and Environment, Office of Environmental Management, December 2005.

In compliance with CFR§179.5, the MRS-PP scores for the MRSs are considered interim, pending stakeholder input. The MRS-PP scores are summarized in **Table 5-32** below. The complete MRS-PPs are included in **Appendix E**.

Table 5-32: MRS-PP Summary Table

MRS Name	AEDB-R Number	Priority Ranking
Ramsdell Quarry Landfill	RVAAP-001-R-01	5
Erie Burning Grounds	RVAAP-002-R-01	3
Open Demolition Area #2 (formerly Demolition Area #2)	RVAAP-004-R-01	3
Load Line #1	RVAAP-008-R-01	5
Load Line #12	RVAAP-012-R-01	No Known or Suspected Hazards
Fuze and Booster Quarry	RVAAP-016-R-01	5
Landfill North of Winklepeck	RVAAP-019-R-01	5
40mm Firing Range	RVAAP-032-R-01	5
Firestone Test Facility	RVAAP-033-R-01	5
Sand Creek Dump	RVAAP-034-R-01	4
Building #F-15 and F-16	RVAAP-046-R-01	No Known or Suspected Hazards
Anchor Test Area	RVAAP-048-R-01	No Known or Suspected Hazards
Atlas Scrap Yard	RVAAP-050-R-01	3
Block D Igloo	RVAAP-060-R-01	5
Block D Igloo–TD	RVAAP-061-R-01	4[1]
Water Works #4 Dump	RVAAP-062-R-01	6
Group 8 MRS	RVAAP-063-R-01	4

1 This priority ranking is only for the HRR derived MRS. A new SI MRS footprint has been created to cover the area to the northeast and outside of the installation where debris locations have been documented. This area will require further characterization under future MMRP action.

6.0 CONCEPTUAL SITE MODEL

6.1 Introduction

The primary purpose of the CSM is to identify current or reasonably anticipated human and environmental exposure to MEC and MC by identifying potential human and pathways. As such, this document provides a conceptualization of the following site conditions:

- Actual or reasonably anticipated presence of MEC and MC;
- Actual or reasonably anticipated points of exposure and exposure pathways; and
- Actual or reasonably anticipated future human receptors.

The evaluation of these site-specific conditions will assist in determining effective and achievable future actions that are protective of human health and the environment.

This section begins with a general description of RVAAP (**Section 6.2**) and continues with site-specific discussions of each RVAAP MRS.

6.2 Installation Setting

6.2.1 Physical Setting

RVAAP is located within the Southern New York Section of the Appalachian Plateau physiographic province. This province is characterized by elevated uplands, rolling topography, and incised streams having dendritic drainage patterns. The Southern New York Section has been modified by glaciation, which rounded ridges, filled major valleys, and blanketed many areas with glacially derived unconsolidated deposits (e.g., sand, gravel, and finer-grained outwash deposits). As a result of glacial activity in this section, old stream drainage patterns were disrupted in many locales, and extensive wetland areas developed. The area is marked by tracts of forests, ranging from a few acres to hundreds of acres.

6.2.1.1 Climate

RVAAP has a humid continental climate characterized by warm, humid summers and cold winters. Precipitation varies widely throughout the year. The average driest month is February, and the wettest month is July. Data from the National Weather Service compiled over the past 47 years indicate that the average annual rainfall for the area is 0.98 meters (m) (38.72 inches). The average annual snowfall is

1.1 m (43.4 inches). Severe weather, in the form of thunder, hail, or snow storms, is common during the summer and winter. Tornadoes are infrequent.

6.2.1.2 Geology

The regional geology at RVAAP consists of horizontal to gently dipping bedrock strata of Mississippian and Pennsylvanian age. These Mississippian and Pennsylvanian aged formations dip to the south at a rate of approximately 5 to 10 ft/mile and are overlain by varying thicknesses of unconsolidated glacial deposits.

Bedrock at RVAAP is overlain by deposits of the Wisconsin-aged Lavery Till in the western portion of the facility and the younger Hiram Till and associated outwash deposits in the eastern portion. Unconsolidated glacial deposits vary considerably in their character and thickness across RVAAP, from zero meters (m) or ft in some of the eastern portion of the facility to an estimated 46 m (150 ft) in the south-central portion.

Thin coverings of glacial materials have been completely removed as a consequence of human activities at locations such as the Ramsdell Quarry Landfill, and bedrock is present at or near the ground surface in many locations, such as Load Lines 1 and 2. At locations across the Installation where glacial materials are still present, their distribution and character indicate their origin as ground moraine. These tills consist of laterally discontinuous assemblages of yellow-brown, brown, and gray silty clays to clayey silts, with sand and rock fragments. Deposits from bodies of glacial-age standing water may also have been encountered, in the form of over 15 m (50 ft)-thick deposits of uniform light gray silt.

The Mississippian Cuyahoga Group is present at depths of approximately 200 ft bgs throughout the majority of the site. However, the Meadville Shale Member of the Cuyahoga Group, a blue-gray silty shale characterized by alternating thin beds of sandstone and siltstone, is present at or near the surface in the very northeastern corner of RVAAP.

The Sharon Member of the Pennsylvanian Pottsville Formation unconformably overlies the Meadville Shale Member of the Mississippian Cuyahoga Group. The unconformity has a relief of as much as 200 ft in Portage County, and this is reflected in the variation of thickness of the Sharon Member. The Sharon Member consists of two units: a shale and a conglomerate.

The conglomerate unit of the Sharon Member (informally referred to as the Sharon Conglomerate) is a highly porous, permeable, cross-bedded, frequently fractured and weathered quartzite sandstone, which is locally conglomeratic and exhibits an average thickness of 100 ft. The Sharon Conglomerate has a thickness of as much as 250 ft where it was deposited in a broad channel cut into Mississippian rocks. In marginal areas of the channel, the conglomerate unit thins to about 20 ft and in places may be missing, owing to non-deposition on the uplands of the early Pennsylvanian erosional surface. Thin shale lenses occur sporadically within the upper part of the conglomerate unit.

The shale unit of the Sharon Member (informally referred to as the Sharon Shale) is a light to dark-gray fissile shale, which overlies the conglomerate in some locations, but has been eroded in most areas of RVAAP. The Sharon Member outcrops in many locations in the eastern half of RVAAP.

In the western half of RVAAP, the remaining members of the Pottsville Formation found in the local area overlie the Sharon Member. These remaining members of the Pottsville Formation are not found in the eastern half of the site either because the land surface was above the level of deposition or they were eroded. The Connoquenessing Sandstone Member, which unconformably overlies the Sharon Member, is a sporadic, relatively thin channel sandstone comprised of gray to white, coarse-grained quartz with a higher percentage of feldspar and clay than the Sharon Conglomerate. The Mercer Member is found above the Connoquenessing Sandstone and consists of silty to carbonaceous shale with many thin and discontinuous lenses of sandstone in its upper part. The Homewood Sandstone Member unconformably overlies the Mercer and is the uppermost unit of the Pottsville Formation. The Homewood occurs as a caprock on bedrock highs in the subsurface and ranges from a well-sorted, coarse-grained, white quartz sandstone to a tan, poorly sorted, clay-bonded, micaceous, medium- to fine-grained sandstone.

6.2.1.3 Topography

The province is characterized by its rolling topography with incised streams having dendritic drainage patterns. The Southern New York Section has been modified by glaciation, which rounded ridges, filled major valleys, and blanketed many areas with glacially derived unconsolidated deposits (e.g., sand, gravel, and finer-grained outwash deposits). Evidence of the region's glacial past includes bogs, kettle lakes, and a landscape marked by small upland hills of sand and gravel called "kames". As a result of glacial activity in this section, old stream drainage patterns were disrupted in many locales, and extensive wetland areas developed. These flat land areas to a considerable extent contain the glacially derived finer-grained outwash deposits of clay.

6.2.1.4 Soils

Soils at RVAAP are generally derived from the Wisconsin-age silty clay glacial till. Distributions of soil types are discussed and mapped in the Soil Survey of Portage County, Ohio. Much of the native soil at RVAAP was reworked or removed during construction activities in operational areas of the Installation. According to the Portage County soil survey, the major soil types found in the high-priority AOCs are silt or clay loams with permeabilities ranging from 6.0×10^{-7} to 1.4×10^{-3} centimeter/second.

6.2.1.5 Hydrogeology

Sand and gravel aquifers are present in the buried-valley and outwash deposits in Portage County. Generally, these saturated zones are too thin and localized to provide large quantities of water for industrial or public water supplies; however, yields are sufficient for residential water supplies. Lateral continuity of these aquifers is not known. Recharge of these units comes from surface water infiltration of precipitation and surface streams. Specific groundwater recharge and discharge areas at RVAAP have not been delineated. However, extensive upland areas, such as north of the Winklepeck Burning Grounds and in the western portion of the facility, are presumed to be regional recharge zones. The major perennial surface water drainages (e.g., Sand Creek, Hinkley Creek, and Eagle Creek) are presumed to be the major groundwater discharge areas.

The sandstone facies of the Sharon Member, and in particular the Sharon Conglomerate, were the primary sources of groundwater during RVAAP's active phase, although some wells were completed in the Sharon Shale. Past studies of the Sharon Sandstone indicate that the highest yields come from the quartzite-pebble conglomerate facies and from jointed and fractured zones. Where it is present, the overlying Sharon Shale acts as a relatively impermeable confining layer for the sandstone. Hydraulic conductivities in wells completed in the Sharon Shale generally are much lower than those in the sandstone.

At the watershed scale (i.e., Sand Creek, Hinkley Creek, South Fork of Eagle Creek), groundwater flow generally mirrors surface drainage patterns. Regional drainage patterns along Sand Creek in the northeast portion of RVAAP result in a localized perturbation in the overall flow direction to the north-northeast. In several locations along the southern boundary of RVAAP, south-southeast perturbations in the overall observed groundwater flow patterns are observed as follows:

- A localized south-southeasterly flow component from the potentiometric high area centered around Load Lines 1, 2, and 3 toward the facility boundary;

- A localized southerly flow component toward the facility boundary from the southernmost portion of Load Line #12;
- A localized southerly flow component toward the facility boundary from Load Line 4, which mirrors the direction of surface water flow in the unnamed tributary that drains this load line; and
- Groundwater flow to the south in association with Hinkley Creek in the southwest portion of the site (e.g., Demolition Area 1 vicinity).

6.2.1.6 Hydrology

The entire RVAAP facility is situated within the Ohio River Basin, with the West Branch of the Mahoning River representing the major surface stream in the area. This stream flows adjacent to the western end of the facility, generally from north to south, before flowing into the M. J. Kirwan Reservoir that is located to the south of State Route 5. The West Branch flows out of the reservoir along the southern facility boundary before joining the Mahoning River east of RVAAP.

The western and northern portions of RVAAP are characterized by low hills and dendritic surface drainage. The eastern and southern portions are characterized by an undulating to moderately level surface, with less dissection by surface drainage. The facility is marked with marshy areas and flowing and intermittent streams, with headwaters located in the higher regions of the site. Three primary watercourses drain RVAAP: the South Fork of Eagle Creek, Sand Creek, and Hinkley Creek.

Sand Creek, with a drainage area of 36 square kilometers (km^2)(13.9 $miles^2$), flows generally northeast to its confluence with the South Fork of Eagle Creek. In turn, the South Fork of Eagle Creek then continues in a northerly direction for 7 kilometers (2.7 miles) to its confluence with Eagle Creek. The drainage area of the South Fork of Eagle Creek is 67.9 km^2 (26.2 $miles^2$), including the area drained by Sand Creek. Hinkley Creek, which has a drainage area of 28.5 km^2 (11.0 $miles^2$), flows in a southerly direction through the Installation to its confluence with the West Branch of the Mahoning River south of the facility.

Approximately 50 ponds are scattered throughout the Installation. Many were built within natural drainageways to function as settling ponds or basins for process effluent and runoff. Others are natural glacial depressions or result from beaver activity. All water bodies at RVAAP support an abundance of aquatic vegetation and fish. None of the ponds within the Installation are used as water supply sources.

Storm water runoff is controlled primarily by natural drainage, except in facility operations areas where extensive storm sewer networks and surface ditches help to direct runoff to drainage ditches and settling ponds. In addition, the storm sewer and drainage ditch systems were one of the primary drainage mechanisms for process effluent during the period that production facilities were in operation.

6.2.1.7 Vegetation

Dominant vegetative cover types are forest and old fields of various ages. Over 80 percent of RVAAP is now forest. See **Section 7.2.2.2** below.

6.2.2 Ecological Setting

6.2.2.1 Habitat Type

Portions of the Installation satisfy the regulatory definition of jurisdictional wetland. Wetland areas at RVAAP include seasonally saturated wetlands, wet fields, and forested wetlands. Most of these wetland areas exist because of poorly drained and hydric soil. Beaver impoundments contribute to wetland diversification on the Installation.

Overall, the trend towards forest cover enhances the area for use by forest species, both plant and animal. Future IRP activities will require consideration of these species to ensure detrimental effects on threatened or endangered RVAAP flora and fauna do not occur. There are no federal, state, or local parks or protected areas on RVAAP facility property. See **Section 7.2.2.2** below.

6.2.2.2 Degree of Disturbance

Before the government acquired the property in the 1940's, much of the land at RVAAP was cleared for agricultural use. Over 80 percent of RVAAP is now forest. The limited field cover growth is the result of earlier agricultural practices that left these sites with poor top soil that still limits forest regeneration. Several thousand acres of agricultural fields were planted with trees during the 1950s and 1960s, but these plantings did not take well in areas with poor topsoil. Some fields, leased for cattle grazing during the same period, were subsequently delayed in their reversion to forest. A few fields have been brush hogged, maintaining them as old field.

Restricted land use and sound forest management practices have preserved and enabled large forest tracts to mature. Habitat conversion at RVAAP has focused on restoration of the forests that covered the area prior to its being cleared for agriculture. The reversion of these agricultural fields to mature forest provides a diversity of habitats from old field through several successive stages.

In general, the current degree of disturbance of the RVAAP facility is very limited. An evaluation of the degree of disturbance of each MRS is included in the site specific descriptions later in this section.

6.2.2.3 Ecological Receptors

The flora and fauna presented at RVAAP are varied and widespread. A total of 18 plant communities have been identified on facility property including marsh, swamp, and forest communities. Below is a listing of all state species confirmed to be present on the Installation either by biological inventories and/or confirmed sightings.

State Endangered

- American bittern, *Botaurus lentiginosus* (migrant)
- Northern harrier, *Circus cyaneus*
- Yellow-bellied Sapsucker, *Sphyrapicus varius*
- Golden-winged warbler, *Vermivora chrysoptera*
- Osprey, *Pandion haliaetus* (migrant)
- Trumpeter swan, *Cygnus buccinator* (migrant)
- Mountain Brook Lamprey, *Ichthyomyzon greeleyi*
- Graceful Underwing, *Catocala gracilis*
- Ovate Spikerush, *Eleocharis ovata* (Blunt spike-rush)
- Tufted Moisture-loving Moss, *Philonotis fontana* var. *caespitosa*
- Bobcat, *Felis rufus*
- Narrow-necked Pohl's Moss, *Pohlia elongata* var. *elongata*

State Threatened

- Barn owl, *Tyto alba*
- Dark-eyed junco, *Junco hyemalis* (migrant)
- Hermit thrush, *Catharus guttatus* (migrant)
- Least bittern, *Ixobrychus exilis*
- Lest flycatcher, *Empidonax minimus*
- *Psilotreta indecisa* (caddisfly)
- Simple willow-herb, *Epilobium strictum*
- Woodland Horsetail, *Equisetum sylvaticum*
- Lurking leskea, *Plagiothecium latebricola*
- Pale sedge, *Carex pallescens*

State Potentially Threatened Plants

- Gray Birch, *Betula populifolia*
- Butternut, *Juglans cinerea*
- Northern rose azalea, *Rhododendron nudiflorum* var. *roseum*
- Hobblebush, *Viburnum alnifolium*
- Long Beech Fern, *Phegopteris connectilis* (*Thelypteris phegopteris*)
- Straw sedge, *Carex straminea*
- Water avens, *Geum rivale*
- Tall St. John's wort, *Hypercium majus*
- Swamp oats, *Sphenopholis pensylvanica*
- Shinning ladies'-tresses, *Spiranthes lucida*
- Arbor Vitae, *Thuja occidentalis*
- American Chestnut, *Castanea dentata*

State Species of Concern

- Pygmy shrew, *Sorex hovi*
- Star-nosed mole, *Condylura cristata*
- Woodland jumping mouse, *Napaeozapus insignis*
- Sharp-shinned hawk, *Accipiter striatus*
- Marsh wren, *Cistothorus palustris*
- Henslow's sparrow, *Ammodramus henslowii*
- Cerulean warbler, *Dendroica cerulea*
- Prothonotary warbler, *Protonotaria citrea*
- Bobolink, *Dolichonyx oryzivorus*
- Northern bobwhite, *Colinus virginianus*
- Common moorhen, *Gallinula chloropus*
- Great egret, *Casmerodius albus*
- Sora, *Porzana carolina*
- Virginia Rail, *Rallus limicola*
- Creek heelsplitter, *Lasmigona compressa*
- Eastern box turtle, *Terrapene carolina*
- Four-toed Salamander, *Hemidactylium scutatum*
- *Stenonema ithica* (mayfly)

- *Apamea mixta* (moth)
- *Brachylomia algens* (moth)

State Special Interest

- Canada warbler, *Wilsonia canadensis*
- Little blue heron, *Egretta caerula*
- Magnolia warbler, *Dendroica magnolia*
- Northern waterthrush, *Seiurus noveboracensis*
- Winter wren, *Troglodytes troglodytes*
- Back-throated blue warbler, *Dendroica caerulescens*
- Brown creeper, *Certhia americana*
- Mourning warbler, *Oporornis philadelphia*
- Pine siskin, *Carduelis pinus*
- Purple finch, *Carpodacus purpureus*
- Red-breasted nuthatch, *Sitta canadensis*
- Golden-crowned kinglet, *Regulus satrapa*
- Blackburnian warbler, *Dendroica fusca*
- Blue grosbeak, *Guiraca caerulea*
- Common snipe, *Gallinago gallinago*
- American wigeon, *Anas americana*
- Gadwall, *Anas strepera*
- Green-winged teal, *Anas crecca*
- Northern shoveler, *Anas clypeata*
- Redhead duck, *Aythya americana*
- Ruddy duck, *Oxyura jamaicensis*

There are currently no federally listed species or critical habitat on the RTLS property. There are a few species currently under federal observation for listing, but none listed. Below is a list of species documented by the US Fish and Wildlife Service or the Ohio Division of Natural Areas Preserves known to exist within the vicinity of the RTLS or within ranges that include the RTLS, but <u>not known to be on the RTLS/RVAAP property.</u>

Federal Endangered

- Indiana Bat, *Myotis sodalis* (Portage and Trumbull Counties)

- Mitchell's satyr, *Neonympha mitchellii* (Portage County)
- Clubshell mussel, *Pleurobema clava* (Trumbull County)

Federal Threatened

- Northern Monkshood, *Aconitum noveboracense* (Portage County)
- Bald Eagle, *Haliaetus leucocephalus* (Potage and Trumbull Counties)

Federal Candidate Species

- Eastern Massasauga, *Sistrurus catenatus catenatus* (Portage and Trumbull Counties)

State Endangered

- Bald Eagle, *Haliaetus leucocephalus* (Portage County)
- Northern Monkshood, *Aconitum noveboracense* (Nearby)
- Indiana Bat, *Myotis sodalis* (RVAAP is within historic range)
- Mountain Brook Lamprey, *Ichthyomyzon greeleyi* (within 1 mile)

State Threatened

- Upland Sandpiper, *Bartamia longicauda* (Nearby/Nest)

State Potentially Threatened

- Richardson's Pondweed, *Potamogeton richardisonii* (Nearby)
- Flat-Stem Pondweed, *Potamogeton zosteriformis* (Nearby)

State Species of Concern (ODOW)

- Iowa Darter, *Etheostoma exile* (1991, Nearby)

Rare Plant Communities

- Floodplain Forest (within 1 mile, Windham Quad).

6.2.3 Cultural Setting

6.2.3.1 Beneficial Resources

As stated previously, RVAAP encompasses various vegetative site conditions ranging from open fields, wetlands, and forests. Actions at RVAAP, since its closure, have focused on returning the property to its original condition prior to when the land was farmed and the Installation was constructed, either by active methods or natural progression. This effort has allowed the facility to become the home to various species of plants and animals, including those which are state listed as threatened, endangered, or of concern. The forest which covers approximately 80 percent of the facility is used for some limited timbering. Also, hunting, including fishing and trapping, is permitted on the facility to help control

population levels of resident wildlife and for proper land management. Hunting by the general public is permitted in designated areas on the installation. Hunting is conducted under a controlled access program.

The Sharon Conglomerate bedrock was the primary source of potable groundwater at RVAAP during its operational phase. Most facility production wells were completed in this unit, although some wells were completed in the overlying Sharon Shale. Residential groundwater use occurs outside of the facility. Residential wells in the vicinity of the RVAAP are completed in both the unconsolidated unit and bedrock, with the Sharon Conglomerate acting as the major producing aquifer in the area.

Eight Phase I Archaeological Surveys have been completed by the RVAAP and the OHARNG at various locations throughout the facility since 1993. These eight surveys have identified 95 archaeological sites. One Phase II Investigation was completed on ten sites in 2006. None of the archaeological sites identified in these surveys meet the eligibility requirements for listing on the National Register of Historic Places (NRHP). To date, the total acreage surveyed on the facility is approximately 6,830 acres. Only one historic property eligible for listing on the NRHP exists on the facility, the Stone Arch Bridge. It is not known if the MRSs identified in this document have been surveyed for cultural resources. Further information regarding the completed surveys and archaeological sites is located and can be obtained at the RTLS-Environmental Office.

6.2.3.2 Demographics

RVAAP is in northeastern Ohio within Portage and Trumbull counties. The US Census Bureau population estimates for 2004 indicate that the population of Portage County is 154,764, and 220,486 for Trumbull County. Population centers closest to RVAAP are Ravenna, with an estimated population of 11,503, and Newton Falls, with an estimated population of 4,865. The RVAAP facility is located in a rural area and is not close to any major industrial or developed areas. Approximately 55 percent of Portage County, in which the majority of RVAAP is located, consists of either woodland or farmland acreage. The Michael J. Kirwan Reservoir (also known as West Branch Reservoir) is the closest major recreational area and is located adjacent to the western half of RVAAP, south of State Route 5.

6.2.3.3 Land Use Activities

During the operational history, industrial operations at RVAAP consisted of 12 load lines. Load Lines 1 through 4 were used to melt and load TNT and Composition B into large caliber shells and bombs, while Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. Load Line 12

was originally used to produce ammonium nitrate for explosives and fertilizers, and was later used as a weapons demilitarization facility (i.e., TNT recovery facility).

Along with the production activities, the facility also operated several landfills and OB/OD areas which received a variety of explosives wastes, ash, dunnage, and munitions. At some of the landfills, the explosive wastes were thermally treated. The OB/OD operations were conducted to desensitize and/or destroy waste materials ranging from raw explosives to explosives contaminated wastes (e.g., rags, cardboard, etc.). Prior to 1980, these items were typically burned directly on the ground surface. Thereafter, waste explosives and munitions were either burned in metal refractory-lined trays or a deactivation furnace located at the Winklepeck Burning Grounds.

As of February 2006, a total of 20,403 acres of the former 21,683-acre RVAAP has been transferred by the US Army to the NGB and subsequently licensed to the OHARNG for use as a military training site. This portion of the facility is identified as the RTLS. The current RVAAP consists of 1,280 acres that are scattered throughout the RTLS which consist mostly of IRP sites. Once this remaining acreage has been remediated, it will be transferred to the NGB for license to the OHARNG.

Current OHARNG training operations and assets within RTLS include: field operations and bivouac training, convoy training, equipment maintenance, storage of heavy equipment, rotary and fixed-wing aircraft training, tracked vehicle maneuver training, engineer training, MK-19 Range, Gunnery Table IV MILES Range, hand grenade qualification range, and field support and cantonment facilities. Thirteen of the MRSs are collocated with IRP sites, while the remaining four fall solely under the MMRP.

6.3 MRS CSM Profiles

6.3.1 Ramsdell Quarry Landfill (RVAAP-001-R-01)

6.3.1.1 Human Exposure Profile

Current Land Use

The MRS consists of the former OB/OD area in the northern quarry (Area 1) containing the pond and the southern soil borrow pit and wooded area (Area 2). The MRS is fairly isolated in the central portion of the Installation and is surrounded by woodlands. Current site activities include maintenance of the grounds, stakes, and signs; long term monitoring of the groundwater; and landfill cap inspections. With the exception of the closed landfill and former OB/OD area in Area 1, Area 2 of the MRS was transferred to the NGB by the US Army and licensed to the OHARNG for use as a military training site.

Formal land use controls have not been established at the site, but access for installation personnel is restricted.

Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel charged with mowing), and regulatory personnel conducting periodic monitoring. Although site visits are limited, they are necessary to perform semi-annual sampling of the monitoring wells, to conduct security patrols, and to perform grounds keeping and maintenance tasks. The OHARNG does not use currently the MRS for training activities.

Potential Future Land Use

Potential future land use is not expected to change from the current land use at Area 1. However, Area 2 may be used in the future for military training.

Potential Future Human Receptors

Potential future human receptors are not expected to change from the current use receptors at Area 1. Potential future receptors at Area 2 will include military personnel.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Land use controls will be implemented in the Record of Decision for the IRP site, once signed. OHARNG restricts access to Area 1 within the MRS (landfill and former OB/OD area) to only authorized installation, security, and maintenance personnel. This restriction is so that the landfill cap can be properly maintained. The MRS is not fenced, with access restricted only by the Installation wide perimeter fence.

6.3.1.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-1**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-1: Ramsdell Quarry Landfill Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Ramsdell Quarry Landfill	Wetlands.	Disturbed. MRS excavated to recover unconsolidated glacial material.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.1.3 MEC and MC Release Profiles

Release Mechanisms

For approximately four years, the MRS was used to thermally treat (i.e., open burn) explosives waste and munitions, as well as napalm bombs in Area 1. Activities conducted at Area 2, other than use as a borrow pit, is not known. No MEC was observed during the SI field work, though munitions debris was found in several locations within Area 2. The presence of MEC in the pond in Area 1 has not been defined and will require additional investigation.

Analytical data from IRP investigations have confirmed the presence of explosives and metals in Area 1, while the presence of MC (i.e., lead and manganese) at Area 2 was confirmed during the SI field work.

The release mechanisms for MEC and MC are the intentional disposal/demilitarization of munitions and related items. **Table 6-2** provides a summary of the types of munitions either historically observed at the MRS or potentially present, and the release mechanisms.

Table 6-2: Summary of Historical MEC and MC Present at the Ramsdell Quarry Landfill

Potential MEC	Potential MC	Primary Release Mechanism
Bombs	White phosphorus, smoke, photoflash, napalm	Open burn on ground surface; uncontained.
Mortars	White Phosphorus, Smoke, Illumination, HE, practice (inert)	Open burn on ground surface; uncontained.
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Open burn on ground surface; uncontained.
Primary/Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate	Open burn on ground surface; uncontained.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder	Open burn on ground surface; uncontained.

HMX - High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
PETN - Pentaerythritol tetranitrate
RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
PETN - Pentaerythritol tetranitrate
Tetryl - N-methyl-N-2,4,6-tetranitroaniline
TNT – Trinitrotoluene

Maximum Penetration Depth

Munitions were burned on the ground surface at the former OB/OD area in Area 1. While MEC would not be expected buried within the former OB/OD area, several anomalies were detected around the pond. As such, the possibility exists that MEC or munitions debris are buried in this area with the depth unknown. Activities conducted at Area 2 (i.e., soil borrow pit and wooded area) that lead to the presence of munitions debris is not known. However, based on the few subsurface anomalies detected in the soil borrow pit and wooded area, buried munitions are unlikely.

MEC/MC Density

MEC may be present in the pond at Area 1, which covers less than 0.5 acres. Based on the findings of the UXO survey conducted in Area 2, MEC is not expected to be present. Based on investigations conducted under the IRP, MC contamination within Area 1 is widespread across the entire former OB/OD area, which encompasses 0.5 acres. The IRP will continue to address MC contamination at Area 1. MC contamination (i.e., lead and manganese) in Area 2 has been established at sample area MC3 (approximately 0.8 acres).

Munitions debris

Several munitions debris items (one 105mm ceremonial shot cartridge and one 155mm shot round) were found in both the wooded area and the soil borrow pit located at Area 2. No munitions debris was found at Area 1, although subsurface anomalies were detected.

MEC Exposure and Transport Pathway Analysis

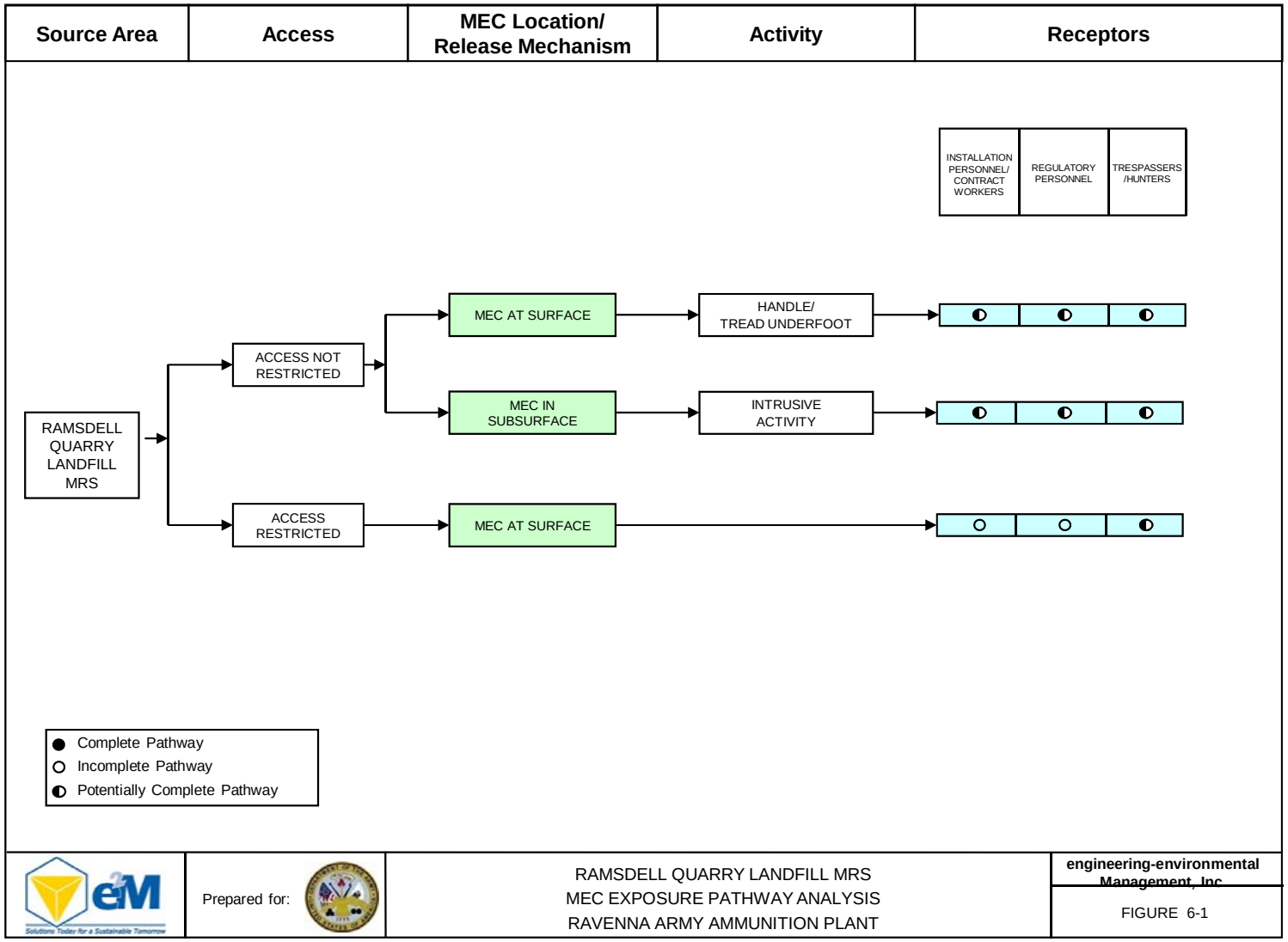
After cessation of the open burn activities, a portion (southern and western rim of Area 1) of the MRS was used as a solid waste landfill, which was subsequently closed and capped in accordance with Ohio solid waste regulations. It is likely that the waste cell and cap overlay any remaining MEC that was left on site. This portion of the site is not MMRP-eligible, since it is considered to be a "Response Complete". While MEC was not observed lying on the ground surface at Area 1, its presence can not be ruled out due to the dense vegetative cover that reduced vision. Further, multiple anomalies were detected around the pond indicating the presence of metallic items. MEC was not observed at Area 2 and very few anomalies were detected. Human exposure pathways for Area 1 include contact with MEC lying on the ground surface and disturbance of subsurface soil. Transport of MEC lying on the ground surface or buried is not likely out of the former quarry area. The complete MEC human exposure pathways would be to handle or tread under foot and disturbance of surface soil. **Figure 6-1** provides the pathways evaluated and the findings of the assessment.

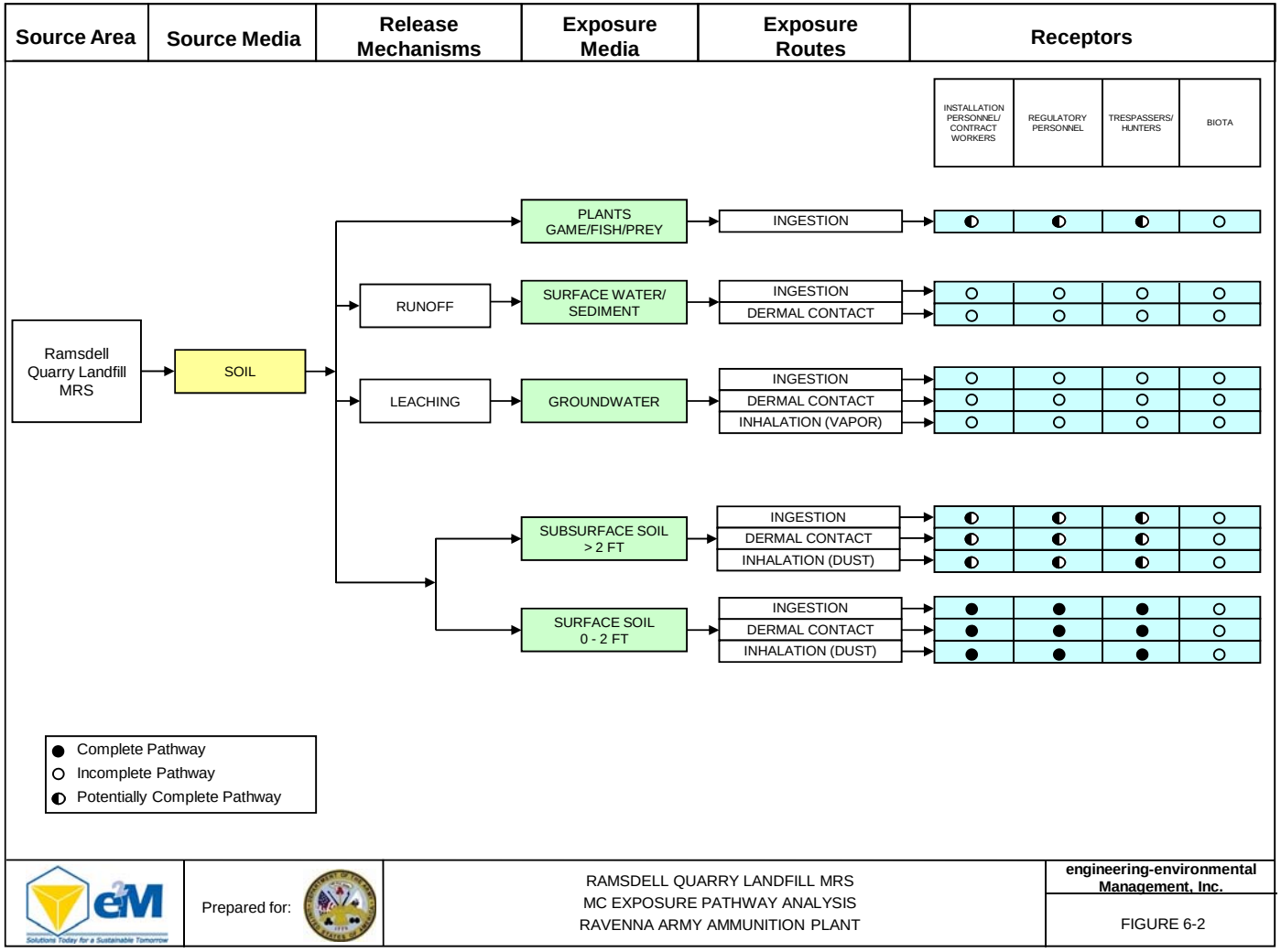
MC Exposure and Transport Pathway Analysis

At Area 2, MC consisting of metals (i.e., lead and manganese) was detected above screening levels. Complete exposure pathways are present for surface and potentially complete exposure pathways exist for subsurface soil. Exposure pathways for human receptors would include dermal contact and ingestion/inhalation of contaminated soil. MC at Area 1 will continue to be addressed under the IRP. **Figure 6-2** provides the exposure pathways for Area 2.

6.3.1.4 MRS Data Gaps

MEC in Area 1 and MC in Area 2 will require additional investigation under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
RAMSDELL QUARRY LANDFILL MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
RAMSDELL QUARRY LANDFILL MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc
FIGURE 6-1


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Ramsdell Quarry Landfill MRS
SOIL
PLANTS GAME/FISH/PREY
INGESTION
RUNOFF
SURFACE WATER/ SEDIMENT
INGESTION
DERMAL CONTACT
LEACHING
GROUNDWATER
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
SUBSURFACE SOIL > 2 FT
INGESTION
DERMAL CONTACT
INHALATION (DUST)
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
RAMSDELL QUARRY LANDFILL MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-2

6.3.2 Erie Burning Grounds (RVAAP-002-R-01)

6.3.2.1 Human Exposure Profile

Current Land Use

The former burning ground consists of wetland areas, forested areas, uplands, open water, and an unpaved road network. Current site activities include surveying, environmental media sampling, security, safety, natural resources management, and other maintenance activities as required. This site is restricted access due to the expansive, high quality wetlands that populate the site. No military training is conducted at this site. The site is also permitted for waterfowl hunting and trapping.

Current Human Receptors

Current human receptors include installation personnel, security personnel, hunters/trappers, and authorized contractors. Although site visits are limited, they are necessary to conduct intermittent security patrols and to perform grounds keeping and maintenance tasks. The OHARNG does not use the area for training activities.

Potential Future Land Use

Potential future land use is not expected to change from the current land use.

Potential Future Human Receptors

Potential future human receptors are not expected to change from the current human receptors.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Formal land use controls will be implemented under the MMRP once risk at the site has been fully characterized. OHARNG has restricted access to this MRS due to the expansive, high quality wetlands that populate the site. No military training is conducted at this site. The MRS is not fenced, with access restricted only by the Installation wide perimeter fence.

6.3.2.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-3**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-3: Erie Burning Grounds Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Erie Burning Grounds	Wetlands.	Minimally disturbed. MRS transformed into pond and wetlands.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.2.3 MEC and MC Release Profile

Release Mechanisms

For approximately ten years the MRS was used to thermally treat (i.e., open burn) bulk, obsolete, non-specification explosives, as well as propellants, rags, and Army railcars used for transporting explosives. Few subsurface anomalies were detected during the SI survey and no MEC or UXO was observed lying on the ground surface. However, one possible MEC item was found partially buried in the south-central portion of the MRS. MEC is expected in the flooded sections of the MRS and will require further investigation under future MMRP actions. IRP investigations have confirmed the presence of explosives and metals in the soil, surface water, and dry sediment. Wet sediments will require further characterization under future MMRP actions.

The release mechanisms for MEC and MC are the intentional disposal of explosives and related items. **Table 6-4** provides a summary of the types of munitions either historically observed at the MRS or potentially present, and the release mechanisms. The release mechanisms for any remaining MEC at the MRS are the same.

Table 6-4: Summary of Potential MEC and MC Present at the Erie Burning Grounds

Potential MEC	Potential MC	Primary Release Mechanisms
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Open burn on ground surface; uncontained.
Primary/Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate	Open burn on ground surface; uncontained.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder	Open burn on ground surface; uncontained.

HMX - High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
PETN - Pentaerythritol tetranitrate
RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
PETN - Pentaerythritol tetranitrate
Tetryl - N-methyl-N-2,4,6-tetranitroaniline
TNT – Trinitrotoluene

Maximum Penetration Depth

Munitions were burned on the ground surface at the MRS. As such, MEC would not be expected to be in the subsurface soil. However, a large portion of the MRS is submerged limiting surface contact. While the penetration of MEC items are anticipated to be static (i.e., horizontally), MC have been detected in the groundwater suggesting their mobility. In addition, MC has been documented in surface and subsurface soil, surface water, groundwater and dry sediments.

MEC/MC Density

A UXO survey of accessible dry areas (approximately 14 acres) was performed during the SI field work. Several anomalies were identified, and one potential MEC item was discovered in the south-central portion of the MRS. MEC may also be present in the flooded areas of the MRS, which were not surveyed during the SI. Combined, the submerged area along with the south-central portion of the MRS occupies a little more than 75 percent of the MRS. Burning operations were conducted along the Track 49 rail spur, the burn area situated at the terminus and to the north of the spur, and at the "T-Area". Therefore, MC in sediments is anticipated to be located throughout these areas.

Munitions Debris

No munitions debris was discovered during the SI field work.

MEC Exposure and Transport Pathway Analysis

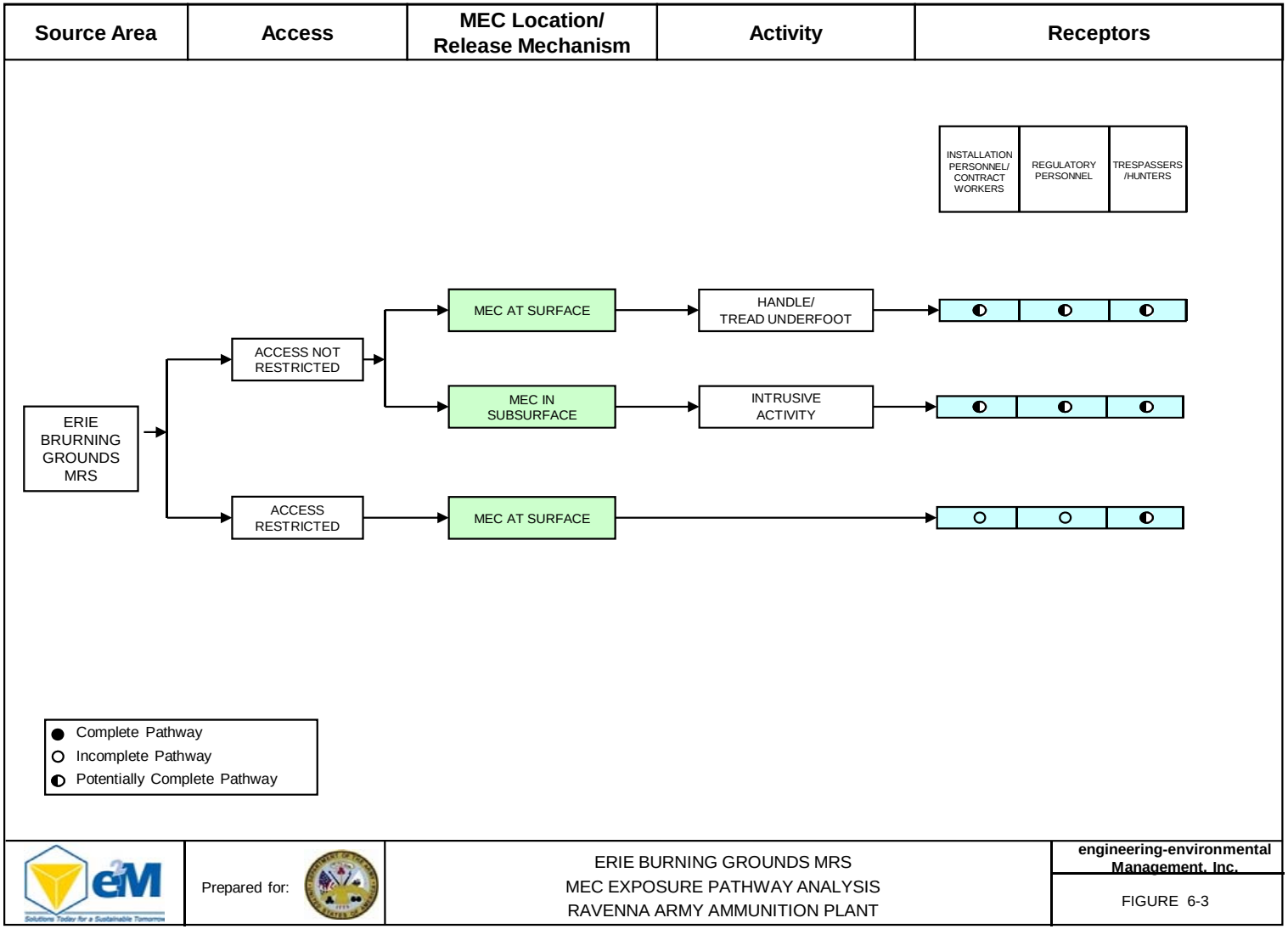
In the early 1990s, the majority of the MRS became flooded due to a combination of sedimentation, vegetative growth, and beaver damming, leaving only the railroad embankment and a portion of the T-Area exposed. Within these areas, the primary exposure pathway for human targets would be contact with MEC lying on the ground surface. Periodically, the open water body north of the rail spur has drained on its own. During these episodes, contact with submerged MEC items could be possible. Since any MEC that is likely to be on site is submerged, transport and migration are not likely, unless disturbed. **Figure 6-3** provides the pathways evaluated and the findings of the assessment.

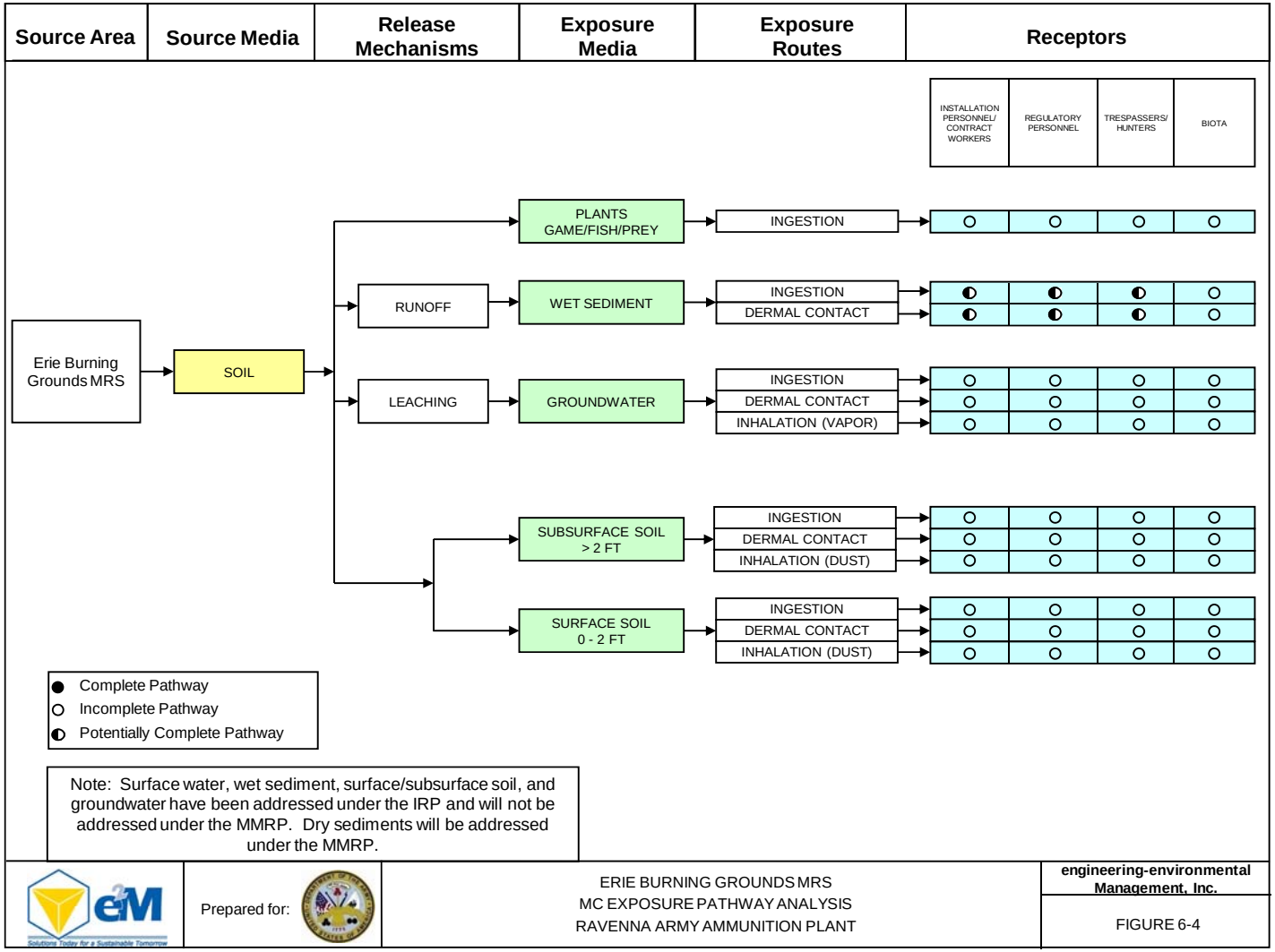
MC Exposure and Transport Pathway Analysis

The presence of explosives and metals in the surface and subsurface soil, surface water, and dry sediments has been established by investigations conducted under the IRP. Contact with MC contaminated media is possible for individuals who gain access to the site. Transport of MC via groundwater and surface water is possible. **Figure 6-4** provides the pathways evaluated and the findings of the assessment.

6.3.2.4 MRS Data Gaps

Adequate historic and SI data determining the presence and density of MEC items in the submerged portion of the MRS and potentially buried has not fully been determined and will require further evaluation during future MMRP actions. Chemical contamination in soils and dry sediments has been addressed under the IRP, with a risk assessment of NFA. However, a decision concerning MC in wet sediments has not been made. As such, MC will require further investigation under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
ERIE BRURNING GROUNDS MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ERIE BURNING GROUNDS MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-3


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Erie Burning Grounds MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
WET SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Note: Surface water, wet sediment, surface/subsurface soil, and groundwater have been addressed under the IRP and will not be addressed under the MMRP. Dry sediments will be addressed under the MMRP.
Prepared for:
ERIE BURNING GROUNDS MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-4

6.3.3 Open Demolition Area #2 (formerly Demolition Area #2) (RVAAP-004-R-01)

6.3.3.1 Human Exposure Profile

Current Land Use

The former detonation area is centrally located within the installation. Current site activities include intermittent security patrols, maintenance (i.e., of the gate, stakes, and signs), environmental media sampling, surveying, and natural resource management. Access to the MRS is restricted by a gate. Visitors must be briefed on the inherent dangers located at the site before entrance is allowed. This property has not been transferred to the NGB and is currently managed by BRAC.

Current Human Receptors

Current human receptors are limited to installation and security personnel and authorized contractors. Although site visits are limited, they are necessary to conduct security/inspection patrols, perform maintenance, and evaluate natural resources.

Potential Future Land Use

Potential future land use is not expected to change from the current land use.

Potential Future Human Receptors

Potential future human receptors are not expected to change from current receptors.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, access to this site is restricted by a gate and due to concerns over MEC.

6.3.3.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-5**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-5: Open Demolition Area #2 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Open Demolition Area #2 (formerly Demolition Area #2)	Wetlands associated with the Sand Creek flood plain.	Moderately disturbed. Detonation area cleared and pits excavated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.3.3 MEC and MC Release Profile

Release Mechanisms

For approximately 43 years the MRS was used to dispose of large caliber munitions and bulk explosives, in addition to the burial of bombs and white phosphorus (Burial Areas 1 and 2). MEC has been observed on site, and in 1999 over 100,000 munitions items and munitions debris were removed from the RCRA unit. MEC is present lying on the ground surface and partially buried in the Bomb Disposal Area (undocumented area added during this SI and located outside the northwestern portion of the MRS) and Burial Areas 1 and 2, as well as in Sand Creek at the Rocket Ridge area. In June 2007, a white phosphorous (WP) grenade detonated in the Rocket Ridge area, likely triggered by animal contact. Because of this incident, the Ohio EPA has required a time-critical removal action for the Rocket Ridge area.

Analytical data from IRP investigations have confirmed the presence of explosives and metals in the surface and subsurface soil and groundwater in two distinct areas along Sand Creek. Analytical data collected during IRP investigations have identified MC in groundwater and soil, north of, and within, a portion of the Sand Creek floodplain.

The release mechanisms for MEC and MC are the intentional detonation and burial of munitions and bulk explosives. MEC items and munitions debris found scattered throughout the MRS are due to kick-out from demilitarization activities. **Table 6-6** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-6: Summary of Potential MEC and MC Present at Open Demolition Area #2

Potential MEC	Potential MC	Primary Release Mechanisms
Blasting Caps and Fuzes	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Open Detonation
Boosters	TNT, C4, Composition A, B, or C, RDX, PETN	Open Detonation
Bursters	TNT, RDX, HMX, Explosive D	Open Detonation
Bombs (up to 500 lbs)	Smoke, white phosphorus, HE, incendiary, and practice (inert)	Open Detonation
Demolition Materials	TNT	Open Detonation
Large Caliber Rounds (37mm or greater, including 40mm grenades and white phosphorus grenades)	Smoke, white phosphorus, HE, incendiary, and practice (inert)	Open Detonation

HMX – High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
PETN – Pentaerythritol tetranitrate
RDX – Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
TNT – Trinitrotoluene

Maximum Penetration Depth

At the detonation area, munitions were detonated in pits that were excavated with a backhoe to a maximum depth of four ft bgs. Based on the location and conditions at the Rocket Ridge area, munitions and munitions debris are only partially buried as a result of slumping soils and erosion. The depth of potentially buried MEC at the Bomb Disposal Area located near the northwestern portion of the MRS is not known, but items have been observed lying on the ground surface and partially buried. Likewise, little is known about the depth that items were buried at Burial Sites 1 and 2, but it is anticipated not to exceed 15 ft, or the average digging depth of a backhoe.

MEC Density

MEC and munitions debris have been removed from the RCRA unit. MEC items discovered during the SI field work included two 40mm cartridges with intact primer, found north across the creek from Rocket Ridge along the pathway leading up the hill, and two fuzes, found southeast of Rocket Ridge in an open area and in the woods northwest of the open demolition area. All items were likely kick out from the open detonation area. MEC and munitions debris located at Rocket Ridge cover approximately 0.25 acres.

Munitions debris

Munitions debris was found at six locations in Burial Sites 1 and 2 and in the wooded areas to the north and west of the open detonation area, likely due to kick-out. In general, fragments of exploded or unexploded ordnance items forcefully propelled away from the detonation pits during detonation activities can be found several thousand feet away from the detonation site. Default distances for fragment protection range from 1,250 ft for non-fragmenting explosives materials to 4,000 ft for munitions 5-inch caliber or larger.

MEC Exposure and Transport Pathway Analysis

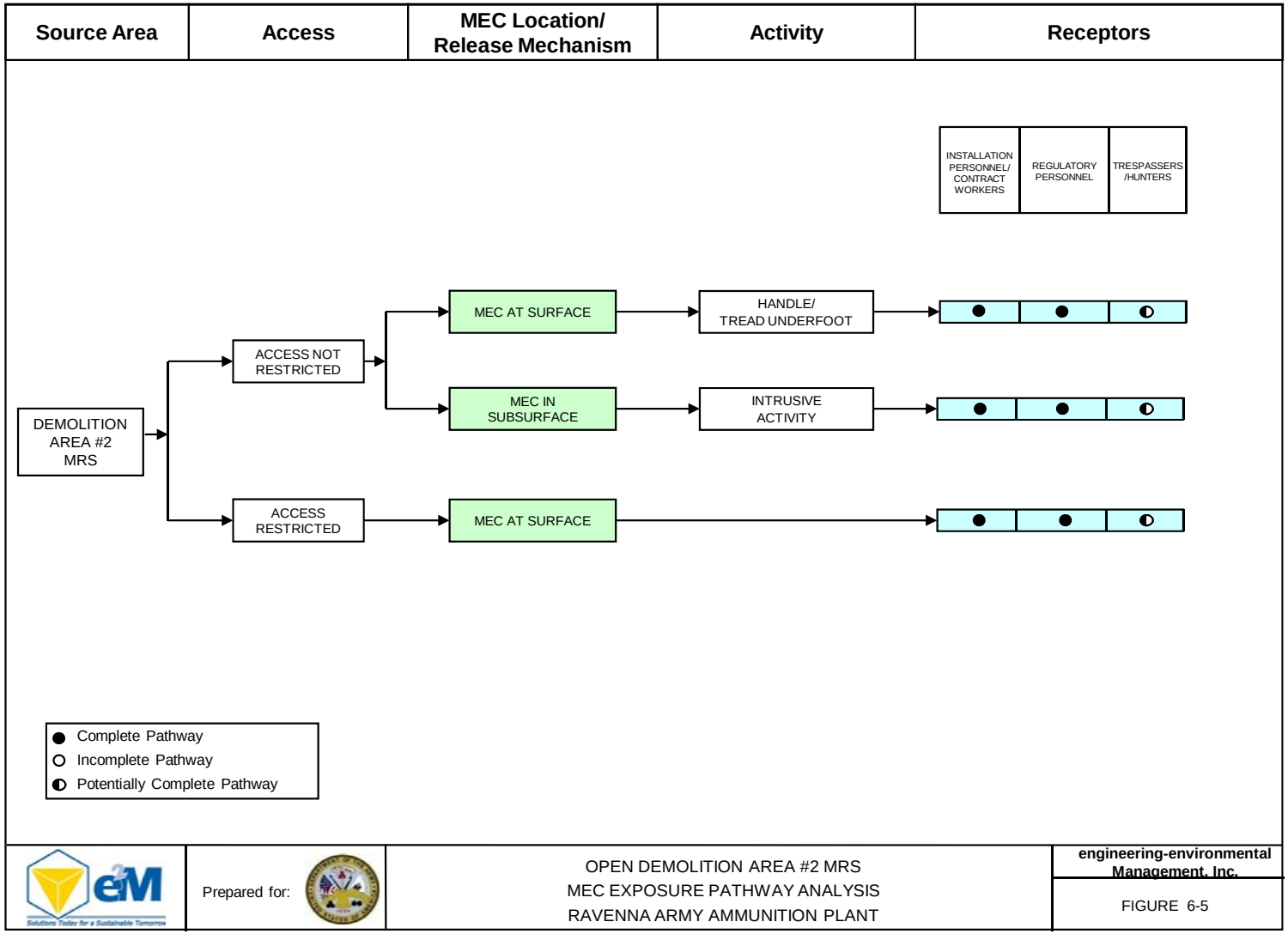
MEC was observed lying on the ground surface and partially buried, and is expected to be present in the subsurface soil at Rocket Ridge and Burial Sites 1 and 2. Human exposure pathways include contact with MEC during disturbance of subsurface soil and contact with MEC lying on the ground surface. Since MEC is expected to be buried, transport and migration are not likely, unless disturbed. MEC lying on the ground surface at Rocket Ridge can be transported by erosion (due to its presence on the slope), surface water flow (i.e., via Sand Creek, especially during flood events) and by frost heave. **Figure 6-5** provides the pathways evaluated and the findings of the assessment.

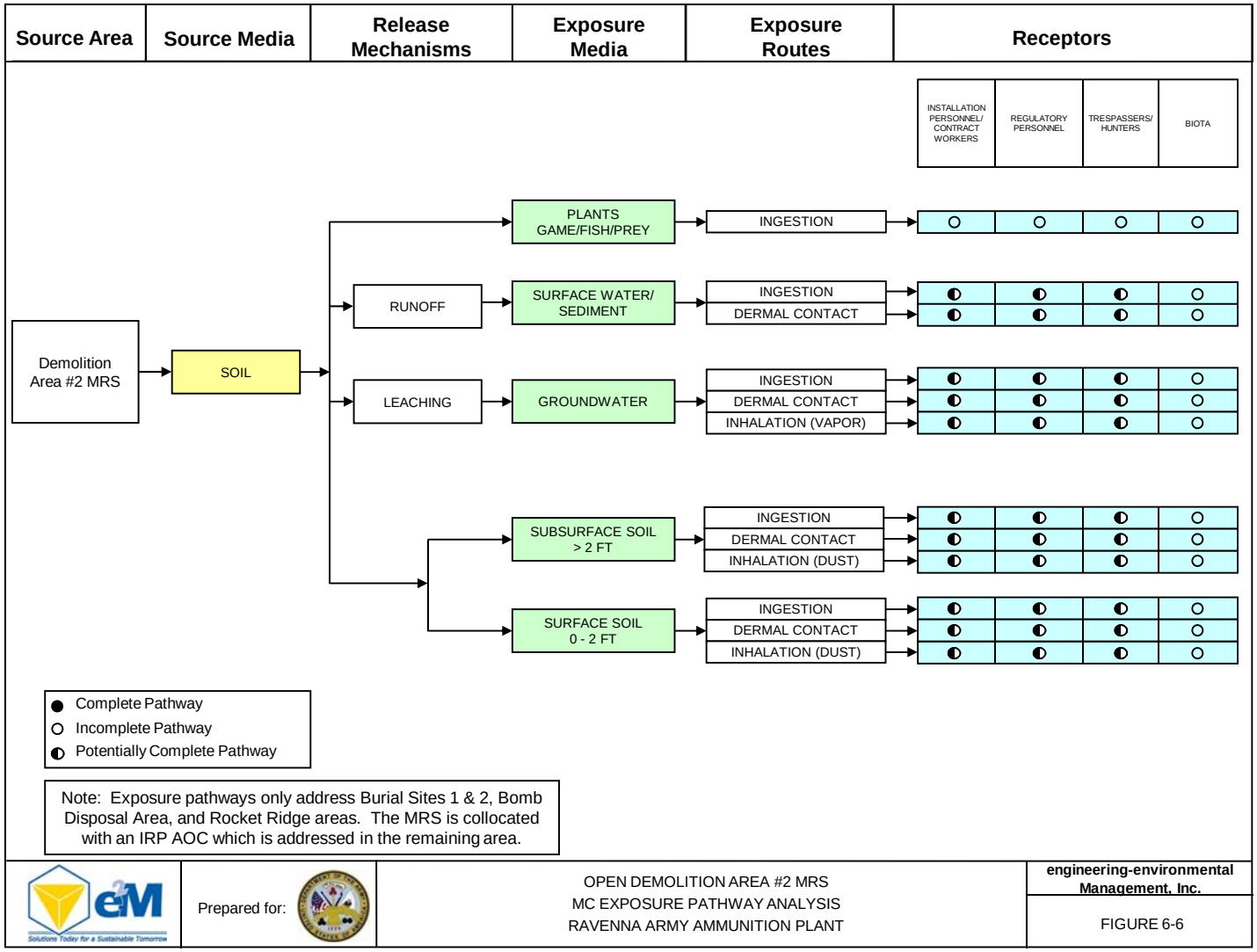
MC Exposure and Transport Pathway Analysis

The presence of explosives and metals (MC) in groundwater, surface soil, and subsurface soil has been established and will partially be addressed under the IRP. Further characterization of the nature of MC may be required under the MMRP. There are no formal land use restrictions that have been ratified under CERCLA, and access to the site is only partially limited by a locked gate. Therefore, potential contact with MC contaminated surface and subsurface soils is considered possible. Transport of MC via groundwater, surface water, and sediments is possible. **Figure 6-6** provides the pathways evaluated and the findings of the assessment.

6.3.3.4 MRS Data Gaps

The extent and density of buried MEC items has not fully been determined at Burial Area 2, as well as the extent of potential MEC items located at the Bomb Disposal Area, Rocket Ridge, and the area across Sand Creek, due north of Rocket Ridge. The nature and extent of MC contamination at these areas has not fully been determined.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
DEMOLITION AREA #2 MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
OPEN DEMOLITION AREA #2 MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-5


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Demolition Area #2 MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Note: Exposure pathways only address Burial Sites 1 & 2, Bomb Disposal Area, and Rocket Ridge areas. The MRS is collocated with an IRP AOC which is addressed in the remaining area.
Prepared for:
OPEN DEMOLITION AREA #2 MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-6

6.3.4 Load Line #1 (RVAAP-008-R-01)

6.3.4.1 Human Exposure Profile

Current Land Use

The only remaining buildings at the former load line include Building CB-13/13B. Other remnants of the former facility include the elevated concrete slab at CB-14, sewers and buried utilities, and elevated walkways. The MRS is fenced, but has a missing section located behind the former guard building. Current site activities are limited to security patrols and maintenance activities (i.e., grounds and wildlife management), and remediation work being conducted under the IRP. This property has not been transferred to the NGB and is currently managed by BRAC. The property is scheduled to be transferred to the NGB after remediation of the IRP AOC is complete.

Current Human Receptors

Current human receptors include installation personnel and authorized contractors. Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping and maintenance tasks. Remediation work being conducted at the IRP AOC is scheduled for completion in 2008.

Potential Future Land Use

Once remediated and transferred to the NGB, the future land use is expected to change to military training, including tracked vehicle maneuver training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. This area is restricted because remediation has not been completed. Access to the MRS is gained through an opened gate or by trespass through the missing section of fence.

6.3.4.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-7**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-7: Load Line #1 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Load Line #1	Wetlands.	Disturbed. Buildings removed.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.4.3 MEC and MC Release Profile

Release Mechanisms

Loading operations were conducted at the MRS for 30 years, which involved the melting and loading of TNT and Composition B explosives into large-caliber shells. These operations produced explosive dust, spills, and vapors that collected on the floors and walls of the buildings. Periodic cleaning of the buildings resulted in the occasional sweeping of loose explosive flakes, chips, dust or pink water (i.e., explosive laden wash water) out of doorways onto the ground. Further, several buildings in the load line were used for a brief period (i.e., several years) to refurbish mines which involved the dismantling, replacing of components, and repainting of the munitions. Additionally, one area was used to demilitarize primers which may have lead to propellant contamination.

MEC, in the form of triple base propellants, has been historically observed at the MRS. During the SI field work, three individual grains of triple base propellant were observed lying on the ground surface. In addition, analytical data from IRP investigations have confirmed the presence of explosives and metals in surface and subsurface soil, groundwater, surface water, and sediments.

The release mechanism for MEC was the deliberate sweeping of explosives residue out doorways during cleaning operations. The investigation of MC will continue to be conducted, partially, under the IRP. **Table 6-8** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-8: Summary of Potential MEC and MC Present at the Load Line #1

Potential MEC	Potential MC	Primary Release Mechanisms
Propellants	Nitroguandine, Nitroglycerin, Nitrocellulose	Discharge to ground surface; uncontained.

Maximum Penetration Depth

Munitions and MC were deliberately released to the ground surface at the former load line buildings (CB-13, CB-13B, CB-14). There was no information discovered during the HRR review to indicate that MEC had been buried at the MRS, and the UXO survey during the SI field work returned very few subsurface anomalies. Any MEC potentially present at the MRS would be expected to be lying on the ground surface, and none was observed during the SI field work.

MEC/MC Density

Three pieces of suspected triple base propellant were found in the vicinity of the elevated building slab at CB-14 during the SI field work. MC consisting of metals was found to be present in the vicinity of CB-14 during the SI field work.

Munitions debris

There is one report of a 152mm casing having been found at the MRS. However, OHARNG personnel discounted this report, stating that the 152mm casing was found at another location. Considering this information and the fact that munitions debris were not observed during the SI field work, the presence of munitions debris is considered unlikely.

MEC Exposure and Transport Pathway Analysis

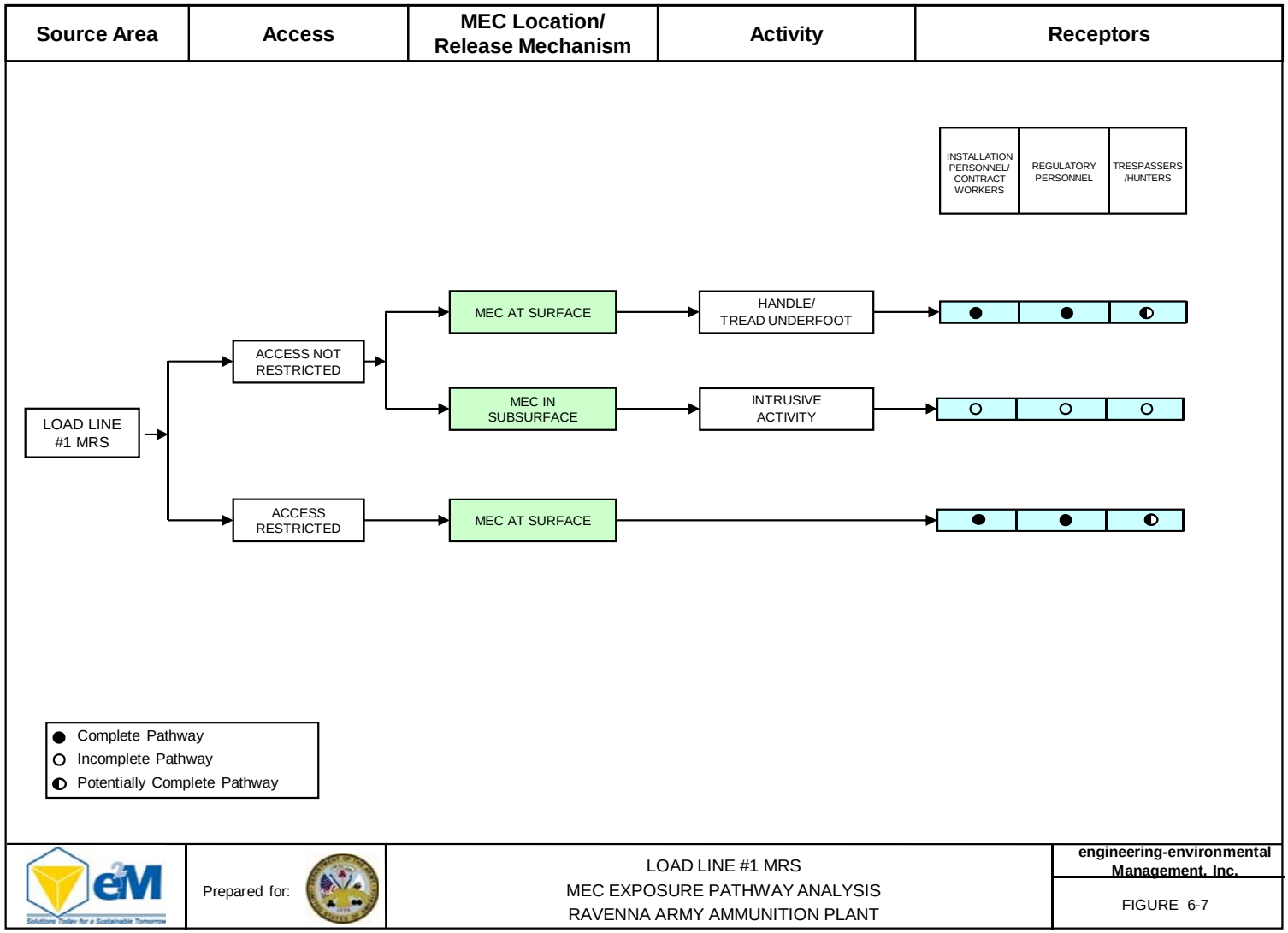
Triple base propellants are known to exist at the MRS and, in part, are being addressed under the IRP. The area that will remain within the MMRP is the 0.41 portion of the MRS located adjacent to the northwest corner of elevated building slab at CB-14. There are no other reports or findings that MEC or munitions debris had been buried or otherwise disposed of on site, and very few subsurface anomalies were detected during the SI field work. The human exposure pathway is contact with triple base propellants lying on the ground surface. Triple base propellants lying on the ground surface can be transported by surface water flow. The complete MEC human exposure pathways would be to handle or tread under foot. **Figure 6-7** provides the pathways evaluated and the findings of the assessment.

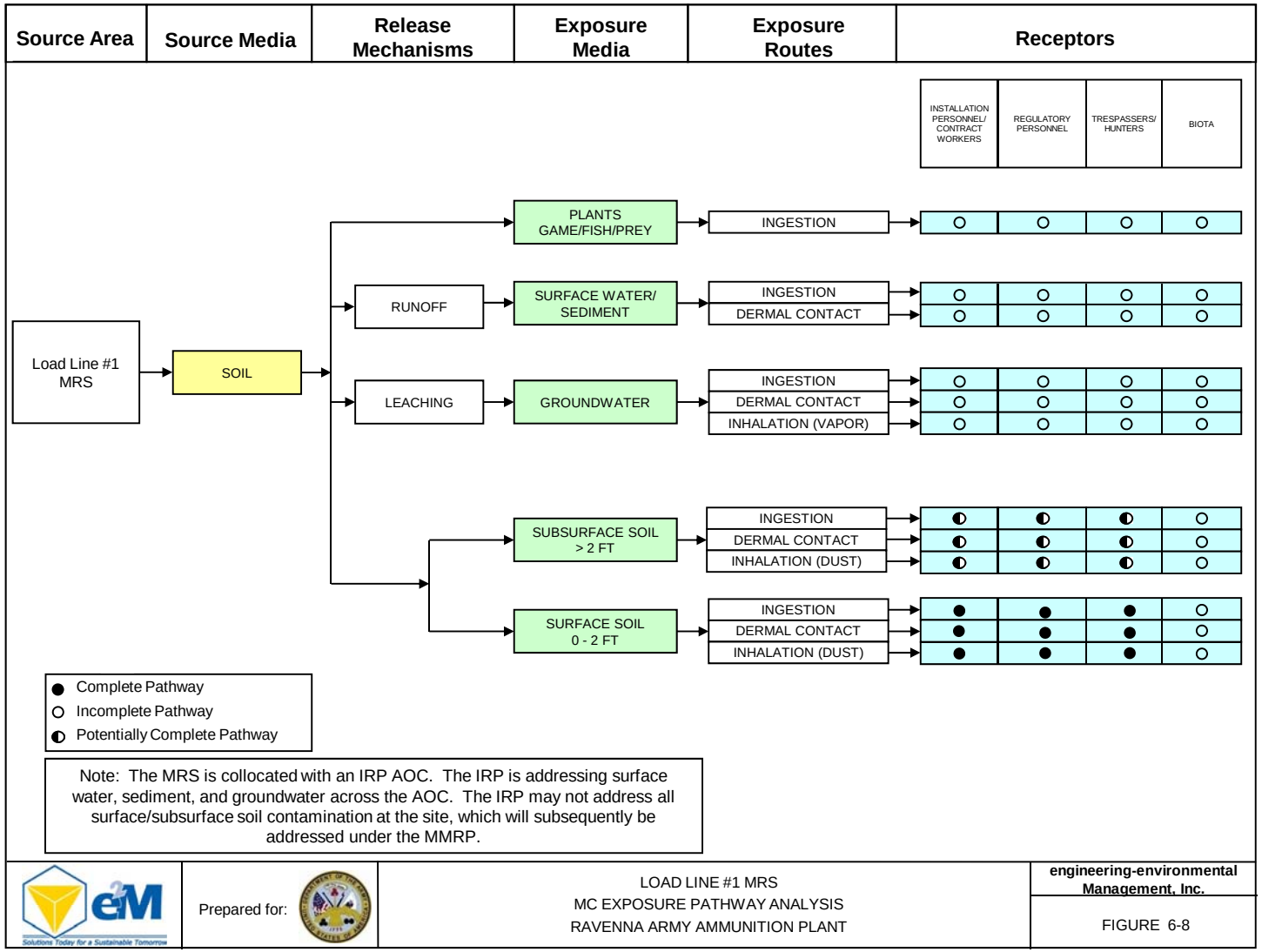
MC Exposure and Transport Pathway Analysis

The presence of explosives and metals in the groundwater, surface soil and subsurface soil, surface water, and sediments has been established by investigations conducted under the IRP, and will continue to be addressed, partially, under this program. The SI field work showed the presence of lead in surface soil on the northwestern side of the elevated building slab at CB-14, which will be addressed under the MMRP. Therefore, complete pathways are present for surface soil and potential pathways are present for subsurface soil. Exposure would include dermal contact and ingestion of contaminated soil. Transport of MC via groundwater, surface water, and sediments is possible. **Figure 6-8** provides the pathways evaluated and the findings of the assessment.

6.3.4.4 MRS Data Gaps

A UXO survey was conducted during the SI field work with three grains of triple base propellant found. The density of propellants is not completely understood and will require further characterization work under future MMRP actions. MC, in the form of lead, was detected at the MRS and will require future characterization under the MMRP. The area of interest can be restricted to the western side of CB-14, as the remaining areas are being addressed under the IRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
LOAD LINE #1 MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LOAD LINE #1 MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-7


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Load Line #1 MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Note: The MRS is collocated with an IRP AOC. The IRP is addressing surface water, sediment, and groundwater across the AOC. The IRP may not address all surface/subsurface soil contamination at the site, which will subsequently be addressed under the MMRP.
Prepared for:
LOAD LINE #1 MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-8

6.3.5 Load Line #12 (RVAAP-012-R-01)

6.3.5.1 Human Exposure Profile

Current Land Use

The former load line and associated structures have been removed, except for a small above grade slab at Building FF-19. Based on information provided by OHARNG, it is also possible that underground utilities remain at the MRS including; sewer lines, water lines, electric, and telephone. Otherwise, the MRS is not developed and remains idle. Current site activities include maintenance of the grounds, fences, and signs; and the performance of security checks. For the most part, these activities are conducted infrequently. This property has not been transferred to the NGB and is currently managed by BRAC. The property is scheduled to be transferred to the OHARNG after remediation of the IRP AOC is complete.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, site visits are infrequent and of limited duration. Currently, the OHARNG does not use the area for training activities.

Potential Future Land Use

Once remediated and transferred to the NGB, the future land use is expected to change to military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Access is controlled by a perimeter fence and an open gate.

6.3.5.2 Ecological Profile

The ecological profile at the Load Line #12 MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-9**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-9: Load Line #12 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Load Line #12	None.	Disturbed. Buildings removed.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.5.3 MEC and MC Release Profile

Release Mechanisms

Ammonium nitrate was first produced at the load line to make Amatol and later as a fertilizer-grade product. In 1944, operations were converted to demilitarize munitions, which involved the washout of projectiles after the fuzes and boosters had been removed. During the operational years, the washout water was allowed to flow from the buildings out onto the ground surface. Procedures for handling and disposal of the fuzes, boosters, and projectile casings were not determined. In 1999, approximately 100 90mm artillery projectiles were found buried just below the ground surface. It was determined that the projectiles did not contain HE. The circumstances of how the munitions came to be buried were not determined.

The release mechanism for MEC items is not fully understood, but is assumed to be the unauthorized dumping of munitions. The release mechanism for MC was the demilitarization of munitions and the deliberate sweeping and rinsing of explosives residue from the buildings through open doorways. MC will continue to be addressed under the IRP and will not be evaluated further under the MMRP. **Table 6-10** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-10: Summary of Potential MEC and MC Present at Load Line #12

Potential MEC	Potential MC	Primary Release Mechanisms
Large Caliber Projectiles (90mm or greater)	TNT, inert	Discharge to ground surface; uncontained.
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Discharge to ground surface; uncontained.

TNT – Trinitrotoluene

Maximum Penetration Depth

There are no records to indicate that the disposal (i.e., burned or detonated) or testing of munitions were established practices at the former load line. Although MEC has been discovered buried just below the ground surface, a penetration depth cannot be established. Reports of munitions being discovered lying on the ground surface were not found. No MEC was discovered during the SI field work and very few subsurface anomalies were detected by the UXO survey.

MEC/MC Density

The MEC found at the MRS is presumed to be incidental, as no other incidents of MEC have been reported and no items were found during the SI field work. Furthermore, very few subsurface anomalies were detected during the SI survey.

Munitions debris

Other than the 90mm projectiles, there are no reports of munitions debris being discovered at the site.

MEC Exposure and Transport Pathway Analysis

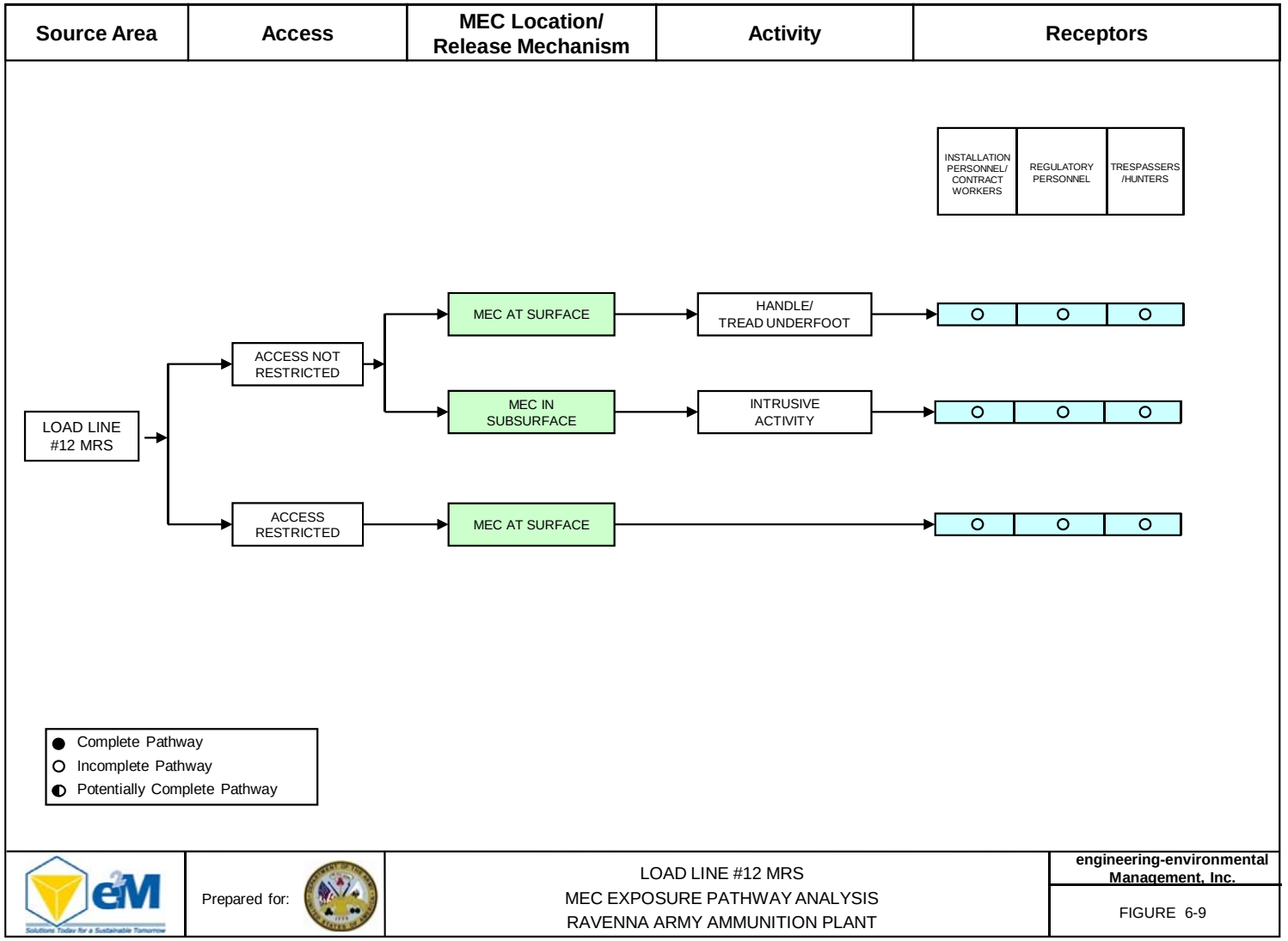
Other than the 90mm artillery projectiles, no other MEC or munitions debris has been found at the MRS. No MEC was observed or detected in the subsurface during the SI field work. It is likely the 90mm projectiles historically found at the MRS are incidental. Therefore, it is concluded that no MEC is present at the MRS and that exposure pathways for MEC are incomplete. **Figure 6-9** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC is present in environmental medium at the MRS and will continue to be covered under the IRP. Further evaluation under the MMRP will not be conducted.

6.3.5.4 MRS Data Gaps

There is adequate evidence that there is no MEC present on the site, therefore, there are no data gaps.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
LOAD LINE #12 MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LOAD LINE #12 MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-9

6.3.6 Fuze and Booster Quarry (RVAAP-016-R-01)

6.3.6.1 Human Exposure Profile

Current Land Use

The Fuze and Booster Quarry is an undeveloped site that encompasses the three ponds constructed within the former quarry, which is surrounded by mature forest. Current site activities include intermittent security patrols, natural resource management, environmental media sampling, surveying, and maintenance activities. In addition, access is permitted to the ponds for waterfowl hunting and trapping. This property has not been transferred to the NGB and is currently managed by BRAC. The property is scheduled to be transferred to the NGB after remediation of the IRP AOC is complete.

Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel), and the occasional hunter/trapper. Typically, visits to the MRS are infrequent and of limited duration.

Potential Future Land Use

Once remediated and transferred to the NGB, the future land use is expected to change to military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation. With the exception of the Installation wide perimeter fence, access to the MRS is not restricted.

6.3.6.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-11**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-11: Fuze and Booster Quarry Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Fuze and Booster Quarry	Wetlands.	Minimally disturbed. Area originally excavated for building material. Area revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.6.3 MEC and MC Release Profile

Release Mechanisms

The MRS was used as an open burning area and subsequently a landfill that accepted fuze and booster assemblies, projectiles, residual ash, and sanitary waste. Reportedly in 1976, existing debris was removed from the MRS and disposed of elsewhere. Further, according to interviews with plant personnel, any munitions produced at the plant could have been disposed at the MRS.

The release mechanisms for MEC items are the intentional open burning and disposal of munitions. The release mechanisms for MC are the burning of munitions and other items, and the deliberate disposal of ash and production waste water. The investigation of MC will continue to be conducted under the IRP and will not be addressed further under the MMRP. **Table 6-12** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-12: Summary of Potential MEC and MC Present at the Fuze and Booster Quarry

Potential MEC	Potential MC	Primary Release Mechanisms
Aerial Rockets	Smoke, inert, white phosphorus, and HE.	Burned/Disposed on ground surface.
Blasting Caps, Fuzes, Boosters, or Bursters	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burned/Disposed on ground surface.
Bombs	Smoke, white phosphorus, incendiary, photoflash, HE, and inert.	Burned/Disposed on ground surface.
Bombs	Smoke, white phosphorus, incendiary, photoflash, HE, and inert.	Burned/Disposed on ground surface.
Flares, Signals, Simulators, Obscurant Smoke	Smokeless powder (nitrocellulose, nitroglycerin)	Burned/Disposed on ground surface.
Hand Grenades	Smoke, white phosphorus, incendiary, HE, inert.	Burned/Disposed on ground surface.
Land Mines, anti-personnel and anti-tank.	Practice (with spotting charge), HE	Burned/Disposed on ground surface.
Large Caliber Projectiles (37mm or greater)	Smoke, white phosphorus, incendiary, HE, practice.	Burned/Disposed on ground surface.
Medium Caliber Projectiles (20mm, 25mm, 30mm)	HE, inert.	Burned/Disposed on ground surface.
Mortars	Smoke, white phosphorus, incendiary, illumination, HE, inert.	Burned/Disposed on ground surface.
Primary or Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burned/Disposed on ground surface.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder.	Burned/Disposed on ground surface.

HE – High Explosives
HMX – High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
PETN – Pentaerythritol tetranitrate
RDX – Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
Tetryl – N-methyl-N-2,4,6-tetranitroaniline
TNT – Trinitrotoluene

Maximum Penetration Depth

Munitions and MC were deliberately released to the ground surface at the MRS. As such, MEC would not be expected in the subsurface soil. During the SI field work, only munitions debris was found on the southeastern side of the southern pond. No MEC was observed in any of the ponds, though it is reportedly visible on the bottom at the southern pond and at the northern pond during periods of low water levels. There is no evidence of MEC in the central pond.

MEC Density

Records were not available to identify the quantity of munitions and other related items burned or disposed of at the MRS. However, based on the results of the SI survey MEC may be present in the northern and southern ponds but is not anticipated in the central pond.

Munitions debris

Munitions debris was found only on the southeastern side of the southern pond at the MRS.

MEC Exposure and Transport Pathway Analysis

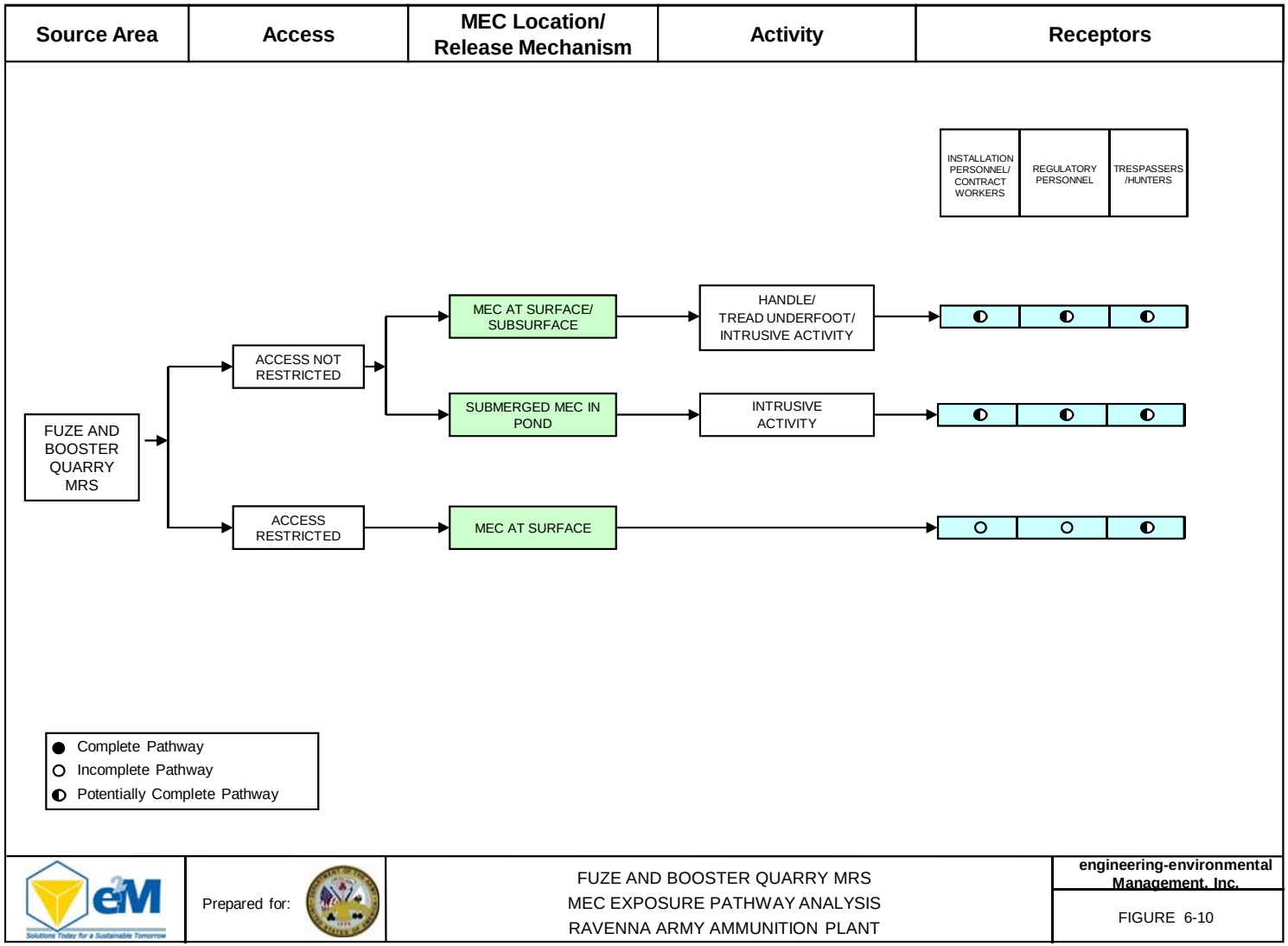
Any MEC remaining at the MRS is likely to be located below the water line or buried along the banks along the ponds. The depth of the water in the ponds varies, but is believed to be no more than 10 ft at its deepest point. Therefore, the exposure pathway for human receptors is considered to be potentially complete and would include the handling or treading underfoot of MEC. Transport of MEC outside the ponds is unlikely due to topography. **Figure 6-10** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and not under the MMRP. Regardless, the presence of explosives and metals in the groundwater, surface soil and subsurface soil, surface water, and sediments has been established by an investigation conducted under the IRP.

6.3.6.4 MRS Data Gaps

Munitions debris was found on the southeastern side of the southern pond and multiple subsurface anomalies were detected along the southeastern side of the southern pond, east side of the middle pond, and eastern/northern side of the northern pond. Further, an assessment of MEC submerged in the northern and southern ponds was not conducted during this SI. Therefore, additional characterization work will be required under future MMRP actions.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
FUZE AND BOOSTER QUARRY MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE/ SUBSURFACE
SUBMERGED MEC IN POND
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT/ INTRUSIVE ACTIVITY
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FUZE AND BOOSTER QUARRY MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-10

6.3.7 Landfill North of Winklepeck (RVAAP-019-R-01)

6.3.7.1 Human Exposure Profile

Current Land Use

The MRS is an undeveloped site that consists of a wooded slope situated between the IRP AOC landfill and the adjacent stream. Current site activities include intermittent security patrols, natural resource management, surveying, environmental media sampling, and maintenance activities. Concerning the landfill AOC, this area will continue to be addressed under the IRP; that is, MC contamination within the known boundaries of the landfill and any MEC discovered incidental during its continued investigation will be handled under the IRP.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

Potential Future Land Use

Once remediated, the OHARNG plans on using the MRS for military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation. The MRS is not fenced, although access is restricted by its location inside the fence surrounding the Mark 19 Range area (former Winklepeck Burning Grounds).

6.3.7.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-13**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-13: Landfill North of Winklepeck Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Landfill North of Winklepeck	Wetlands.	Disturbed. Area originally excavated for a landfill. Area recovering/revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.7.3 MEC and MC Release Profile

Release Mechanisms

Although MEC was not observed during the SI field work, munitions potentially representing MEC have been observed at the MRS in the past. The presence of these items is the possible result of deliberate side-casting of materials down the slope. This was the possible result of the disposal activities that were conducted at the adjacent IRP AOC landfill where general plant refuse, explosives residue, and open burn wastes from Winklepeck Burning Grounds were disposed. Therefore, the release mechanism for MEC items is the intentional disposal of munitions. While the investigation of MC at the IRP AOC landfill area will continue to be conducted under the IRP, MC at the MRS which is outside the IRP AOC, will be addressed under the MMRP. As such, a surface soil sample was collected during the SI field work to assess the presence of MC within the MRS boundary. MC was found to be present in surface soils at the MRS. The release mechanism for MC is the deliberate disposal of ash, explosive plant residues, and remnants of munitions filler not completely flashed during burning operations. **Table 6-14** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-14: Summary of Potential MEC and MC Present at the Landfill North of Winklepeck

Potential MEC	Potential MC	Primary Release Mechanism
Booster cups, Fuzes, Bursters, Blasting Caps	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burial
Flares, Signals, Simulators, or Obscurant Smoke	Smokeless powder (nitrocellulose, nitroglycerin)	Burial

Maximum Penetration Depth

MEC has been reportedly observed lying on the ground surface at the MRS, although no items were observed during the SI field work. Only munitions debris was observed during the SI field work. UXO surveys adjacent and down slope from the former landfill found a substantial number of subsurface anomalies, which can be attributed to the presence of general metallic refuse and possible MEC. As such, the possibility that MEC may be buried at the MRS can not be dismissed. Further, it is likely that some items may be partially buried at the base of the slope due to slumping soils and erosion. The potential depth of burial for MEC is not known, but is believed to be relatively shallow (i.e., less than 2 ft).

MEC/MC Density

The potential for the MRS to contain MEC is limited to the area on the hill side immediately adjacent to the former landfill. This area covers less than 2.5 acres. MC (i.e., metals) was detected in surface soils immediately adjacent to the flare canisters that were discovered. Soils throughout the MRS adjacent to the former landfill are expected to contain MC.

Munitions debris

Munitions debris was discovered at two locations within the MRS during the SI field work. The munitions debris included empty flare canisters and one isolated empty 105mm projectile. The empty 105mm projectile was found outside of the area located adjacent to the former landfill, on a former roadway that leads to the landfill site. It is believed that the projectile was lost off a truck delivering refuse to the landfill area and is not attributed to deliberate disposal activities.

MEC Exposure and Transport Pathway Analysis

MEC at the MRS is likely to be located on the ground surface or potentially buried at a shallow depth in the area adjacent to the former landfill. Considering this, the potential exposure pathway for human receptors would be contact with MEC in surface soils by handling or treading underfoot or through disturbance of the subsurface soil. Transport of MEC may occur through erosion and surface water transport (i.e., especially during flood events). **Figure 6-11** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

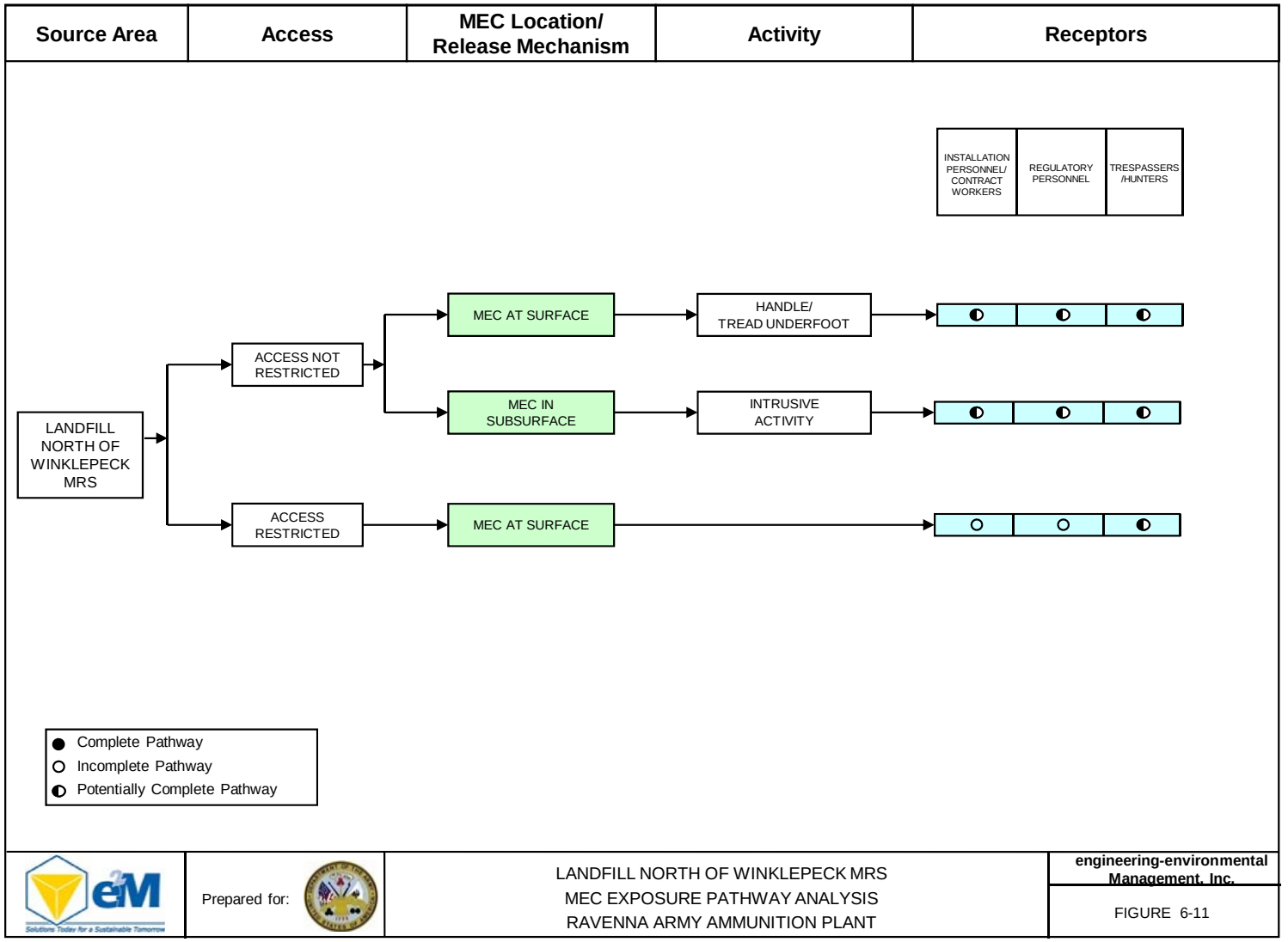
During the SI field work, MC consisting of metals (i.e., lead and iron) was found at one location within the MRS. Complete pathways are present for surface soil and potentially complete pathways are present for subsurface soil and surface water/sediment. Potential exposure would include ingestion or

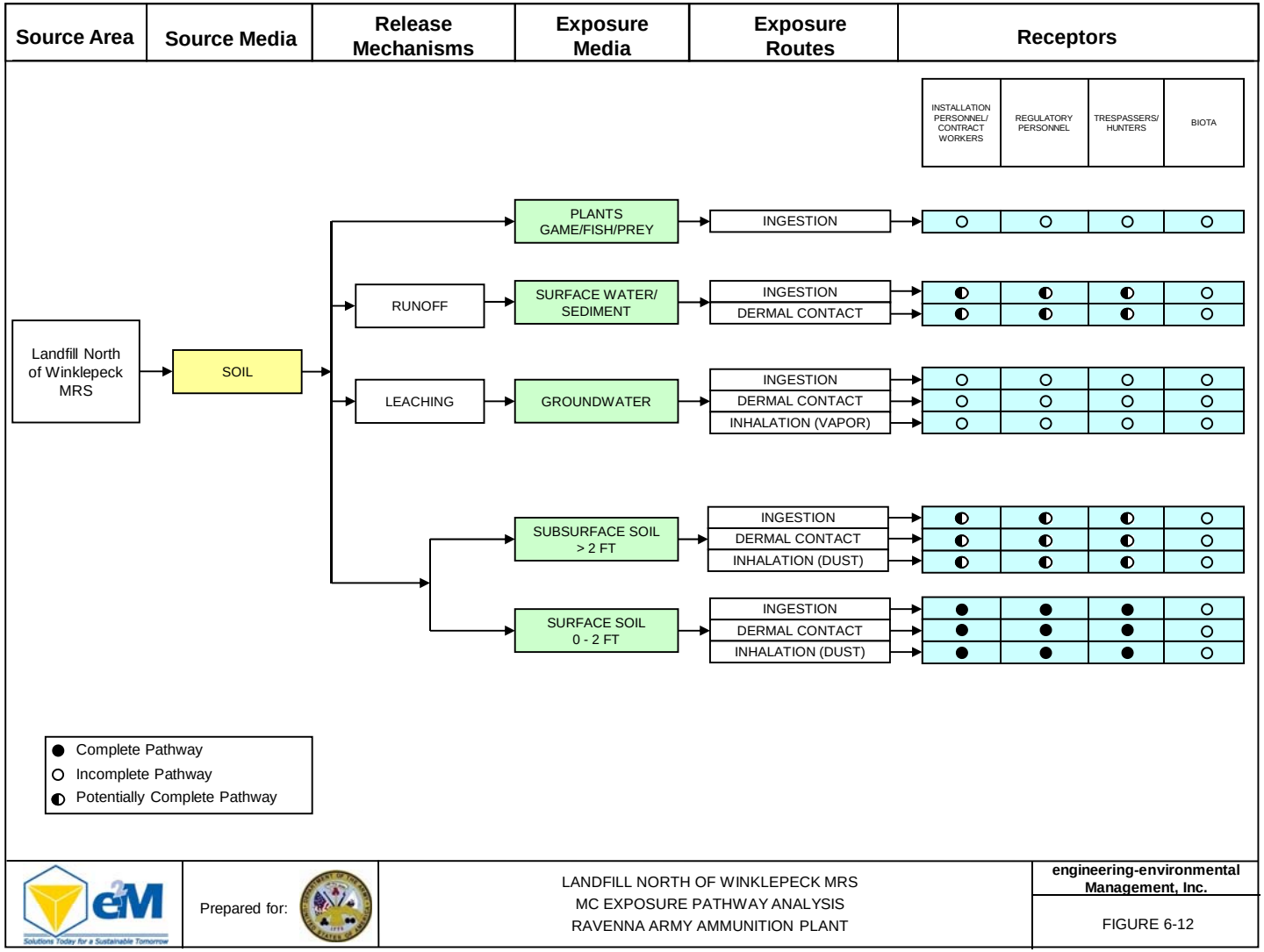
dermal contact with contaminated soil, surface water, and/or sediment. Potential transport would occur via surface water, erosion of soils and sediment, and through a release to groundwater. **Figure 6-12** provides the pathways evaluated and the findings of the assessment.

6.3.7.4 MRS Data Gaps

The potential for MEC buried at the MRS is not fully understood. Therefore, the extent and nature of MEC items will require future MMRP action.

MC in surface soil was characterized and documented during the SI field work. However, the extent and nature of MC at the MRS has not been fully characterized and will require future action under CERCLA.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
LANDFILL NORTH OF WINKLEPECK MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LANDFILL NORTH OF WINKLEPECK MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-11


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Landfill North of Winklepeck MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LANDFILL NORTH OF WINKLEPECK MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-12

6.3.8 40mm Firing Range (RVAAP-032-R-01)

6.3.8.1 Human Exposure Profile

Current Land Use

The MRS is an undeveloped site that consists of an open field that is surrounded by mature forest. Current site activities include security patrols, natural resource management, environmental media sampling, surveying, and maintenance activities. This property has not been transferred to the NGB and is currently managed by BRAC. The property is scheduled to be transferred to the NGB after remediation is complete.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

Potential Future Land Use

Once remediated, the OHARNG plans on using the MRS for military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and possibly hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation. The only restriction is the Installation-wide perimeter fence. The MRS is not fenced and access is not restricted. However, the MRS is fairly remote and can be difficult to locate.

6.3.8.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-15**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-15: 40mm Firing Range Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
40mm Firing Range	None.	Minimally disturbed. Area revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.8.3 MEC and MC Release Profile

Release Mechanisms

The MRS was used to test fire 40mm grenade cartridges from a fixed firing point. The release mechanisms for MEC are the intentional firing of munitions and the unintentional discarding of munitions or rounds falling outside of the target area. The release mechanism for MC (specifically metals) is the decomposition of projectiles not removed from the site. The investigation of MC has been removed from the IRP and will now be addressed under the MMRP. **Table 6-16** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-16: Summary of Potential MEC and MC Present at the 40mm Firing Range

Potential MEC	Potential MC	Primary Release Mechanisms
40mm, HE, M406	Composition B, M9 propellant	Intentional test firing.
40mm, Practice, M407A1 (inert)	Inert (spotting charge consists of dye), M9 propellant, RDX pellets	Intentional test firing.

Maximum Penetration Depth

Munitions debris consisting of 40mm caps and casings are present down range at the MRS. Penetration of the rounds into the subsurface soil (i.e., greater than 1-foot bgs) is not expected. Based on maximum penetration depths provided in the document entitled "Penetration of Projectiles into Earth, An Analysis of UXO Clearance Depths at Ft. Ord", the maximum penetration depth for 40mm grenades (HE and inert rounds in clay soil) would not exceed 5-inches. As such, any additional munitions debris or MEC would only be expected in the surface soil.

MEC Density

No MEC was found during the SI field work.

Munitions debris

Munitions debris consisting of 40mm nose caps and casings were discovered at the target area and scattered down range during the SI field work.

MEC Exposure and Transport Pathway Analysis

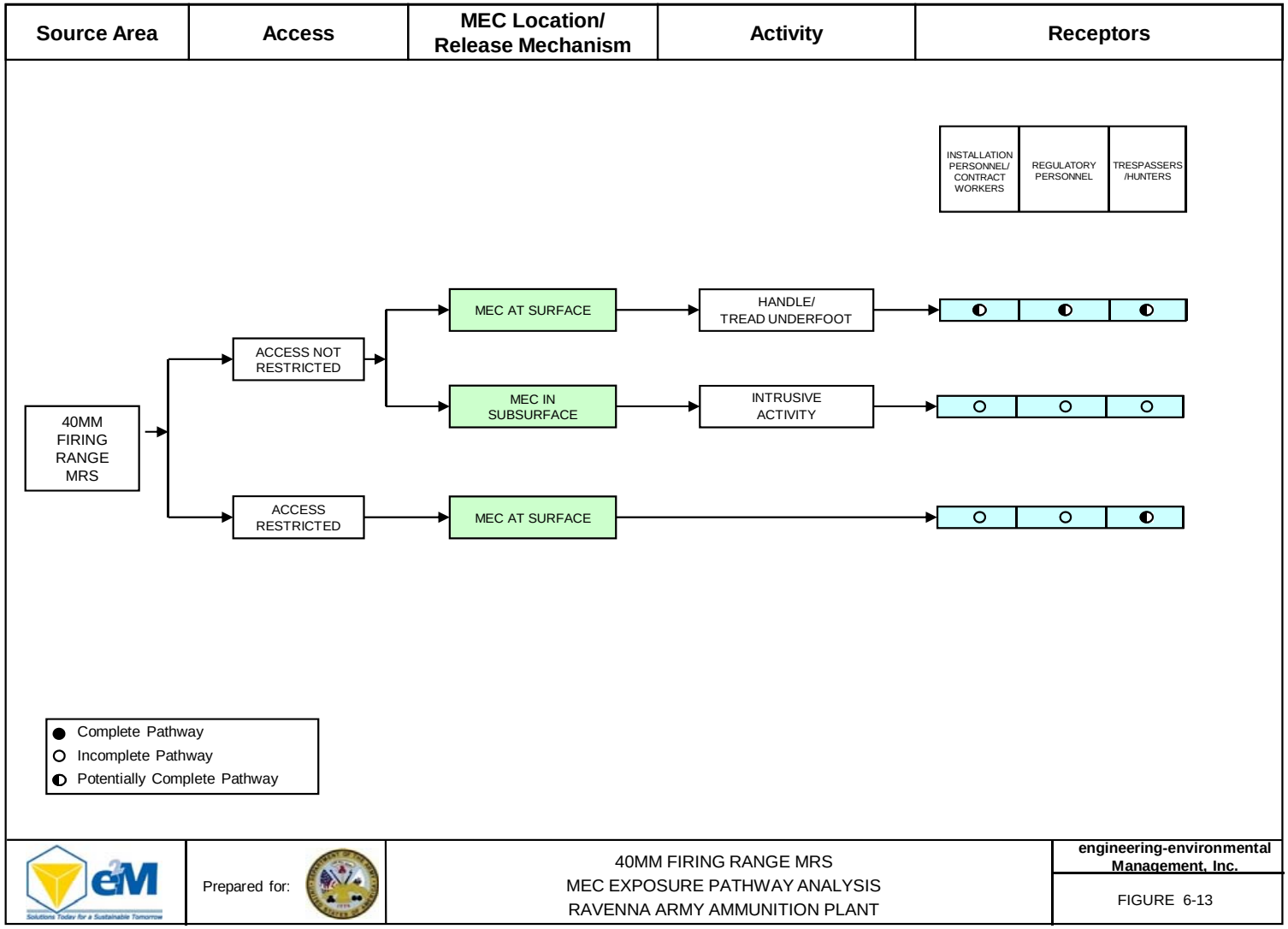
The possibility that MEC is present at the MRS target area and further down range can not be dismissed. Considering this, the potential exposure pathway for human receptors would be contact with MEC on the surface; that is, by handle/treading underfoot of munitions. Transport mechanisms would include movement under gravity (i.e., located on a steep slope) and surface water transport. **Figure 6-13** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC will no longer be addressed under the IRP and will now be covered under the MMRP.

6.3.8.4 MRS Data Gaps

Munitions debris consisting of 40mm nose caps and casings are present at the target area and down range of this point at the MRS. While MEC was not observed, the potential remains for items to be present. Therefore, future action will be required under the MMRP to address MEC and, possibly, MC concerns.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
40MM FIRING RANGE MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
40MM FIRING RANGE MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-13

6.3.9 Firestone Test Facility (RVAAP-033-R-01)

6.3.9.1 Human Exposure Profile

Current Land Use

The MRS is collocated with the former Load Line 6 IRP AOC, which has been completely demolished. The MRS consisted of three buildings (since removed) and a pond that remains at the site. The suspected test range located along the northeastern boundary of Load Line 6 was also include as part of the MRS and investigated during this SI. Currently, the MRS and the Load Line 6 IRP AOC area are undeveloped and remain idle. Current site activities include maintenance of the grounds, fences, and signs, and performing security checks. For the most part, these activities are conducted infrequently. This property has not been transferred to the NGB and is currently managed by BRAC. The property is scheduled to be transferred to the NGB after remediation of the IRP AOC is complete.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Site visits are infrequent and of short duration.

Potential Future Land Use

Once remediated and transferred to the NGB, the future land use is expected to change to military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and possibly hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Currently, access to the MRS is controlled by a fenced perimeter and an unlocked gate. Future plans for the site include removal of the fence, altogether.

6.3.9.2 Ecological Profile

The ecological profile at the Firestone Test Facility MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-17**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-17: Firestone Test Facility Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Firestone Test Facility	None.	Disturbed. Ground disturbance from construction/demolition of buildings.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.9.3 MEC and MC Release Profile

Release Mechanisms

The MRS included a pond and three enclosed test chambers. Shaped charges were tested underwater in the pond and one of the test chambers, while TOW and Dragon missiles were test fired in the remaining two test chambers. Little is known about the activities conducted at the suspected test range located northeast of the open field, although it is suspected that munitions (type unknown) may have been fired at a berm. While the release mechanism for MEC was the intentional testing of these munitions types, the tests were contained limiting any release. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 6-18** provides a summary of the types of munitions tested and potentially present at the MRS, and the release mechanisms.

Table 6-18: Summary of Potential MEC and MC Present at the Firestone Test Facility

Potential MEC	Potential MC	Primary Release Mechanisms
TOW/Dragon Missiles	RDX, TNT, PETN, Composition B, nitrocellulose, nitroglycerin, lead azide	Test fired within closed range.
Shaped Charges	RDX, TNT, PETN, Composition B	Tested underwater.

RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
PETN - Pentaerythritol tetranitrate
TNT – Trinitrotoluene

Maximum Penetration Depth

There is no penetration depth associated with the test activities conducted at the MRS. Shaped charges were submerged or suspended in the test chamber, while the TOW and Dragon missiles were test fired inside two concrete buildings, typically at steel plates. No historical information has been discovered that would indicate that MEC had been found lying on the ground surface or buried at the MRS. The results of the SI UXO surveys confirmed that MEC is not present at the open field in the northeast portion of the facility and at the two test chambers used to test missiles. Multiple subsurface anomalies detected around the pond and in the former location of the adjacent test chamber suggest that MEC may be present.

MEC Density

A UXO survey was conducted during the SI field work, and no MEC or munitions debris was found. However, the survey did return substantial subsurface anomalies around the pond and adjacent former test chamber. Additionally, the pond used to test shaped charges has not been investigated; therefore the presence of MEC in the pond will require further investigation.

Munitions debris

There are no reports of munitions debris being discovered at the MRS, and none were observed during the SI UXO survey.

MEC Exposure and Transport Pathway Analysis

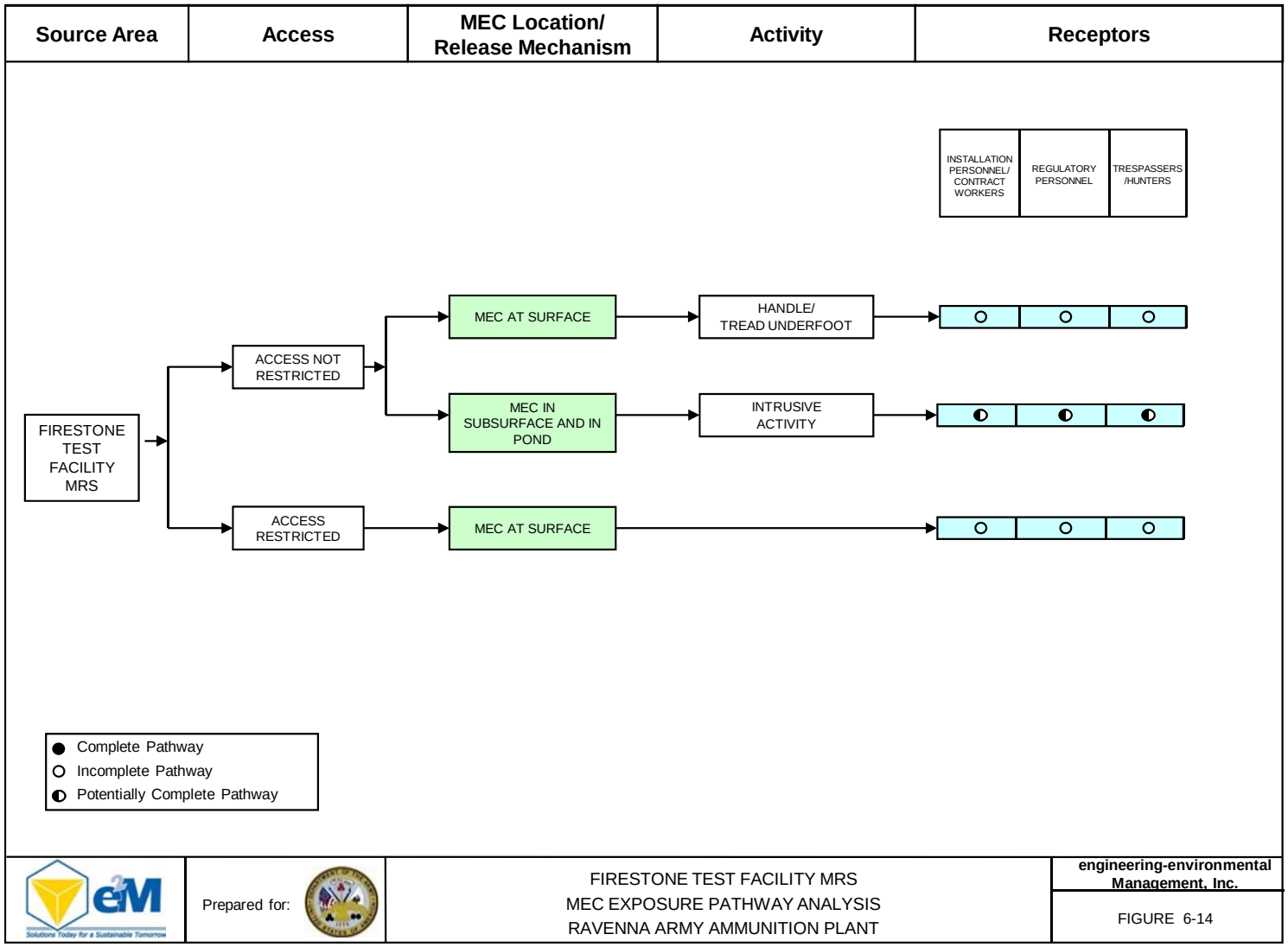
MEC is potentially present at the pond used to test shaped charges and at the location of the adjacent former test chamber. As such, an exposure pathway for human receptors is potentially complete and would include the disturbance of subsurface soils or contact with submerged munitions in the pond. Transport of buried MEC is unlikely, but could be brought to the ground surface by frost heave. Transport of MEC in the pond is unlikely. **Figure 6-14** provides the pathways evaluated and the findings of the assessment.

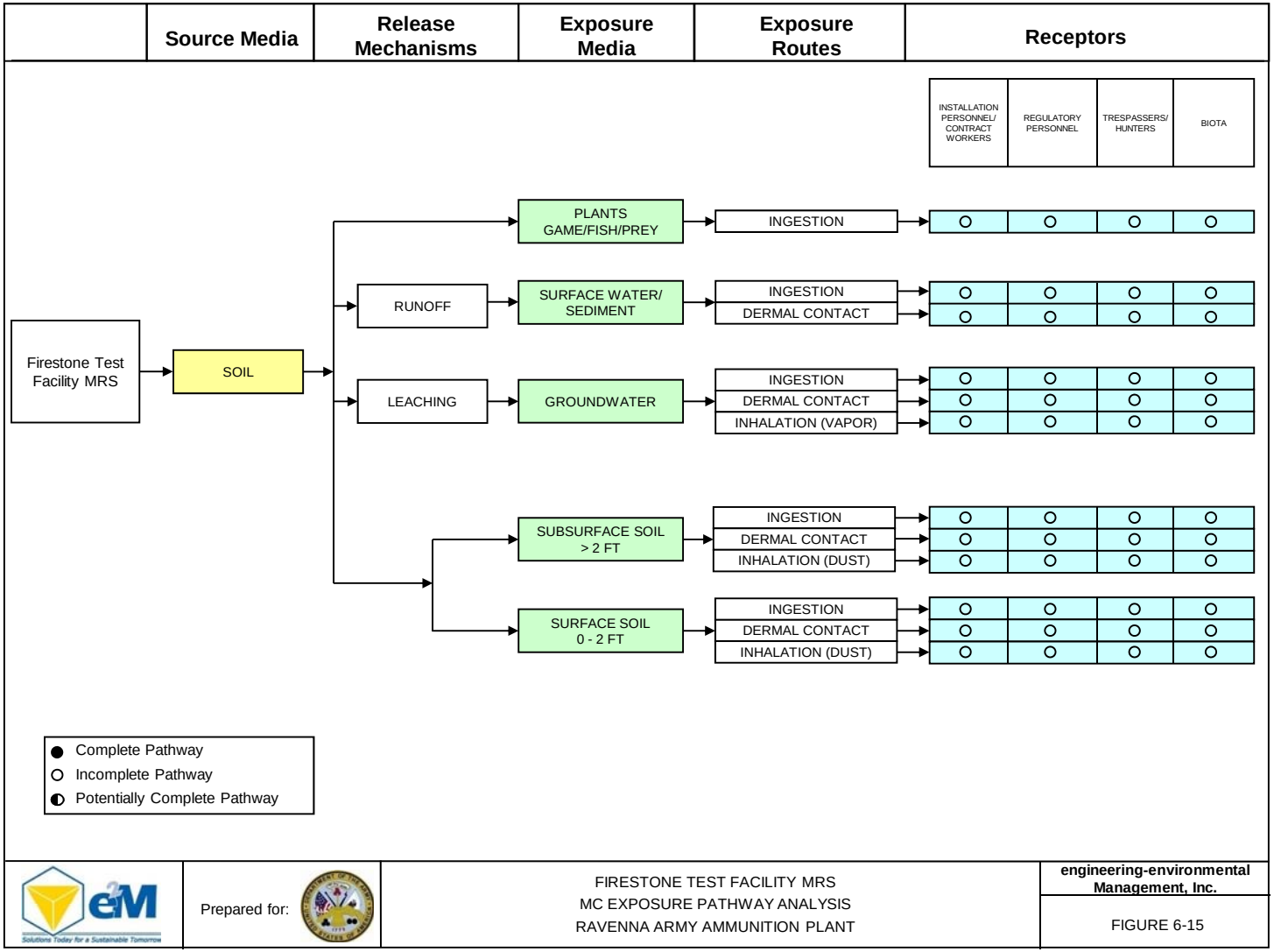
MC Exposure and Transport Pathway Analysis

MC at the MRS is being addressed under the IRP. However, surface soil samples were collected from the small suspected test range, which is not included in the IRP AOC. MC was not detected in the surface soil; therefore, there are no complete exposure pathways. **Figure 6-15** provides the pathways evaluated based on results from the SI surface soil sampling and the findings of the assessment.

6.3.9.4 MRS Data Gaps

Historic land use at the MRS indicates there is a potential for MEC to be present in the pond and at the former adjacent test chamber. Data is not adequate to determine the absence of MEC in this area; thus this area will require further investigation under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
FIRESTONE TEST FACILITY MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE AND IN POND
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FIRESTONE TEST FACILITY MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-14


Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Firestone Test Facility MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FIRESTONE TEST FACILITY MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-15

6.3.10 Sand Creek Dump (RVAAP-034-R-01)

6.3.10.1 Human Exposure Profile

Current Land Use

The MRS is an undeveloped site that consists of a wooded flood plain and adjacent hill side located along Sand Creek. Mature forest surrounds the entire site. Current site activities include security patrols, natural resource management, surveying, environmental media sampling, and maintenance activities.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

Potential Future Land Use

Future land use will be military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no land use restrictions or formalized land use controls ratified under CERCLA in place at the MRS, other than the Installation-wide perimeter fence. The MRS is not fenced and access is not restricted once on the Installation.

6.3.10.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-19**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-19: Sand Creek Dump Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Sand Creek Dump	Wetlands.	Disturbed. Area used as landfill/surface dumping.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.10.3 MEC and MC Release Profile

Release Mechanisms

The former dump was used to dispose of general construction debris, including asbestos debris, concrete, fluorescent light tubes, lab bottles, 55-gallon drums, and wood. There is no information to indicate that MEC or related munitions items had been disposed of at the MRS. Two inert 75mm rounds were discovered at the site in 2003 during ongoing IRP field work. No MEC was found at the MRS during the SI field work, although one 105mm projectile was seen lying on the bottom of Sand Creek. A determination could not be made whether or not the 105mm projectile was empty or not.

Had MEC been discovered, the likely release mechanism would be the intentional disposal of munitions. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 6-20** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanism.

Table 6-20: Summary of Potential MEC and MC Present at the Sand Creek Dump

Potential MEC Item	Potential MC	Primary Release Mechanism
75mm	Inert	Surface disposal.

Maximum Penetration Depth

Waste materials were dumped on the ground surface at the Sand Creek Dump MRS. There is no information to indicate munitions were buried at the MRS during the operational years. In addition, the SI UXO survey did not indicate any suspect buried anomalies.

MEC Density

There are no reports of MEC having been found at the MRS, and no observations were made during the SI UXO survey to indicate the presence of MEC. Two inert 75mm projectiles (i.e., munitions debris) were found and removed in 2003. A determination could not be made whether or not the 105mm projectile observed in Sand Creek during the SI UXO survey was empty or not. Nonetheless, the density of MEC at the MRS is expected to be minimal.

Munitions debris

The only report of munitions debris found at the site involved the two inert 75mm projectiles. A determination could not be made whether or not the 105mm projectile observed lying on the bottom of Sand Creek represents MEC or munitions debris.

MEC Exposure and Transport Pathway Analysis

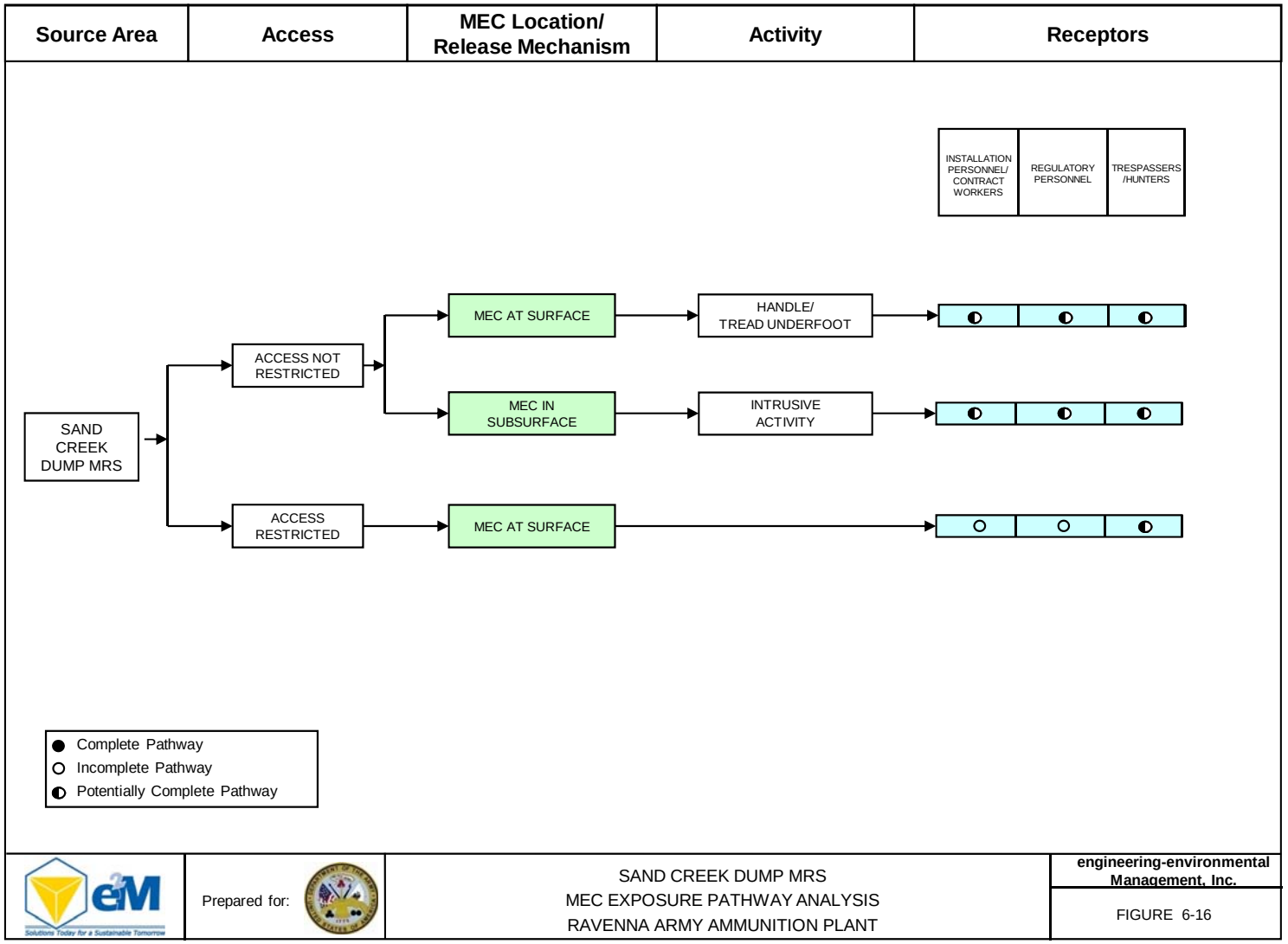
Based on historical information and the findings of the SI, the presence of MEC has not been fully determined at the MRS. Regardless, MEC may be present lying on the ground surface hidden by vegetation or potentially buried within the former dump. As such, there are potential human exposure pathways, which include the handling or treading underfoot of MEC and through the disturbance of subsurface soils. Transport of MEC could occur through erosion and surface water flow. **Figure 6-16** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and not under the MMRP.

6.3.10.4 MRS Data Gaps

The presence of MEC has not been fully assessed and will require further characterization work under future MMRP actions. MC will continue to be addressed under the IRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
SAND CREEK DUMP MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
SAND CREEK DUMP MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-16

6.3.11 Building #F-15 and F-16 (RVAAP-046-R-01)

6.3.11.1 Human Exposure Profile

Current Land Use

With the exception of the concrete foundations, Buildings F-15 and F-16 have been demolished. The only remnants remaining are the raised concrete building slabs. At Building F-16, the debris pile rests on top of the slab. The site is currently undeveloped and idle. Current site activities include limited maintenance, security patrols, and natural resource management activities. Although this property has been transferred to the OHARNG, they do not currently use the MRS for training purposes.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping and maintenance tasks.

Potential Future Land Use

Future land use will be military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no land use restrictions or formalized land use controls ratified under CERCLA in place at the MRS. The MRS is not fenced and other than the Installation wide perimeter fence, access is not restricted.

6.3.11.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-21**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-21: Building #F-15 and F-16 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Building #F-15 and F-16	None.	Disturbed. Grounds disturbed by building construction/demolition.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.11.3 MEC and MC Release Profile

Release Mechanisms

Buildings F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage which were subsequently dismantled for inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE). Information concerning the final disposition of the tested components was not disclosed.

Large caliber artillery projectiles void of HE have been found at the MRS in the past. The exact location where the rounds were found was not disclosed, but it is assumed that they were lying on the ground surface next to the buildings. The release mechanisms for MEC are not fully understood, but are assumed to be the deliberate storage or disposal of MEC items at the facility. MC is being addressed under the IRP and will not be evaluated further under the MMRP. **Table 6-22** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 6-22: Summary of Potential MEC and MC Present at the Building #F-15 and F-16

Potential MEC	Potential MC	Primary Release Mechanisms
Shell, 120mm, M73	HE	Disposal/Storage.
Shell, 155mm, M112, M101, M107, MkIAI, Mk III, Mk IIIAI	AP, HE	Disposal/Storage.
Shell, 240mm, Mk, M114	HE	Disposal/Storage.
Shell, 4.5-inch, M65, M65A1,	HE, Spotting Charge	Disposal/Storage.
Shell, 6-inch, Mk IIAI, Mk IIA2	HE	Disposal/Storage.
Shell 8-inch, M103, M106, Mk I, Mk IAI	HE	Disposal/Storage.

AP – Armor Piercing
HE – High Explosives

Maximum Penetration Depth

It is speculated that munitions were stored on the ground surface at the MRS. As such, MEC would only be expected to be present lying on the surface. No MEC or munitions debris were observed at the MRS during the SI field work.

MEC Density

There have not been any reported findings of MEC located at the MRS and none was found during the SI field work. Munitions debris have historically been found and recorded.

Munitions debris

Munitions debris has been found at the MRS in the past. However, no munitions debris were found during the SI UXO survey.

MEC Exposure and Transport Pathway Analysis

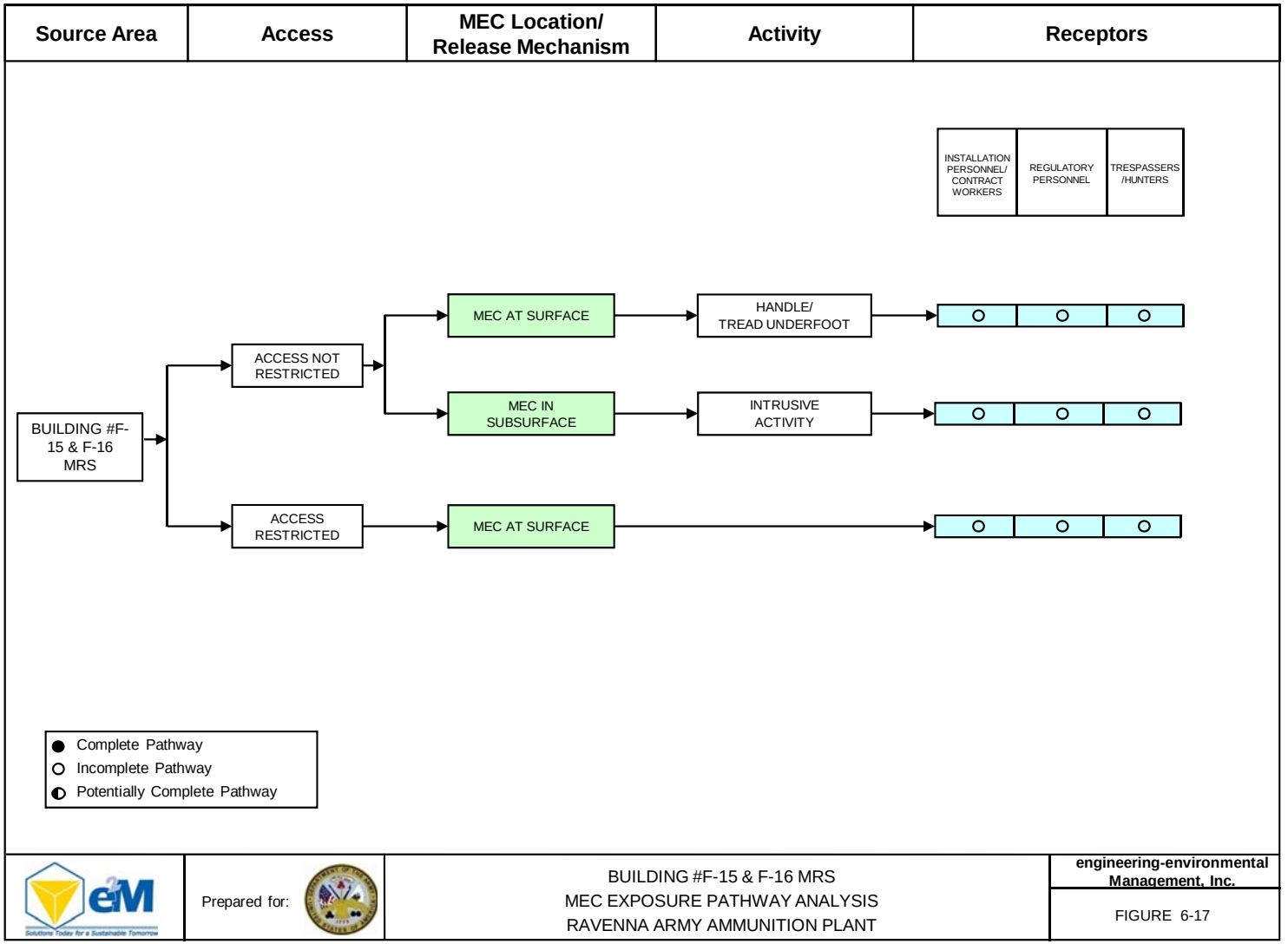
Based on the results of the SI field work, MEC is not present on the ground surface at the MRS. Additionally, subsurface anomaly detections during the SI field work are believed to be related to building debris. As such, MEC exposure or transport pathways are incomplete. **Figure 6-17** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC is being addressed under the IRP and will not be evaluated further during the MMRP.

6.3.11.4 MRS Data Gaps

MEC was not found to be present on the ground surface at the MRS, nor is it believed to be buried. MC at the MRS is being addressed under the IRP. There are no remaining data gaps at the MRS.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
BUILDING #F-15 & F-16 MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BUILDING #F-15 & F-16 MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-17

6.3.12 Anchor Test Area (RVAAP-048-R-01)

6.3.12.1 Human Exposure Profile

Current Land Use

The former Anchor Test Area is heavily overgrown with trees, shrubs, and tall grass. The approximate 2.57 acre site is currently undeveloped. Current activities include natural resource management, security patrols, maintenance activities, and site investigation under the IRP.

Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers, and hunters/trappers. Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping, maintenance tasks, and field sampling.

Potential Future Land Use

Future land use will include military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Other than the Installation wide perimeter fence, access to the MRS is not restricted; the site, itself, is not enclosed by a fence.

6.3.12.2 Ecological Profile

The ecological profile at the Anchor Test Area MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-23.** Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-23: Anchor Test Area Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Anchor Test Area	None.	Minimally disturbed. Area reforested.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.12.3 MEC and MC Release Profile

Release Mechanisms

Beginning in the early 1960s, the Anchor Test Area was reportedly used to test fire anchoring devices into the ground. Small explosive devices were used to drive anchors for ropes and cables into the ground. The distinct surface features at the MRS are two large dirt mounds and a nearby sandpit. It is suspected that anchor tests were performed within the 12 × 36 ft sandpit, and the dirt mounds functioned as blast walls. Metal debris is reportedly visible in the area, though none was observed during the SI field work. A section of cement culvert can be seen in one of the mounds. It is suspected that the culvert was used to store anchors while tests were being conducted.

The release mechanisms for MEC and MC are the firing of small explosive devices into the ground. The analytical results of a site characterization performed in 2005 indicated that the concentrations of explosive constituents in shallow and subsurface soils were below detection levels. The study also indicated that metals were the only constituents detected in concentrations above Installation-specific background and/or one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRGs. The metal constituents represent MC, which will be addressed under the IRP and will not be evaluated further under the MMRP. **Table 6-24** provides a summary of the potential MEC and MC present at the MRS and the release mechanism.

Table 6-24: Summary of Potential MEC and MC Present at the Anchor Test Area

Potential MEC	Potential MC	Primary Release Mechanism
Experimental charges	Arsenic, Chromium, Manganese	Firing of small explosive devices into the ground.

Maximum Penetration Depth

The explosive devices were reportedly fired into the ground. Considering that the purpose of the charge was to securely place an anchoring device into the ground, the depth of penetration was limited by the length of the anchoring device. However, the length of the anchoring devices could not be determined. Based on the findings of the SI UXO survey, though, MEC was not observed lying on the ground surface and very few subsurface anomalies were detected.

MEC Density

MEC was not observed at the Anchor Test Area during the SI field work. Additionally, very few subsurface anomalies were detected during the UXO survey. As such, MEC is not anticipated at the MRS.

Munitions debris

Some metal debris of unknown origin had reportedly been found in the Anchor Test Area in the past. No munitions debris was discovered during the SI field work.

MEC Exposure and Transport Pathway Analysis

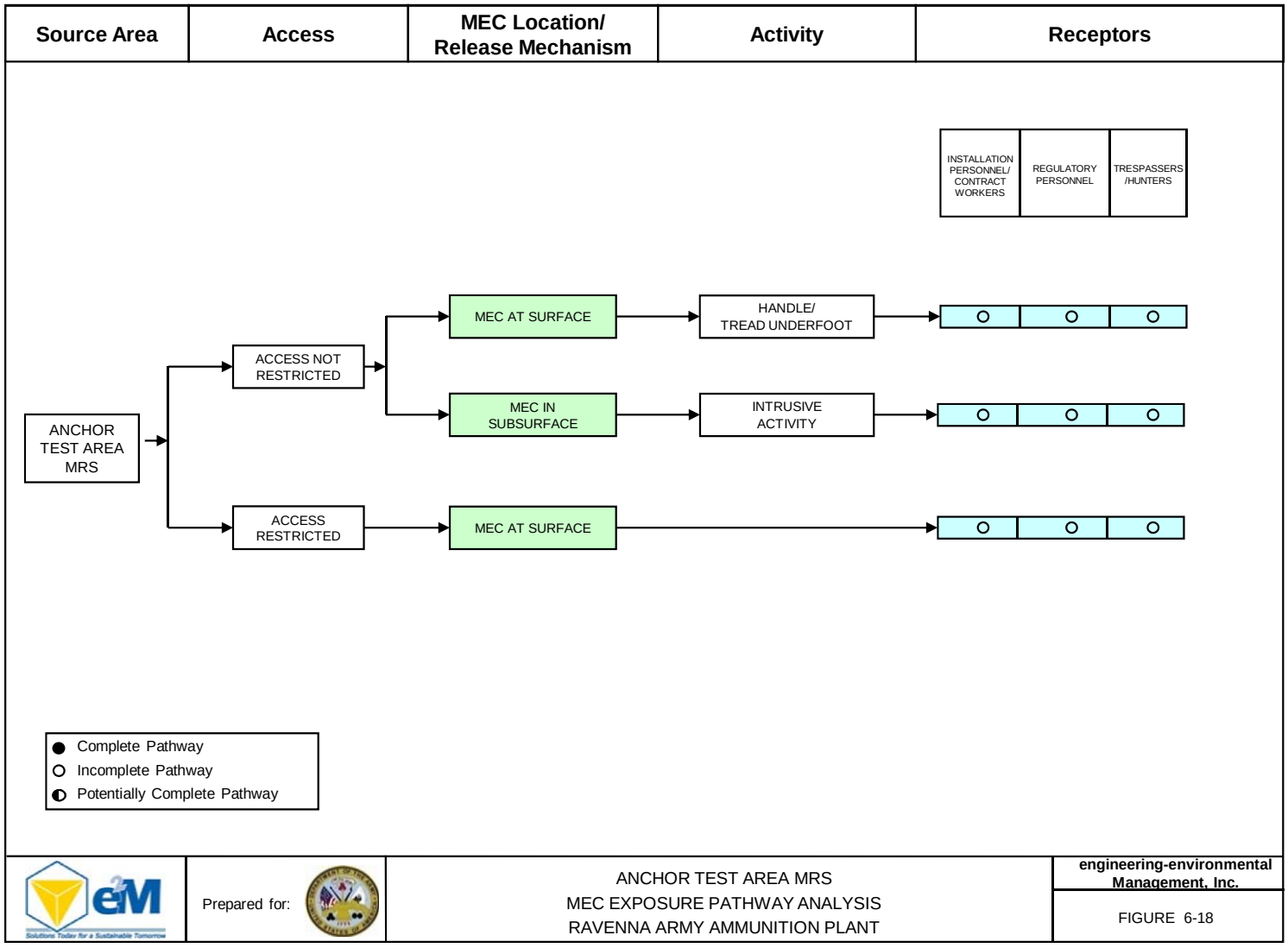
MEC has not been identified at the MRS. Therefore, the MEC exposure and transport pathway is incomplete. **Figure 6-18** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

MC will be covered under the IRP and will not be addressed further under the MMRP.

6.3.12.4 MRS Data Gaps

Based on the results of the SI field work, no MEC or munitions debris is present at the MRS, nor is any expected in the subsurface. MC is being addressed under the IRP. There are no remaining data gaps.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
ANCHOR TEST AREA MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ANCHOR TEST AREA MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-18

6.3.13 Atlas Scrap Yard (RVAAP-050-R-01)

6.3.13.1 Human Exposure Profile

Current Land Use

The approximate 66.04 acre Atlas Scrap Yard is covered with thick, high grass and patches of forest, and is littered with miscellaneous piles of non-explosive scrap (wood piles). Current activities include natural resource management, security patrols, and maintenance activities.

Current Human Receptors

Current human receptors include Installation personnel, authorized contractors, and hunters/trappers.

Potential Future Land Use

Future land use will include military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Access to this area by guard personnel is currently restricted; the OHARNG does not use this are for military training. Further, other than the Installation wide perimeter fence, access to the MRS is not restricted; the site, itself, is not enclosed by a fence.

6.3.13.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-25**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-25: Atlas Scrap Yard Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Atlas Scrap Yard	Wetlands.	Disturbed. Grounds disturbed by building construction/demolition.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.13.3 MEC and MC Release Profile

Release Mechanisms

Since the end of WWII, the Atlas Scrap Yard has served as a storage area for non-explosive scrap materials. A more recent characterization study (2005) suggested that the area may also have been used to store munitions. Further, the Installation reported that 40mm fragmentation shells had been buried in the central portion of the site. MEC and munitions debris were not observed at the MRS at areas surveyed during the SI field work. Regardless, the entire MRS was not surveyed and the possibility exists that MEC may be present. A 2005 IRP site characterization identified MC, consisting of metals, semi-volatile organic compounds (SVOCs), and/or explosive contaminants of potential concern (COPCs) in shallow soil, sediment, surface water, and groundwater. MC will continue to be addressed under the IRP and will not be evaluated further under the MMRP.

The release mechanisms for MEC are the open storage of munitions in ammunition boxes and the deliberate disposal of munitions items. MC is being addressed under the IRP and will not be evaluated further under the MMRP. **Table 6-26** provides a summary of the types of munitions either identified at the MRS or potentially present, and the release mechanisms.

Table 6-26: Summary of Potential MEC and MC Present at the Atlas Scrap Yard

Potential MEC	Potential MC	Primary Release Mechanisms
Blasting caps, fuzes, boosters, or bursters; bombs, HE; detonators; flares, signals, simulators, or screening smoke (other than white phosphorus); hand grenades; antipersonnel landmines; antitank landmines; medium and large caliber practice; large caliber HE; mortars, practice and HE; practice ordnance; primary or initiating explosives; propellants; pyrotechnics; secondary explosives; small arms; small arms rounds; 40mm fragmentation shells.	Aluminum; arsenic; cadmium; chromium; cobalt; iron; lead; vanadium; mercury; manganese; 2- methylnaphthalene; acenaphthylene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)perylene; dibenzo(ah)anthracene; indeno(1,2,3-cd)pyrene; phenanthrene; 2-amino-4,6- dinitrotoluene; bis(2-ethylhexyl)phthalate; nitrocellulose.	Open storage, open disposal, burial.

Maximum Penetration Depth

The Installation reported that 40mm fragmentation shells had been buried in the central portion of the site. However, they could not provide an account of the depth of burial. All debris currently located at the MRS appears to have been placed on the ground surface. However, multiple recordings of subsurface anomalies were detected during the UXO magnetometer and metal detector survey suggesting the potential presence of buried MEC or munitions debris at the MRS. The potential depth of burial is not known, but is surmised to be less than 15 ft based on the standard reach of a backhoe.

MEC Density

Approximately 18 percent (i.e., 12 acres) of the total MRS footprint was surveyed during the SI. At the survey areas, MEC and munitions debris were not found, although multiple subsurface anomalies were detected. In most cases, the subsurface anomalies were dismissed due to cultural interference from construction debris (e.g., rebar, nails, wire, piping, etc.). Regardless, the potential remains that MEC may be present in the areas not included in the SI survey, at the debris piles (which could not safely be surveyed), and the purported 40mm fragmentation shell burial site, or approximately 54 acres. The presence of MEC, however, would likely be cases of isolated items and the buried items; thus the density is expected to be low.

Munitions debris

Munitions debris was not observed during the SI field activities. However, multiple subsurface anomalies were detected possibly representing the presence of munitions debris. Further, munitions debris may be contained in the debris piles, which could not safely be surveyed during the SI field activities.

MEC Exposure and Transport Pathway Analysis

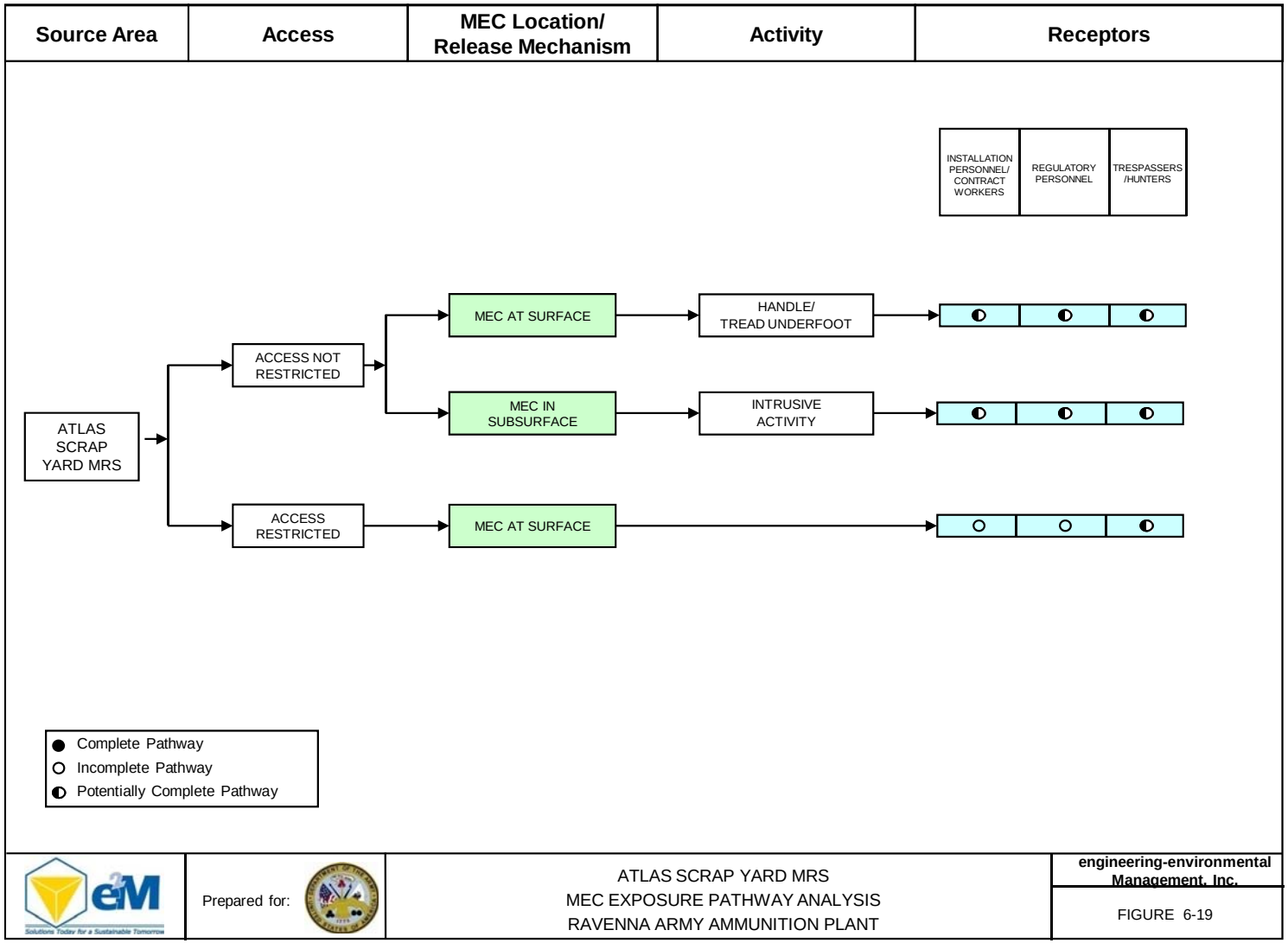
If present, MEC is expected to be lying on the ground surface, mixed in a pile with other debris, or buried at the MRS. Exposure pathways include direct contact with MEC through handling and treading under foot and through the disturbance of subsurface soil. Transport of MEC off the MRS is unlikely, but could be brought to the surface or otherwise exposed by frost heave of disturbance of the debris piles. **Figure 6-19** provides the pathways evaluated and the findings of the assessment.

MC Exposure and Transport Pathway Analysis

The presence of explosives and metals in shallow soil, sediment, surface water, and groundwater has been established and will be addressed under the IRP. As such, further evaluation under the MMRP will not be conducted.

6.3.13.4 MRS Data Gaps

The extent of MEC lying on the ground surface or buried at the MRS is not completely understood; especially concerning the buried 40mm fragmentation shells. The SI field work consisted of a UXO survey of only 12 acres of the MRS which reported no findings; however, MEC could potentially be present at the remainder of the MRS, buried, and mixed in the debris piles. Therefore, further characterization of the presence of MEC at the remainder of the MRS will be required under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
ATLAS SCRAP YARD MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ATLAS SCRAP YARD MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-19

6.3.14 Block D Igloo (RVAAP-060-R-01)

6.3.14.1 Human Exposure Profile

Current Land Use

The D block of igloos is located in the heavily forested north-central portion of RVAAP. Currently, the igloos are inactive and the area sits mostly idle. Except for the igloos, the site is currently undeveloped. Current activities include natural resource management, security patrols, and maintenance activities.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Site visits are infrequent. Currently, the OHARNG does not use the area for training activities.

Potential Future Land Use

Future land use will include military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no land use restrictions or formalized land use controls ratified under CERCLA in place at the MRS. The MRS is not fenced and other than the Installation wide perimeter fence, access is not restricted.

6.3.14.2 Ecological Profile

The ecological profile at the Block D Igloo MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-27**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-27: Block D Igloo Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Block D Igloo	None.	Minimally disturbed. Majority of acreage is forested.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.14.3 MEC and MC Release Profile

Release Mechanisms

The release mechanism for MEC and MC at the Block D Igloo was the accidental explosion of bombs stored in Igloo number 7-D-15 on March 24, 1943. Ravenna Ordnance Plant personnel reported that the MRS was considered clean of UXO some time after the explosion, although this is not documented or confirmed. **Table 6-28** provides a summary of the potential MEC and MC present at the MRS and their release mechanisms.

Table 6-28: Summary of Potential MEC and MC Present at the Block D Igloo

Potential MEC	Potential MC	Primary Release Mechanisms
Fragmentation Bombs (M-41)	TNT	Accidental igloo explosion

TNT – Trinitrotoluene

Maximum Penetration Depth

Based on an accident report of the detonation, the majority of the blast force was directed in a horizontal direction (or low trajectory). As such, MEC would have been deposited on the ground surface. Therefore, minimal to no penetration would be expected.

MEC/MC Density

Based on information collected during the HRR and the SI field work, there is no apparent evidence of UXO at the former igloo 7-D-15. Furthermore, four documented debris locations in the blast fan that were surveyed during the SI did not contain MEC or munitions debris. As such, the potential presence of MEC, or density of MEC, within the current MRS footprint is believed to be minimal to nonexistent. However, the possibility remains that MEC may be present within the remaining blast fan located outside of the current MRS footprint that was not surveyed during the SI UXO survey. It is expected that MEC in this area, if present, will be isolated occurrences of only a few munitions. MC consisting of metals constituents was found to be present at Igloo 7-D-15 during the SI field work. The area within the former igloo footprint measures 60 ft by 40 ft.

Munitions debris

No munitions debris was observed during the SI UXO survey. However, the possibility remains for munitions debris to be present within the remaining blast fan that was not surveyed during the SI UXO survey.

MEC Exposure and Transport Pathway Analysis

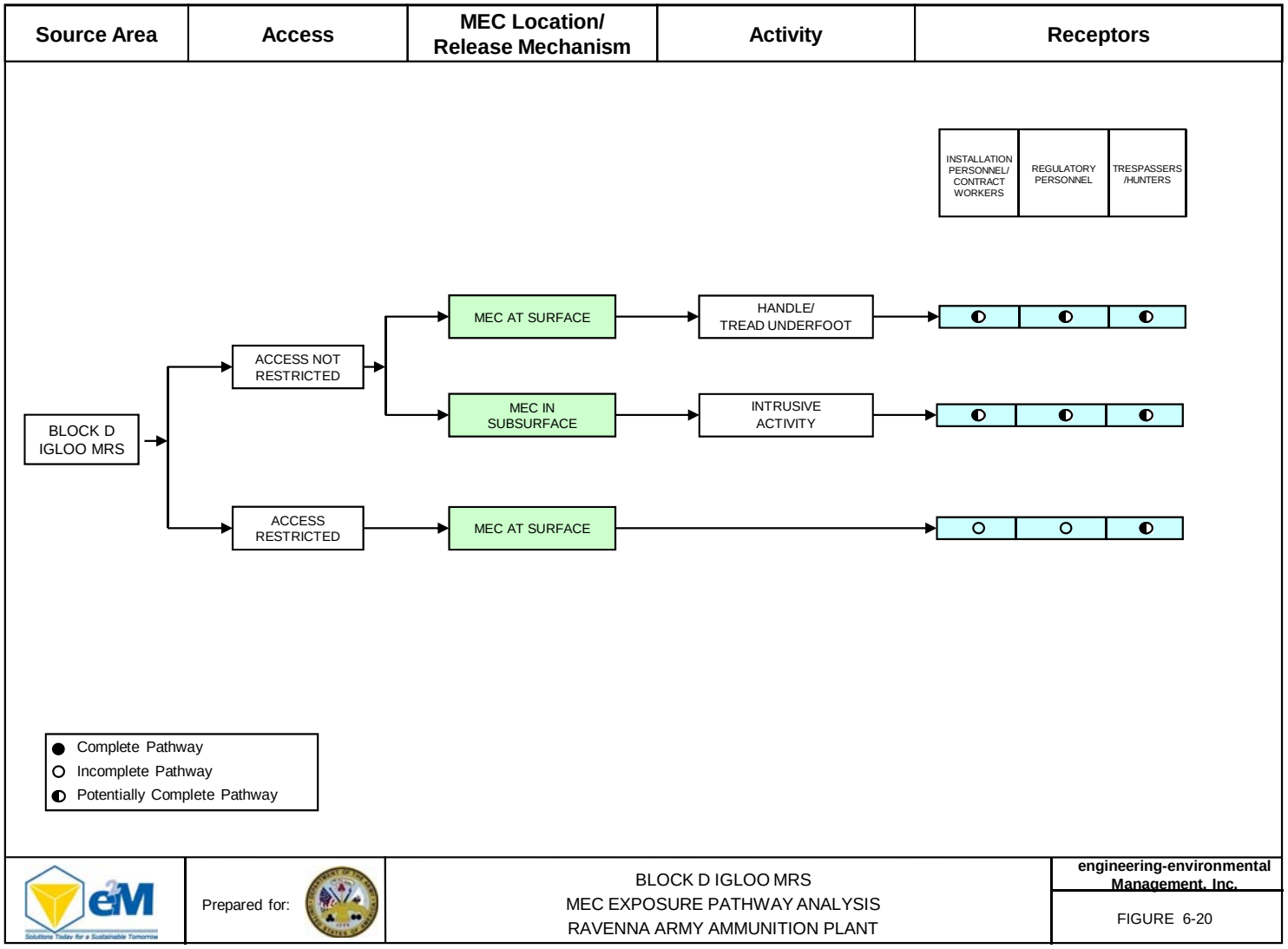
While MEC was not discovered during the UXO field survey, its presence in the aeas located within the blast fan not included in the SI field work can not be dismissed. Therefore, potential MEC human exposure pathways would be to handle or tread under foot and disturbance of shallow surface soil (i.e., 0 – 0.5 ft bgs). Transport of MEC lying on the ground surface or partially buried is unlikely. However, MEC that landed in the streams would be subject to transport by surface water flow. **Figure 6-20** provides the pathways evaluated and the findings of the assessment.

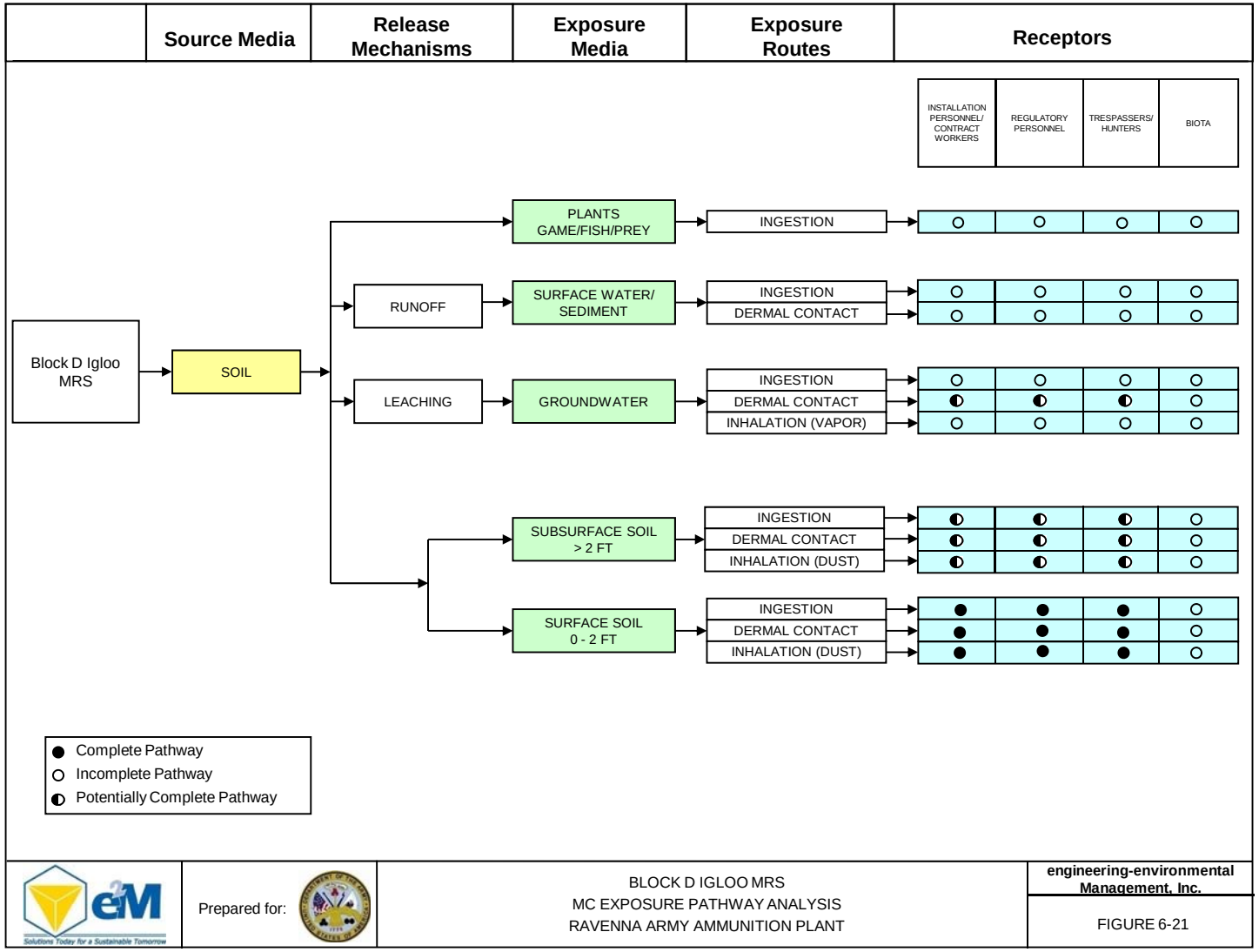
MC Exposure and Transport Pathway Analysis

MC consisting of metals (arsenic and lead) was found to be present within former Igloo 7-D-15. Complete pathways are present for surface soil and potentially complete pathways are present for subsurface soil. Exposure pathways include dermal contact, ingestion, and inhalation of contaminated soil. Potential transport would occur via surface water, erosion of soils, and through a release to groundwater. **Figure 6-21** provides the pathways evaluated and the findings of the assessment.

6.3.14.4 MRS Data Gaps

RVAAP personnel indicated the site was considered clean of UXO some time after the 1943 explosion; however, this was not documented or confirmed. No MEC was discovered at Igloo 7-D-15 or within a 100 foot circumference around the former igloo, and at the documented debris locations surveyed during the SI fieldwork. Regardless, the possibility that MEC is present at debris locations not included in the SI UXO survey can not be ruled out. Therefore, additional characterization work under the MMRP will be required within the blast fan debris field that was not surveyed during this SI. Analytical data from the SI fieldwork determined the presence of MC consisting of metals at the former igloo, which will also require further characterization work under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
BLOCK D IGLOO MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-20


Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Block D Igloo MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-21

6.3.15 Block D Igloo–TD (RVAAP-061-R-01)

6.3.15.1 Human Exposure Profile

Current Land Use

The revised MRS location is composed of two separate areas located outside the Installation boundary, approximately 2.2 (Area 1) and 2.9 miles (Area 2) to the northeast of Igloo 7-D-15. Area 1 encompasses approximately 12 acres of privately owned agricultural land. Area 2 is comprised of an undeveloped densely wooded area encompassing approximately 2.13 acres. Current land use includes hunting/trapping, residential housing, and farming.

Current Human Receptors

Human receptors at the revised MRS location may include hunters/trappers, residents, and farmers.

Potential Future Land Use

Potential future land use at the revised MRS location is not expected to change from the current land use.

Potential Future Human Receptors

Potential future human receptors at the revised MRS location are not expected to change from current receptors.

Zoning/Land Use Restrictions

There are no land use controls or access restrictions at the revised Block D Igloo–TD MRS location.

6.3.15.2 Ecological Profile

The ecological profile at the Block D Igloo-TD MRS revised location is a mixture of residential and agricultural land. **Table 6-29** provides site-specific information.

Table 6-29: Block D Igloo–TD Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Block D Igloo–TD	None.	Disturbed. Area includes agriculture fields, woodland, and private residences.	Presence of federal threatened or endangered species unknown.

6.3.15.3 MEC and MC Release Profile

Release Mechanisms

The release mechanism for MEC and MC at the Block D Igloo–TD MRS was the accidental explosion of the bombs stored in Igloo number 7-D-15 on March 24, 1943. MEC was not found at the US Army CTT Range/Site Inventory and HRR defined MRS location. However, the revised MRS location was not included in the SI field work; as such, the presence or absence is not fully known. **Table 6-30** provides a summary of the potential MEC and MC present at the MRS and their release mechanism.

Table 6-30: Summary of Potential MEC and MC Present at the Block D Igloo–TD

Potential MEC	Potential MC	Primary Release Mechanism
Fragmentation Bombs (M-41)	TNT	Accidental igloo explosion

TNT – Trinitrotoluene

Maximum Penetration Depth

MEC would have been deposited on the surface as fallout from the explosion. Therefore, minimal to no penetration would be expected at the revised MRS location.

MEC/MC Density

There are no MEC or MC concerns at the US Army CTT Range/Site Inventory and HRR defined MRS location. However, surveys were not conducted at the revised MRS location during this SI; as such, the MEC/MC density is not fully known.

Munitions debris

Munitions debris was not found at the US Army CTT Range/Site Inventory and HRR defined MRS location during the SI field work. Based on information provided during interviews with the property owners, no suspect items or munitions debris has been found while they have resided at the properties. However, surveys were not conducted at the revised MRS location during this SI; as such, the presence or absence of munitions debris is not fully known.

MEC Exposure and Transport Pathway Analysis

MEC is not present at the US Army CTT Range/Site Inventory and HRR defined MRS location. As such, the exposure and transport pathways at the MRS are incomplete. However, surveys were not conducted at the revised MRS location during this SI; as such, the presence or absence of MEC is not

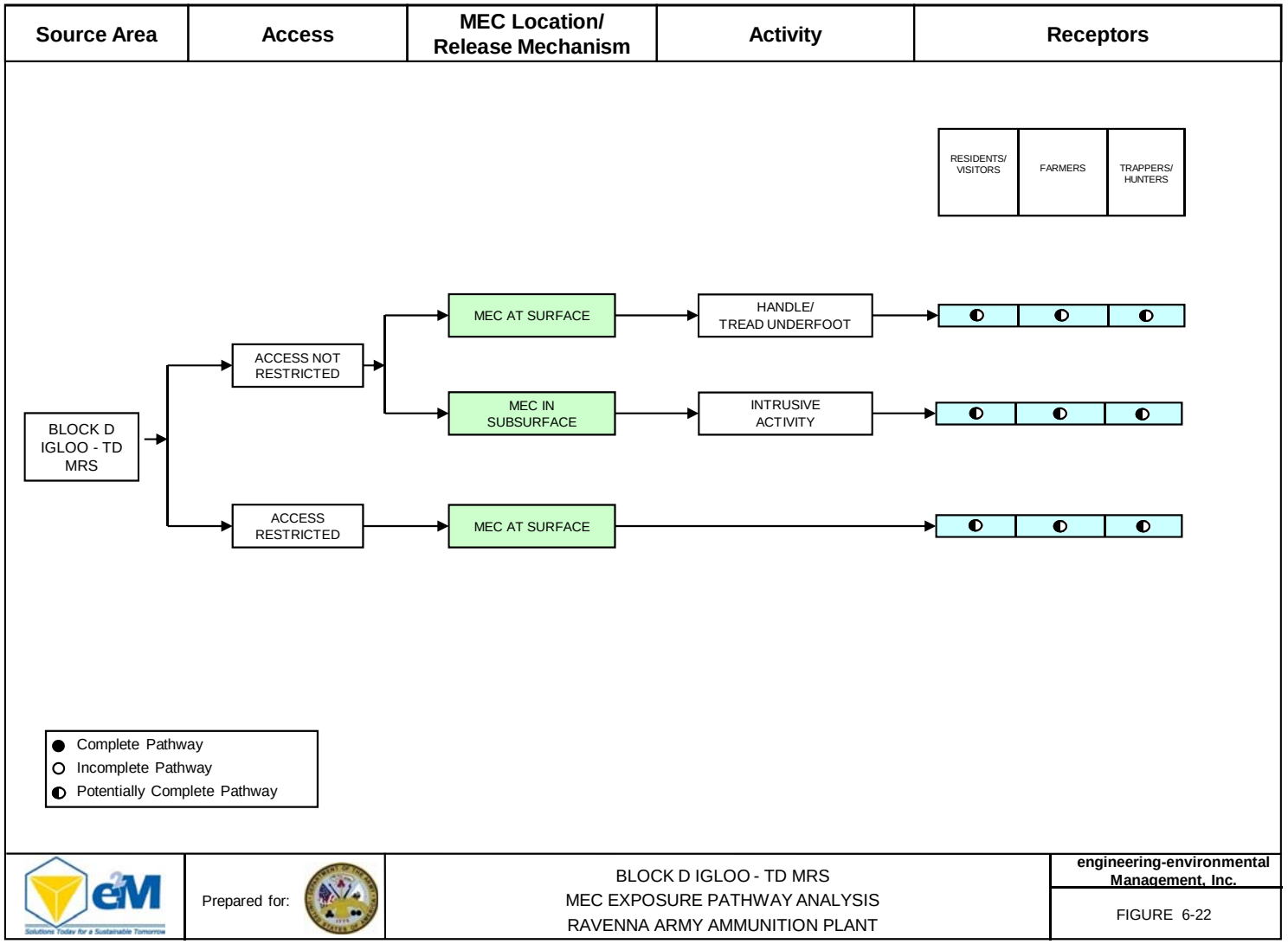
fully known and the exposure pathways are considered potentially complete. **Figure 6-22** provides the pathways evaluated and the findings of the assessment for the revised MRS location.

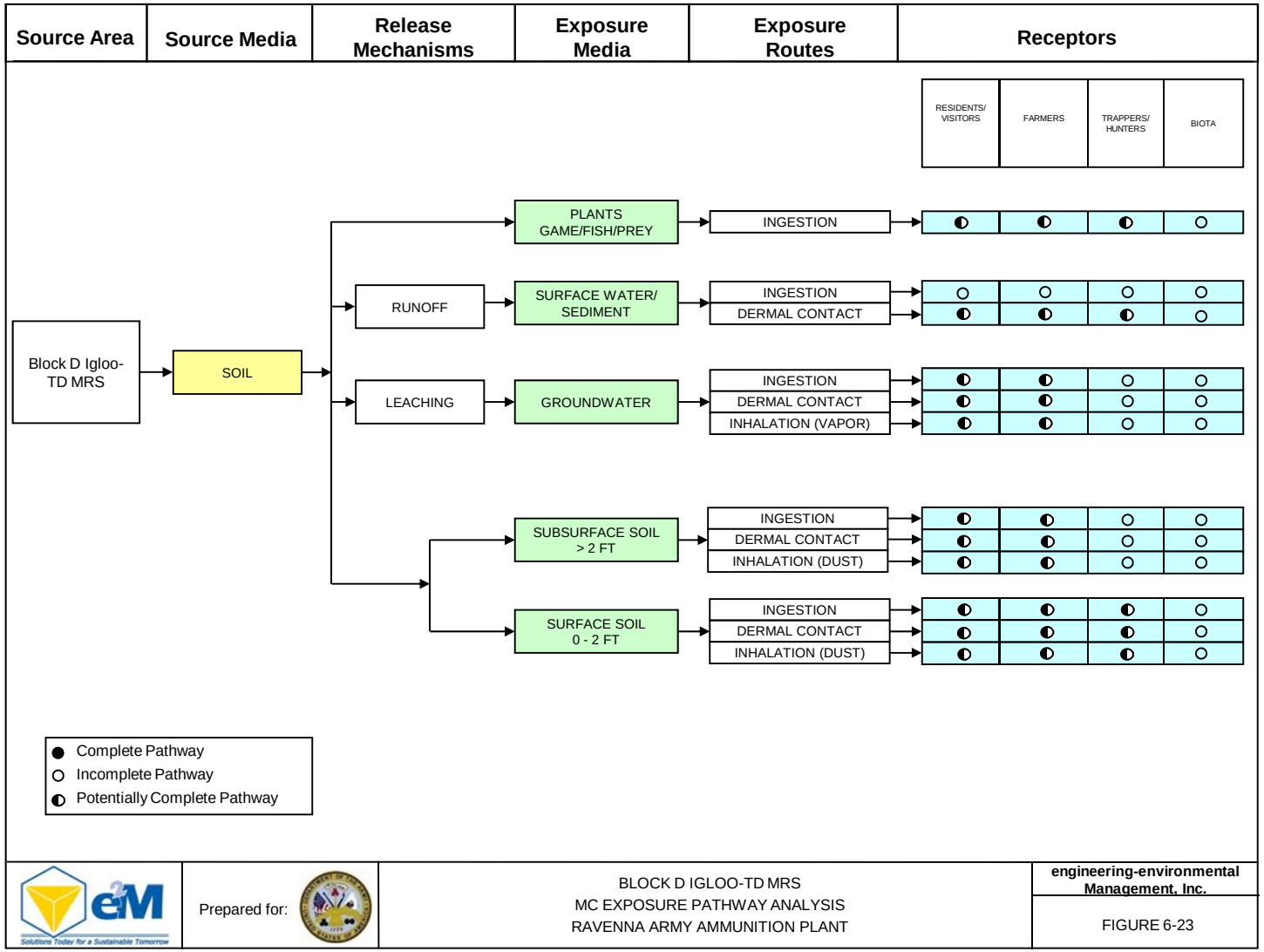
MC Exposure and Transport Pathway Analysis

MC detected at two private residences included in the US Army CTT Range/Site Inventory and HRR defined MRS location were attributable to either natural conditions or human activities. As such, the exposure and transport pathways are incomplete. However, soil samples were not collected at the revised MRS location during this SI; as such, the presence or absence of MC is not fully known and the exposure pathways are considered potentially complete. **Figure 6-23** provides the pathways evaluated and the findings of the assessment for the revised MRS location.

6.3.15.4 MRS Data Gaps

A UXO survey of the US Army CTT Range/Site Inventory and HRR defined MRS location conducted during this SI did not find MEC or munitions debris lying on the ground surface or subsurface anomalies suggesting buried MEC. Interviews with residents who farm their properties did not disclose discoveries of UXO or suspect items while tilling or otherwise turning the ground over. Interviews with home owners resulted in the same response. Therefore, MEC is not considered to be present within the US Army CTT Range/Site Inventory and HRR defined MRS location. Results from the SI sampling are not considered to be related to MEC or munitions debris, but rather to natural conditions or human activities. As such, MC is not considered to be of concern at the US Army CTT Range/Site Inventory and HRR defined MRS location. Regardless, the presence of MEC and MC at the revised MRS location has not been investigated/determined and will require further characterization work under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
RESIDENTS/ VISITORS
FARMERS
TRAPPERS/ HUNTERS
BLOCK D IGLOO - TD MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO - TD MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-22


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
RESIDENTS/ VISITORS
FARMERS
TRAPPERS/ HUNTERS
BIOTA
Block D Igloo-TD MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO-TD MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-23

6.3.16 Water Works #4 Dump (RVAAP-062-R-01)

6.3.16.1 Human Exposure Profile

Current Land Use

The Water Works #4 Dump is an approximate 6.15 acre wooded area located in the southwestern portion of RVAAP, immediately west of Water Works #4 and Load Line 7. The site is currently undeveloped. Current activities include natural resource management, security patrols, and maintenance activities. Currently, the OHARNG does not use the area for training activities.

Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Site visits are infrequent.

Potential Future Land Use

Future land use will include military training.

Potential Future Human Receptors

Potential future human receptors will include installation personnel, soldiers, and hunters/trappers.

Zoning/Land Use Restrictions

There are no known land use restrictions in place at the Water Works #4 Dump MRS. The MRS is not fenced and other than the Installation wide perimeter fence, access is not restricted.

6.3.16.2 Ecological Profile

The ecological profile at the Water Works #4 Dump MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-31**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-31: Water Works #4 Dump Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Water Works #4 Dump	None.	Minimally disturbed. Area originally cleared, now revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.16.3 MEC and MC Release Profile

Release Mechanisms

The type and origin of the large caliber casings and ogives from 155mm shrapnel projectiles are unknown but it may be assumed that the release mechanism is the intentional disposal of non-explosive metal parts of large caliber ordnance rounds. Based on the sample results from the MRS, MC is not a concern. **Table 6-32** provides a summary of the potential MEC and MC present at the MRS and their release mechanisms.

Table 6-32: Summary of Potential MEC and MC Present at the Water Works #4 Dump

Potential MEC	Potential MC	Primary Release Mechanisms
Fragments of Ordnance Casing (Rifling propagators) Ogives 155mm shrapnel projectiles	Metals	Intentional Disposal

Maximum Penetration Depth

During the SI field work, approximately twenty inert ogives were found scattered throughout the wooded area west of the open area. Fragments of ordnance casings (rifling propagators) and parts of ogives were historically observed scattered on the ground surface, as well as partially buried. A field assessment performed by the USACE and reported in the Archive Search Report (ASR) stated that "This area is considered to have no OE presence". The assessment team determined that the metal parts found in the area were inert. Field assessments have not evaluated potential buried MEC, and multiple subsurface anomalies were detected in the open area of the MRS. As such, it is possible that MEC may be buried on site; the potential depth, however, is not known.

MEC/MC Density

No MEC was observed on the ground surface at the MRS during the SI field work, though the possibility for buried MEC in the open field remains. Sampling for MC in the open northeastern section of the MRS determined the presence of one metal constituent. The result was dismissed as non-munitions related.

Munitions debris

The historically discovered casing fragments and ogives, as well as the ogives discovered during the SI field work represent munitions debris. These items appear to be randomly distributed in small quantities (approximately 20 total) throughout the wooded area of the MRS.

MEC Exposure and Transport Pathway Analysis

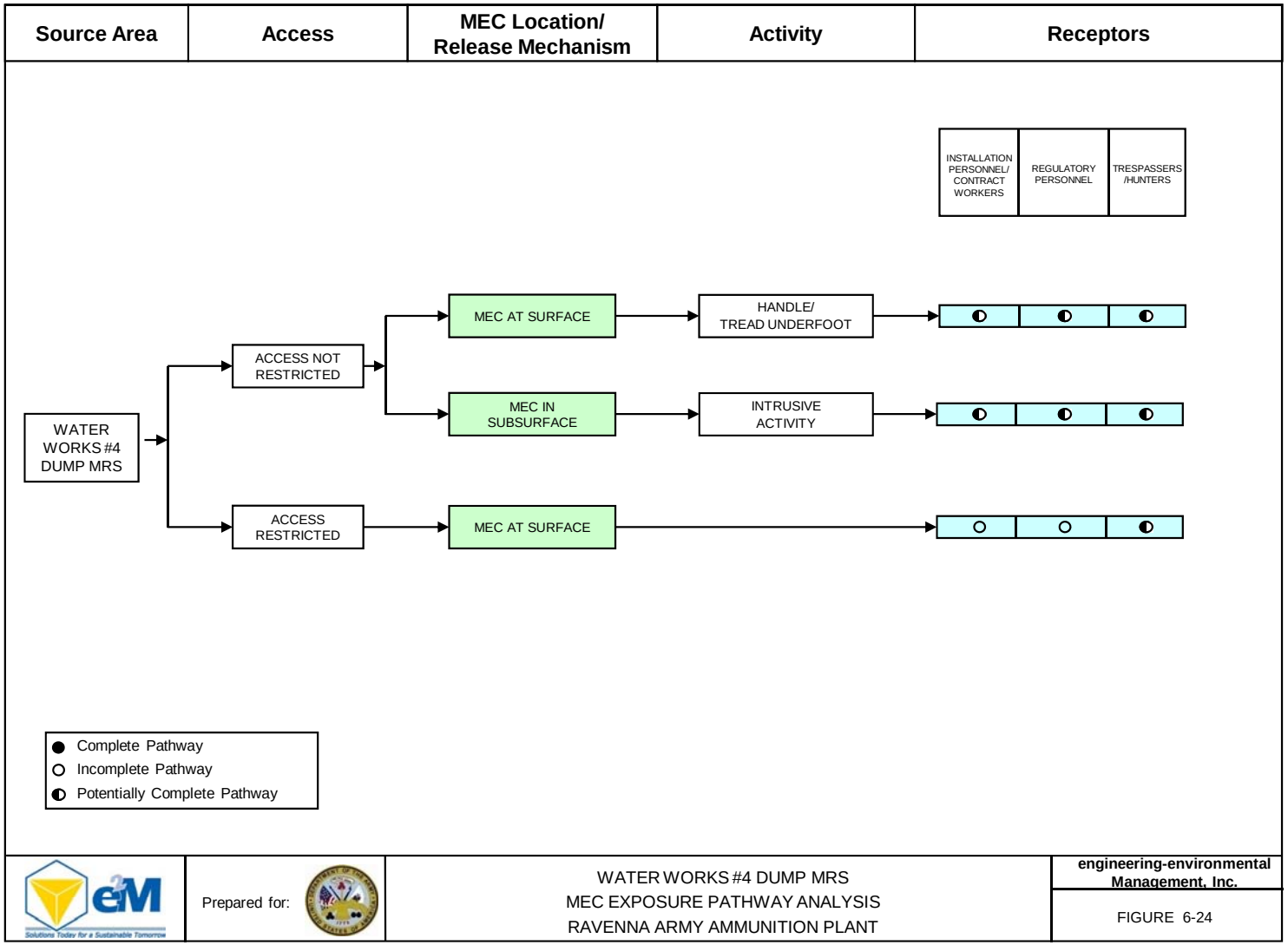
In case the presence of buried MEC is confirmed, the potential exposure pathway for human would be the disturbance of subsurface soil. Transport of buried MEC is unlikely, although frost heave could bring items to the ground surface. **Figure 6-24** provides the pathways evaluated and the findings of the assessment.

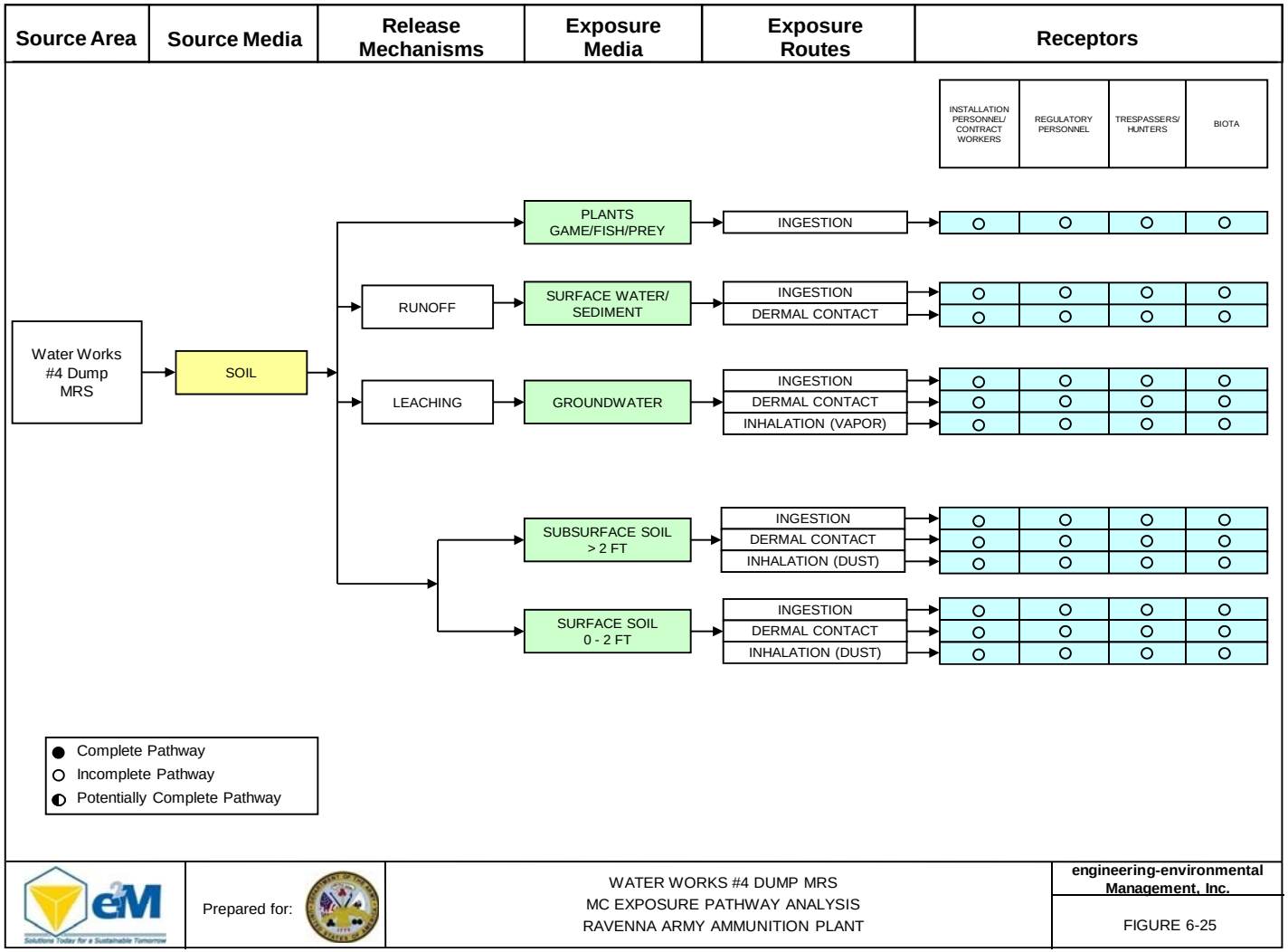
MC Exposure and Transport Pathway Analysis

MC consisting of one metal constituent was found at the MRS, but dismissed as non-munitions related. Therefore, the exposure and transport pathways are incomplete. **Figure 6-25** provides the pathways evaluated and the findings of the assessment.

6.3.16.4 MRS Data Gaps

Conclusive evidence that MEC is not buried in the open northeastern section of the MRS does not exist. Subsurface investigation of this area of the MRS will require further investigation under future MMRP actions.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
WATER WORKS #4 DUMP MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
WATER WORKS #4 DUMP MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-24


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Water Works #4 Dump MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
WATER WORKS #4 DUMP MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-25

6.3.17 Group 8 MRS (RVAAP-063-R-01)

6.3.17.1 Human Exposure Profile

Current Land Use

The MRS is located in the south-central portion of RVAAP, between Buildings 846 and 849, and occupies approximately 2.65 acres. The MRS is flat and includes gravel roads and grass areas. The buildings are currently used to store military equipment. Military equipment may drive over the MRS area to access the storage buildings. Other activities include security patrols and grounds maintenance activities.

Current Human Receptors

Current human receptors include OHARNG personnel and contract workers.

Potential Future Land Use

Potential future land use is not expected to change from the current land use.

Potential Future Human Receptors

Potential future human receptors are not expected to change from current receptors.

Zoning/Land Use Restrictions

There are no known land use restrictions in place at the Group 8 MRS. The MRS is not fenced and other than the Installation wide perimeter fence, access is not restricted.

6.3.17.2 Ecological Profile

The ecological profile at the Group 8 MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6-33**. Specific details of the ecological setting at RVAAP are provided in **Section 6.2.2**.

Table 6-33: Group 8 MRS Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Group 8	None.	Disturbed. Area contains buildings and roads.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

6.3.17.3 MEC and MC Release Profile

Release Mechanisms

The Group 8 MRS may have been used for burning of construction debris and rubbish in the past, as well as a collection center for salvaged items that were to be auctioned off. In 1996 an antipersonnel bomb containing HE was found on the ground surface. In addition, one inert 175mm projectile was found on the ground within the MRS. During the SI field work to evaluate the presence of UXO/MEC, two fuzes were found in the MC3 area of the MRS. These items are potential MEC as the lack of energetic material could not be confirmed. Munitions debris was also discovered in the MC2, MC3, and MC4 areas. The release mechanism for MEC and/or munitions debris is assumed to be the deliberate disposal of the munitions at the MRS. **Table 6-34** provides a summary of the potential MEC and MC present at the MRS and their release mechanisms.

Table 6-34: Summary of Potential MEC and MC Present at the Group 8

Potential MEC	Potential MC	Primary Release Mechanisms
Bombs	HE	Mishandling
Large Caliber Practice Rounds (37mm and larger)	Inert materials	Deliberate disposal

HE – High Explosives

Maximum Penetration Depth

All available information indicates that MEC was not buried at the MRS and all observations made during the SI UXO surveys support this. It is possible that munitions may have been pressed into the ground by military equipment that traverse the area when accessing the buildings. As such, the penetration depth is expected to be minimal (less than 1 foot).

MEC/MC Density

Available records indicate the site was not used for ammunition storage or disposal, and the presence of the three pieces of ordnance found on the ground appears to be the result of mishandling or deliberate disposal. As such, the MEC density at the Group 8 MRS is expected to be minimal. Results of the SI UXO survey indicate that the greatest number of potential MEC items were located in the MC3 area.

Based on sampling conducted during the SI field work, MC consisting of several metals constituents were found to be present throughout the MRS.

Munitions debris

During the SI field investigation, munitions debris was observed scattered throughout the MC2, MC3, and MC4 areas of the MRS. Historical information also suggests that the 175mm projectile found at the MRS may represent munitions debris.

MEC Exposure and Transport Pathway Analysis

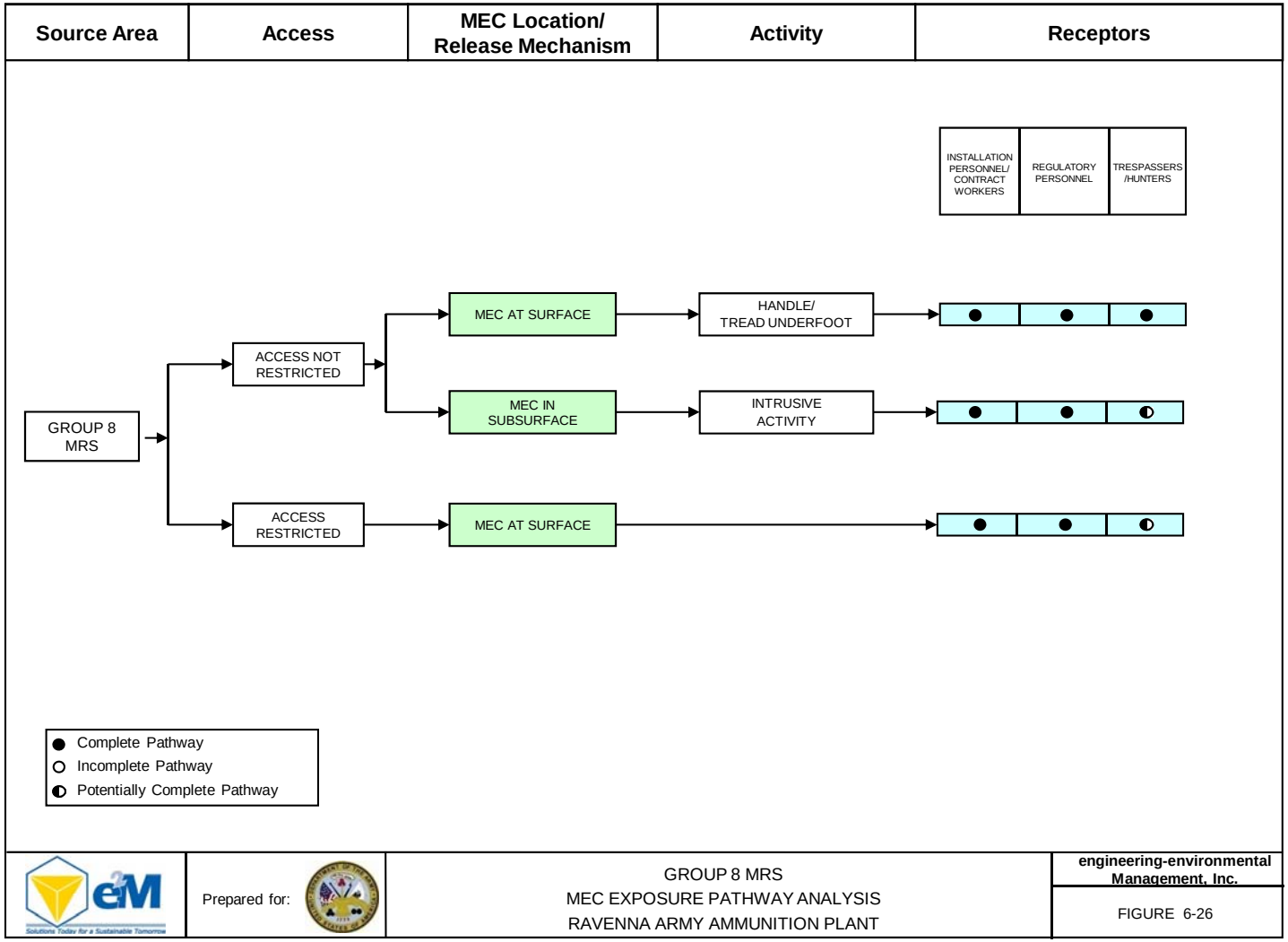
MEC was observed lying on the ground surface and partially buried within the MC3 investigation area at the MRS. Human exposure pathways include contact with MEC lying on the ground surface and disturbance of shallow subsurface soil. For MEC that is buried, transport and migration are not likely, unless disturbed. MEC lying on the ground surface can be transported by erosion, surface water flow, and by frost heave. The complete MEC human exposure pathways would be to handle or tread under foot and disturbance of shallow surface soil (i.e., 0 – 0.5 ft bgs). **Figure 6-26** provides the pathways evaluated and the findings of the assessment.

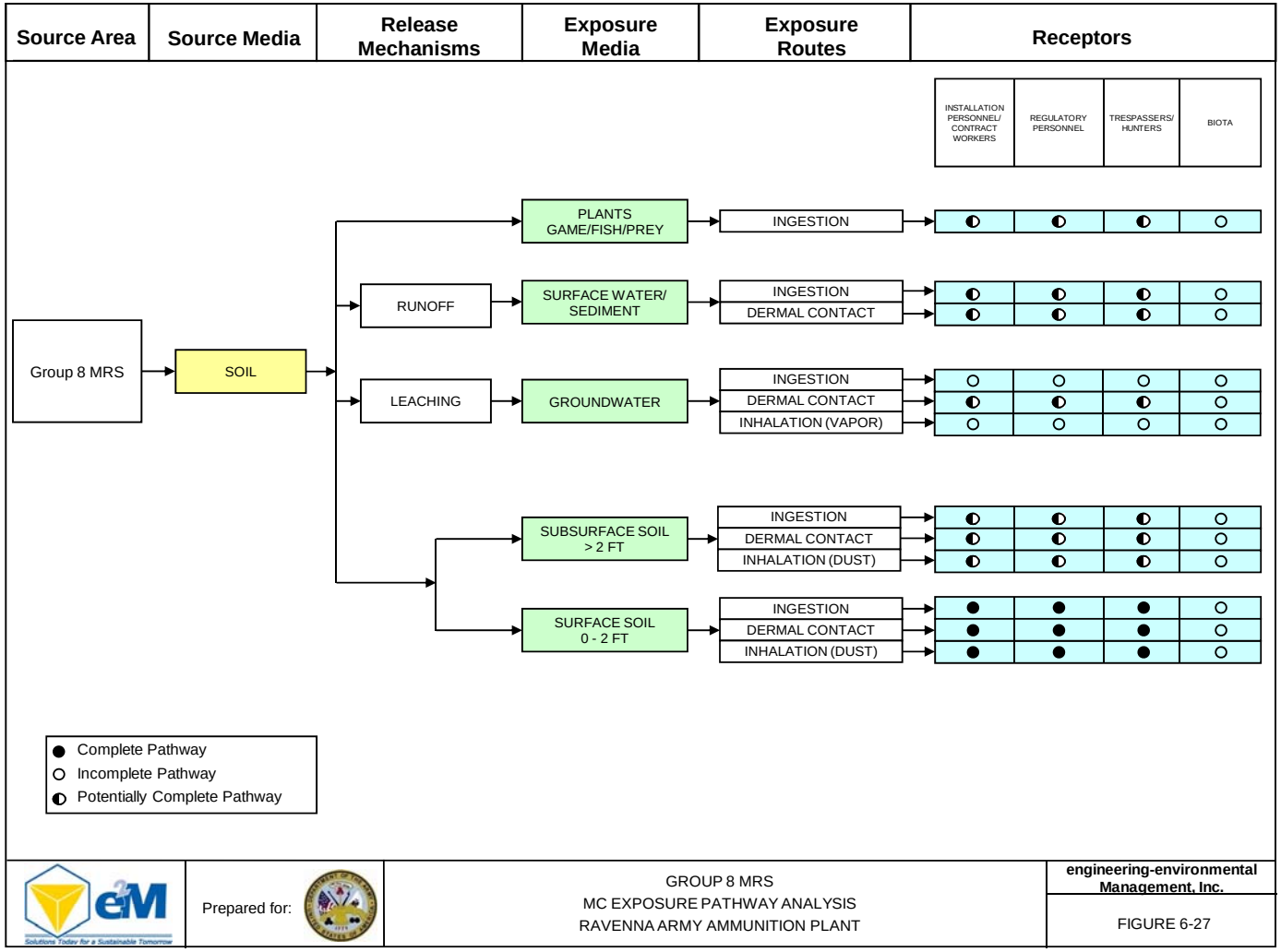
MC Exposure and Transport Pathway Analysis

MC consisting of metals (antimony, aluminum, arsenic, cadmium, copper, iron, lead, and manganese) was found to be present at the MRS. Complete pathways are present for surface soil and potentially complete pathways are present for subsurface soil. Exposure pathways include dermal contact, ingestion, and inhalation of contaminated soil. Potential transport would occur via surface water, erosion of soils, and through a release to groundwater and surface water. **Figure 6-27** provides the pathways evaluated and the findings of the assessment.

6.3.17.4 MRS Data Gaps

MEC and munitions debris have been found at the MC2, MC3, and MC4 investigation areas at the MRS. Therefore, these areas will require further characterization under future MMRP action. MC is a concern across the entire MRS and will require further investigation under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS /HUNTERS
GROUP 8 MRS
ACCESS NOT RESTRICTED
ACCESS RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
GROUP 8 MRS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-26


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS/ HUNTERS
BIOTA
Group 8 MRS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
GROUP 8 MRS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 6-27

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Ramsdell Quarry Landfill MRS (RVAAP-001-R-01)

The Ramsdell Quarry Landfill MRS (see **Figure 5-3**) is a 13.43 acre site originally operated as a quarry mined for rock material. Quarry operations ceased in 1941, and the quarry was used (1946 through 1950) to thermally treat waste explosives from Load Line #1, and approximately 18,000 500-lb incendiary or napalm bombs through surface burning. From 1976 to its closure in 1990, the quarry was used as a non-hazardous solid waste landfill, operating under a State of Ohio sanitary landfill permit. The MRS encompasses the former OB/OD area located in Area 1 and the small soil borrow pit and wooded area located in Area 2. The capped and closed former sanitary landfill in Area 1 is not included in the MRS footprint.

A meandering path magnetometer and metal detector assisted UXO survey was conducted in Area 1, totaling approximately three acres. In Area 2, a line abreast magnetometer and metal detector assisted UXO survey was conducted in the small soil borrow pit and a meandering path UXO survey was conducted for the remaining wooded area, totaling approximately two acres.

Four MI surface soil (0-6" bgs) samples were collected from Area 2 and were analyzed for TAL metals, propellants, and explosives.

7.1.1 MEC

Subsurface anomalies were detected at Area 1, specifically around the pond, but no evidence of MEC or munitions debris was observed lying on the ground surface. MEC may potentially be present submerged in the pond, which was not investigated during the SI field work. Large caliber munitions debris was found at two locations in Area 2; however, no MEC was discovered.

7.1.2 MC

Lead and manganese were detected at concentrations in excess of the RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil in the MI sample collected from the MC3 at Area 2. Thallium concentrations were above both comparison values in all four samples, but dismissed as non-munitions related. Explosives and propellants were not detected above method detection limits, with the exception of two estimated detections of 1,3,5-

Trinitrobenzene. MC contamination at Area 1 was not investigated and will continue to be addressed under the IRP.

7.1.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete at Area 1, while MC exposure pathways are considered complete in Area 2 for surface soil and potentially complete for subsurface soil (see **Figures 6-1 and 6-2** for the exposure pathways).

7.1.4 Recommendations

The Ramsdell Quarry Landfill MRS is recommended for Further Characterization of MC in Area 2 and to determine the presence of munitions-related items in and the area surrounding the pond in Area 1.

7.2 Erie Burning Grounds MRS (RVAAP-002-R-01)

Erie Burning Grounds (see **Figure 5-5**) is an undeveloped wetland area that covers 33.93 acres located on the northeastern corner of the facility next to the Portage/Trumbull County line. The MRS operated between 1941 and 1951 and was used to thermally treat bulk, obsolete, off-spec propellants; conventional explosives, rags, and large explosive contaminated items (e.g., railcars) through open burning on the ground surface. Prior to its acquisition by the US Army in 1940, the area may have been used for brick manufacturing.

A meandering path magnetometer and metal detector assisted UXO survey was conducted of all accessible dry areas of the MRS, totaling approximately 14 acres. Soil samples were not collected, in part, because the site has already been investigated under the IRP.

7.2.1 MEC

Several subsurface anomalies were detected in the northwest, central, and southwest portion of the MRS. One possible MEC item was found partially buried northwest of the wooded area in the south-central portion of the MRS. MEC is also potentially present in the flooded sections of the MRS and will require investigation under future MMRP action.

7.2.2 MC

MC in soil, surface water, groundwater, and dry sediments has been characterized under the IRP, with a NFA issued for soil and dry sediment. However, MC in wet sediments will require further investigation under future MMRP action.

7.2.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS. MC exposure pathways are considered potentially complete for wet sediments (see **Figures 6-3** and **6-4** for the exposure pathways).

7.2.4 Recommendations

Based on the results of this SI, the Erie Burning Grounds MRS is recommended for Further Characterization to investigate potential MEC across the entire site. Note: MC characterization was not conducted under this SI; however, MC in wet sediments will require Further Characterization under the MMRP.

7.3 Open Demolition Area #2 MRS (formerly Demolition Area #2) (RVAAP-004-R-01)

The Open Demolition Area #2 MRS (see **Figure 5-7**) was used from 1948 until 1991 to detonate large caliber munitions and off-specification bulk explosives and for burial of white phosphorus and bombs of unknown type. The MRS is collocated with an IRP AOC. The MRS consists of the former demolition area; Burial Sites 1 and 2; Rocket Ridge; the Bomb Disposal Area located adjacent to the northwestern section of the MRS; and all areas in between.

The SI field work included a meandering path magnetometer and metal detector assisted UXO survey of the Bomb Disposal Area, Burial Sites 1 and 2, Rocket Ridge, and associated surrounding areas, as well as along the current boundary of the MRS footprint. Total area surveyed encompassed approximately 12 acres. Soil samples were not collected.

7.3.1 MEC

MEC was found at Rocket Ridge, the Bomb Disposal Area, Burial Site 2, and on the hill across Sand Creek from Rocket Ridge. At Rocket Ridge, MEC observed included T-bar fuzes (model unknown), white phosphorus grenades, and possibly 500-lb bombs. One partially buried fuze (model unknown), considered MEC, was found at the Bomb Disposal Area. This area was not included in the HRR MRS footprint, but has been added under the SI. A partially buried fuze (model unknown), considered MEC, was also found at Burial Site 2. On the hill directly across (i.e., north) from Rocket Ridge, two 40mm cartridges (considered MEC) with intact primers were found. Munitions debris was found throughout the MRS and consisted of demilitarized 155mm projectiles, remnants of 40mm rounds, casing fragments from large caliber projectiles, and remnants of donor charge bags.

7.3.2 MC

MC will continue to be addressed under the IRP, but additional characterization work may be required at Rocket Ridge, the Bomb Disposal Area, and Burial Site #2; that is, at areas that have not been characterized under the IRP.

7.3.3 CSM Summary

Based on the findings, MEC exposure pathways are considered complete for items lying on the ground surface and buried at the MRS. MC exposure pathways are considered potentially complete for surface water/sediment, groundwater, and surface/subsurface soils (see **Figures 6-5 and 6-6** for the exposure pathways).

7.3.4 Recommendations

Based on the findings of SI field work, potential MEC is present at the Bomb Disposal Area. Therefore, this area has been included in the MRS footprint, increasing the acreage of the MRS from 32.95 acres to 35.4 acres. Overall, Further Characterization will be required under the MMRP to address MEC concerns at Rocket Ridge, the Bomb Disposal Area, Burial Site #2, and on the hill across Sand Creek from Rocket Ridge. MC will continue to be addressed under the IRP, but additional characterization work will be required at Rocket Ridge, Bomb Disposal Area, and Burial Site #2 (given safety precautions).

7.4 Load Line #1 MRS (RVAAP-008-R-01)

Load Line #1 (see **Figure 5-3**) was used to melt and load TNT and Composition B explosives into large-caliber shells during WWII and the Korean War. The MRS consists of approximately five acres of the load line site and is composed of several areas associated with Buildings CB-13/CB-13B and the elevated building slab at CB-14, and the area adjacent to CB-14 where triple base propellants still exist. The MRS is collocated with an IRP AOC.

For the SI field work, a meandering path UXO survey was conducted around the CB Buildings and one (1) MI surface soil sample was collected from the area west of the elevated building slab at CB-14, where one piece of suspected triple base propellant was found. The sample was analyzed for explosives, propellants, and TAL metals.

7.4.1 MEC

Three pieces of triple base propellant (1-inch by ¼-inch in size) were found during the survey. No suspect MEC was found during the survey. One piece of suspected triple base propellant was found on the western side of CB-14, and two more pieces of propellant were found along the railroad track on the eastern side of CB-14. The eastern side of CB-14 was undergoing remediation/removal of propellants at the time of the SI field work and will not be addressed under the MMRP.

7.4.2 MC

Lead was found in both the sample and duplicate at concentrations greater than RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. Thallium was detected in both the sample and duplicate at concentrations greater than one-tenth the PRG for residential soil, but has been dismissed as non-munitions related. The sample and duplicate did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs.

7.4.3 CSM Summary

Based on the findings, MEC exposure pathways are considered complete for items lying on the ground surface at the MRS. MC exposure pathways are considered potentially complete for surface and subsurface soils (see **Figures 6-7** and **6-8** for the exposure pathways).

7.4.4 Recommendations

Based on the findings of the SI field work, the area surrounding building CB-13/CB-13B and the eastern and southwestern side of the elevated CB-14 building slab can be removed from the MRS footprint, reducing the acreage from 4.63 acres to 0.41 acres. These areas can be removed since they have either been remediated under the IRP or were found not to contain MEC concerns. Further Characterization of MEC and MC is recommended at the former gravel loading area situated along the northwestern corner of CB-14 where one grain of propellant was found and where lead was detected in excess of the screening criteria.

7.5 Load Line #12 MRS (RVAAP-012-R-01)

Load Line #12 (see **Figure 5-9**) consisted of multiple buildings while operational, none of which remain currently standing. In 1999, 110 90mm rounds were discovered just below the ground surface north of the access road in the northwest corner of the load line site. The MRS consists of the area immediately surrounding the location where the 90mm rounds were found.

For the SI field work, a line abreast magnetometer and metal detector assisted UXO survey was conducted around the area where the 90mm rounds were discovered, totaling approximately one acre. Soil samples were not collected.

7.5.1 MEC

There were no signs of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. Further, the magnetometer and metal detector survey did not reveal evidence of buried metallic items. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the instruments highest sensitivity level.

7.5.2 MC

MC has been adequately characterized under the IRP and will not be further investigated under the MMRP.

7.5.3 CSM Summary

Based on the findings, all MEC exposure pathways are considered incomplete at this MRS (see **Figure 6-9** for the exposure pathways).

7.5.4 Recommendations

Based on the findings of the SI field work, there are no MEC concerns at the Load Line #12 MRS. Therefore, the site is recommended for NFA.

7.6 Fuze and Booster Quarry MRS (RVAAP-016-R-01)

The Fuze and Booster Quarry MRS (see **Figure 5-11**) consists of three elongated ponds separated by berms, constructed within an abandoned rock quarry, which was used for open burning of various types of munitions from 1945 to 1975. The MRS is collocated with an IRP AOC.

For the SI field work, a meandering path magnetometer and metal detector assisted UXO survey was conducted along the banks and surrounding areas at all three ponds, totaling approximately four acres. Soil samples were not collected.

7.6.1 MEC

No suspect MEC was observed during the survey; however, munitions debris was found on the southeastern side of the southern pond. Further, multiple closely spaced subsurface anomalies were detected along the southeastern and east sides of the southern pond, the east side of the central pond, and the eastern and northeastern sides of the northern pond. It is suspected that these anomalies represent buried munitions debris and possibly MEC. Additionally, RVAAP personnel have observed munitions items in the northern and southern ponds when water levels are low. The bottoms of the ponds were not investigated during this SI and the presence of MEC remains unknown.

7.6.2 MC

MC is being addressed under the IRP and will not be further investigated under the MMRP.

7.6.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface, buried, and submerged in the ponds (see **Figure 6-10** for the exposure pathways).

7.6.4 Recommendations

Based on the findings of the SI field work, Further Characterization will be required to assess buried anomalies (i.e., potential MEC) located on the southeastern, eastern, and northeastern banks of the three ponds and the presence of MEC in the submerged portions of the northern and southern ponds. There is no historical or physical evidence to indicate that MEC is present outside this area or the central pond. As such, the MRS footprint can be reduced from 12.74 acres to 4.92 acres. MC will continue to be addressed under the IRP.

7.7 Landfill North of Winklepeck MRS (RVAAP-019-R-01)

The Landfill North of Winklepeck MRS (see **Figure 5-13**) encompasses an area that lies adjacent and downstream from the former landfill. The MRS footprint was reconfigured during the HRR to exclude the former landfill, which is capped and considered a "Response Complete" site, and is being addressed under the IRP.

For the SI field work, a meandering path magnetometer and metal detector assisted UXO survey was conducted along the hillside, creek bed, wooded area to the southeast, and downstream area of the MRS. In addition, one composite surface soil sample was collected using the CRREL seven-wheel

method from the slope where the flare canisters were found and was analyzed for explosives, propellants, and TAL metals.

7.7.1 MEC

No MEC was discovered during the UXO survey, although munitions debris was found. Munitions debris observed included the following: empty flare canisters were discovered on the hillside adjacent to the former landfill; a partially buried fragment of an unidentified bomb casing was found adjacent to the creek in the southeastern portion of the MRS; and one empty 105mm projectile (i.e., empty of energetic material) was found lying on the ground surface in the southeastern wooded area. The 105mm projectile was discovered along the path of a former roadway that leads to the landfill area. It was surmised that the 105mm projectile had fallen off a truck delivering rubbish to the landfill.

Multiple closely spaced (i.e., concentrated) subsurface anomalies were detected along the length of the hillside adjacent to the former landfill. Although the hillside was littered with metal rubbish (i.e., metal cans, scrap metal, etc.), the potential presence of MEC can not be dismissed due to historical data and the discovery of munitions debris during the SI UXO survey. Few subsurface anomalies were detected in the remaining areas surveyed; that is, downstream of the former landfill and in the wooded area in the southeastern portion of the MRS. Further, there was no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) observed in these areas that would indicate potential burial sites.

7.7.2 MC

Concentrations of lead and iron exceeded RVAAP Background Values and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRGs. Again, thallium was found at concentrations that exceeded one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but has been dismissed as non-munitions related. The sample did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs.

7.7.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS. MC exposure pathways are considered complete for surface soil and potentially complete for subsurface soil and surface water/sediment (see **Figures 6-11 and 6-12** for the exposure pathways).

7.7.4 Recommendations

Based on the results of this SI, it is recommended that the MRS footprint be reduced from 14.05 acres to 2.32 acres, and include the area adjacent and along the length of the former landfill extending down and including the unnamed stream. This area includes the location where the flare canisters were discovered, the location where the suspected booster cups had been found, and where most of the refuse from the landfill is located. This reduced MRS is recommended for Further Characterization to address MC and MEC concerns.

7.8 40mm Firing Range MRS (RVAAP-032-R-01)

The 40mm Firing Range MRS (see **Figure 5-11**) is a former test range for the 40mm cartridge and is surrounded by forest. The MRS is collocated with an IRP site. The impact area was sited in the western portion of the MRS while the firing point was sited at the opposite end. UXO was reported to be present beyond the impact area, on the slope that leads down to the Fuze and Booster Quarry MRS.

For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted at the firing point, range floor, impact area, and down range of the impact area. Soil samples were not collected, since chemical contamination had previously been addressed under the IRP.

7.8.1 MEC

MEC was not discovered during the UXO survey; however, munitions debris was found scattered from the target point to a point approximately 100 ft beyond the former impact area. The munitions debris consisted of aluminum nose caps and casings for the 40mm rounds.

7.8.2 MC

The presence of MC is not fully known and will require Further Investigation under the MMRP.

7.8.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying lying on the ground surface (see **Figure 6-13** for the exposure pathways).

7.8.4 Recommendations

Based on the results of this SI, it is recommended that the MRS size be reduced from 5.17 acres to 1.27 acres, and include only the impact area and 100 ft further down range. This reduced MRS is recommended for Further Characterization to address MEC and MC concerns.

7.9 Firestone Test Facility MRS (RVAAP-033-R-01)

The Firestone Test Facility MRS (see **Figure 5-14**) consisted of two buildings used as test chambers for TOW and Dragon missiles, and a pond and test chamber where shaped charges were tested. The three former test chambers have been demolished and the majority of debris removed. Another suspected test range area was included in the SI field work that consists of a small clearing and piles of dirt and large timbers. The MRS is collocated with an IRP AOC.

For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted around the former test chambers and at the suspected test range in the eastern end of the MRS, totaling approximately a half acre. A meandering path magnetometer and metal detector assisted UXO survey was also conducted around the pond area and adjacent test chamber, totaling another half acre. One MI surface soil sample was collected from the small clearing at the suspected test range and analyzed for explosives, propellants, and TAL metals.

7.9.1 MEC

MEC and/or munitions debris was not discovered during the UXO survey of the two former missile test chambers locations and the small clearing, and only a few subsurface anomalies were recorded. It's surmised that the anomalies were related to cultural interference associated with the remaining building debris. MEC and/or munitions debris was not observed lying on the ground surface at the pond and associated location of the former shaped charge test chamber; however, multiple closely spaced subsurface anomalies were detected around the pond and the location of the test chamber. UXO surveys of the submerged portion of the pond were not conducted.

7.9.2 MC

Thallium was found in the sample at a concentration greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. The result was dismissed as being non-munitions related. The sample did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs. No samples were collected around the former test chambers, as chemical contamination in this area is being investigated under the IRP.

7.9.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items buried at the MRS and items submerged in the pond. All MC exposure pathways are considered incomplete (see **Figures 6-14** and **6-15** for the exposure pathways).

7.9.4 Recommendations

Based on the findings of the SI field work, it is recommend that the size of the MRS be reduced from 0.91 acres to 0.41 acres, and include the perimeter and bottom of the pond and adjacent former shaped charge test chamber. Further Characterization will be required at this reduced MRS footprint to address MEC concerns. MC was not found to be a concern at the suspected former test range and will no longer be addressed under the MMRP.

7.10 Sand Creek Dump MRS (RVAAP-034-R-01)

The Sand Creek Dump MRS (see **Figure 5-16**), which is collocated with an IRP AOC, encompasses approximately 0.85 acres of undeveloped land that stretches along the banks of Sand Creek for approximately 1,000 ft. Debris remains at the site from its use as a former construction dump.

For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted of all open areas along Sand Creek and within the dump area, totaling approximately one acre. No samples were collected at the MRS.

7.10.1 MEC

No MEC was discovered during the survey; however, one empty 105mm projectile was discovered in Sand Creek downstream of the former dump area. At the former dump area, multiple subsurface anomalies were recorded, which was expected due to the presence of metal construction debris that was observed. However, a clear-cut determination of the nature of the subsurface anomalies could not be made.

7.10.2 MC

No samples were collected from the MRS during this SI because chemical contamination is being addressed under the IRP.

7.10.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS (see **Figure 6-16** for the exposure pathways).

7.10.4 Recommendations

Based on the historical findings and SI field work, the presence of MEC could not be completely ruled out at the MRS. As such, Further Characterization will be required under the MMRP to address MEC concerns. MC will continue to be addressed under the IRP.

7.11 Building #F-15 and F-16 MRS (RVAAP-046-R-01)

The Building #F-15 and F-16 MRS (see **Figure 5-17**) was formerly used to test miscellaneous explosives and propellants. All buildings at the MRS have been demolished. Remaining remnants at both buildings include the raised building foundation and possibly underground utilities (e.g., sewer, water, telephone, and electric). Further, the demolition debris remains at Building F-16. This MRS is collocated with an IRP AOC.

For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately 12 acres.

7.11.1 MEC

No MEC or munitions debris was found during the survey. Very few subsurface anomalies were recorded in the open areas surrounding and between the two buildings. Subsurface anomalies were recorded around the buildings and along the railroad tracks, but were dismissed as non-munitions related. Rather, these findings were attributed to demolition debris/underground utilities and remnants of the railroad tracks.

7.11.2 MC

MC is being addressed under the IRP and will not be further investigated under the MMRP.

7.11.3 CSM Summary

Based on the findings, all MEC exposure pathways are considered incomplete at this MRS (see **Figure 6-17** for the exposure pathways).

7.11.4 Recommendations

Based on the historical information reviewed and findings of the SI field work, MEC is not a concern at the MRS and a NFA is recommended. MC will continue to be addressed under the IRP.

7.12 Anchor Test Area MRS (RVAAP-048-R-01)

The Anchor Test Area MRS (see **Figure 5-19**), which is collocated with an IRP AOC, is a heavily forested site currently consisting of several dirt mounds and a nearby sand pit. Little is known about the actual function of the MRS, but available information suggests that it was used to test fire experimental explosively-charged anchors into the ground.

For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately three acres.

7.12.1 MEC

There was no sign of MEC or munitions debris found lying on the ground surface, and no visual evidence (mounded or otherwise disturbed soil or patches of different vegetation) of potential burial sites. The magnetometer and metal detector survey did not reveal evidence of buried munitions. The few subsurface anomalies detected were scattered across the site (i.e., not concentrated in a restricted area) and provided very weak/low responses on the detectors.

7.12.2 MC

No samples were collected from the MRS during this SI. MC is being addressed under the IRP and will not be further investigated under the MMRP.

7.12.3 CSM Summary

Based on the findings, all MEC exposure pathways are considered incomplete at this MRS (see **Figure 6-18** for the exposure pathways).

7.12.4 Recommendations

Based on the historical information reviewed and findings of the SI field work, MEC is not a concern at the MRS and a NFA is recommended.

7.13 Atlas Scrap Yard MRS (RVAAP-050-R-01)

The Atlas Scrap Yard MRS (see **Figure 5-9**), which is included in an IRP AOC, encompasses approximately 66.04 acres of mostly open land that contains a network of roads. Originally used as a construction camp, the MRS was used for scrap storage and currently consists of scattered piles of debris; however, UXO was reportedly uncovered in the southwest corner of the MRS nd is buried in the central portion of the site.

For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted in the south-central section of the MRS where MEC and munitions debris were reported, and a meandering path survey was conducted around remaining debris piles in the northern and eastern sections, totaling approximately 12 acres.

7.13.1 MEC

In the south-central section, the presence of demolition debris limited access and, consequently, the entire area could not be surveyed; as such, a complete assessment could not be completed. In accessible areas that were surveyed, no MEC or munitions debris was not found lying on the ground surface and only a few scattered subsurface anomalies were detected. In the north-central section, no MEC or munitions debris were observed lying on the ground surface around or on top of the debris piles. However, multiple subsurface anomalies were detected around each of the three piles. No MEC or munitions debris were observed lying on the ground surface in the east-central section of the MRS and very few subsurface anomalies were recorded. Since the disclosure of the 40mm fragmentation shell burial site came after completion of the SI field work, this are was not included in the survey.

7.13.2 MC

MC is being addressed under the IRP and will not be further investigated under the MMRP.

7.13.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS (see **Figure 6-19** for the exposure pathways).

7.13.4 Recommendations

Based on the new information that MEC may be buried at the site and findings of the SI UXO survey (i.e., detection of multiple subsurface anomalies), the MRS is recommended for Further Characterization to address MEC concerns. MC will continue to be addressed under the IRP.

7.14 Block D Igloo MRS (RVAAP-060-R-01)

The Block D Igloo MRS (see **Figure 5-20**), as described in the HRR, consisted of the area (circle with a 3,000 ft radius) contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. The MRS boundary was established by the USACE, Huntsville District to capture the probable debris field resulting from the explosion and was based on the type of munitions stored in the bunker at the time of the explosion.

For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted within and around the former igloo and at four documented locations where explosion-related debris was found. In addition, one composite surface soil sample was collected using the CRREL seven-wheel method from within the former igloo footprint and was analyzed for explosives and TAL metals.

7.14.1 MEC

No MEC or munitions debris were found lying on the ground surface within the interior of the former igloo and within a circumference of approximately 100 feet surrounding this area. Several subsurface anomalies were recorded within the former igloo and may be attributed to the remnants of the reinforced concrete floor, while no subsurface anomalies were detected in the 100 foot circumference surrounding the igloo. (Note: of the historically documented debris locations, no MEC or munitions debris were discovered within the HRR MRS footprint.) At the four documented debris locations, no visual evidence of MEC and/or munitions debris was found and very few subsurface anomalies were detected. At locations where subsurface anomalies were recorded; the findings were attributed to debris (rail spikes, plates, etc.) associated with the former rail lines and roadway.

7.14.2 MC

Arsenic and lead concentrations in the sample exceeded RVAAP Installation-Wide Background Values and one-tenth the non-carcinogen USEPA Region 9 PRGs for Residential Soil. Thallium exceeded one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but was dismissed as non-munitions related. The sample did not contain explosives at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs.

7.14.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS. MC exposure pathways are considered potentially complete for surface and subsurface soil, groundwater, and surface water/sediment (see **Figures 6-20 and 6-21** for the exposure pathways).

7.14.4 Recommendations

Based on the findings of the SI field work, the former igloo will require Further Characterization under the MMRP to address MC concerns. In addition, all remaining documented debris locations (and area between) that were not investigated during this SI will require Further Characterization under the MMRP to address MEC concerns. Therefore, it is recommended that the documented debris locations and areas between that were surveyed during this SI be removed from the MRS footprint. Further, it is recommended that MRS footprint be revised to include all documented debris locations that were not investigated during this SI or included in the US Army CTT Range/Site Inventory and HRR defined MRS boundary and be reduced in acreage from 622.24 acres to 340.2 acres.

7.15 Block D Igloo–TD MRS (RVAAP-061-R-01)

The Block D Igloo–TD (see **Figure 5-20**) consists of the portion of the circle centered on Igloo 7-D-15 (Block D Igloo MRS RVAAP-060-R-01) that exploded on 24 March 1943 that extends beyond the Installation boundary. This property, which encompasses 19.25 acres, is considered separately as a transferred site.

For this SI, a meandering path magnetometer and metal detector assisted UXO survey was conducted of the entire MRS, which included five off-Installation privately owned properties. In addition, two composite surface soil samples were collected using the CRREL seven-wheel method from two private properties.

7.15.1 MEC

No MEC or munitions debris was found lying on the ground surface at any of the properties and very few subsurface anomalies were recorded at each of the properties surveyed. The subsurface anomalies detected were attributed to metal debris associated with farming equipment. Further, according to the property owners interviewed during the SI filed work, nothing suspicious has been found during their ownership and use of the property. Therefore, MEC is not a concern at the MRS and the site will not require further characterization.

7.15.2 MC

Lead was present at a concentration greater than the RVAAP Background Value and one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG in one sample collected adjacent to a busy thoroughfare, while thallium was found in two samples at concentrations greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG. The lead result was attributed to anthropogenic impacts (attributed to the adjacent highway), while thallium has been dismissed as naturally occurring and non-munitions related. The samples did not contain explosives at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs.

7.15.3 CSM Summary

Based on the findings, MEC and MC exposure pathways are considered incomplete at the US Army CTT Range/Site Inventory and HRR defined MRS footprint. However, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the revised MRS footprint. MC exposure pathways are considered potentially complete for surface and subsurface soil, groundwater, and surface water/sediment (see **Figures 6-22** and **6-23** for the exposure pathways).

7.15.4 Recommendations

Based on the results of this SI, there are no MEC or MC concerns at the current location of this MRS and require no additional characterization work. However, based on information collected and analyzed during the performance of this SI, two new off-post areas have been identified where munitions debris or MEC may be present as a result of the accidental explosion at Igloo 7-D-15. These new areas were not surveyed during this SI. Therefore, the MRS, as identified in the US Army CTT Range/Site Inventory and HRR, has been revised to include these new locations, sizes, and shapes. The MRS is composed of two separate areas located outside the Installation boundary, approximately 2.2 (Area 1) and 2.9 miles (Area 2) to the northeast of Igloo 7-D-15. Area 1 consists of privately owned agricultural land that includes approximately 12 acres, and is located at 41° 13" 51" N and 81° 03' 53" W. Area 2 is a densely wooded area encompassing 2.13 acres and is located at 41° 14' 20" N and 81° 03' 15 W. Combined, the MRS consists of 14.13 acres. These new locations will require additional characterization work under a future MMRP action.

7.16 Water Works #4 Dump MRS (RVAAP-062-R-01)

The Water Works #4 Dump MRS (see **Figure 5-11**), as described in the HRR, encompassed approximate 6.15 acres of mostly forested area that included a small clearing, located immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were reportedly found scattered throughout the wooded portion of the former MRS footprint lying on the ground surface and partially buried, as were metal parts defined as ogives from WWI 155mm shrapnel projectiles. During the SI field activities, it was determined that the MRS boundary identified in the CTT Range/Site Inventory and the HRR Report was not accurate. The actual MRS is located approximately 400 ft to the east. The location has been corrected in this report (see **Figure 5-11**).

For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the open area of the MRS and a meandering path UXO survey was conducted of the remaining area in the wooded area to the north. In addition, one composite surface soil sample was collected using the CRREL seven-wheel method from the open field of the MRS and analyzed for explosives, propellants, and TAL metals.

7.16.1 MEC

No MEC was discovered during the survey; however, approximately 20 inert ogives were discovered scattered throughout the northern wooded area of the MRS. These munitions debris items were void of energetic material. Several closely spaced subsurface anomaly detections were also made in the open field.

7.16.2 MC

Only thallium concentrations in the sample and duplicate were greater than one-tenth the non-carcinogen USEPA Region 9 Residential Soil PRG, but these detections have been dismissed as non-munitions related. No propellants or explosives constituents were detected in the sample.

7.16.3 CSM Summary

Based on the findings, MEC exposure pathways are considered potentially complete for items lying on the ground surface and buried at the MRS. All MC exposure pathways are considered incomplete (see **Figures 6-24 and 6-25** for the exposure pathways).

7.16.4 Recommendations

Based on the historical information reviewed and findings of the SI field work, it is recommended that the MRS footprint be reduced from 6.15 acres to 0.77 acres, and include only the open field where subsurface anomalies were detected. This new MRS footprint is recommended for Further Characterization.

7.17 Group 8 MRS (RVAAP-063-R-01)

The Group 8 MRS (see **Figure 5-21**) consists of most of the area between Buildings 846 and 849. This area is disturbed land currently being used as an OHARNG vehicle staging area, though it may have historically been used for debris and rubbish burning. In 1996, one anti-personnel fragmentation bomb (referred to as a "hammerhead" anti-personnel bomb) loaded with HE was found at the MRS. In addition, one demilitarized (i.e., cut into two halves) 175mm projectile was found on the ground surface at the MRS.

For this SI, a line abreast magnetometer and metal detector assisted UXO survey was conducted of the entire MRS. MI surface soil samples were collected for each of the five MC areas of the MRS and were analyzed for explosives, propellants, and TAL metals.

7.17.1 MEC

At the MC3 area of the MRS, two unidentifiable T-bar fuzes considered potential MEC were discovered. While no other MEC was discovered, a large amount of munitions debris was found in the MC3 and MC4 areas of the MRS, and some munitions debris was found in the MC2 area as well. All three of these areas were littered with large amounts of debris including metal trash, fencing materials, and wood

scrap. The two remaining areas of the MRS, MC1 and MC5, were clear of visible debris and had very few subsurface anomaly detections.

7.17.2 MC

Lead and thallium were found in all five samples at concentrations greater than the comparison values. Thallium has been dismissed as non-munitions related. Antimony, arsenic, aluminum, cadmium, copper, iron, and manganese were also detected in some but not all samples at concentrations greater than the comparison values. The samples did not contain explosives or propellants at concentrations greater than one-tenth the non-carcinogen and/or full carcinogen USEPA Region 9 Residential Soil PRGs.

7.17.3 CSM Summary

Based on the findings, MEC exposure pathways are considered complete for items lying on the ground surface and buried at the MRS. MC exposure pathways are considered complete for surface water/sediment, groundwater, and surface soil and subsurface soil (see **Figures 6-26 and 6-27** for the exposure pathways).

7.17.4 Recommendations

Based on the findings of the SI field work, it is recommended that the MRS undergo Further Characterization.

Table 7-1 below summarizes the recommendations and basis of the recommendations for the MRSs.

Table 7-1: MRS Recommendations

MRS	MRS-PP Priority	Recommendation	Basis for Recommendation	
			MEC	MC
Ramsdell Quarry Landfill MRS (RVAAP-001-R-01)	5	Further Characterization of MEC at Area 1 and MC at Area 2 required.	MEC potentially present at Area 1.	MC detected above screening criteria at Area 2. Area 1 will continue to be addressed under the IRP AOC RVAAP-1.
Erie Burning Grounds MRS (RVAAP-002-R-01)	5	Further Characterization of MEC and MC in wet sediments.	MEC possibly buried. MEC potentially present in submerged areas.	MC in wet sediments will require further characterization work. All other media addressed under IRP AOC RVAAP-2.
Open Demolition Area #2 MRS (formerly Demolition Area #2) (RVAAP-004-R-01)	3	Further Characterization of MEC and MC required.	MEC present.	MC not covered under the IRP will require further characterization.
Winklepeck Burning Grounds (RVAAP-005-R-01)	Not Evaluated	No Longer MMRP Eligible.	Removed from MMRP during the HRR.	Removed from MMRP during the HRR.
Load Line #1 MRS (RVAAP-008-R-01)	5	Further Characterization of MEC and MC at reduced MRS footprint.	MEC present.	MC detected above screening criteria.
Load Line #12 MRS (RVAAP-012-R-01)	No known or suspected hazards	No Further Action	No MEC present.	MC is covered under the IRP AOC RVAAP-12.
Fuze and Booster Quarry MRS (RVAAP-016-R-01)	5	Further Characterization of MEC at reduced MRS footprint.	MEC potentially buried and present in ponds.	MC is covered under the IRP AOC RVAAP-16.
Landfill North of Winklepeck MRS (RVAAP-019-R-01)	5	Further Characterization of MEC and MC at reduced MRS footprint.	MEC potentially buried.	MC detected above screening criteria.
40mm Firing Range MRS (RVAAP-032-R-01)	5	Further Characterization of MEC and MC at reduced MRS footprint.	MEC potentially present.	Presence of MC is not fully known.

Table 7-1: MRS Recommendations (continued)

MRS	MRS-PP Priority	Recommendation	Basis for Recommendation	
			MEC	MC
Firestone Test Facility MRS (RVAAP-033-R-01)	5	Further Characterization of MEC at reduced MRS footprint.	MEC potentially present in pond and buried at former test chamber.	MC not a concern. No MC detected above screening criteria.
Sand Creek Dump MRS (RVAAP-034-R-01)	6	Further Characterization of MEC.	MEC potentially buried.	MC is covered under the IRP AOC RVAAP-34.
Building #F-15 and F-16 MRS (RVAAP-046-R-01)	No known or suspected hazards	No Further Action.	No MEC present.	MC is covered under the IRP AOC RVAAP-46.
Anchor Test Area MRS (RVAAP-048-R-01)	No known or suspected hazards	No Further Action.	No MEC present.	MC is covered under the IRP AOC RVAAP-48.
Atlas Scrap Yard MRS (RVAAP-050-R-01)	6	Further Characterization of MEC.	MEC potentially buried and contained within debris piles.	MC is covered under the IRP AOC RVAAP-50.
Block D Igloo MRS (RVAAP-060-R-01)	5	Further Characterization of MEC and MC at reduced MRS footprint.	MEC potentially present.	MC detected above screening criteria.
Block D Igloo–TD MRS[1] (RVAAP-061-R-01)	No known or suspected hazards	Further Characterization at revised MRS footprint.	No MEC present.	No MC detected above screening criteria.
Water Works #4 Dump MRS (RVAAP-062-R-01)	8	Further Characterization of MEC at reduced MRS footprint.	MEC potentially present in subsurface.	No MC detected above screening criteria.
Group 8 MRS (RVAAP-063-R-01)	4	Further Characterization of MEC and MC.	MEC present.	MC detected above screening criteria.
Old Hay Field MRS (formerly Field at the NE Corner of Intersection (Paris-Windham Rd) (RVAAP-064-R-01)	Not Evaluated	No Longer MMRP Eligible.	Removed from MMRP during the HRR.	Removed from MMRP during the HRR.

1 The location, size, and description of the Block D Igloo – TD MRS has been revised to capture the documented debris locations outside the installation boundary to the northeast. These locations were not included in the US Army CTT Range/Site Inventory and HRR defined MRS footprint, and not investigated during this SI. Further Characterization is required to address MC and MEC concerns.

7.18 Summary of Revisions to the RVAAP MRSs

Originally, nineteen potentially eligible MMRP sites were identified during the US Army CTT Range/Site Inventory. A determination was made, based on information gathered during the HRR, that two MRSs were not MMRP-eligible and were removed. The MRSs included Winklepeck Burning Grounds (RVAAP-005-R-01) and the Old Hayfield (RVAAP-064-R-01). It was determined that Winklepeck Burning Grounds had been addressed under Base Realignment and Closure (BRAC) and IRP funding. Chemical contamination at the MRS was addressed under the IRP, whereas BRAC funding was used to address explosive safety. Further, it was determined that the MRS is no longer eligible for the MMRP since the area is being developed as an operational range (Mark 19 Range) by the OHARNG. It was also determined that the Old Hayfield MRS was classified as an operational range. As such, this MRS became ineligible for the MMRP and was subsequently removed. Therefore, 17 MRSs were investigated during the SI.

Of the 17 MRSs investigated during this SI, three have been proposed for NFA, including the following: Load Line #12 (RVAAP-012-R-01); Building # F-15 and F-16 (RVAAP-046-R-01); and Anchor Test Area (RVAAP-048-R-01). Based on the findings of the SI field work, no evidence of MEC, either on the ground surface or potentially buried, was discovered at these sites. The Block D Igloo – TD (RVAAP-061-R-01) MRS identified in the US Army CTT SI/Range Inventory and HRR has been investigated and found not to contain a MEC or MC concern. However, the location and size of the MRS has been revised to include the documented blast fan debris locations located off the installation to the north and east. Further, the total acreage at eight MRSs was either increased or decreased based on the findings of the SI field work. At Open Demolition Area #2 (RVAAP-005-R-01) the total acreage was increased to include the former Bomb Disposal Area, where MEC was found. The MRSs where the total acreage was reduced include the following: Load Line #1 (RVAAP-008-R-01); Fuze and Booster Quarry (RVAAP-016-R01); Landfill North of Winklepeck (RVAAP-019-R-01); 40mm Firing Range (RVAAP-032-R-01); Firestone Test Facility (RVAAP-033-R-01); Block D Igloo (RVAAP-060-R-01); and Water Works #4 (RVAAP-062-R-01). At these MRSs, the acreages were reduced to include only those areas where MEC was found (e.g., Load Line #1) or where there was evidence to suggest the presence of MEC (e.g., presence of munitions debris or detection of multiple subsurface anomalies). Finally, one new MRS (1943 Debris Locations - TD) was created to capture potential MEC that may be present at documented debris locations from the 1943 explosion of Igloo 7-D-15. This MRS is located off the installation to the northeast of the former igloo. **Table 7-2** presents a summary of changes (and

removals) to the MRS acreages from the US Army CTT Range/Site Inventory through the HRR and the SI. **Figure 7-1** presents the location and revised MRS boundaries developed during this SI.

Table 7-2: Summary of Changes/Removals of MRS Acreage

MRS Name	AEDB-R Site ID*	CTT Acreage	HRR Acreage	SI Acreage	Rationale for Change
Ramsdell Quarry Landfill	RVAAP-001-R-01	3.79	13.43	13.43	No change to MRS footprint or acreage.
Erie Burning Grounds	RVAAP-002-R-01	33.93	33.93	33.93	No change to MRS footprint or acreage.
Open Demolition Area #2 (formerly Demolition Area #2)	RVAAP-004-R-01	14.91	32.95	35.4	Additional MEC concern identified at the Bomb Disposal Area, which was added to the MRS footprint.
Winklepeck Burning Grounds	RVAAP-005-R-01	317.01	317.01	317.01	Site not eligible under the MMRP and removed during the HRR.
Load Line #1	RVAAP-008-R-01	163.62	4.63	0.41	Acreage removed due to ongoing IRP remediation/removal work and lack of MEC concern.
Load Line #12	RVAAP-012-R-01	77.58	1.0	1.0	No Further Action required.
Fuze and Booster Quarry	RVAAP-016-R-01	12.74	12.74	4.92	Acreage removed due to lack of MEC concern.
Landfill North of Winklepeck	RVAAP-019-R-01	7.55	14.05	2.32	Acreage removed due to lack of MEC/MC concern
40mm Firing Range	RVAAP-032-R-01	5.17	5.17	1.27	Acreage removed due to lack of MEC concern.
Firestone Test Facility	RVAAP-033-R-01	0.25	0.91	0.41	Acreage removed due to lack of MEC concern.
Sand Creek Dump	RVAAP-034-R-01	0.85	0.85	0.85	No change to MRS footprint or acreage.
Building #F-15 and F-16	RVAAP-046-R-01	12.23	12.23	12.23	No Further Action required.
Anchor Test Area	RVAAP-048-R-01	2.57	2.57	2.57	No Further Action required.

Table 7-2: Summary of Changes/Removals of MRS Acreage (continued)

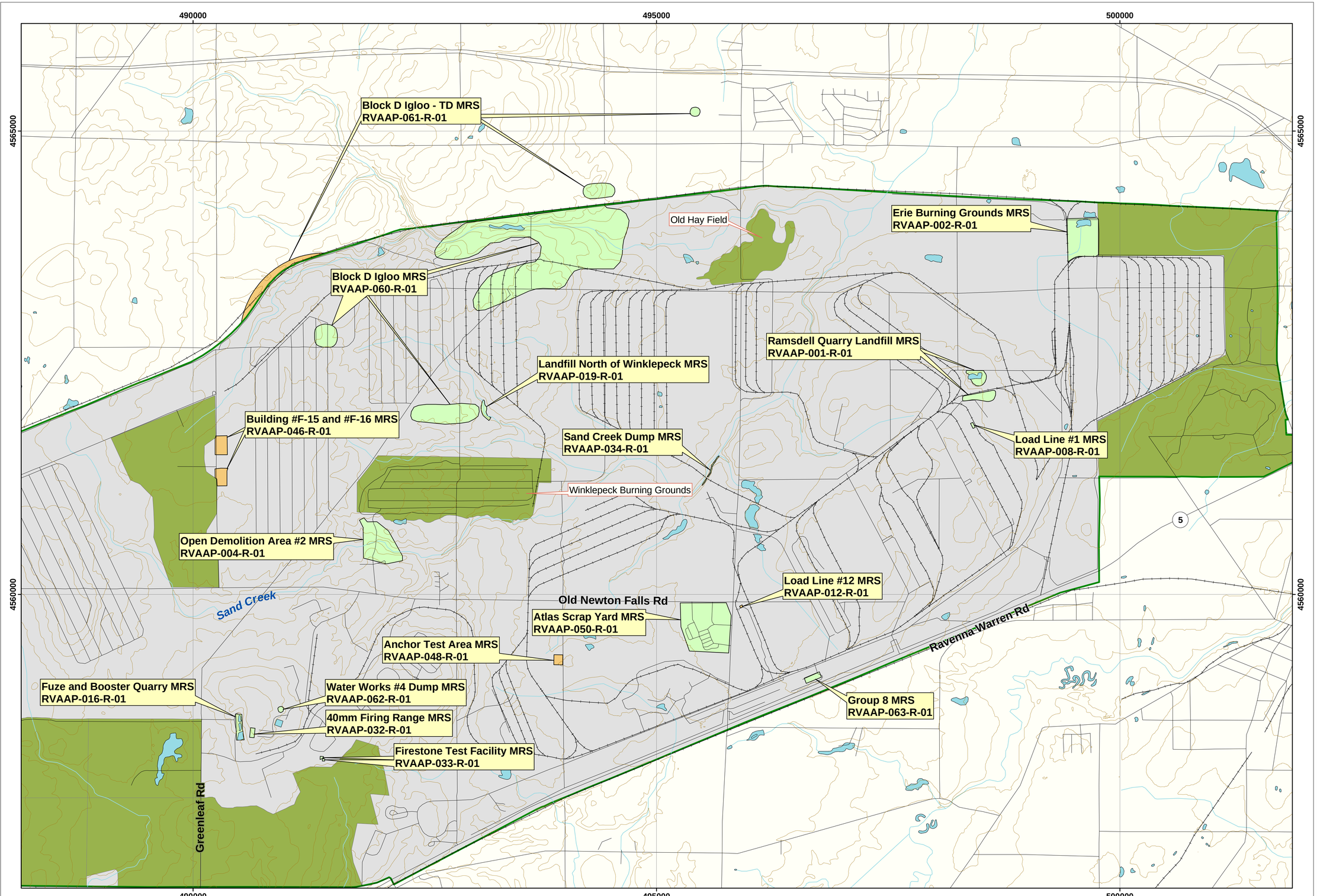
MRS Name	AEDB-R Site ID*	CTT Acreage	HRR Acreage	SI Acreage	Rationale for Change
Atlas Scrap Yard	RVAAP-050-R-01	66.04	66.04	66.04	No change to MRS footprint or acreage.
Block D Igloo	RVAAP-060-R-01	622.24	622.24	340.2	Acreage removed due to lack of MEC concern.
Block D Igloo–TD	RVAAP-061-R-01	19.25	19.25	14.13	Acreage removed due to lack of MEC concern. New areas identified and added to the MRS.
Water Works #4 Dump	RVAAP-062-R-01	6.15	6.15	0.77	Acreage removed due to lack of MEC concern.
Group 8 MRS	RVAAP-063-R-01	2.65	2.65	2.65	No change to MRS footprint or acreage.
Old Hayfield MRS	RVAAP-064-R-01	91.86	91.86	91.86	Site not eligible under the MMRP and removed during the HRR.

* AEDB-R Site ID = Army Environmental Database-Restoration Site Identification Number

This is a place holder for Figure 7-1

REVISED SI MRS BOUNDARIES
Ravenna Army Ammunition Plant, OH

Figure 7-1



N
W E
S

- Installation Boundary
- Railroad
- Road
- Elevation Contour
- Stream
- Water

Area Status

- Operational Range
- Other than Operational Range
- MRS, Closed
- MRS, NFA

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

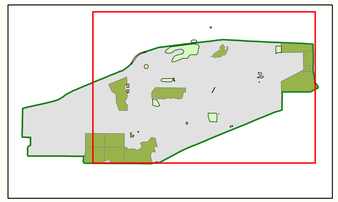
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**5,000 Meter**
Contour Interval:	**5 Meter**

1:18,000

0 2,500 5,000 Feet

0 800 1,600 Meters

Reference Location Map
RVAAP



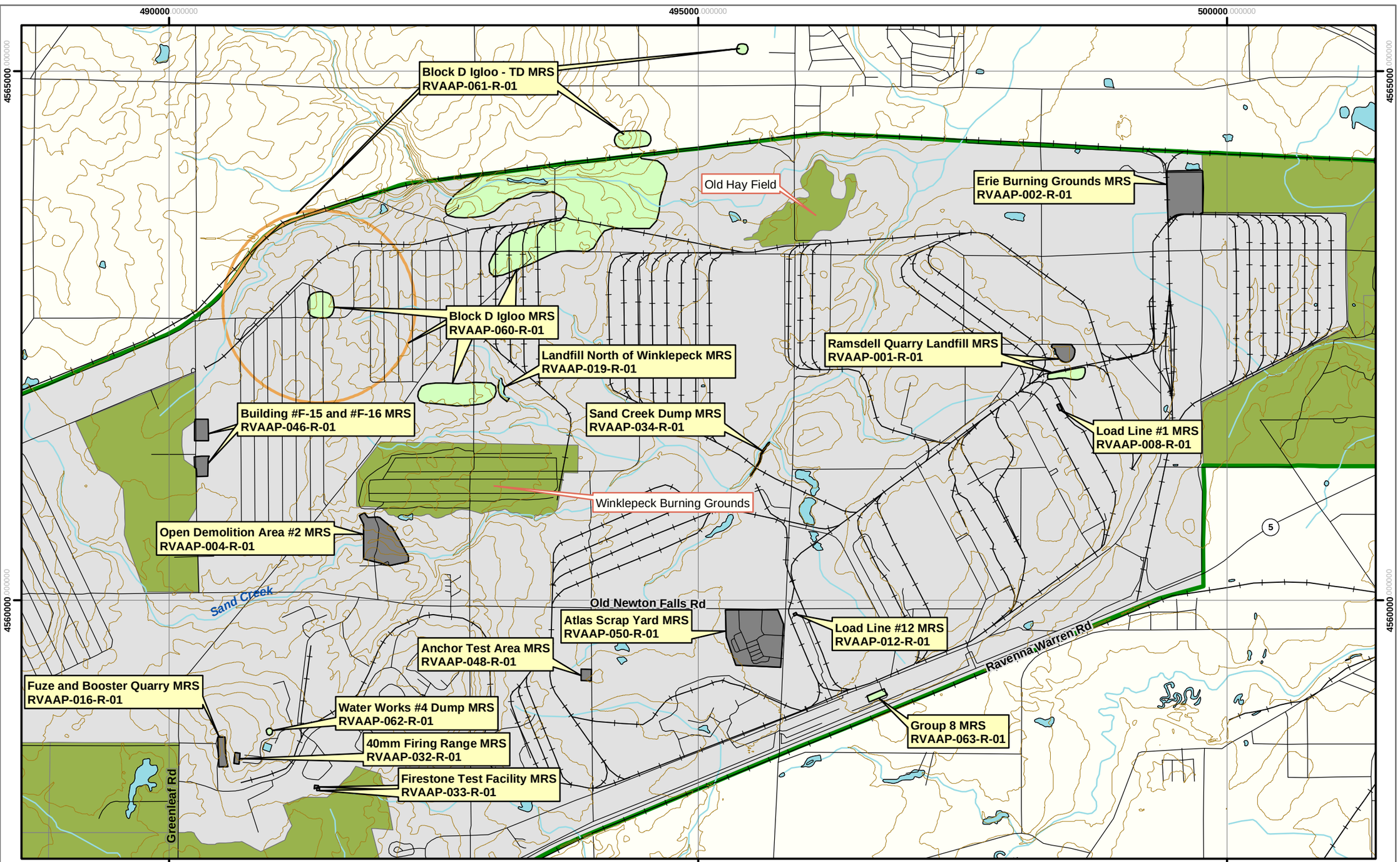
SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

COLLOCATED MRS and IRP AOCs
Ravenna Army Ammunition Plant, OH

Figure A-1



N
W E
S

- Installation Boundary
- Railroad
- Road
- Elevation Contour
- Stream
- Water

Area Status

- Operational Range
- Other than Operational Range
- MRS, Closed
- Collocated with IRP Sites
- Old CTT/HRR MRS Boundary

Data Source: e²M, Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio, October 2006.

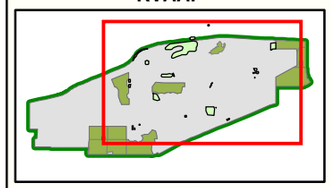
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**5,000 Meter**
Contour Interval:	**5 Meter**

1:40,000

0 2,000 4,000 Feet

0 700 1,400 Meters

Reference Location Map
RVAAP



SITE INSPECTION
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: May 2008
Edition: Final

Final
Military Munitions Response Program
Historical Records Review
Ravenna Army Ammunition Plant, Ohio

Submitted To:

US Army Corps of Engineers, Omaha District
CENWO-PM-HC
106 S. 15th Street
Omaha, NE 68102-1618

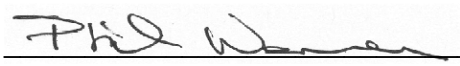
Prepared by:

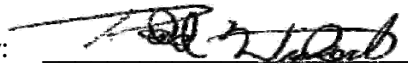
engineering-environmental Management, Inc.
9563 South Kingston Court, Suite 200
Englewood, CO 80112

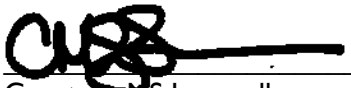
Contract No.: DACA63-03-D-0009
Task Order No.: DK01

January 2007
(revised)

Final
Military Munitions Response Program
Historical Records Review
Ravenna Army Ammunition Plant, Ohio

Prepared by: 
Phil Werner
e²M Project Manager

Reviewed by: 
Todd Wickert
e²M MMRP QA/QC Manager

Reviewed by: 
Courtney MS Ingersoll
e²M Program Manager

engineering-environmental Management, Inc (e²M) prepared this report at the direction of the US Army Corps of Engineers (USACE), Omaha District and, as such, this document should be used only with the approval of the USACE. This report is based, in part, on information provided in other documents and is subject to the limitations and qualifications presented therein.

EXECUTIVE SUMMARY

Under contract with the United States Army Corps of Engineers (USACE), Omaha District; engineering-environmental Management, Inc. (e²M) has prepared the following Historical Records Review (HRR) Report for the other than operational ranges and sites with known or suspected unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC) at Ravenna Army Ammunition Plant (RVAAP), located in Portage and Trumbull Counties, Ohio. These Munitions Response Sites (MRSs) at RVAAP are being evaluated under the United States (US) Army Military Munitions Response Program (MMRP).

The intent of the HRR is to perform a limited-scope records search to document historical and other known information on the MRSs identified at RVAAP to supplement the United States (US) Army inventory of closed, transferring and transferred (CTT) military ranges and defense sites with UXO, DMM or MC; and to support the Technical Project Planning (TPP) process designed to facilitate decisions on those areas where more information is needed to determine the next step(s) in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. Primary sources of information researched as part of the data collection effort for the HRR included an installation site visit; a review of existing historical documents, maps/drawings, photographs, and investigative reports comprising the Administrative Record (AR); interviews with installation personnel; and reviews of the US Army CTT Range/Site Inventory, Archive Search Report (ASR), and supporting documentation.

After reviewing the information collected during the HRR, the following conclusions have been made for the MRSs at RVAAP:

- Nineteen MMRP-eligible sites were identified during the US Army CTT Range/Site Inventory.
- Since the completion of that phase, Winklepeck Burning Grounds (WPG) (RVAAP-005-R-01)[1] has been addressed under Base Realignment and Closure (BRAC) and Installation Restoration Program (IRP) funding. Chemical contamination at the MRS was addressed under the IRP, whereas BRAC funding was used to address explosive safety. Further, the MRS is no longer eligible for the MMRP since the parcel is being developed as an operational range (Mark 19 Range) by the Ohio Army National Guard (OHARNG). Therefore, this MRS has been removed from the MMRP.

[1] Army Environmental Database-Restoration (AEDB-R) Number

- The remaining eighteen MRSs qualify due to the demolition and/or disposal activities that were conducted which resulted in the potential presence of munitions and explosives of concern (MEC) and/or MC, and where releases occurred prior to September 2002.

Furthermore, based on additional information collected during the HRR, the original site descriptions, acreage, and/or boundaries for six of the MRSs were modified. These modifications are summarized below:

- Ramsdell Quarry Landfill (RVAAP-001-R-01), realignment of the MRS boundary and increase in acreage from 3.79 acres to approximately 13.43 acres;
- Demolition Area #2 (RVAAP-004-R-01), realignment of the MRS boundary and increase in acreage from 14.91 acres to approximately 32.95 acres;
- Load Line #1 (RVAAP-008-R-01), realignment of the MRS boundary and decrease in acreage from 163.62 acres to approximately 4.63 acres;
- Load Line #12 (RVAAP-012-R-01), realignment of the MRS boundary and decrease in acreage from 77.58 acres to approximately 1.0 acre;
- Landfill North of Winklepeck (RVAAP-019-R-01), realignment of MRS boundary and increase in acreage from 7.55 acres to approximately 14.05 acres; and
- Firestone Test Facility (RVAAP-033-R-01), realignment of the MRS boundary and increase in acreage from 0.25 acres to approximately 0.91 acres.

Ramsdell Quarry Landfill (RVAAP-001-R-01)

Based on information provided by the Installation, the MRS boundary identified during the US Army CTT Range/Site Inventory may not capture the full extent of MEC, which may extend further to the north and south of the current MRS location. This was supported by information presented in the IRP reports which revealed the landfill is not situated in the bottom of the quarry where open burning/open detonation (OB/OD) operations took place, but rather along the southern and western rim of the excavation, which correlates to the location of the current MRS boundary. Based on this, it is understood the current MRS boundary does not completely encompass the OB/OD area formerly used to thermally treat explosives waste and munitions, thus the MRS boundary must be expanded. Further, under the MMRP any MEC that may be present in a capped and closed landfill is not eligible since this is considered a "Response Complete". Therefore, the MRS boundary has been expanded to the north to include the entire quarry area and to the south to include an area outside the quarry that was identified by the Installation as potentially containing MEC. In addition, the former landfill area has been removed from further consideration as part of the MRS.

Demolition Area #2 (RVAAP-004-R-01)

The 2003 US Army CTT Range/Site Inventory reported that Demolition Area #2 encompassed approximately 14.91 acres, which included a 2.5 acre interim Resource Conservation and Recovery Act (RCRA) unit that was permitted to demilitarize munitions. During the HRR research it was determined that the locations of two known munitions burial sites (i.e., Burial Sites 1 and 2) and a dump area known as the Sand Creek Disposal Area (also referred to as Rocket Ridge) had not been mapped as part of the MRS during the inventory. These areas, and the areas located between them, were found to be MMRP-eligible and have now been included as part of the Demolition Area #2 MRS.

Two areas located within the MRS footprint were determined to be non-MMRP eligible. The 2.5 acre interim RCRA unit and a majority of the area that was previously used as a 40millimeter (mm) prototype test range that overlies the interim RCRA unit have been removed from consideration as part of the MRS (RVAAP-6.A.4). Only the small portion of the old prototype test range that extends to the north and outside of the interim RCRA unit is MMRP-eligible and will be included as part of the MRS. The interim RCRA unit will be closed in accordance with all applicable state and Federal regulations and requirements at the end of the IRP investigation. Based on the realignment and addition of new areas, the MRS footprint has been increased to approximately 32.95 acres. Additional information was provided by the Installation that indicated that there is a bomb disposal area located near the northwestern portion of the MRS. While this could not be corroborated by additional documentation, the area will be recommended for further investigation during the site Inspection (SI) process.

Load Line #1 (RVAAP-008-R-01)

Based on the findings of IRP investigations conducted at the former load line and input from Installation personnel, the only MEC (i.e., residual propellant pellets) present at the MRS is located beside Buildings CB-13, CB-13B, and CB-14, as well as in the area of the former popping furnace. Therefore, the MRS boundary was reduced to those immediate areas surrounding the buildings (i.e., CB-13, CB-13B, and CB-14) and the popping furnace.

Load Line #12 (RVAAP-012-R-01)

Several IRP investigations have been conducted at the former load line with only one reported finding of potential MEC (i.e., 90mm projectiles). Furthermore, all buildings that were located at the MRS were decommissioned and have been removed, along with any potential MEC. Input from Installation personnel indicated the only suspect area at the MRS is associated with the area immediately surrounding the location where the 90mm projectiles were discovered. Based on the

comprehensiveness of IRP investigations conducted to date at the load line, and input from Installation personnel, it is reasonable to reduce the size of the boundary to the area immediately surrounding the location where the 90mm projectiles were found.

Landfill North of Winklepeck (RVAAP-019-R-01)

Installation personnel have reported that potential MEC (booster cups and other nondescript items) is present on the slope leading down to the small stream, outside of the current MRS boundary. To capture this potential MEC, the MRS boundary has been adjusted to cover the area between the landfill and the small stream as identified by Installation personnel. The boundary of the MRS was revised to exclude the landfill area, first identified as the original MRS location in the US Army CTT Range/Site Inventory. This landfill is covered under the IRP and any MEC/MC incidentally discovered during the investigation will be managed under the IRP.

Firestone Test Facility (RVAAP-033-R-01)

In the US Army CTT Range/Site Inventory, the MRS boundary only included the location of the shaped charge test pond and only one of the two test chambers. The location of the second test chamber was identified during the HRR and has been added to the MRS boundary. In addition, Installation personnel identified a third test chamber that was used for testing shaped charges, as well as a suspected test range located northeast of the former test facility. The shaped charge test chamber has been added to the MRS. All three test chambers have since been decommissioned and removed. Additional investigation of the suspected test range area will have to be conducted during the SI field work. Based on these findings, the area may or may not be included as part of the MRS footprint.

The following table provides a summary of the HRR findings and conclusions.

Table ES-1: Summary of Findings and Conclusions

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No/ Unknown	MC Yes/No/ Unknown	
Ramsdell Quarry Landfill	RVAAP-001-R-01	No	3.79	13.43	Unknown	Yes	Presence and type of MEC at the former OB/OD area at the bottom of the quarry and area south of the quarry are not fully known. Presence of MC at the OB/OD area has been established. Presence of MC at the area south of the quarry is not fully known.
Erie Burning Grounds	RVAAP-002-R-01	No	33.93	Same	Unknown	IRP[1]/MMRP	Presence and type of MEC at the MRS is not fully known. Presence of MC in wet sediments is not fully understood.
Demolition Area #2	RVAAP-004-R-01	No	14.91	32.95	Yes	Yes	Presence of MEC has been established, but type is not fully known. Presence of MC at the two burial areas, Rocket Ridge, and the northwestern disposal area is not fully known.
Winklepeck Burning Grounds	RVAAP-005-R-01	Removed	317.01	N/A	BRAC[2]	IRP[1]	Winklepeck Burning Grounds is not MMRP-eligible and has been removed from further consideration.
Load Line #1	RVAAP-008-R-01	No	163.62	4.63	Unknown	IRP[1]/MMRP	Presence and extent of triple base propellants is not fully known. MMRP will address any MEC/MC issues not addressed by the PBC contractor.
Load Line #12	RVAAP-012-R-01	No	77.58	1.0	Unknown	IRP[1]	Presence and type of potentially buried MEC is not fully known.

Table ES-1: Summary of Findings and Conclusions (continued)

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No/ Unknown	MC Yes/No/ Unknown	
Fuze and Booster Quarry	RVAAP-016-R-01	No	12.74	Same	Unknown	Yes/IRP[1]	Presence and type of MEC in the three ponds is not fully known. Munitions debris is present.
Landfill North of Winklepeck	RVAAP-019-R-01	No	7.55	14.05	Unknown	Yes	Presence and type of MEC at the revised MRS location is not fully known. Presence of MC is not fully known. Presence of munitions debris has been established.
40mm Firing Range	RVAAP-032-R-01	No	5.17	Same	Unknown	IRP[1]	Presence and type of MEC at the firing range is not fully known.
Firestone Test Facility	RVAAP-033-R-01	No	0.25	0.91	Unknown	IRP[1]	Presence and type of MEC at the shaped charge test pond, test chambers (3), and clearing is not fully known.
Sand Creek Dump	RVAAP-034-R-01	No	0.85	Same	Unknown	IRP[1]	Presence and type of MEC at the MRS is not fully known.
Building #F-15 and F-16	RVAAP-046-R-01	No	12.23	Same	Unknown	IRP[1]	Presence and type of MEC is not fully known.
Anchor Test Area	RVAAP-048-R-01	No	2.57	Same	Unknown	IRP[1]	Presence and type of MEC is not fully known.
Atlas Scrap Yard	RVAAP-050-R-01	No	66.04	Same	Unknown	Yes/IRP[1]	Presence of munitions debris has been established. However, presence and type of MEC is not fully known.
Block D Igloo	RVAAP-060-R-01	No	622.24	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.

Table ES-1: Summary of Findings and Conclusions (continued)

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No/ Unknown	MC Yes/No/ Unknown	
Block D Igloo–TD	RVAAP-061-R-01	No	19.25	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.
Water Works #4 Dump	RVAAP-062-R-01	No	6.15	Same	Unknown	Unknown	Presence of munitions debris has been established. Presence and type of MEC is not fully known. Presence of MC is not fully known.
Area Between Buildings 846 and 849	RVAAP-063-R-01	No	2.65	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.
Field at the NE Corner of Intersection (Paris-Windham Rd)	RVAAP-064-R-01	No	91.86	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.

[1] = MC will be covered under the IRP and will not be investigated further under the MMRP.

[2] = Explosive concerns are addressed under BRAC and will not be investigated further under the MMRP.

* AEDB-R Site ID = Army Environmental Database-Restoration Site Identification Number

IRP=Installation Restoration Program, BRAC= Base Realignment and Closure, N/A = Not Applicable

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Abbreviations and Acronyms	
Acronym	**Definition**
AEDB-R	Army Environmental Database-Restoration
AOC	Area of Concern
AP	Armor Piercing
AR	Administrative Record
ARID	Army Range Inventory Database
ARNG	Army National Guard
ARS	Advanced Range Survey
ASR	Archive Search Report
bgs	Below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
COPC	Contaminant of Potential Concern
CRREL	Cold Regions Research and Engineering Laboratory
CSM	Conceptual Site Model
CTC	Cost to Complete
CTT	Closed, Transferring, and Transferred
CWM	Chemical Warfare Materiel
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DNB	Dinitrobenzene
DNT	2-amino-4,6-dinitrotoluene
DoD	Department of Defense
e^2M	engineering-environmental Management, Inc.
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army
ERIS	Environmental Restoration Information System
ft	feet
FUDS	Formerly Used Defense Site
FY	Fiscal Year
HE	High Explosives
HMX	High Melting Explosive; octahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine

Abbreviations and Acronyms	
Acronym	**Definition**
HRR	Historical Records Review
IAP	Installation Action Plan
IRA	Interim Removal Action
IRP	Installation Restoration Program
JMC	Joint Munitions Command
km^2	Square Kilometers
m	Meters
MACOM	US Army Major Command
MC	Munitions Constituents
MCL	Maximum contaminant level
MEC	Munitions and Explosives of Concern
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mm	Millimeter
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
NCP	National Contingency Plan
NDAA	National Defense Authorization Act
NFA	No Further Action
NGB	National Guard Bureau
NPDES	National Pollutant Discharge Elimination System
OB/OD	Open Burning/Open Detonation
OE	Ordnance and Explosives
Ohio EPA	Ohio Environmental Protection Agency
OHARNG	Ohio Army National Guard
ORC	Ohio Revised Code
OSC	Operations Support Command
OSD	Office of Secretary of Defense
PA	Preliminary Assessment
PCBs	Polychlorinated Biphenyls
PETN	Pentaerythrite Tetranitrate
ppb	Parts per billion
ppm	Parts per million

Abbreviations and Acronyms	
Acronym	**Definition**
PRG	Preliminary Remediation Goal
RAC	Risk Assessment Code
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RDX	Royal Demolition or Research Department Explosive; hexahydro-1,3,5-trinitro-1,3,5-triazine, which is also known as cyclonite
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RRSE	Relative Risk Site Evaluation
RTLS	Ravenna Training and Logistics Site
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SRC	Site related contaminant
SVOC	Semi-Volatile Organic Compound
Tetryl	N-methyl-N-2,4,6-tetranitroaniline
TNB	Trinitrobenzene
TNT	Trinitrotoluene
TOW	Tube-launched, optically-tracked, wire guided
TPP	Technical Project Planning
µg/L	Microgram per Liter
US	United States
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
U.S.C.	United States Code
USGS	United States Geological Survey
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WWII	World War II

Glossary of Terms

Closed Range – A military range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a Department of Defense (DoD) component.

Defense Site – Locations that are or were owned by, leased to, or otherwise possessed or used by the Department of Defense. The term does not include any operational range, operating, storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions. (10 USC 2710(e)(1))

Discarded Military Munitions (DMM) – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 USC 2710(e)(2))

Explosive Ordnance Disposal (EOD) – The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance and of other munitions that have become an imposing danger, for example, by damage or deterioration.

Explosives Safety – A condition where operational capability and readiness, personnel, property, and the environment are protected from the unacceptable effects or risks of potential mishaps involving military munitions.

Formerly Used Defense Site (FUDS) – A DoD program that focuses on compliance and cleanup efforts at sites that were formerly used by the DoD. A FUDS property is eligible for the Military Munitions Response Program (MMRP) if the release occurred prior to October 17, 1986; the property was transferred from DoD control prior to October 17, 1986; and the property or project meets other FUDS eligibility criteria.

Glossary of Terms (continued)

Military Munitions – All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants; explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents; chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges; and devices and components thereof.

The term does not include wholly inert items; improvised explosive devices; and nuclear weapons, nuclear devices, and nuclear components, other than non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 USC 2011 et seq.) have been completed. (10 USC 101(e)(4))

Munitions Constituents (MC) – Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 USC 2710(e)(4))

Munitions and Explosives of Concern (MEC) – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: Unexploded Ordnance (UXO), as defined in 10 USC 2710(e)(9); Discarded military munitions (DMM), as defined in 10 USC 2710 (e)(2); or Munitions Constituents (MC) (e.g. TNT, RDX), as defined in 10 USC 2710 (e)(3), present in high enough concentrations to pose an explosive hazard.

Munitions Debris – Remnants of munitions (e.g. fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

Glossary of Terms (continued)

Munitions Response (MR) – Response actions, including investigation, removal and remedial actions to address the explosives safety, human health, or environmental risks presented by unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC), or to support a determination that no removal or remedial action is required.

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites.

Munitions Response Site (MRS) – A discrete location within a MRA that is known to require a munitions response.

Operational Range – A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities (10 USC 101 (e)(3)). Also includes "military range", "active range", and "inactive range" as those terms are defined in 40 Code of Federal Regulations (CFR) 266.201.

Range – The term 'range,' when used in a geographic sense, means a designated land or water area that is set aside, managed, and used for range activities of the Department of Defense. The term includes firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access, and exclusionary areas. The term also includes airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration. (10 USC 101 (e)(1))

Transferred Range – A range that is no longer under military control and had been leased by the DoD, transferred, or returned from the DoD to another entity, including federal entities. This includes a military range that is no longer under military control, but that was used under the terms of an executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager. Additionally, property that was previously used by the military as a range, but did not have a formal use agreement, also qualifies as a transferred range.

Glossary of Terms (continued)

Transferring Range – A range that is proposed to be leased, transferred, or returned from the DoD to another entity, including federal entities. This includes a military range that was used under the terms of a withdrawal, executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager or property owner. An operational range will not be considered a transferring range until the transfer is imminent (generally defined as the transfer date is within 12 months and a receiving entity has been notified).

Unexploded Ordnance (UXO) – Military munitions that: have been primed, fuzed, armed, or otherwise prepared for action; have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and remain unexploded whether by malfunction, design, or any other cause. (10 USC 101 (e)(5))

1.0 INTRODUCTION

1.1 Authority

The Department of Defense (DoD) established the Military Munitions Response Program (MMRP) under the Defense Environmental Restoration Program (DERP) to identify and address defense sites known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). Sites eligible for action under the MMRP include other than operational ranges and sites with known or suspected UXO, DMM, or MC where the release occurred prior to 30 September 2002 (Munitions Response Sites [MRSs]). Properties classified as operational ranges, permitted munitions disposal facilities, and operating munitions storage facilities are not eligible and, therefore, are excluded from the MMRP. This report presents the results of the MMRP Historical Records Review (HRR) conducted at the Ravenna Army Ammunition Plant (RVAAP). This HRR was prepared as part of the MMRP Site Inspection (SI) process at RVAAP.

The DoD is currently establishing policy and guidance for munitions response actions under the MMRP. However, key program drivers developed to date conclude munitions response actions will be conducted under the process outlined in the National Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300) as authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 United States Code (U.S.C.) 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499, (hereinafter CERCLA).

1.2 Purpose/Scope

The intent of the HRR is to perform a records search to document historical and other known information on the MRSs identified at RVAAP to supplement the United States (US) Army closed, transferring, and transferred (CTT) Range/Site Inventory information, and to support the Technical Project Planning (TPP) process designed to facilitate decisions on those areas where more information is needed to determine the next step(s) in the CERCLA process. The SI is part of the CERCLA process and will be continued following the completion of this HRR report.

1.3 Project Drivers

The regulatory structure for managing MRSs at RVAAP is guided by a mixture of federal, state, and local laws, as well as DoD and US Army regulations and guidance. The picture is further complicated by debates at the national level between DoD and the US Environmental Protection Agency (EPA) over key issues including uncertainty of the final structure of the MMRP. However, key legislative and

administrative precedents to date will undoubtedly influence the final regulatory framework of the MMRP. Key legislative and administrative precedents include the following:

- The Office of the Secretary of Defense (OSD) DERP Guidance (September 2001) established an MMRP element for defense sites with known or potential UXO or DMM. The history of DERP dates back to the SARA of 1986 and is defined in 10 U.S.C. §2701(b), which states the goals of the program shall include the following:
  - The identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants; and
  - Correction of other environmental damage (such as detection and disposal of UXO) which creates an imminent and substantial endangerment to the public health or welfare, or to the environment.
- Sections 311-312 of the National Defense Authorization Act (NDAA) of Fiscal Year (FY) 2002 reinforced the OSD 2001 DERP Guidance by tasking the DoD to develop and maintain an inventory of defense sites that are known or suspected to contain UXO, DMM, or MC.
  - Section 311 requires the DoD to develop a protocol for prioritizing defense sites for response activities in consultation with state regulators and Tribal members.
  - Section 312 requires the DoD to create a separate program element to ensure the DoD can identify and track MMRP funding.

The OSD 2001 DERP Guidance and the NDAA 2002, described above, established the MMRP. The DERP and the MMRP provide guidance and methods for conducting a baseline inventory of defense sites known or suspected to contain UXO, DMM, or MC.

The RVAAP is also bound to the "Final Findings and Orders" (Orders) issued June 10, 2004 by the Ohio Environmental Protection Agency (Ohio EPA) pursuant to the authority vested under Chapters 3734, 3745, and 6111 of the Ohio Revised Code (ORC). The objective of the Orders is to ensure that the public health, safety, and welfare, as well as the environment, is protected from the disposal, discharge, or release of contaminants (including munitions and explosives of concern [MEC] [which includes UXO, DMM, or MC at explosive concentrations] and MC) at or from the Installation, through the implementation of a CERCLA based environmental remediation program. Pursuant to the Orders, the Installation is required to develop and implement the following:

- a Remedial Investigation/Feasibility Study (RI/FS), a Proposed Plan, a Record of Decision or other appropriate document, and a remedy for each Area of Concern (AOC) or appropriate group of AOCs at RVAAP; and

- a Facility-Wide Ground Water Investigation, Monitoring, and Remediation Program at RVAAP.

1.4 Background

The US Army CTT Range/Site Inventory at RVAAP was considered to mark the completion of the Preliminary Assessment (PA) phase of work under CERCLA. The SI is the next phase in the CERCLA process and will complete the PA/SI requirement for the MRSs.

1.4.1 US Army Inventory

To meet the programmatic goals of the baseline inventory, the US Army developed a three-phase approach. Phase 1, or the Advanced Range Survey (ARS), involved a data call issued through the US Army Environmental Center (USAEC) to each of the former US Army Major Commands (MACOMs) requesting general information about ranges located on their installations. The intent of the ARS was to meet the US Army's immediate need of supporting DoD efforts to prepare Senate Report 106-50, which required an initial survey of the US Army's ranges. Once obtained, this data was submitted to the USAEC and compiled into a master database of US Army installations. Mr. Francis Coulters, National Guard Bureau-Army National Guard (NGB-ARNG) completed the combined ARS for RVAAP on 10 July 2002 (RVAAP-2.A.1).

Phase 2 involved a survey and inventory of all operational (formerly Active/Inactive [A/I]) ranges. The intent of the inventory was to collect detailed site specific information in the field from all installations, which delineated among other things, the operational range boundaries. As part of the operational inventory effort, the data were electronically uploaded to the Army Range Inventory Database (ARID) maintained by the USAEC. The Phase 2 Operational Range Inventory was performed for RVAAP during 2001 (RVAAP-2.A.1).

Phase 3 began as the US Army CTT Range/Site Inventory. However, due to congressional requirements stipulated in the NDAA, FY 2002 and consequent changes to DERP, the US Army CTT Range/Site Inventory evolved into a comprehensive inventory of other than operational ranges and sites with known or suspected UXO, DMM, or MC. Findings from the US Army CTT Range/Site Inventory are summarized in **Section 2.2**.

1.4.2 Site Inspection

The primary objective of the MMRP SI is to collect the appropriate amount of information to support one of the following recommendations concerning the presence of MEC and/or MC:

- No Further Action (NFA);
- Immediate Response; or

- Further Characterization

The secondary objectives of the SI are to:

- Collect information that allows for the refinement of the MMRP Cost to Complete (CTC) estimates by the US Army;
- Upload SI analytical data into the Environmental Restoration Information System (ERIS); and
- Populate the Munitions Response Site Prioritization Protocol (MRS-PP) with background information and analytical data, as appropriate, and calculate a draft Protocol score for each MRS.

1.5 Report Organization

This HRR report consists of the following sections: **Section 1** provides an introduction including the authority, purpose and scope of the project, project drivers, and background; **Section 2** provides a general description of the RVAAP facility and the MRSs, as well as pertinent historical details; **Section 3** outlines the data collection and document review process; **Section 4** presents the findings of the HRR research and review activities; **Section 5** provides details of the Conceptual Site Model (CSM); and **Section 6** provides conclusions. The following appendices include supporting information and analysis: **Appendix A** – Archive Documents; **Appendix B** – Interviews and Other Pertinent Correspondence; **Appendix C** – Munitions Technical Data Sheets; and **Appendix D** – Comment Response Table.

2.0 GENERAL SITE DESCRIPTION

2.1 Installation Description

RVAAP (Federal Facility Identification number: OH213820736) is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east northeast of the city of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the city of Newton Falls. The MRSs are solely located within Portage County. The Installation is approximately 17.7 kilometers (11 miles) long and 5.6 kilometers (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see **Figures 1 and 2**). The Installation is surrounded by several communities: Windham on the north; Garrettsville 9.6 kilometers (6 miles) to the northwest; Newton Falls 1.6 kilometers (1 mile) to the southeast; Charlestown to the southwest; and Wayland 4.8 kilometers (3 miles) to the south. Currently, the Installation is known as the Ravenna Training and Logistics Site (RTLS). During the operational years, prior to the RTLS, the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The RVAAP MMRP encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP, and therefore references to the RVAAP in this document are considered to be inclusive of the historical extent of the RVAAP, which is inclusive of the combined acreages of the current RTLS and RVAAP, unless otherwise specifically stated.

As of February 2006, a total of 20,403 acres of the former 21,683 acre RVAAP have been transferred to the National Guard Bureau (NGB) and have been subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site. This portion of the facility is identified as the RTLS. The current RVAAP consists of 1,280 acres scattered throughout the OHARNG RTLS which consist mostly of Installation Restoration Program (IRP) sites. These 1,280 acres consist of former industrial facilities that are being remediated and managed by the Base Realignment and Closure (BRAC) Office who have, among other responsibilities, the task of overseeing inactive status installations. Once this remaining acreage has been remediated, it will be transferred to the NGB for use by the OHARNG.

INSTALLATION LOCATION
Ravenna Army Ammunition Plant, OH

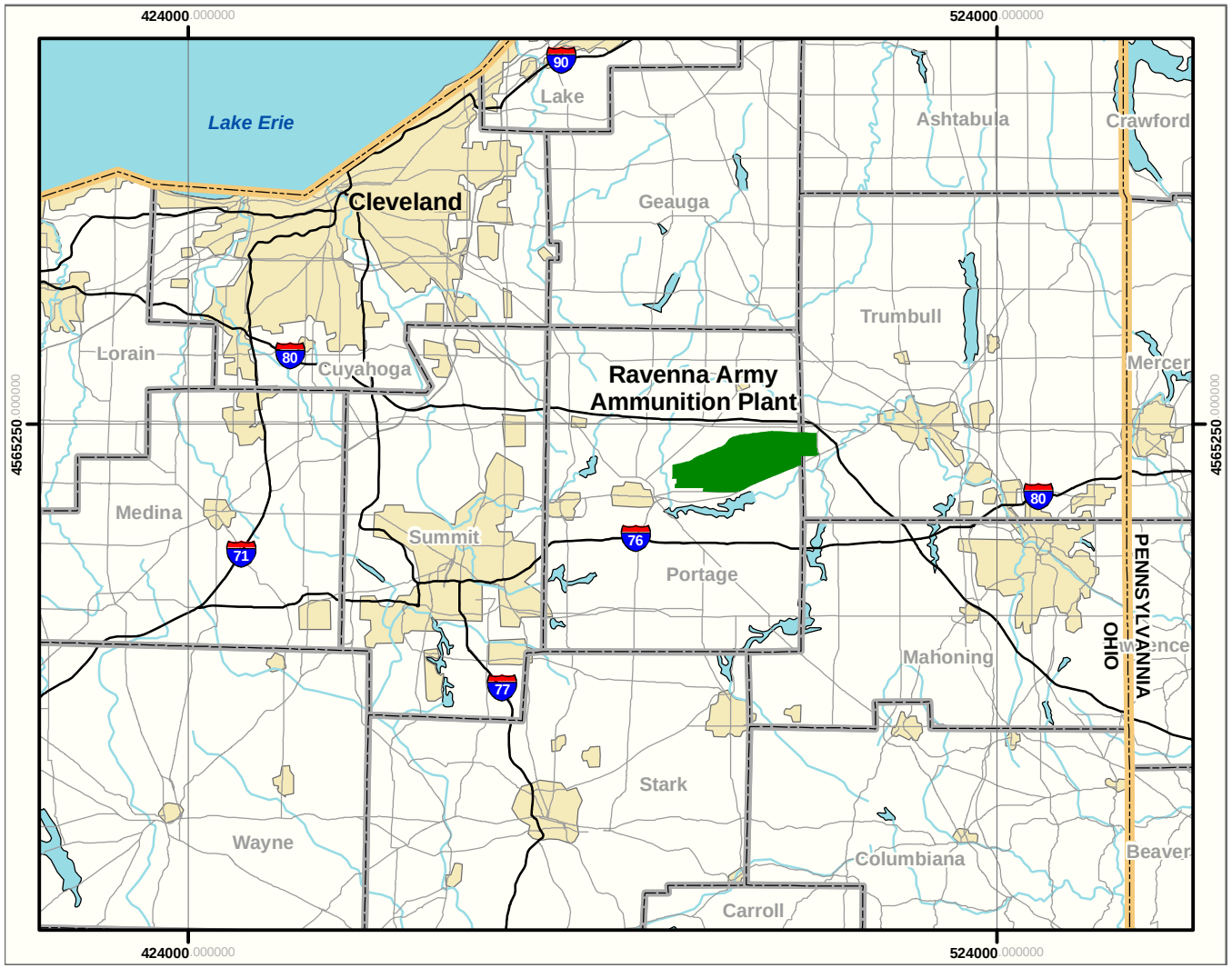


Figure 1

N
W E
S

- State Boundary
- County Boundary
- Urban Area
- Installation
- Interstate Highway
- Major Highway
- Stream
- Water

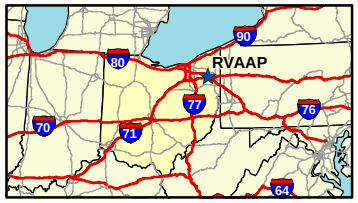
Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**100,000 Meter**

1:850,000

0 3 6 9 12 15 Miles

0 10 20 30 Kilometers

Installation Location
Ohio



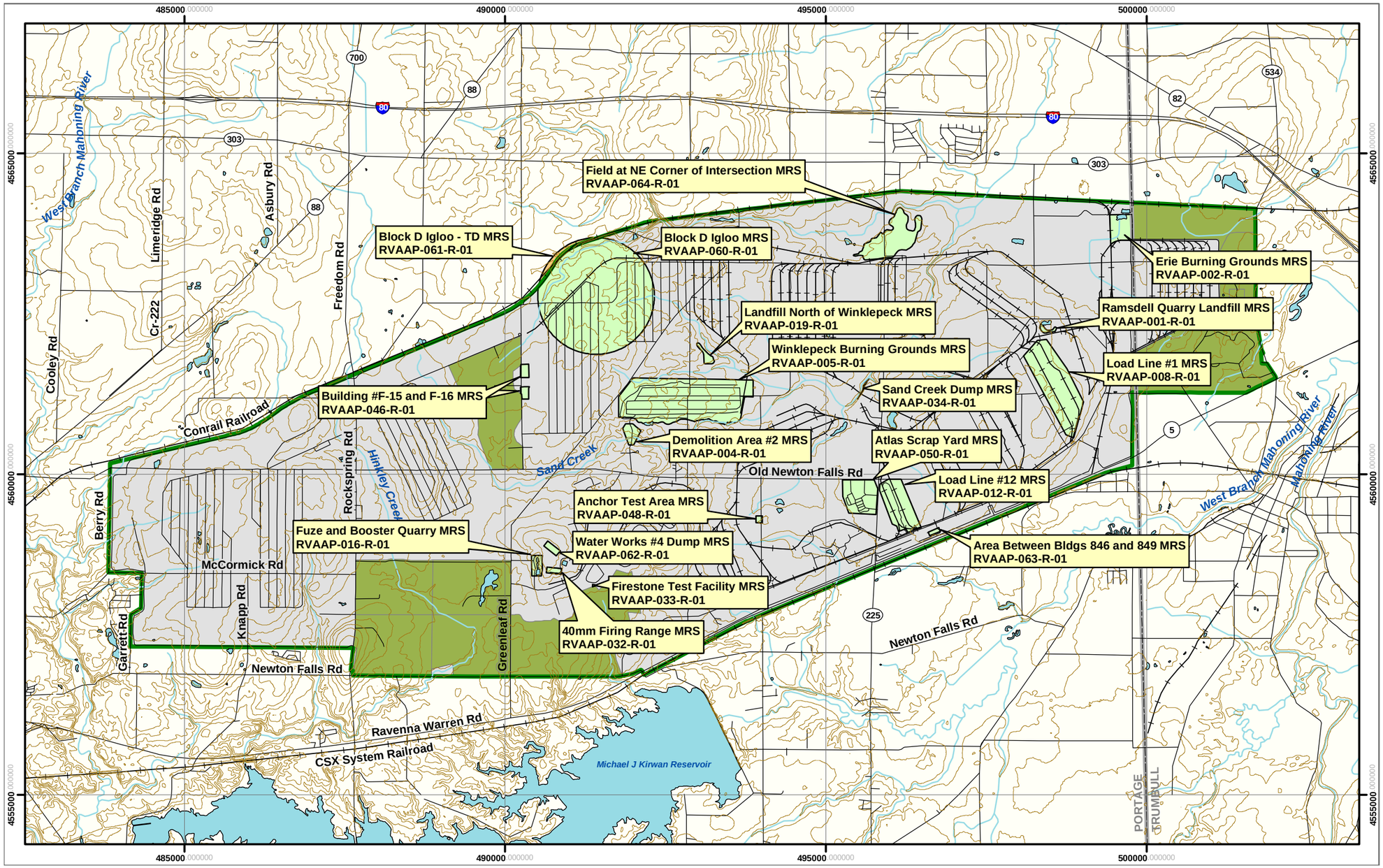
HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: October 2006
Edition: Final

LOCATIONS of the MRSs IDENTIFIED in the US ARMY CTT RANGE/SITE INVENTORY
Ravenna Army Ammunition Plant, OH

Figure 2



- Elevation Contour
- County Boundary
- Installation Boundary
- Railroad
- Road
- Stream
- Water

Area Status

- Operational Range
- Other than Operational
- MRS, Closed
- MRS,Transferred

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**5,000 Meter**
Contour Interval:	**500 Meter**

1:65,000

0 0.5 1 1.5 Miles
0 0.5 1 1.5 2 Kilometers

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: October 2006
Edition: Final

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2.2 MRS Descriptions

Listed below are the MRSs that were identified during the US Army CTT Range/Site Inventory.

- Ramsdell Quarry Landfill (RVAAP-001-R-01)[2],
- Erie Burning Grounds (RVAAP-002-R-01),
- Demolition Area #2 (RVAAP-004-R-01),
- Winklepeck Burning Grounds (RVAAP-005-R-01)
- Load Line #1 (RVAAP-008-R-01),
- Load Line #12 (RVAAP-12-R-01),
- Fuze and Booster Quarry (RVAAP-016-R-01),
- Landfill North of Winklepeck (RVAAP-019-R-01),
- 40mm Firing Range (RVAAP-032-R-01),
- Firestone Test Facility (RVAAP-033-R-01),
- Sand Creek Dump (RVAAP-034-R-01),
- Building #F-15 and F-16 (RVAAP-046-R-01),
- Anchor Test Area (RVAAP-048-R-01),
- Atlas Scrap Yard (RVAAP-050-R-01),
- Block D Igloo (RVAAP-060-R-01),
- Block D Igloo–TD (RVAAP-061-R-01),
- Water Works #4 Dump (RVAAP-062-R-01),
- Area Between Buildings 846 and 849 (RVAAP-063-R-01), and
- Field at the NE Corner of Intersection (RVAAP-064-R-01).

Descriptions of these MRSs, which have been taken directly from the US Army CTT Range/Site Inventory dated 20 November 2003, are presented in the following paragraphs. **Figure 2** provides the locations of the MRSs identified in the US Army CTT Range/Site Inventory. These descriptions may not reflect current site conditions or may contain information that is no longer accurate and correct. Descriptions of the current MRS site conditions are provided in **Section 4**.

Ramsdell Quarry Landfill (RVAAP-001-R-01)

Ramsdell Quarry Landfill is described as an unlined landfill covering 3.79 acres that is situated in the bottom of an abandoned quarry. The MRS is located to the north of Load Line #1 in the eastern

[2] Army Environmental Database-Restoration (AEDB-R) Number

portion of RVAAP and is collocated with an Installation Restoration Program (IRP) site (Army Environmental Database-Restoration [AEDB-R] Identification Number RVAAP-01). Originally (1946 through 1950), the MRS was used to thermally treat waste explosives from Load Line #1, and approximately 18,000 500-pound (lb) incendiary or napalm bombs through surface burning. Starting in 1976, the MRS was reported to have been used strictly as a non-hazardous solid waste landfill; and in 1978 to its closure in 1990, operated under a sanitary landfill permit issued by the State of Ohio. The US Army CTT Range/Site Inventory noted a data gap for the period of 1950-1976 where information was not available. The report also noted that numerous spent 81millimeter (mm) mortar rounds have been observed lying on the ground surface at the MRS, although a time period for this observation was not included in the report (RVAAP-2.A.5).

Erie Burning Grounds (RVAAP-002-R-01)

The Erie Burning Grounds is described principally as an undeveloped wetland area that covers approximately 33.93 acres located on the northeastern corner of the facility next to the Portage/Trumbull County line. The MRS, which operated between 1941 and 1951, was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (e.g., railcars) through open burning on the ground surface. According to the US Army CTT Range/Site Inventory, the ash residue was left on site. The report also noted that the MRS is associated with an IRP site (AEDB-R ID RVAAP-02) (RVAAP-2.A.6).

Demolition Area #2 (RVAAP-004-R-01)

Demolition Area #2 was described in the US Army CTT Range/Site Inventory as an undeveloped parcel that encompasses 14.91 acres located in the central portion of the facility north of Old Newton Falls Road and the load lines. The MRS was reported to contain a 1.5 acre interim Resource Conservation and Recovery Act (RCRA) unit that was used to demilitarize munitions.

From 1948 until 1991, the MRS was used to detonate large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized by any other means due to their condition. It was also reported that the MRS was used to bury white phosphorus and bombs. The types of bombs buried at the MRS were not disclosed. Detonation activities were conducted in pits excavated by a backhoe to a minimum depth of four feet (ft) below ground surface (bgs). After detonation, the area was policed and metal parts were picked up and removed, and the pit filled, mulched, and seeded. New pits were excavated for each activity.

The US Army CTT Range/Site Inventory reported that a live grenade was found on site (no date provided), and that in 1999/2000 a removal action was conducted. During the removal action, an unreported number of fuzes and components, burster tubes, and partial projectiles were removed from two small dump sites on the south side of Sand Creek and from a 1.5 acre area north of Sand Creek. At the 1.5 acre parcel, items were cleared to a depth of four ft bgs. In addition, the report noted that the MRS is collocated with an IRP site (AEDB-R ID RVAAP-04) (RVAAP-2.A.6).

Winklepeck Burning Grounds (RVAAP-005-R-01)

Winklepeck Burning Grounds encompasses 317.01 acres located in the central portion of the installation that were used between 1941 and 1992 to thermally treat munitions. Prior to 1980, open burning was conducted in pits, on pads, and occasionally along the roads. Munitions that were treated included Research Department Explosive (RDX), antimony sulfide, Composition B, lead azide, trinitrotoluene (TNT), propellants, and black powder. Typically, ash residue was abandoned at the site. Beginning in 1980 and continuing until 1992, open burns of scrap explosives, propellants, and explosives-contaminated materials were treated in raised refractory-lined trays, which were located within a 1.5 acre area (location not provided). According to interviews with installation personnel reported in the US Army CTT Range/Site Inventory, any munitions type produced at the installation may have been thermally treated at the burning grounds. The report also noted that the burning ground is associated with an IRP site (AEDB-R ID RVAAP-05).

Load Line #1 (RVAAP-008-R-01)

Load Line #1 is described as an undeveloped parcel encompassing approximately 163.62 acres located in the southeastern portion of the installation. The purpose of the line, which operated from 1941 to 1971, was to load various types of projectiles. In 2000, the majority of structures located at the MRS were demolished. According to the US Army CTT Range/Site Inventory, installation personnel have reported finding numerous black powder propellant pellets and, on one occasion, a 152mm casing. The report also noted that the MRS is associated with an IRP site (AEDB-R ID RVAAP-08) (RVAAP-2.A.8).

Load Line #12 (RVAAP-012-R-01)

Load Line #12 is described as an undeveloped parcel encompassing 77.58 acres located in the southeastern portion of RVAAP, a little over 1.5 miles southwest of Load Line #1. The line, which was in operation from 1941 to 1993, produced ammonium nitrate from 1941 to 1943, and again in 1946, while during the later years (1949 to 1993) the line was used to demilitarize artillery rounds. In 1999, approximately 110 90mm rounds were discovered buried several inches below the topsoil during an IRP

investigation. The rounds, which were removed and disposed of properly, were described as being composed of a shell and projectile that were void of high explosives (HE). According to the US Army CTT Range/Site Inventory, the reason for, and persons responsible for, disposing of the munitions was not determined. The report also indicated that the MRS is associated with an IRP site (AEDB-R ID RVAAP-12) (RVAAP-2.A.8).

Fuze and Booster Quarry (RVAAP-016-R-01)

The Fuze and Booster Quarry is an undeveloped parcel that encompasses 12.74 acres located in the southwestern portion of RVAAP, approximately 1.25 miles southwest of Demolition Area #2. The MRS, which operated from 1945 to 1975, consists of three elongated ponds, situated end to end and separated by berms, which were constructed within an abandoned rock quarry. Prior to the construction of the ponds, the quarry was reported to have been used for open burning of munitions. According to information reported in the US Army Range/Site Inventory, any munitions produced at the installation could have been disposed at the MRS. This would include rockets, bombs, fuzes, detonators, flares, missiles, grenades, landmines, medium and large caliber ammunition, explosives, mortars, propellant, practice ordnance, pyrotechnics, and small arms. The report also indicated that the MRS is associated with an IRP site (AEDB-R ID RVAAP-16) (RVAAP-2.A.9).

Landfill North of Winklepeck (RVAAP-019-R-01)

This MRS is reported to encompass 7.55 acres located in the central portion of the installation, less than one mile northeast of Demolition Area #2. The unlined landfill operated from 1969 until 1976 and was used to dispose of general plant refuse, including explosive wastes residue and open burn wastes generated at Winklepeck Burning Grounds. According to the US Army CTT Range/Site Inventory, some of the waste received from the Winklepeck Burning Grounds included flares and booster caps. The report also noted that the MRS includes an IRP site, which is listed as an AOC (AEDB-R ID RVAAP-19) (RVAAP-2.A.9).

40mm Firing Range (RVAAP-032-R-01)

The former firing range was described as encompassing 5.17 acres located in the southwestern portion of the installation, east and adjacent to the Fuze and Booster Quarry MRS. Reportedly, large caliber munitions were test fired at the range between 1969 and 1971. According to the US Army CTT Range/Site Inventory, installation personnel reported that UXO (not defined) exists on the MRS. The report also noted that the MRS is associated with an IRP site (AEDB-R ID RVAAP-32) (RVAAP-2.A.10).

Firestone Test Facility (RVAAP-033-R-01)

The Firestone Test Facility is situated within the Load Line 6 Fuze and Booster Area (IRP site AEDB-R ID RVAAP-33), which is located in the southwestern portion of the installation less than 0.25 miles to the east of the 40mm Firing Range MRS. The MRS (also referred to as the Shaped Charge Test Facility) is described as consisting of a pond where the shape charges were tested, and a range where tube-launched, optically-tracked, wire-guided (TOW) missiles and Dragon missiles were tested. The MRS, which operated from 1970 until 1992, encompasses approximately 0.25 acres (RVAAP-2.A.9).

Sand Creek Dump (RVAAP-034-R-01)

Sand Creek Dump is described as a 0.85 acre construction landfill centrally located in the eastern half of the installation, situated on the banks of Sand Creek. The dump, which was in operation from 1950 to 1960, was reported by former workers to have been a construction landfill for concrete, wood, asbestos debris, lab bottles, 55-gallon drums, and fluorescent light tubes. Construction and other debris is reportedly exposed at the landfill surface, although it is understood to be covered by vegetation. During removal activities performed in October 2003 under the IRP, two demilitarized 75mm rounds were discovered at the site. According to the US Army CTT Range/Site Inventory, the MRS is associated with an IRP site (AEDB-R ID RVAAP-34) (RVAAP-2.A.5).

Building #F-15 and F-16 (RVAAP-046-R-01)

The MRS encompasses 12.23 acres located in the northwestern portion of RVAAP, less than one mile northwest of Demolition Area #2. Operations at the MRS were conducted between 1941 and 1974, and included the testing of explosives produced at the installation. According to the US Army CTT Range/Site Inventory, Building F-16 has been demolished while Building F-15, although in poor condition, remains standing. The report noted that large caliber shells void of HE have been found outside the building. The report further noted that the MRS is associated with an IRP site (AEDB-R ID RVAAP-46) (RVAAP-2.A.11).

Anchor Test Area (RVAAP-048-R-01)

The Anchor Test Area encompasses approximately 2.57 acres located in the southeastern portion of the installation, less than 1.25 miles southeast of Demolition Area #2. The MRS is described as consisting of several dirt mounds and a sandpit. Operations at the MRS consisted of test firing experimental munitions into the ground to drive anchors for ropes and cables. The area was used from approximately 1941 to 1952. According to the US Army CTT Range/Site Inventory, metal debris of unknown origin

has been found in the area. The report further noted that the MRS has an associated AOC within the IRP (AEDB-R ID RVAAP-48).

Atlas Scrap Yard (RVAAP-050-R-01)

The Atlas Scrap Yard encompasses approximately 66.04 acres located in the southeastern portion of the installation, west and adjacent to the Load Line #12 MRS. The MRS is an old construction camp that was built to house workers during the construction of the installation; for this purpose, the MRS was used from approximately 1940 to 1969. Following World War II (WWII), the majority of buildings were demolished and the area became a scrap yard for miscellaneous materials. According to the US Army CTT Range/Site Inventory, UXO (not identified) was found on site during an RI. The report noted that in 2003, most of the ordnance and explosives (OE), OE scrap, and UXO had been sorted and removed from the MRS. Accounts from interviews with installation personnel provided in the report indicate that any of the munitions produced or used at the plant may have been disposed of in this area including: small arms, explosives, pyrotechnics, propellants, mortars, medium and large caliber munitions, landmines, hand grenades, flares, bombs, detonators, or fuzes. The report further noted that the MRS has an associated AOC within the IRP (AEDB-R ID RVAAP-50).

Block D Igloo (RVAAP-060-R-01)

This MRS is the consequence of a storage igloo (Number 7-D-15) that exploded on 24 March 1943. Igloo 7-D-15 is situated within "D" block, which is located in the northwestern portion of the installation, less than 0.25 miles northwest of Demolition Area #2. The "D" igloos were used to store OE throughout the history of the installation, starting in 1941. According to the US Army CTT Range/Site Inventory, the detonation of bombs in Igloo 7-D-15 caused multiple fatalities and sent shrapnel and demolished material up to 2.9 miles away, off installation property. However, a majority of the demolished material was reported to have landed 1.3 to 2 miles to the northeast of the igloo, within installation boundaries. The material consisted of concrete fragments, parts of clothing, and an oil filter from a vehicle. The report further noted that cluster bombs may have been propelled from the igloo, as well.

A map created by installation personnel after the explosion, depicted the spread of debris from the blast. However, the map did not identify the location(s) of UXO found on the property that had been deposited by the explosion. Installation personnel also indicated that the site was considered clean of UXO some time after the explosion; however, documentation and confirmation was not provided in the US Army CTT Range/Site Inventory. Based on the report, the MRS boundary was established by

applying a 3,000 ft diameter [sic] circle ("for high explosive bombs") centered on and surrounding Igloo 7-D-15; this resulted in a total acreage of approximately 622.24 acres. A portion of the circle extends beyond the installation boundary and is considered separately as a transferred site (see Block D Igloo-TD) (RVAAP-2.A.12).

Block D Igloo–TD (RVAAP-061-R-01)

This MRS is comprised of the portion of the 3,000 foot diameter [sic] circle surrounding Igloo 7-D-15 that extends beyond the installation boundary. Acreage of the MRS is approximately 19.25 acres. The US Army CTT Range/Site Inventory reported that no UXO removal documentation had been identified. The report also noted that although the MRS could qualify as a Formerly Used Defense Site (FUDS), it was not on the FUDS list at the time of the inventory and, consequently, was included in the MMRP as a transferred site (RVAAP-2.A.11).

Water Works #4 Dump (RVAAP-062-R-01)

Water Works #4 Dump encompasses approximately 6.15 acres of undeveloped forested area located in the southwestern portion of the installation, immediately west of Water Works #4, and north of the Fuze and Booster Quarry MRS. According to the US Army CTT Range/Site Inventory, large caliber casings are scattered on the ground surface, as well as partially buried at the MRS. The report further noted that the origin and type of casings located at the MRS are unknown, although installation personnel estimated disposal to have taken place between 1941 and 1949. Based on the inventory report, no UXO investigations have been performed at the MRS (RVAAP-2.A.5).

Area Between Buildings 846 and 849 (RVAAP-063-R-01)

This MRS encompasses approximately 2.65 acres of open space situated between Buildings 846 and 849, which are located along the southern property boundary in the central portion of the installation. According to the US Army CTT Range/Site Inventory, the area consists of disturbed land that was being used at the time of the inventory as an industrial/production facility, while the buildings (circa 1940s) were actively used for the storage of munitions and related materials. The report noted that vehicles and equipment cross the MRS to be stored and to retrieve stored items from the nearby buildings (i.e., 846 and 849). Previous site activities may have included the burning of construction debris and rubbish.

In 1996, one "hammerhead" anti-personnel bomb (loaded with HE) was found by OHARNG personnel lying on the ground surface at the MRS. Other munitions reportedly found lying on the ground surface include one inert 175mm projectile; the date and entity who found the item were not provided. Based

on the US Army CTT Range/Site Inventory, no site investigations have been conducted at the MRS and the site has not been evaluated for UXO or DMM (RVAAP-2.A.10).

Field at the NE Corner of Intersection (RVAAP-064-R-01)

This MRS encompasses approximately 91.86 acres of open field situated adjacent to the northern property boundary in the central portion of the installation. The MRS is situated just north of the intersection of Paris-Windham Road and Smalley Road. From 1941 until 1991, the MRS was leased for agricultural use, and in 1992 the land was reassigned to RTLS.

In 1996, one anti-tank landmine (14 to 16 inches in diameter, pressure detonated, and potentially containing HE) was discovered by OHARNG personnel in the north-central portion of the MRS and was subsequently removed by the US Army Corps of Engineers (USACE). According to a statement attributed to OHARNG personnel, practice landmines were filled with HE. However, resolution of the contents of the landmine was not provided to the OHARNG after removal by the USACE. According to the US Army CTT Range/Site Inventory, this type of mine was refurbished at RVAAP prior to and during the Korean War (RVAAP-2.A.6).

2.3 Updated MRS Status

The US Army CTT Range/Site Inventory identified eighteen closed sites and one transferred site eligible for action under the MMRP at RVAAP. Of the nineteen MMRP-eligible sites, the Winklepeck Burning Grounds [RVAAP-005-R-01]) MRS has since been removed and funded under BRAC and the IRP. Chemical contamination at the MRS is being addressed under the IRP, whereas explosive safety is being addressed under BRAC. Further, the site was turned over to the OHARNG for operation as the Mark 19 Range. Because of its current operational status and the ongoing releases occurring after 30 September 2002, it was determined this site is not eligible for evaluation as part of the RVAAP SI. Therefore, this site will not require further investigation under the MMRP, decreasing the total number of MRSs being addressed under the SI to eighteen.

Additional information collected during this HRR resulted in the modification of the original site descriptions, acreage, and/or boundaries identified during the US Army CTT Range/Site Inventory. The MRSs where site specific conditions have changed include the following:

- Ramsdell Quarry Landfill (RVAAP-001-R-01), realignment of the MRS boundary and increase in acreage from 3.79 acres to approximately 13.43 acres;

- Demolition Area #2 (RVAAP-004-R-01), realignment of the MRS boundary and increase in acreage from 14.91 acres to approximately 32.95 acres;
- Load Line #1 (RVAAP-008-R-01), realignment of the MRS boundary and decrease in acreage from 163.62 acres to approximately 4.63 acres;
- Load Line #12 (RVAAP-012-R-01), realignment of the MRS boundary and decrease in acreage from 77.58 acres to approximately 1.0 acre;
- Landfill North of Winklepeck (RVAAP-019-R-01), realignment of MRS boundary and increase in acreage from 7.55 acres to approximately 14.05 acres; and
- Firestone Test Facility (RVAAP-033-R-01), realignment of the MRS boundary and increase in acreage from 0.25 acres to approximately 0.91 acres.

The revised MRS boundaries are provided in **Figure 3**. The revised MRS descriptions and site boundaries are discussed in **Section 4.0**, **Summary of Historical Records Review**.

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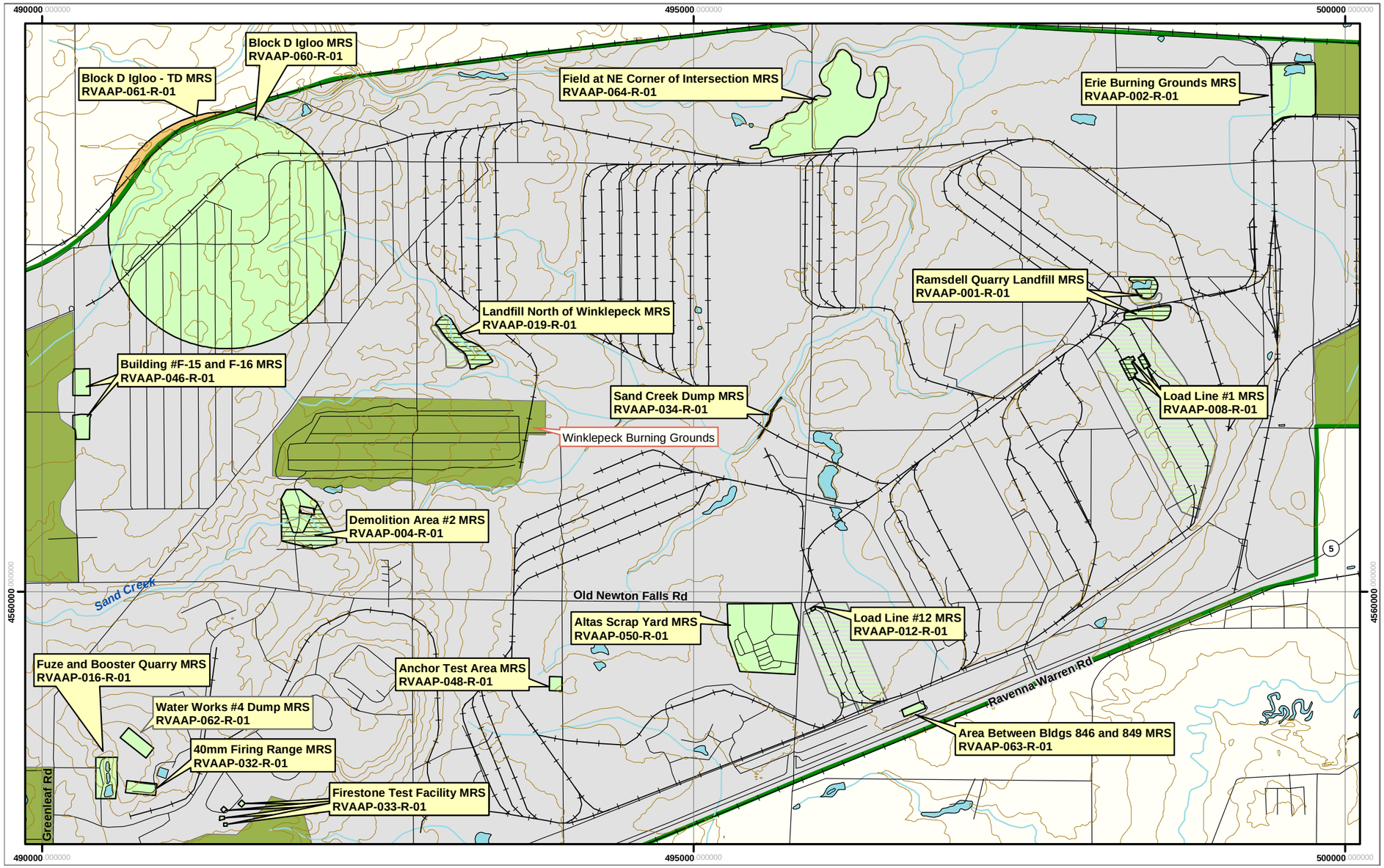
HRR REVISED LOCATIONS of MRSs
Ravenna Army Ammunition Plant, OH

Figure 3



N
W E
S

- Elevation Contour
- Installation Boundary
- Railroad
- Road
- Stream
- Water

Area Status

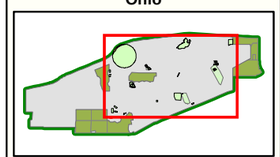
- Operational Range
- Other than Operational
- MRS, Closed
- MRS, Transferred
- MRS, Revised in the HRR
- MRS, Identified in the CTT

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**5,000 Meter**
Contour Interval:	**500 Meter**

1:32,000

0 0.25 0.5 0.75 Miles
0 0.25 0.5 0.75 1 Kilometers

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^{2}M)

Date: January 2007
Edition: Final (Revised)

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3.0 DATA COLLECTION AND DOCUMENT REVIEW PROCESS

Five primary sources of information were researched as part of the data collection effort for this HRR report, which included:

- Installation Site Visit and Interview of Installation Personnel;
- Review of an existing Archive Search Report (ASR);
- Review of the current Administrative Record (AR);
- Internet Searches; and
- Review of the US Army CTT Range/Site Inventory and supporting documentation.

3.1 Data Collection Methods

3.1.1 RVAAP Site Visit and Interviews with Installation Personnel

engineering-environmental Management, Inc. (e^2M) performed a site visit at RVAAP from 12-14 December 2005 to review records maintained at the Installation, interview pertinent facility personnel, and to perform visual inspections of the MRSs. The intent of the record review was as follows:

- gather any on-site records pertaining to the MRSs regarding past and present use(s);
- gather documentation identifying, verifying, and establishing the physical limits and potential for MEC and MC for each MRS; and
- determine the environmental status and associated risk(s) for each MRS.

Two onsite repositories were searched at RVAAP: Building 1037, which contained the complete AR and historical Installation documents, maps, and photographs; and Building ESK 01located at the RTLS, which contained maps and photographs.

Installation personnel were interviewed to supplement and address data gaps identified in the US Army CTT Range/Site Inventory.

Interviews were conducted with the following Installation personnel:

- Jim McGee, On Site Facilities Maintenance Supervisor, MKM Engineers, Inc.;
- LTC Tadsen, Deputy Installation Commander, RTLS-OHARNG;
- Gail Harris, On Site Archival Librarian, SpecPro Environmental Services;
- Tim Morgan, Environmental Engineer, RTLS-AGOH; and
- Irv Venger, Facility Manager, US Army.

The interview record is provided in **Appendix B**.

Finally, a windshield tour of the Installation was conducted to gain a perspective of the physical layout of each MRS and document current site conditions.

3.1.2 RVAAP Archive Search Report

In 2004, the USACE, Rock Island District conducted an ASR under the authority of DERP to evaluate the presence of OE located at RVAAP. The investigation focused on the 21,683 acres that comprised the former industrial facility. The purpose of the investigation was to characterize the site for potential OE presence, to include conventional ammunition and chemical warfare materiel (CWM). Research efforts began with a thorough review of all reports, historical documents, and reference material gathered during the archival records search. During the review, an effort was made to focus on all munitions that may have been manufactured, tested or destroyed on the site. In addition to the on site sources of information, the investigators conducted research at the following locations:

- National Archives;
- Military History Institute;
- US Army Center for Military History;
- Explosive Ordnance Disposal (EOD) Units; and
- Local historical societies, libraries and museums.

(Note: Given that a fairly extensive archive search was conducted by the USACE, these efforts were not duplicated during this HRR.)

3.1.3 RVAAP Administrative Record

The RVAAP AR was reviewed to identify existing documents that contained information specific to the facility itself, MRSs, and potential types of MEC and MC that could reasonably be expected to be found at each site. Documents contained in the AR provided the following information:

- Site-specific information on the history of the Installation.
- Site-specific information on the physical conditions (climate, geology/hydrogeology, topography, hydrology, soil, and vegetation) existing at the MRSs.
- Area-specific land use and human receptor information.
- Area-specific ecological setting and receptor information.
- Area-specific environmental contamination information.
- Area-specific MEC removal and sampling actions.

3.1.4 Internet Searches

Internet research was conducted to supplement the archival data and information retrieved from the Installation repositories. The list below presents web sites searched for information on RVAAP.

- US Census: http://www.census.gov
- Global Security: http://www.globalsecurity.org/military/facility
- http://www.uxoinfo.com/uxoinfo/ordcategories.cfm#missiles
- http://en.wikipedia.org/wiki/Shaped_charge
- http://www.tpub.com/content/explosives/TM-43-0001-37/css/TM-43-0001-37_88.htm
- http://www.fas.org/
- www.rvaap.org/cleanup.html

3.1.5 US Army CTT Range/Site Inventory

The US Army CTT Range/Site Inventory at RVAAP focused on non-operational ranges and other sites with known or suspected UXO, DMM or MC, except where such properties were eligible as FUDS or BRAC sites. Where applicable, both FUDS and BRAC properties were inventoried under separate Phase 3 inventory efforts. As previously stated, nineteen MRSs were identified during the US Army CTT Range/Site Inventory. Since the completion of the inventory, Winklepeck Burning Grounds has been entered into and is being addressed under BRAC and IRP funding and will not require further investigation under the MMRP. Therefore, the total number of MRSs being addressed under this SI has been reduced to eighteen.

The objectives of the US Army CTT Range/Site Inventory were to identify and map all non-operational ranges and other sites with known or suspected UXO, DMM or MC, collect and upload data into ARID, prepare an assessment of the explosives safety risk using the USACE Risk Assessment Code (RAC), and determine which sites are MMRP eligible. The data collection portion of the US Army CTT Range/Site Inventory consisted of a site visit, historical records review, and interviews with installation personnel. The US Army CTT Range/Site Inventory and previously collected records were reviewed for this HRR. A summary of the MRSs is provided in **Section 2.2**.

During the US Army CTT Range/Site Inventory performed at RVAAP, 2,879 acres were identified as operational ranges/sites where OHARNG personnel performed vehicular training and dismounted troop training. The remaining balance of the land at the time was either unused or used by RVAAP for storage of equipment and munitions. Based on the findings of the US Army CTT Range/Site Inventory, most of the materials stored by RVAAP on RTLS land would be removed by the end of 2004. Under the US

Army CTT Range/Site Inventory, all property formerly incorporated as part of the original RVAAP Installation, including that property currently managed by the OHARNG (i.e., RTLS), was assessed during the inventory (RVAAP-2.A.4). For the purposes of the HRR, this process will be continued.

3.2 Archival/Historical and Other Records Collected

Table 1 presents the relevant data collected from the various sources outlined above for the development of the RVAAP HRR and CSM.

Table 1: Summary of Documents and Relevant Information

Document Title	MEC	MC	Environmental
Installation Assessment of RVAAP, Report No. 132. USATHAMA, November 1978.			
Phase I RI, Sampling and Analysis Plan Addendum for High Priority Areas of Concern for RVAAP, OH. SAIC, July 1996.			
Results of Preliminary Reconnaissance Archaeological Survey of RVAAP, Portage and Trumbull Counties, OH. Report No. BLA R12-1982. Cultural Resources Research Laboratory, 10 September 1982.			
Reassessment of RVAAP, OH. Report No. 132R. Chemical Systems Laboratory, December 1982.			
RVAAP Supplemental Photographic Documentation of Archetypal Buildings, Structures, and Equipment for US Army Materiel Command National Historic Context for World War II Ordnance Facilities. Geo-Marine, Inc., April 1995.			
PA for the Characterization of Areas of Contamination, RVAAP, OH. SAIC, February 1996.	X[1]	X	X
Phase I RI Report for the Phase I RI of High Priority Areas of Concern at RVAAP, OH. Volume I. SAIC, February 1998.		X	X
Draft Technical Memorandum, Human Health and Ecological Risk Assessment Approach for the Load Line 1 and Load Line 12 Phase II RIs, RVAAP, OH. SAIC, January 2001.			
Preliminary Draft Feasibility Study for Central Burn Pits, RVAAP, OH. SAIC, November 2005.			
Preliminary Draft Feasibility Study for Fuze and Booster Quarry Landfill/Ponds, RVAAP, OH. SAIC, November 2005.		X	X
Preliminary Draft Feasibility Study for Load Line 12, RVAAP, OH. SAIC, November 2005.		X	X
Preliminary Draft Feasibility Study for Open Demolition Area No. 2, RVAAP, OH. SAIC, November 2005.		X	X
Final Phase I MEC Density Survey after Action Report at Winklepeck Burning Grounds, RVAAP, OH. MKM Engineers, Inc., 1 March 2005.			
Final Phase II Remedial Investigation Report for the Open Demolition Area No. 2 at RVAAP, OH. Volume I. Spec Pro, Inc. and SAIC, September 2005.			
Final Phase I/Phase II RI of the Fuze and Booster Quarry Landfill/Ponds, Volume One – Main Report and Volume II Appendices, RVAAP, OH. Spec Pro, Inc. and SAIC, November 2005.			
Issue Paper: Proposed Future Use of Areas of Concern (AOC) at RTLS. March 2003.			

Table 1: Summary of Documents and Relevant Information (continued)

Document Title	MEC	MC	Environmental
Ordnance and Explosives Archives Search Report for RVAAP, OH. USACE Rock Island District. June 2004.	X	X	X
MMRP Site Inspections Level of Effort for Regulatory Involvement. Thomas Symalla and USACE. September 2004.			
RVAAP Final Director's Findings and Orders. US Department of the Army. June 2004.			
Military Munitions Response Program Site Inspection (kick-off meeting presentation). USACE Omaha District and I. October 2005.			
Installation Action Plan for RVAAP, Fiscal Year 2001. Mark C. Patterson. 2001.			
Soil, Groundwater, Surface water Characterization for the Open Burning and Open Detonation Areas, RVAAP, OH. US Army Environmental Hygiene Agency. May 1992.		X	X
US Army CTT Range/Site Inventory, RVAAP, OH. I. November 2003.	X	X	X
Building the Ravenna Ordnance Plant – A Job History. Ordnance Department USA.			
The World War II Ordnance Department's Government-Owned Contractor-Operated Industrial Facilities: Ravenna Ordnance Plant Historic Investigation. USACE Fort Worth District and Geo-Marine, Inc. December 1995.			
Pistol Range Pictures			
Anchor Range Pictures			
PW and SC pictures			
RVAAP. Historic Photographs collected from the RVAAP Administrative Record. Dates Unknown.			
Werner, Phil. Site Photographs taken of MRSs at RVAAP, OH. December 2005.			
Photograph: ROP9_A Factory Worker loading finished shells on to dolley			
Demilitarization Key (Correspondence)			
DOC060110 1984 – 1990 Inventory of Demil Supplies			

Table 1: Summary of Documents and Relevant Information (continued)

Document Title	MEC	MC	Environmental
Environmental Assessment Thermal Decomposition and Demolition of Load Line 11, Building No. F-15 and Buildings 1200, S-4605, and T-4602, RVAAP, OH. MKM Engineers, Inc. September 2004.			
Final Phase I Remedial Investigation Report for Erie Burning Grounds (RVAAP-02) at the RVAAP, OH. SAIC. December 2001.			
Final Phase I Remedial Investigation Report for Erie Burning Grounds (RVAAP-02) at the RVAAP, OH. SAIC. September 2005.	X	X	X
Final Phase II Remedial Investigation Report for Erie Burning Grounds (RVAAP-02) at the RVAAP, OH. SAIC. September 2005.	X	X	X
Final Phase II Remedial Investigation Report for Erie Burning Grounds (RVAAP-02) at the RVAAP, OH. Volume II Appendices A through O. SAIC. September 2005.	X	X	X
Final Phase I/Phase II Remedial Investigation of the Fuze and Booster Quarry Landfill/Ponds (RVAAP-16), RVAAP, OH. Volume I Main Report. SAIC and Spec Pro, Inc. November 2005.	X	X	X
Final Phase I/Phase II Remedial Investigation of the Fuze and Booster Quarry Landfill/Ponds (RVAAP-16), RVAAP, OH. Volume II Appendices A through N. SAIC and Spec Pro, Inc. November 2005.			
FY 2006 RVAAP Installation Action Plan, RVAAP, OH. BRAC Hampton Field Office, Malcolm Pirnie, Inc, Management Solutions, OHARNG, Ohio EPA, RVAAP, US Army Environmental Center, USACE Louisville. July 2005	X	X	X
Hazardous and Medical Waste Study No. 37-EF-5360-99, Relative Risk Site Evaluation for Newly added Sites at the RVAAP, OH. Volumes I and II. US Army Center for Health Promotion and Preventive Medicine. October 1998.			
Final Focused Feasibility Study for the Remediation of Soils at Load Lines 1 through 4 at the RVAAP, OH. Shaw Environmental, Inc. May 2005.		X	X
Final Phase II Remedial Investigation Report for the Load Line 1 at the RVAAP, OH. SAIC. Volumes I and II. June 2003.	X	X	X
HTRW Drilling Sample Log for LL1, LL2, and LL3. November 2004.			
Final Phase II Remedial Investigation Report for Load Line 12 at the RVAAP, OH. Volumes I and II. SAIC. March 2004.		X	X
Final Phase II Remedial Investigation Supplemental Report for Load Line 12 (RVAAP-12) at the RVAAP, OH. SAIC. November 2005.		X	X

Table 1: Summary of Documents and Relevant Information (continued)

Document Title	MEC	MC	Environmental
Legal Description – Ravenna Training and Logistic Site. SAIC. March 2003.			
RCRA Closure, Field Investigation Report for the Deactivation Furnace Area, Open Detonation Area, Building 1601, and Pesticides Building, RVAAP, OH. SAIC. June 1998.			
Suspected Mustard Agent Burial Area of Concern (RVAAP-28), Report on the Groundwater monitoring well installation and groundwater sampling at the suspected mustard agent burial area of concern, RVAAP, OH. Spec Pro, Inc. July 2005.			
Geophysical Survey Results, Possible Mustard Agent Burial Site (RVAAP-28), Burial Site 1. SAIC. April 1998.			
Geophysical Survey Results, Possible Mustard Agent Burial Site (RVAAP-28), Burial Site 2. SAIC. March 1998.			
Final Phase I Remedial Investigation Report for the NACA Test Area at the RVAAP, OH. SAIC. December 2001.			
Final Paris-Windham Road Dump RD/RA Report (revised February 2005), RVAAP, OH. MKM Engineers, Inc. March 2004.			
Final Report on the Groundwater Investigation of the Ramsdell Quarry Landfill, RVAAP, OH. SAIC. August 2000.		X	X
Final Phase I Remedial Investigation Report for the Ramsdell Quarry Landfill at the RVAAP, OH. SAIC 2005.	X	X	X
Final Proposed Plan for the Winklepeck Burning Grounds, RVAAP, OH. SAIC. December 2005.			
Final Phase III Remedial Investigation Report for the Winklepeck Burning Grounds, RVAAP, OH. SAIC. March 2005.			
Preliminary Draft Remedial Investigation Report for Load Line 6, RVAAP, OH. MKM Engineers, Inc. December 2005.			
Final Remedial Investigation Report for the Central Burn Pits (RVAAP-49) at the RVAAP, OH. Volume I. MKM Engineers, Inc. September 2005.			
U.S. Census Bureau. 2004. Population Finder-American Fact Finder. Available online: <http://factfinder.census.gov/servlet/SAFFPopulation>. Accessed 2 February 2006.			

Table 1: Summary of Documents and Relevant Information (continued)

Document Title	MEC	MC	Environmental
Preliminary Draft Report of the Characterization of 14 Areas of Concern, Characterization of Anchor Test Area. MKM Engineers, Inc. August 2005.			
Preliminary Draft Report of the Characterization of 14 Areas of Concern, Characterization of Atlas Scrap Yard. MKM Engineers, Inc. August 2005			
Final Phase II MEC Clearance and Munitions Response At Winklepeck Burning Grounds, 12/16/2005, MKM Engineers, Order No W52H09-04-F-5120; Contract No. GS-10F-0542N.	X		

[1] = 'X' Indicates the type of information contained in and referenced from each report.

4.0 SUMMARY OF HISTORICAL RECORDS REVIEW

The Installation was originally established in 1940 when 21,000 acres were purchased by the US Government. The installation was opened in December 1941/January 1942 with the primary missions of loading medium and large caliber artillery ammunition, bombs, mines, fuzes and boosters, primers, and percussion elements, as well as to provide depot storage. To meet both missions, the Installation was split into two separate units: the Portage Ordnance Depot for depot storage, and Ravenna Ordnance Plant for ammunition loading. In August 1943, the entire Installation was re-designated the Ravenna Ordnance Center, and in November 1945 it was again re-designated as the Ravenna Arsenal (RVAAP-2.A.2).

Industrial operations at RVAAP consisted of 12 munitions assembly facilities referred to as load lines. Load Lines 1 through 4 were used to melt and load TNT and Composition B into large caliber shells and bombs, while Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. Load Line 12 was originally used to produce ammonium nitrate for explosives and fertilizers, and was later used as a weapons demilitarization facility (i.e., TNT recovery facility). Facilities were operated by Atlas Powder Company until the end of WWII when the operation of the plant was turned over to the Ordnance Department. From 1946 to 1949, the ammonium nitrate line was operated by the Silas Mason Company for the production of ammonium nitrate fertilizer (RVAAP-2.A.2).

The plant was placed in standby status in 1950 and operations were limited to the renovation, demilitarization, and normal maintenance of equipment, along with storage of ammunition and components. Beginning in April 1951, facility operations were contracted with Ravenna Arsenal, Inc., a subsidiary of the Firestone Tire and Rubber Company of Akron, Ohio (RVAAP-2.A.2). The plant was reactivated during the Korean Conflict for the loading and packing of major caliber shells and components. By 1957, the plant was again placed in standby status (RVAAP-2.A.2).

In October 1960, the facility underwent renovation to establish facilities in the ammonium nitrate line for the processing and explosive melt-out of bombs. These operations, which commenced in January of 1961, established the first reclamation operation of this type in the ammunition industry. However, by July of 1961, the facility was again deactivated and in November 1961 the arsenal was divided. The industrial portion was re-designated as the Ravenna Ordnance Plant while the entire facility was designated the Ravenna Army Ammunition Plant (RVAAP-2.A.3).

With hostilities increasing in Southeast Asia, RVAAP was reactivated in May 1968 to load, assemble, and pack munitions on three load lines and two component lines. By 1972, RVAAP was deactivated again and only maintained the mission of demilitarizing M7IAI 90mm projectiles. Demilitarization activities lasted from June 1973 through March 1974 (RVAAP-2.A.3).

Through the 1980's, responsibility of facility operations changed hands several times. In October 1982, Physics International Company, a subsidiary of Rockor Incorporated (Inc.) (Rockor), purchased Ravenna Arsenal, Inc. from the Firestone Company. In June 1985, Rockor was purchased by the Olin Corporation. During this period, the demilitarization of various munitions continued on a periodic basis through 1992 (RVAAP-2.A.3). By 1993, the Installation's status changed from inactive-maintained to modified caretaker (i.e., limited mission). Currently, MKM Engineers is the modified caretaker contractor.

As of February 2006, a total of 20,403 acres of the former 21,683-acre RVAAP has been transferred to the NGB and subsequently licensed to the OHARNG for use as a military training site. This portion of the facility is identified as the RTLS. The current RVAAP consists of 1,280 acres that are scattered throughout the RTLS, which are managed by the BRAC Office. Once this remaining acreage is restored/remediated, it will be transferred to the NGB for use by the OHARNG.

Along with the production activities, the facility also operated several landfills and open burning/open detonation areas (OB/OD) which received a variety of explosives wastes, ash, dunnage, and munitions. At some of the landfills, the explosive wastes were thermally treated. The OB/OD operations were conducted to desensitize and/or destroy waste materials ranging from raw explosives to explosives contaminated wastes (e.g., rags, cardboard, etc.). Prior to 1980, these items were typically burned directly on the ground surface. Thereafter, waste explosives and munitions were either burned in metal refractory-lined trays or in a deactivation furnace located at the Winklepeck Burning Grounds.

A chronological list of significant historical events is provided in **Table 2**.

Table 2: Timeline of Significant Events

Time Period	Significant Event
1940 – 1950	• 1940: US Government purchased 21,000 Acres to establish Installation. • December 1941: Installation opened as Portage Ordnance Depot and Ravenna Ordnance Plant. • 1943: Installation redesignated Ravenna Ordnance Center. • 1945: Facility operated by Atlas Powder Company.

	• 1946 – 1949: Facility operated by Silas Mason Company and produced ammonium nitrate fertilizer.
1950 – 1960	• 1950: Facility placed in stand-by status. • Korean Conflict: Facility reactivated for loading and packing major caliber shells. • 1957: Facility placed in stand-by status.
1960 – 1970	• 1961: Facility began the processing and explosive melt-out of bombs. • 1961: Facility deactivated and then divided. Entire facility became Ravenna Army Ammunition Plant. • 1968: Facility reactivated and supported loading, assembling and packing munitions.
1970 – Present	• 1972: Facility deactivated, except for demilitarization. • 1973 – 1974: Demilitarized M71A1 90mm projectiles. • 1974 – 1992: Demilitarization of various munitions continued. • 1993: RVAAP status changed to modified caretaker. • 1999: 16,164 Acres transferred to NGB for use as RTLS. • 2002: Additional 3,774 Acres of uncontaminated property transferred to the OHARNG. • 2002-2003: OHARNG resurveyed the installation and determined that the Installation encompasses 21,683 acres • 2006: NGB controls 20,403 acres of the former RVAAP, which are subsequently licensed to the OHARNG for use as a military training site. This portion of the facility is identified as the RTLS. The current RVAAP consists of 1,280 acres that are scattered throughout the RTLS.

4.1 MRS Findings

A number of environmental investigations have been conducted at RVAAP; the first starting in 1978 with investigations still ongoing. Initial investigations were conducted to determine if on-site environmental contamination had resulted from historic operations involving manufacturing, storage, testing, and/or disposal activities, and to assess whether or not that contamination had migrated to groundwater. Further, these investigations focused on identifying AOCs and in later years under the IRP, focused on identifying site-specific contaminants of concern (COCs), contaminated media, and receptor exposure scenarios. In general, where munitions were a potential concern, the investigations performed laboratory analyses for explosives and metal constituents, among other analytes.

In many instances, these IRP AOCs are collocated with the MRSs that will be addressed in this HRR. The findings of these IRP investigations are summarized in the sections to follow that discuss each MRS, where applicable.

The MRS descriptions provided in the following sections represent the latest information known for each site and may differ substantially from the MRS descriptions provided in **Section 2**. The information provided in **Section 2** was taken verbatim from the US Army CTT Range/Site Inventory and may not represent current site conditions and may contain information that is no longer accurate and correct concerning the MRSs.

4.1.1 Ramsdell Quarry Landfill (RVAAP-001-R-01)

4.1.1.1 Summary of Findings

The Ramsdell Quarry Landfill MRS is described in the US Army CTT Range/Site Inventory as a 3.79 acre unlined landfill situated in the bottom of the quarry. However, the MRS footprint and landfill are shown on the inventory map located along the southern and western edge of the quarry. The US Army CTT Range/Site Inventory MRS footprint does not encompass the OB/OD area used to thermally treat explosives waste and munitions located in the bottom of the quarry to the north of the MRS footprint. Based on agreement among the Installation, stakeholders, USAEC, and USACE the MRS boundary has been moved to the north to encompass the entire quarry area including the OB/OD area and an area outside and south of the quarry that was identified by the Installation as potentially containing MEC.

Under the MMRP, any MEC that may be present in a capped and closed landfill is not eligible since this is considered a response complete action under the IRP. In such cases, the IRP action fully addressed all MEC/MC co-located at the IRP site. Therefore, the capped former landfill area was removed from the MRS footprint. The new acreage of the MRS is approximately 13.43 acres. **Figure 4** provides the revised layout of the MRS boundary. Historic and current site conditions are shown in **Photographs 1** and **2**, respectively.



Photograph 1: Photograph of pond at Ramsdell Quarry Landfill, circa 1980. (RVAAP-9.A.1)



Photograph 2: December 2005 site photograph of the MRS looking east. (RVAAP-8.A.1)

Originally (1946 through 1950), the MRS was used for OB/OD operations such as the thermal treatment of waste explosives from Load Line #1, and surface burning of approximately 18,000, 500-pound (lb) incendiary or napalm bombs. Numerous spent 81mm mortar rounds have been observed lying on the ground surface at the MRS; the date the rounds were found and the locations of the rounds

are unknown. The US Army CTT Range/Site Inventory noted information regarding the area has not been identified for the period from 1950-1976 (RVAAP-2.A.5).

The quarry was mined to recover rock material, consisting of a quartz pebble conglomerate, which was used for road and construction ballast. It is reported that the excavation reached a depth of 30 to 40 ft below existing grade. After discontinuing quarry operations in 1941, the western and southern portion of the abandoned quarry was used for landfill operations from 1976 until 1989 when the landfill was closed. The landfill operated under a sanitary landfill permit issued by the State of Ohio from 1978 until final closure in 1990. The closure was conducted in accordance with state of Ohio solid waste regulations [Ohio Administrative Code (OAC) 3745-27-10]. Based on information provided by Installation personnel, the cap on the former permitted landfill covers approximately 4 acres and is comprised of two feet of compacted clay.

The entire MRS and former landfill is collocated with IRP AOC RVAAP-01 (Ramsdell Quarry), which encompasses approximately 14 acres. The former landfill is regulated under RCRA while the remaining portion of the quarry is regulated under CERCLA. In 1988, 1991, and 1998, monitoring wells were installed around the landfill to assess the nature and extent of groundwater contamination, and for quarterly monitoring (RVAAP-3.B.1). In an October 1998 report, low concentrations of explosives and metals were identified in groundwater. Finally, in 2005 six additional wells were installed up gradient of the landfill. In February 2005, the groundwater unit was transferred from the RCRA solid waste program to CERCLA (RVAAP-1.A.2). The COCs at the AOC include semi-volatile organics (SVOCs), metals, and explosives. Impacted media includes soil, sediment, and groundwater. Summaries of site-specific investigations are provided below.

RAMSDELL QUARRY LANDFILL and LOAD LINE #1 MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

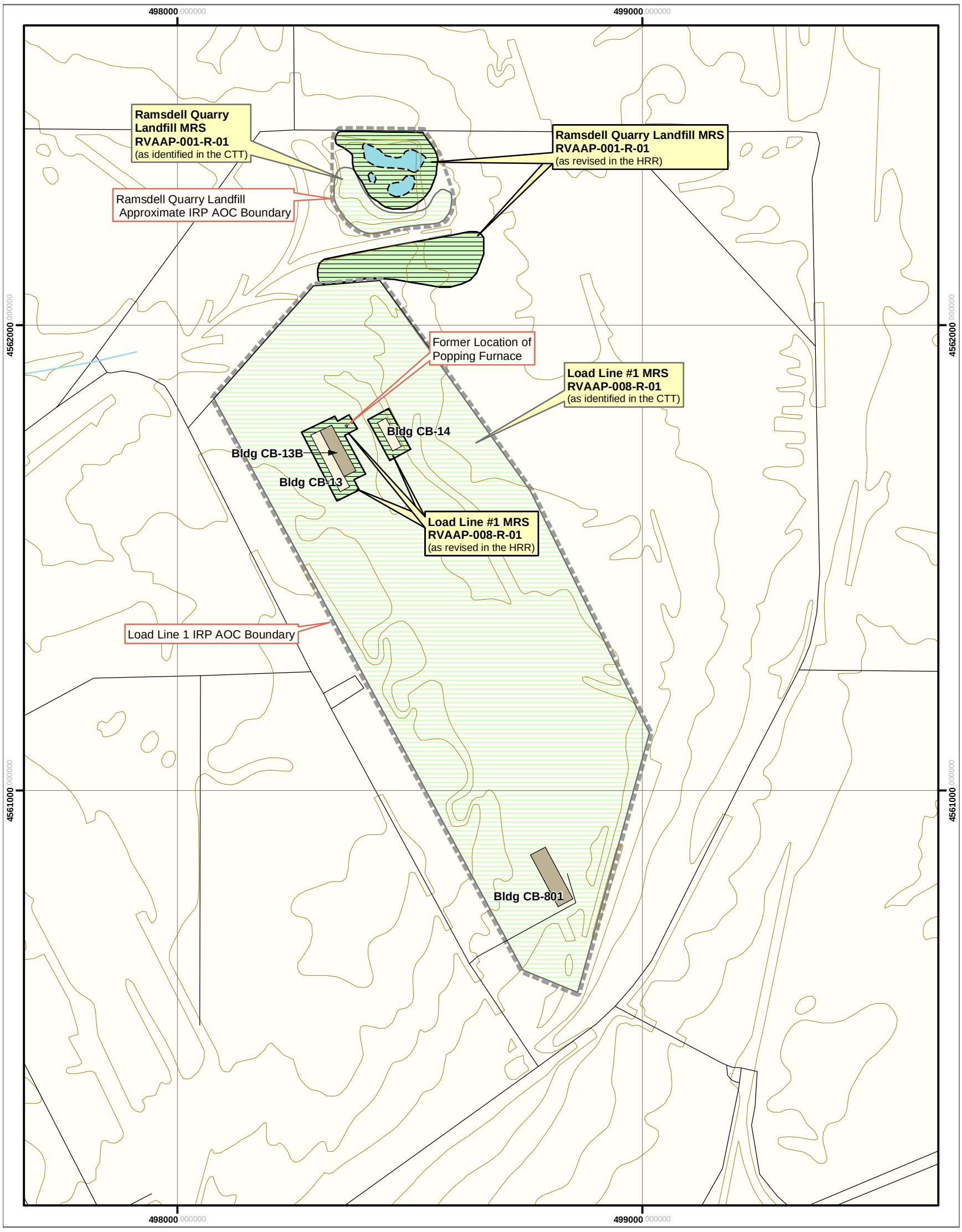

Figure 4

N
W E
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Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:9,000

0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

- Elevation Contour
- Road
- Stream
- Water (fluctuates in depth and extent)
- Building Locations, Existing
- Building Locations, Demolished

Area Status

- MRS, Revised in HRR
- MRS, Identified in CTT
- IRP Area of Concern

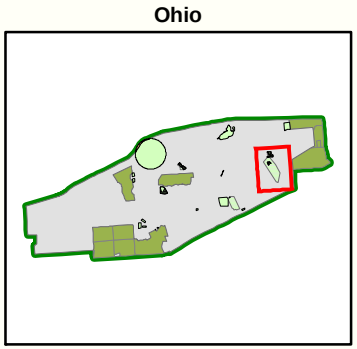
Data Source:

SAIC, RVAAP LL1 Phase II RI Report, Figures 4-2 and 4-22, December 20, 2002

SAIC, Final Phase II RI Report for Load Line 1 at RVAAP, OH. Figure 1-4, June 2003,

SAIC, RVAAP RQL Phase I RI Report, Figure 4-1, June 14, 2005

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: October 2006
Edition: Final

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4.1.1.2 Previous Investigation Summaries

Final Report on the Groundwater Investigation of the Ramsdell Quarry Landfill, SAIC, August 2000

Explosive compounds and the propellant nitroglycerin were consistently detected in groundwater at the AOC. The explosives concentrations were less than the EPA Region 9 tap water Preliminary Remediation Goals (PRGs). Nitroglycerin also did not exceed the PRG. In most of the samples, arsenic, iron, and manganese levels were in excess of EPA Region 9 tap water PRGs. Aluminum, arsenic, cobalt, manganese, mercury, nickel, and zinc exceeded facility-wide background criteria and Ohio drinking water standards (RVAAP-3.D.1).

In sediment samples, various metals and cyanide were detected at levels above facility-wide background criteria. "Maximum detected values for arsenic, barium, cadmium, chromium, nickel, selenium, thallium, zinc, 2,6-dinitrotoluene, and 2,4-dinitrotoluene exceed respective EPA Region 9 soil screening criteria for leaching to groundwater." In the interval of 0-0.5 ft, seven explosives compounds were identified. 2,4,6-TNT and high melting explosive (HMX) were the most commonly detected. At depths of 0.5 to 2.0 ft or greater, HMX was detected. In three samples, the propellant nitrocellulose was detected at low levels (RVAAP-3.D.1 and RVAAP-3.D.2).

In at least two sampling events, aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, thallium, vanadium, and zinc were detected in surface water above facility-wide surface water background criteria. In at least 30 percent of the surface water samples collected, arsenic, iron, manganese, and lead levels were detected in excess of EPA Region 9 tap water PRGs. The only explosive constituent detected in surface water was 4-nitrotoluene, which was detected once. No propellants were detected (RVAAP-3.D.1).

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR for RVAAP indicates the MRS is considered to have "potential OE presence (RVAAP-4.A.1)." Some explosives may remain at the site from the burning of incendiary or napalm bombs.

Final Phase I RI Report for the Ramsdell Quarry Landfill at RVAAP, SAIC, September 2005

During the Phase I RI field effort at the former quarry, explosives and propellants were detected at four discrete soil sample locations. Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, silver, thallium, and zinc were identified as site related contaminants (SRCs). The highest number of inorganics above background concentrations (16 SRCs) was found in the

northwest portion of the quarry. The northern and southern portions of the site contained the lowest number of metals above background concentrations (RVAAP-3.C.1).

During the Phase I RI, six new groundwater wells were established and analyzed. Twelve metals were labeled as SRCs, including aluminum, antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc. The farthest downgradient well had the least number of SRCs (five). The wells downgradient of Ramsdell Quarry showed no explosives, indicating "the maximum horizontal extent of explosives contamination has been defined." The absence of explosives in the upgradient wells indicate the explosives detected during the previous groundwater investigation did not come from Load Line #1 (RVAAP-3.C.1). Only three metals (arsenic, lead, and manganese) were found to exceed EPA Region 9 tap water PRGs (RVAAP-3.C.2).

Arsenic, chromium, and manganese were identified in sediment samples collected from the site. Arsenic and manganese were also identified in the surface water located on site (RVAAP-3.C.2).

4.1.1.3 MEC/MC Analysis

Any MEC that remains under the landfill cap will not be addressed in this SI as it is considered Response Complete. While MEC (e.g. 81mm mortar rounds) has been observed on site at the bottom of the quarry, Installation personnel reported that the majority of debris was removed in the 1980s. However, there were no records to support this claim. Further, there is very little information describing the activities that were conducted in the area south of the quarry identified by Installation personnel as potentially containing MEC (i.e., the area identified by Installation personnel during the HRR), or records of any removal actions performed.

As such, the entire MRS is considered to potentially contain MEC and will require further characterization. Historic evidence that munitions were thermally treated at the MRS is shown in **Photograph 3**.



Photograph 3: Photograph circa 1940s of MEC at Ramsdell Quarry Landfill. (RVAAP-9.A.1)

Analytical data generated by IRP investigations

have confirmed the presence of explosives and metals in the soil, and in excess of background concentrations in groundwater and sediment at the former quarry area. In surface water, many metals exceeded background concentrations. Therefore, the former quarry area associated with the MRS is considered to contain MC. Under the IRP, all MC associated with this area (i.e., Ramsdell Quarry AOC) will be addressed under that program and will not be evaluated further under the SI. The area to the south of the former quarry area contained within the MRS boundary will be evaluated further under the SI process for MC. Furthermore, MEC will be addressed in both the northern and southern areas under the MMRP SI process.

4.1.2 Erie Burning Grounds (RVAAP-002-R-01)

4.1.2.1 Summary of Findings

Erie Burning Grounds was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (e.g. railcars) by open burning on the ground surface between 1941 and 1945 (RVAAP-2.A.6). Prior to its acquisition by the US Army in 1940, the area may have been used for brick manufacturing. Aerial photos of the site from the 1940s and 1950s depict open boxcars staged at the end of the rail spur, known as Track 49. Presumably, materials were tipped out of the cars on either side of the embankment to be burned (See **Figure 5**, Burn Areas A &B). Ash residue was left on site after the burn. Engineering drawings from 1941 also identify two additional burning areas: one 200 ft to the northeast that was fed by a chute (See **Figure 5**, Burn Area C) and another (known as the "T-Area") to the south of the rail spur (See **Figure 5**, Burn Area D). Historic site conditions are shown in **Photographs 4 and 5**.



Photograph 4: Aerial photograph of the Erie Burning Grounds, circa 1990s (Note Flooding). (RVAAP-9.A.1)



Photograph 5: Dense vegetation characteristic of dry areas at Erie Burning Grounds, circa 1990s. (RVAAP-9.A.1)

Current site conditions at the MRS differ greatly from those during its operational years. In the early 1990s, the area became a wetland when the primary outflow culvert became plugged and the small streams that drained the burning ground were damned by beaver activity. As a result, four main surface water basins developed in the low-lying areas at the MRS. The largest surface water basin is located to the north of Track 49. Generally, the depth of the water is less than two feet across the impoundment, but may reach a maximum of 5 feet within the former drainage channel. Periodically, this surface water body will drain on its own accord. Recently, the loss of beaver activity has resulted in some draining of these surface water basins at the MRS. Partially buried metal debris (i.e., munitions debris), tentatively

ERIE BURNING GROUNDS MRS LOCATION
Ravenna Army Ammunition Plant, OH

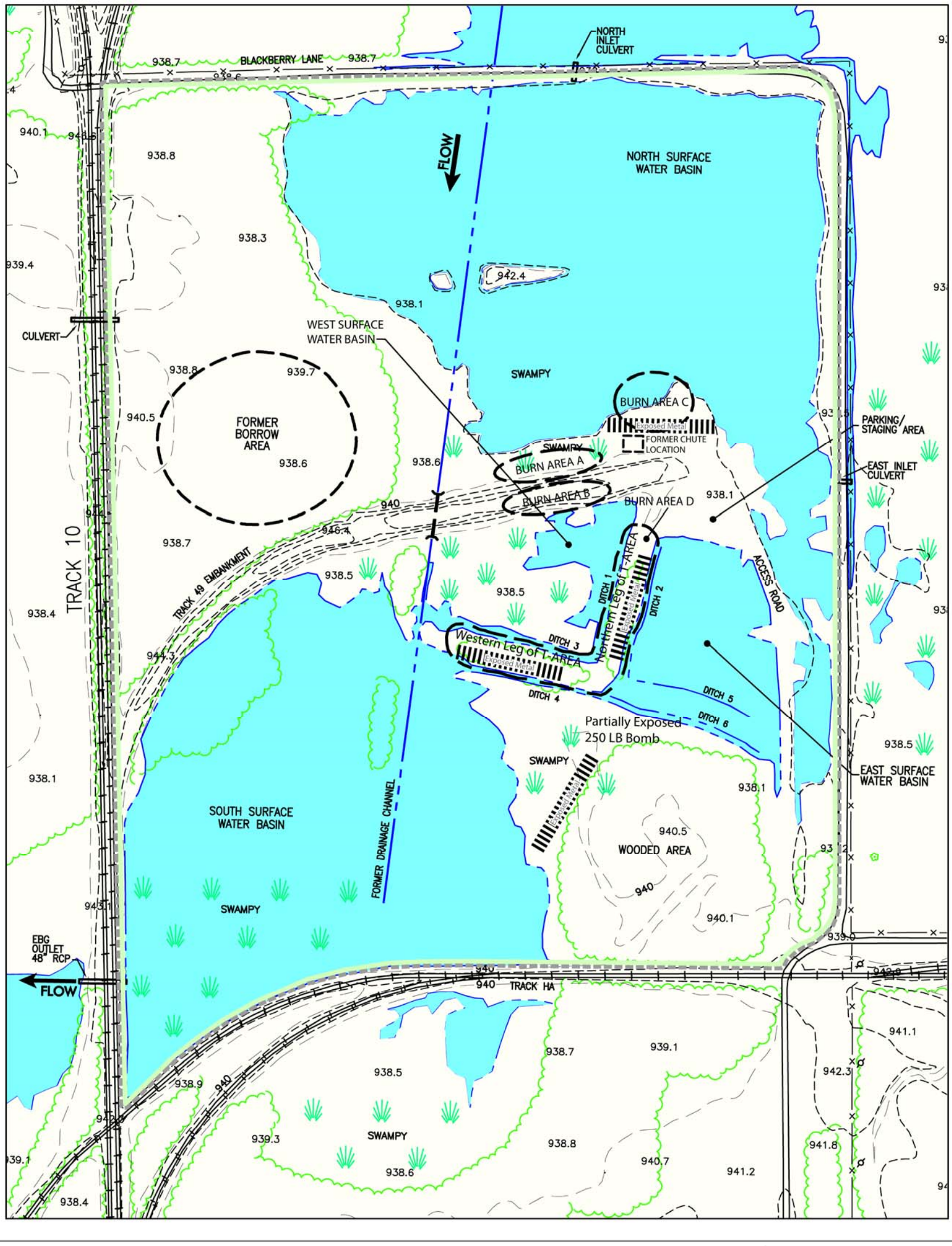


Figure 5

N
W E
S

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:2,000

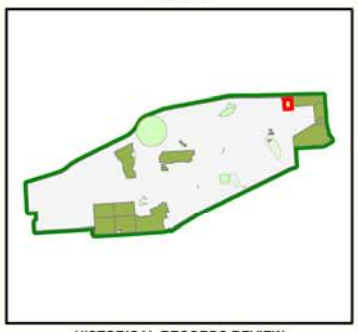
0 50 100 150 200 250 Feet
0 25 50 75 Meters

- Road, Gravel
- Railroad
- Contour, 10-Foot Interval
- Contour, 2-Foot Interval
- 923.8 Spot Elevation
- Tributary
- Stream
- Treeline
- MRS Boundary
- IRP Area of Concern

Data Source:

SAIC, RVAAP EBG Phase II RI Report, Figure 1-5, December 08, 2003

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH
Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (eM)
Date: October 2006
Edition: Final

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identified by Installation and USACE personnel as remnants of burned out bombs (size and type not identified), have been observed across the MRS. **Figure 5** shows four areas (hatched areas labeled as exposed metal) where the partially buried items have been observed. Installation personnel have also reported sighting MEC (type and condition unknown) located at the MRS.

The areas that remain above water include the Track 49 embankment, former chute location, northern and western legs of the T-Area, a portion of the site northwest of the former borrow area, and a wooded area in the southeast corner of the MRS. Dense brush and woodland vegetation cover the portions of the site that are not submerged. The current site layout of the MRS is shown in **Figure 5**. This figure was part of the Final Phase II Report for the IRP site and was prepared by SAIC for the USACE, Louisville District (RVAAP-3.F.3).

As previously mentioned, the MRS is collocated with IRP AOC RVAAP-02 (Erie Burning Grounds), which encompasses approximately 35 acres. In general, the MRS and IRP AOC share the same footprint and boundary. Based on the findings from IRP investigations, COCs include explosives, metals, and SVOCs in the surface soil, sediment, groundwater, and surface water. MC in soils and dry sediments has been addressed under the IRP, with a likely decision (based on the risk assessment) of NFA. However, a decision concerning MC in wet sediments, surface water, or ground water has not been made. As such, MC will be further investigated under the MMRP.

4.1.2.2 Previous Investigations

Final Phase I RI Report for Erie Burning Grounds at RVAAP, SAIC, December 2001

Surface Soil

During the Phase I RI, 2,4,6-TNT was the most persistent explosive identified in surface soil at the AOC. The highest concentration of 2,4,6-TNT was found at the Track 49 embankment area at a concentration of 7.1 milligrams/kilogram (mg/kg). "The propellant nitrocellulose was detected in four surface soil samples, with no apparent pattern of distribution (RVAAP-3.E.1)."

"Inorganics are pervasive in surface soil. Aluminum, arsenic, chromium, manganese, nickel, and vanadium were detected in 100 percent of the surface soil samples, but they occurred above background in less than about 30 percent. Barium, copper, lead, and zinc were detected in 100 percent of the samples and were above background in at least 50 percent of the samples. Antimony and mercury were detected about 30 percent of the time, but nearly all detects exceeded background. The

highest concentrations are associated with the former burn area, Track 49 embankment, and T-Area (RVAAP-3.E.1)."

Subsurface soil

The Track 49 embankment and gravel access road contained the highest explosives concentrations found in subsurface soil. The explosive 2,4,6-TNT was the most commonly detected, and the highest concentration was again found at the Track 49 embankment. Nitrocellulose was also detected in one sample (RVAAP-3.E.1).

"Aluminum, arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc were detected in 100 percent of the subsurface soil samples. As with surface soil, the Track 49 embankment, gravel access road, and T-Area were the primary areas of metals contamination. Concentrations above background are lower in subsurface soil than in surface soil (RVAAP-3.E.1)."

Sediment

Explosives and polycyclic aromatic compounds (PAHs) were detected at the Track 49 embankment. "The Track 49 embankment and the staging/parking area closest to the eastern terminus of the spur represent the primary sources for metals, likely due to the presence of metallic debris and abundant slag that was placed as ballast material. Mercury is present almost exclusively in the T-Area (RVAAP-3.E.1)." There were relatively high concentrations of site-related metals and explosives in the former burn area. Nitrobenzene was detected at the outlet located at the South Surface Water Basin. At the same location, the only metal detected above background was nickel. Just downstream from the outlet, no explosives or metals were detected above background. A few metals were detected at concentrations above background but no explosives were identified at off-site stations (RVAAP-3.E.1).

Surface Water

Surface water in the T-Area contained the most explosives. 1,3-dinitrobenzene (DNB) was the most consistently detected explosive, while 2,4,6-TNT was detected at three stations. Nitrocellulose was also detected in the T-Area. The T-Area contained the most metals above background concentrations. Arsenic, barium, and manganese were detected above background at the outlet, and the north, west, and south surface water basins. Multiple metals above background were detected in the east surface water basin. Station EBG-114, located off-site, contained 1,3-DNB; 2,4,6-TNT; 2,4-dinitrotoluene; HMX; and nitrobenzene. At the drainage way (EBG-114 and EBG-116), arsenic, barium, and manganese were detected above background (RVAAP-3.E.1 and RVAAP-3.E.2).

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that the potential exists for MEC to be present at the MRS. "It appears that bomb bodies were transported to this area for flashing after they were washed out; the area is too close to the installation border to burn out filled bombs. It is unknown at this time if all of the explosives were removed from the metal parts (RVAAP-4.A.1)."

Final Phase II RI Report for Erie Burning Ground at RVAAP, SAIC, September 2005

Surface Soil

In the Phase II investigation, four explosive SRCs were identified: 2,6-dinitrotoluene; 2-amino-4,6-dinitrotoluene (DNT); 4-amino-2,6-dinotrotoluene; and RDX. In the northwestern area of the MRS, no explosives were detected. "Inorganic SRCs included between 10 and 14 metals in each of the Phase II stations on the north and south sides of the Track 49 embankment. With the exception of cadmium, metals were not present in the wooded area in the northwest or southeast portions of the AOC (RVAAP-3.F.1)."

Sediment

In the former drainage channel in the south basin and at the north inlet, explosives or propellants were detected in sediment. In sediment samples collected downstream of the outlet, no explosives were observed. At the north and east inlets, the former drainage channel in the south basin, and downstream of the outlet, inorganic SRCs were detected (RVAAP-3.F.1). Antimony, beryllium, cadmium, and silver were detected above background in at least five of six Phase II sediment samples. These SRCs were identified as pervasive across the site (RVAAP-3.F.2).

Surface Water

During the Phase II RI, eight surface water stations were sampled and no explosives were detected. In the surface water sample collected from the east inlet, nitrocellulose was detected. Antimony, beryllium, cadmium, cobalt, lead, nickel, and vanadium were detected above background. The most metals were found above background in the sample collected from the former drainage channel in the south basin. At the outlet (EBG-157) and downstream stations (EBG-158 and -159), metals were detected above background (RVAAP-3.F.1).

Groundwater

In the groundwater wells established and analyzed during the Phase II RI, no explosives were detected. In at least one of the eight monitoring wells located at the IRP Site, antimony, arsenic, barium, cobalt, copper, lead, nickel, vanadium, and zinc were detected. Wells at the MRS boundary on the northeast and southwest corners of the IRP Site showed metals above background as often as in wells located in areas of known contamination in sediment and surface soil. For background criteria that were greater than zero, some SRCs showed levels 2 to 3 times background concentrations (RVAAP-3.F.1).

4.1.2.3 MEC/MC Analysis

MEC and/or munitions debris have been observed periodically on site as evident in **Photographs 6 and 7**. Further, Installation personnel have indicated that MEC remains at the MRS. This is supported by the ASR report, which stated that the site has the potential to contain MEC. Notwithstanding, a UXO avoidance sweep was performed in conjunction with the Phase II RI field work and although subsurface anomalies were identified, MEC items were not discovered lying on the ground surface. A metal fragment was discovered that was suspected of being a part of a shell casing. The anomalies were not investigated further to determine their true identification (RVAAP-3.F.6). Adequate documentation of the presence (or absence) of MEC or munitions debris has not been compiled for the MRS. As such, the entire MRS (approximately 33.93 acres) is considered to contain MEC.



Photograph 7: Portion of a Burned Out Bomb found at the Erie Burning Grounds, circa 1990s. (RVAAP-4.A.2)



Photograph 6: Burned Out Bomb at water's edge at Erie Burning Grounds, circa 1990s. (RVAAP-4.A.2)

Explosives and metals above background concentrations were detected in surface soil, subsurface soil, and surface water at the site. Explosives and metals were also detected in sediment at the site. MC in soils and dry sediments has been addressed under the IRP, with a likely decision (based on the risk assessment) of

NFA. However, a decision concerning MC in wet sediments, surface water, or ground water has not been made. As such, MC will be further investigated under the MMRP.

4.1.3 Demolition Area #2 (RVAAP-004-R-01)

4.1.3.1 Summary of Findings

The 2003 US Army CTT Range/Site Inventory reported that Demolition Area #2 encompassed approximately 14.91 acres, which included a 2.5 acre interim RCRA unit that was permitted to demilitarize munitions and a 40mm prototype test range. During the HRR research it was determined that the locations of two known munitions burial sites (i.e., Burial Sites 1 and 2) and a dump area known as the Sand Creek Disposal Area (also referred to as Rocket Ridge) had not been mapped as part of the MRS during the inventory. These areas were found to be MMRP-eligible and have now been included as part of the Demolition Area #2 MRS, as well as the buffer areas between these sites. Two areas were determined to be non-MMRP eligible: the 2.5 acre interim RCRA unit and a majority of the area that was previously used as a 40mm prototype test range that overlies the interim RCRA unit. These areas have been removed from consideration as part of the MRS (RVAAP-6.A.4). Only the small portion of the old prototype test range that extends to the north and outside of the interim RCRA unit is MMRP-eligible and will be included as part of the MRS. The test range was used to fire test munitions at targets, which have since been removed. The interim RCRA unit will be closed in accordance with all applicable state and Federal regulations and requirements at the end of the IRP investigation. It was further determined that the size of the interim RCRA unit was actually 2.5 acres and not the 1.5 acres that had been reported in the US Army CTT Site/Range Inventory. Based on the addition of these new locations and realignment of the boundaries, the MRS footprint has been increased to approximately 32.95 acres. Additional information was provided by the Installation that indicated that there is a bomb disposal area located near the northwestern portion of the MRS. While this could not be corroborated by additional documentation, the area will be recommended for further characterization during the SI. **Figure 6** depicts the new boundary of Demolition Area #2.

Additional information researched during the HRR revealed that the MRS had multiple configurations during its operation, including demolition operations on the south side of Sand Creek. The standard operating procedures for open detonation were to place the explosives in a pit excavated to a minimum depth of 4 ft, which was then backfilled with 2 ft of soil prior to detonation. After detonation, the site was reportedly policed for shrapnel, scrap metal, or any UXO. It was also noted in the Phase II RI that fragments of exploded or unexploded ordnance items forcefully propelled away from the pits (i.e., kick-outs) can be found several thousand ft away from the detonation site. This statement, in part, was based on a DoD document (Ammunition and Explosives Safety Standards, 1999) that establishes default

distances for non-fragmenting explosives at 1,250 ft, and 4,000 ft for munitions of 5-inch caliber or larger.

Based on the current information, the MRS consists of the following components:

- The former demolition area (excluding the non-MMRP eligible interim RCRA unit).
- The portion of the 40mm prototype test range that extends to the north and outside of the interim RCRA unit.
- Burial Sites 1 and 2 where possible MEC may have been buried. Burial Site 1 is approximately two acres in size and located approximately 200 feet northeast of Building 1501 (explosives storage bunker). Burial Site 2 is approximately one acre in size and is located approximately 100 feet north of Building 1503 (explosives storage bunker).
- Rocket Ridge area where rocket bodies and various other potential MEC items have been discarded on the ground surface and into Sand Creek. Rocket Ridge is located along a 70-foot embankment northeast of Building 1503 overlooking Sand Creek.
- The MRS also includes all of the area located between the areas identified in the previous bullets.

The remaining site features include out-of-service electric lines used to remotely detonate munitions, and the gravel/paved access roads. Other features not included as part of the MRS but worthy of note include the three above ground earth-covered explosives storage bunkers (i.e., Buildings 1501, 1502, and 1503) and the decommissioned popping furnace located to the south of the site. Historic site conditions at the MRS are shown in **Photograph 8**; current site conditions are shown in **Photographs 9, 10,** and **11**.

As previously mentioned, the MRS is collocated with IRP AOC RVAAP-04 (Open Demolition Area # 2), which encompasses approximately 25 acres. The IRP AOC encompasses the former demolition area, 40mm prototype testing range, and the interim RCRA unit. The interim RCRA unit is not eligible for Environmental Restoration, Army funding (ER, A); rather, the unit will be addressed with compliance cleanup program funds at the time of closure (not yet determined).

Previous investigations conducted under the IRP have found concentrations of explosives, particularly TNT, and several inorganics including cadmium, lead, and mercury in both the surface and subsurface soils. Concentrations of inorganic compounds in sediment appear to be within the range of AOC-wide background values. Summaries of site-specific investigations are provided below.

DEMOLITION AREA #2 MRS
Ravenna Army Ammunition Plant, OH

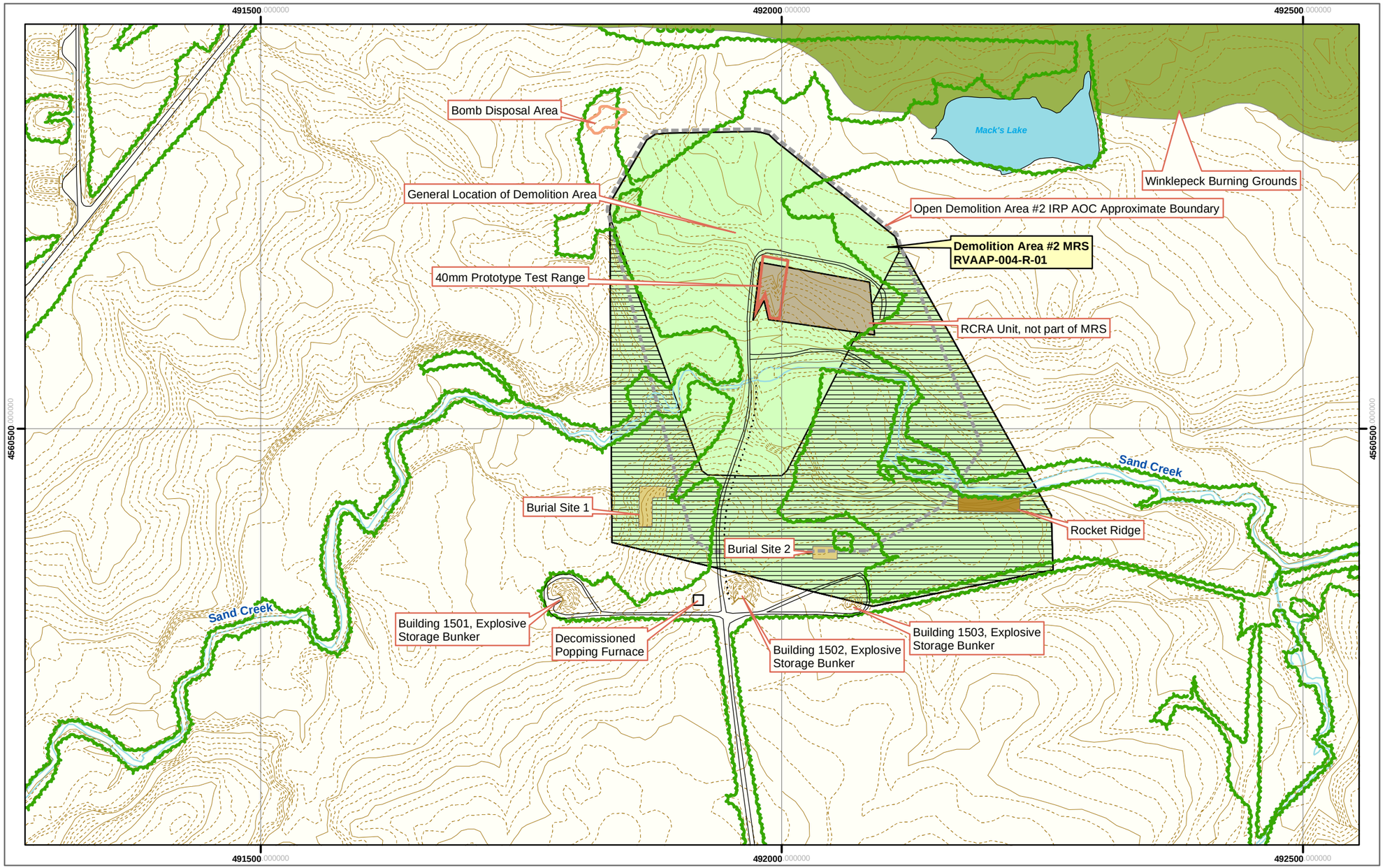

Figure 6

N
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- Contour, 10-Foot Interval
- Contour, 2-Foot Interval
- Road
- Stream
- Water
- Vegetation
- Burial Site
- RCRA Unit, MMRP Non-eligible
- Rocket Ridge
- 40mm Prototype Test Range
- Bomb Disposal Area
- Out-of-service electric lines used to remotely detonate munitions
- Explosive Storage Bunker

Area Status

- Operational Range
- MRS, Closed
- MRS, Added in HRR
- IRP Area of Concern, Approximate Boundary

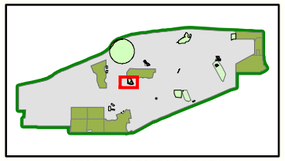
Data Source:
SAIC, RVAAP ODA2 Final RI Report, Figure 1-6, September 15, 2005

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:4,000

0 100 200 300 400 500 Feet
0 50 100 150 Meters

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: October 2006
Edition: Final

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Photograph 8: Photograph of Demolition Area #2, facing south along entrance road. Large mound in the background is Building 1502 (Control Building and Storage Bunker), circa 1980. (RVAAP-9.A.1)



Photograph 9: December 2005 photograph of the control Building/Storage Bunker (Building 1502) south of Demolition Area #2. (RVAAP-8.A.1)



Photograph 10: December 2005 photograph of decommissioned Popping Furnace south of Demolition Area #2. (RVAAP-8.A.1)



Photograph 11: December 2005 photograph of former detonation area at Demolition Area #2. (RVAAP-8.A.1)

4.1.3.2 Previous Investigations

Soils, Ground Water, and Surface Water Characterization for the OB/OD Areas, RVAAP, USAEHA, 1992

Soil

Results from the investigation found "slight" contamination in the top two ft of soil at the Demolition Area. Constituents detected included explosive compounds, barium, cadmium, mercury, lead, and minor amounts of arsenic. As soil samples increased in depth, the levels of contamination were found to decrease. Below eight ft bgs, there was only one sample that exhibited explosives concentrations (RVAAP-5.A.1).

Water

Low levels of 2,4-dinitrotoleune (1.1 micrograms per liter [µg/L]) and 2,4,6-TNT (14 µg/L) were observed migrating offsite through surface runoff, in addition to elevated levels of RDX (230 µg/L). Lead (0.08 milligrams per liter [mg/L]), copper (0.03 mg/L), zinc (0.10 mg/L), iron (2.4 mg/L and 3.3 mg/L), and mercury (0.0004 mg/L) were detected at levels which exceeded the state ambient water quality criteria for warm water habitats. Copper levels were reported to be naturally occurring (RVAAP-5.A.2).

Sediment

Sample results for sediment found no evidence of contamination. Iron levels were high in all sediment samples, but were thought to be naturally occurring (RVAAP-5.A.2).

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that the MRS has "confirmed OE presence." The ASR reported that a large amount of munitions debris is present at the Rocket Ridge dump site in the eastern portion of Demolition Area #2. The ASR further reported that metal scrap is also buried in the western portion (i.e., Burial Areas 1 and 2) of the site (RVAAP-4.A.1).

Final Phase II RI Report for the Open Demolition Area No. 2, RVAAP, Spec Pro, Inc. and SAIC, September 2005

The Phase II RI report focused on five known potential source areas at the Open Demolition Area:

- Open Detonation Areas (including the RCRA Unit);
- Open Burning Area (area within the RCRA unit in which, from 1981-1986, the sludge from the Load Line 6 Evaporation Unit was thermally destroyed);
- 40mm Prototype Testing Range;

- Burial Sites 1 and 2; and
- Sand Creek Disposal Area (also known as Rocket Ridge) (RVAAP-6.A.4).

Surface Soils

Explosives and propellants were found at the highest concentrations at sample locations south (samples DA2-053 and DA2-072) and north (sample DA2-045) of Sand Creek. Tetryl, which was detected in 24 percent of the samples collected, was the most widespread compound detected in the surface soil (RVAAP-6.A.2). The report stated that most explosives and propellants in surface soil were found at sampling locations in the floodplain south of Sand Creek. The sampling results of the Phase II RI do not provide confidence that all portions of Open Demolition Area No. 2 have been fully characterized. To define the degree of explosive and propellant contamination to the north of Sand Creek and at the perimeter of the site, further sampling will be conducted. Metal concentrations north of Sand Creek had a higher occurrence of concentrations exceeding background levels than the area sampled south of Sand Creek (RVAAP-6.A.1).

Subsurface Soil

The report stated that explosives and propellants are present in subsurface soil at eight sampling locations north of Sand Creek. The most common explosives detected were 2,4,6-TNT and tetryl. One sample location (DA2-045) was found to contain multiple (five) explosives and propellant compounds. South of Sand Creek, explosives and propellants were detected at eleven locations, with sample locations DA2-067 and DA2-111 having the highest number detected (four). The explosives 2,4,6-TNT and tetryl were the most common compounds detected in the subsurface soil sampling locations south of Sand Creek (RVAAP-6.A.1).

North of Sand Creek, there were five sample locations with six or more SRCs above background concentrations. To the south of Sand Creek, two sample locations had six or more SRCs above background concentrations (RVAAP-6.A.1 and RVAAP-6.A.2).

Sediment

Aluminum, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, and vanadium were detected in sediment above background concentrations.

Table 3 presents the sediment sample locations and constituents that had the highest concentrations of inorganic SRCs:

Table 3: Sediment Sample Locations for Demolition Area #2

Sample Location	SRC in highest concentration
Downstream floodplain of Sand Creek	Mercury
Upstream floodplain south of Sand Creek	Copper
Ditch north of Sand Creek	Barium, Cadmium, Cobalt, and Lead
Ditch upgradient of Sand Creek Dump	Beryllium, chromium, nickel, and vanadium

(RVAAP-6.A.1)

Surface Water

No explosives were detected in surface water collected from Demolition Area #2. Nonetheless, the propellant nitrocellulose was detected in all three surface water samples collected in September 2002. At one sampling location, nickel and chromium were detected above background concentrations in April 2003 (RVAAP-6.A.1).

Groundwater

The majority of monitoring wells sampled exhibited metal concentrations that were attributed to site contamination. The highest number of inorganic SRCs was detected in the northern part of the site in well DA2-104. Only two monitoring wells exhibited concentrations of explosives and/or propellants (RVAAP-6.A.1).

4.1.3.3 MEC/MC Analysis

MEC and/or munitions debris exists at the Rocket Ridge dump site and potentially buried at the two burial sites (Burial Sites 1 and 2). In addition, white phosphorus is reportedly buried at one of the burial sites. The presence of MEC has been documented at the former detonation area, especially within the RCRA Unit. In 1999, a removal action was conducted where the soil was excavated to a depth of 4 ft over the entire 1.5 acre RCRA unit. Once excavated, the soil was screened and MEC, shrapnel, or scrap metal was removed and the screened soil placed back on site. The area was then graded and seeded. Over 100,000 items were recovered during this effort, including over 45,000 primer detonators, 19,000 T-bars, several thousand fuzes of various sizes, and several thousand artillery rounds ranging from 22mm to 155mm in size. MEC removed from the RCRA unit are shown in **Photograph 12**. No other removal actions involving MEC have been conducted at the MRS. MEC is expected to be present across the remainder of the site; specifically, at the burial sites and the Rocket Ridge area. Evidence of MEC remaining at the site is shown in **Photograph 13**.

Analytical data from IRP investigations have confirmed the presence of explosives and metals in the surface and subsurface soil, and groundwater in two distinct areas along Sand Creek (RVAAP-6.A.6). Investigative work is ongoing under the IRP. Currently, a feasibility study is being conducted with plans to perform supplemental remedial investigative field work. The additional field work, which will include surface and subsurface soil sampling, will be performed to define the nature and extent of contamination at the AOC and to finalize the RI. Areas within the MRS that are being investigated under the IRP include the open detonation/burn area, 2 burial sites, 40mm test range, and the three explosives storage bunkers. Rocket Ridge is not covered under the IRP and will require further characterization under the MMRP. Further evaluation of MC under the SI will be required and any contaminated soils found above risk based values will be covered under the MMRP.



Photograph 12: Recovered Projectiles from RCRA Unit Awaiting Destruction (1999).
(RVAAP-4.A.2)



Photograph 13: View downhill of the Rocket Ridge Dump Site at Demolition Area #2, circa 1990s.
(RVAAP-4.A.2)

4.1.4 Load Line #1 (RVAAP-008-R-01)

4.1.4.1 Summary of Findings

Load Line #1 is described in the US Army CTT Range/Site Inventory as encompassing approximately 163.62 acres, which consisted of the industrial buildings (i.e., load lines), associated infrastructure (e.g., utilities, settling tanks, water tower, etc.), and a large wooded area to the east of the industrial area. In 1971, the load line was declared inactive when the buildings with residual explosive dust were washed down, and the freestanding equipment was removed. Salvage operations continued with the removal of the overhead steam lines and major rail spurs, and the removal of all telephone lines from 1996 through 1998 (RVAAP-3.G.2). By FY 2000, the majority of the buildings were demolished and removed. Currently, the only remaining buildings include CB-13B and CB-801. Floor slabs of the demolished buildings, walkways, and all below-grade infrastructures remain on site. However, some of the manholes and storm/sanitary sewer access points were filled in or obstructed during the demolition activities (RVAAP-3.G.2).

Load Line 1was used to melt and load TNT and Composition B explosives into large-caliber shells during WWII and the Korean War. As a result of the load operation, explosive dust, spills, and vapors collected on the floors and walls of several buildings, which were periodically washed from the walls and floors with water and steam. During building wash down, pink water or loose explosive flakes, chips, or dust were occasionally swept out of doorways onto the ground surface. The majority of the wastewater, known as pink water, was collected in a series of concrete sumps that were located throughout the load line. The pink water was then pumped to a sawdust filtration unit for clarification and removal of nitro-compounds prior to discharge. Sawdust filtration units consisted of a set of three parallel concrete settling tanks (10- × 30- × 3-ft) and a set of three filter blocks (5- × 15- × 3-ft) that were located in the bottom of the filtration tanks. In addition to the munitions loading operations, ordnance was painted, drilled, and boostered. In 1951, the load lines were rehabilitated to remove and replace soils contaminated with accumulated explosives, and to remove and replace waste water lines, particularly at Buildings CB-4 and CB-4A. However, many contaminated storm drain lines remained in each load line after 1951. From 1961 until 1967, operations at the MRS included the rehabilitation of munitions, including the dismantling, replacing of components, and repainting of M15 land mines. The majority of the rehabilitation work was conducted in Buildings CB-13 and CB-14. In addition to the rehabilitation work, primers were demilitarized in the southeastern area of Building CB-13. It is suspected that these activities may have contributed to propellant contamination (RVAAP-3.G.2).

A Phase I RI conducted in 1996 found elevated concentrations of explosives, inorganics, and organics in soils in the central portion of the complex. Contaminants were found to be prevalent around the doorways, drains, and vacuum pumps associated with the melt and pour Buildings CB-4 and CB-4A, as well as the main concrete settling tank. During Phase I RI field activities, residual propellant pellets were found on the ground beside Buildings CB-13, CB-13B, and CB-14, as well as in the area of the former popping furnace. According to interviews with RVAAP personnel, triple base propellants still exist at the MRS. Further, the US Army CTT Range/Site Inventory reported that a 152mm casing was found on site (RVAAP-2.A.8). Although the exact location of the shell casing was not disclosed, it is known that Building CB-801 was used to store inert material, such as shell casings. Based on these findings, it would appear that potential MEC and/or MC is limited to several areas associated with Buildings CB-13, CB-13B, CB-14, and the former popping furnace. As such, it is reasonable to reduce the total acreage of the MRS to those immediate areas surrounding the buildings (i.e., CB-13, CB-13B, and CB-14) and the popping furnace. According to Installation personnel, this would encompass approximately four acres. The revised MRS boundaries are presented in **Figure 4**. This figure was taken from the Final Phase II RI Report for Load Line #1 and was prepared by SAIC for the USACE, Louisville District (RVAAP-3.G.3 and RVAAP-3.G.4). Current site conditions are shown in **Photograph 14**.



Photograph 14: December 2005 photograph of Load Line #1. (RVAAP-9.A.1)

As previously mentioned, the MRS is associated with an AOC (RVAAP-08) that's being addressed under the IRP. The AOC includes the former production facility and some outlying areas, and covers 160 acres. In September 2003, a performance based contract was awarded to Shaw Environmental to complete an interim soil and sediment removal action at multiple locations at RVAAP, including Load

Line #1 (RVAAP-2.A.8). MEC or MC that fall outside the scope of this contract will be covered under the MMRP. As such, the presence of MEC or MC will be field verified during the SI field work.

4.1.4.2 Previous Investigations

Final Phase II RI Report for the Load Line 1, RVAAP, SAIC, June 2003

Surface soil

The Final Phase II RI provided a summary of previous investigations conducted to date. The findings of these investigations are briefly described below.

In 1997, the Cold Regions Research and Engineering Laboratory (CRREL) conducted a study of explosives contamination in surface soils. During this investigation, 2,4,6-TNT, DNT, and RDX were detected in soils at the facility (RVAAP-3.G.1).

SAIC conducted a Phase I RI for 11 High-Priority AOCs in 1998, which included Load Line #1. The investigation found elevated concentrations of explosives and inorganics in soils in the central portion of the site. Aluminum, arsenic, barium, cadmium, chromium, iron, lead, manganese, magnesium, mercury, selenium, and zinc were all detected in soils above their respective background criteria (RVAAP-3.G.2).

The Phase II RI surface soil sampling results indicated 16 explosive and propellant compounds are present at Load Line #1. The most commonly detected explosive was 2,4,6-TNT with 85 detections, and the most commonly detected propellant was nitrocellulose detected at 65 locations (RVAAP-3.G.3). Cadmium, chromium, copper, lead, mercury, and zinc were the metals most commonly detected and/or the metals detected at the highest concentrations above background (RVAAP-3.G.3). The most heavily contaminated area at the MRS is the immediate area surrounding the Building CB-4A pad, with high concentrations of explosives (maximum 4,800 mg/kg of 2,4,6-TNT), propellants (maximum 2,300 mg/kg nitrocellulose), and metals (RVAAP-3.G.1).

Subsurface soil

During the Phase II RI, nine explosive and propellant compounds were detected in 16 subsurface soil samples collected. The most commonly detected explosives were 2,4,6-TNT (13 detections), RDX (9 detections), and 2,4-dinitrotoluene (8 detections). "Nitrocellulose was the only propellant detected in subsurface soils with occurrences limited to the melt-pour area, Building CB-13, Building CB-17, and Track CB" (RVAAP-3.G.3). In the subsurface soils, cadmium, lead, and zinc were the metals most

frequently detected above background. Barium, chromium, mercury, and selenium were also detected above background levels (RVAAP-3.G.4).

Sediment

During the 1997 SAIC Phase I RI, no explosives were found in pond sediments. Four sediment samples in drainage ditches contained detectable concentrations of explosives. The most concentrated metal results were taken near Building CB-3A and the ditch along Outlet D (RVAAP-3.G.2).

The Phase II RI results indicated 12 explosive and propellant compounds were detected in 17 sediment samples collected. "Eight of these samples tested positive for field explosives; the others tested negative but were analyzed for laboratory explosives and propellants as dictated by the scope of work." The most commonly detected explosives compounds were 2,4-dinitrotoleune, 4-amino-2,6-dinitrotoluene, 2,4,6-TNT, and DNT. Three propellants were detected in sediments; the most commonly detected propellant was nitrocellulose with three detections. "The maximum concentrations for any explosive or propellant compounds in sediment were encountered in Outlets A and B, in ditches adjacent to Buildings CB-13 and CB-13A (RVAAP-3.G.4)."

"The 23 target analyte list (TAL) metals were consistently detected in every sediment sample with the following exceptions: antimony was detected in 10 of 25 samples, beryllium was detected in 17 of 27 samples, cadmium was detected in 35 of 37 samples, magnesium was detected in 36 of 37 samples, selenium was detected in 28 of 37 samples, sodium was detected in 6 of 25 samples, thallium was detected in 33 of 37 samples, and silver was not detected in any of the samples (RVAAP-3.G.4)." Metals were concentrated and most abundant along Outlets A, B, and C, and Outlets D, E, and F upstream of the ponds (RVAAP-3.G.1 and RVAAP-3.G.4).

Surface water

Eleven explosive compounds were detected in 14 surface water samples collected at the MRS. "The most commonly detected explosives compounds were 4-Amino-2,6-dinitrotoluene (three detections) and 4-Nitrotoluene (three detections). Propellants were not detected in surface water (RVAAP-3.G.4)."

"Metals were detected in all surface water samples, but were most abundant at Charlie's Pond at the AOC boundary along Drainage C and at station LL1-318, which is upstream of the confluence with the

facility drainages (RVAAP-3.G.1)." Barium, calcium, iron, magnesium, and manganese were consistently detected in every surface water sample (RVAAP-3.G.4).

Groundwater

In 1997, the Ohio EPA conducted a residential groundwater survey. No explosive compounds were detected in domestic water supplies. Arsenic exceeded its maximum contaminant level in one result (RVAAP-3.G.1).

In the 1997 Phase I RI, conducted by SAIC, no explosives were detected in six monitoring wells. Inorganic constituents detected included: cyanide, arsenic, barium, beryllium, cobalt, copper, manganese, mercury, nickel, and zinc (RVAAP-3.G.2).

During the Phase II RI, 12 explosive and propellant compounds were detected in groundwater samples collected with the most frequently detected being 1,3-DNB and 2,4,6-TNT. "The highest concentrations of explosives and propellants were found at monitoring wells located within the main process areas. The highest concentration was for RDX (88 μg/L) at monitoring well LL1mw-080 (RVAAP-3.G.4)."

"Eleven of the 23 detected TAL metals are considered site-related based on the SRC screening process." Aluminum, arsenic, cobalt, manganese, nickel and zinc were the most frequently detected SRCs (RVAAP-3.G.1). Other non-nutrient metals that were detected at least once include antimony, cadmium, copper, selenium, and thallium (RVAAP-3.G.4). The maximum metal detections occurred at three monitoring wells located in the main process areas (RVAAP-3.G.1).

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that MEC presence is confirmed at the MRS. The report cited that propellant grains have been confirmed to be in this area. The report further stated that while not particularly hazardous, they are still considered to be OE.

Final Focused FS for the Remediation of Soils at Load Lines 1 through 4, RVAAP, Shaw Environmental, May 2005

Soil

Arsenic, antimony, TNT, 2,4-dinitrotoluene, 2,6-dinitritoluene, and RDX were identified as COCs for direct exposure by the Resident Subsistence Farmer. Additional metals and explosives were identified

for indirect exposure via ingestion by the Resident Subsistence Farmer. RDX and 2,4,6-TNT were identified as COCs in subsurface soil for the Resident Subsistence Farmer. Antimony was identified as the only subsurface soil COC (RVAAP-7.A.1).

Sediment

Arsenic, cadmium, and manganese are identified as COCs in sediment for National Guard receptors. Antimony, arsenic, and manganese are identified as COCs in sediment for residential use. Arsenic and antimony are identified as COCs for waterfowl ingestion. Arsenic is a COC in sediment for fish ingestion by the Resident Subsistence Farmer. The explosive 2,4-dinitrotoluene and arsenic were identified as COCs for the Resident Subsistence Farmer. Lead was identified as a contaminant of potential concern (COPC) in the sediment (RVAAP-7.A.1).

4.1.4.3 MEC/MC Analysis

Triple based propellants are known to exist at the MRS at Buildings CB-13, CB-13B, and CB-14. There was also a report that a 152mm shell casing was found in a building located on site (RVAAP-1.A.2). As previously mentioned, a performance based contract was awarded to Shaw Environmental in September 2003 to complete an interim soil and sediment removal action at multiple locations at RVAAP, including Load Line #1. MEC or MC that fall outside the scope of this contract will be covered under the MMRP. As such, the presence of MEC or MC will be field verified during the SI field work.

Based on previous investigations, surface soil, subsurface soil, sediment, surface water, and groundwater are impacted by explosives and metals. MC contamination that is not covered under the IRP will be addressed further during the MMRP SI process.

4.1.5 Load Line #12 (RVAAP-012-R-01)

4.1.5.1 Summary of Findings

Load Line #12 is described in the US Army CTT Range/Site Inventory as encompassing approximately 77.58 acres. Multiple buildings were located at the MRS during its operational years which included a neutral liquor building (FE-19), seven evaporation/crystallization units (Buildings 900, 901, 902, 903, 904, 905, and 906), Water Works No. 2, Power House No. 3 (FE-17), a bagging and shipping building (FN-54), a compressor building (FA-20), an administration building (FE-53), a change house (FEWP-22), a laboratory (FE-52), and a clock house (4-51). Currently, no above-grade structures remain at the MRS, except for a small portion of the floor slab at Building FF-19. Buildings 901, 902, FF-19, and 906 were removed between 1973 and 1975 by open burning. Building FN-54 was demolished in the 1980s, and the remaining structures were removed between 1998 and 2000. During the recent demolition activities, a former blast berm at Building 903 was removed and placed as fill/groundcover around portions of Buildings FE-17 and 903. Structural features that remain on site include gravel access roads, man-made ditches, sanitary sewer lines, manholes, and the remains of three main rail tracks and several secondary tracks (RVAAP-3.H.2). Access is controlled by a perimeter fence and a locked gate (RVAAP-2.A.13). Historic and current site conditions are shown in **Photographs 15 and 16**, respectively. **Photograph 16** shows that the load line buildings have been removed.



Photograph 15: Photograph of Load Line #12, circa 1970.
(RVAAP-9.A.1)



Photograph 16: December 2005 photograph of Load Line #12.
(RVAAP-8.A.1)

During IRP work in the fall of 1999 to address chemical contamination, approximately 110 90mm artillery rounds were found just below the ground surface (covered with a small amount of topsoil) just north of the access road in the northwest corner of the MRS. The rounds were each composed of a casing and projectile, but were void of HE. The rounds were removed by MKM Engineers in March 2004 and placed in storage at Igloo 1500. It is unknown who was responsible for dumping and covering

the items. On-site personnel indicate the contractor screened the immediate area where the projectiles were found for UXO/OE, but did not extend this search any further. There are no other reports of munitions debris (or MEC) having been found at the MRS (RVAAP-2.A.8). Based on the one reported finding of munitions debris, the breadth of IRP investigations conducted to date at the load line, and input from Installation personnel, it is reasonable to reduce the size of the boundary to the area immediately surrounding the location where the 90mm projectiles were found. As such, the new acreage of the MRS would be no greater than approximately one acre. The layout of the MRS is provided in **Figure 7**. This figure was taken from the IRP document "Preliminary Draft Feasibility Study for Load Line 12" prepared by SAIC (RVAAP-3.H.3).

Originally known as the Ammonium Nitrate Plant, Load Line 12 produced granular ammonium nitrate through an evaporation and crystallization procedure using neutral liquor. The finished product was then transferred to the melt-pour lines for blending with 2,4,6-TNT to produce Amatol. After the termination of ammonium nitrate production in 1943, Buildings 900, 904, and 905 were renovated for demilitarization of munitions using a hot-water washout process. In order to improve the quality of TNT recovered, washout operations were converted to a steam melt-out process in the late 1950s. The demilitarization process involved removing the fuze and booster assemblies from bomb casings and placing the projectiles into a double-jacketed steam canister. The explosives were liquefied and poured into a tray where it was allowed to solidify. Once a solid, the explosives were knocked out of the tray, packed, and shipped from the site (RVAAP-3.J.9).

Reports of interviews conducted with personnel familiar with the operation, indicated that spillage was routinely cleaned from floors and equipment with hot water/steam. In the early years of operation, the rinsate water was allowed to flow out of the buildings and onto the ground surface. This operation was later replaced by a system of scuppers and gutters that were installed around the perimeter of the building floor, which directed the rinsate to a series of stainless steel tanks, one used for settling and the other for filtration. Prior to 1981, the effluent from the tank system flowed from Building 904 through a ditch to a holding pond east of the building. From here, the water drained to Upper Cobb's Pond and then to Lower Cobb's Pond. After 1981, the effluent was pumped to the Load Line 12 Pink Water Treatment Plant for treatment prior to discharge (RVAAP-3.J.9).

The MRS is collocated with an IRP AOC (RVAAP-012), which includes IRP AOC RVAAP-18 (Load Line 12 Wastewater Treatment System). The AOC covers the former Load Line 12, which is described as encompassing approximately 80 acres. The intent of the IRP work is to assess the nature and extent of

contamination, evaluate the fate and transport of contaminants, and assess potential risk to human health and the environment resulting from former operations at the AOC. According to IRP investigations conducted at the load line, explosives and metals have been detected in surface and subsurface soil, sediment, surface water, and groundwater. Summaries of these IRP investigations are provided below.

4.1.5.2 Previous Investigations

Final Phase I RI Report for the Phase I RI of High Priority AOCs at RVAAP, SAIC, February 1998

Surface Soil

Trinitrobenzene (TNB), TNT, DNT, HMX, and RDX were detected in surface soil samples collected from the load line. By far the most common explosive detected and at the highest concentrations was TNT, which was found at 18 locations with levels ranging from 0.45 to 19,000 mg/kg (RVAAP-3.K.1). The second most frequently detected explosive was RDX, which was found at eight locations with concentrations ranging from 2.8 to 6,800 mg/kg (RVAAP-3.K.2). The remaining detections were as follows: TNB was detected at three locations with concentrations ranging from 0.25 to 4.60 mg/kg; DNT was detected at one location at 13 mg/kg; and HMX was detected at five locations ranging from 4 to 180 mg/kg (RVAAP-3.K.2).

Aluminum, barium, cadmium, chromium, lead, manganese, mercury, silver, and zinc were detected above site background levels. Copper and nickel were detected above the maximum range of US Geological Survey (USGS) reference values in one sample (RVAAP-3.K.2).

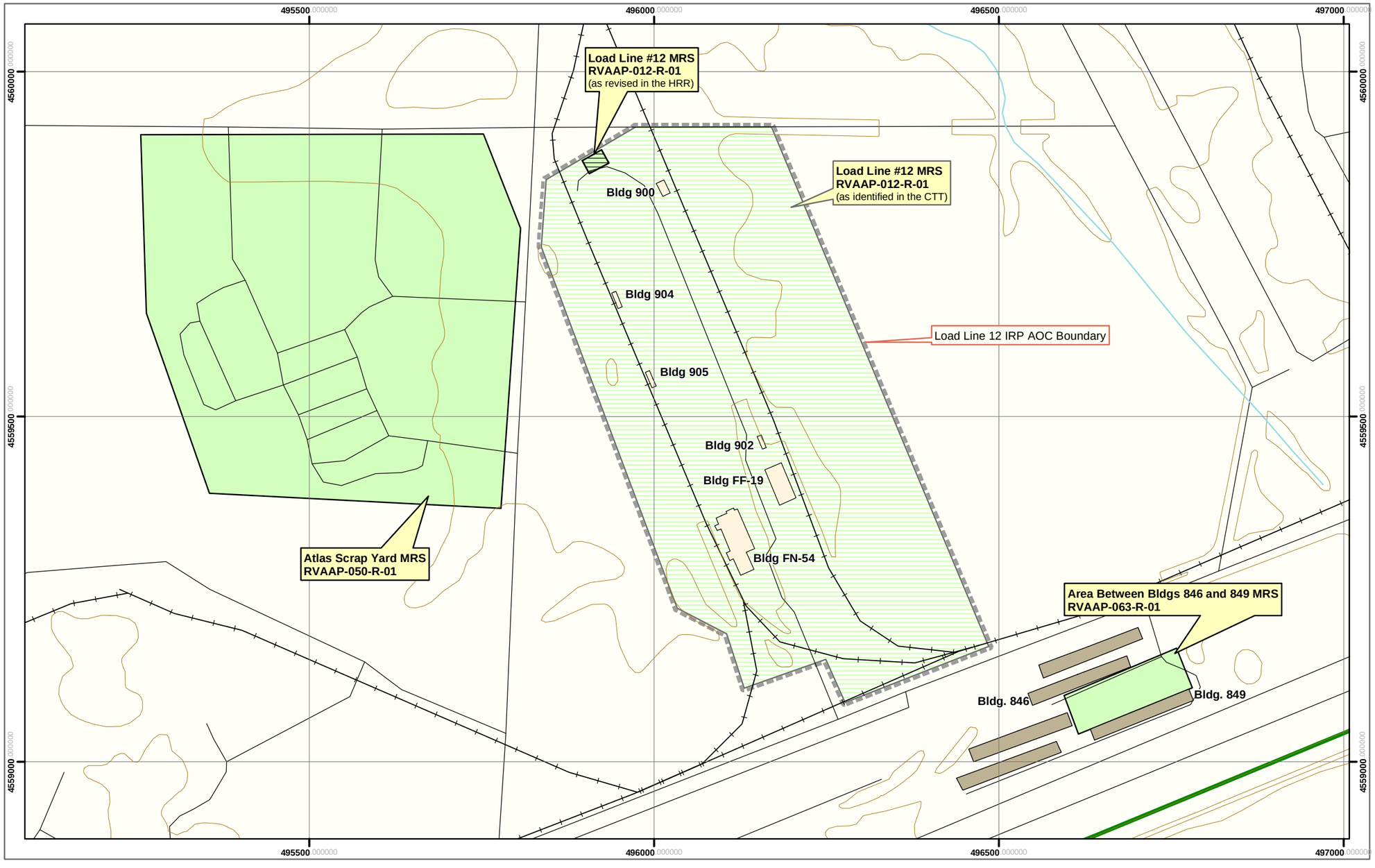
Sediment

TNT was detected in five sediment samples collected at Load Line #12 with concentrations ranging from 0.016 mg/kg to 170 mg/kg. TNB was detected in one sediment sample with a concentration of 0.66 mg/kg (RVAAP-3.K.3).

Zinc, lead, cadmium, mercury, barium, chromium, arsenic, silver, aluminum, and manganese were detected above background levels. Beryllium, cobalt, copper, and nickel were detected at concentrations exceeding the maximum USGS reference value (RVAAP-3.K.3).

LOAD LINE #12, ATLAS SCRAP YARD, and AREA BETWEEN BLDGS 846 AND 849 MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

Figure 7



N
W E
S

- Elevation Contour
- Installation Boundary
- Railroad
- Road
- Stream
- Building Locations, Existing
- Building Locations, Demolished

Area Status

- MRS, Closed
- MRS, Revised in HRR
- MRS, Identified in CTT
- IRP Area of Concern

Data Source: SAIC, Phase II RI Report for Load Line 12 at the RVAAP, OH, March 2004
SAIC, RVAAP 6 High Priority AOC's Feasibility Study, Preliminary Draft Figure 2-3, August 25, 2005

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 150 300 450 600 750 Feet
0 50 100 150 200 Meters

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH
Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: October 2006
Edition: Final

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Final Phase II RI Report for Load Line 12, RVAAP, SAIC, March 2004

Surface Soil

Ten explosives were detected at least once in surface soil samples with the most widespread being 2,4,6-TNT. The remaining nine detected were DNT; 4-amino-2,6-dinitrotoluene; 1,3,5-TNB; 2,6-dinitrotoluene; 3-nitrotoluene; 4-nitrotoluene; nitrobenzene; HMX; and RDX. Nitroguanidine and nitrocellulose were the only two propellants detected. Nitrocellulose was the most prevalent (RVAAP-3.J.1).

Metals exceeding background concentrations included antimony, barium, chromium, copper, lead, mercury, nickel, silver, thallium, vanadium, and zinc. Mercury was the most frequently detected metal above background concentrations (RVAAP-3.J.2).

Subsurface soil

Twelve explosives were detected at least once in subsurface soil samples. The most frequently detected explosive was 2,4,6-TNT (RVAAP-3.J.2), while the remaining compounds included RDX; HMX; DNT; 4-amino-2,6-dinitrotolune; 2,4-dinitrotoluene; 2-nitrotoluene; 3-nitrotoluene; nitrobenzene; 1,3,5-TNB; 1,3-dintrobenzene; and 2,6-dinitrotoluene. Nitrocellulose was the only propellant detected in the subsurface soils (RVAAP-3.J.2).

Antimony, copper, lead, mercury, and zinc were detected at concentrations exceeding their respective site background levels (RVAAP-3.J.3).

Sediment

Four explosives were detected in only two of the sediment samples collected at the load line. All detections were less than 1 mg/kg and included 2,4,6-TNT, DNT, 4-amino-2,6-dinitrotoluene, and 1,3-DNB. No propellants were detected in the sediment samples (RVAAP-3.J.3).

Twenty-two metals and cyanide were detected at least once in sediment samples. Cyanide was the only inorganic detected above background, occurring only in one sample (RVAAP-3.J.3).

Surface Water

Eleven explosives were detected in the surface water samples collected from the load line area. The most frequently detected were 2,4-dinitrotoluene and RDX (RVAAP-3.J.3). Other explosives detected

included 1,3,5-TNB; 2,4,6-TNT; HMX; Tetryl; 2,6-Dinitrotoluene; 2-Amino-4,6-Dinitrotoluene; 2-Nitrotoluene; 3-Nitrotoluene; and 4-Nitrotoluene. No propellants were detected (RVAAP-3.J.3).

Metals detected at concentrations exceeding their respective background values were barium, cadmium, chromium, cobalt, copper, nickel, and zinc. Surface water sampled in the West Ditch had the highest metal concentrations detected on site (RVAAP-3.J.4).

Groundwater

Thirteen explosives and propellant compounds were detected in groundwater samples collected from the load line area. The most frequently detected explosives were 2-nitrotoluene and 4-nitrotoluene (RVAAP-3.J.5).

Barium was the only metal detected above background in the groundwater samples collected. Arsenic, nitrate and thallium exceeded their respective maximum contaminant levels (MCLs) for drinking water (RVAAP-3.J.5).

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR confirmed the discovery of the 90mm "ammunition" at the MRS. The report further disclosed that unauthorized burial areas are hard to evaluate, stating that "even after the discovered munitions are removed, there is always the question regarding the size of the area and undiscovered munitions. In that the possibility of munitions buried nearby cannot be excluded, this area is considered to have potential ordnance presence". The ASR concluded that the MRS is considered to have potential OE presence.

Preliminary Draft FS for Load Line 12, RVAAP, SAIC, November 2005

Surface Soils

Explosives were somewhat widespread in soils located within the industrial portion of the AOC, while soils in the non-industrialized section were not impacted. Nine inorganic SRCs were detected in the industrial area that exceeded their respective background levels by more than 10 times (RVAAP-3.H.1).

Subsurface Soils

Explosives were also detected in the subsurface soil in the vicinity of Buildings FF-19, 900, 904, and 905. The explosive 2,4,6-TNT was the most frequently detected compound, with the highest concentrations

found in the footprints of Buildings 904 and 905. Nitrocellulose was the only propellant detected in the subsurface soil (RVAAP-3.H.1).

Antimony, copper, lead, mercury, and zinc were the most frequently detected inorganics found at concentrations in excess of background levels. The highest inorganic concentrations exceeding background levels were found in the subsurface soils in the vicinity of Building FF-19 (RVAAP-3.H.1).

Sediment

Explosives concentrations in sediment were less than 1 mg/kg and limited to the West Ditch at Building 905 and the area near Upper Cobb's Pond (RVAAP-3.H.1).

Cadmium, copper, and mercury were detected at concentrations exceeding their respective background levels in sediment near Buildings FF-19, FN-54, 902, and 905 (RVAAP-3.H.1).

Surface Water

Explosives were detected in low concentrations in all surface water samples collected from the industrialized area. The highest concentrations were found in the surface water samples collected from the active area channel (RVAAP-3.H.1).

Barium, cadmium, chromium, cobalt, copper, nickel, and zinc were detected at concentrations exceeding their respective backgrounds at every sampling location near Buildings 900, 905, and FN-54 (RVAAP-3.H.1).

Groundwater

With the exception of nitrocellulose, there has been a decrease in the total number of explosives and propellants detected in groundwater at the load line monitoring wells since the 2000 RI was conducted. Nitrocellulose exhibited an increase in concentration between sampling events.

Zinc exceeded its background level in one sample, while arsenic exceeded its primary drinking water MCL and background level at several wells (RVAAP-3.H.1).

Final Phase II RI Supplemental Report, SAIC, November 2005

"Results for the 2004/2005 groundwater monitoring events indicated a decrease in the total number of explosives and propellants detected in groundwater at Load Line 12 since the time of the RI. Five of the

13 explosives compounds identified as SRCs during the Phase II RI (2,4-dinitrotoluene; 2-nitrotoluene; 3-nitrotoluene; nitrobenzene; and tetryl) were not subsequently detected (RVAAP-3.I.1)." Nitrocellulose increased in frequency of detection in the 2004/2005 sampling of the existing Phase II RI monitoring wells. HMX was detected as a new SRC in groundwater in one sample (RVAAP-3.I.1).

4.1.5.3 MEC/MC Analysis

During IRP work conducted in the fall of 1999, a large number of empty 90mm artillery projectiles (i.e., munitions debris) were found buried just below the ground surface, north of the access road in the northwest corner of the MRS. The rounds were determined to be void of HE and were removed by MKM Engineers in March 2004 and placed in Building 1501. However, during the course of the RI field work, the UXO clearance was not extended outside of the area where the inert projectiles were found. As such, there is still uncertainty whether or not all of the buried items were found and recovered.

Explosives and metals have been identified in all media (i.e., soil, sediment, groundwater, surface water) at the IRP AOC. Further work concerning MC at the site; however, will be addressed under the IRP and will not be evaluated under the SI process.

4.1.6 Fuze and Booster Quarry (RVAAP-016-R-01)

4.1.6.1 Summary of Findings

The Fuze and Booster Quarry MRS is described in the US Army CTT Range/Site Inventory as encompassing approximately 12.74 acres and located near the Fuze and Booster load lines (possibly where the MRS name was derived). Originally excavated to provide building material, the quarry site was subsequently used from 1945 until 1949 as an open burn area where sawdust waste potentially from Load Lines 6 and 11 were thermally treated. Thereafter, the quarry was used as a landfill that reportedly accepted fuze and booster assemblies, projectiles, residual ash, and sanitary waste. Reportedly in 1976, the existing debris in the area was removed from the quarry bottom and either transferred to Ramsdell Quarry or one of the existing burning grounds. It was at this time that the three elongate ponds were constructed. From 1987 through 1993, spent brine regenerate and sand filtration backwash water from one of the groundwater treatment plants was discharged into the ponds. This discharge was regulated under a National Pollutant Discharge Elimination System (NPDES) permit (RVAAP-3.B.2).

The current configuration of the MRS consists of three elongated ponds situated end to end and separated by earthen berms. The surface water in the ponds is approximately 20 ft below current grade, while the total depth of the ponds is believed to be 30 ft deep. The ponds are surrounded by mature hardwood forest, and a gravel road leads up to the western side of the site. **Figure 8** provides the layout of the Fuze and Booster Quarry. This figure was taken from the Phase I/Phase II RI Report of the Fuze and Booster Quarry Landfill/Ponds by SAIC and Spec Pro, Inc. (RVAAP-6.B.4). Current site conditions at the middle pond are shown in **Photograph 17**.



Photograph 17: December 2005 photograph of the Middle Pond at the Fuze and Booster Quarry. (RVAAP-8.A.1)

According to RVAAP personnel, any type of munitions produced at the plant may have been destroyed here such as rockets, bombs, fuzes, detonators, flares, missiles, grenades, landmines, medium and large caliber ammunitions, explosives, mortars, propellant, practice ordnance, pyrotechnics, and small arms. Further, Installation personnel have stated that the northern and southern ponds contain MEC, while it

is uncertain if the middle pond contains MEC. At the northern pond, MEC is reportedly visible when the water level is low. At the southern pond, MEC is apparently visible on the banks at all times.

The MRS is associated with IRP AOC RVAAP-016, Fuze and Booster Quarry. The AOC consists of the three large ponds located in an abandoned rock quarry, which is situated in the eastern half of the AOC, and the western part of the AOC consists of 11 smaller, shallow settling basins. In 1998, this AOC was expanded to include three other shallow settling ponds and two debris piles bringing the AOC to approximately 45 acres in size. The settling ponds are located approximately 400 feet to the west of the three large ponds. Based on information provided by the Installation, the two debris piles may be located along the northern rim of the northernmost pond. Figures outlining the AOC boundary could not be located during the records search; therefore, the exact boundary of the AOC could not be determined. Based on the operational history, waste constituents and potential contaminants at this AOC include explosive compounds, propellants, and inorganics (RVAAP-6.B.4).

4.1.6.2 Previous Investigations

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that the MRS has "potential OE presence." The report further stated that metal debris is present at the site, but that it was unknown if any of the debris still contained energetic material (RVAAP-4.A.1). The report did not attempt to identify what the metal debris consisted of or the location where the debris was sighted.

Final Phase I/Phase II RI of the Fuze and Booster Quarry Landfill/Ponds, RVAAP, SAIC and Spec Pro, Inc., November 2005

Surface Soil

Nine explosive/propellant compounds were detected in surface soil at the Fuze and Booster Quarry including: nitrocellulose; 2,4,6-TNT; nitrobenzene; DNT; 4-amino-2,6-dinitrotoluene; 1,3,5-TNB; 2,4-dinitrotolune; 2,6-dinitrotoluene; and RDX (RVAAP-6.B.1). The greatest number of detections was found at the higher elevations northeast of the quarry ponds (RVAAP-6.B.1).

Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, manganese, nickel, selenium, silver, vanadium, and zinc were all detected in excess of background concentrations. The sample locations with the highest levels of inorganics were generally located in the higher elevations northeast of the northern-most quarry pond (RVAAP-6.B.1).

FUZE AND BOOSTER QUARRY, WATER WORKS #4 DUMP, 40mm FIRING RANGE, and FIRESTONE TEST FACILITY MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

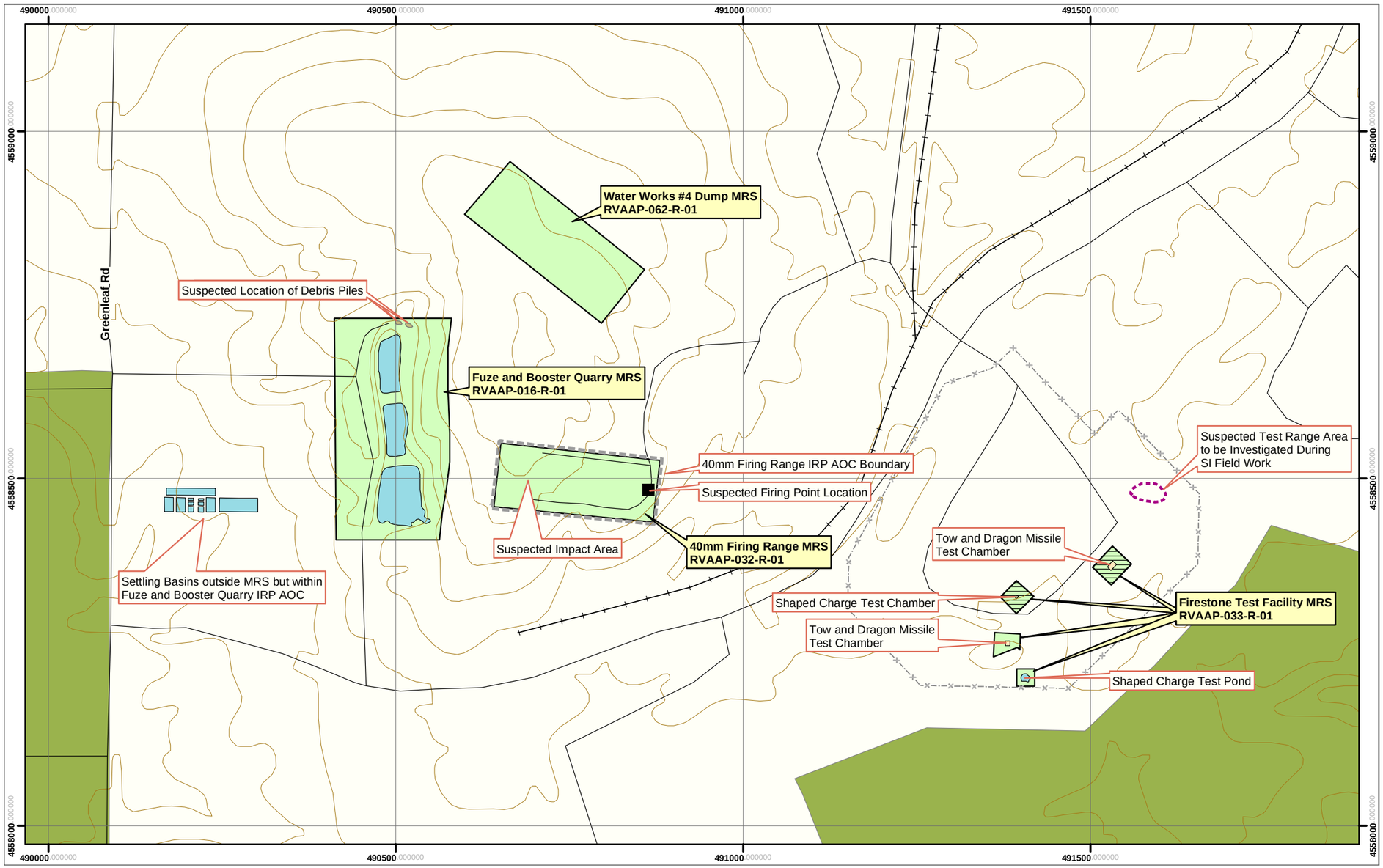

Figure 8

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- Elevation Contour
- Railroad
- Road
- Water
- Former Location of Test Chamber Buildings
- Suspected Location of Debris Piles
- Suspected Test Range
- Suspected Firing Point Location
- Fence

Area Status

- Operational Range
- MRS, Closed
- MRS, Added in HRR
- IRP Area of Concern

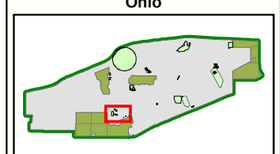
Data Source:
SpecPro, RVAAP Fuze and Booster Quarry Landfill/Ponds Phase I and II RI Report, January 22, 2005

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**500 Meter**

1:6,000

0 150 300 450 600 750 Feet
0 80 160 240 Meters

Installation Location
Ohio



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Date: January 2007
Edition: Final (Revised)

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Subsurface Soil

Nitrobenzene and nitrocellulose were detected in several sub-surface sampling locations. Aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, selenium, vanadium, and zinc were detected above background concentrations in subsurface soil (RVAAP-6.B.1).

Sediment

Eleven explosive/propellant compounds were detected in sediment samples collected at the Fuze and Booster Quarry including: 1,3,5-TNB; 1,3-DNB; 2,4,6-TNT; 2,6-dinitrotolune; DNT; 4-amino-2,6-dinitrotoluene; HMX; 3-nitrotoluene; DNB; nitrocellulose; and nitroglycerine (RVAAP-6.B.1).

Sixteen inorganics were detected in sediment samples at concentrations that exceeded their associated background concentrations. These included the following: aluminum; antimony; arsenic; barium; beryllium; cadmium; chromium; cobalt; copper; lead; manganese; mercury; nickel; selenium; silver; vanadium; and zinc (RVAAP-6.B.1). The greatest number of detections was found in sediment samples collected from the southwestern-most corner of the AOC (RVAAP-3.L.1).

Surface Water

DNT and 4-amino-2,6-dinitrotoluene were detected in the surface water samples collected from one of the smaller settling basins located in the western half of the site. In addition, 12 of the 15 sampling locations revealed nitrocellulose at detectable concentrations (RVAAP-6.B.2).

Aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, manganese, nickel, silver, vanadium, and zinc were all detected in excess of background concentrations in surface water at the smaller settling basins. The quarry ponds generally had lower concentrations of inorganics than the settling basins (RVAAP-6.B.2).

Groundwater

Explosives and propellants were detected in groundwater samples collected from the AOC. These included 2,4,6-TNT; 2,4-dinitrotoluene; DNT; 4-amino-2,6-dinitrotoluene; nitrobenzene; and nitrocellulose. In addition, barium, manganese, aluminum, nickel, zinc, cobalt, copper, and cadmium were detected in the groundwater (RVAAP-6.B.2).

4.1.6.3 MEC/MC Analysis

Records were not available to quantify the volume of munitions and other related items burned or disposed of at the MRS. Further, there are no recorded instances of MEC being found at the MRS. However, according to Installation personnel, MEC is present at both the northern and southern ponds. The type, condition, and quantity of MEC located at the ponds were not disclosed. While MEC is reported to be present at the two aforementioned ponds, little is known about the middle pond.

In surface and subsurface soil at the site, explosives and propellants were detected and metals were present in excess of background concentrations. In sediment and surface water at the site, explosives and propellants were detected and many metals exceeded background concentrations. Explosives, propellants, and metals were all detected in groundwater at the site. MC is being addressed under the IRP and will not be further evaluated under the SI.

4.1.7 Landfill North of Winklepeck (RVAAP-019-R-01)

4.1.7.1 Summary of Findings

This MRS is described in the US Army CTT Range/Site Inventory as a 7.55 acre unlined landfill that accepted general plant refuse, explosive wastes residue, and open burn waste from Winklepeck Burning Grounds, including flares and booster cups (RVAAP-2.A.9). The landfill is situated on top of a small bluff that overlooks an unnamed stream to the east. Wetlands are associated with the small stream.

Installation personnel have reported that MEC (booster cups and other nondescript items) is present on the slope leading down to the small stream, outside of the current MRS boundary. To capture this potential MEC, the MRS boundary has been adjusted to cover the area between the landfill and the small stream as identified by Installation personnel. In addition, the revised boundary would exclude the landfill area covered under the IRP, which had been identified as the original MRS in the US Army CTT Range/Site Inventory. The IRP will continue to address MC contamination within the known boundaries of the landfill and any MEC discovered incidental during its' continued investigation. **Figure 9** shows the revised boundary (14.05 acres) for the Landfill North of Winklepeck MRS. This figure was taken from Volume I of the Phase I RI Report for the Phase I RI of High Priority AOC at RVAAP by SAIC (RVAAP-3.K.6). This MRS is currently undeveloped (RVAAP-1.A.2).

The MRS is adjacent to the IRP AOC RVAAP-019, which is referred to as the Landfill North of Winklepeck Burning Grounds. The landfill AOC is described as encompassing approximately 10-acres and as having received an unknown quantity of material that included booster cups, aluminum liners, sanitary waste, and possibly explosives and munitions waste and ash. During the HRR, information was uncovered that suggested, based on appearance and location, that the landfill was created using a trench and fill method of operation (RVAAP-14.C.1). Further, it was revealed that debris and garbage protrude through the landfill surface in several areas. As stated previously, the IRP will continue to address MC contamination within the known boundaries of the landfill and any MEC discovered incidental during its' continued investigation. Therefore, the landfill AOC has been removed from consideration under the MMRP. **Photograph 18** shows the current site conditions at the IRP AOC, looking across the landfill unit towards the adjacent stream.

4.1.7.2 Previous Investigations

Phase I RI Report for the Phase I RI of High Priority AOC at RVAAP, Ravenna, Ohio, Volume I, SAIC, February 1998

Geophysical Survey

A geophysical survey was conducted to locate buried metallic debris and possibly identify disposal trenches. The survey covered approximately four acres believed to be in the vicinity of the landfill. Results from the survey revealed the presence of buried metallic items that purportedly represented trenches (RVAAP-3.K.5).



Photograph 18: December 2005 photograph of Landfill North of Winklepeck. (RVAAP-8.A.1)

Soil

A total of nine composite soil samples were collected from depths ranging from 0 to 3 ft bgs at five trench excavation locations. All soil samples were analyzed for metals, cyanide, explosives, VOCs, SVOCs, and polychlorinated biphenyls (PCBs)/pesticides. No explosives were detected in the soil samples collected (RVAAP-3.K.5).

Cadmium (detected in two samples), lead (detected in three samples), and zinc (detected in four samples) were detected in excess of background concentrations. The remaining inorganics (cyanide, antimony, beryllium, cobalt, copper, nickel, thallium, and vanadium) did not have established background concentrations; however, all were "within the range of USGS Ohio reference values with the exception of thallium, which has no published USGS reference value (RVAAP-3.K.5)."

Sediment

Seven sediment samples, two collected from a pond and five from a ditch, were analyzed for metals and explosives. These samples were not collected within the landfill boundary but in the ditch to the east of the landfill. Explosives were not detected in any of the sediment samples (RVAAP-3.K.5). Aluminum, barium, cadmium, chromium, lead, manganese, mercury, selenium, silver, and zinc were all detected above background concentrations (RVAAP-3.K.6).

LANDFILL NORTH OF WINKLEPECK, BUILDING #F-15 AND F-16, BLOCK D IGLOO, and BLOCK D IGLOO - TD MRS LOCATIONS
Ravenna Army Ammunition Plant, OH

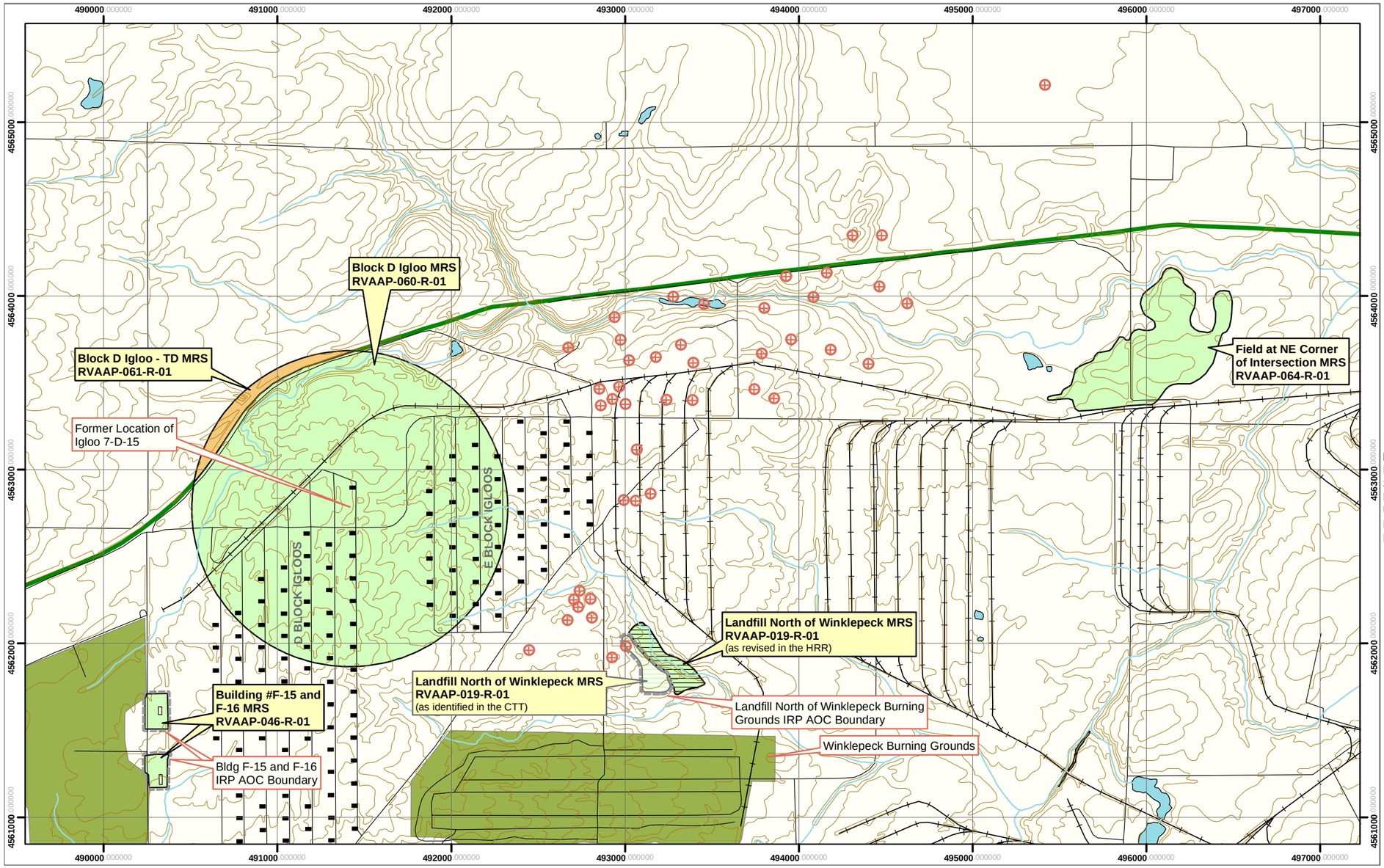

Figure 9

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- Elevation Contour
- Installation Boundary
- Railroad
- Road
- Stream
- Water
- Building Locations, Demolished
- Igloo Location
- Location of Fragments Found from the 1943 Explosion of Igloo 7-D-15

Area Status

- Operational Range
- MRS, Closed
- MRS, Transferred
- MRS, Revised in HRR
- MRS, Identified in CTT
- IRP Area of Concern

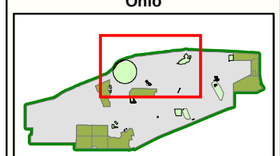
Data Source: MKM Engineers, RVAAP Buildings F-15/F-16 Soil Sample Location Exceedance-Organics, Figure F-15/F-16-3, June 30, 2005
USACE, Rock Island IL District, Fragments from 1943 Explosion, Plate 7, June 03, 2004

Projection:	**UTM Zone 17**
Datum :	**WGS 84**
Units:	**Meters**
Grid:	**1,000 Meter**

1:24,000

0 1,000 2,000 3,000 Feet
0 290 580 870 Meters

Installation Location
Ohio



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Groundwater

Four well points were installed and sampled. Three of the well points were located within the AOC boundary, while one was located outside. No explosives were detected in the sampled groundwater (RVAAP-3.K.6). Fourteen metals were detected in groundwater (RVAAP-3.K.5). Background concentrations had not reportedly been established at the site.

4.1.7.3 MEC/MC Analysis

According to Installation personnel, MEC exists outside the MRS boundary established during the US Army CTT Range/Site Inventory. This newly identified area is located on the hillside between the landfill and the small stream situated adjacent and to the east. The MRS boundary has been revised to include this new area, while concurrently excluding the former MRS boundary covering the land-filled area. Both the potential presence of MEC and MC will have to be further evaluated during the SI process.

The landfill area (IRP AOC RVAAP-019) is currently being addressed under the IRP and will not be evaluated further under the SI process. However, the IRP will continue to address MC contamination within the known boundaries of the landfill and any MEC discovered incidental during its' continued investigation.

4.1.8 40mm Firing Range (RVAAP-032-R-01)

4.1.8.1 Summary of Findings

This undeveloped MRS encompasses an open field approximately 5.17 acres in size, which is surrounded by forest. A wooden structure (see **Photograph 19**) located at the firing point believed to be the former storage shed, the gun mount foundation, and the chronograph foundation are the only remnants from the operational years still present at the MRS (RVAAP-8.A.1). The firing range was reported by former workers at RVAAP to have been a test firing range for 40mm grenade cartridges fired from a fixed position, which was located in the eastern portion of the site. The impact area was sited in the western portion of the MRS, just uphill from the ponds at the Fuze and Booster Quarry, which included a well defined impact area with a backstop. The backstop has since been removed from the MRS. **Photograph 20** shows the site conditions down range from the firing point. The date of operation for this area was between 1969 and 1971. RVAAP personnel report that UXO is present beyond the impact point, on the slope that leads down to the Fuze and Booster Quarry MRS (RVAAP-2.A.10). **Figure 8** shows the current layout of the 40mm Firing Range MRS.



Photograph 19: December 2005 photograph of the wooden shack at the firing point on the 40mm Firing Range. (RVAAP-8.A.1)



Photograph 20: December 2005 photograph of 40mm Firing Range. (RVAAP-8.A.1)

Additional information revealed during the HRR found that the range was used during the Viet Nam conflict to test the 40mm cartridge. According to the ASR, the rounds tested may have included both the M407A1 practice round and the M406 HE round. The practice rounds contain yellow marker dye, M9 propellant, and RDX booster pellets, while the M406 HE round contains Composition B and M9 propellant. The purpose of the range was to perform acceptance tests, which included muzzle velocity measurements and impact function tests. Reportedly, an Army Material

Command representative was present during the tests and all of the approximately 2,500 rounds fired on this range were accounted for (RVAAP-4.A.5). This information was obtained from the ASR, which cited a report (Installation Assessment of Ravenna Army Ammunition Plant) prepared by the US Army Toxic and Hazardous Materials Agency in November 1978. However, supporting documentation was not found during the HRR to indicate that all 2,500 rounds were recovered. Therefore, it must be assumed that rounds still remain at the MRS.

The MRS is collocated with the IRP AOC RVAAP-032, which is also referred to as the 40mm Firing Range. The AOC covers the same area as the MRS.

4.1.8.2 Previous Investigations

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that it is unknown whether the 40mm Firing Range has OE present. "This range has either potential ordnance presence or no ordnance presence; good arguments can be made for both cases. Supporting a finding of no ordnance presence are the facts that this range had a small, well-defined impact area, there was only one direction of fire, the firing was done under controlled conditions, a government representative was present during the test and there is no record of OE being found on the range. Supporting a finding of potential ordnance presence are the facts there is no documentation of the range being swept when it was closed and the RDX pellets contained in the M407A1 projectile are often overlooked in a surface sweep (RVAAP-4.A.1)." The ASR also indicates that if the presence of MEC cannot be eliminated, then the area would be considered to have potential MEC presence.

Final Phase I/Phase II RI of the Fuze and Booster Quarry Landfill/Ponds, SAIC and Spec Pro, Inc., November 2005

This Phase I/Phase II RI addressed the Fuze and Booster Quarry Landfill/Ponds IRP AOC, as well as the 40mm Firing Range.

Surface Soil

Seven explosive/propellant compounds were detected in samples collected from the 40mm Firing Range at least once in surface soil samples collected during the Phase II RI. The following compounds were detected: nitrocellulose (4 of 4 samples); 2,4,6-TNT (1 of 40 samples); nitrobenzene (4 of 40 samples); 2-amino-4,6-DNT (2 of 40 samples); 4-amino-2,6-DNT (2 of 40 samples); 1,3,5-TNB (1 of 40 samples); 2,4-DNT (1 of 40 samples); tetryl (1 of 30 samples), and HMX and 3-nitrotoluene (each at 1 of 40

samples). Sample FBQ-98 was found to have the greatest number (six) of detected explosive/propellant compounds in surface soil samples at the 40mm Firing Range area (RVAAP-6.B.1).

Thirteen inorganics were detected above background in surface soil samples collected from the 40mm Firing Range area. These compounds were: aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, thallium, vanadium, and zinc. Samples FBQ-066, -078, -079, -086, -087, and -091 had the greatest number of surface soil inorganic SRCs above background in the 40mm Firing Range area. These sample locations were located throughout the central portion of the firing range area (RVAAP-6.B.1).

Subsurface Soil

At the 40mm Firing Range, either 3-nitrotoluene (1 of 26 samples), nitrobenzene (3 of 26 samples), or nitrocellulose (3 of 3 samples) was detected at least once at five sample locations (FBQ-067, -079, -082, -083, and -086) (RVAAP-6.B.1).

Nine inorganics were detected above background in subsurface soil samples collected from the 40mm Firing Range. These compounds were: aluminum, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, and thallium. The following sample locations had four or more subsurface soil inorganic SRCs above background: FBQ-062, -063, -077, and -095 (RVAAP-6.B.1).

4.1.8.3 MEC/MC Analysis

Installation personnel have reported that MEC is present at the western end of the MRS. However, a description of the type of MEC reportedly present was not provided. Consequently, little is known about the density, condition or extent of MEC, or if a subsurface presence exists.

Metals in excess of background concentrations, and explosives and propellants were detected in surface and subsurface soil at the site. MC is being addressed under the IRP and will not be further evaluated under the SI process.

4.1.9 Firestone Test Facility (RVAAP-033-R-01)

4.1.9.1 Summary of Findings

The Firestone Test Facility MRS consisted of two buildings and a pond that were situated on the southeastern side of the Load Line 6 Fuze and Booster Area. The buildings were used as a test chamber for TOW and Dragon missiles, while shaped charges were tested under water at the pond. It was also determined that there was an additional building located at the MRS that was used for testing shaped charges. The building, which measured 10 ft high and 10 ft square, was constructed of reinforced concrete and fitted with steel plates, and surround by a barricade constructed of railroad ties. In addition, Installation personnel identified a suspected test range located northeast of the former test facility. Very little is known about the activities that were conducted at the site. However, based on an aerial photograph pre-dating the building demolition (circa 1999), it would appear that the area consisted of a small clearing surrounded by trees and contained one structure. The makeup of the structure was not identifiable, but appears to be a rectangular building. The only remnants left at the site are piles of dirt and large timbers.



Photograph 21: December 2005 photograph of Firestone Test Facility. (RVAAP-8.A.1)

Between FY 2003 and 2005 all buildings located at the MRS were demolished. With the exception of Buildings 2F3, 2F7, 2F8, and 2F9, all of the buildings were thermally treated. All that remains on site are piles of demolition debris and the pond formerly used to test underwater shaped charges. In the US Army CTT Range/Site Inventory, the MRS boundary only included the location of the pond and one of the test chambers. The locations of the second missile test chamber and the shaped-charge test chamber were identified during the HRR and have been added to the MRS boundary. Additional investigation of the suspected test range area will have to be conducted during the SI field work. Based on these findings, the area may or may not be included as part of the MRS footprint. The revised MRS boundary is provided in **Figure 8**, which shows the location of the three buildings before they were taken down, and the pond. **Photograph 21** shows the debris piles left over from the demolition of the buildings located at the MRS.

Additional information gathered during the HRR revealed that the Firestone Test Facility was reported by former workers to have been a security classified experimental test facility for munitions. Reportedly, the facility was used to construct and test shaped charges for the DoD, in addition to the missile testing. At one point in time, this facility was also referred to as the Shaped Charge Test Facility. Other than these insignificant facts, very little documentation exists for the site (RVAAP-1.A.1).

The MRS is associated with the IRP AOC RVAAP-033, which is referred to as the Load Line 6 site. Only limited sampling data exists for this site (a preliminary draft RI was due out in March 2006); however, the available analytical data revealed that the soils contained elevated levels of antimony, copper, and lead, which exceeded the Relative Risk Site Evaluation criteria (RRSE). Regardless, the FY 2006 Installation Action Plan (IAP) listed the contaminants of potential concern as lead azide, TNT, RDX, other explosives, and metals.

4.1.9.2 Previous Investigations

FY 2006 RVAAP, OH IAP

The United States Army Center for Health Promotion and Preventive Medicine (USACHPPM) collected soil samples at the site in 1996. Antimony, copper, and lead were all detected above the RRSE screening concentrations (RVAAP-1.A.1).

4.1.9.3 MEC/MC Analysis

According to the FY 2006 IAP, no UXO investigations have been conducted at the MRS (RVAAP-1.A.2); further, no records were found indicating that MEC had been found at the MRS. The only remnant of former activities left at the MRS is the pond that was used to test shaped charges underwater. Both test chambers where TOW and Dragon missiles were tested have been demolished, as well as the shaped charge test chamber. While the release mechanism for MEC was the intentional testing of these munitions types, the tests were contained limiting any release. As such, the potential for MEC to be located at the MRS is expected to be limited.

Antimony, copper, and lead were all detected above the RRSE screening concentrations for soil at the site (RVAAP-1.A.1). Further, the FY 2006 IAP indicated that lead azide, TNT, RDX, other explosives, and metals are potential contaminants of concern. However, MC is being addressed under the IRP and will not be evaluated further under the SI process (RVAAP-1.A.2).

4.1.10 Sand Creek Dump (RVAAP-034-R-01)

4.1.10.1 Summary of Findings

The Sand Creek Dump MRS encompasses approximately 0.85 acres of undeveloped land that stretches along the banks of Sand Creek for approximately 1,000 ft. The MRS is split into two sections by a railroad track. The presence of a lift station situated adjacent to the northeastern tip is the only evidence that utilities may be present in the area. During removal activities performed in October of 2003 under the IRP, two demilitarized 75mm projectiles were found at the MRS. The projectiles were removed by MKM Engineers and taken to Building 1501. No other reports of MEC being discovered at the MRS were identified.



Photograph 22: Photograph of surface debris lying on the bank of Sand Creek, circa 2003. (RVAAP-1.A.1)

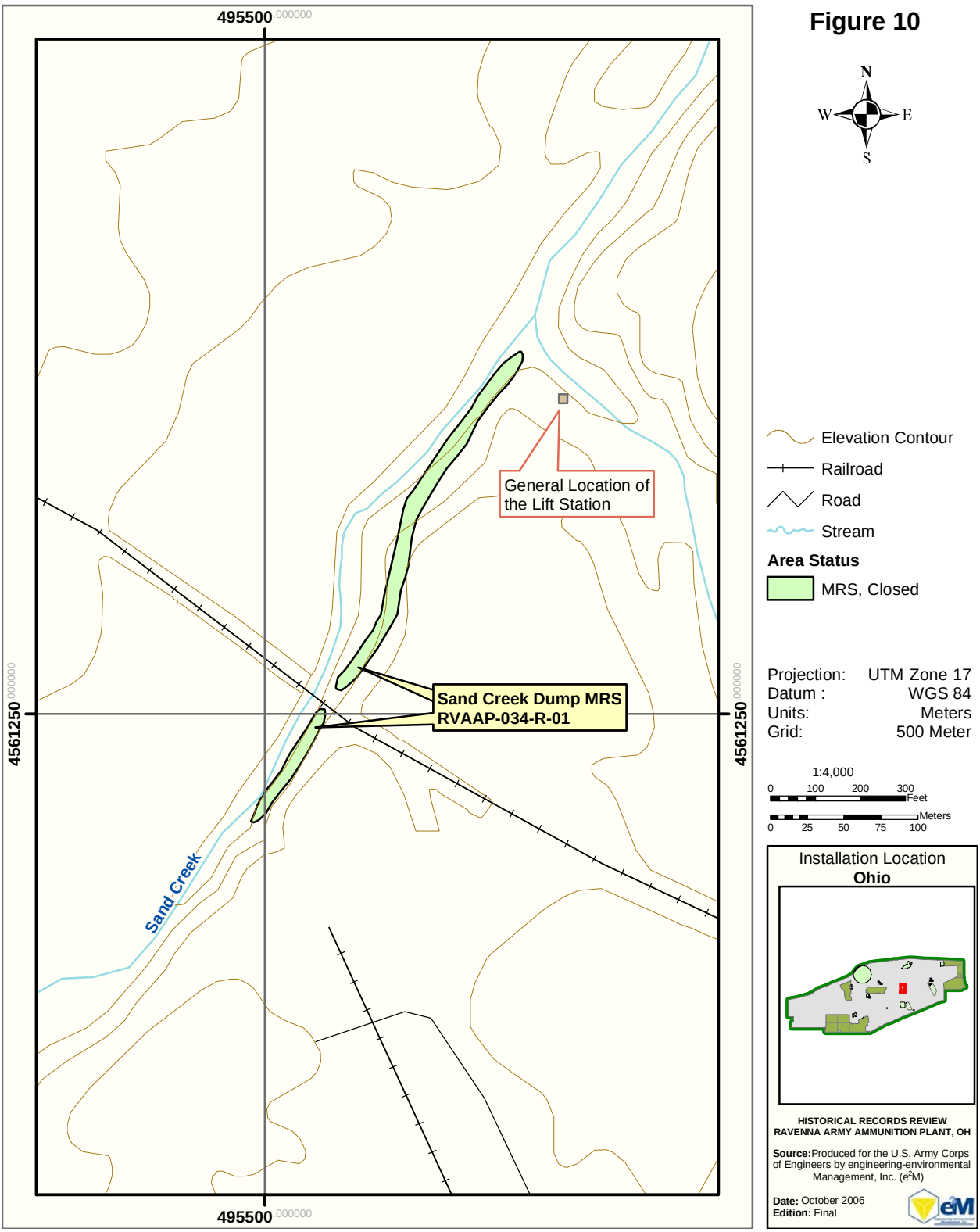
The area is heavily overgrown with trees, shrubs, and ground cover. Debris at the site is reportedly exposed and entering Sand Creek due to erosion (RVAAP-2.A.5). **Photograph 22** shows exposed debris (i.e., drums and containers) lying on the bank of Sand Creek. **Figure 10** shows the layout of the Sand Creek Dump MRS.

Very little original file documentation exists for this MRS (RVAAP-1.A.1); as such, only a modest amount of new information was available during the HRR. One new source of information was contained in an Interim Removal Action (IRA) report from April 2004. The IRA included the removal and disposal of all visible surface debris in order to eliminate the immediate threat to human health and the environment, and consequently remove the potential for future migration of contaminants off-site. The report did not mention the discovery of any MEC or munitions debris at the site.

The MRS is associated with the IRP AOC RVAAP-034, which is referred to as the Sand Creek Disposal Road Landfill site. Available documentation for the AOC provided the same background information that was found while researching the MRS; that is, the AOC was an open dump for concrete, wood, asbestos debris, lab bottles, 55-gallon drums and fluorescent light tubes. One difference is that the AOC encompasses approximately 2.7 acres, rather than the 0.85 acres comprised by the MRS. A figure identifying the IRP AOC boundary could not be located and it is not known where the additional IRP AOC acreage is situated. Further, it was determined that the AOC was transferred to the OHARNG in

SAND CREEK DUMP MRS
Ravenna Army Ammunition Plant, OH

Figure 10



May 1999. According to the FY 2006 IAP, an Analytical Evaluation Risk Summary and Record of Decision are scheduled for January 2007 for the site (RVAAP-1.A.1).

4.1.10.2 Previous Investigations

OE ASR for RVAAP, OH, USACE, Rock Island District, June 2004

The 2004 ASR indicated that the Sand Creek Dump MRS is "considered to have no OE presence" (RVAAP-4.A.1). The report stated that only inert 75mm projectiles were found at the location and that the discovery of inert metal parts often are found in landfills. Further, the report concluded that other than being examined by a knowledgeable individual, no further action should be required at the site (RVAAP-4.A.1).

FY 2006, RVAAP, OH IAP

The IAP report presented analytical sampling results from removal activities conducted under the IRP. The data indicated that arsenic was detected in sediment in the neighboring floodplain at levels above the RRSE screening concentrations. Soil samples were taken by the USACE in September 2001 to further refine the RRSE. Arsenic (87 parts per million [ppm]) and the SVOCs benzo (a) pyrene (0.322ppm), benzo (a) athracene (0.347ppm), benzo (b) fluoranthene (0.446ppm), and indeno (1,2,3-cd) pyrene were detected at significant concentrations (RVAAP-1.A.1). There was no discussion in the IAP of explosives or propellants having been analyzed for or detected during the removal activities.

Final Report, RD/RA for the Sand Creek Road Dump, 2004

Confirmation samples collected following the removal action revealed elevated concentrations (i.e., above Installation–specific background and/or EPA Region 9 residential PRGs) of heavy metals, SVOCs, explosives and/or propellants in the underlying soils of the dump site. In addition, the report revealed that some heavy metals, explosives, and propellants were detected above Installation-specific background in the neighboring flood plain sediment, and that propellants were detected above Installation-specific background in surface water samples collected from Sand Creek. Finally, arsenic was detected at concentrations exceeding the EPA Region 9 residential PRGs in the neighboring flood plain sediment.

4.1.10.3 MEC/MC Analysis

Only munitions debris (i.e., two demilitarized 75mm projectiles) has been sighted at the MRS. It has been reported by the Installation that the munitions debris were removed by MKM Engineers and taken to Building 1500. The discovery took place during IRP field work; there have not been any incidental

discoveries of MEC reported for this MRS. While there have been no further reports of discovered munitions, an investigation focused on identifying potentially buried items has not been conducted at the MRS. As such, the potential presence of MEC can not be completely dismissed.

Explosives and propellants have been detected at the MRS. Regardless, chemical contamination at the MRS is being addressed under the IRP and will not be evaluated further under the SI process.

4.1.11 Building #F-15 and F-16 (RVAAP-046-R-01)

4.1.11.1 Summary of Findings

The MRS encompasses approximately 12.23 acres of undeveloped land. Since the completion of the US Army CTT Range/Site Inventory, the buildings at the MRS have been demolished. At Building F-15, the only remaining feature is the raised foundation. Both the foundation and building debris remain at Building F-16. Prior to their demolition, each building measured approximately 60 ft wide by 120 ft long. The area surrounding the buildings is forested land. The remnants of Building F-15 are shown in **Photograph 23**. **Figure 9** provides the layout of the configuration at the MRS.



Photograph 23: December 2005 photograph of Building F-15. (RVAAP-8.A.1)

Additional information was found during the HRR describing the activities that were conducted at the MRS. According to interviews with Installation personnel, the facility was used during WWII, the Korean War, and Vietnam War to test miscellaneous explosives and propellants. Buildings F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds (type not specified) were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage which were subsequently dismantled for inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE). Information concerning the final disposition of the tested components was not disclosed. It could be surmised that since the projectiles were dismantled and rendered non-operational, the components would have been taken to any one of the burning grounds to be demilitarized.

According to the US Army CTT Range/Site Inventory report, large caliber casings have been found (no date provided) lying on the ground surface somewhere in the vicinity of the buildings. No additional information was uncovered during the HRR concerning the type of ordnance or the exact location where the items were found. However, since the casings were void of HE, they constitute munitions debris and not MEC.

The MRS is associated with the IRP AOC RVAAP-046, which is referred to as the Bldgs. F-15 and F-16 site. Available documentation describing the physical conditions and historic operations for the AOC

duplicated what was found for the MRS; that is, the AOC consisted of two buildings that were used for surveillance testing of ordnance and explosives. The size of the AOC could not be determined, but is assumed to encompass the same area as the MRS. It was determined that the AOC was transferred to the OHARNG in May 1999 (RVAAP-1.A.1).

4.1.11.2 Previous Investigations

OE ASR for RVAAP, OH, USACE, Rock Island District, June 2004

While the ASR generally reiterated the information provided in the US Army CTT Range/Site Inventory, there was mention that the surveillance test organization acquired pyrotechnic pistols, presumably for testing aircraft flares. The ASR report stated that "This type of test cannot be conducted inside a building but rather outside the building or at a range". A search of the area adjacent to the buildings during the site visit found no evidence of OE remaining from these tests. Further, the MRS area and buildings were determined to have no OE presence (RVAAP-4.A.1).

As part of the site visit, the inspection team searched an area south of Building F-15 where they discovered some inert metal parts that may have contained explosives at one time. The report described the items as having been modified with threads so that the pieces could be disassembled and reassembled (see **Photographs 24** and **25**).



Photograph 24: Inert metal item found south of Building F-15 during the June 2004 ASR Site Visit; item split in half.



Photograph 25: Inert metal item found south of Building F-15 during the June 2004 ASR Site Visit.

FY 2006, RVAAP, OH IAP

Limited soil sampling has been completed at the site. Four surface soil samples were collected at the site and analyzed for explosives and metals. "Two samples were collected just outside of the foundations of each of the buildings. One sediment sample was collected in a drainage ditch leading to

Sand Creek near Building F-16. Soil samples showed slightly elevated levels of lead (maximum 430 ppm) and arsenic (maximum 28 ppm). Arsenic was also detected in the sediment at a maximum concentration of 9 ppm, approximately 1.5 times the ecological RRSE screening concentration (RVAAP-1.A.1)."

Characterization of 14 AOCs at Ravenna Army Ammunition Plant, Characterization of Buildings F-15 and F-16, Preliminary Draft, December 2005

This document, in preliminary draft form, was made available in early January 2006. The purpose of the characterization was to do an initial site characterization prior to submitting the AOCs to another PBC contractor. The preliminary findings revealed that one constituent, other than inorganics, was detected above the screening criteria in the samples collected from the various media. Contaminants detected in surface soil above Installation-specific background and/or EPA Region 9 residential PRG screening values included 22 metals and one SVOC (benzo(a)pyrene). In sediment, fifteen metals were detected above Installation-specific background and/or the EPA Region 9 residential PRG screening values, and in the surface water ten metals were detected above Installation-specific background and/or the EPA Region 9 residential PRG screening values.

4.1.11.3 MEC/MC Analysis

Munitions debris has been found at the MRS, lying on the ground surface presumably adjacent to the former surveillance test buildings. Reports of MEC found on site were not revealed during the HRR; however, there has not been an investigation conducted specifically to identify whether or not MEC is present at the MRS. MC cleanup for Buildings F-15 and F-16 is included under the IRP and will not be addressed further during the SI process (RVAAP-1.A.2).

4.1.12 Anchor Test Area (RVAAP-048-R-01)

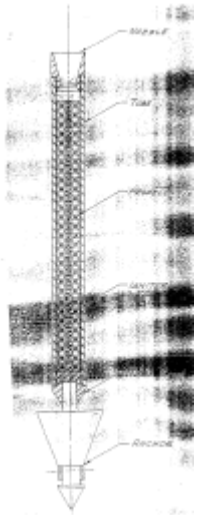
4.1.12.1 Summary of Findings

The Anchor Test Area encompasses approximately 2.57 acres of heavily forested land located west and adjacent to Wilcox-Wayland Road. Due to the overgrown conditions, very few remnants of the original facility are visible at the MRS. The only identifiable features at the MRS include several dirt mounds and a nearby sandpit. Little is known about the actual function of the MRS, but available information suggests that it was used to test fire experimental explosively-charged anchors into the ground. RVAAP personnel also believe the experimental munitions were used to drive anchors for ropes or cables into the ground. While some metal debris of unknown origin has been found in the area, the MRS has not been evaluated for the presence of MEC. **Figure 11** provides the layout of the Anchor Test Area MRS. **Photograph 26** shows the current site conditions.



Photograph 26: December 2005 photograph of the Anchor Test Area. (RVAAP-8.A.1)

Additional information gathered during the HRR revealed a discrepancy concerning the years of operation at the MRS. The US Army CTT Range/Site Inventory reported that the area was used from approximately 1941 to 1952. However, two reports (ASR and Preliminary Draft Characterization of 14 AOCs at RVAAP) refer to a drawing of the facility dated 1961, inferring that the site was placed into operation some time thereafter. Further, a design figure showing the type of anchor that may have been used at the MRS was found in the ASR report. The ASR stated that it was the only information found in the RVAAP historical files regarding "anchors" or "anchor testing" (RVAAP-4.A.1). The design drawing is shown in **Photograph 27**.

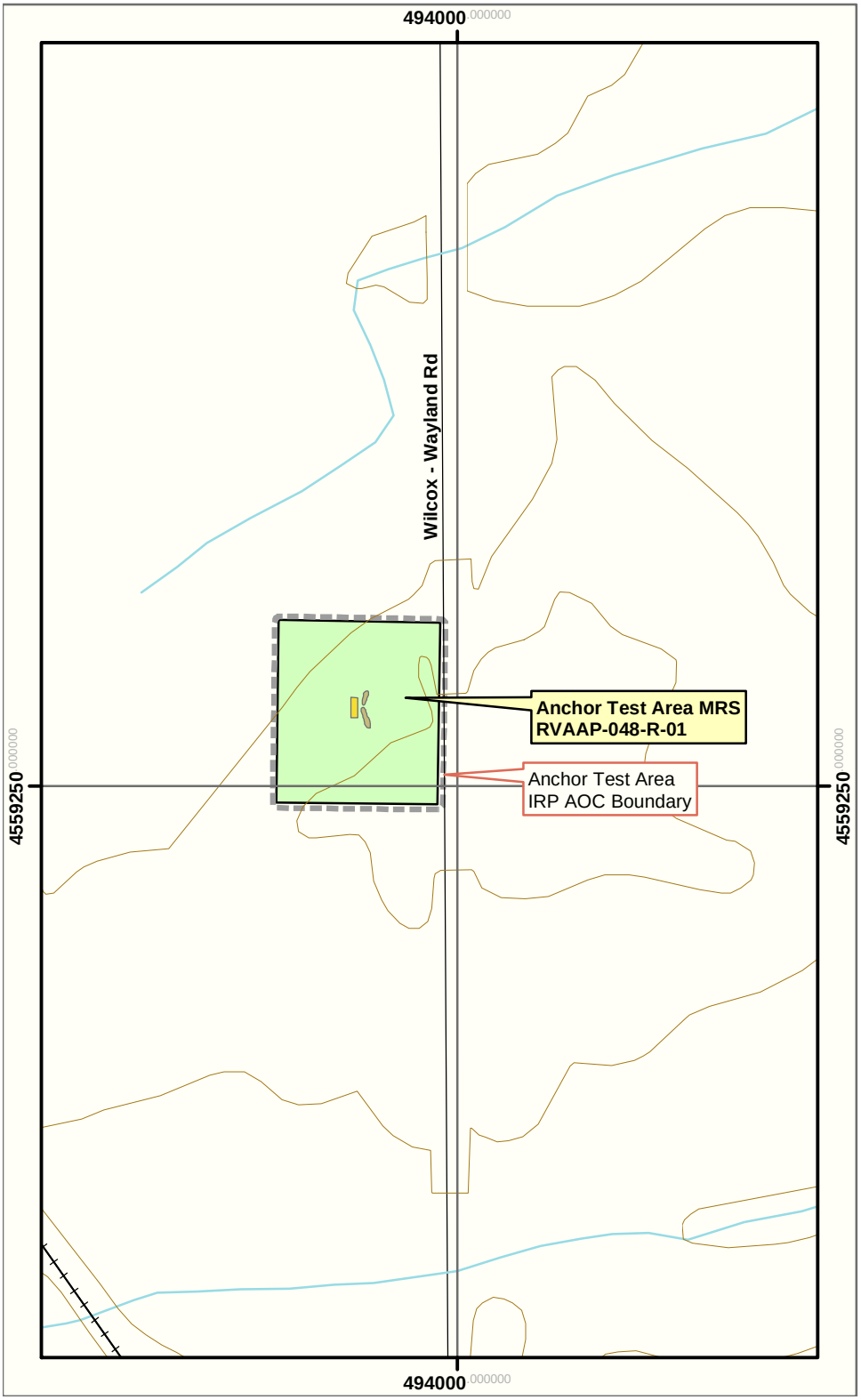


Photograph 27: Copy of the design drawing contained in the ASR Report, June 2004.

The MRS is collocated with the IRP AOC RVAAP-048, which is similarly referred to as the Anchor Test Area. Investigations have been conducted under the IRP to evaluate the presence of metals and explosives in the soil and groundwater. Arsenic was detected in the groundwater at a maximum concentration of 14.4 parts per billion (ppb), as well as in the soil. Based on these results, the future

ANCHOR TEST AREA MRS
Ravenna Army Ammunition Plant, OH

Figure 11



N
W E
S

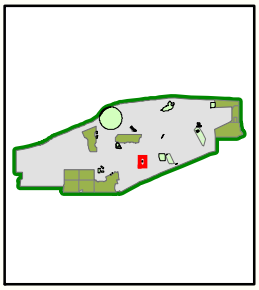
Elevation Contour
Railroad
Road
Stream
Dirt Mounds
Sand Pit

Area Status
MRS, Closed
IRP Area of Concern

Projection: UTM Zone 17
Datum : WGS 84
Units: Meters
Grid: 500 Meter

1:4,000
0 100 200 300 Feet
0 25 50 75 100 Meters

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH

Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e^2M)

Date: October 2006
Edition: Final

plan is to release a contract(s) to put a remedy in place. Ultimately, the land will be transferred to the OHARNG who will use the area for mounted training with no digging. Long term monitoring is proposed for the site, which may include ground water monitoring and land use controls.

4.1.12.2 Previous Investigations

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The 2004 ASR indicated that the Anchor Test Area has "potential OE presence", with the most likely location being the former sandpit (RVAAP-4.A.1). It is believed that the pit may contain subsurface metal. The ASR also mentioned a facility drawing that illustrated a propellant storage area, a personnel shelter, a protective earthen barricade, and a sandpit. As previously mentioned, the ASR also contained a design drawing of the non-standard ordnance item believed to be the experimental anchor munitions (**Photograph 27**). The ASR described the munitions as a rocket armed with an anchor instead of a warhead. During the ASR site visit, some metal tubing was found in the location of the former sandpit (see **Photograph 28**). Other than the metal debris, no ordnance related material was found in this area (RVAAP-4.A.1).



Photograph 28: Metal Debris from Anchor Test Area, June 2004. (RVAAP-4.A.3)

Characterization of 14 AOCs at Ravenna Army Ammunition Plant, Characterization of Anchor Test Area, Preliminary Draft, December 2005

The preliminary draft characterization report also stated that little is known about the historical function of this AOC, other than it is suspected that the site was used to test explosively-charged anchors.

The investigation focused on the nature of contamination in only one media: soil (shallow soil and subsurface soil). The results of the investigation found various metal constituents above screening criteria in all soil samples collected. In shallow and subsurface soils, metals were the only parameter with analytes that were detected above Installation-specific background and/or EPA Region 9 residential PRG screening values. No organic compounds were detected above screening criteria in any of the shallow or subsurface soil samples.

FY 2006, RVAAP, OH IAP

One groundwater sample and five soil samples were collected at the site from around the dirt mound and in the sandpit. Arsenic was detected in the soil. Arsenic was also detected in the groundwater at a maximum concentration of 14.4 ppb. These samples are the only known MC samples collected at the site and the date of the sampling is unknown (RVAAP-1.A.1).

4.1.12.3 MEC/MC Analysis

While metal debris has been found at the MRS, reports of MEC having been found at the site were not revealed during the HRR. However, a UXO evaluation has not been conducted at the sandpit area, which was identified in the ASR as potentially containing MEC (RVAAP-1.A.2).

Metals, which have been detected in the soil and groundwater at elevated concentrations, will be addressed under the IRP. MC will not be evaluated further under the SI process.

4.1.13 Atlas Scrap Yard (RVAAP-050-R-01)

4.1.13.1 Summary of Findings

The Atlas Scrap Yard MRS encompasses approximately 66.04 acres of mostly open land that contains a network of roads. Originally used as a construction camp, the MRS became a storage area for non-explosive scrap starting in 1969. Currently, the MRS is heavily overgrown with tall grasses, isolated stands of trees, and shrubs. There are scattered piles of debris located throughout the site that appear to be comprised of construction debris, dunnage, and metal scraps. The layout and general location of the MRS is provided in **Figure 7**.

According to interviews with various RVAAP personnel, any of the munitions made or stored at the plant may have been disposed of in this area including: small arms, explosives, pyrotechnics, propellants, mortars, medium and large caliber munitions, landmines, hand grenades, flares, bombs, detonators, or fuzes. The US Army CTT Range/Site Inventory reported that UXO had been uncovered in the southwest corner of the MRS. This disclosure was based on information provided in a removal report funded by the Joint Munitions Command (JMC); however, the name of the reference was not provided and could not be verified. Further, the report stated that the OE, OE scrap, and UXO had been sorted and removed from the site in 2003 (RVAAP-2.A.12). Again, this information could not be verified.

Very few new details describing the use and/or disposal operations for the MRS were found during the HRR. Until the summer of 2005, only one characterization study (i.e., relative risk site evaluation) had been conducted at the MRS. In 2005, a characterization study (see **Section 4.1.13.2**) was conducted at the site that evaluated environmental media contamination. Two points of note reported in the characterization study were:

1. The study focused on areas of concern including stockpiles of debris consisting of pipes, railroad ballast, railroad ties, concrete rubble, and chipped **ammunition boxes**, as well as portions of the AOC where specific operations occurred or where equipment associated with specific operations was located: **munitions storage**, tar cleaning tank, and incinerator.
   (This was the first disclosure found that the MRS had been used to store munitions.)

2. Eight test trenches were excavated near monitoring well locations. The trenching activities provided information about the soil stratification profile, depth to groundwater, and depth to bedrock. Trenching was halted upon encountering saturation, which was encountered between 7.2 and 14 ft bgs. While trenching, no suspect soil or **MEC** was encountered during the operation.

To put the absence of MEC at the trench sites in the proper perspective, it is not apparent that geophysical surveys were performed in conjunction with locating the excavation sites.

The MRS is collocated with the IRP AOC RVAAP-050, which is also referred to as the Atlas Scrap Yard. The AOC is similar in aspect to the MRS (i.e., it covers the old construction camp area) with the exception that it encompasses approximately 150 acres (84 more acres than the MRS). A figure identifying the IRP AOC boundary could not be located and it is not known where the additional IRP AOC acreage is situated; as such, the IRP AOC boundary has not been delineated on **Figure 7**. The IRP is addressing MC concerns at the site.

4.1.13.2 Previous Investigations

OE ASR for RVAAP, OH, USACE Rock Island District, June 2004

The USACE assessment team reported that there was some debris in the area, but that the assessment team did not locate any ordnance related debris. The assessment team reported that the area is considered to have potential OE presence until the remaining debris is identified.

Characterization of 14 AOCs at Ravenna Army Ammunition Plant, Characterization of Atlas Scrap Yard, Preliminary Draft, December 2005

The characterization study was conducted to collect sufficient data for all applicable media to allow efficient planning and execution of future environmental actions at the site. The study found that contaminants were detected above screening criteria in four media: shallow soil, sediment, surface water and groundwater. Six constituents (all SVOCs) other than inorganics were detected above screening criteria in the samples collected from the various media. SVOCs were detected above screening criteria in all five shallow soil samples analyzed; the only sediment sample analyzed; two out of 17 surface water samples; and one of eleven groundwater samples. Contaminants detected in soil above Installation-specific background and/or EPA Region 9 residential PRG screening values included 22 metals and five SVOCs. Twenty metals and one SVOC were detected at concentrations above Installation-specific background and/or EPA Region 9 residential PRG screening values in sediment samples. In surface water, 12 metals, 3 SVOCs and nitrate were detected above Installation-specific background and/or EPA Region 9 residential PRG screening values. In groundwater, 17 metals and one SVOC were detected above Installation-specific background and/or EPA Region 9 residential PRG screening values. No MEC were found during the course of the investigation, either lying on the ground surface or at the eight trenches installed next to the monitoring well locations.

FY 2006, RVAAP, OH IAP

The IAP reports that UXO was discovered in the southwest corner of the site while sampling under the IRP. MEC and munitions debris were partially removed from the site in 2003 (RVAAP-1.A.2). There was no supporting information describing the type and condition of any MEC that had been removed, or what MEC or munitions debris may remain at the site.

This AOC was transferred to OHARNG in May 1999. Future work to be conducted under the IRP includes putting a remedy in place (e.g., soil removal) and completing any response that may be required. Future use by the OHARNG will consist of mounted training without digging. Long term groundwater monitoring, along with land use controls, are anticipated for this AOC.

4.1.13.3 MEC/MC Analysis

While sampling under the IRP, MEC and munitions debris were discovered and partially removed. The origin, type, and condition of the MEC and munitions debris are unknown. Debris piles still exist at the site and need to be evaluated to determine if MEC still exists at the MRS.

MC is being addressed under the IRP and will not be further evaluated under the SI process (RVAAP-1.A.2).

4.1.14 Block D Igloo (RVAAP-060-R-01)

4.1.14.1 Summary of Findings

This MRS consists of the area (circle with a 3,000 ft radius) contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. The MRS boundary was established by the USACE, Huntsville District to capture the probable debris field resulting from the explosion and was based on the type of munitions stored in the bunker at the time of the explosion.

According to an accident report issued by the Office of the Chief of Ordnance, Safety and Security Division, 2,516 clusters (M-1A1) of 20 lb fragmentation bombs (M-41) detonated while being loaded into the storage magazine killing the 10 man work crew and one worker located at an adjacent igloo 800 ft to the side. The igloo, which was 60 ft long and constructed of reinforced concrete, was filled to 95 percent capacity at the time of the detonation while a few of the bomb crates remained on the semi-trailer from which the bombs were being off loaded. The trailer completely disintegrated in the blast while remnants of the associated truck were hurled forward 500 to 600 feet. Other items found and the distances recorded included the igloo's steel door, which was propelled forward approximately 1,800 ft; a concrete fragment that was propelled 1,800 ft to the north striking a small sawmill; and a concrete fragment that hit igloo 2-E-6 located approximately 2,100 ft forward of igloo 7-D-15 (RVAAP-4.A.4).

Based on the investigation conducted by the Chief of Ordnance to establish the circumstances behind the explosion, it was determined that the cause of the detonation was due to a combination of rough handling and a faulty design of the M-110 fuze which left the fuze in the armed position. It was determined that the 2,516 clusters contained approximately 41,000 pounds of explosive; based on a computation of the usual weight of TNT per bomb. Observations made at the scene determined that the earthen embankments held the force of the explosion at the base so that the side-walls of the igloo sheared off at the footings. It was reported that the blast formed two fans: the first and smaller fan was roughly circular in shape and extended to the right, to the rear, and to the left of the igloo, while the larger fan extended forward from the igloo in an easterly direction toward the "E" block of igloos. The major force was directed along a median line in conjunction with the long axis of the igloo. Large sections of concrete were lifted up and over the earthen embankments, while smaller sections traveled in the fan shaped blast to the right and left of the median line on an approximate sixty to eighty degree angle. Some of the concrete fragments were propelled forward in the larger of the two fans up to 3,800 ft. There was no mention of the distance that the smaller fan stretched.

The investigation further stated that, based on the examination of the debris, the blast was definitely directional. "The shock was scarcely felt in the office approximately two and one-half miles to the southwest although other statements indicated that it was felt in the city of Youngstown, thirty miles east. A twenty to twenty-five mile per hour wind was blowing in an easterly direction so small fragments blown to great heights traveled easterly and fell over the boundary of the Depot into the Ravenna Ordnance Plant igloo area. Dirt from the explosion blown skyward in a similar manner traveled with the wind and contaminated freshly painted houses some six miles away. A circuit of the area adjacent to the Ravenna Ordnance Plant line at the eastern end of block E along Greenleaf Road produced fragments of rubble with diameters of about one inch or less (RVAAP-4.A.4)." One additional piece of information of note was that personnel at the plant at the time of the explosion reported hearing two explosions. This was dismissed by the investigation, attributing the effect to the difference between sight and sound, and ground shock and sound.

The US Army CTT Range/Site Inventory described the MRS as the area encompassed within a circle with a diameter of 3,000 ft and that the total area was approximately 622.24 acres (RVAAP-2.A.12). However, it was determined that the radius is 3,000 feet and not the diameter. The MRS boundary was developed by the USACE, Huntsville District and was based on the type of munitions stored at the igloo when it detonated.

The D block of igloos is now inactive (RVAAP-1.A.2). The MRS is not associated with an IRP AOC. **Figure 9** provides the layout of the Block D Igloo MRS. The figure also shows the location of fragments that were found by Installation personnel after the explosion which are located outside of the MRS boundary. **Photograph 29** provides a view of the interior of a typical igloo, and **Photograph 30** shows a view of the D Block Igloos.





Photograph 29: View of the interior of an igloo within the "D" Block, undated photograph from RVAAP archives. (RVAAP-4.A.3)

Photograph 30: View of the "D" Block igloos, undated photograph from the RVAAP archives. (RVAAP-4.A.3)

4.1.14.2 Previous Investigations

OE ASR for RVAAP, OH, USACE, Rock Island District, June 2004

The 2004 ASR indicated that the site "is considered to have potential OE presence (RVAAP-4.A.1)." It is believed fragmentation bombs that were not destroyed in the explosion may be scattered in a large area at the site (RVAAP-4.A.1). In addition, the ASR stated that some witnesses to the explosion believed that there were two distinct explosions, increasing the likelihood that some bombs were not completely destroyed.

During the site visit, the assessment team concentrated a search at the MRS in the area forward of the former headwall, since it was the most likely place to find debris. It was reported that the team only found what might have been part of the truck that was parked in front of the magazine at the time of the explosion, and did not find any OE related debris.

4.1.14.3 MEC/MC Analysis

Cluster bombs may have been propelled from the igloo or may have been scattered from the munitions crates that remained on the semi-trailer over a large area during the explosion. RVAAP personnel have indicated that the site was considered clean of UXO some time after the explosion. No documentation to support this statement was identified (RVAAP-1.A.2). Further, it is likely that remote, wooded or densely vegetated areas of the MRS were not thoroughly searched for debris (including MEC and munitions debris) after the detonation.

No known previous investigations for MC have been conducted at the site.

4.1.15 Block D Igloo–TD (RVAAP-061-R-01)

4.1.15.1 Summary of Findings

The Block D Igloo–TD consists of the portion of the circle centered on Igloo 7-D-15 (MRS RVAAP-060-R-01) that exploded on 24 March 1943 that extends beyond the Installation boundary. This property, which encompasses 19.25 acres, is considered separately as a transferred site (RVAAP-2.A.12). The MRS is located to the northwest of Igloo 7-D-15 and consists of farm fields that are separated by stands of woodlands, railroad tracks, and a right-of-way. The right-of-way runs adjacent to the RVAAP

property boundary, separating the wooded areas and farm fields from the Installation. There are no structures located at this MRS and access to the area is not restricted. Additional details on the history of this site can be found in **Section 4.1.14**. **Figure 9** shows the layout of the Block D Igloo–TD MRS.

Few additional details were disclosed concerning the nature of this MRS during the HRR. This site is not associated with an IRP AOC; as such, no investigations have been conducted. Further, no information was found that reported finding MEC or munitions debris at the MRS.

4.1.15.2 Previous Investigations

No previous investigations have been conducted at the MRS to evaluate MEC or MC.

4.1.15.3 MEC/MC Analysis

MEC has not been confirmed at the site. No known MC analysis has been conducted at the site (RVAAP-1.A.2).

4.1.16 Water Works #4 Dump (RVAAP-062-R-01)

4.1.16.1 Summary of Findings

The Water Works #4 Dump is an approximate 6.15 acre wooded area immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were found scattered throughout the MRS lying on the ground surface and partially buried, as were metal parts defined as ogives from WWI 155mm shrapnel projectiles. According to RVAAP personnel, the dates of disposal are estimated to be between 1941 and 1949. The type and origin of the casings is unknown. No MEC investigations have been performed on the site (RVAAP-2.A.5).

There are no known structures at the site. The presence of utilities at the site is unknown. The site is located north of the Fuze and Booster Quarry and the 40mm Firing Range. See **Figure 8** for the layout of the Water Works #4 Dump MRS. The MRS is controlled by an Installation perimeter fence which is patrolled intermittently (RVAAP-2.A.5). **Photograph 31** shows the current site conditions looking across the dump area.



Photograph 31: December 2005 photograph of the Water Works #4 Dump. (RVAAP-8.A.1)

4.1.16.2 Previous Investigations

OE ASR for RVAAP, OH, USACE, Rock Island District, June 2004

The 2004 ASR indicates the munitions debris found at the site was inert and the area "is considered to have no OE presence (RVAAP-4.A.1)." Metal parts found in the area were all inert.

4.1.16.3 MEC/MC Analysis

Munitions debris has been confirmed at the site. No known investigations for MEC or MC have been conducted at the site (RVAAP-1.A.2).

4.1.17 Area Between Buildings 846 and 849 (RVAAP-063-R-01)

4.1.17.1 Summary of Findings

The MRS is approximately 2.65 acres and consists of most of the area between buildings 846 and 849. This area is disturbed land currently being used as an OHARNG vehicle staging area. The land between the buildings may have been used for burning of construction debris and rubbish in the past. In 1996, one anti-personnel fragmentation bomb (referred to as a "hammerhead" anti-personnel bomb) loaded with HE was found at the MRS. The bomb was taken to Demolition Area #2 and detonated at the RCRA unit by an Ordnance Company that had been dispatched from Wright-Patterson Air Force Base. OHARNG personnel discovered the bomb. In addition, one demilitarized (i.e., cut into two halves) 175mm projectile was found on the ground surface at the MRS. The demilitarized projectile was removed and taken to Building 1501. The site has not been evaluated for presence of MEC and no site investigations have been performed at the site (RVAAP-2.A.10).

There are buildings in close proximity to the site used for the storage of equipment and vehicles by OHARNG (RVAAP-1.A.2). It is unknown if there are utilities present at the site. The site is located southeast of Load Line #12 and just north of the Installation boundary. See **Figure 7** for the layout of the Area Between Buildings 846 and 849 MRS.

4.1.17.2 Previous Investigations

No previous investigations of the site were discovered during the course of the HRR.

4.1.17.3 MEC/MC Analysis

MEC has been confirmed at the site. In 1996, one "hammerhead" anti-personnel bomb was found on the ground surface at the site. The bomb, which was loaded with HE, was removed and detonated at the interim RCRA unit at Demolition Area #2. One inert 175mm projectile was also found at the site. This munitions debris was removed and stored at Building 1501 (RVAAP-1.A.2 and RVAAP-2.A.10).

4.1.18 Field at the NE Corner of Intersection (RVAAP-064-R-01)

4.1.18.1 Summary of Findings

The MRS consists of an open field that encompasses approximately 91.86 acres. The open field is bisected by Paris-Windham Road, which runs north-south through the MRS. The MRS is mostly surrounded by fairly dense woodlands. The field lay fallow from the early 1970s to mid-1980s. The trees and shrubs were cleared with a bull dozer in 1985 and the field tilled and planted into grasses for hay production. The field was leased from 1986 through the 2000 growing season. On 6 May 1999, the land was transferred to the NGB and reassigned to RTLS. The MRS boundary was based, in large part, on input from Installation personnel, who identified that all open areas could have possibly been used for training or the inadvertent disposal of munitions during the course of the Installations history. **Figure 12** provides the layout of the MRS, while the current site conditions are provided in **Photograph 32**.



Photograph 32: December 2005 photograph of Field at the NE Corner of Intersection MRS. (RVAAP-8.A.1)

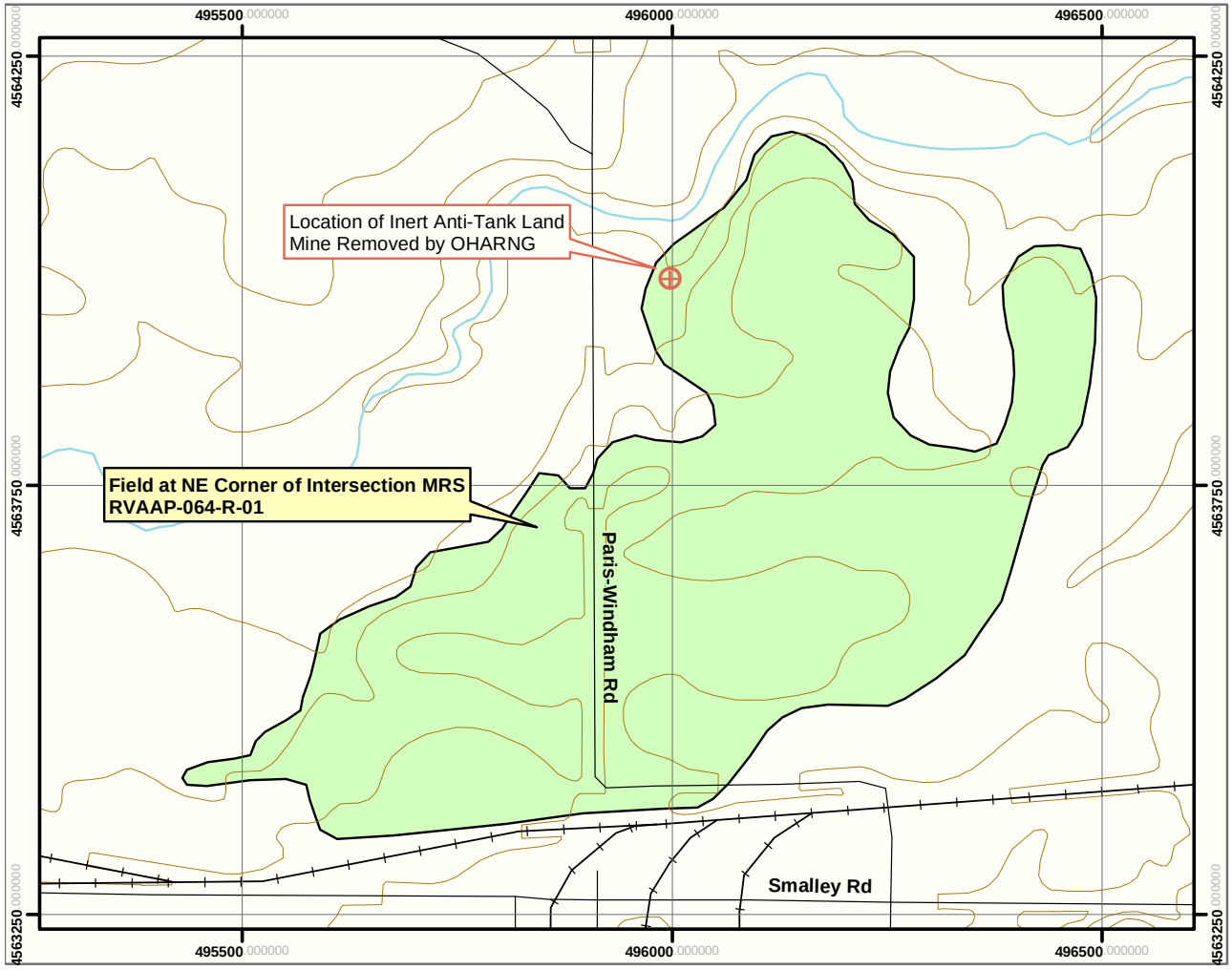
One inert anti-tank landmine (14 to 16 inches in diameter, pressure detonated) was discovered in 1996, by OHARNG personnel, lying on the ground surface of the forested area adjacent to the open field in the north-central portion of the MRS, approximately 100 feet to the east of Paris-Windham Road (see **Figure 12**). The inert practice mine was removed by the OHARNG from the MRS; the inert practice landmine is now a show-piece at Building 1037. No other reports of MEC or munitions debris findings at the MRS have been discovered. According to input from the OHARNG and Installation personnel, it is believed that the discovery of the inert land mine was a one- time occurrence that probably resulted from the accidental dropping by a guardsman.

The MRS is undeveloped and is used to practice airlifts of heavy objects (pre-weighted concrete blocks) by rotary-wing aircraft. There are no known structures or utilities located at the MRS.

The MRS is not associated with an IRP AOC; as such, characterization studies have not been conducted at the site.

FIELD AT NE CORNER OF INTERSECTION MRS
Ravenna Army Ammunition Plant, OH

Figure 12



N
W E
S

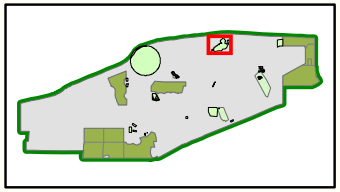
Elevation Contour
Railroad
Road
Stream

Area Status
MRS, Closed

Projection: UTM Zone 17
Datum : WGS 84
Units: Meters
Grid: 500 Meter

1:8,000
0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

Installation Location
Ohio



HISTORICAL RECORDS REVIEW
RAVENNA ARMY AMMUNITION PLANT, OH
Source: Produced for the U.S. Army Corps of Engineers by engineering-environmental Management, Inc. (e²M)

Date: January 2007
Edition: Final (Revised)

4.1.18.2 Previous Investigations

OE ASR for RVAAP, OH, USACE, Rock Island District, June 2004

The ASR assessment team determined that the area is "considered to have no OE presence" (RVAAP-4.A.1). The assessment team evaluated the historic information and found that the "OE found in this area was located on the surface and there is no evidence of other items remaining in the area" (RVAAP-4.A.1).

4.1.18.3 MEC/MC Analysis

MEC has not been found at the MRS and is not suspected of being present, however its presence or absence is unknown. Munitions debris (inert practice mine) was found and removed by the OHARNG.

There have been no investigations conducted at the site to evaluate the presence of MC; however, the likelihood that MC is present is low given the agricultural activities that were conducted at the site and due to the low probability of MEC being present.

5.0 CONCEPTUAL SITE MODEL

5.1 Introduction

The primary purpose of the CSM is to identify current or reasonably anticipated human and environmental exposure to MEC and MC by identifying potential human and ecological receptors and pathways. As such, this document provides a conceptualization of the following site conditions:

- Actual or reasonably anticipated presence of MEC and MC;
- Actual or reasonably anticipated points of exposure and exposure pathways; and
- Actual or reasonably anticipated future human and ecological receptors.

The assessment of these site conditions are presented in MEC and MC Exposure Pathway Analysis flow charts, which are provided at the end of each MRS site-specific discussion that follows (**Figures 13 – 39**). Exposure Pathway Analysis flow charts are developed to provide an illustration of the interaction between a source (i.e., MEC or MC) and a receptor(s); that is, the course and activity that a receptor may take to expose them to MEC or conversely, the course (i.e., release mechanism and exposure media) that MC may take to reach receptors. The objective of the flow charts is to determine if a complete, potentially complete, or incomplete exposure pathway exists at a particular MRS. The evaluation of these site-specific conditions will assist in determining effective and achievable future actions that are protective of human health and the environment.

When assessing MEC, each pathway must include a source, access, MEC location/release mechanism, activity, and a receptor, whereas an assessment of MC must include a source, source media, release mechanism, exposure media, exposure routes, and a receptor. The following is a brief discussion of the assessment components.

MEC

- *Source*. Sources are those areas where MEC has entered the environment. For MEC, examples include burial sites, landfills, open burn/open detonation areas, demolition ranges, and impact ranges
- *Access*. Access is the ease in which a receptor can come into contact with a source. The presence of access controls help determine whether an exposure pathway to a receptor is complete, as fences or natural barriers can limit human access to a source area. Furthermore, the depth of MEC items in subsurface soils may also limit access by a receptor. Ease of entry for

adjacent populations (e.g., lack of fencing) can facilitate trespassing at the site, either intentional or accidental.

- *MEC Location/Release Mechanism*. This component describes the physical location of the MEC; that is, MEC lying on the ground surface or present in the subsurface soil (i.e., greater than two ft bgs). Typically, movement of MEC is not significant. However, there can be some movement through natural processes, such as frost heave, tidal action, and erosion, or from human activity, such as digging or excavation.
- *Activity*. Activity can be described as the action that a receptor takes which introduces them to MEC. Human exposure to MEC can include handling or stepping on munitions that may be lying on the ground surface or coming into contact with buried munitions while digging or excavating. Ecological exposure can include coming into contact with MEC lying on the ground surface or through disturbing buried MEC while burrowing.

Receptors. A receptor is an organism (human or ecological) that can come into contact with MEC or MC. Pertinent human and ecological receptors are identified when assessing the land use and ecological biome for the surrounding area at the MRS. Human receptor categories can include residents, site workers, construction workers, recreational users, and trespassers. Ecological receptors include flora and fauna native to the region.

MC

- *Source*. Sources are those areas where MC has entered the environment. Examples of MC sources include any location where materials originating from UXO, DMM, or other military munitions, and emission, degradation, or breakdown elements have collected. This would also include constituents from small arms ranges. Identifying munitions types and MC potentially associated with a source area is a principal goal early in the process.
- *Source Media*. The source media is the environmental media (i.e., soil, surface water, sediment, ground water) from where the MC originated; that is, the media that contains the source. For the HRR, only soil is evaluated.
- *Release Mechanisms/Exposure Media*. Environmental contaminants, such as MC, often undergo various processes (e.g., volatilization, migration) such that media other than the source area can become contaminated. Therefore, all potentially contaminated media (exposure media) must be evaluated when considering MC at an MRS. Release mechanisms are the transport processes that spread the MC to other media. Under the HRR, the release mechanisms evaluated include runoff and leaching.

- *Exposure Routes.* The exposure routes are described as the course which MC is introduced to receptors, which includes ingestion, inhalation, and dermal contact.
- *Receptors.* A receptor is an organism (human or ecological) that can come into contact with MEC or MC. Pertinent human and ecological receptors are identified when assessing the land use and ecological biome for the surrounding area at the MRS. Human receptor categories can include residents, site workers, construction workers, recreational users, and trespassers. Ecological receptors include flora and fauna native to the region.

This section begins with a general description of the RVAAP facility (**Section 5.2**) and continues with site-specific discussions of each RVAAP MRS.

5.2 Installation Setting

5.2.1 Physical Setting

RVAAP is located within the Southern New York Section of the Appalachian Plateau physiographic province. This province is characterized by elevated uplands, rolling topography, and incised streams having dendritic drainage patterns. The Southern New York Section has been modified by glaciation, which rounded ridges, filled major valleys, and blanketed many areas with glacially derived unconsolidated deposits (e.g., sand, gravel, and finer-grained outwash deposits). As a result of glacial activity in this section, old stream drainage patterns were disrupted in many locales, and extensive wetland areas developed. The area is marked by tracts of forests, ranging from a few acres to hundreds of acres (RVAAP-3.G.7).

5.2.1.1 Climate

RVAAP has a humid continental climate characterized by warm, humid summers and cold winters. Precipitation varies widely throughout the year. The average driest month is February, and the wettest month is July. Data from the National Weather Service compiled over the past 47 years indicate that the average annual rainfall for the area is 0.98 meters (m) (38.72 inches). The average annual snowfall is 1.1 m (43.4 inches). Severe weather, in the form of thunder, hail, or snow storms, is common during the summer and winter. Tornadoes are infrequent (RVAAP-3.G.8).

5.2.1.2 Geology

The regional geology at RVAAP consists of horizontal to gently dipping bedrock strata of Mississippian and Pennsylvanian age. These Mississippian and Pennsylvanian aged formations dip to the south at a rate of approximately 5 to 10 ft/mile and are overlain by varying thicknesses of unconsolidated glacial deposits.

Bedrock at RVAAP is overlain by deposits of the Wisconsin-aged Lavery Till in the western portion of the facility and the younger Hiram Till and associated outwash deposits in the eastern portion. Unconsolidated glacial deposits vary considerably in their character and thickness across RVAAP, from zero m or ft in some of the eastern portion of the facility to an estimated 46 m (150 ft) in the south-central portion.

Thin coverings of glacial materials have been completely removed as a consequence of human activities at locations such as the Ramsdell Quarry Landfill, and bedrock is present at or near the ground surface in many locations, such as Load Lines 1 and 2. At locations across the Installation where glacial materials are still present, their distribution and character indicate their origin as ground moraine. These tills consist of laterally discontinuous assemblages of yellow-brown, brown, and gray silty clays to clayey silts, with sand and rock fragments. Deposits from bodies of glacial-age standing water may also have been encountered, in the form of over 15 m (50 ft)-thick deposits of uniform light gray silt.

The Mississippian Cuyahoga Group is present at depths of approximately 200 ft bgs throughout the majority of the site. However, the Meadville Shale Member of the Cuyahoga Group, a blue-gray silty shale characterized by alternating thin beds of sandstone and siltstone, is present at or near the surface in the very northeastern corner of RVAAP.

The Sharon Member of the Pennsylvanian Pottsville Formation unconformably overlies the Meadville Shale Member of the Mississippian Cuyahoga Group. The unconformity has a relief of as much as 200 ft in Portage County, and this is reflected in the variation of thickness of the Sharon Member. The Sharon Member consists of two units: a shale and a conglomerate.

The conglomerate unit of the Sharon Member (informally referred to as the Sharon Conglomerate) is a highly porous, permeable, cross-bedded, frequently fractured and weathered quartzite sandstone, which is locally conglomeratic and exhibits an average thickness of 100 ft. The Sharon Conglomerate has a thickness of as much as 250 ft where it was deposited in a broad channel cut into Mississippian rocks. In marginal areas of the channel, the conglomerate unit thins to about 20 ft and in places may be missing, owing to non-deposition on the uplands of the early Pennsylvanian erosional surface. Thin shale lenses occur sporadically within the upper part of the conglomerate unit.

The shale unit of the Sharon Member (informally referred to as the Sharon Shale) is a light to dark-gray fissile shale, which overlies the conglomerate in some locations, but has been eroded in most areas of RVAAP. The Sharon Member outcrops in many locations in the eastern half of RVAAP.

In the western half of RVAAP, the remaining members of the Pottsville Formation found in the local area overlie the Sharon Member. These remaining members of the Pottsville Formation are not found in the eastern half of the site either because the land surface was above the level of deposition or they were eroded. The Connoquenessing Sandstone Member, which unconformably overlies the Sharon Member, is a sporadic, relatively thin channel sandstone comprised of gray to white, coarse-grained quartz with a higher percentage of feldspar and clay than the Sharon Conglomerate. The Mercer Member is found above the Connoquenessing Sandstone and consists of silty to carbonaceous shale with many thin and discontinuous lenses of sandstone in its upper part. The Homewood Sandstone Member unconformably overlies the Mercer and is the uppermost unit of the Pottsville Formation. The Homewood occurs as a caprock on bedrock highs in the subsurface and ranges from a well-sorted, coarse-grained, white quartz sandstone to a tan, poorly sorted, clay-bonded, micaceous, medium- to fine-grained sandstone (RVAAP-3.C.5).

5.2.1.3 Topography

The province is characterized by its rolling topography with incised streams having dendritic drainage patterns. The Southern New York Section has been modified by glaciation, which rounded ridges, filled major valleys, and blanketed many areas with glacially derived unconsolidated deposits (e.g., sand, gravel, and finer-grained outwash deposits). Evidence of the region's glacial past includes bogs, kettle lakes, and a landscape marked by small upland hills of sand and gravel called "kames". As a result of glacial activity in this section, old stream drainage patterns were disrupted in many locales, and extensive wetland areas developed. These flat land areas to a considerable extent, contain the glacially derived finer-grained outwash deposits of clay (RVAAP-3.G.7).

5.2.1.4 Soils

Soils at RVAAP are generally derived from the Wisconsin-age silty clay glacial till. Distributions of soil types are discussed and mapped in the Soil Survey of Portage County, Ohio. Much of the native soil at RVAAP was reworked or removed during construction activities in operational areas of the Installation. According to the Portage County soil survey, the major soil types found in the high-priority AOCs are silt or clay loams with permeabilities ranging from 6.0×10^{-7} to 1.4×10^{-3} centimeter/second (RVAAP-3.C.5).

5.2.1.5 Hydrogeology

Sand and gravel aquifers are present in the buried-valley and outwash deposits in Portage County. Generally, these saturated zones are too thin and localized to provide large quantities of water for industrial or public water supplies; however, yields are sufficient for residential water supplies. Lateral continuity of these aquifers is not known. Recharge of these units comes from surface water infiltration of precipitation and surface streams. Specific groundwater recharge and discharge areas at RVAAP have not been delineated. However, extensive upland areas, such as north of the Winklepeck Burning Grounds and in the western portion of the facility, are presumed to be regional recharge zones. The major perennial surface water drainages (e.g., Sand Creek, Hinkley Creek, and Eagle Creek) are presumed to be the major groundwater discharge areas.

The sandstone facies of the Sharon Member, and in particular the Sharon Conglomerate, were the primary sources of groundwater during RVAAP's active phase, although some wells were completed in the Sharon Shale. Past studies of the Sharon Sandstone indicate that the highest yields come from the quartzite-pebble conglomerate facies and from jointed and fractured zones. Where it is present, the overlying Sharon Shale acts as a relatively impermeable confining layer for the sandstone. Hydraulic conductivities in wells completed in the Sharon Shale generally are much lower than those in the sandstone.

At the watershed scale (i.e., Sand Creek, Hinkley Creek, South Fork of Eagle Creek), groundwater flow generally mirrors surface drainage patterns. Regional drainage patterns along Sand Creek in the northeast portion of RVAAP result in a localized perturbation in the overall flow direction to the north-northeast. In several locations along the southern boundary of RVAAP, south-southeast perturbations in the overall observed groundwater flow patterns are observed as follows:

- A localized south-southeasterly flow component from the potentiometric high area centered around Load Lines 1, 2, and 3 toward the facility boundary;
- A localized southerly flow component toward the facility boundary from the southernmost portion of Load Line #12;
- A localized southerly flow component toward the facility boundary from Load Line 4, which mirrors the direction of surface water flow in the unnamed tributary that drains this load line; and
- Groundwater flow to the south in association with Hinkley Creek in the southwest portion of the site (e.g., Demolition Area 1 vicinity) (RVAAP-3.C.5).

5.2.1.6 Hydrology

The entire RVAAP facility is situated within the Ohio River Basin, with the West Branch of the Mahoning River representing the major surface stream in the area. This stream flows adjacent to the western end of the facility, generally from north to south, before flowing into the M. J. Kirwan Reservoir that is located to the south of State Route 5. The West Branch flows out of the reservoir along the southern facility boundary before joining the Mahoning River east of RVAAP.

The western and northern portions of RVAAP are characterized by low hills and dendritic surface drainage. The eastern and southern portions are characterized by an undulating to moderately level surface, with less dissection by surface drainage. The facility is marked with marshy areas and flowing and intermittent streams, with headwaters located in the higher regions of the site. Three primary watercourses drain RVAAP: the South Fork of Eagle Creek, Sand Creek, and Hinkley Creek.

Sand Creek, with a drainage area of 36 square kilometers (km^2)(13.9 $miles^2$), flows generally northeast to its confluence with the South Fork of Eagle Creek. In turn, the South Fork of Eagle Creek then continues in a northerly direction for 7 kilometers (2.7 miles) to its confluence with Eagle Creek. The drainage area of the South Fork of Eagle Creek is 67.9 km^2 (26.2 $miles^2$), including the area drained by Sand Creek. Hinkley Creek, which has a drainage area of 28.5 km^2 (11.0 $miles^2$), flows in a southerly direction through the Installation to its confluence with the West Branch of the Mahoning River south of the facility.

Approximately 50 ponds are scattered throughout the Installation. Many were built within natural drainageways to function as settling ponds or basins for process effluent and runoff. Others are natural glacial depressions or result from beaver activity. All water bodies at RVAAP support an abundance of aquatic vegetation and fish. None of the ponds within the Installation are used as water supply sources.

Storm water runoff is controlled primarily by natural drainage, except in facility operations areas where extensive storm sewer networks and surface ditches help to direct runoff to drainage ditches and settling ponds. In addition, the storm sewer and drainage ditch systems were one of the primary drainage mechanisms for process effluent during the period that production facilities were in operation (RVAAP-3.C.5).

5.2.1.7 Vegetation

Dominant vegetative cover types are forest and old fields of various ages. Over 80 percent of RVAAP is now forest (RVAAP-3.G.8). See **Section 5.2.2.2** below.

5.2.2 Ecological Setting

5.2.2.1 Habitat Type

Portions of the Installation satisfy the regulatory definition of jurisdictional wetland. Wetland areas at RVAAP include seasonally saturated wetlands, wet fields, and forested wetlands. Most of these wetland areas exist because of poorly drained and hydric soil. Beaver impoundments contribute to wetland diversification on the Installation.

Overall, the trend towards forest cover enhances the area for use by forest species, both plant and animal. Future IRP activities will require consideration of these species to ensure detrimental effects on threatened or endangered RVAAP flora and fauna do not occur. There are no federal, state, or local parks or protected areas on RVAAP facility property (RVAAP-11.A.1). See **Section 5.2.2.2** below.

5.2.2.2 Degree of Disturbance

Before the government acquired the property in the 1940's, much of the land at RVAAP was cleared for agricultural use. Over 80 percent of RVAAP is now forest. The limited field cover growth is the result of earlier agricultural practices that left these sites with poor top soil that still limits forest regeneration. Several thousand acres of agricultural fields were planted with trees during the 1950s and 1960s, but these plantings did not take well in areas with poor topsoil. Some fields, leased for cattle grazing during the same period, were subsequently delayed in their reversion to forest. A few fields have been brush hogged, maintaining them as old field (RVAAP-11.A.1).

Restricted land use and sound forest management practices have preserved and enabled large forest tracts to mature. Habitat conversion at RVAAP has focused on restoration of the forests that covered the area prior to its being cleared for agriculture. The reversion of these agricultural fields to mature forest provides a diversity of habitats from old field through several successive stages.

In general, the current degree of disturbance of the RVAAP facility is very limited. An evaluation of the degree of disturbance of each MRS is included in the site specific descriptions later in this section.

5.2.2.3 Ecological Receptors

The flora and fauna presented at RVAAP are varied and widespread. A total of 18 plant communities have been identified on facility property including marsh, swamp, and forest communities. Below is a listing of all state species confirmed to be present on the Installation either by biological inventories and/or confirmed sightings.

State Endangered

- American bittern, *Botaurus lentiginosus* (migrant)
- Northern harrier, *Circus cyaneus*
- Yellow-bellied Sapsucker, *Sphyrapicus varius*
- Golden-winged warbler, *Vermivora chrysoptera*
- Osprey, *Pandion haliaetus* (migrant)
- Trumpeter swan, *Cygnus buccinator* (migrant)
- Mountain Brook Lamprey, *Ichthyomyzon greeleyi*
- Graceful Underwing, *Catocala gracilis*
- Ovate Spikerush, *Eleocharis ovata* (Blunt spike-rush)
- Tufted Moisture-loving Moss, *Philonotis fontana* var. *caespitosa*
- Bobcat, *Felis rufus*
- Narrow-necked Pohl's Moss, *Pohlia elongata* var. *elongata*

State Threatened

- Barn owl, *Tyto alba*
- Dark-eyed junco, *Junco hyemalis* (migrant)
- Hermit thrush, *Catharus guttatus* (migrant)
- Least bittern, *Ixobrychus exilis*
- Lest flycatcher, *Empidonax minimus*
- *Psilotreta indecisa* (caddisfly)
- Simple willow-herb, *Epilobium strictum*
- Woodland Horsetail, *Equisetum sylvaticum*
- Lurking leskea, *Plagiothecium latebricola*
- Pale sedge, *Carex pallescens*

State Potentially Threatened Plants

- Gray Birch, *Betula populifolia*
- Butternut, *Juglans cinerea*

- Northern rose azalea, *Rhododendron nudiflorum* var. *roseum*
- Hobblebush, *Viburnum alnifolium*
- Long Beech Fern, *Phegopteris connectilis* (*Thelypteris phegopteris*)
- Straw sedge, *Carex straminea*
- Water avens, *Geum rivale*
- Tall St. John's wort, *Hypercium majus*
- Swamp oats, *Sphenopholis pensylvanica*
- Shinning ladies'-tresses, *Spiranthes lucida*
- Arbor Vitae, *Thuja occidentalis*
- American Chestnut, *Castanea dentata*

State Species of Concern

- Pygmy shrew, *Sorex hovi*
- Star-nosed mole, *Condylura cristata*
- Woodland jumping mouse, *Napaeozapus insignis*
- Sharp-shinned hawk, *Accipiter striatus*
- Marsh wren, *Cistothorus palustris*
- Henslow's sparrow, *Ammodramus henslowii*
- Cerulean warbler, *Dendroica cerulea*
- Prothonotary warbler, *Protonotaria citrea*
- Bobolink, *Dolichonyx oryzivorus*
- Northern bobwhite, *Colinus virginianus*
- Common moorhen, *Gallinula chloropus*
- Great egret, *Casmerodius albus*
- Sora, *Porzana carolina*
- Virginia Rail, *Rallus limicola*
- Creek heelsplitter, *Lasmigona compressa*
- Eastern box turtle, *Terrapene carolina*
- Four-toed Salamander, *Hemidactylium scutatum*
- *Stenonema ithica* (mayfly)
- *Apamea mixta* (moth)
- *Brachylomia algens* (moth)

State Special Interest

- Canada warbler, *Wilsonia canadensis*
- Little blue heron, *Egretta caerula*
- Magnolia warbler, *Dendroica magnolia*
- Northern waterthrush, *Seiurus noveboracensis*
- Winter wren, *Troglodytes troglodytes*
- Back-throated blue warbler, *Dendroica caerulescens*
- Brown creeper, *Certhia americana*
- Mourning warbler, *Oporornis philadelphia*
- Pine siskin, *Carduelis pinus*
- Purple finch, *Carpodacus purpureus*
- Red-breasted nuthatch, *Sitta canadensis*
- Golden-crowned kinglet, *Regulus satrapa*
- Blackburnian warbler, *Dendroica fusca*
- Blue grosbeak, *Guiraca caerulea*
- Common snipe, *Gallinago gallinago*
- American wigeon, *Anas americana*
- Gadwall, *Anas strepera*
- Green-winged teal, *Anas crecca*
- Northern shoveler, *Anas clypeata*
- Redhead duck, *Aythya americana*
- Ruddy duck, *Oxyura jamaicensis*

There are currently no federally listed species or critical habitat on the RTLS property. There are a few species currently under federal observation for listing, but none listed. Below is a list of species documented by the US Fish and Wildlife Service or the Ohio Division of Natural Areas Preserves known to exist within the vicinity of the RTLS or within ranges that include the RTLS, but not known to be on the RTLS/RVAAP property.

Federal Endangered

- Indiana Bat, *Myotis sodalis* (Portage and Trumbull Counties)
- Mitchell's satyr, *Neonympha mitchellii* (Portage County)
- Clubshell mussel, *Pleurobema clava* (Trumbull County)

Federal Threatened

- Northern Monkshood, *Aconitum noveboracense* (Portage County)
- Bald Eagle, *Haliaetus leucocephalus* (Portage and Trumbull Counties)

Federal Candidate Species

- Eastern Massasauga, *Sistrurus catenatus catenatus* (Portage and Trumbull Counties)

State Endangered

- Bald Eagle, *Haliaetus leucocephalus* (Portage County)
- Northern Monkshood, *Aconitum noveboracense* (Nearby)
- Indiana Bat, *Myotis sodalis* (RVAAP is within historic range)
- Mountain Brook Lamprey, *Ichthyomyzon greeleyi* (within 1 mile)

State Threatened

- Upland Sandpiper, *Bartamia longicauda* (Nearby/Nest)

State Potentially Threatened

- Richardson's Pondweed, *Potamogeton richardisonii* (Nearby)
- Flat-Stem Pondweed, *Potamogeton zosteriformis* (Nearby)

State Species of Concern (ODOW)

- Iowa Darter, *Etheostoma exile* (1991, Nearby)

Rare Plant Communities

- Floodplain Forest (within 1 mile, Windham Quad.)

5.2.3 Cultural Setting

5.2.3.1 Beneficial Resources

As stated previously, RVAAP encompasses various vegetative site conditions ranging from open fields, wetlands, and forests. Actions at RVAAP, since its closure, have focused on returning the property to its original condition prior to when the land was farmed and the Installation was constructed, either by active methods or natural progression. This effort has allowed the facility to become the home to various species of plants and animals, including those which are state listed as threatened, endangered, or of concern. The forest which covers approximately 80 percent of the facility is used for some limited timbering. Also, hunting, including fishing and trapping, is permitted on the facility to help control population levels of resident wildlife and for proper land management. Hunting by the general public is permitted in designated areas on the Installation and is conducted under a controlled access program.

The Sharon Conglomerate bedrock was the primary source of potable groundwater at RVAAP during its operational phase. Most facility production wells were completed in this unit, although some wells were completed in the overlying Sharon Shale (RVAAP-11.A.1). Residential groundwater use occurs outside of the facility. Residential wells in the vicinity of the RVAAP are completed in both the unconsolidated unit and bedrock, with the Sharon Conglomerate acting as the major producing aquifer in the area (RVAAP-3.B.3).

Eight Phase I Archaeological Surveys have been completed by the RVAAP and the OHARNG at various locations throughout the facility since 1993. These eight surveys have identified 95 archaeological sites. One Phase II Investigation was completed on ten sites in 2006. None of the archaeological sites identified in these surveys meet the eligibility requirements for listing on the National Register of Historic Places (NRHP). To date, the total acreage surveyed on the facility is approximately 6,830 acres. Only one historic property eligible for listing on the NRHP exists on the facility, the Stone Arch Bridge. It is not known if the MRSs identified in this document have been surveyed for cultural resources. Further information regarding the completed surveys and archaeological sites is located and can be obtained at the RTLS-Environmental Office.

5.2.3.2 Demographics

RVAAP is in northeastern Ohio within Portage and Trumbull counties. The US Census Bureau population estimates for 2004 indicate that the population of Portage County is 154,764, and 220,486 for Trumbull County. Population centers closest to RVAAP are Ravenna, with an estimated population of 11,503, and Newton Falls, with an estimated population of 4,865 (RVAAP-12.A.1). The RVAAP facility is located in a rural area and is not close to any major industrial or developed areas. Approximately 55 percent of Portage County, in which the majority of RVAAP is located, consists of either woodland or farmland acreage. The Michael J. Kirwan Reservoir (also known as West Branch Reservoir) is the closest major recreational area and is located adjacent to the western half of RVAAP, south of State Route 5 (RVAAP-3.C.4).

5.2.3.3 Land Use Activities

During the operational history, industrial operations at RVAAP consisted of 12 load lines. Load Lines 1 through 4 were used to melt and load TNT and Composition B into large caliber shells and bombs, while Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. Load Line 12 was originally used to produce ammonium nitrate for explosives and fertilizers, and was later used as a weapons demilitarization facility (i.e., TNT recovery facility).

Along with the production activities, the facility also operated several landfills and OB/OD areas which received a variety of explosives wastes, ash, dunnage, and munitions. At some of the landfills, the explosive wastes were thermally treated. The OB/OD operations were conducted to desensitize and/or destroy waste materials ranging from raw explosives to explosives contaminated wastes (e.g., rags, cardboard, etc.). Prior to 1980, these items were typically burned directly on the ground surface. Thereafter, waste explosives and munitions were either burned in metal refractory-lined trays or a deactivation furnace located at the Winklepeck Burning Grounds.

As of February 2006, a total of 20,403 acres of the former 21,683-acre RVAAP has been transferred to the NGB and subsequently licensed to the OHARNG for use as a military training site. This portion of the facility is identified as the RTLS. The current RVAAP consists of 1,280 acres that are scattered throughout the RTLS which consist mostly of IRP sites. Once this remaining acreage has been remediated, it will be transferred to the NGB for use by the OHARNG.

Current OHARNG training operations and assets within RTLS include: field operations and bivouac training, convoy training, equipment maintenance, storage of heavy equipment, rotary and fixed-wing aircraft training, tracked vehicle maneuver training, engineer training, MK-19 Range, Gunnery Table IV MILES Range, hand grenade qualification range, and field support and cantonment facilities. Thirteen of the MRSs are collocated with IRP sites, while four of the remaining five (i.e., Block D Igloo, Water Works #4, Area Between Buildings 846 and 849, Field at the NE Corner of Intersection) are located on RTLS. The fifth MRS, Block D Igloo-TD, is located off the Installation to the northwest.

5.3 Ramsdell Quarry Landfill (RVAAP-001-R-01)

5.3.1 Human Exposure Profile

5.3.1.1 Current Land Use

The MRS consists of two distinct areas: an undeveloped partially flooded quarry and an undeveloped open field. The MRS is fairly isolated in the central portion of the Installation and is surrounded by woodlands. Current site activities include maintenance of the grounds, stakes, and signs; long term monitoring of the groundwater; and landfill cap inspections. The property is scheduled to be transferred to the OHARNG in 2007. Land use controls for this facility established by the OHARNG will continue indefinitely, whereby the OHARNG will preserve restricted access and prohibit training at the MRS (RVAAP-1.A.2).

5.3.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel charged with mowing), and regulatory personnel conducting periodic monitoring. Although site visits are limited, they are necessary to perform semi-annual sampling of the monitoring wells, to conduct security patrols, and to perform grounds keeping and maintenance tasks. The OHARNG does not use the area for training activities (RVAAP-1.A.2).

5.3.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, the OHARNG has a "restricted access, no training," use restriction due to concerns over the presence of MEC and the requirement to preserve the integrity of the landfill cap (RVAAP-1.A.2).

5.3.1.4 Beneficial Resources

The former quarry is intermittently flooded and contains wetlands. Although rare, the quarry has been observed to be completely dry. The immediate surrounding area encompasses mature forest and open fields. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.3.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 4**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 4: Ramsdell Quarry Landfill Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Ramsdell Quarry Landfill	Isolated wetlands associated with surface water.	Disturbed. MRS excavated to recover unconsolidated glacial material.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.3.3 MEC and MC Release Profile

5.3.3.1 Release Mechanisms

For approximately four years, the MRS was used to thermally treat (i.e., open burn) explosives waste and munitions, as well as napalm bombs. MEC (e.g., 81mm mortar rounds) and munitions debris have been observed in this area. Although unlikely, MEC and munitions debris may be potentially present lying on the ground surface at the former quarry area. Analytical data from IRP investigations have confirmed the presence of explosives and metals. As such, the entire quarry area is considered to contain MC. Very little information exists concerning the presence or absence of MEC or MC at the undeveloped open field. Therefore, it is assumed that MEC could be potentially buried or lying on the ground surface in this area, and MC may be present.

The release mechanisms for MEC and MC are the intentional disposal/demilitarization of munitions and related items. MC at the undeveloped open field will require further evaluation under the SI process. **Table 5** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 5: Summary of Potential MEC and MC Present at the Ramsdell Quarry Landfill

Potential MEC	Potential MC	Primary Release Mechanism
Bombs	White phosphorus, smoke, photoflash	Open burn on ground surface; uncontained.
Mortars	White Phosphorus, Smoke, Illumination, HE, practice (inert)	Open burn on ground surface; uncontained.
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Open burn on ground surface; uncontained.
Primary/Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate	Open burn on ground surface; uncontained.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder	Open burn on ground surface; uncontained.

HMX - High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

PETN - Pentaerythritol tetranitrate

RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite

PETN - Pentaerythritol tetranitrate

Tetryl - N-methyl-N-2,4,6-tetranitroaniline

TNT – Trinitrotoluene

5.3.3.2 Maximum Penetration Depth

Munitions were burned on the ground surface at the MRS. Further, penetration is unlikely due to the thin cover of sediments that currently covers the bedrock. As such, MEC would not be expected in the subsurface soil within the former quarry area. Information concerning the types of operations conducted at the open field south of the quarry area was not found. As such, there is no supporting documentation to determine whether or not MEC was buried in this area. Without definitive information documenting that MEC is not buried within the open field, it has to be expected that MEC may be present in the subsurface soil.

5.3.3.3 MEC Density

An exact location of the open burn operation within the quarry has not been identified. Rather, it is likely that these activities were rotated throughout the entire area. Therefore, the entire MRS has the potential to contain MEC. Concerning the open field to the south, very little information is known about the operations conducted in this area or concerning the presence of MEC or its potential density.

5.3.3.4 Munitions Debris

Spent 81mm mortar rounds have been observed at the MRS. Evidence of recent discoveries (i.e., last 10 years) of munitions debris was not identified during this records search.

5.3.3.5 MEC Exposure and Transport Pathway Analysis

After cessation of the open burn activities, a portion (southern and western rim of the quarry) of the MRS was used as a solid waste landfill, which was subsequently closed and capped in accordance with Ohio solid waste regulations. It is likely that the waste cell and cap overlay any remaining MEC that was left on site. This portion of the site is not MMRP-eligible, since it is considered to be a "Response Complete". At the quarry area, only a surface exposure pathway for human and ecological receptors would be anticipated, although unlikely.

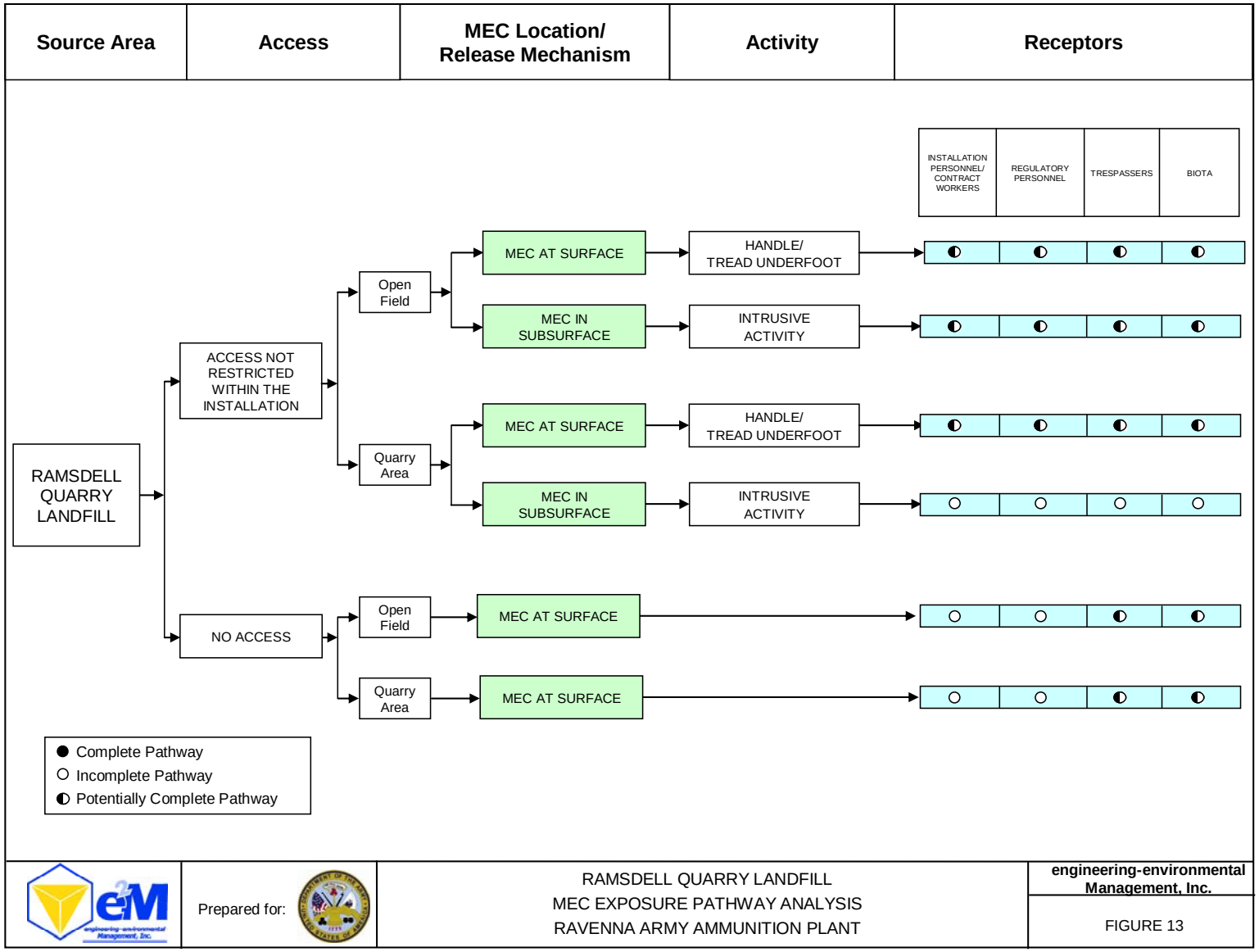
Since very little is known about the open field south of the quarry area, the primary exposure pathway for human and ecological receptors would be through handling or treading under foot or by disturbance of subsurface soil. **Figure 13** provides the pathways evaluated and the findings of the assessment.

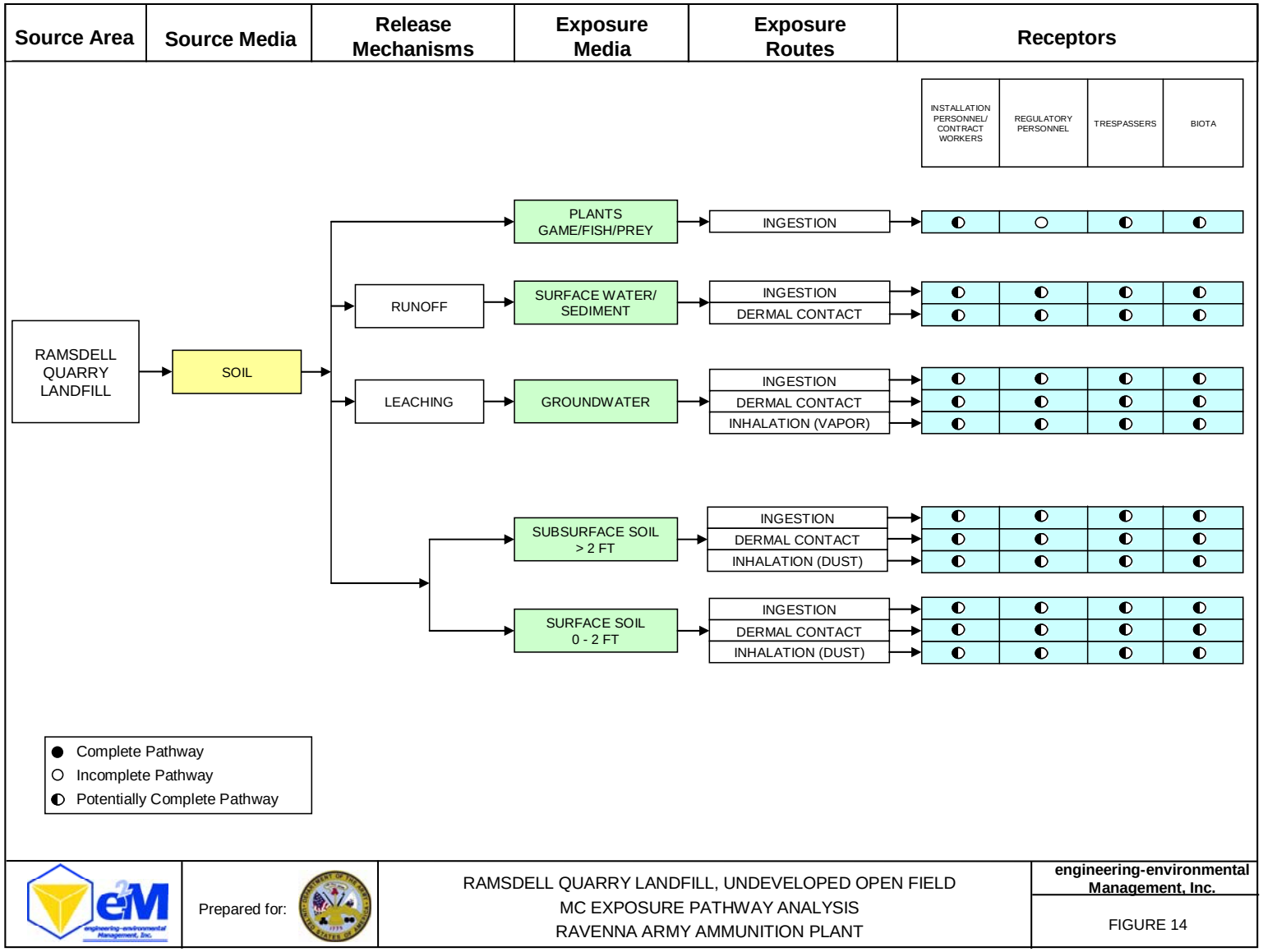
5.3.3.6 MC Exposure and Transport Pathway Analysis

The presence of MC at the former quarry areas has been established and will not require further evaluation under the SI process; however, no analytical data exists for the undeveloped open field. Therefore, additional characterization will be required at the undeveloped open field under the SI process. **Figure 14** provides the exposure pathways for the undeveloped open field south of the former quarry.

5.3.4 MRS Data Gaps

Adequate historic data determining the presence of MEC at the former quarry area exists; however, little information is known concerning the activities that were conducted in the open field south of the former quarry or whether or not MEC or munitions debris are present. The presence of MC in the former quarry has been confirmed; however, presence of MC at the area south of the quarry is not fully known and requires further investigation during this SI. MC contamination within the quarry area that is outside of the landfill will require further investigation under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
RAMSDELL QUARRY LANDFILL
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
Open Field
Quarry Area
MEC AT SURFACE
MEC IN SUBSURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
RAMSDELL QUARRY LANDFILL
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 13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Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
RAMSDELL QUARRY LANDFILL
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
RAMSDELL QUARRY LANDFILL, UNDEVELOPED OPEN FIELD
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 14

5.4 Erie Burning Grounds (RVAAP-002-R-01)

5.4.1 Human Exposure Profile

5.4.1.1 Current Land Use

The former burning grounds is composed of forests, shrub lands, grasslands, wetlands, open water, and unpaved roads. Current site activities include surveying, environmental media sampling, security, safety, natural resources management, and other directed maintenance activities as required. Land use restrictions established by the OHARNG are currently in place at the MRS, which prohibits general training activities by the OHARNG (RVAAP-1.A.2). The site is also permitted for waterfowl hunting and trapping.

5.4.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel), and hunters/trappers. Although site visits are limited, they are necessary to conduct intermittent security patrols and to perform grounds keeping and maintenance tasks. The OHARNG does not use the area for training activities (RVAAP-1.A.2).

5.4.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, the OHARNG has a "restricted access, digging prohibited," use restriction due to concerns over the presence of MEC (RVAAP-1.A.2).

5.4.1.4 Beneficial Resources

The former burning ground is predominantly flooded and contains wetlands. The immediate surrounding area encompasses mature forest. Specific details of the beneficial resources present at the Installation are provided in **Section 5.2.3**.

5.4.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 6.** Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 6: Erie Burning Grounds Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Erie Burning Grounds	Wetlands associated with surface water.	Minimally disturbed. MRS transformed into pond and wetlands.	No federal threatened or endangered species

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.4.3 MEC and MC Release Profile

5.4.3.1 Release Mechanisms

For approximately ten years the MRS was used to thermally treat (i.e., open burn) bulk, obsolete, non-specification explosives, as well as propellants, rags, and Army railcars used for transporting explosives. Prior to its acquisition by the Army in 1940, the area may have been used for brick manufacturing. Aerial photos of the site from the 1940s and 1950s depict open boxcars staged at the end of the rail spur, known as Track 49. Presumably, materials were tipped out of the cars on either side of the embankment to be burned. Ash residue was left on site after the burn. Engineering drawings from 1941 also identify two additional burning areas: the first is located 200 ft to the north that was fed by a chute, and the second (known as the "T-Area") located to the south of the rail spur. MEC has been observed on site and analytical data from IRP investigations have confirmed the presence of explosives and metals in the soil, surface water, and dry sediment. As such, the entire MRS (approximately 33.93 acres) is considered to contain MEC and MC.

The release mechanisms for MEC and MC are the intentional disposal of explosives and related items. MC in soils and dry sediments (only) will be addressed under the IRP and will not be evaluated further under the MMRP SI process; however, a decision concerning MC in wet sediments, surface water, or ground water has not been made. As such, MC will be further investigated under the MMRP. **Table 7** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 7: Summary of Potential MEC and MC Present at the Erie Burning Grounds

Potential MEC	Potential MC	Primary Release Mechanisms
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Open burn on ground surface; uncontained.
Primary/Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate,	Open burn on ground surface; uncontained.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder	Open burn on ground surface; uncontained.

HMX - High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

PETN - Pentaerythritol tetranitrate

RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite

PETN - Pentaerythritol tetranitrate

Tetryl - N-methyl-N-2,4,6-tetranitroaniline

TNT – Trinitrotoluene

5.4.3.2 Maximum Penetration Depth

Munitions were burned on the ground surface at the MRS. As such, MEC and MC would not be expected to be in the subsurface soil. However, a large portion of the MRS is submerged limiting surface contact. While the penetration of MEC items are anticipated to be static (i.e., horizontally), MC have been detected in the groundwater suggesting their mobility. In addition, MC has been documented in surface and subsurface soil, surface water, and sediment (RVAAP-3.F.4).

5.4.3.3 MEC/MC Density

The density of MEC is unknown. A UXO avoidance sweep was performed in conjunction with the Phase II RI field work and although anomalies were identified, MEC items were not discovered (RVAAP-3.F.6). Burning operations were conducted along the Track 49 rail spur, the burn area situated at the terminus and to the north of the spur, and at the "T-Area". Therefore, MC is anticipated to be located throughout these areas (RVAAP-3.F.5).

5.4.3.4 Munitions Debris

The presence of munitions debris is unknown. Although photographic evidence presented in the ASR documented the presence of MEC, MEC items or munitions debris were not discovered during the Phase II RI field work (RVAAP-4.A.2).

5.4.3.5 MEC Exposure and Transport Pathway Analysis

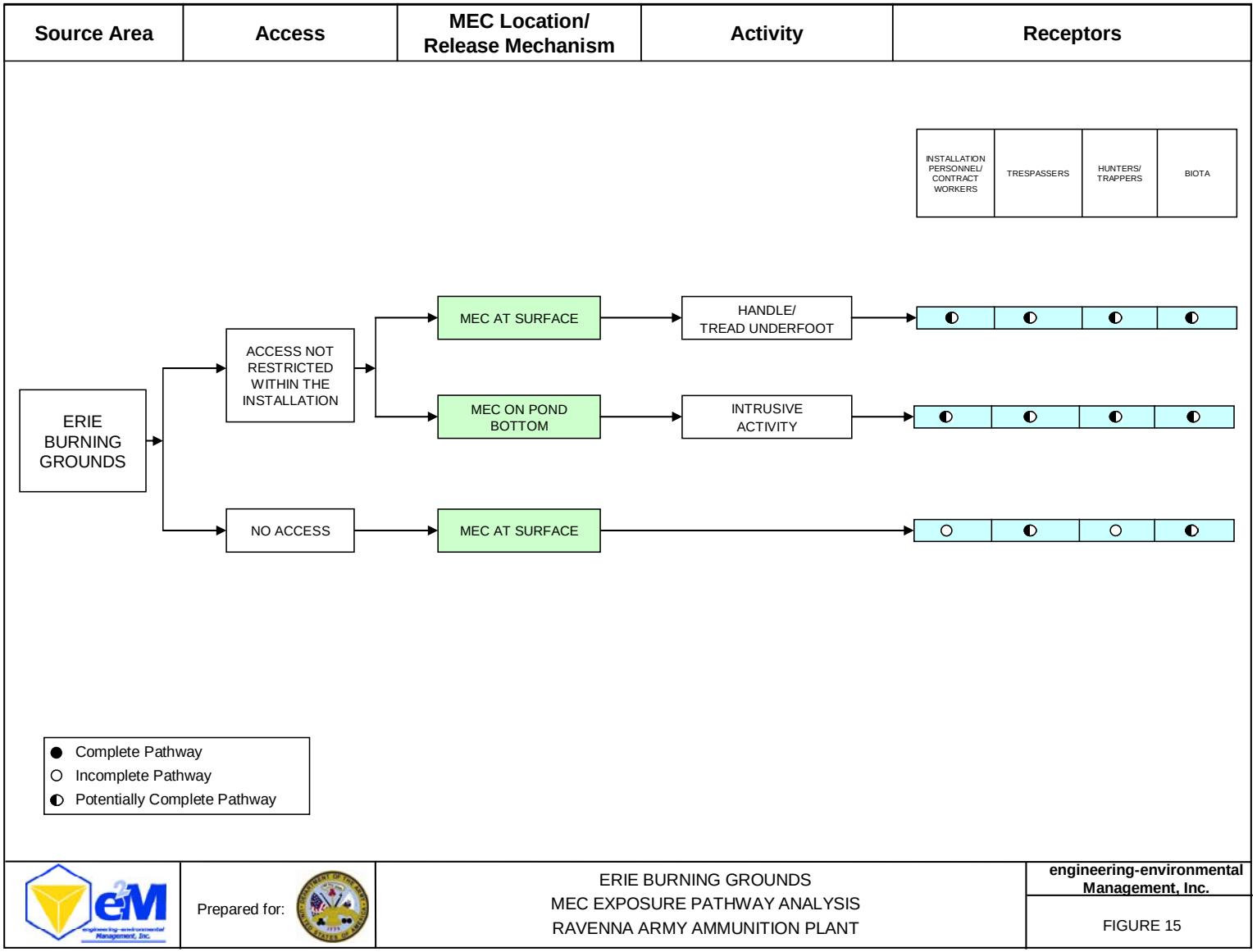
In the early 1990s, the majority of the MRS became flooded due to a combination of sedimentation, vegetative growth, and beaver damming, leaving only the railroad embankment and a portion of the T-Area exposed. Within these areas, the primary exposure pathway for human and ecological receptors would be contact with MEC lying on the ground surface. Periodically, the open water body north of the rail spur has drained on its own. During these episodes, contact with submerged MEC items could be possible. Since any MEC that is likely to be on site is submerged (i.e., no visual observations reported), transport and migration are not likely, unless disturbed. **Figure 15** provides the pathways evaluated and the findings of the assessment.

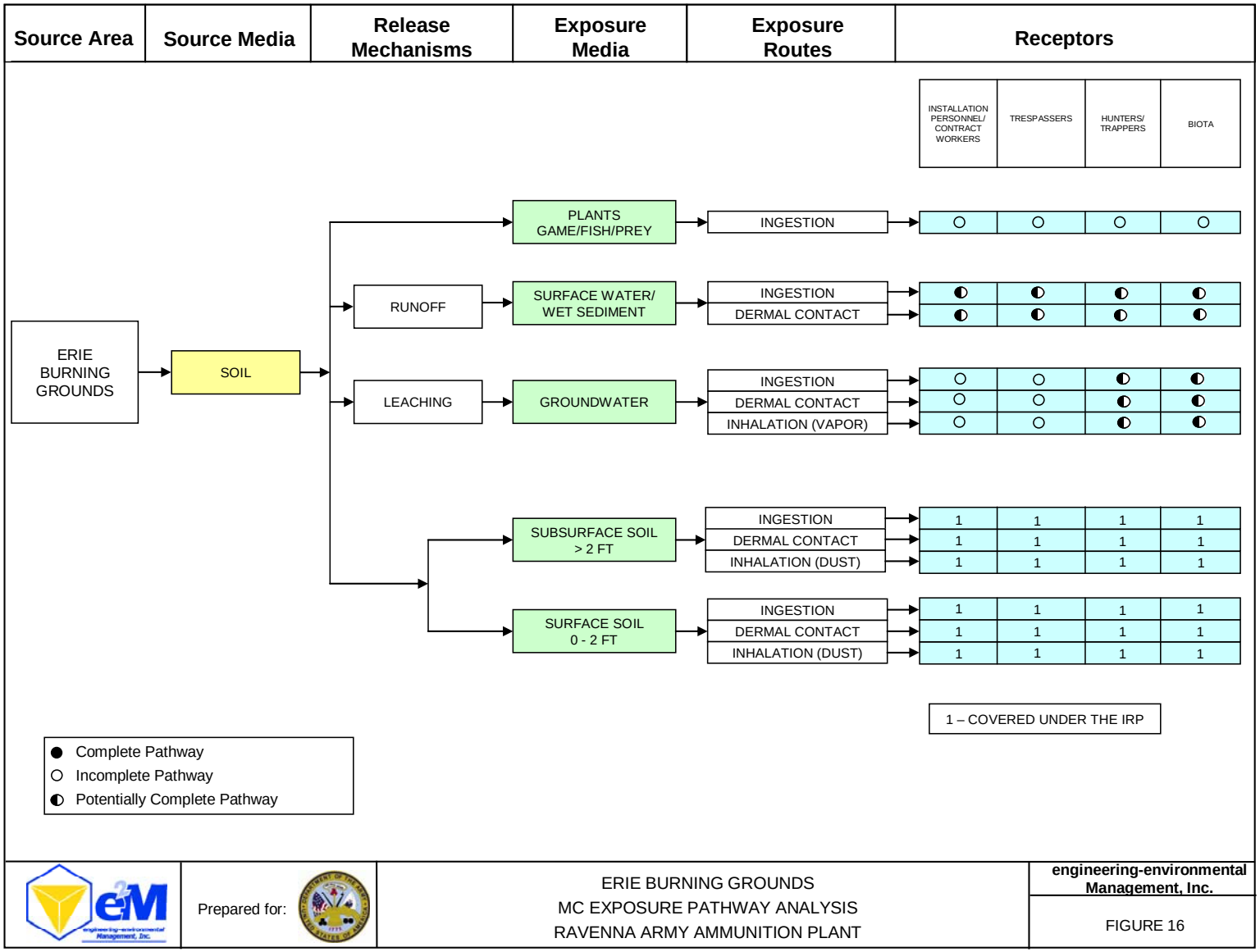
5.4.3.6 MC Exposure and Transport Pathway Analysis

The presence of explosives and metals in the surface and subsurface soil, surface water, and sediments has been established by investigations conducted under the IRP. Contact with MC is considered to be likely since there are no access restrictions at the MRS. Transport of MC via groundwater, surface water, and sediments is possible. **Figure 16** provides the pathways evaluated and the findings of the assessment.

5.4.4 MRS Data Gaps

Adequate historic data determining the presence and density of MEC items has not fully been determined and will require further evaluation during the SI process. MC in soils and dry sediments has been addressed under the IRP, with a likely decision (based on the risk assessment) of NFA. However, a decision concerning MC in wet sediments, surface water, or ground water has not been made. As such, MC will be further investigated under the MMRP.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
TRESPASSERS
HUNTERS/ TRAPPERS
BIOTA
ERIE BURNING GROUNDS
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC ON POND BOTTOM
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ERIE BURNING GROUNDS
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 15


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
TRESPASSERS
HUNTERS/ TRAPPERS
BIOTA
ERIE BURNING GROUNDS
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ WET SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
1
1 – COVERED UNDER THE IRP
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ERIE BURNING GROUNDS
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 16

5.5 Demolition Area #2 (RVAAP-004-R-01)

5.5.1 Human Exposure Profile

5.5.1.1 Current Land Use

The former detonation area is remotely located and not developed. Current site activities include intermittent security patrols, maintenance (i.e., of the gate, stakes, and signs), environmental media sampling, surveying, and natural resource management. Land use restrictions established by the OHARNG are currently in place at the MRS for guard personnel (RVAAP-1.A.2). Visitors must be briefed on the inherent dangers located at the site before entrance is allowed.

5.5.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel (e.g., security guards) and contract workers (e.g., maintenance and natural resource management personnel). Although site visits are limited, they are necessary to conduct security/inspection patrols, perform maintenance, and evaluate natural resources.

5.5.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, the OHARNG has a "restricted access, digging prohibited," use restriction for guard personnel due to concerns over the presence of MEC (RVAAP-1.A.2).

5.5.1.4 Beneficial Resources

The former burning ground is comprised of grasslands, mature forest, wetlands, and open water (i.e., Sand Creek). Specific details of the beneficial resources present at the Installation are provided in **Section 5.2.3**.

5.5.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 8**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 8: Demolition Area #2 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Demolition Area #2	Wetlands associated with the Sand Creek flood plain.	Moderately disturbed. Detonation area cleared and pits excavated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.5.3 MEC and MC Release Profile

5.5.3.1 Release Mechanisms

For approximately 43 years the MRS was used to dispose of large caliber munitions and bulk explosives, in addition to the burial of bombs and white phosphorus (Burial Areas 1 and 2). MEC has been observed on site, and in 1999 over 100,000 munitions items and munitions debris were removed from the RCRA unit (RVAAP-6.A.5). Munitions debris and possible MEC is present lying on the ground surface, partially buried, and in Sand Creek at the Rocket Ridge area. Installation personnel stated a bomb disposal area is located near the northwestern portion of the MRS; however, no corroborating evidence was located, thus this area will require further investigation during the SI. No other removal actions involving MEC have been conducted.

Analytical data from IRP investigations have confirmed the presence of explosives and metals in the surface and subsurface soil and groundwater in two distinct areas along Sand Creek (RVAAP-6.A.6). Excluding the RCRA unit (which is not MMRP-eligible), MEC should be anticipated across the remainder of the site. Analytical data collected during IRP investigations have identified MC in groundwater and soil, north of, and within, a portion of the Sand Creek floodplain.

The release mechanisms for MEC and MC are the intentional detonation and burial of munitions and bulk explosives. MC is partially being addressed under the IRP, but further characterization is anticipated under the SI. **Table 9** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 9: Summary of Potential MEC and MC Present at Demolition Area #2

Potential MEC	Potential MC	Primary Release Mechanisms
Blasting Caps and Fuzes	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Open Detonation
Boosters	TNT, C4, Composition A, B, or C, RDX, PETN	Open Detonation
Bursters	TNT, RDX,HMX, Explosive D	Open Detonation
Bombs (up to 500 lbs)	Smoke, white phosphorus, HE, incendiary, and practice (inert)	Open Detonation
Demolition Materials	TNT	Open Detonation
Large Caliber Rounds (37mm or greater)	Smoke, white phosphorus, HE, incendiary, and practice (inert)	Open Detonation

HMX – High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

PETN – Pentaerythritol tetranitrate

RDX – Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite

TNT – Trinitrotoluene

(RVAAP-2.A.7)

5.5.3.2 Maximum Penetration Depth

At the detonation area, munitions were detonated in pits that were excavated with a backhoe to a maximum depth of four ft bgs. Based on the location and conditions at the Rocket Ridge area, munitions and munitions debris are only partially buried as a result of slumping soils and erosion. The depth of potentially buried MEC at the bomb disposal area located near the northwestern portion of the MRS is not known, but items have been observed lying on the ground surface and partially buried. Likewise, little is known about the depth that items were buried at the two burial sites, but it is anticipated not to exceed 15 ft, or the average digging depth of a backhoe.

5.5.3.3 MEC/MC Density

MEC and munitions debris have been removed from the RCRA unit. However, the density of MEC at the remaining part of the detonation area is not fully known. Records indicate that after detonation of munitions, the area was policed to remove any munitions debris then backfilled, mulched, and seeded. New pits were subsequently dug for each detonation activity (RVAAP-2.A.6); therefore, increasing the area of operations. As such, it is expected that MEC is located throughout the former detonation area. At the two burial sites and Rocket Ridge area, MEC is expected throughout.

5.5.3.4 Munitions Debris

Due to possible kick-out, munitions debris is expected to be present across the entire MRS, including Rocket Ridge. Fragments of exploded or unexploded ordnance items forcefully propelled away from the detonation pits during detonation activities can be found several thousand ft away from the detonation site. Default distances for fragment protection range from 1,250 ft for non-fragmenting explosives materials to 4,000 ft for munitions 5-inch caliber or larger (RVAAP-6.A.7).

5.5.3.5 MEC Exposure and Transport Pathway Analysis

The presence of MEC is expected in the subsurface soil and lying on the ground surface. Human and ecological exposure pathways include contact with MEC during disturbance of subsurface soil and contact with MEC lying on the ground surface. Since MEC is expected to be buried, transport and migration are not likely, unless disturbed. MEC lying on the ground surface can be transported by surface water flow (i.e., via Sand Creek, especially during flood events) and by biota (animals). **Figure 17** provides the pathways evaluated and the findings of the assessment.

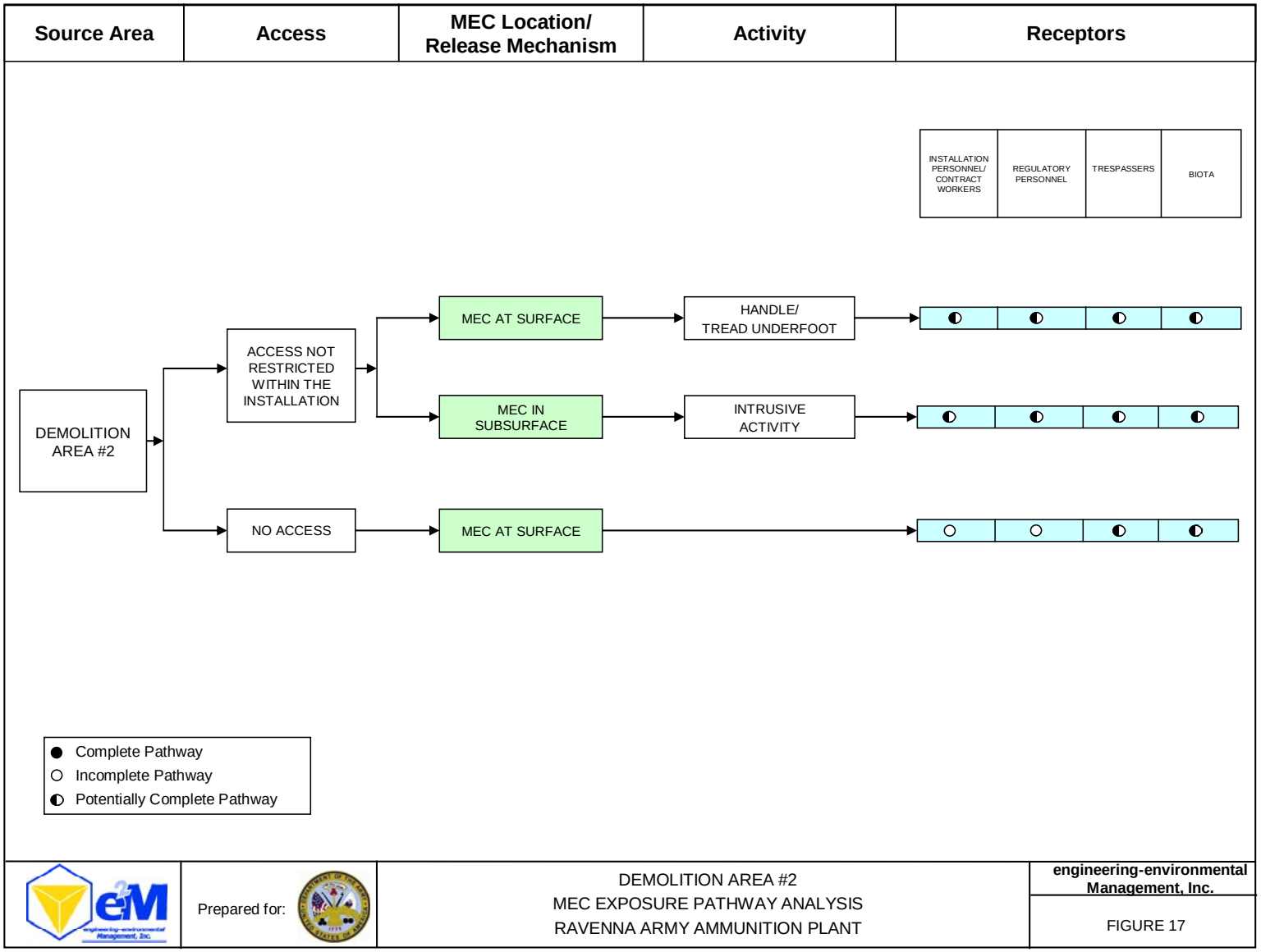
5.5.3.6 MC Exposure and Transport Pathway Analysis

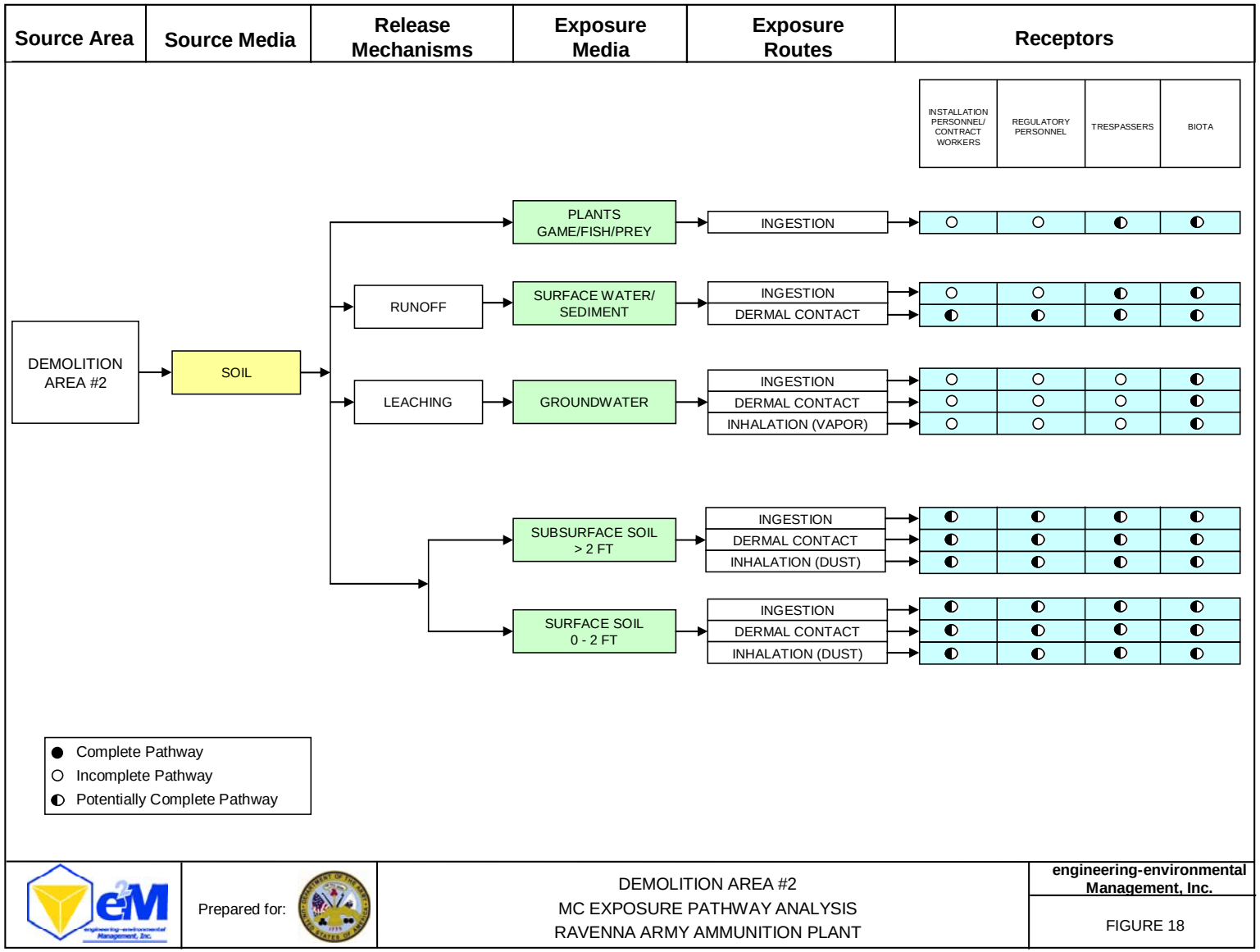
The presence of explosives and metals (MC) in groundwater, surface soil, and subsurface soil has been established and will partially be addressed under the IRP. Further characterization of the nature of MC will be required under the MMRP SI process. There are no formal land use restrictions that have been ratified under CERCLA, and access to the site is only partially limited by a locked gate. Therefore, potential contact with MC contaminated surface and subsurface soils is considered possible. Transport of MC via groundwater, surface water, and sediments is possible. **Figure 18** provides the pathways evaluated and the findings of the assessment.

5.5.4 MRS Data Gaps

The extent and density of MEC items has not fully been determined. MEC is expected to be present at the former detonation area, burial sites, northwestern disposal area, and Rocket Ridge.

The nature and extent of MC contamination at the MRS has not fully been determined.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
DEMOLITION AREA #2
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
DEMOLITION AREA #2
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 17


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
DEMOLITION AREA #2
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
DEMOLITION AREA #2
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 18

5.6 Load Line #1 (RVAAP-008-R-01)

5.6.1 Human Exposure Profile

5.6.1.1 Current Land Use

All buildings associated with the former load line have been demolished, with only the subsurface infrastructure (e.g., sewers and utilities), foundations, and walkways remaining. The MRS is fenced, but has a missing section located behind the guard building. Current site activities are limited to security patrols and maintenance activities (i.e., grounds and wildlife management).

5.6.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel), and trespassers. Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping and maintenance tasks. The OHARNG does not use the area for training activities (RVAAP-1.A.2).

5.6.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. This area is restricted because remediation has not been completed. Access to the MRS is gained through a locked gate or by trespass through the missing section of fence.

5.6.1.4 Beneficial Resources

The former load line is comprised of open grassland and is surrounded by mature forest. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.6.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 10**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 10: Load Line #1 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Load Line #1	Wetlands associated with open water.	Disturbed. Buildings removed.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.6.3 MEC and MC Release Profile

5.6.3.1 Release Mechanisms

Loading operations were conducted at the MRS for 30 years, which involved the melting and loading of TNT and Composition B explosives into large-caliber shells. These operations produced explosive dust, spills, and vapors that collected on the floors and walls of the buildings. Periodic cleaning of the buildings resulted in the occasional sweeping of loose explosive flakes, chips, dust or pink water (i.e., explosive laden wash water) out of doorways onto the ground. Further, several buildings in the load line were used for a brief period (i.e., several years) to refurbish mines which involved the dismantling, replacing of components, and repainting of the munitions. Additionally, one area was used to demilitarize primers which may have lead to propellant contamination (RVAAP-6.G.2).

MEC (152mm projectile) and triple base propellants have been observed at the MRS (RVAAP-1.A.2). In addition, analytical data from IRP investigations have confirmed the presence of explosives and metals in surface and subsurface soil, groundwater, surface water, and sediments (RVAAP-3.G.6).

The release mechanism for MC was the deliberate sweeping of explosives residue out doorways during cleaning operations. The release mechanism for MEC items is not fully understood, but is assumed to be the staging of munitions during production and/or rehabilitation activities. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 11** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 11: Summary of Potential MEC and MC Present at the Load Line #1 MRS

Potential MEC	Potential MC	Primary Release Mechanisms
Large Caliber Projectiles	TNT and Composition B.	Discharge to ground surface; uncontained.
Mines	HE and practice (inert).	Discharge to ground surface; uncontained.
Fuzes and Boosters	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Discharge to ground surface; uncontained.
Primary/Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Discharge to ground surface; uncontained.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder	Discharge to ground surface; uncontained.

HMX - High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

PETN - Pentaerythritol tetranitrate

RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite

Tetryl - N-methyl-N-2,4,6-tetranitroaniline

TNT – Trinitrotoluene

(RVAAP-2.A.14)

5.6.3.2 Maximum Penetration Depth

Munitions and MC were deliberately released to the ground surface at the former load line buildings (CB-13, CB-13B, CB-14). While there was no information discovered during the HRR review to indicate that MEC had been buried at the MRS, the possibility that MEC may be present in the subsurface soils can not be totally dismissed. As such, MEC would be expected to be lying on the ground surface and possibly buried. The depth of burial, however, can not be established.

5.6.3.3 MEC/MC Density

Based on information provided by the Installation the triple base propellants were discovered within the vicinity of Buildings CB-13, CB-13B, and CB-14, while the 152mm projectile was found in what is believed to have been Building CB-801.

5.6.3.4 Munitions Debris

There is one report of a 152mm casing having been found at the MRS. While an exact location could not be determined, it is known that Building CB-801 (located within the former boundary of the MRS) was used to store inert material, such as shell casings. Considering that only one isolated report of munitions debris exists for the MRS, the likely presence of munitions debris is considered minimal.

5.6.3.5 MEC Exposure and Transport Pathway Analysis

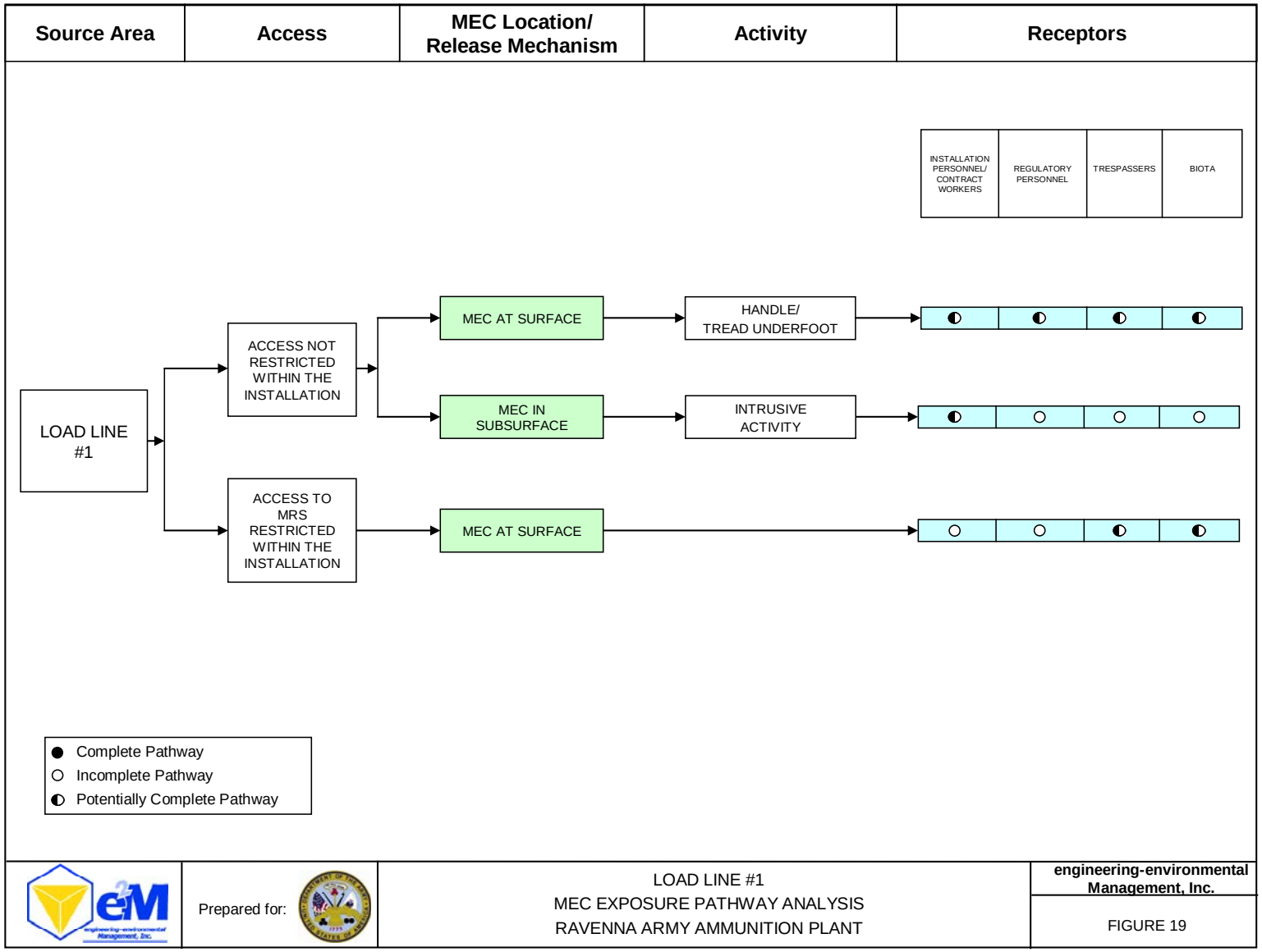
An isolated sighting of a 152mm projectile was made at the MRS (potentially near Building CB-801 located within the former boundary of the MRS). The item was removed and no other sightings have been reported. Triple base propellants are also known to exist at the MRS. While there are no reports that MEC or munitions debris had been buried or otherwise disposed of on site, the possibility that MEC may be buried can not be totally dismissed. Although unlikely, the primary exposure pathway for human and ecological receptors is to handle or tread under foot on MEC lying on the ground surface, or the disturbance of subsurface soil. **Figure 19** provides the pathways evaluated and the findings of the assessment.

5.6.3.6 MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and not during this SI process. Regardless, the presence of explosives and metals in the groundwater, surface soil and subsurface soil, surface water, and sediments has been established by investigations conducted under the IRP. Contact is considered unlikely due to the remote/rural location of the MRS and restricted access to human receptors. Transport of MC via surface water or groundwater was demonstrated to be limited (RVAAP-3.G.6).

5.6.4 MRS Data Gaps

A UXO anomaly avoidance survey was conducted during the IRP environmental media field sampling efforts with no reported findings. Further, there have not been any additional sightings of MEC reported. There is some uncertainty about the nature and extent of triple base propellants that are present at the MRS.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
LOAD LINE #1
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
ACCESS TO MRS RESTRICTED WITHIN THE INSTALLATION
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LOAD LINE #1
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 19

5.7 Load Line #12 (RVAAP-012-R-01)

5.7.1 Human Exposure Profile

5.7.1.1 Current Land Use

The former load line and associated structures have been removed, except for a small above grade slab at Building FF-19. Otherwise, the MRS is not developed and remains idle. Current site activities include maintenance of the grounds, fences, and signs; and the performance of security checks. For the most part, these activities are conducted infrequently. The property is scheduled to be transferred to the OHARNG after remediation of the IRP AOC is complete (RVAAP-3.J.6).

5.7.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, site visits are infrequent and of limited duration. Currently, the OHARNG does not use the area for training activities (RVAAP-3.J.6).

5.7.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. Access is controlled by a perimeter fence and a locked gate (RVAAP-2.A.13).

5.7.1.4 Beneficial Resources

The MRS encompasses open grasslands and is surrounded by mature forest. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.7.2 Ecological Profile

The ecological profile at the Load Line #12 MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 12**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 12: Load Line #12 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Load Line #12	None.	Disturbed. Buildings removed.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.7.3 MEC and MC Release Profile

5.7.3.1 Release Mechanisms

Ammonium nitrate was first produced at the load line to make Amatol and later as a fertilizer-grade product. In 1944, operations were converted to demilitarize munitions, which involved the washout of projectiles after the fuzes and boosters had been removed. During the operational years, the washout water was allowed to flow from the buildings out onto the ground surface. Procedures for handling and disposal of the fuzes, boosters, and projectile casings were not determined. In 1999, approximately 100 90mm artillery projectiles were found buried just below the ground surface. It was determined that the projectiles did not contain HE. The circumstances of how the munitions came to be buried were not determined.

The release mechanism for MEC items is not fully understood, but is assumed to be the unauthorized dumping of munitions. The release mechanism for MC was the demilitarization of munitions and the deliberate sweeping and rinsing of explosives residue from the buildings through open doorways. MC will continue to be addressed under the IRP and will not be evaluated further during the MMRP SI process. **Table 13** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 13: Summary of Potential MEC and MC Present at Load Line #12

Potential MEC	Potential MC	Primary Release Mechanisms
Large Caliber Projectiles (37mm or greater)	TNT, inert	Discharge to ground surface; uncontained.
Low Sensitivity Explosives	Ammonium Nitrate, Explosive D	Discharge to ground surface; uncontained.

TNT – Trinitrotoluene

(RVAAP-2.A.14)

5.7.3.2 Maximum Penetration Depth

There are no records to indicate that the disposal (i.e., burned or detonated) or testing of munitions were established practices at the former load line. Although MEC has been discovered buried just below the ground surface, a penetration depth can not be established. Reports of munitions being discovered lying on the ground surface were not found.

5.7.3.3 MEC/MC Density

The density of MEC at the MRS is not fully known. There is very little information to determine if the buried MEC found at the MRS was coincidental or a pervasive condition.

5.7.3.4 Munitions Debris

Other than the 90mm projectiles, there are no reports of munitions debris being discovered at the site.

5.7.3.5 MEC Exposure and Transport Pathway Analysis

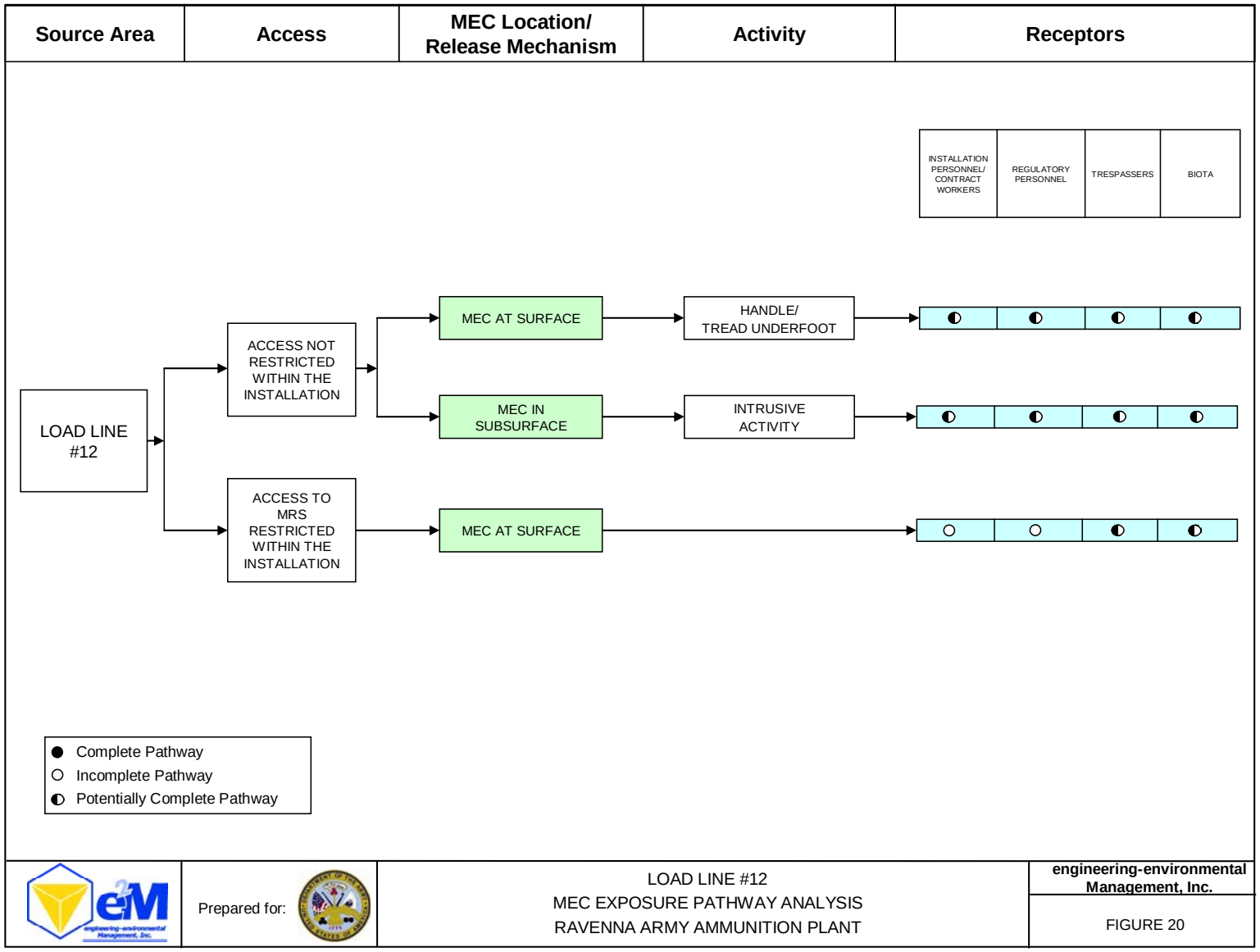
Since the 90mm artillery projectiles were discovered buried just below the ground surface, both surface and subsurface contact with MEC could be expected. Erosion or maintenance activities (e.g., mowing or grubbing) could expose shallow buried MEC, while construction (e.g., utility placement) or IRP investigative activities (e.g., drilling) could cause contact with buried MEC. As such, the primary exposure pathways for human and ecological receptors would include handle or tread underfoot, or the disturbance of subsurface soil. **Figure 20** provides the pathways evaluated and the findings of the assessment.

5.7.3.6 MC Exposure and Transport Pathway Analysis

MC is present in environmental medium at the MRS and will continue to be covered under the IRP. Further evaluation under the SI process will not be conducted.

5.7.4 MRS Data Gaps

There is inadequate historic data to determine whether or not MEC is pervasive at the site or if the discovery of the 90mm projectiles was an isolated incident.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
LOAD LINE #12
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
ACCESS TO MRS RESTRICTED WITHIN THE INSTALLATION
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LOAD LINE #12
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 20

5.8 Fuze and Booster Quarry (RVAAP-016-R-01)

5.8.1 Human Exposure Profile

5.8.1.1 Current Land Use

The Fuze and Booster Quarry is an undeveloped site that encompasses the three ponds constructed within the former quarry and mature forest. Access to the MRS is not restricted once on the Installation. Current site activities include intermittent security patrols, natural resource management, environmental media sampling, surveying, and maintenance activities (RVAAP-3.L.1). In addition, access is permitted to the ponds for waterfowl hunting and trapping (RVAAP-1.A.2).

5.8.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel), and the occasional hunter/trapper. Typically, visits to the MRS are infrequent and of limited duration.

5.8.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation (RVAAP-3.A.13). The MRS is not fenced and access is not restricted.

5.8.1.4 Beneficial Resources

The MRS is comprised of three ponds, associated wetlands, and mature forest. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.8.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 14**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 14: Fuze and Booster Quarry Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Fuze and Booster Quarry	Wetlands.	Minimally disturbed. Area originally excavated for building material. Area revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.8.3 MEC and MC Release Profile

5.8.3.1 Release Mechanisms

Among other things, the MRS was used as an open burning area and subsequently a landfill that accepted fuze and booster assemblies, projectiles, residual ash, and sanitary waste. Reportedly in 1976, existing debris was removed from the MRS and disposed of elsewhere (RVAAP-3.B.2). Further, according to interviews with plant personnel, any munitions produced at the plant could have been disposed at the MRS (RVAAP-2.A.9).

The release mechanisms for MEC items are the intentional open burning and disposal of munitions. The release mechanisms for MC are the burning of munitions and other items, and the deliberate disposal of ash and production waste water. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 15** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 15: Summary of Potential MEC and MC Present at the Fuze and Booster Quarry

Potential MEC	Potential MC	Primary Release Mechanisms
Aerial Rockets	Smoke, inert, white phosphorus, and HE.	Burned/Disposed on ground surface.
Blasting Caps, Fuzes, Boosters, or Bursters	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burned/Disposed on ground surface.
Bombs	Smoke, white phosphorus, incendiary, photoflash, HE, and inert.	Burned/Disposed on ground surface.
Bombs	Smoke, white phosphorus, incendiary, photoflash, HE, and inert.	Burned/Disposed on ground surface.
Flares, Signals, Simulators, Obscurant Smoke	Smokeless powder (nitrocellulose, nitroglycerin)	Burned/Disposed on ground surface.
Hand Grenades	Smoke, white phosphorus, incendiary, HE, inert.	Burned/Disposed on ground surface.
Land Mines, anti-personnel and anti-tank.	Practice (with spotting charge), HE	Burned/Disposed on ground surface.
Large Caliber Projectiles (37mm or greater)	Smoke, white phosphorus, incendiary, HE, practice.	Burned/Disposed on ground surface.

Table 15: Summary of Potential MEC and MC Present at the Fuze and Booster Quarry (continued)

Potential MEC	Potential MC	Primary Release Mechanisms
Medium Caliber Projectiles (20mm, 25mm, 30mm)	HE, inert.	Burned/Disposed on ground surface.
Mortars	Smoke, white phosphorus, incendiary, illumination, HE, inert.	Burned/Disposed on ground surface.
Primary or Initiating Explosives	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burned/Disposed on ground surface.
Secondary Explosives	PETN, Composition B, Tetryl, TNT, RDX, HMX, Black Powder.	Burned/Disposed on ground surface.

HE – High Explosives

HMX – High Melting Explosive (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

PETN – Pentaerythritol tetranitrate

RDX – Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite

Tetryl – N-methyl-N-2,4,6-tetranitroaniline

TNT – Trinitrotoluene

(RVAAP-2.A.7)

5.8.3.2 Maximum Penetration Depth

Munitions and MC were deliberately released to the ground surface at the MRS. As such, MEC and MC would not be expected in the subsurface soil. MEC is visible on the banks at the southern pond, while MEC is only visible at the northern pond during periods of low water levels. No information was found regarding the presence of MEC in the middle pond.

5.8.3.3 MEC/MC Density

Records were not available to identify the quantity of munitions and other related items burned or disposed of at the MRS. The density of MEC within the ponds and along the banks is not known.

5.8.3.4 Munitions Debris

The Installation reported that munitions debris has been observed at the MRS. As such, the likelihood that munitions debris still exists at the MRS is high.

5.8.3.5 MEC Exposure and Transport Pathway Analysis

Any MEC remaining at the ponds would be located along the banks or below the water line. The depths of the ponds have been reported to be anywhere from 20 to 30 ft. Therefore, the exposure pathway for human receptors, especially at the southern pond, is considered to be potentially complete and

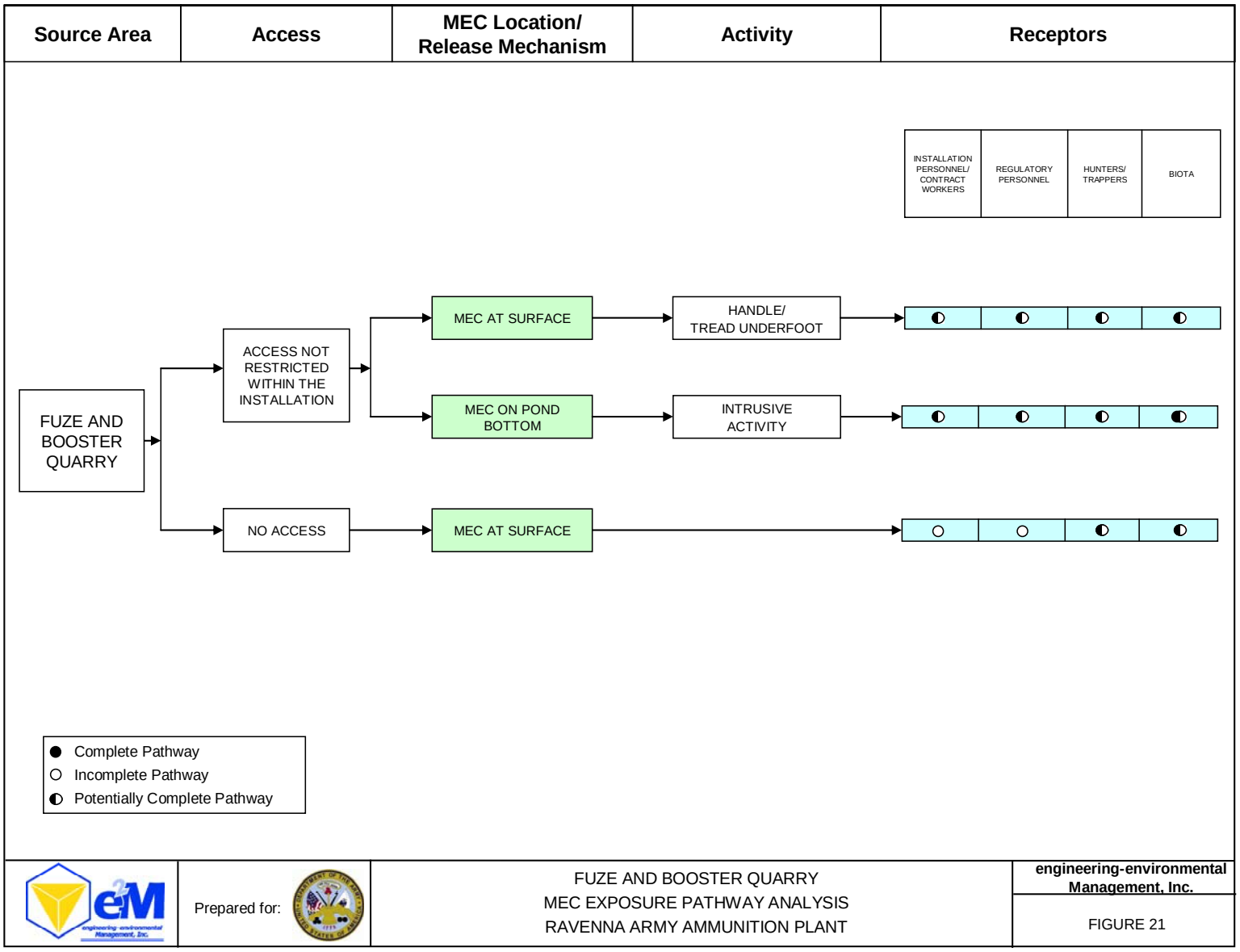
would include the handling or treading underfoot of MEC. There is a possible exposure pathway for ecological receptors (e.g., beaver) involving the handling of MEC. **Figure 21** provides the pathways evaluated and the findings of the assessment.

5.8.3.6 MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and not during this SI process. Regardless, the presence of explosives and metals in the groundwater, surface soil and subsurface soil, surface water, and sediments has been established by an investigation conducted under the IRP (RVAAP-3.L.1).

5.8.4 MRS Data Gaps

Surveys for MEC or munitions debris have not been conducted at the Fuze and Booster Quarry MRS. MEC is suspected to be present within the northern and southern ponds, and along the banks of the southern pond. Very little information is known about the presence of MEC in the middle pond or concerning the type, condition, and extent of MEC located at the MRS. An assessment of MEC will be required at all three ponds during the SI phase.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
HUNTERS/ TRAPPERS
BIOTA
FUZE AND BOOSTER QUARRY
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC ON POND BOTTOM
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FUZE AND BOOSTER QUARRY
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 21

5.9 Landfill North of Winklepeck (RVAAP-019-R-01)

5.9.1 Human Exposure Profile

5.9.1.1 Current Land Use

The MRS is an undeveloped site that consists of a wooded slope situated between the IRP AOC landfill and the adjacent stream. Access to the MRS is not restricted once on the Installation. Current site activities include intermittent security patrols, natural resource management, surveying, environmental media sampling, and maintenance activities. Concerning the landfill AOC, this area will continue to be addressed under the IRP; that is, MC contamination within the known boundaries of the landfill and any MEC discovered incidental during its' continued investigation will be handled under the IRP.

5.9.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

5.9.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation (RVAAP-3.A.13). The MRS is not fenced and access is not restricted. However, the area is fairly remote and can be difficult to find.

5.9.1.4 Beneficial Resources

The MRS is located next to a perennial stream and wetlands. Mature forest surrounds the MRS. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.9.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 16**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 16: Landfill North of Winklepeck Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Landfill North of Winklepeck	Wetlands.	Disturbed. Area originally excavated for a landfill. Area recovering/revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.9.3 MEC and MC Release Profile

5.9.3.1 Release Mechanisms

MEC observed at the MRS is the possible result of deliberate side-casting of materials down the slope. This was the possible result of the disposal activities that were conducted at the adjacent IRP AOC landfill where general plant refuse, explosives residue, and open burn wastes from Winklepeck Burning Grounds were disposed (RVAAP-2.A.9). Therefore, the release mechanism for MEC items is the intentional disposal of munitions. The release mechanism for MC is the deliberate disposal of ash, explosive plant residues, and remnants of munitions filler not completely flashed during burning operations. While the investigation of MC at the IRP AOC landfill area will continue to be conducted under the IRP, soil samples will have to be collected to assess the presence of MC within the newly identified MRS boundary. **Table 17** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 17: Summary of Potential MEC and MC Present at the Landfill North of Winklepeck

Potential MEC	Potential MC	Primary Release Mechanism
Booster cups, Fuzes, Bursters, Blasting Caps	Lead azide diazodinitrophenol, mercury fulminate, silver azide	Burial
Flares, Signals, Simulators, or Obscurant Smoke	Smokeless powder (nitrocellulose, nitroglycerin)	Burial

(RVAAP-2.A.14)

5.9.3.2 Maximum Penetration Depth

MEC has been observed lying on the ground surface at the MRS. Further, based on the lack of information to prove otherwise, the possibility that MEC may be buried at the MRS can not be dismissed. Further, it is likely that some items may be partially buried at the base of the slope due to slumping soils and erosion. There was no information discovered during the HRR that indicated the potential depth that MEC may be buried.

5.9.3.3 MEC/MC Density

Records describing the quantities of munitions, waste materials, and other related items disposed of at the MRS were not found. However, considering the volume of material thermally treated at Winklepeck Burning Grounds this quantity could be substantial. Therefore, the entire MRS has the potential to contain MEC and/or MC.

5.9.3.4 Munitions Debris

While there are no reports that distinguish between MEC and munitions debris discovered lying on the ground surface at the MRS, it is likely that munitions debris is present considering the source of the waste material (i.e., from burning operations).

5.9.3.5 MEC Exposure and Transport Pathway Analysis

Potential MEC is lying on the ground surface and is potentially buried at the MRS. Considering this, the potential exposure pathway for human and ecological receptors would be contact with MEC in surface soils by handling or treading underfoot or through disturbing subsurface soil. Transport of MEC would occur through erosion and surface water transport (i.e., especially during flood events). **Figure 22** provides the pathways evaluated and the findings of the assessment.

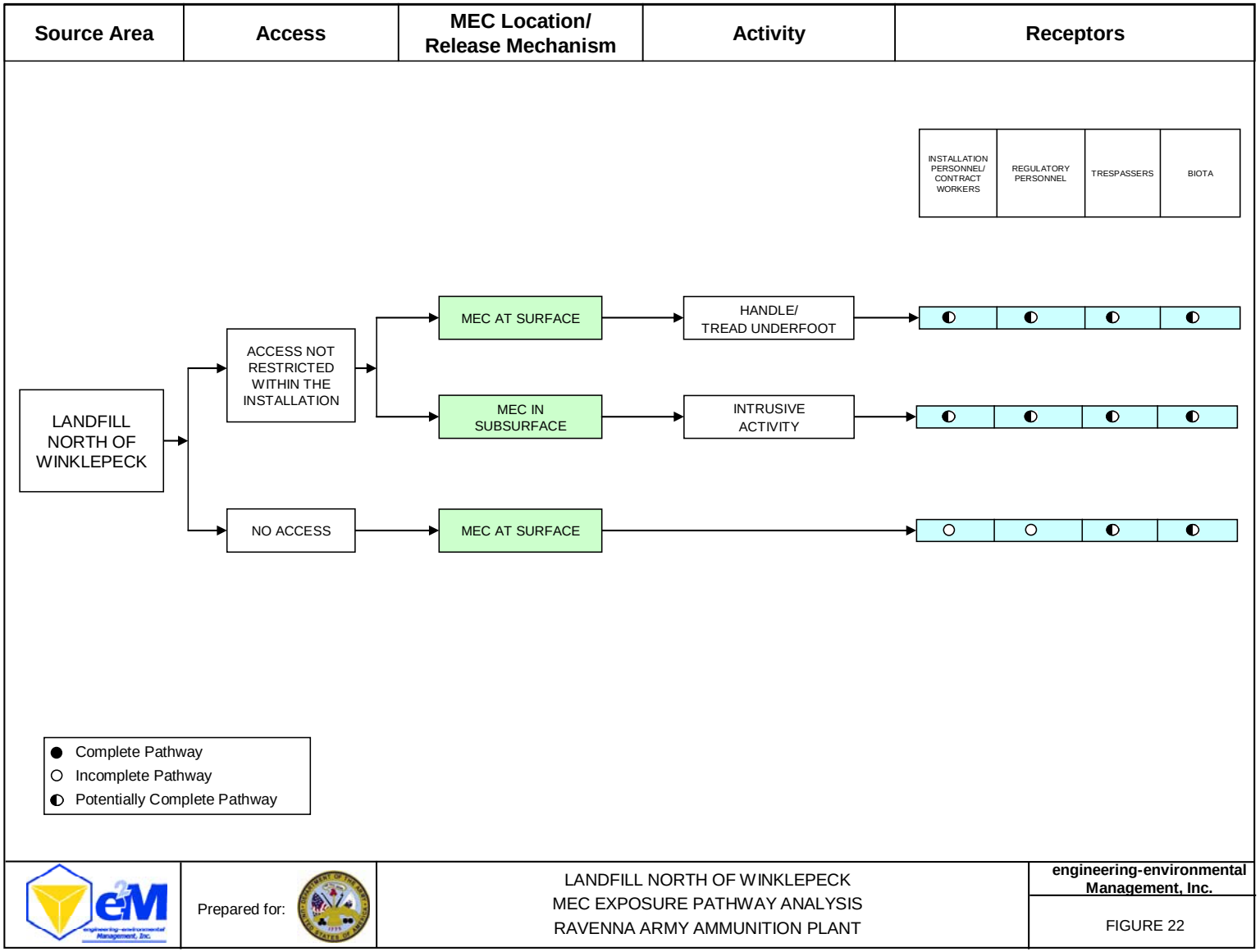
5.9.3.6 MC Exposure and Transport Pathway Analysis

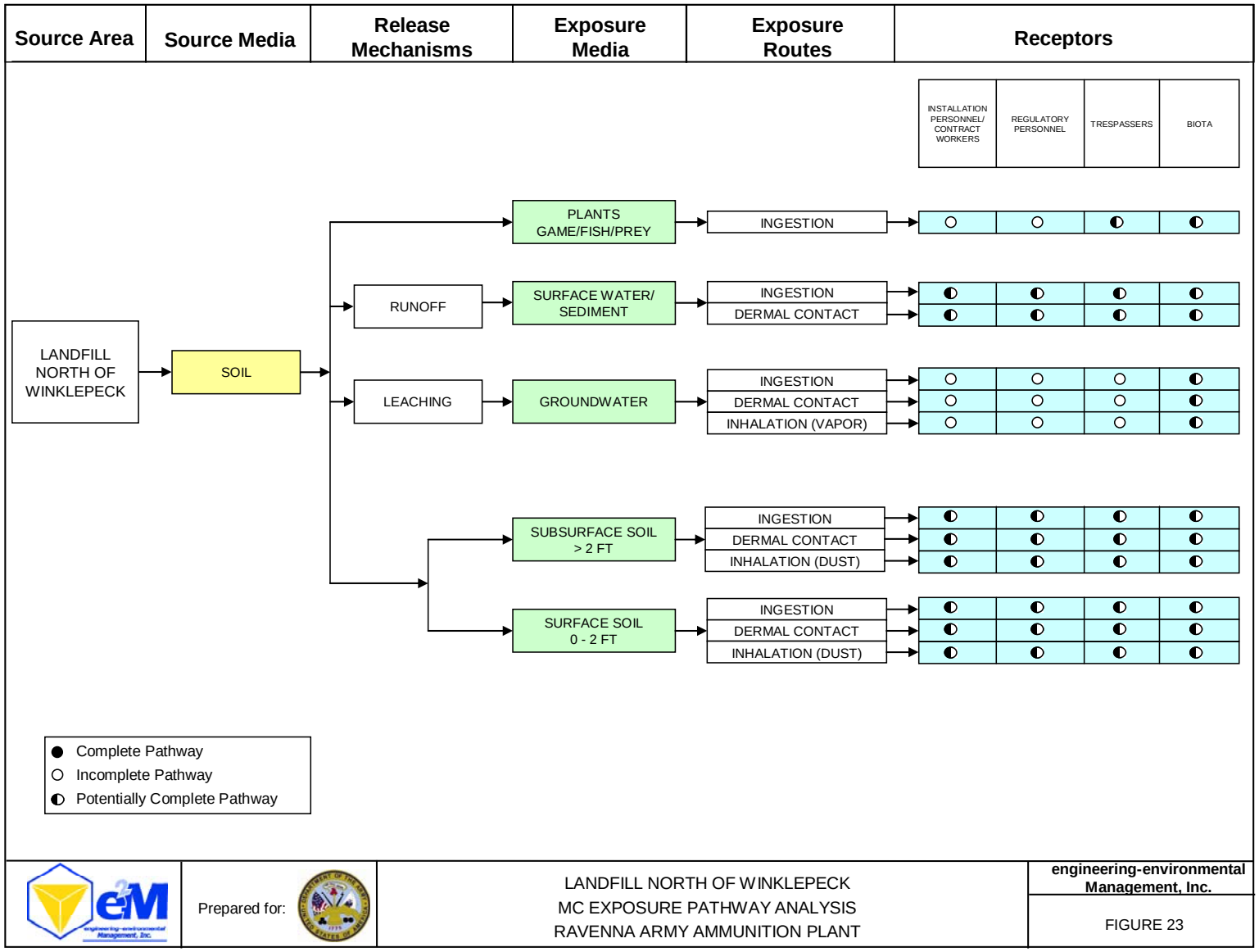
Investigations to determine the presence or nature of MC have not been conducted within the MRS. However, metals in groundwater, surface soil, and sediments have been detected at the adjacent IRP AOC landfill (RVAAP-3.K.5/6). It is anticipated that similar conditions may exist at the MRS. Therefore, potential exposure would include ingestion or dermal contact with contaminated soil, surface water, and/or sediment. Potential transport would occur via surface water, erosion of soils and sediment, and through a release to groundwater. **Figure 23** provides the pathways evaluated and the findings of the assessment.

5.9.4 MRS Data Gaps

Potential MEC and munitions debris exist at the MRS. The type, extent, and condition of the items are not known.

Characterization studies to assess MC in surface and subsurface soil, surface water and sediment, and groundwater have not been conducted at the newly identified MRS. The extent and nature of MC at the MRS, if present, is not known.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
LANDFILL NORTH OF WINKLEPECK
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LANDFILL NORTH OF WINKLEPECK
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 22


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
LANDFILL NORTH OF WINKLEPECK
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
LANDFILL NORTH OF WINKLEPECK
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 23

5.10 40mm Firing Range (RVAAP-032-R-01)

5.10.1 Human Exposure Profile

5.10.1.1 Current Land Use

The MRS is an undeveloped site that consists of an open field that is surrounded by mature forest. Access to the MRS is not restricted once on the Installation. Current site activities include security patrols, natural resource management, environmental media sampling, surveying, and maintenance activities.

5.10.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

5.10.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS or land use restrictions established by the Installation (RVAAP-3.A.13). The only restriction is the Installation-wide perimeter fence. The MRS is not fenced and access is not restricted. However, the MRS is fairly remote and can be difficult to locate.

5.10.1.4 Beneficial Resources

The MRS encompasses an open field situated on a small rise that overlooks the Fuze and Booster Quarry. Mature forest surrounds the entire MRS. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.10.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 18**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 18: 40mm Firing Range Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
40mm Firing Range	None.	Minimally disturbed. Area revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.10.3 MEC and MC Release Profile

5.10.3.1 Release Mechanisms

The MRS was used to test fire 40mm grenade cartridges from a fixed firing point. The release mechanisms for MEC are the intentional firing of munitions and the unintentional discarding of munitions or rounds falling outside of the target area. The release mechanism for MC (specifically metals) is the decomposition of projectiles not removed from the site. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 19** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 19: Summary of Potential MEC and MC Present at the 40mm Firing Range

Potential MEC	Potential MC	Primary Release Mechanisms
40mm, HE, M406	Composition B, M9 propellant	Intentional test firing.
40mm, Practice, M407A1 (inert)	Inert (spotting charge consists of dye), M9 propellant, RDX pellets	Intentional test firing.

(RVAAP-2.A.7)

5.10.3.2 Maximum Penetration Depth

Potential MEC is reportedly located at the MRS and includes 40mm grenades. Penetration of the rounds into the subsurface soil (i.e., greater than 1-foot bgs) is not expected. Based on maximum penetration depths provided in the document entitled "Penetration of Projectiles into Earth, An Analysis of UXO Clearance Depths at Ft. Ord", the maximum penetration depth for 40mm grenades (HE and inert rounds in clay soil) would not exceed 5-inches. As such, MEC would only be expected in the surface soil.

5.10.3.3 MEC/MC Density

Installation personnel have reported that potential MEC is present at the MRS. Quantities are not known, but the entire target area potentially contains MEC.

5.10.3.4 Munitions Debris

There were no reports that munitions debris had been discovered lying on the ground surface at the MRS. However, it is likely that munitions debris is present considering the activities conducted at the site.

5.10.3.5 MEC Exposure and Transport Pathway Analysis

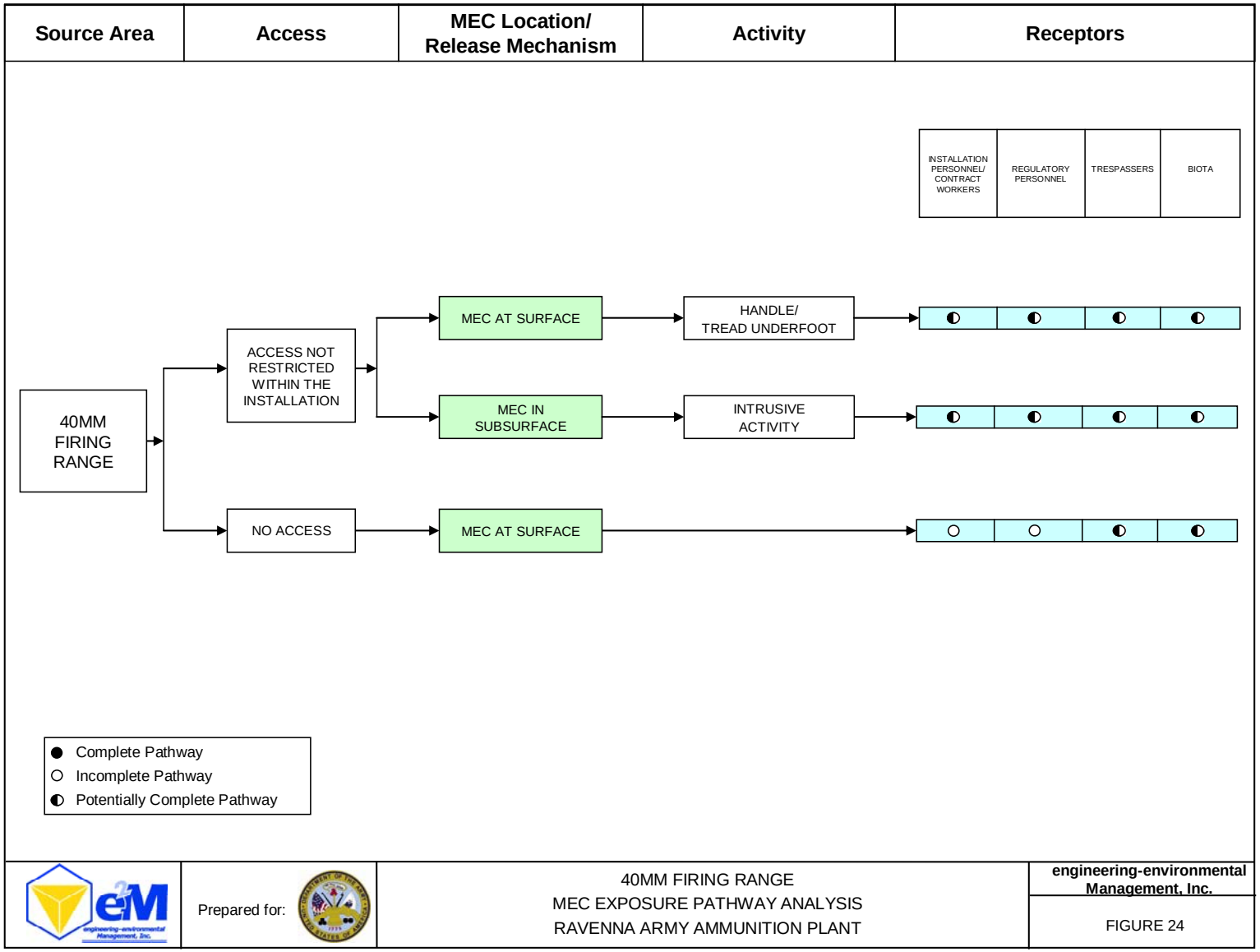
Potential MEC is reportedly lying on the ground surface at the MRS. Considering this, the potential exposure pathway for human and ecological receptors would be contact with MEC on the surface; that is, by handle/treading underfoot of munitions. Transport mechanisms would include movement under gravity (i.e., located on a steep slope) and surface water transport. **Figure 24** provides the pathways evaluated and the findings of the assessment.

5.10.3.6 MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and will not be addressed further during this SI process (RVAAP-1.A.2).

5.10.4 MRS Data Gaps

Installation personnel have reported that potential MEC is present at the MRS. However, little is known about the density, condition, or extent of MEC, or if the items represent MEC or munitions debris.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
40MM FIRING RANGE
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
40MM FIRING RANGE
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 24

5.11 Firestone Test Facility (RVAAP-033-R-01)

5.11.1 Human Exposure Profile

5.11.1.1 Current Land Use

The MRS is collocated with the former Load Line 6 Fuze and Booster area, which has been completely demolished. The MRS consisted of three buildings (since removed) and a pond that remains at the site. Load Line 6, including the MRS, is undeveloped and remains idle. The suspected test range may be included as part of the MRS, depending on the findings of the SI field work. Current site activities include maintenance of the grounds, fences, and signs, and performing security checks. For the most part, these activities are conducted infrequently (RVAAP-10.A.1).

5.11.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers (including maintenance personnel), and Operation Command personnel who train in the area. Site visits are infrequent and of short duration.

5.11.1.3 Land Use Restrictions

Currently, access to the MRS is controlled by a fenced perimeter and a locked gate (RVAAP-2.A.13). However, there are no formalized land use controls ratified under CERCLA in place at the MRS.

5.11.1.4 Beneficial Resources

The MRS was formerly a test area which was located within a production area. Recently, the buildings located at Load Line 6, along with the test chamber buildings, have been removed. Open areas consist mostly of grasslands, while the surrounding area is mature forest. The shaped charge test pond still remains at the MRS. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.11.2 Ecological Profile

The ecological profile at the Firestone Test Facility MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 20**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 20: Firestone Test Facility Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Firestone Test Facility	None.	Disturbed. Ground disturbance from construction/demolition of buildings.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.11.3 MEC and MC Release Profile

5.11.3.1 Release Mechanisms

The MRS included a pond and three enclosed test ranges. Shaped charges were tested underwater in the pond and one of the test chambers, while TOW and Dragon missiles were test fired in the remaining two test chambers. Little is known about the activities conducted at the suspected test range located northeast of the facility, although it is suspected that munitions (type unknown) may have been fired at a berm. While the release mechanism for MEC was the intentional testing of these munitions types, the tests were contained limiting any release. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 21** provides a summary of the types of munitions tested and potentially present at the MRS, and the release mechanisms.

Table 21: Summary of Potential MEC and MC Present at the Firestone Test Facility

Potential MEC	Potential MC	Primary Release Mechanisms
TOW/Dragon Missiles	RDX, TNT, PETN, Composition B, nitrocellulose, nitroglycerin, lead azide	Test fired within closed range.
Shaped Charges	RDX, TNT, PETN, Composition B	Tested underwater.

RDX - Royal Demolition (or Research Department) explosive (hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as Cyclonite
PETN - Pentaerythritol tetranitrate
TNT – Trinitrotoluene

5.11.3.2 Maximum Penetration Depth

There is no penetration depth associated with the test activities conducted at the MRS. Shaped charges were submerged or suspended in the test chamber, while the TOW and Dragon missiles were test fired inside two concrete buildings, typically at steel plates. No information was discovered that would indicate that MEC had been found lying on the ground surface or buried at the MRS.

5.11.3.3 MEC/MC Density

With the exception of an anomaly avoidance survey conducted to clear sample locations, a comprehensive UXO survey has not been conducted. Further, the pond used to test shaped charges has never been investigated. While there are no reports that MEC has been found at the three test chambers or the small clearing, the presence of MEC in the pond can not be ruled out. As such, MEC may be present in the pond and will require further investigation.

5.11.3.4 Munitions Debris

There are no reports of munitions debris being discovered at the MRS.

5.11.3.5 MEC Exposure and Transport Pathway Analysis

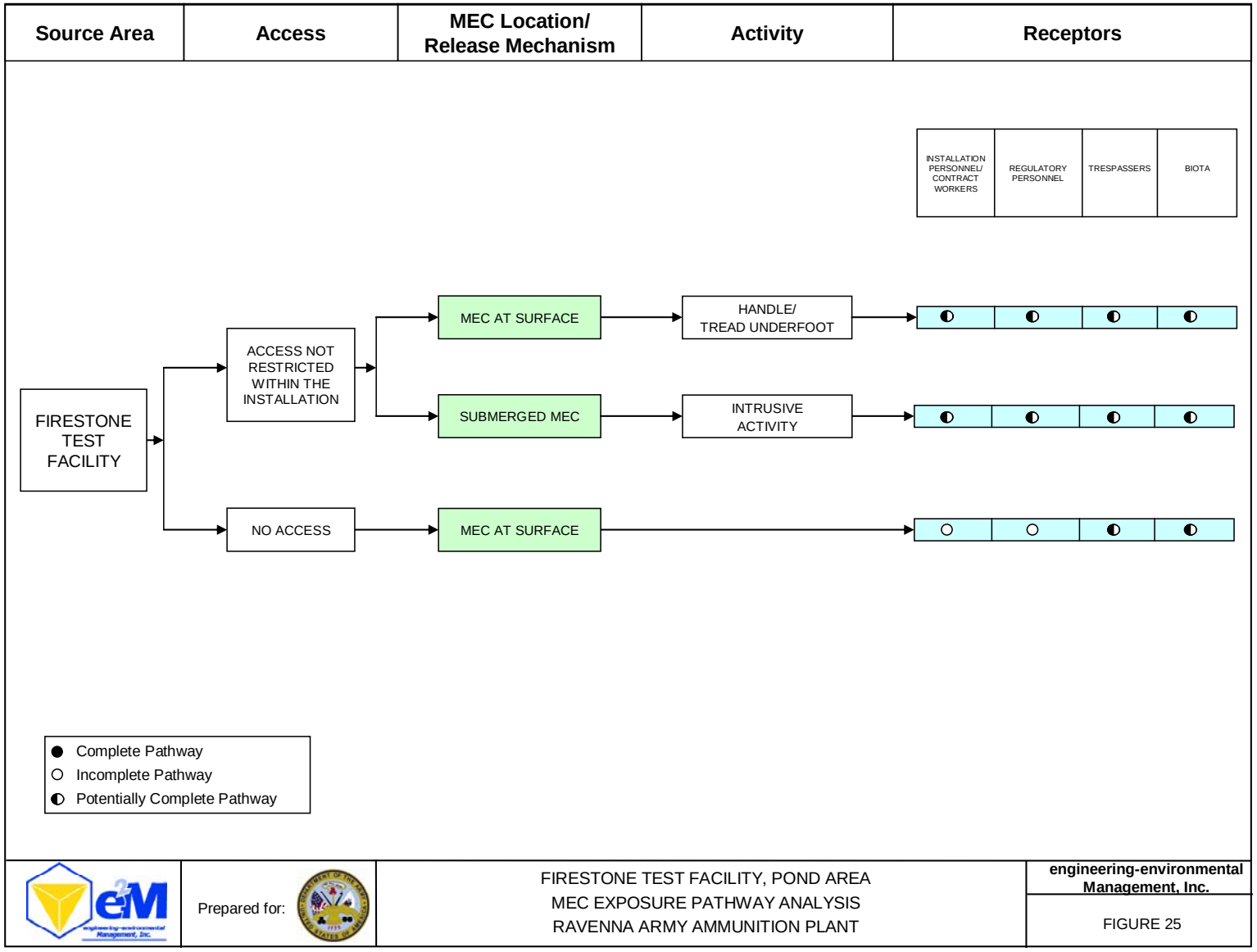
MEC is potentially present at the pond used to test shaped charges. As such, an exposure pathway for human and ecological receptors is potentially complete. **Figure 25** provides the pathways evaluated and the findings of the assessment.

5.11.3.6 MC Exposure and Transport Pathway Analysis

MC is present in environmental medium at the MRS, but will continue to be covered under the IRP. Further evaluation under the MMRP SI process will not be conducted.

5.11.4 MRS Data Gaps

Historic land use at the MRS indicates there is a potential for MEC to be present in the pond. Data is not adequate to determine the absence of MEC in this area; thus this area will require further investigation under the MMRP. Further, additional investigation of the suspected test range area will have to be conducted during the SI field work. Based on these findings, the area may or may not be included as part of the MRS footprint.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
FIRESTONE TEST FACILITY
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
SUBMERGED MEC
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FIRESTONE TEST FACILITY, POND AREA
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 25

5.12 Sand Creek Dump (RVAAP-034-R-01)

5.12.1 Human Exposure Profile

5.12.1.1 Current Land Use

The MRS is an undeveloped site that consists of a wooded flood plain located adjacent to Sand Creek. Mature forest surrounds the entire site. Access to the MRS is not restricted once on the Installation. Current site activities include security patrols, natural resource management, surveying, environmental media sampling, and maintenance activities.

5.12.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Typically, visits by personnel to the MRS are infrequent and of short duration.

5.12.1.3 Land Use Restrictions

There are no land use restrictions or formalized land use controls ratified under CERCLA in place at the MRS, other than the Installation-wide perimeter fence. The MRS is not fenced and access is not restricted.

5.12.1.4 Beneficial Resources

The MRS is located adjacent to Sand Creek and includes wetland areas. Mature forest surrounds the site. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.12.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 22**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 22: Sand Creek Dump Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Sand Creek Dump	Wetlands.	Disturbed. Area used as landfill/surface dumping.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.12.3 MEC and MC Release Profile

5.12.3.1 Release Mechanisms

The former dump was used to dispose of general construction debris, including asbestos debris, concrete, fluorescent light tubes, lab bottles, 55-gallon drums, and wood. There is no information to indicate that MEC or related munitions items had been disposed of at the MRS. However, two inert 75mm rounds were discovered at the site in 2003 during ongoing IRP field work (RVAAP-2.A.5).

The release mechanism for MEC items is the disposal of munitions. The investigation of MC will continue to be conducted under the IRP and will not be addressed further during the MMRP SI process. **Table 23** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanism.

Table 23: Summary of Potential MEC and MC Present at the Sand Creek Dump

Potential MEC Item	Potential MC	Primary Release Mechanism
75mm	Inert	Surface disposal.

(RVAAP-2.A.14)

5.12.3.2 Maximum Penetration Depth

Waste materials were dumped on the ground surface at the Sand Creek Dump MRS. There is no information to indicate that munitions were not buried at the MRS during the operational years. As such, the presence of MEC in the subsurface soil can not be ruled out. It is possible that MEC may be buried or co-mingled with general waste material that had been deposited over the years.

5.12.3.3 MEC/MC Density

There are no reports of MEC having been found at the MRS. Two inert 75mm projectiles (i.e., munitions debris) were found and removed in 2003. MEC may be present, but likely in very limited numbers.

5.12.3.4 Munitions Debris

The only report of munitions debris found at the site involved the two inert 75mm projectiles.

5.12.3.5 MEC Exposure and Transport Pathway Analysis

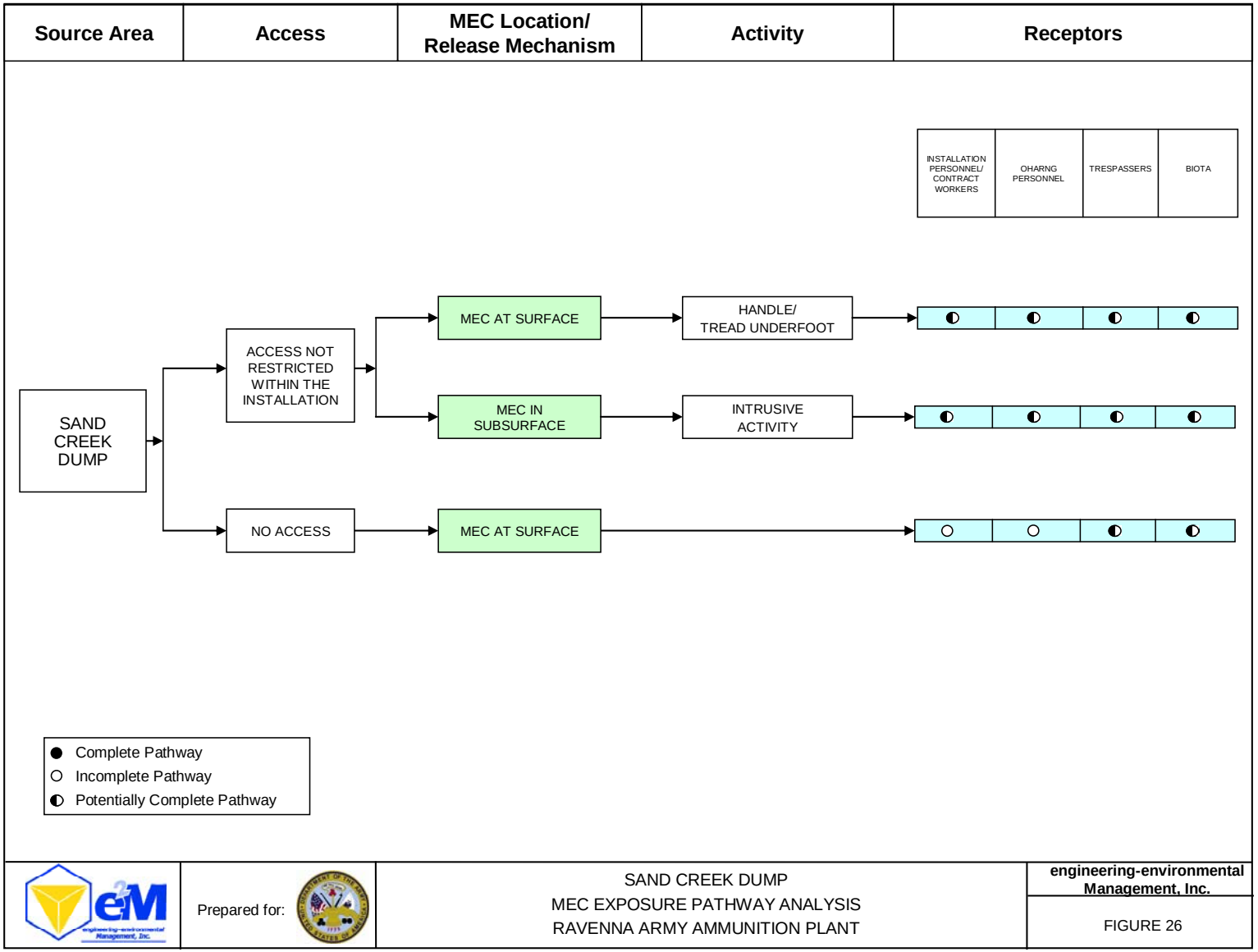
While MEC has not been found at the MRS, the possibility exists that items may have been buried and mixed with general waste material that has been deposited over the years. Considering this, the potential exposure pathways for human and ecological receptors would be contact with MEC in surface soils by handling or treading under foot or disturbance of subsurface soils. **Figure 26** provides the pathways evaluated and the findings of the assessment.

5.12.3.6 MC Exposure and Transport Pathway Analysis

MC will be addressed under the IRP and not during this SI process. The presence of metals may be a concern, but will be evaluated under the IRP.

5.12.4 MRS Data Gaps

The extent of MEC present at the MRS is not fully understood; specifically, whether or not MEC is mixed with the general waste material and/or has been buried.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
TRESPASSERS
BIOTA
SAND CREEK DUMP
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
SAND CREEK DUMP
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 26

5.13 Building #F-15 and F-16 (RVAAP-046-R-01)

5.13.1 Human Exposure Profile

5.13.1.1 Current Land Use

With the exception of the concrete foundations, Buildings F-15 and F-16 have been demolished. The only remnants remaining are the raised concrete building slabs. At Building F-16, the debris pile rests on top of the slab. The site is currently undeveloped and idle. Current site activities include limited maintenance, security patrols, and natural resource management activities. Although this property has been transferred to the OHARNG, they do not use the MRS for training purposes.

5.13.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping and maintenance tasks.

5.13.1.3 Land Use Restrictions

There are no land use restrictions or formalized land use controls ratified under CERCLA in place at the MRS. The MRS is not fenced and access is not restricted.

5.13.1.4 Beneficial Resources

The MRS consists of two open areas where the building foundations are located, which are surrounded by mature forest. Specific details of the beneficial resources located at the Installation are provided in **Section 5.2.3**.

5.13.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 24**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 24: Building #F-15 and F-16 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Building #F-15 and F-16	None.	Disturbed. Grounds disturbed by building construction/demolition.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.13.3 MEC and MC Release Profile

5.13.3.1 Release Mechanisms

Buildings F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage which were subsequently dismantled for inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE). Information concerning the final disposition of the tested components was not disclosed.

Large caliber artillery projectiles void of HE have been found at the MRS. The exact location where the rounds were found was not disclosed, but it is assumed that they were lying on the ground surface next to the buildings. The release mechanisms for MEC are not fully understood, but are assumed to be the deliberate storage or disposal of MEC items at the facility. MC is being addressed under the IRP and will not be evaluated further under the SI process. **Table 25** provides a summary of the types of munitions either observed at the MRS or potentially present, and the release mechanisms.

Table 25: Summary of Potential MEC and MC Present at the Building #F-15 and F-16 MRS

Potential MEC	Potential MC	Primary Release Mechanisms
Shell, 120mm, M73	HE	Disposal/Storage.
Shell, 155mm, M112, M101, M107, MkIAI, Mk III, Mk IIIAI	AP, HE	Disposal/Storage.
Shell, 240mm, Mk, M114	HE	Disposal/Storage.
Shell, 4.5-inch, M65, M65A1,	HE, Spotting Charge	Disposal/Storage.
Shell, 6-inch, Mk IIAI, Mk IIA2	HE	Disposal/Storage.
Shell 8-inch, M103, M106, Mk I, Mk IAI	HE	Disposal/Storage.

AP – Armor Piercing
HE – High Explosives
(RVAAP-4.A.5)

5.13.3.2 Maximum Penetration Depth

It is speculated that munitions were stored on the ground surface at the MRS. As such, MEC would only be expected to be present lying on the surface. However, it can not be said with certainty that MEC is not buried on site or at what depth.

5.13.3.3 MEC/MC Density

There have not been any reported findings of MEC located at the MRS. Munitions debris have been found and recorded. However, the presence and extent of MEC items is not fully understood since UXO investigations have not been conducted.

5.13.3.4 Munitions Debris

Munitions debris has been found at the MRS. Based on the activities conducted at the surveillance workshop, the likelihood that munitions debris may still be present at the MRS is likely.

5.13.3.5 MEC Exposure and Transport Pathway Analysis

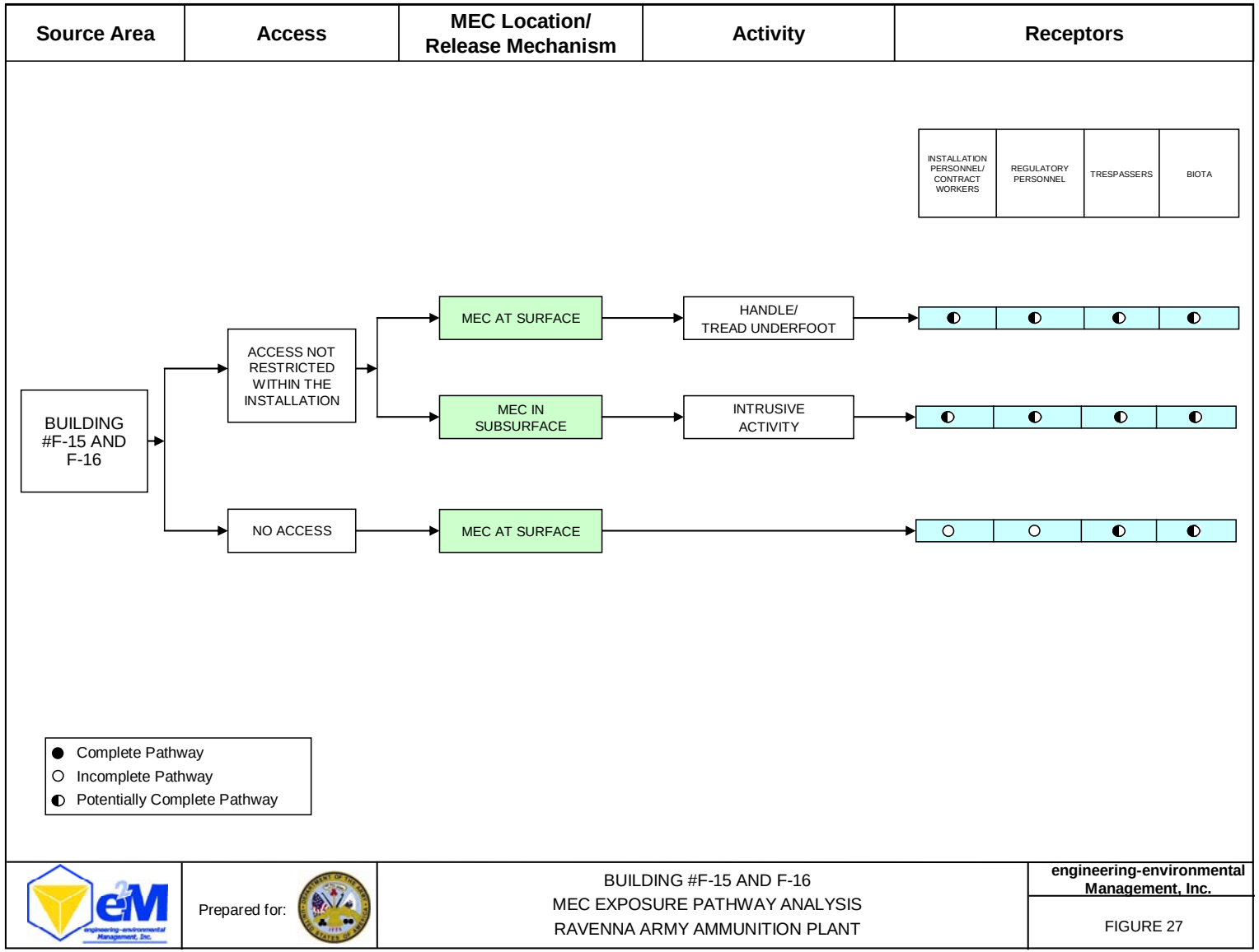
Conclusive information regarding whether or not MEC is present lying on the ground surface or buried on site was not found. Considering this, the potential exposure pathways for human and ecological receptors would be contact with MEC in surface soils by handling or treading under foot, or disturbance of subsurface soil. Transport of MEC off site is not likely to be a concern. **Figure 27** provides the pathways evaluated and the findings of the assessment.

5.13.3.6 MC Exposure and Transport Pathway Analysis

MC is being addressed under the IRP and will not be evaluated further during the MMRP SI process.

5.13.4 MRS Data Gaps

The extent of MEC present at the MRS is not fully understood; specifically, whether or not MEC may be buried or lying on the ground surface at the MRS.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
BUILDING #F-15 AND F-16
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BUILDING #F-15 AND F-16
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 27

5.14 Anchor Test Area (RVAAP-048-R-01)

5.14.1 Human Exposure Profile

5.14.1.1 Current Land Use

The former Anchor Test Area is heavily overgrown with trees, shrubs, and tall grass (RVAAP-14.A.1). The approximate 2.57 acre site is currently undeveloped (RVAAP-2.A.10). Current activities include natural resource management, security patrols, maintenance activities, and site investigation under the IRP.

5.14.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel, contract workers, and hunters/trappers. Although site visits are limited, they are necessary to conduct security patrols and to perform grounds keeping, maintenance tasks, and field sampling.

5.14.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, the OHARNG has established a digging prohibition restriction for guard personnel due to concerns over the presence of MEC/MC.

5.14.1.4 Beneficial Resources

The MRS is heavily overgrown with trees, shrubs, and tall grass. The area is surrounded by mature forest. Specific details of the beneficial resources present at the Installation are provided in **Section 5.2.3**.

5.14.2 Ecological Profile

The ecological profile at the Anchor Test Area MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 26.** Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 26: Anchor Test Area Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Anchor Test Area	None.	Minimally disturbed. Area reforested.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.14.3 MEC and MC Release Profile

5.14.3.1 Release Mechanisms

Beginning in the early 1960s, the Anchor Test Area was reportedly used to test fire anchoring devices into the ground. Small explosive devices were used to drive anchors for ropes and cables into the ground (RVAAP-1.A.2). The distinct surface features at the MRS are two large dirt mounds and a nearby sandpit. It is suspected that anchor tests were performed within the 12 × 36 ft sandpit, and the dirt mounds functioned as blast walls. Metal debris is visible in the area. A section of cement culvert can be seen in one of the mounds. It is suspected that the culvert was used to store anchors while tests were being conducted (RVAAP-14.A.2).

The release mechanisms for MEC and MC are the firing of small explosive devices into the ground. The analytical results of a site characterization performed in 2005 indicated that the concentrations of explosive constituents in shallow and subsurface soils were below detection levels. The study also indicated that metals were the only constituents detected in concentrations above Installation-specific background and/or the EPA Region 9 residential PRGs (RVAAP-14.A.3). The metal constituents represent MC, which will be addressed under the IRP and will not be evaluated further under the MMRP SI process. **Table 27** provides a summary of the potential MEC and MC present at the MRS and the release mechanism.

Table 27: Summary of MEC and MC in Soil at the Anchor Test Area

Potential MEC	Potential MC	Primary Release Mechanism
Experimental charges	Arsenic, Chromium, Manganese	Firing of small explosive devices into the ground.

5.14.3.2 Maximum Penetration Depth

The explosive devices were reportedly fired into the ground. Considering that the purpose of the charge was to securely place an anchoring device into the ground, the depth of penetration was limited by the length of the anchoring device. However, the length of the anchoring devices could not be determined.

5.14.3.3 MEC/MC Density

No MEC has been identified at the Anchor Test Area. The 2005 site characterization indicated that MC was identified in the MRS soils. MC is expected to be present throughout the 12 × 36 ft sandpit.

5.14.3.4 Munitions Debris

Some metal debris of unknown origin was found in the Anchor Test Area (RVAAP-2.A10). No additional information was found regarding the debris.

5.14.3.5 MEC Exposure and Transport Pathway Analysis

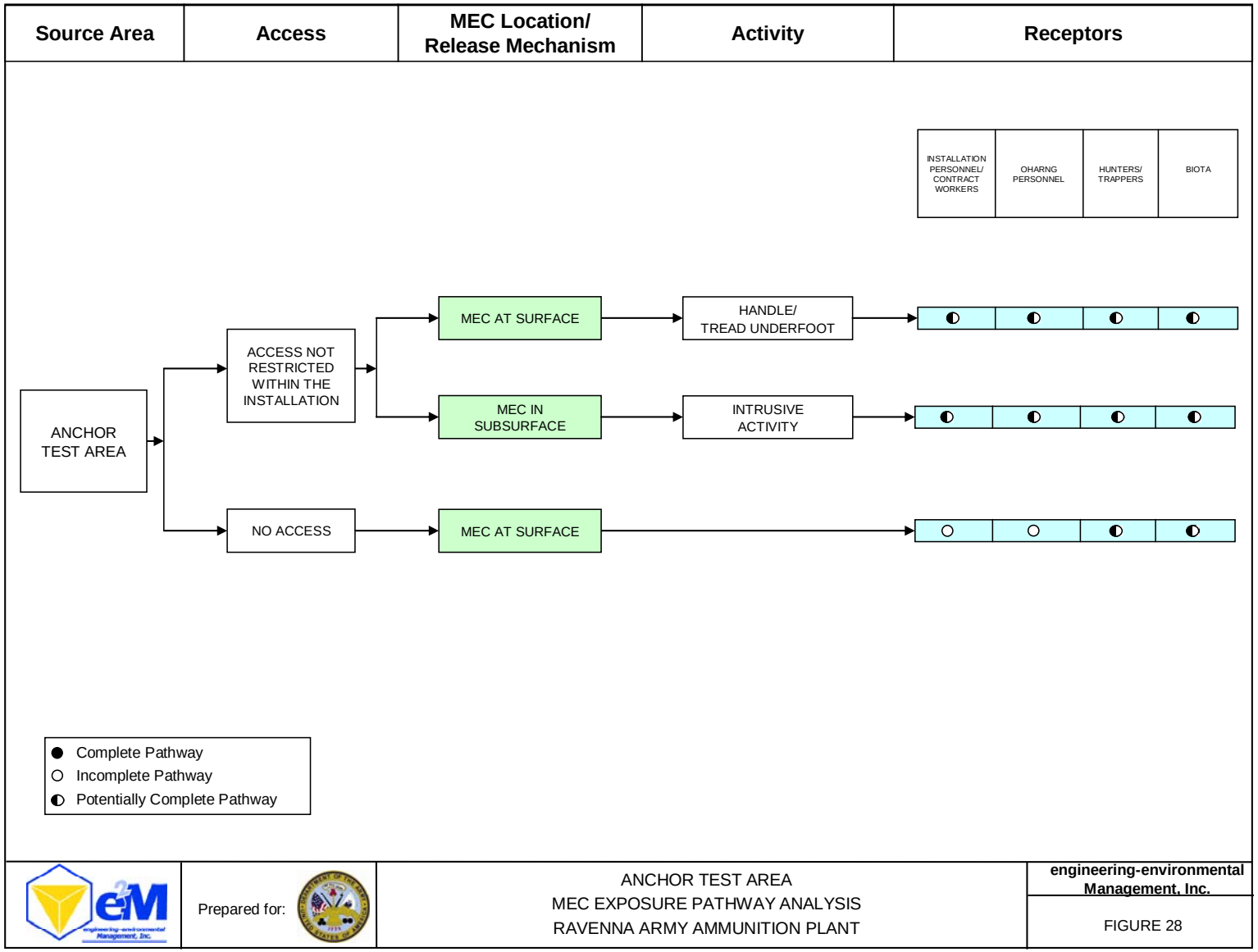
MEC has not been identified at the MRS. If present, MEC is expected on the ground surface and in the subsurface soil. Human and ecological exposure pathways include contact with MEC during disturbance of subsurface soil and contact with MEC lying on the ground surface. **Figure 28** provides the pathways evaluated and the findings of the assessment.

5.14.3.6 MC Exposure and Transport Pathway Analysis

The presence of metals in shallow and subsurface soil was established by the 2005 site characterization study. However, current contact is limited due to limited access to the MRS. MC will be covered under the IRP and will not be addressed further during the MMRP SI process.

5.14.4 MRS Data Gaps

MEC investigations have not been conducted at the Anchor Test Area. However, Installation personnel have reported the presence of metal debris of unknown origin. Further characterization at the MRS will be required during the SI phase to determine if MEC is present at the site.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
HUNTERS/ TRAPPERS
BIOTA
ANCHOR TEST AREA
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ANCHOR TEST AREA
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 28

5.15 Atlas Scrap Yard (RVAAP-050-R-01)

5.15.1 Human Exposure Profile

5.15.1.1 Current Land Use

The approximate 66.04 acre Atlas Scrap Yard is covered with thick grass and patches of forest, and is littered with miscellaneous non-explosive scrap. Current activities include natural resource management, security patrols, and maintenance activities.

5.15.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel (e.g., security guards), contract workers (e.g., maintenance and natural resource management personnel), and recreational users (e.g., hunters/trappers).

5.15.1.3 Land Use Restrictions

There are no formalized land use controls ratified under CERCLA in place at the MRS. However, the OHARNG has established a digging prohibition restriction for guard personnel due to concerns over the presence of MEC and MC.

5.15.1.4 Beneficial Resources

The former scrap yard is comprised of grasslands and isolated stands of mature forest. The site is surrounded by forest. Specific details of the beneficial resources present at the Installation are provided in **Section 5.2.3**.

5.15.2 Ecological Profile

The ecological profile at the MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 28**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 28: Atlas Scrap Yard Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Atlas Scrap Yard	None.	Disturbed. Grounds disturbed by building construction/demolition.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.15.3 MEC and MC Release Profile

5.15.3.1 Release Mechanisms

Since the end of WWII, the Atlas Scrap Yard has served as a storage area for non-explosive scrap materials (RVAAP-14.B.1). A more recent characterization study (2005) suggested that the area may also have been used to store munitions. To date, no investigations have been performed to assess whether or not MEC is present at the MRS. A 2005 IRP site characterization identified MC, consisting of metals, SVOCs, and/or explosive COPCs in shallow soil, sediment, surface water, and groundwater (RVAAP-14.B.2).

The release mechanisms for MEC and MC are the open storage of munitions in ammunition boxes and the deliberate disposal of munitions items. MC is being addressed under the IRP and will not be evaluated further under the MMRP SI process. **Table 29** provides a summary of the types of munitions either identified at the MRS or potentially present, and the release mechanisms.

Table 29: Summary of Potential MEC and Documented MC Present at the Atlas Scrap Yard

Potential MEC	Documented MC (Identified as COPCs)	Primary Release Mechanisms
Blasting caps, fuzes, boosters, or bursters; bombs, high explosive; detonators; flares, signals, simulators, or screening smoke (other than white phosphorus); hand grenades; antipersonnel landmines; antitank landmines; medium and large caliber practice; large caliber high explosive; mortars, practice and high explosive; practice ordnance; primary or initiating explosives; propellants; pyrotechnics; secondary explosives; small arms; small arms rounds.	Aluminum; arsenic; cadmium; chromium; cobalt; iron; lead; vanadium; mercury; manganese; 2- methylnaphthalene; acenaphthylene; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(ghi)perylene; dibenzo(ah)anthracene; indeno(1,2,3-cd)pyrene; phenanthrene; 2-amino-4,6- dinitrotoluene; bis(2-ethylhexyl)phthalate; nitrocellulose.	Open storage, open disposal

5.15.3.2 Maximum Penetration Depth

There are no reports that munitions were buried at the MRS. All debris located at the MRS appears to have been placed on the ground; therefore, little or no penetration is expected.

5.15.3.3 MEC/MC Density

There is one report that MEC was found in the southwest corner of the MRS. Regardless, disposal operations appear to have occurred over the entire MRS. Consequently, MEC (if present) and MC are expected to be found over the entire MRS.

5.15.3.4 Munitions Debris

The purpose of the MRS was the storage of non-explosive scrap and possibly munitions. As such, it is likely that the MRS contains some quantity of munitions debris.

5.15.3.5 MEC Exposure and Transport Pathway Analysis

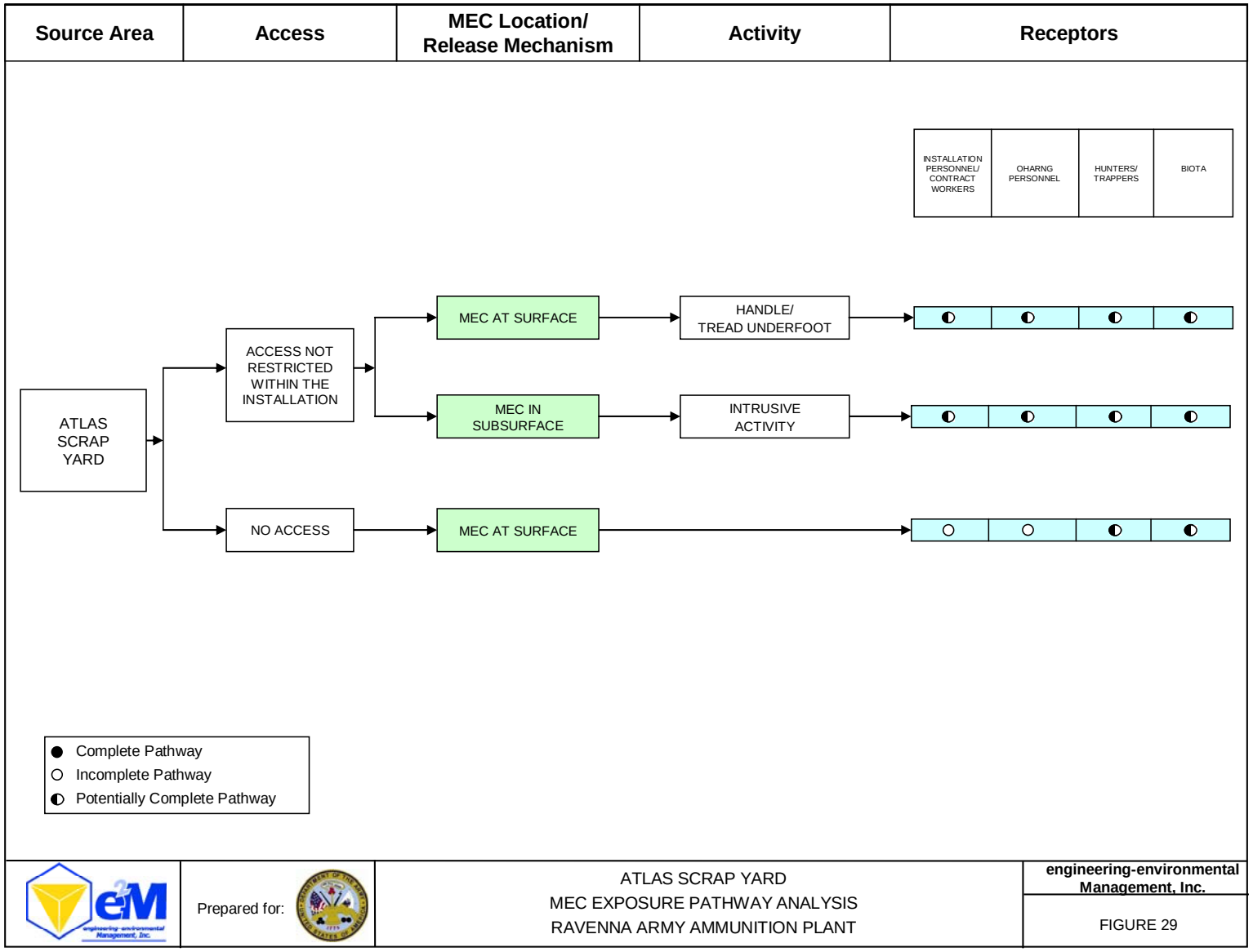
A one time discovery of MEC has been reported at the MRS. If present, MEC is expected to be lying on the ground surface, mixed in a pile with other debris, or potentially buried at the MRS. Exposure pathways include direct contact with MEC through handling and treading under foot and through the disturbance of subsurface soil. **Figure 29** provides the pathways evaluated and the findings of the assessment.

5.15.3.6 MC Exposure and Transport Pathway Analysis

The presence of explosives and metals in shallow soil, sediment, surface water, and groundwater has been established and will be addressed under the IRP. Regardless, contact is considered to be limited due to the remote/rural location of the MRS. Transport of MC via groundwater, surface water, and sediment is possible. Concerns regarding the presence of MC will be covered under the IRP. As such, further evaluation during the SI process will not be conducted.

5.15.4 MRS Data Gaps

The extent of MEC lying on the ground surface or buried at the MRS is not completely understood. Comprehensive UXO investigations have not been performed at the site; therefore, further characterization of the presence of MEC will be required during the SI phase.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
HUNTERS/ TRAPPERS
BIOTA
ATLAS SCRAP YARD
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
ATLAS SCRAP YARD
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 29

5.16 Block D Igloo (RVAAP-060-R-01)

5.16.1 Human Exposure Profile

5.16.1.1 Current Land Use

The D block of igloos is located in the heavily forested north-central portion of RVAAP. Currently, the igloos are inactive and the area sits mostly idle (RVAAP-1.A.2). Except for the igloos, the site is currently undeveloped (RVAAP-2.A.12). Current activities include natural resource management, security patrols, and maintenance activities.

5.16.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Site visits are infrequent. Currently, the OHARNG does not use the area for training activities (RVAAP-1.A.2).

5.16.1.3 Land Use Restrictions

There are no known access restrictions to the Block D Igloo MRS. Once on the Installation, access to the MRS is not restricted.

5.16.1.4 Beneficial Resources

The Block D igloos are surrounded by mature forest.

5.16.2 Ecological Profile

The ecological profile at the Block D Igloo MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 30**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 30: Block D Igloo Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Block D Igloo	None.	Minimally disturbed. Majority of acreage is forested.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of

State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.16.3 MEC and MC Release Profile

5.16.3.1 Release Mechanism

The release mechanism for MEC and MC at the Block D Igloo was the accidental explosion of bombs stored in Igloo number 7-D-15 on March 24, 1943. Ravenna Ordnance Plant personnel reported that the MRS was considered clean of UXO some time after the explosion, although this is not documented or confirmed (RVAAP-1.A.2 and RVAAP-2.A.12). **Table 31** provides a summary of the potential MEC and MC present at the MRS and their release mechanism.

Table 31: Summary of Potential MEC and MC Present at the Block D Igloo MRS

Potential MEC	Potential MC	Primary Release Mechanisms
Fragmentation Bombs (M-41)	TNT	Accidental igloo explosion

TNT – Trinitrotoluene

5.16.3.2 Maximum Penetration Depth

Based on an accident report of the detonation, the majority of the blast force was directed in a horizontal direction (or low trajectory). As such, MEC would have been deposited on the ground surface. Therefore, minimal to no penetration would be expected.

5.16.3.3 MEC/MC Density

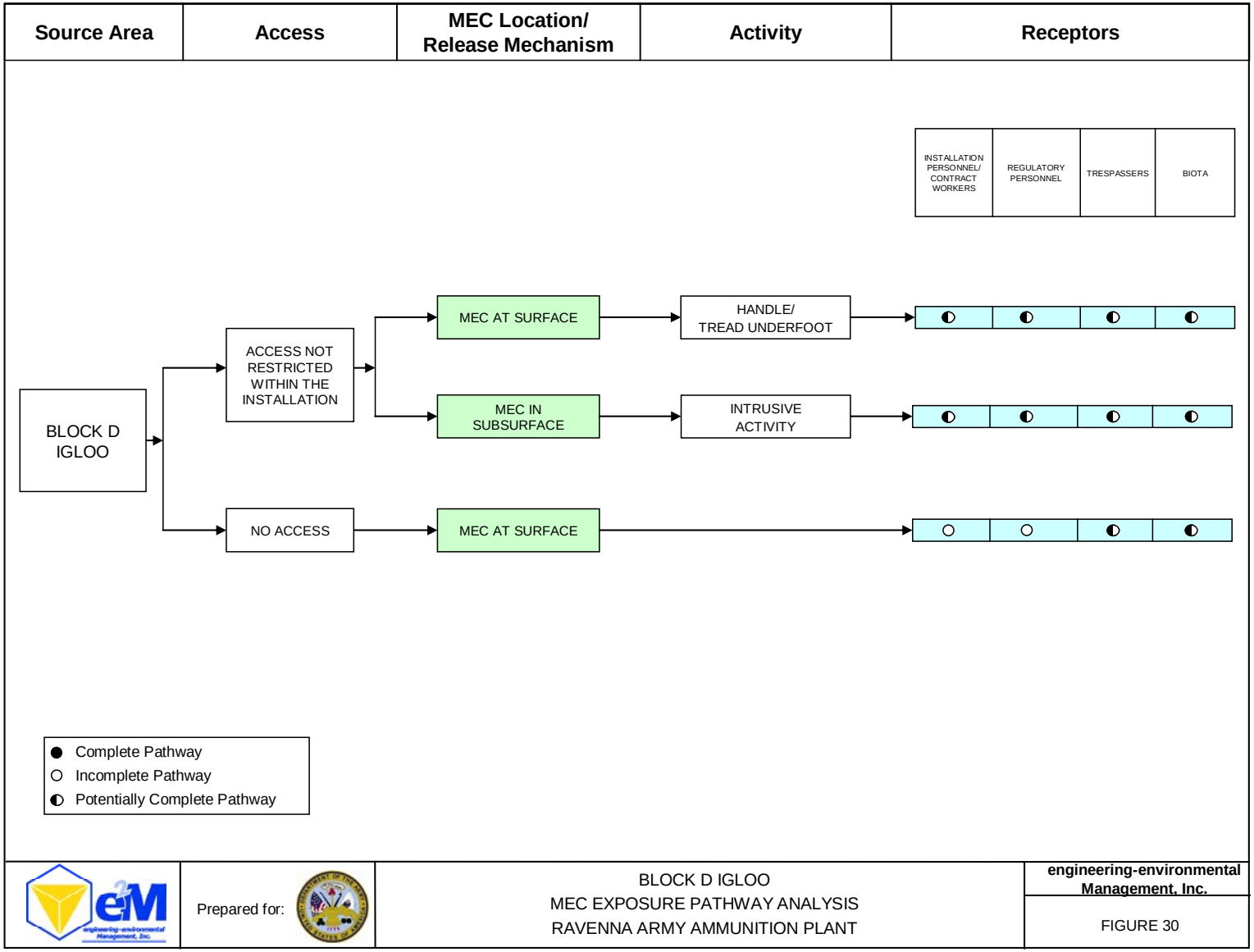
There is no apparent evidence of UXO at the Block D Igloo MRS.

5.16.3.4 Munitions Debris

There are no reports of munitions debris being discovered at the site. However, the 1943 explosion generated debris consisting of concrete fragments (large [two ton pieces] and small [pebble size]), parts of clothing, the demolished tractor, and a vehicle oil filter (RVAAP-2.A.12).

5.16.3.5 MEC Exposure and Transport Pathway Analysis

The potential MEC exposure pathways for human and ecological receptors would be to handle or tread under foot, (possibly in the upper subsurface also) should MEC be found at the MRS. **Figure 30** provides the pathways evaluated and the findings of the assessment.

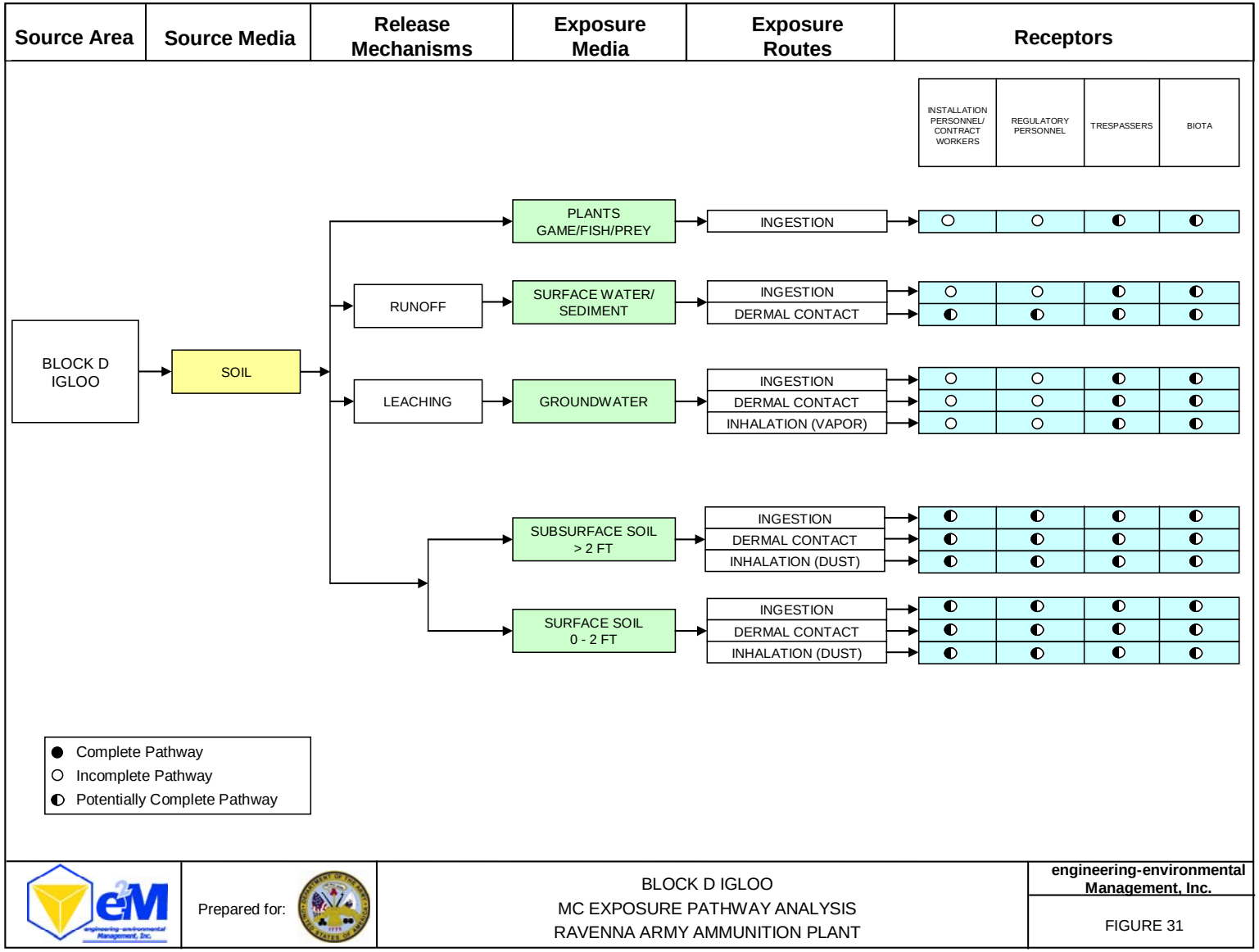

Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
BLOCK D IGLOO
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 30

5.16.3.6 MC Exposure and Transport Pathway Analysis

The presence of MC has not been determined at the Block D Igloo MRS and is considered a potential concern, thus pathways are considered potentially complete. Further evaluation under the SI process will be conducted. **Figure 31** provides the pathways evaluated and the findings of the assessment.

5.16.4 MRS Data Gaps

Although RVAAP personnel indicated the site was considered clean of UXO some time after the 1943 explosion, this was not documented or confirmed (RVAPP-2.A.12). Therefore, it is not known with certainty if MEC is still present within the MRS. Analytical data determining the presence or absence of MC at the MRS does not exist; therefore, further characterization work will be required during the SI phase.


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
BLOCK D IGLOO
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 31

5.17 Block D Igloo–TD (RVAAP-061-R-01)

5.17.1 Human Exposure Profile

5.17.1.1 Current Land Use

This MRS consists of the portion of the circular Block D Igloo MRS that extends beyond the Installation boundary, north of the central portion of the Installation. This area is privately owned. The Block D Igloo–TD covers an area of approximately 19.25 acres and includes farmland, forested areas, and a segment of the railroad that follows the northern boundary of the RVAAP. Except for the railroad and right-of-way and farmland, the MRS is currently undeveloped (RVAAP-2.A.11). Current activities include railroad maintenance, security patrols, and farming.

5.17.1.2 Current Human Receptors

Current human receptors may include railway maintenance workers, recreational users (i.e., hunters), security personnel, and farmers.

5.17.1.3 Land Use Restrictions

There are no access restrictions to the Block D Igloo–TD MRS.

5.17.1.4 Beneficial Resources

The MRS consists of open agricultural field, woodlands, and the section of railway that borders the Installation.

5.17.2 Ecological Profile

The ecological profile at the Block D Igloo-TD MRS is a mixture of industrial (railroad right-of-way) and agricultural land. **Table 32** provides site-specific information.

Table 32: Block D Igloo–TD Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Block D Igloo–TD	None.	Disturbed. Area includes agriculture fields and railroad right-of-way.	Presence of federal threatened or endangered species unknown.

5.17.3 MEC and MC Release Profile

5.17.3.1 Release Mechanism

The release mechanism for MEC and MC at the Block D Igloo–TD MRS was the accidental explosion of the bombs stored in Igloo number 7-D-15 on March 24, 1943. However, no UXO was reported to

have been found at the MRS as a result of the explosion. Ravenna Ordnance Plant personnel reported that the Block D Igloo and blast area within the Installation were considered clean of UXO some time after the explosion although this is not documented or confirmed (RVAAP-1.A.2 and RVAAP-2.A.12). While it is not known if a search of the adjacent private property was conducted, some items were found northeast of the former igloo outside of the Installation boundaries. **Table 33** provides a summary of the potential MEC and MC present at the MRS and their release mechanism.

Table 33: Summary of Potential MEC and MC Present at the Block D Igloo–TD MRS

Potential MEC	Potential MC	Primary Release Mechanism
Fragmentation Bombs (M-41)	TNT	Accidental igloo explosion

TNT – Trinitrotoluene

5.17.3.2 Maximum Penetration Depth

MEC would have been deposited on the surface as fallout from the explosion. Therefore, minimal to no penetration would be expected.

5.17.3.3 MEC/MC Density

There are no reports that MEC has been found at the MRS. As such, an assessment of the extent of MEC can not be made.

5.17.3.4 Munitions Debris

There are no reports of munitions debris being discovered at the site. However, the 1943 explosion generated debris consisting of concrete fragments, parts of clothing, and a vehicle oil filter that were discovered on the Installation, as well as debris found at locations off the Installation (RVAAP-2.A.12).

5.17.3.5 MEC Exposure and Transport Pathway Analysis

Should MEC be present at the MRS, the potential exposure pathway for human and ecological receptors would be handling or tread under foot. **Figure 32** provides the pathways evaluated and the findings of the assessment.

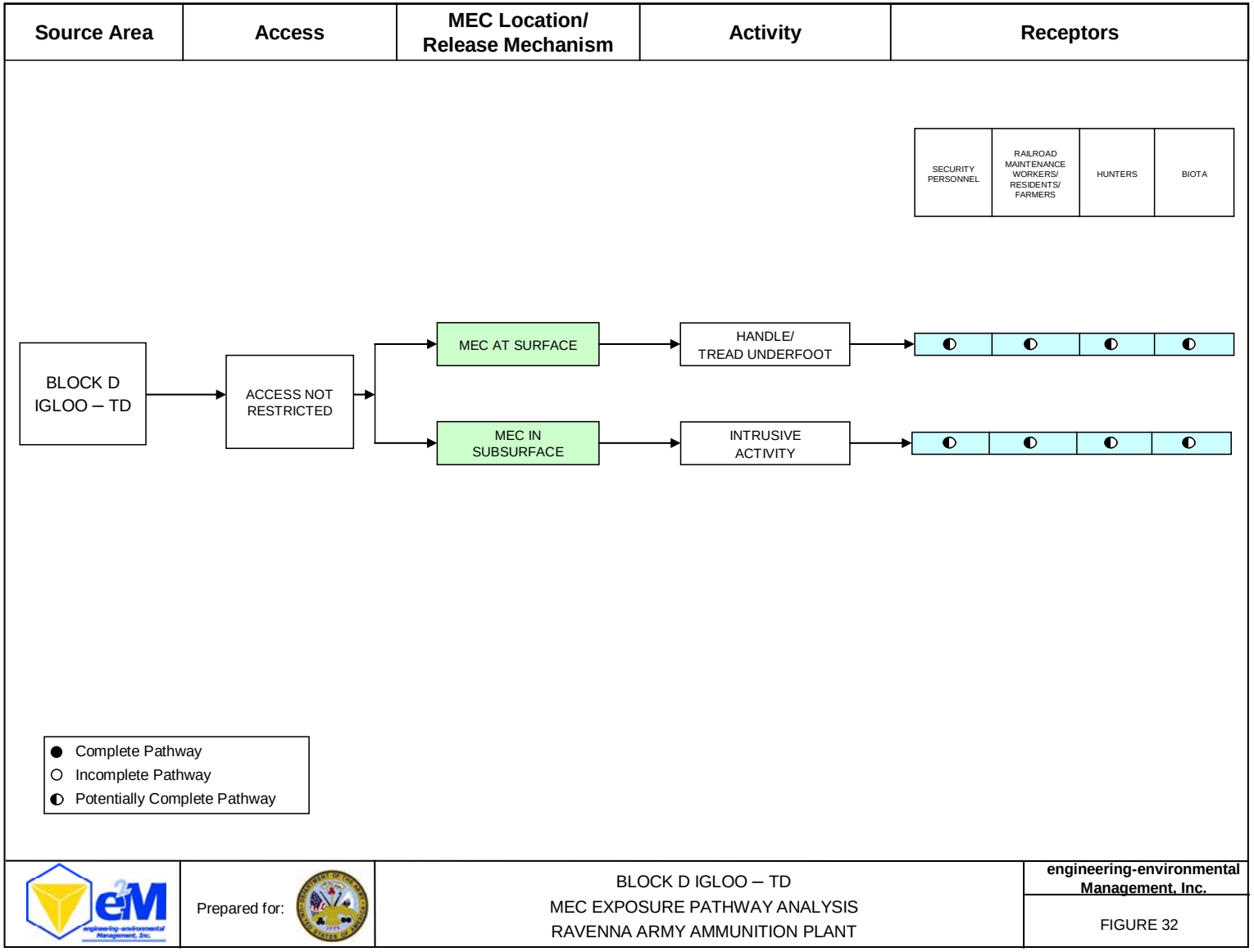
5.17.3.6 MC Exposure and Transport Pathway Analysis

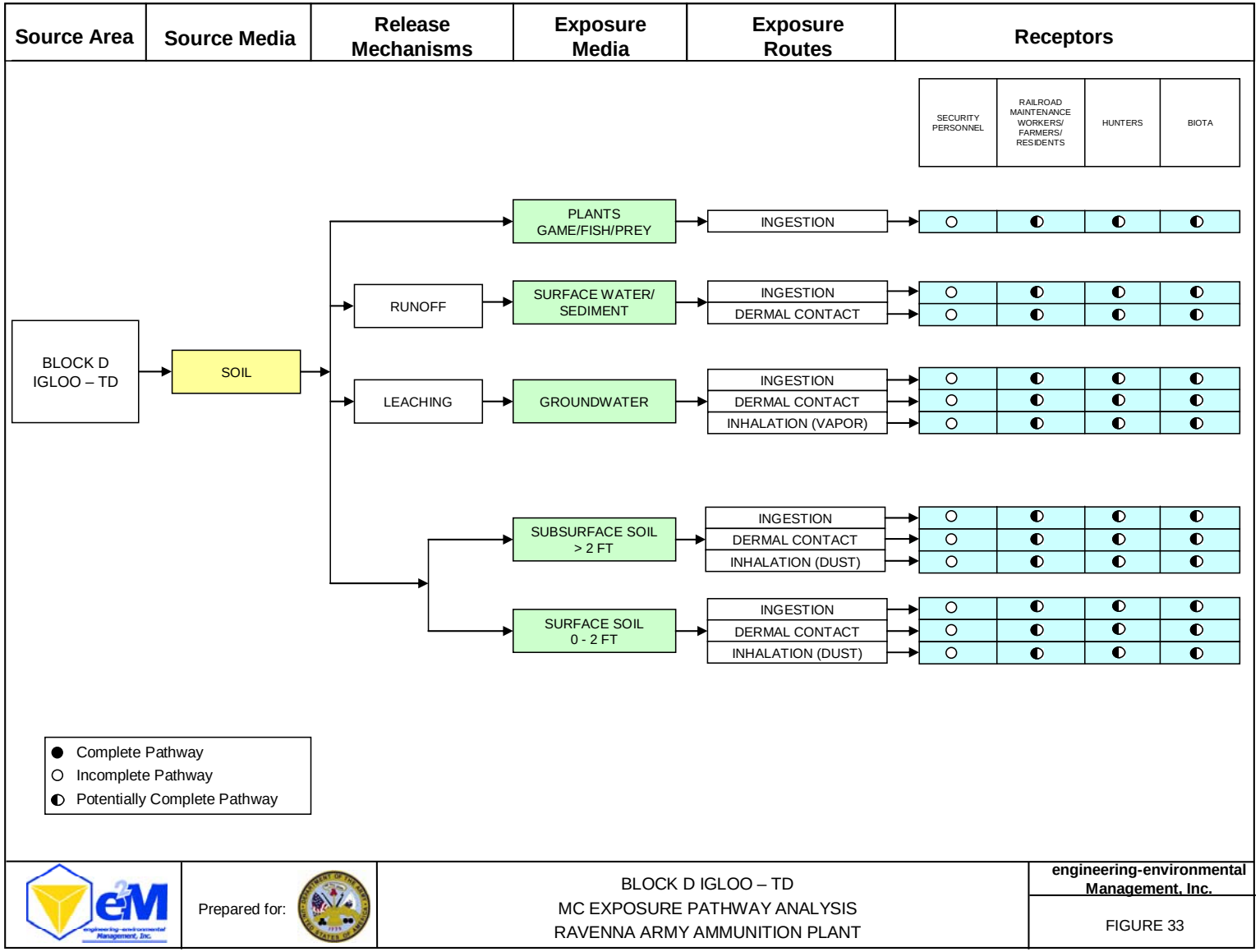
The presence of MC has not been determined at the Block D Igloo - TD MRS and is considered a potential concern; therefore, exposure pathways are considered potentially complete. Further

evaluation under the SI process will be conducted. **Figure 33** provides the pathways evaluated and the findings of the assessment.

5.17.4 MRS Data Gaps

Although RVAAP personnel indicated the adjacent Block D Igloo MRS was considered clean of UXO some time after the 1943 explosion, this was not documented or confirmed (RVAAP-2.A.12). Additionally, it is not known if a search of the adjacent private property was conducted. Therefore, it is not known with certainty whether or not MEC is present within the MRS. Sampling has not been conducted at the MRS. As such, data is not adequate to confirm the presence or absence of MC at the MRS and will require further investigation during the SI phase.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
SECURITY PERSONNEL
RAILROAD MAINTENANCE WORKERS/ RESIDENTS/ FARMERS
HUNTERS
BIOTA
BLOCK D IGLOO – TD
ACCESS NOT RESTRICTED
MEC AT SURFACE
MEC IN SUBSURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO – TD
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 32


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
SECURITY PERSONNEL
RAILROAD MAINTENANCE WORKERS/ FARMERS/ RESIDENTS
HUNTERS
BIOTA
BLOCK D IGLOO – TD
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
BLOCK D IGLOO – TD
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 33

5.18 Water Works #4 Dump (RVAAP-062-R-01)

5.18.1 Human Exposure Profile

5.18.1.1 Current Land Use

The Water Works #4 Dump is an approximate 6.15 acre wooded area located in the southwestern portion of RVAAP, immediately west of Water Works #4 and Load Line 7. The site is currently undeveloped (RVAAP-2.A.5). Current activities include natural resource management, security patrols, and maintenance activities.

5.18.1.2 Current Human Receptors

Current human receptors are limited to Installation personnel and contract workers (including maintenance personnel). Site visits are infrequent. Currently, the OHARNG does not use the area for training activities (RVAAP-1.A.2).

5.18.1.3 Land Use Restrictions

There are no known access restrictions to the Water Works #4 Dump MRS. Once on the Installation, access to the MRS is not restricted.

5.18.1.4 Beneficial Resources

The Water Works #4 Dump MRS is covered by mature forest.

5.18.2 Ecological Profile

The ecological profile at the Water Works #4 Dump MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 34**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 34: Water Works #4 Dump Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Water Works #4 Dump	None.	Minimally disturbed. Area originally cleared, now revegetated.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.18.3 MEC and MC Release Profile

5.18.3.1 Release Mechanisms

The type and origin of the large caliber casings and ogives from 155mm shrapnel projectiles are unknown but it may be assumed that the release mechanism is the intentional disposal of non-explosive metal parts of large caliber ordnance rounds (RVAAP-2.A.5). **Table 35** provides a summary of the potential MEC and MC present at the MRS and their release mechanisms.

Table 35: Summary of Potential MEC and MC Present at the Water Works #4 Dump MRS

Potential MEC	Potential MC	Primary Release Mechanisms
Fragments of Ordnance Casing (Rifling propagators) Ogives 155mm shrapnel projectiles	Metals	Intentional Disposal

5.18.3.2 Maximum Penetration Depth

Fragments of ordnance casings (rifling propagators) and parts of ogives were observed scattered on the ground surface, as well as partially buried. A field assessment performed by the USACE and reported in the ASR stated that "This area is considered to have no OE presence". The assessment team determined that the metal parts found in the area were inert. However, the field assessment did not evaluate potential buried MEC. As such, it can not be ruled out that MEC may be buried on site; the potential depth, however, is not known.

5.18.3.3 MEC/MC Density

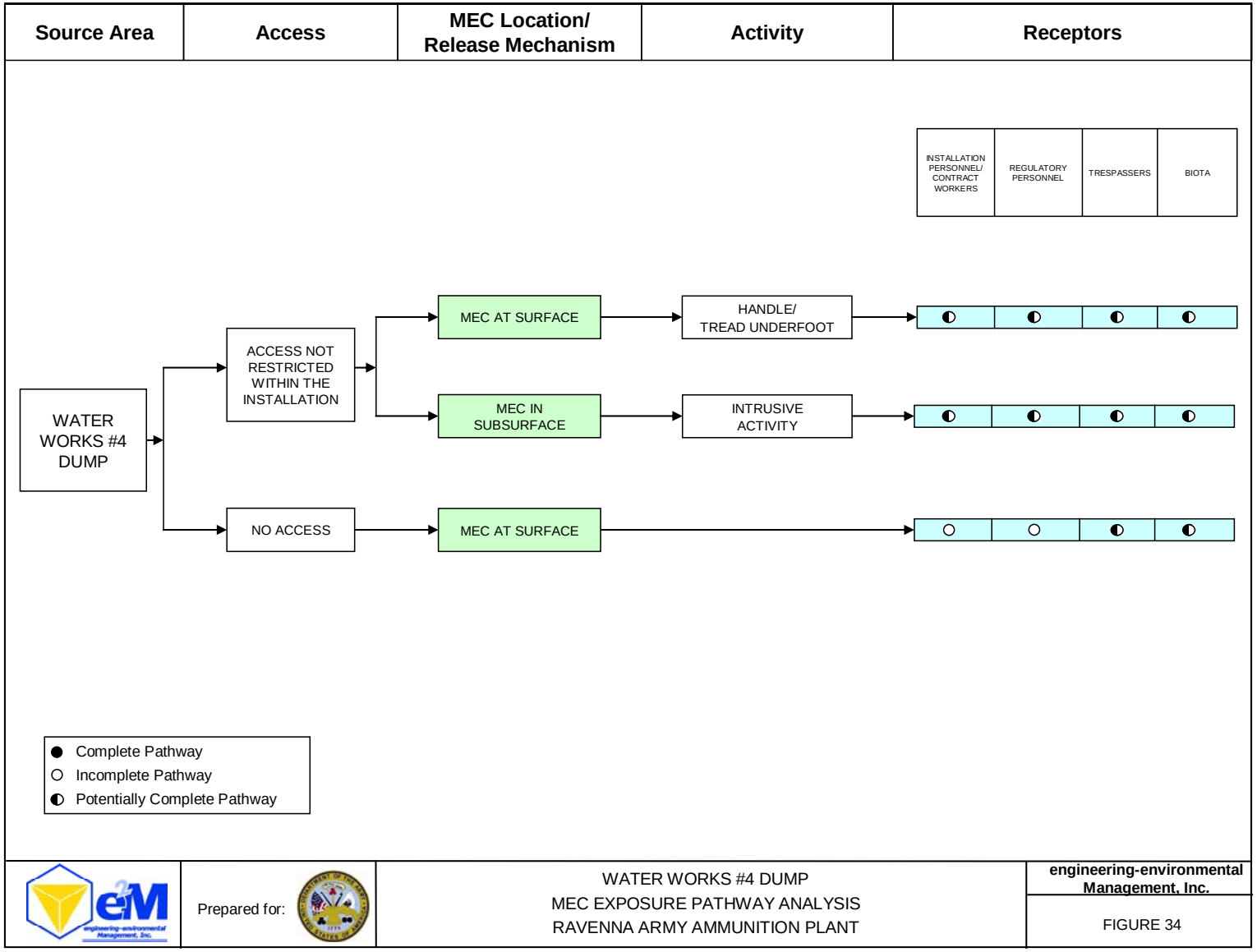
Although munitions debris have been found scattered around the MRS, there is no information to indicate the density of MEC, should it be present.

5.18.3.4 Munitions Debris

The available information suggests that the casing fragments and ogives may represent munitions debris. However, no investigation has been performed to assess the components of the casing fragments or ogives.

5.18.3.5 MEC Exposure and Transport Pathway Analysis

In case the presence of MEC is confirmed, the potential exposure pathway for human and ecological receptors would be to handle or tread under foot and the disturbance of subsurface soil. **Figure 34** provides the pathways evaluated and the findings of the assessment.

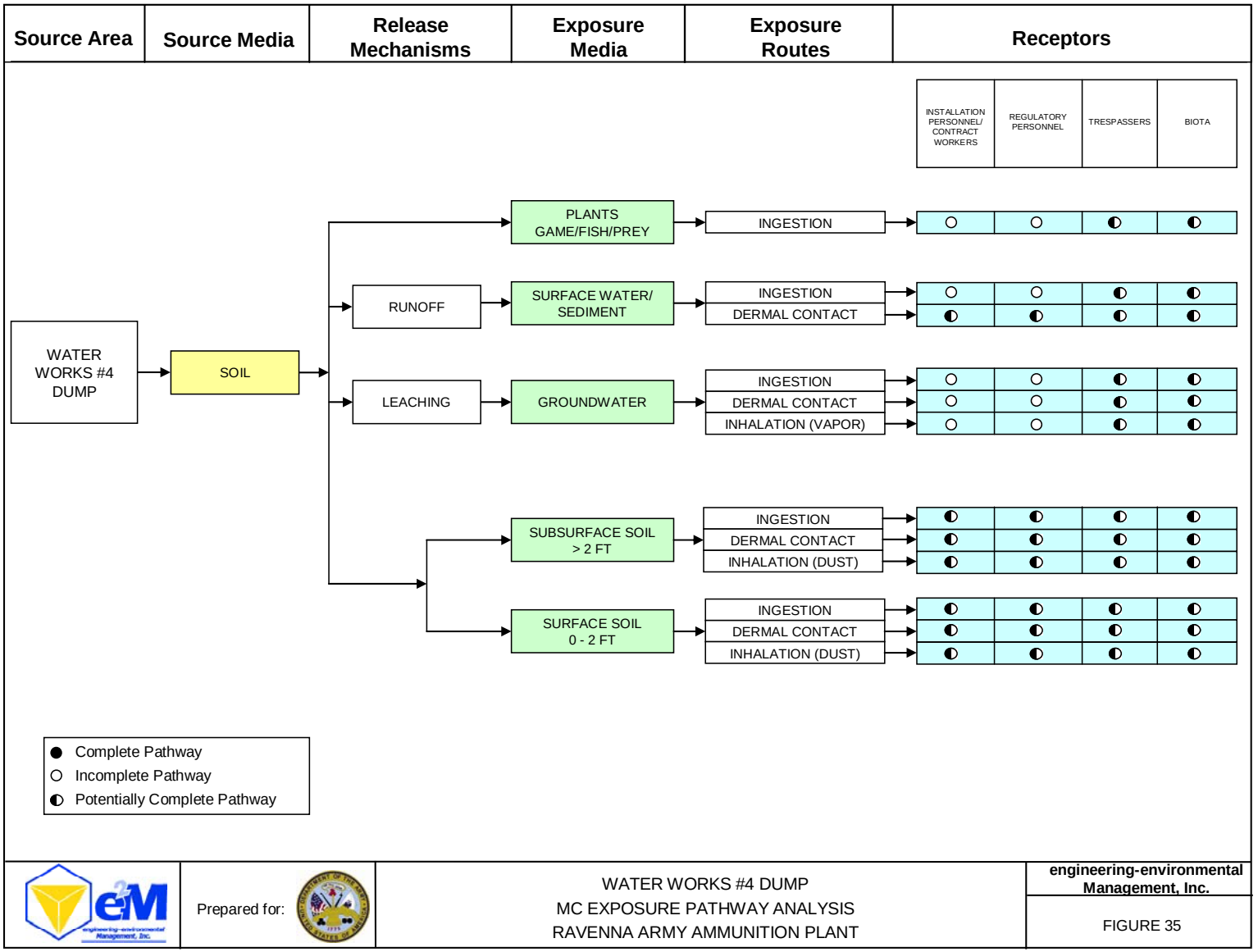

Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
WATER WORKS #4 DUMP
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
WATER WORKS #4 DUMP
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 34

5.18.3.6 MC Exposure and Transport Pathway Analysis

The presence of MC at the MRS has not been investigated. Therefore, further evaluation under the SI process will be required to determine the presence or absence of MC. **Figure 35** provides the pathways evaluated and the findings of the assessment.

5.18.4 MRS Data Gaps

Conclusive evidence that the munitions debris found on site contain explosives, propellants, or other fillers does not exist. Adequate data indicating the presence or absence of MC at the MRS does not exist.


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
REGULATORY PERSONNEL
TRESPASSERS
BIOTA
WATER WORKS #4 DUMP
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
WATER WORKS #4 DUMP
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 35

5.19 Area Between Buildings 846 and 849 (RVAAP-063-R-01)

5.19.1 Human Exposure Profile

5.19.1.1 Current Land Use

The MRS is located in the south-central portion of RVAAP, between Buildings 846 and 849. The approximate 2.65 acre site is actively used to store heavy equipment and to gain access to the buildings. The buildings are used to store NGB equipment (RVAAP-2.A.10). The MRS is flat and includes gravel roads and grass areas. Current activities include driving, warehousing work, security patrols, and maintenance activities.

5.19.1.2 Current Human Receptors

Current human receptors include OHARNG personnel and contract workers.

5.19.1.3 Land Use Restrictions

There are no known access restrictions to the Area Between Buildings 846 and 849. Once on the Installation, access to the MRS is not restricted.

5.19.1.4 Beneficial Resources

The MRS is flat and includes buildings, gravel roads, and grass and dirt areas. The area is occasionally used by the OHARNG to stage vehicles.

5.19.2 Ecological Profile

The ecological profile at the Area Between Buildings 846 and 849 is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 36**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 36: Area Between Buildings 846 and 849 Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Area Between Buildings 846 and 849	None.	Disturbed. Area contains buildings and roads.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.19.3 MEC and MC Release Profile

5.19.3.1 Release Mechanisms

The Area Between Buildings 846 and 849 may have been used for burning of construction debris and rubbish in the past, as well as a collection center for salvaged items that were to be auctioned off. In 1996 an antipersonnel bomb containing HE was found on the ground surface. In addition, one inert 175mm projectile was found on the ground within the MRS. No investigation work has been conducted at the site to determine the presence of UXO/MEC (RVAAP-2.A.10). The release mechanism for the antipersonnel bomb and inert projectile is assumed to be the deliberate disposal of the munitions at the MRS. **Table 37** provides a summary of the potential MEC and MC present at the MRS and their release mechanisms.

Table 37: Summary of Potential MEC and MC Present at the Area Between Buildings 846 and 849 MRS

Potential MEC	Potential MC	Primary Release Mechanisms
Bombs	HE	Mishandling
Large Caliber Practice Rounds (37mm and larger)	Inert materials	Deliberate disposal

HE – High Explosives

5.19.3.2 Maximum Penetration Depth

The ordnance was found on the ground surface. However, there are no records to indicate that the area was not used to bury MEC. The potential depth of burial, however, is not known.

5.19.3.3 MEC/MC Density

Available records do not indicate the site was used for ammunition storage or disposal, and the presence of the two pieces of ordnance found on the ground appears to be the result of mishandling or deliberate disposal. As such, the MEC density at the Area Between Buildings 846 and 849 is expected to be very low. However, an assessment of UXO/MEC has not been performed at the MRS.

5.19.3.4 Munitions Debris

The available information appears to suggest that the 175mm projectile may represent munitions debris. However, no investigation has been performed to assess the components of the projectile.

5.19.3.5 MEC Exposure and Transport Pathway Analysis

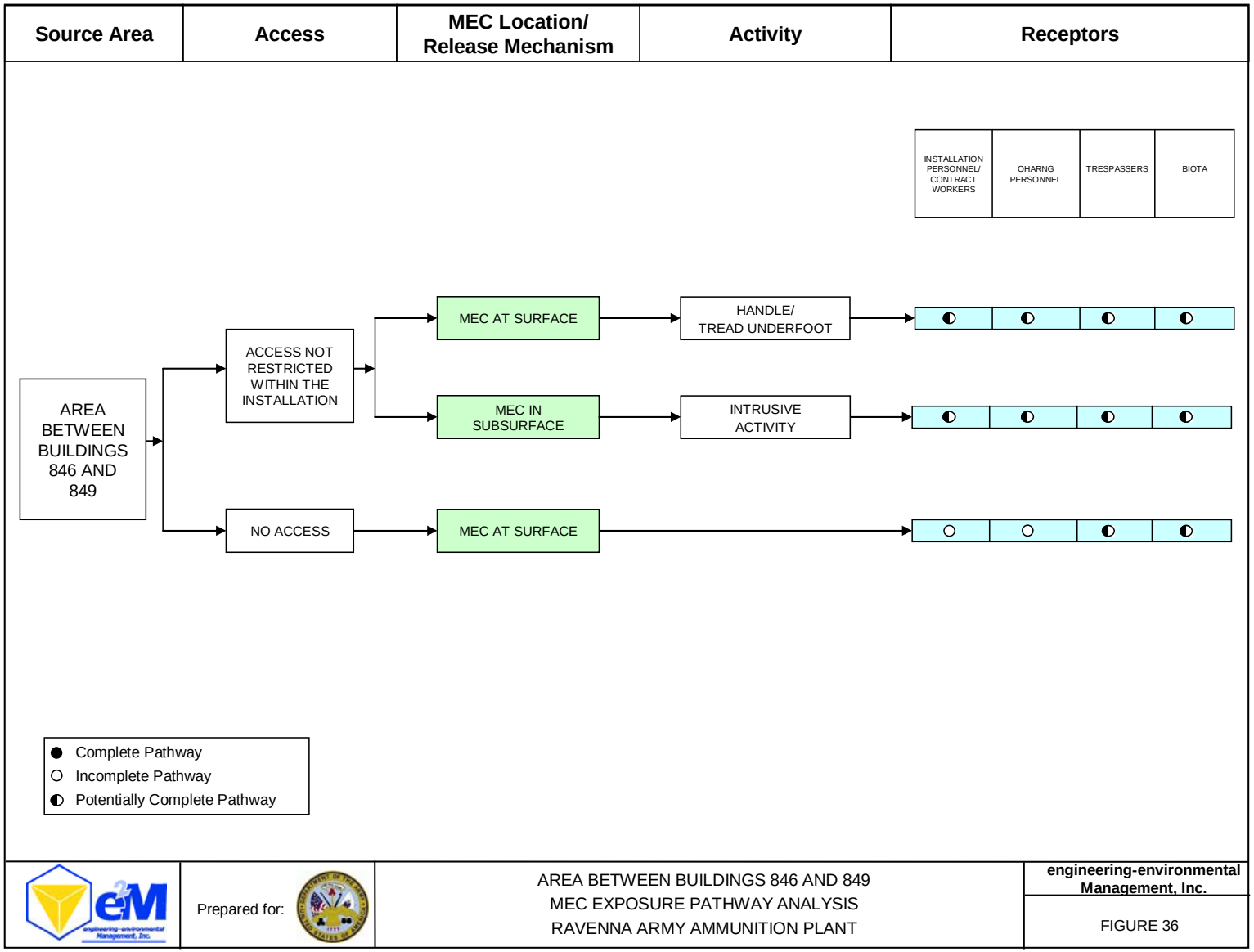
The potential exposure pathway for human and ecological receptors would be to handle or tread under foot or the disturbance of subsurface soil. **Figure 36** provides the pathways evaluated and the findings of the assessment.

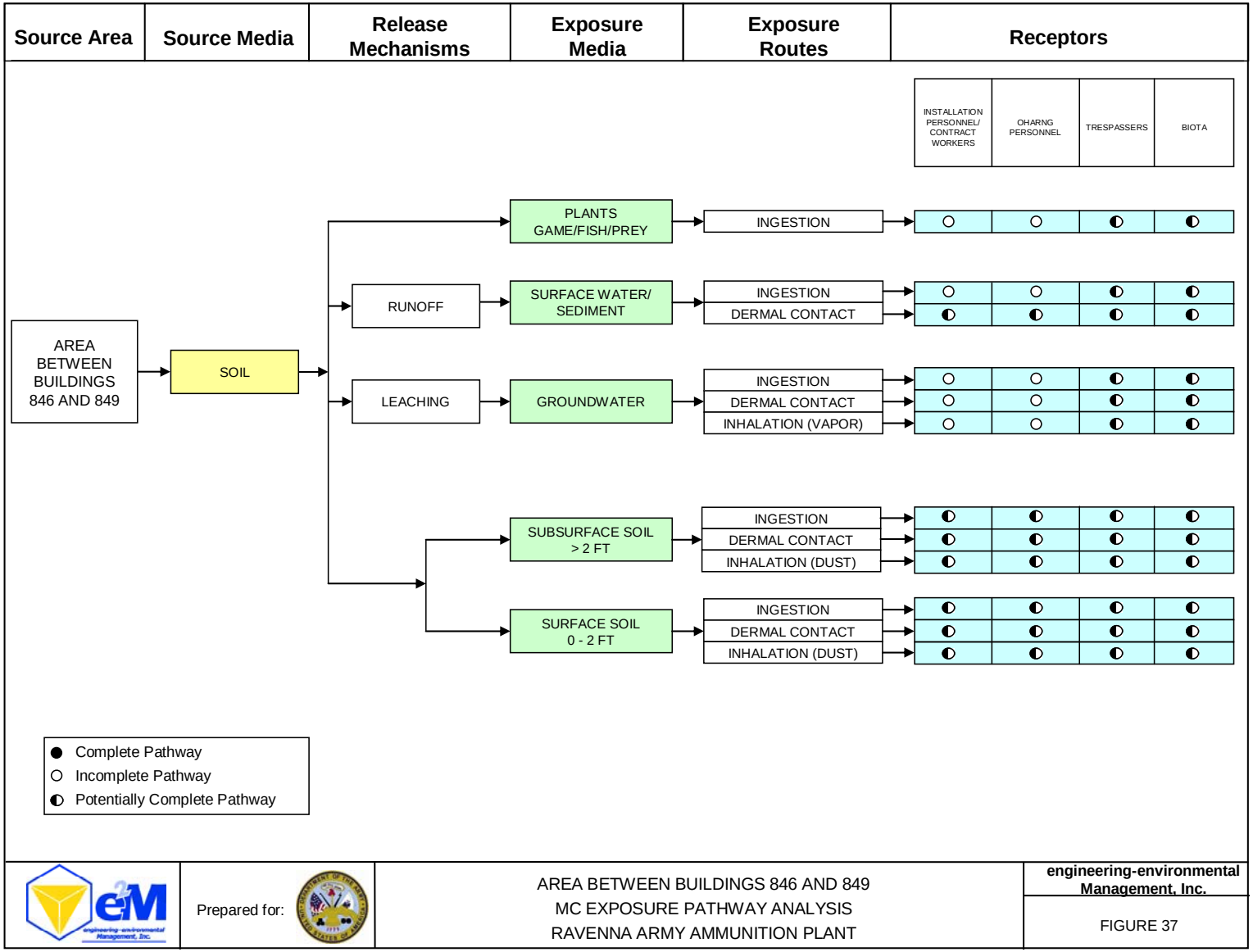
5.19.3.6 MC Exposure and Transport Pathway Analysis

The presence of MC has not been investigated at the Area Between Buildings 846 and 849, and its presence can not be dismissed. If MEC is found on site, further evaluation of MC under the SI process may be warranted. **Figure 37** provides the pathways evaluated and the findings of the assessment.

5.19.4 MRS Data Gaps

The site has not been investigated for the presence of MEC or MC (RVAAP-2.A.10). There is no definitive information to determine whether or not MEC or MC exists at the site and to what degree.


Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
TRESPASSERS
BIOTA
AREA BETWEEN BUILDINGS 846 AND 849
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
AREA BETWEEN BUILDINGS 846 AND 849
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 36


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
TRESPASSERS
BIOTA
AREA BETWEEN BUILDINGS 846 AND 849
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
AREA BETWEEN BUILDINGS 846 AND 849
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 37

5.20 Field at the NE Corner of Intersection (RVAAP-064-R-01)

5.20.1 Human Exposure Profile

5.20.1.1 Current Land Use

The MRS is an approximate 91.86 acre field located in the central-northeastern section of RVAAP, at the northeastern corner of the intersection of Paris-Windham Road and Smalley Road. The area was formerly used for agricultural purposes by lease between 1942 and 1991, when the land was reassigned to RTLS (RVAAP-2.A.6). The area is currently undeveloped and used for heavy lift training by rotary aircraft. Current activities include training, natural resource management, security patrols, and maintenance activities.

5.20.1.2 Current Human Receptors

Current human receptors include OHARNG personnel and contract workers.

5.20.1.3 Land Use Restrictions

There are no known access restrictions to the Field at the NE Corner of Intersection MRS. Once on the Installation, access to the MRS is not restricted.

5.20.1.4 Beneficial Resources

The Field at the NE Corner of Intersection MRS is covered with tall, mature grasses and is completely surrounded by mature forest land.

5.20.2 Ecological Profile

The ecological profile at the Field at the NE Corner of Intersection MRS is analogous to the rest of RVAAP with only minor differences. These site-specific variances are provided in **Table 38**. Specific details of the ecological setting at RVAAP are provided in **Section 5.2.2**.

Table 38: Field at the NE Corner of Intersection Ecological Profile

MRS	Sensitive Habitat	Degree of Disturbance	Ecological Receptors
Field at the NE Corner of Intersection	None.	Minimally disturbed. Area is old field growth.	No federal threatened or endangered species.

In some cases, ecological surveys that have been conducted at the Installation included areas that contain MRSs. In these areas, information has been collected documenting the presence (or absence) of State-listed plant and animal species. While beyond the scope of this report, this information is available and can be obtained from the RTLS-Environmental Office.

5.20.3 MEC and MC Release Profile

5.20.3.1 Release Mechanism

One inert anti-tank landmine (14 to 16 inches in diameter, pressure detonated), was discovered adjacent to Paris-Windham Road in the northern central portion of the MRS. No other MEC have been observed at the site by OHARNG personnel who perform training activities at the site. The fact that the discovery was a one-time occurrence suggests that the placement of the land mine at the site was a unique or very infrequent event. The release mechanism is unknown but it may be assumed that the landmine was lost by OHARNG personnel during training exercises. **Table 39** provides a summary of the potential MEC and MC present at the MRS and their release mechanism.

Table 39: Summary of Potential MEC and MC Present at the Field at the NE Corner of Intersection MRS

Potential MEC	Potential MC	Primary Release Mechanism
Anti-tank Landmine	None	Mishandling

5.20.3.2 Maximum Penetration Depth

Landmines are typically deployed just below the ground surface. However, the landmine found at the MRS was discovered lying on the ground surface. As such, no penetration would be expected.

5.20.3.3 MEC/MC Density

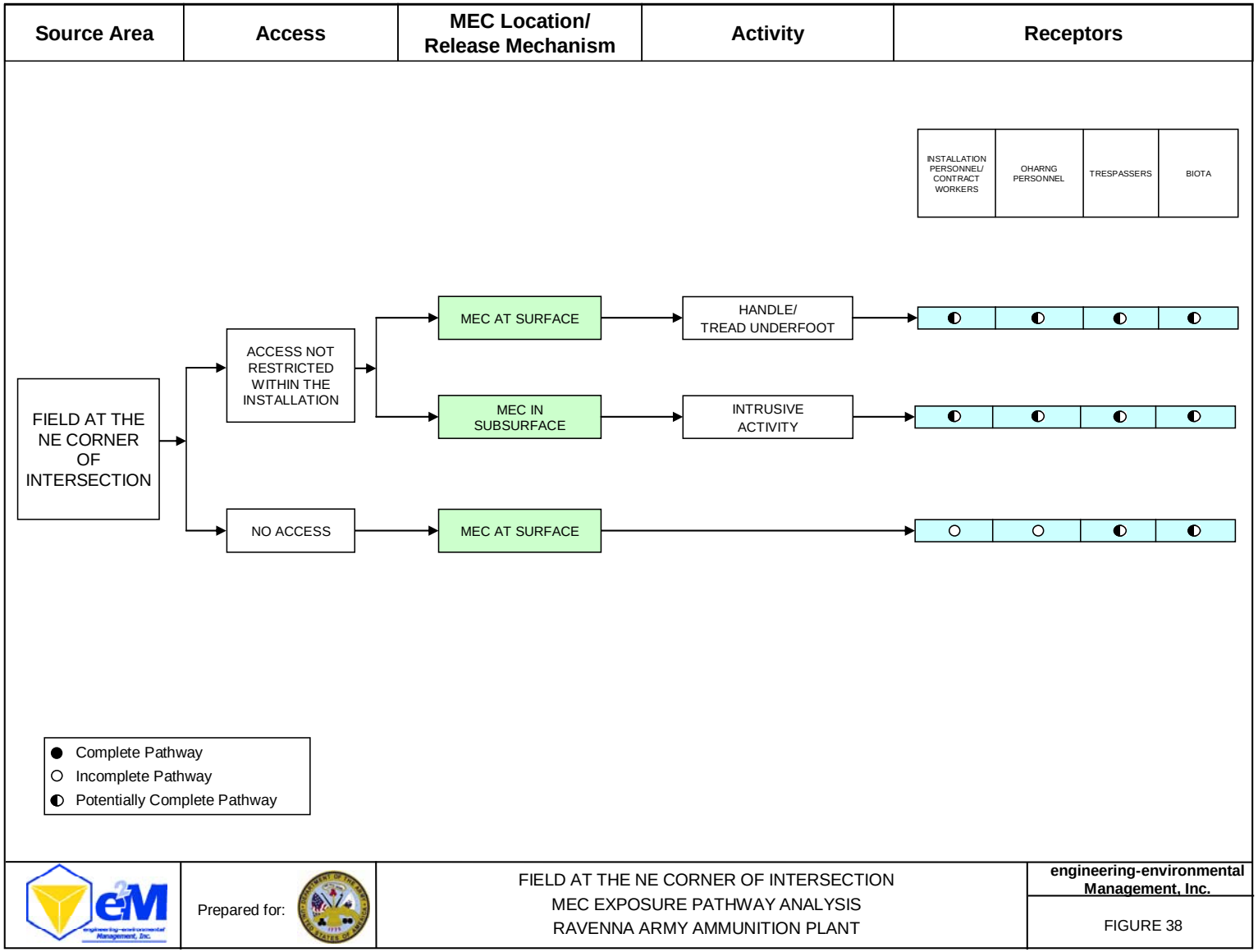
There is no record of ammunition disposal at the MRS. The area was used for farming from the opening of the installation until 1991. It is likely that the MEC/MC density at the MRS is negligible. However, no assessment of UXO/MEC has been performed at the MRS.

5.20.3.4 Munitions Debris

Other than the inert landmine, no munitions debris has been found at the MRS.

5.20.3.5 MEC Exposure and Transport Pathway Analysis

One inert landmine was found on the MRS and it is possible additional MEC may be present at the site. Therefore, the exposure pathways for human and ecological receptors for handle/tread underfoot are potentially complete. **Figure 38** provides the pathways evaluated and the findings of the assessment.

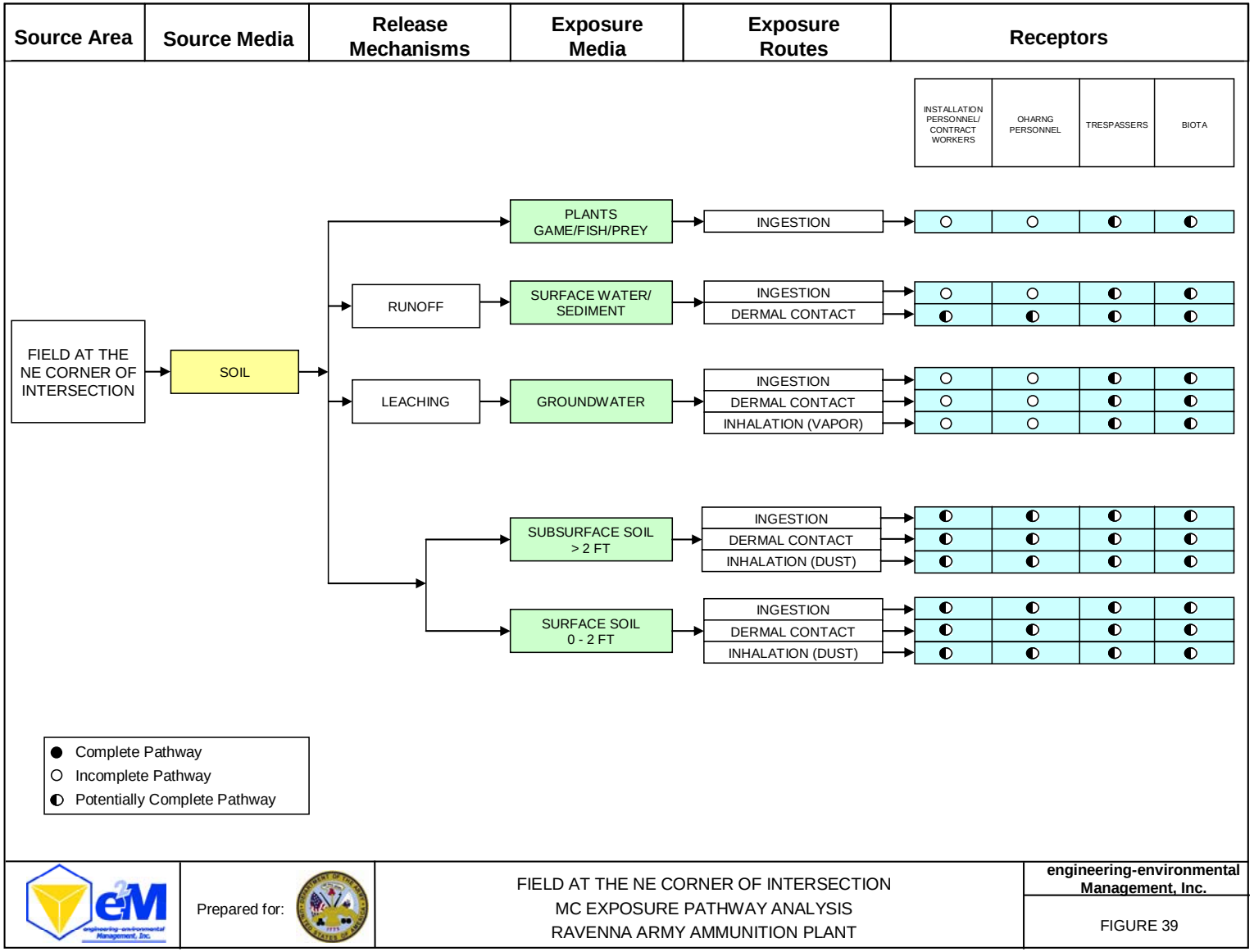

Source Area
Access
MEC Location/ Release Mechanism
Activity
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
TRESPASSERS
BIOTA
FIELD AT THE NE CORNER OF INTERSECTION
ACCESS NOT RESTRICTED WITHIN THE INSTALLATION
NO ACCESS
MEC AT SURFACE
MEC IN SUBSURFACE
MEC AT SURFACE
HANDLE/ TREAD UNDERFOOT
INTRUSIVE ACTIVITY
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FIELD AT THE NE CORNER OF INTERSECTION
MEC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 38

5.20.3.6 MC Exposure and Transport Pathway Analysis

The presence of MC has not been investigated at the MRS. While inert landmines do not contain MC, the presence of MC can not be ruled out. Thus the exposure pathways for human and ecological receptors have been determined to be potentially complete. **Figure 39** provides the pathways evaluated and the findings of the assessment.

5.20.4 MRS Data Gaps

While there have been no other reports of MEC or munitions debris found at the site, a UXO/MEC site investigation has not been completed. Therefore, the potential presence of MEC or munitions debris can not be ruled out. Further, there have been no investigations conducted at the MRS to determine the presence or absence of MC. As such, further investigation in the area is required.


Source Area
Source Media
Release Mechanisms
Exposure Media
Exposure Routes
Receptors
INSTALLATION PERSONNEL/ CONTRACT WORKERS
OHARNG PERSONNEL
TRESPASSERS
BIOTA
FIELD AT THE NE CORNER OF INTERSECTION
SOIL
RUNOFF
LEACHING
PLANTS GAME/FISH/PREY
SURFACE WATER/ SEDIMENT
GROUNDWATER
SUBSURFACE SOIL > 2 FT
SURFACE SOIL 0 - 2 FT
INGESTION
DERMAL CONTACT
INHALATION (VAPOR)
INHALATION (DUST)
Complete Pathway
Incomplete Pathway
Potentially Complete Pathway
Prepared for:
FIELD AT THE NE CORNER OF INTERSECTION
MC EXPOSURE PATHWAY ANALYSIS
RAVENNA ARMY AMMUNITION PLANT
engineering-environmental Management, Inc.
FIGURE 39

6.0 CONCLUSIONS

The intent of the HRR is to perform a limited-scope records search to document historical and other known information on the MRSs identified at RVAAP, to supplement the US Army CTT Range/Site Inventory information, and to support the TPP process designed to facilitate decisions on those areas where more information is needed to determine the next step(s) in the CERCLA process.

After reviewing the information collected during the HRR, the following conclusions have been made for the MRSs at RVAAP. Nineteen MMRP-eligible sites were identified during the US Army CTT Range/Site Inventory. Since the completion of that phase, Winklepeck Burning Grounds (RVAAP-005-R-01) has been addressed under the BRAC and IRP. Chemical contamination at the MRS was addressed under the IRP, whereas BRAC funding was used to address explosive safety. Further, the MRS is no longer eligible for the MMRP as the land is being developed as an operational range (Mark 19 Range) by the OHARNG. Therefore, this MRS has been removed from the MMRP.

The remaining eighteen MRSs qualify for the MMRP due to the demolition and/or disposal activities that were conducted on the sites which resulted in the possible presence of MEC and/or MC, and where the releases occurred prior to September 2002. Summaries of the findings for the eighteen MMRP-eligible sites (MRSs) are provided below.

Ramsdell Quarry Landfill (RVAAP-001-R-01)

Based on information collected during the HRR, it was determined that the MRS boundary identified in the US Army CTT Range/Site Inventory did not capture the entire area where OB/OD operations were conducted, as well as other suspect areas. As a result, the MRS boundary has been expanded to the north to include the entire quarry area and to the south to include an open area outside and south of the quarry that was identified by the Installation as potentially containing MEC. In addition, the former landfill area has been removed from further consideration as part of the MRS since this area satisfies the requirements of a Response Complete site. The new acreage of the MRS is approximately 13.43 acres.

For approximately four years, the MRS was used to thermally treat (i.e., open burn) explosives waste and munitions, as well as napalm bombs. MEC (e.g., 81mm mortar rounds) has been observed at the former quarry area and analytical data from IRP investigations have confirmed the presence of explosives and metals. There is no definitive information on the presence of MEC or MC at the open field south of the quarry.

Based on the findings, the entire MRS is considered to contain MC, and may potentially contain MEC on the ground surface at the former quarry area, as well as on the ground surface and buried at the open field. Within the quarry area, the primary exposure pathway for human and ecological receptors would be contact with MEC lying on the ground surface, while at the open field the exposure pathways for human and ecological receptors would be through the handling or treading under foot and the disturbance of subsurface soil.

Adequate historic data determining the presence of MEC at the former quarry area exists; however, little information is known concerning the extent and nature of MEC that may potentially be present or concerning the activities that were conducted in the open field south of the former quarry. As such, further characterization during the SI phase is required at the open field and the former quarry area.

Erie Burning Grounds (RVAAP-002-R-01)

The MRS covers approximately 33.93 acres and is bordered to the east by the Portage/Trumbull County line and is located just south of the Installation boundary. From 1941 through 1951, the MRS was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosives contaminated items (e.g. railcars) by open burning on the ground surface.

In the early 1990s, the majority of the MRS became flooded leaving only the railroad embankment and a portion of the T-Area exposed. Within these areas, the primary exposure pathway for human and ecological receptors would be contact with MEC lying on the ground surface. Periodically, the open water body north of the rail spurs drains on its own, leaving open the possibility of contact with MEC that had previously been submerged.

Adequate historic data determining the presence and density of MEC items has not fully been determined and will require additional characterization during the SI phase. MC in soils and dry sediments has been addressed under the IRP, with a likely decision (based on the risk assessment) of NFA. However, a decision concerning MC in wet sediments, surface water, or ground water has not been made. As such, MC will be further investigated under the SI phase.

Demolition Area #2 (RVAAP-004-R-01)

This MRS consisted of approximately 14.91 acres located in the central portion of the facility north of Old Newton Falls Road, north of the load lines. The MRS was used between 1948 and 1991 to detonate large caliber munitions and off-spec bulk explosives that could not be deactivated or

demilitarized by any other means due to their condition. The MRS was also used to bury white phosphorous and bombs. During the HRR, it was determined that the US Army CTT Range/Site Inventory MRS boundary did not capture Burial Sites 1 and 2, or the Rocket Ridge area. Further, a determination was made that the interim RCRA unit and the portion of the 40mm prototype test range contained within it were not MMRP-eligible and, subsequently, have been removed for consideration as part of the MRS. The RCRA unit is still used periodically for the detonation of munitions found during IRP investigations. The unit will remain open until its use is no longer needed, at which time it will be closed in accordance with all applicable state and federal requirements. Based on these updates, the MRS footprint was increased to approximately 32.95 acres. Additional information was provided by the Installation that indicated that there is a bomb disposal area located near the northwestern portion of the MRS. While this could not be corroborated by additional documentation, the area will require further investigation during the SI. Based on the SI findings, this area may or may not be included as part of the MRS footprint.

The presence of MEC is expected in the subsurface soil (e.g., burial areas and demolition pits) and lying on the ground surface throughout the AOC (e.g., Rocket Ridge). Human and ecological exposure pathways include contact with MEC during disturbance of subsurface soil and contact with MEC lying on the ground surface. The presence of MC is also expected at the MRS. Potential human exposure pathways include dermal contact with surface and subsurface soil, and surface water and sediment. Potential exposure pathways for ecological receptors would include ingestion and dermal contact with surface water and sediment, surface and subsurface soil, and groundwater.

The extent and density of MEC items and MC have not fully been determined and will require additional characterization during the SI phase.

Load Line #1 (RVAAP-008-R-01)

Based on information collected during the HRR, the size of the MRS has been reduced from the 163.62 acres identified during the US Army CTT Range/Site Inventory to approximately 4.63 acres. According to Installation personnel, the only potential MEC/MC concerns that remain at the MRS are the triple base propellants that are lying on the ground surface adjacent to the former locations of Buildings CB-13, CB-14, and the popping furnace, as well as existing Building CB-13B. Therefore, the MRS boundary was reduced to capture only those areas immediately surrounding the buildings (i.e., CB-13, CB-13B, and CB-14) and the popping furnace. There was also a report that a 152mm shell casing was found in a building located on site (potentially Building CB-801). The prospect that MEC may be addressed during

the next removal action to be conducted at the MRS is currently being evaluated. Should the removal action include MEC, this MRS will be considered "Response Complete" and no further action will be undertaken. However, until this determination is made, MEC concerns at the MRS will be addressed in the SI process.

Triple base propellants are known to exist lying on the ground surface at the MRS. There are no reports that MEC or munitions debris had been buried or otherwise disposed on site. Accordingly, the primary exposure pathway for human and ecological receptors is to handle or tread under foot MEC lying on the ground surface.

A UXO anomaly avoidance survey was conducted during the IRP environmental media field sampling efforts with no reported findings. Further, there have not been any additional sightings of MEC reported. There is some uncertainty about the extent of triple base propellants that will be removed under the current PBC removal work. To ensure that all triple base propellants are removed, further investigation will be conducted to assess the presence of MEC and MC during the SI phase.

Load Line #12 (RVAAP-012-R-01)

Based on information collected during the HRR, the size of the MRS has been reduced from the 77.58 acres identified during the US Army CTT Range/Site Inventory to approximately 1.0 acre. The MRS boundary was reduced based on the findings of several IRP investigations that have been conducted at the site, demolition actions (i.e., removal of buildings), and input from installation personnel. The revised MRS boundary includes the area immediately surrounding the location where the 90mm projectiles were found.

Munitions debris was discovered buried at the MRS and removed; however, a determination has not been made whether or not all buried MEC had been found. Should the presence of shallow buried MEC be pervasive, both a surface and subsurface exposure pathway would exist for human and ecological receptors.

There is inadequate historic data to determine whether or not MEC is pervasive at the site or if the discovery of the 90mm projectiles was an isolated incident. As such, further characterization during the SI phase is required to establish the presence or absence of MEC. MC will be covered under the IRP.

Fuze and Booster Quarry (RVAP-016-R-01)

The Fuze and Booster Quarry is an undeveloped site that encompasses the three ponds constructed within the former quarry. The MRS was used as an open burning area and subsequently a landfill that accepted fuze and booster assemblies, projectiles, residual ash, and sanitary waste. Reportedly in 1976, existing debris was removed from the MRS and disposed of elsewhere. According to Installation personnel, the MRS contains MEC.

Any MEC remaining at the ponds would be located along the banks or below the water line. The depths of the ponds have been reported to be anywhere from 20 to 30 ft. Considering this, the exposure pathway for human receptors would potentially include handling or treading under foot. There is a possible potentially complete exposure pathway for ecological receptors (e.g., beaver) involving the handling of MEC.

Surveys for MEC or munitions debris have not been conducted at the Fuze and Booster Quarry MRS. MEC is suspected to be contained within the northern and southern ponds. However, very little information is known about the presence of MEC in the middle pond or concerning the type, condition, and extent of MEC located at the MRS. Therefore, further characterization will be conducted at all three ponds during the SI phase. MC will be covered under the IRP.

Landfill North of Winklepeck (RVAAP-019-R-01)

The MRS is an undeveloped site that consists of a wooded slope and creek bottom situated adjacent and east of the IRP AOC landfill. Based on the findings of the HRR records search, the location and size of the MRS has been revised from that identified during the US Army CTT Range/Site Inventory (from 7.55 acres, to approximately 14.05 acres).

According to Installation personnel, potential MEC is lying on the ground surface and may be potentially buried at the MRS. Considering this, the potential exposure pathways for human and ecological receptors would be contact with MEC in surface soils by handling or treading underfoot and through the disturbance of subsurface soil.

There is no supporting documentation to verify that MC is present or absent at the MRS. Therefore, the potential exposure pathways for human receptors would include dermal contact with contaminated soil (i.e., surface and subsurface), surface water, and/or sediment. Potential exposure pathways for

ecological receptors would include both dermal contact and ingestion of contaminated environmental media.

Characterization studies to assess MC in surface soils have not been conducted at the newly identified MRS. Data collected during the investigation of the landfill IRP AOC have determined that sediment samples contained elevated levels of metals.

Potential MEC and munitions debris exist at the MRS. The type, extent, and condition of the items are not known. Further characterization will be conducted to establish the absence (or presence) of MEC and MC at the MRS.

40mm Firing Range (RVAAP-032-R-01)

The MRS is an undeveloped site that consists of an open field that is surrounded by mature forest. From 1969 until 1971, the MRS was used to test fire 40mm grenade cartridges from a fixed firing point.

Potential MEC is reported lying on the ground surface at the MRS. Considering this, the potential exposure pathway for human and ecological receptors would be contact with MEC on the surface; that is, by handle/treading underfoot.

While potential MEC may be present at the MRS, little is known about its density, condition, or extent. Further characterization will be conducted to establish the absence (or presence) of MEC.

Firestone Test Facility (RVAAP-033-R-01)

The MRS is collocated with the former Load Line 6 Fuze and Booster area, which has been completely demolished. The MRS consisted of three buildings (since removed) used as test chambers, and a pond that remains at the site. The areas are not contiguous. According to personnel interviews and information reviewed, two of the test chambers were used to test TOW and Dragon missiles, while the third test chamber was used to test shaped charges. The pond was also used to test shaped charges underwater. It was determined during this HRR that one of the test chambers used to test the missiles and the one used to test the shaped charges were left out of the US Army CTT Range/Site Inventory; the locations of these former buildings have since been added.

Since the missile test operations were conducted in enclosed test chambers, which were demolished and removed, MEC is not expected to be present at these locations within the MRS. MEC is also not

expected to be present at the test chamber used for the shaped charges. However, no investigations of the pond have been conducted; consequently, the presence of MEC can not be dismissed. Therefore, an exposure pathway for human and ecological receptors potentially exists at the MRS. Further, there is very little information concerning the presence or absence of MEC at the suspected test range located northeast of the former facility. As such, an exposure pathway for human and ecological receptors could potentially exist at the MRS.

There is adequate historic data to determine that MEC is not present at the former test chambers. However, there is insufficient information to rule out the presence of MEC at the pond area. As such, further characterization of the pond area will be required during the SI phase. Very little is known about the presence or absence of MEC at the suspected test range area. As such, the area will have to be investigated during the SI field work. Based on these findings, the area may or may not be included as part of the MRS footprint. MC will be covered under the IRP.

Sand Creek Dump (RVAAP-034-R-01)

The former dump was used to dispose of general construction debris, including asbestos debris, concrete, fluorescent light tubes, lab bottles, 55-gallon drums, and wood. There is no information to indicate that MEC or related munitions items had been disposed of at the MRS. However, two inert 75mm rounds were discovered at the site in 2003 during ongoing IRP field work.

While MEC has not been found at the MRS, the possibility exists that items may have been buried or mixed with the general waste material that has been deposited over the years. Considering this, the potential exposure pathways for human and ecological receptors would be contact with MEC in surface soils by handling or treading under foot or disturbance of the waste material and subsurface soil.

The extent of MEC present at the MRS is not fully understood; specifically, it is not fully known whether or not MEC lying on the ground surface is mixed with the general waste material, or buried at the MRS. Therefore, further characterization during the SI phase will be required. MC will be addressed under the IRP.

Building #F-15 and F-16 (RVAAP-046-R-01)

Building #F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage which were subsequently dismantled for

inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE). Information concerning the final disposition of the tested components was not disclosed. However, large caliber artillery projectiles void of HE have been found at the MRS. The exact location where the rounds were found was not disclosed, but it is assumed that they were lying on the ground surface next to the buildings. There was no information found that MEC had been buried at the MRS.

The MRS has the potential to contain munitions debris and possibly MEC. Considering this, the potential exposure pathways for human and ecological receptors would be contact with MEC in surface soils by handling or treading under foot or through the disturbance of subsurface soil.

The extent of MEC present at the MRS is not fully understood; specifically, whether or not MEC may be buried at the MRS. Therefore, further characterization during the SI phase will be required. MC will be addressed under the IRP.

Anchor Test Area (RVAAP-048-R-01)

Beginning in the early 1960s, the Anchor Test Area was reportedly used to test fire anchoring devices into the ground. Small explosive devices were used to drive anchors for ropes and cables into the ground. The distinct surface features at the MRS are two large dirt mounds and a nearby sandpit. It is suspected that anchor tests were performed within the 12 × 36 ft sandpit, and the dirt mounds functioned as blast walls. Metal debris is visible in the area. A section of cement culvert can be seen in one of the mounds. It is suspected that the culvert was used to store anchors while tests were being conducted.

While some metal debris of unknown origin has been found in the area, the MRS has not been evaluated for the presence of MEC nor have there been reports of ordnance located at the site. If present, MEC is expected on the ground surface or at a shallow depth. Human and ecological exposure pathways include contact with MEC during disturbance of subsurface soil and contact with MEC lying on the ground surface.

MEC investigations have not been conducted at the Anchor Test Area. However, it has been reported that metal debris of unknown origin has been observed at the site. Therefore, further characterization during the SI phase will be required to determine if MEC is present. MC will be addressed under the IRP.

Atlas Scrap Yard (RVAAP-050-R-01)

The Atlas Scrap Yard MRS is approximately 66.04 acres in size and is located in the southeastern area of RVAAP. The MRS is an old construction camp built to house workers during the construction of the Installation. After demolition of the camp in 1969, the MRS became a storage area for non-explosive scrap. Currently, the MRS is heavily overgrown with tall grasses, isolated stands of trees, and shrubs. There are scattered piles of debris located throughout the site that appear to be comprised of construction debris, dunnage, and metal scraps. Reportedly, UXO has been uncovered in the southwest corner of the MRS and the material was sorted and removed from the site in 2003. This disclosure was based on the findings of a removal action that was conducted at the MRS. In a recent characterization study conducted under the IRP, the report states that the study focused on areas of concern including stockpiles of debris consisting of pipes, railroad ballast, railroad ties, concrete rubble, and chipped ammunition boxes, as well as portions of the AOC where specific operations occurred, such as munitions storage.

The only reports of MEC being present at the MRS have involved the discovery of items lying on the ground surface or mixed with miscellaneous debris. However, there is insufficient information to dismiss that MEC is not buried at the MRS. Based on this, the exposure pathways anticipated at the MRS include direct contact with MEC by handling or treading under foot and through the disturbance of subsurface soil.

The presence of MEC has not been fully investigated and defined. Therefore, further characterization during the SI phase will be required. MC will be covered under the IRP.

Block D Igloo (RVAAP-060-R-01)

The Block D Igloo MRS consists of the area contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. To capture the potential debris field, the USACE Huntsville District placed a 3,000 ft radius circle centered on the former igloo. The calculations were based on the type of ordnance contained in the igloo when it detonated. Based on an accident report issued by the Office of the Chief of Ordnance, Safety and Security Division, the blast was definitely directional and formed two fans: the first and smaller fan was roughly circular in shape and extended to the right, to the rear, and to the left of the igloo, while the larger fan extended forward from the igloo in an easterly direction toward the "E" block of igloos. The major force was directed along a median line in conjunction with the long axis of the igloo. Some of the concrete

fragments were propelled forward in the larger of the two fans up to 3,800 ft. There was no mention of the distance that the smaller fan stretched.

No UXO removal documentation has been identified. Should MEC be present, the potential exposure pathway for human and ecological receptors would be to handle or tread under foot. Likewise, there are no analytical data to establish that MC is not present at the MRS. Therefore, it is presumed that a potentially complete exposure pathway for human and ecological receptors exists.

Insufficient information exists documenting the presence or absence of MEC and MC at the MRS. Therefore, further characterization will be required during the SI phase.

Block D Igloo–TD (RVAAP-061-R-01)

The Block D- TD MRS consists of the portion of the circular Block D Igloo MRS that extends beyond the Installation boundary in the north-central portion of RVAAP. The Block D Igloo–TD covers an area of approximately 19.25 acres and includes a segment of the railroad that follows the northern boundary of the RVAAP, farmland, and forested areas.

Although RVAAP personnel indicated the site was considered clean of UXO some time after the 1943 explosion, this was not documented or confirmed. It is anticipated that the potential presence of MEC or munitions at the MRS is low. However, should MEC be present, the potential exposure pathway for human and ecological receptors would be by handling or treading under foot. Analytical data to establish that MC is present or absent at the MRS has not been collected. Therefore, it is presumed that a potentially complete exposure pathway for human and ecological receptors exists at the MRS.

Considering the area has not been the subject of an investigation, further characterization of MEC and MC will be required during the SI phase.

Water Works #4 Dump (RVAAP-062-R-01)

The Water Works #4 Dump is an approximate 6.15 acre wooded area immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were found scattered throughout the MRS, as well as metal parts identified as ogives. According to RVAAP personnel, the dates of disposal are estimated to be between 1941 and 1949. The type and origin of the casings are unknown, while the ogives were identified as part of 155mm shrapnel projectiles. In addition

to the casings and ogives, Installation personnel have indicated that rifling propagators are present at the MRS. No UXO investigations have been performed on the site.

Available information suggests that some of the casing fragments may be MEC, while the majority of the items are considered munitions debris. Currently no investigations have been conducted to assess the constituents present in the casing fragments or ogives. In case the presence of MEC is confirmed, the potential exposure pathway for human and ecological receptors would be to handle or tread under foot. Analytical data to establish the presence or absence of MC at the MRS does not exist. Therefore, it is presumed that a potentially complete exposure pathway for human and ecological receptors exists at the MRS.

Conclusive evidence does not exist documenting the presence or absence of MEC and MC. Therefore, further characterization during the SI phase will be required.

Area Between Buildings 846 and 849 (RVAAP-063-R-01)

This approximate 2.65 acre MRS consists of the area between Buildings 846 and 849. The MRS may have been used for burning of construction debris and rubbish in the past, as well as a collection center for salvaged items that were to be auctioned off. In 1996, one anti-personnel bomb, loaded with HE was found by the OHARNG lying on the ground surface. In addition, one inert 175mm projectile was found on the ground surface at the site. The site has not been evaluated for presence of MEC and no site investigations have been performed at the site.

Available records do not indicate the site was used for ammunition disposal, and the presence of the two pieces of ordnance found on the ground appears to be the result of mishandling. However, conclusive evidence that the MRS was not used to bury MEC was not found during the HRR review. As such, the potential exposure pathway for human and ecological receptors would be to handle or tread under foot or through the disturbance of subsurface soil. Analytical data to establish the presence or absence of MC at the MRS does not exist. Therefore, it is presumed that a potentially complete exposure pathway for human and ecological receptors exists at the MRS.

The site has not been evaluated for the presence of MEC or MC. Therefore, further characterization during the SI phase will be required.

Field at the NE Corner of Intersection (RVAAP-064-R-01)

The MRS consists of an open field that encompasses approximately 91.86 acres. The open field is bisected by Paris-Windham Road, which runs north-south through the MRS. Between 1941 and 1991, the field had been leased for agricultural purposes. In 1992, the land was transferred to the NGB and reassigned to RTLS. One inert anti-tank landmine was discovered in 1996 by OHARNG personnel lying on the ground surface in the north-central portion of the MRS approximately 100 ft east of Paris-Windham Road. The inert practice mine was removed by the OHARNG from the MRS. The inert practice landmine is now a show-piece at Building 1036. No other reports of MEC or munitions debris having been found at the MRS have been discovered. According to input from the OHARNG and Installation personnel, it is believed that the discovery of the inert land mine was a one-time occurrence that probably resulted from the accidental misplacement by a guardsman.

No UXO investigations have been performed at the MRS. Therefore, human and ecological exposure pathways at the MRS are considered to be potentially complete for a surface exposure. Analytical data to establish the presence or absence of MC at the MRS does not exist. Therefore, it is presumed that a potentially complete exposure pathway for human and ecological receptors exists at the MRS.

Further characterization will be conducted to establish the absence (or presence) of MEC and MC.

Table 40 below provides a summary of the conclusions.

Table 40: Summary of Conclusions

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No/ Unknown	MC Yes/No/ Unknown	
Ramsdell Quarry Landfill	RVAAP-001-R-01	No	3.79	13.43	Unknown	Yes	Presence and type of MEC at the former OB/OD area at the bottom of the quarry and area south of the quarry are not fully known. Presence of MC at the OB/OD area has been established. Presence of MC at the area south of the quarry is not fully known.
Erie Burning Grounds	RVAAP-002-R-01	No	33.93	Same	Unknown	IRP[1]/MMRP	Presence and type of MEC at the MRS is not fully known. Presence of MC in wet sediments is not fully understood.
Demolition Area #2	RVAAP-004-R-01	No	14.91	32.95	Yes	Yes	Presence of MEC has been established, but type is not fully known. Presence of MC at the two burial areas, Rocket Ridge, and the northwestern disposal area is not fully known.
Winklepeck Burning Grounds	RVAAP-005-R-01	Removed	317.01	N/A	BRAC[2]	IRP[1]	Winklepeck Burning Grounds is not MMRP-eligible and has been removed from further consideration.
Load Line #1	RVAAP-008-R-01	No	163.62	4.63	Unknown	IRP[1]/MMRP	Presence and extent of triple base propellants is not fully known. MMRP will address any MEC/MC issues not addressed by the PBC contractor.
Load Line #12	RVAAP-012-R-01	No	77.58	1.0	Unknown	IRP[1]	Presence and type of potentially buried MEC is not fully known.

Table 40: Summary of Conclusions (continued)

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No /Unknown	MC Yes/No /Unknown	
Fuze and Booster Quarry	RVAAP-016-R-01	No	12.74	Same	Unknown	Yes/IRP[1]	Presence and type of MEC in the three ponds is not fully known. Munitions debris is present.
Landfill North of Winklepeck	RVAAP-019-R-01	No	7.55	14.05	Unknown	Yes	Presence and type of MEC at the revised MRS location is not fully known. Presence of MC is not fully known. Presence of munitions debris has been established.
40mm Firing Range	RVAAP-032-R-01	No	5.17	Same	Unknown	IRP[1]	Presence and type of MEC at the firing range is not fully known.
Firestone Test Facility	RVAAP-033-R-01	No	0.25	0.91	Unknown	IRP[1]	Presence and type of MEC at the shaped charge test pond, test chambers (3), and clearing is not fully known.
Sand Creek Dump	RVAAP-034-R-01	No	0.85	Same	Unknown	IRP[1]	Presence and type of MEC at the MRS is not fully known.
Building #F-15 and F-16	RVAAP-046-R-01	No	12.23	Same	Unknown	IRP[1]	Presence and type of MEC is not fully known.
Anchor Test Area	RVAAP-048-R-01	No	2.57	Same	Unknown	IRP[1]	Presence and type of MEC is not fully known.
Atlas Scrap Yard	RVAAP-050-R-01	No	66.04	Same	Unknown	Yes/IRP[1]	Presence of munitions debris has been established. However, presence and type of MEC is not fully known.
Block D Igloo	RVAAP-060-R-01	No	622.24	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.

Table 40: Summary of Conclusions (continued)

MRS Name	AEDB-R Site ID*	MRS Added During HRR (yes/no)	CTT Acreage	HRR Acreage	Presence of MEC/MC		Data Gaps
					MEC Yes/No /Unknown	MC Yes/No /Unknown	
Block D Igloo–TD	RVAAP-061-R-01	No	19.25	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.
Water Works #4 Dump	RVAAP-062-R-01	No	6.15	Same	Unknown	Unknown	Presence of munitions debris has been established. Presence and type of MEC is not fully known. Presence of MC is not fully known.
Area Between Buildings 846 and 849	RVAAP-063-R-01	No	2.65	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.
Field at the NE Corner of Intersection (Paris-Windham Rd)	RVAAP-064-R-01	No	91.86	Same	Unknown	Unknown	Presence and type of MEC is not fully known. Presence of MC is not fully known.

[1] = MC will be covered under the IRP and will not be investigated further under the MMRP.

[2] = Explosive concerns are addressed under BRAC and will not be investigated further under the MMRP.

* AEDB-R Site ID = Army Environmental Database-Restoration Site Identification Number

IRP=Installation Restoration Program, BRAC= Base Realignment and Closure

Military Munitions Response Program Site Inspection
Ravenna Army Ammunition Plant
Ravenna, Ohio
TPP 1 Meeting Minutes
20 October 2005

The 20 October 2005 Technical Project Planning (TPP) meeting for the Military Munitions Response Program (MMRP) Site Inspection (SI) for Ravenna Army Ammunition Plant (RVAAP) was conducted by the United States Army Environmental Center (USAEC) and engineering-environmental Management, Inc. (e^2M) at RVAAP in Ravenna, Ohio.

Introduction

All TPP meeting attendees provided personal introductions and explained their role as it relates to the project. Please see attached sign-in sheet for attendees contact information.

Mary Ellen Maly with the USAEC provided a brief explanation of the Military Munitions Response Program (MMRP) past, present, and future.

MMRP Site Inspection Presentation

The MMRP Site Inspection Presentation was given by Courtney Ingersoll of e^2M. A handout was provided to attendees that outlined the origin of MMRP; OSD DERP Management Guidance; Fiscal Year 2002 Defense Authorization Act; Phase 3 Range Inventory Process; SI Organization; MMRP SI Goals; Results and Data Gaps of the RVAAP Phase 3 Inventory; and Tentative Project Schedule.

Comments and discussion generated from the briefing are described below.

- Stakeholders were discussed. All persons on the attendee list attached are stakeholders for the RVAAP MMRP SI. Also, Restoration Advisory Board (RAB) members will be brought up to date on the MMRP process and included for discussion of issues pertaining to the Block D Igloo-TD.
- RVAAP and RTLS personnel are concerned about the Block D Igloo-TD munitions response site (MRS). The transferred property is owned by the railroad and also has some farm land located within it. To their knowledge, there have been no EOD responses within the Block D Igloo-TD MRS. Farmers have also been actively farming the land in this area without incident. LTC Tadsen, RTLS suggested restoration advisory board members be invited to Technical Project Planning (TPP) meeting 2 in order to discuss Block D Igloo-TD. There are approximately 25 RAB members. Ms. Maly, AEC agreed it would be a good idea to attempt to coordinate the TPP 2 meeting with the RAB meeting.
- e^2M will re-evaluate the Block D Igloo-TD fall out zone as part of the SI process to assess whether the footprint needs to be expanded or decreased. LTC Tadsen expressed an interest in having a “mag and flag” survey of the transferred section of the MRS performed to provide closure and for the added benefit of increasing public relations.
- LTC Tadsen expressed his concern regarding potential off-installation MRSs. Many of these would be training areas used by Ohio National Guard (OHARNG) by a

handshake agreement with a local farmer or land-owner with no documentation. It will be difficult to capture all of these sites as there is generally little documentation regarding them. Ms. Maly inquired as to whether the training areas would be Federally-owned or if they would be state-owned, state-operated (SO-SO). If the areas in question are SO-SO, they would be covered under a different MMRP program for the NGB.

- LTC Tadsen also mentioned there are many "unofficial" disposal areas located throughout the RVAAP. Would these areas be picked up under the MMRP? Ms. Maly indicated they could be added as MRSs if they qualified for the MMRP.
- LTC Tadsen then asked the definition of an operational range. Ms. Maly stated G3 makes this decision. Generally operational ranges do not include safety danger zones (SDZs), however open burn/open detonation (OB/OD) areas do include their exclusion areas as part of their footprint.
- Mr. Mark Patterson, RVAAP and LTC Tadsen both expressed concern regarding how geophysical work would be conducted during the SI as many of the roads through RVAAP have slag underlying them and will show anomalies on geophysical equipment. Mr. Phil Werner, e^2M explained how a Schonstedt magnetometer would be utilized for UXO avoidance to collect surface soil samples as well as limited site surveys on MRS's where it was needed.
- Mr. Patterson asked how USACE, Huntsville fit into the program. Ms. Maly stated USACE, Huntsville performs the FUDS MMRP work. They also lend their UXO expertise to the Phase 3 SI program as well as the USACE, Omaha District.
- Ms. Maly discussed the Munitions Response Site – Prioritization Protocol (MRS-PP). The Ohio Environmental Protection Agency (OEPA) has reviewed and provided comments on the draft MRS-PP. The SI MRS-PP is a draft document and will be discussed and finalized at the installation action plan (IAP) meetings with all the stakeholders.
- Mr. Glen Beckham, USACE, Louisville District has georeferenced historic aerial photographs and GIS shape files of RVAAP. LTC Tadsen stated the best aerial photograph is the one from 1952. It depicts many of the areas where munitions activity was occurring on RVAAP. e^2M will coordinate with Mr. Patterson to obtain this information.
- Mr. Patterson requested e^2M provide a reference CD with miscellaneous MMRP-related regulatory guidance documents to provide to the person who will be replacing him. e^2M will provide what information they have electronically including the following: USEPA Munitions Guidance Handbook; ITRC Historic Records Review MR Site and Conceptual Site Model Guidance; USACE Huntsville Data Item Descriptions (DIDs); and US Codes covering the MMRP Program.
- Many of the MRS's identified during the Phase 3 Inventory were discussed. Many of these sites have analytical soil sampling data as well as MEC (UXO Survey sweeps) related information from further investigation performed under either Phase 1 or 2 Remedial Investigations (RIs). e^2M will utilize this existing data to the highest extent possible in the SI process and will only collect additional field information when there are data gaps identified in the existing historical data.
- Should additional field information need to be collected, e^2M will incorporate by reference the installation health and safety plan, and field sampling plan into the work plan.
- e^2M was informed by Ohio EPA that background conditions (i.e., soil, groundwater, surface water, sediment) have been adequately characterized at RVAAP. This data is contained in the Winklepeck Burning Ground Phase II RI and will be used during the SI process.

- It was the opinion of LTC Tadsen and Mr. Patterson that the discovery of MEC at MR Site "Area between Bldgs. 846 and 849 was an anomaly since that particular item was not made or stored at RVAAP. LTC Tadsen also believed that the one MEC item discovered at the "Field at NE Corner of Intersection (Paris-Windham RD & Smalley Rd)" MRS was an anomaly; that is, he felt the item was probably left behind accidentally by guardsmen.
- e^2M informed that the artillery shells discovered at the "Atlas Scrap Yard" MR Site had been crushed been were found to contain residue (contents unknown) that had leaked.
- According to Mr. Patterson, the Bldg. No F-15 and F-16 MRS needs additional survey work to fully characterize the presence/absence of MEC. Mr. Patterson also believes that the Demolition Area No. 2 needs additional MEC survey work and that possibly the footprint of the MRS should be enlarged.

Action Items

Item	Responsible Party
Schedule data collection site visit	e^2M and RVAAP
Coordinate with USACE, Louisville to obtain GIS information and georeferenced aerial photographs.	e^2M
Distribute Meeting Minutes	e^2M
Provide CD-ROM of MMRP Program guidance and regulations.	e^2M
Obtain Phase I RI analytical data and maps for the Firestone Test Facility.	e^2M
Coordinate with the Stakeholders on presenting MMRP Program information to the RAB at the next meeting.	e^2M

TPP 1 Meeting Attendees RVAAP, OH 20 October 2005			
NAME	ORGANIZATION	PHONE	EMAIL
Courtney Ingersoll	e^2M	757-643-7886	cingersoll@e2m.net
Phil Werner	e^2M	703-273-7171	pwerner@e2m.net
Mary Ellen Maly	USAEC	410-436-7083	maryellen.h.maly@us.army.mil
Robert Zaruba	USACE, Omaha District	402-221-7659	robert.k.zaruba@nwo02.usace.army.mil
Eileen Mohr	Ohio EPA	330-963-1221	eileen.mohr@epa.state.oh.us
Bonnie Buthker	Ohio EPA	937-285-6469	bonnie.buthker@epa.state.oh.us
Todd Fisher	Ohio EPA	330-963-1148	todd.fisher@epa.state.oh.us
Timothy Morgan	RTLS, Environmental	614-336-6568	timothy.m.morgan@us.army.mil
Katie Elgin	RTLS, Environmental	614-336-6136	katie.elgin@us.army.mil
LTC Tom Tadsen	OHARNG – RTLS	614-336-6790	thomas.tadsen@oh.ngb.army.mil
Mark Patterson	US Army, RVAAP Facility Manager	330-358-7304	mark.patterson@us.army.mil
Mr. Glenn Beckham	USACE, Louisville District	502-315-6799	glenn.beckham@us.army.mil

Military Munitions Response Program Site Inspection
Ravenna Army Ammunition Plant
Ravenna, Ohio
TPP 2 Meeting Minutes
10 August 2006

The 10 August 2006 Technical Project Planning (TPP) meeting for the Military Munitions Response Program (MMRP) Site Inspection (SI) for Ravenna Army Ammunition Plant (RVAAP) was conducted by the United States Army Environmental Center (USAEC), US Army Corps of Engineers (USACE), Omaha District and engineering-environmental Management, Inc. (e^2M) at the installation in Ravenna, Ohio. The purpose of the meeting was to discuss the Ohio Environmental Protection Agency (Ohio EPA) comments on the draft Historical Records Review (HRR) report, as well as to discuss strategy for the MMRP SI field work at the RVAAP MRSs. The meeting was also requested as permitted by Section XVIII, Line Item Number 42, of the Director's Final Findings and Orders (F&O) to provide further clarification of the Ohio EPA comments. Prior to the comment resolution meeting, a request for an extension to address the comments was submitted to the Ohio EPA via email and US Postal Service 11 July 2006. Official notice granting the request for an extension was sent to the installation on 17 July 2006.

Introduction
All TPP meeting attendees provided personal introductions and explained their role as it relates to the project. Please see attached sign-in sheet for attendees contact information.

MMRP Site Inspection Briefing
The MMRP SI Presentation was given by Ms. Mary Ellen Maly, USAEC, Ms. Courtney Ingersoll, e^2M, and Mr. Phil Werner, e^2M, which covered the day's agenda and a brief review of the MMRP process. Two handouts were provided to attendees: one outlining the Meeting Objectives; Review of the MMRP; MMRP Implementation and Summary; MMRP Goals and Processes; RVAAP MRS Data Gaps; Proposed MMRP SI Field Work; and Tentative Project Schedule; while the second handout contained draft responses to the Ohio EPA comments on the Draft HRR.

The remainder of these meeting minutes depicts salient points from the discussion of the proposed SI field work at the RVAAP MRSs.

- After discussion by Ms. Maly of how the US Army CTT Inventory Report fulfills the requirement of a Preliminary Assessment under CERCLA, Ms. Eileen Mohr, Ohio EPA, responded that this puts the installation and Ohio EPA in a challenging situation since the report had not been reviewed or approved by Ohio EPA prior to final submittal. Ms. Mohr continued stating that the report contained multiple errors and inaccurate information. Ohio EPA received the CTT Inventory Report a year after it was final. Ms. Maly responded the US Army CTT Inventory Report is final and the RVAAP MMRP is moving forward. Any errors in the CTT Inventory Report will be corrected during the SI, specifically within the HRR, SI field work, and SI report.

- Ms. Maly was asked whether or not she would be available to present a synopsis of the MMRP program at the September 2006 RAB meeting. Ms. Maly acknowledged that she would be willing to attend and present to the RAB.
- Mr. Kevin Tiemeier, USAEC, asked if Environmental Baseline Study (EBS) data is used during the SI. Ms. Maly responded that yes, data from an EBS is used when applicable. Ms. Maly stressed that the MMRP is not NEPA, but rather follows CERCLA and, therefore, does not include performing Environmental Impact Statements (EISs), EBSs, and/or Environmental Assessments (EAs).
- LTC Tom Tadsen, Garrison Commander, asked if other contractors are cited when photographs and maps are used from their reports. e^2M responded that yes, when other contractors data, maps, and/or figures are used that they are cited in both the body of the HRR text, on the figure/map, as well as in an appendix that covers archival data that was researched.
- LTC Tadsen asked if the MRSs collocated with IRP sites have the same name. Mr. Werner responded that collocated IRP and MRSs do not share the same exact name, in most cases. LTC Tadsen responded that the installation would like the MRSs and IRP sites that are collocated to have the same name. Ms. Maly stated the MRS names are up to the installation and can be changed. The installation agreed to review the names of the MRS and IRP sites and indicate the changes to be made. Once this list is received by e^2M, the appropriate changes will be made in the Final HRR report.
- Ohio EPA is fearful ODA1 will slip through the cracks. Currently the site overlays operational range area and is not MMRP eligible. Ms. Maly explained the procedure that needs to be completed to reclassify operational range to other than operational range, by going through G3. After G3 approves the reclassification, USAEC will then evaluate the area for MMRP eligibility; should it qualify it will be added to the MMRP. Ms. Maly continued by stating that should ODA1 become MMRP-eligible that it would not be included under this SI effort. Rather, the installation will be responsible for performing a Preliminary Assessment of ODA1 after reclassification acceptance by G3. The OHARNG will pursue requesting the ODA1 reclassification. Throughout the course of the meeting, the question was continually raised by Ohio EPA how and what (e.g., MEC and MC) would be addressed at collocated IRP and MMRP sites. Ohio EPA's concerns were that sites not slip through the cracks, and that all known sites be addressed by either one program or another. For the identified MRS's, the consensus was reached that MEC or MC concerns not addressed by the IRP would be addressed under the MMRP.
- There was discussion regarding MC clean up and whether it will occur under IRP or MMRP. Since the last IAP meeting, MC clean up programmatic responsibility has changed on some sites. Please refer to the final comment response matrix under separate cover for more detail on the sites discussed.
- LTC Tadsen stated the fence line GIS shape file layer can be used to assist in mapping IRP site boundaries. e^2M will request this additional layer from the USACE, Louisville District.
- The installation and Ohio EPA requested the introduction to Section 2 be updated to reflect revised acreages and descriptions. Ms. Katie Elgin, RTLS, will provide text for this updated section.
- Ms. Mohr requested that e^2M draft and includes a statement in the introductory paragraph in Section 2.2 stating "text in this section is taken directly from the US Army CTT Inventory Report and does not accurately represent current site conditions." e^2M will draft proposed language and email to meeting attendees for

input and approval. It was also suggested the text copied directly from the US Army CTT Inventory Report be indented and italicized. e^{2}M will do this for the final HRR.

- Much discussion occurred concerning the text related to Land Use Controls (LUCs) for each of the MRSs. Currently, no LUCs exist at RVAAP. The consensus of the attendee's was to insert a general statement throughout Section 5 addressing Land Use Restrictions, such as "There are no formal CERCLA land use controls enforced at the MRS". Text referring to LUCs would be removed.
- Ohio EPA stated that they prefer that the SI Conceptual Site Model section (Section 5) include an analysis of release mechanisms, activities, and receptors be performed for current use scenarios at each MRS. Ms. Maly stated all references to any future land use, activity, or receptor will be removed from the CSM.
- Ohio EPA disagreed with a number of the "incomplete" assessments for both the MEC and MC pathway exposure analysis. In each case discussed, the assessment will be changed to reflect either a "potential" or "complete" exposure pathway scenario exists at the MRS. The changes will be noted in the responses to comments document.
- Ohio EPA prefers multi-increment sampling be performed per the MI Sampling and Processing Plan developed by MKM. It was stated that all contractors follow this guidance for sampling at RVAAP. e^{2}M will obtain a copy of this plan prior to development of the SI work plans and incorporate the guidance and strategies stated within. (Note: After a review of the meeting minutes, Ohio EPA has indicated that MI sampling can be used for confirmation purposes. However, it cannot be used for investigative or risk assessment purposes. Depending upon where the locations are and how the samples will be used may dictate sample type [i.e., discrete vs. MI].)
- Ohio EPA informed the group that USEPA Region 9 residential PRGs and the RVAAP Background data as provided in the Winklepeck Burning Ground Phase II RI can be used for screening purposes.
- Ms. Maly asked Ohio EPA's definition of surface soil. Surface soil is 0-12" bgs and surface sediment is 0-6" bgs.
- The Installation QAPP and SAP, dated March 2001 will be included by reference in the MMRP SI Work Plan. The installation Health and Safety Plan will also be incorporated by reference into the MMRP SI Work Plan.
- An IDW for the MI samples must be established by the contractor per the Facility Wide Plan. e^{2}M will obtain a copy of this plan for incorporation by reference in the MMRP SI Work Plan.
- LTC Tadsen indicated that he will be retiring at the end of August and that future correspondence and coordination with the OHARNG should be done through Katie Elgin.

Action Items

Item	Responsible Party
Obtain copy of IRP site names from Installation.	e^{2}M and RVAAP
Coordinate with USACE, Louisville to obtain GIS shape files for fence layer to delineate IRP site boundaries.	e^{2}M
Distribute Meeting Minutes	e^{2}M

Draft revised introduction text for section 2.2 and send to stakeholders for review and comment.	e^2M
Obtain copy of MI Sampling and Processing Plan from MKM.	e^2M
Final comment responses to the Ohio EPA and other stakeholder comments will be provided under separate cover from these meeting minutes.	e^2M
A teleconference or meeting will be scheduled to resolve any outstanding comment issues, should it be necessary.	Ohio EPA/OHARNG/USAEC/USACE

TPP 2 Meeting Attendees RVAAP, OH 10 August 2006			
NAME	ORGANIZATION	PHONE	EMAIL
Courtney Ingersoll	e^2M	757-643-7886	cingersoll@e2m.net
Phil Werner	e^2M	703-273-7171	pwerner@e2m.net
Mary Ellen Maly	USAEC	410-436-7083	maryellen.h.maly@us.army.mil
Robert Zaruba	USACE, Omaha District	402-221-7659	robert.k.zaruba@nwo02.usace.army.mil
Eileen Mohr	Ohio EPA	330-963-1221	eileen.mohr@epa.state.oh.us
Bonnie Buthker (via teleconference)	Ohio EPA	937-285-6469	bonnie.buthker@epa.state.oh.us
Todd Fisher	Ohio EPA	330-963-1148	todd.fisher@epa.state.oh.us
Timothy Morgan	RTLS, Environmental	614-336-6568	timothy.m.morgan@us.army.mil
Katie Elgin	RTLS, Environmental	614-336-6136	katie.elgin@us.army.mil
LTC Tom Tadsen	OHARNG – RTLS	614-336-6790	thomas.tadsen@oh.ngb.army.mil
Irv Venger	US Army, RVAAP Facility Manager	330-358-7304	Irving.b.venger@us.army.mil
Kevin Tiemeier	USAEC	563-359-3314	kevin.tiemeier@us.army.mil

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RAAP

Sampling Depth

Eileen – Preexisting data is 0-12"

-For consistency we should go with 0-12"?

Phil – It doesn't' matter for the MFSPP whether it was taken from on or the other depth

Cheryl – We should maintain consistency with old data

John – If hitting refusal within 12", return the soil plug to the hole. They did not use the top soil in the sample

Eileen/Cheryl/Phil – We'll use the topsoil

TAL issue

Joanne – Attachment C (QAPP) make sure the TAL list is correct.

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Name	Organization	Telephone	Email
Daniel Zugris	e²M	703-752-7755	dzugris@e2m.net
Cheryl Groenjes	US Army Corps-Omaha	402-221-7744	cheryl.a.groenjes@usace.army.mil
Todd Fisher	Ohio EPA	330-963-1148	todd.fisher@epa.state.oh.us
Jo Ann Bartsch	URS	216-622-2229	jo_ann_bartsch@urscorp.com
Katie Elgin	OHARNG RTLS-ENV	614-336-6136	katie.elgin@us.army.gov
Irv Venger	RVAAP	330-358-7311	irving.b.venger@us.army.gov
Phil Werner	e²M	301-831-0344	pwerner@e2m.net
Eileen Mohr	Ohio EPA	330-963-1222	eileen.mohr@epa.state.oh.com
Kim Harriz	NGB/EEI	703-607-7991	kim.harriz@us.army.mil

On Teleconference:

Bonnie Bothker
John Jent
Mark Krwansky

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By Phone: John, Bonnie, Mark K.

Introduction – See sign in sheets

Work Plan

Eileen began discussing the comments

1. Ok
2. Discuss #9

Bonnie – make sure the concentration are screened against background level from IRP (Winkle Peck BG Phase II)

John – I thought they were in the RI Phase 3. Todd went to check with Gail.

Joanne – on the TAL we have some QAPP questions:

Inconsistency between QAPP and attachment. Why are we looking at Na, Ca, that have no PRGs. What will you do with the data?

Phil – we're ordering for the full suite because for the lab, it is the same effort/price. Should we restrict to the metals that relate to munitions?

Eileen – we've never sat down to develop a list related to metals. Go with all.

Joanne – these are metals in the QAPP that are not in TAL

Todd – April 2001Phase II RI doc. With background concentrations.

Joanne – are you using these concentrations as screening or cleanup levels?

Cheryl – we do not develop cleanup levels

Joanne – In the past screening was based on residential. Are we introducing new numbers?

Eileen – this a first cut to populate the database. Most of the sites will go to RI

Joanne – my concern is that the screening may be less conservative with previous numbers

John – can't use these numbers for risk assessment. Can use the IRP cleanup standards. They're approved to be available in December 2007.

Phil – numbers exceeding the PRG will be considered elevated.

John – the 7-sample method is not as good as MI

Phil – we have sites we known are going to RI. At those we are collecting the minimum amount of info.

Eileen – identify the MRSs that go to RI and those that are under evaluation. Ohio doesn't allow the use of MI in risk assessment

Bonnie – the thinking is that compositing dilutes the sample. We use discrete in risk assessing . We can use the MI to the established cleanup standards.

Bonnie – we'll continue to use this protocol because we have a lot of discrete results. We don't to go back to do RI

Cheryl – Should we use 7 point wheel or triangle sampling; need consistency between SI and RI

Summary – MRSs with possible NFA – use MI?

Bonnie – you'll compare MI data with PRG and background. If you have elevated numbers, then you look at cleanup levels.

Phil – reiterate question: 7 sample vs 3 sample

Eileen – use 7

Phil- any concerns for age of data for RA?

Eileen – not generally, to the extent the data is still characteristic for the site (site conditions)

Phil – the MRSs to go to RI:

Ramsdell – some area may not

Erie

Demo #2

LL1 – scheduled for limited removal, we'll check for propellant. Use MI

LL12

F &B Quarry

Landfill North of WP

40mm Firing Range

Firestone T.F.

Sandcreek Dump – may or may not go on depending on MEC

Blg 15 & 16

Anchor Test Area

Atlas

Block D Igloo

Water Works

Group 8 – try to take out

Old Hay Field – we need to discuss the extent of investigation. Eileen – we have to look at this. Kim – if it is a operational, even if not in operation, would it still qualifiy for MMRP?

Phil – we'll do a write up on the revised Tim Morgan has copy of EA for Old Hay approved

John – #13B. Lab preparation question.

Eileen – let's discuss this along with all other sample preparation questions and sample strategy.

Eileen - #24. Include the reopening statement in the introduction

Eileen - #27. How will inert be determined by the OE tech?

Cheryl – there are signs on the munitions that define this: how it was mangled, fragments, etc.

Eileen – include this in the text

Eileen - #35. How will the meandering path method be presented to the public as the best?

Phil – add a statement that this will give the most coverage?

Eileen – need to figure out how to get people input in to this so they are buying into.

Joanne – need to have information to present the people. Next RAB is in September 26. Why MI is better.

Phil – we need to change discrete to composite.

Cheryl – use short-range composite

Eileen – use 7 point composite

Kim – need to notify the public on the public participation in the MRSPP. Maybe the sampling question should be done in conjunction with this?

Phil – we need to talk to MEM about the letter; use topography and vegetation as justification at sampling strategy.

Eileen – RAB agenda is co-chaired by the public and Army. Katie and Cheryl responses OK

RAB Comments

Joanne – was the TPP present to the RAB?

Phil – MEM did

Joanne – the decision process was not decisive in the WP (from RAB meeting to WP decisions). OK with stating that most of the sites will go to RI. This is a DQO.

Phil – insert general statement that majority sites will go to RI based on suspected presence of MEC or MC. We'll send the text back for approved by the stakeholders

Joanne - #9. What do you do when there is no PRG for a constituent?

Phil – we'll not compare it to anything

Cheryl – we're looking at the concentrations of these constituents to assess variation, possible releases. The Region 9 PRG includes MCs (TNT, etc.)

Kim – the figure does not include the cover but we talk about it. Need to include in the figure.

Phil – May raise questions but we can add it. We'll add it.

Field Sampling Plan

Eileen - #62. Idon't think samples were taken from the pond

John – I don't think there were any

Eileen - #99. IDW

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Phil – don't see where there will be a lot of excess material. The composite will be sent to the lab.

Cheryl – need to formalize the prep procedure to apply to all types of samples. We can have the lab prep, split the sample and send the split to the OHEPA lab

Eileen and Todd – agree

Phil – we'll reword the IDW text

Eileen - #103. Decontaminate with aloconox, water has not been demonstrated to be as good as the acid solvent method, nitric acid 2%. The facility wide decon is acid/solvent so MMRP needs to use it too.

Cheryl – there other reagents than methanol such isopropyl alcohol

Cheryl – comments OK

Katie – OK

Joanne – OK

John – MI method: the OE avoidance goes ahead, clear a meandering path, mark the aliquot locations

Phil – we also GPS the path and we GPS the corners of the rectangle. The center point of the polygon will be attributed to the analytical results.

<u>Kim</u>

The electronic copy does not show all of the details on the paper copy.

Phil – we're trying to not use bucket augers

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QAPP

Eileen - #111. Cheryl will look for a propellant method

#122/123. Will remove the surrogate text

H&S Plan

Eileen - #169. Tick bottles

Katie – hunting season restrictions. Spill procedures – Irv has a Spill Prevention Plan that probably includes a Spill Reporting Form.

QAPP

Joanne – #3. Field sampling procedures should be in the FSP not in the QAPP.

#48 Clarify review vs. validation

#9 we'll use 6010C and revise the text in the QAPP.

#11 Blanks – we'll revise the language

We'll not do equipment blanks because you can't use the blank data to question the sample data.

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Outstanding (for PM)

-lab

-prep

-sampling strategy

-sample depth

-rights of entry

John – sampling grinding. There are problems with this procedures, the risk assessors don't like it.

Eileen – use grindings because this is what has been done at RVAAP. Grind for consistency. Need to do the grindings in the coffee mill at STL because they do not have a puck mill.

Phil – is this a problem with using coffee grinders?

Eileen – OK with using coffee grinders. Explosives, propellants, metals – all will be coffee grinded at North Canton and sent to STL Denver. They will be instructed not to grind the samples any further. North Canton will send the splits to Chemron. The sample number per MRS was discussed and agreed upon.

Joanne – add to the rationale the refining (shrinking) of footprints.

"seven wheeling"

MI duplicate = another walk

There will be no splitting of the duplicates

Eileen – correct figure 15 there are two MC4s, will be corrected into MC5

e²M DAILY QUALITY CONTROL REPORT

Day of Week:	Monday
Weather Conditions:	Clear
Temperature:	50-70
Wind:	Still
Humidity:	Dry

Technical PM: Phil Werner
Project: RVAAP Site Inspection
Project No.: 4100-993
Report No.: 1
Date: 10/01/2007

e²M Personnel: Phil Werner, Courtney Van Tassell, Kim Hawkins
Visitors Present: Eileen Mohr, Todd Fisher (OEPA)
Subcontractor Personnel: Steve Burhans, Gary Storrs (Malcolm Pirnie UXO)
Work Performed/Sampling Activities: At 0830, e²M* and subcontractor personnel met at RVAAP. AccuTest arrived around 0900 to deliver sample coolers. At approximately 0930, e²M*, Malcolm Pirnie, and OEPA personnel mobilized to the Landfill North of Winklepeck MRS. Using hand-held GPS and MRS maps and aerial photographs, the meandering path magnetometer and metal detector survey was conducted along the hillside of the landfill down to the creek bottom, and adjacent to the creek where MEC was reportedly observed. GPS coordinates were recorded for points along the path using a hand-held GPS unit. Empty flare canisters were found on the hillside above the creek, and a soil sample was collected adjacent to these items. Kim Hawkins collected the composite soil sample using a plastic scoop and placed the aliquots into a large bowl for homogenization. Debris and grass from the soil surface were removed to the greatest extent possible. Enough soil was collected into the bowl and homegenized in order to fill the Ziploc bag for the sample analysis and split sample for OEPA as a quality assurance(QA) sample (to be sent to another lab). GPS coordinates were recorded in the field journal as well as on the GPS unit. Sample named RVAAP-LNWGB-SS-1. Mobilized to the wooded area off George Road to an escort by Tim Morgan of ANG, who reported finding munitions debris in the area. Upon magnetometer/metal detector survey, one empty 105mm projectile (munitions debris) was found on the ground surface in the wooded area. The corners of the wooded area surveyed were recorded on the GPS unit. At approximately 1400, e²M*, Malcolm Pirnie, and OEPA personnel mobilized to the Water Works #4 Dump MRS. Using hand-held GPS and MRS maps and aerial photographs, the line abreast magnetometer assisted UXO survey was conducted of the open northeastern section of the MRS and a meandering path survey was conducted of the remaining wooded area, totaling

approximately 6 acres. Coordinates of subsurface anomalies and the sample location were recorded using a hand-held GPS unit. Samples collected from this MRS were RVAAP-WW4-SS-1 and the duplicate RVAAP-WW4-SS-2. GPS coordinates were recorded in field journal and saved on GPS unit. At the sample locations, soil was collected in bowl, homogenized, and placed into Ziploc bags provided by the laboratory.

After all samples were collected, they were bagged and placed into a cooler and covered with ice in Ziploc bags. The samples were held for delivery by the TestAmerica courier on Wednesday, October 3.

Quality Control Activities (including field calibrations): No field equipment was used which required calibrations. Prior to each sample being collected, a new set of gloves were donned and a new plastic scoop was used to prevent cross contamination. One duplicate sample was taken at Water Works #4 MRS for QC. One sample from Landfill North of Winklepeck MRS was sent to Chemron for QA.

Health and Safety Levels and Activities: Modified D PPE level was enforced. Disposable latex gloves were used to prevent contact and cross contamination of suspected contamination. Boots, pants and a long-sleeve shirt were necessary to protect against briar bushes, Poison Ivy, and other natural hazards.

Problems Encountered/Corrective Actions Taken: When using the GPS to gather locations of subsurface detections at Water Works #4 Dump, the unit was experiencing technical difficulties. The unit was turned off and subsequently began working again.

Downtime/Standby: None

Special Notes: None

By Courtney Van Tassell Title Environmental Scientist

e²M DAILY QUALITY CONTROL REPORT

Day of Week:	Tuesday
Weather Conditions:	Clear
Temperature:	70-85
Wind:	Still
Humidity:	Dry

Technical PM: Phil Werner
Project: RVAAP Site Inspection
Project No.: 4100-993
Report No.: 2
Date: 10/02/2007

e²M Personnel: Phil Werner, Courtney Van Tassell, Kim Hawkins
Visitors Present: Todd Fisher (OEPA)
Subcontractor Personnel: Steve Burhans, Gary Storrs (Malcolm Pirnie UXO)
Work Performed/Sampling Activities: At 0800, e²M* and subcontractor personnel mobilized to the Block D Igloo MRS. Using hand-held GPS and MRS maps and aerial photographs, the meandering path magnetometer and metal detector survey was conducted around the former igloo and documented locations where debris were found. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. No MEC or munitions debris was observed in these areas. One surface soil sample was collected from within the footprint of the former igloo. e²M* and Malcolm Pirnie personnel were joined by Todd Fisher of OEPA while conducting surveys of debris locations. Kim Hawkins collected the composite soil sample using a plastic scoop and placed the aliquots into a large bowl for homogenization. Debris and grass from the soil surface were removed to the greatest extent possible. Enough soil was collected into the bowl and homegenized in order to fill the Ziploc bag for the sample. GPS coordinates for the sample were recorded in the field journal as well as on the GPS unit. Sample named RVAAP-BDI-SS-1. At approximately 1500, e²M*, Malcolm Pirnie, and OEPA personnel mobilized to the Group 8 MRS. Using hand-held GPS and MRS maps and aerial photographs, the line abreast magnetometer survey of the 3-acre MRS was conducted. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. One item of munitions debris was found and general metal debris was present throughout the MRS. Samples collected from this MRS were RVAAP-GR8-MC1, -MC2, -MC3, -MC4, and -MC5. Each sample location was a distinct MI sampling area, so that collectively the samples represent MC at the entire MRS. For each sample, soil was collected using a decontaminated step probe, placed in a bowl, homogenized, and placed into a Ziploc bag provided by the laboratory. After all samples were collected, they were bagged and placed into a cooler and covered with ice

in Ziploc bags. The samples were held for delivery by the TestAmerica courier the following day.
Quality Control Activities (including field calibrations): No field equipment was used which required calibrations. Prior to each sample being collected, a new set of gloves were donned and a new plastic scoop or step probe was used to prevent cross contamination. No duplicate or split samples were collected.
Health and Safety Levels and Activities: Modified D PPE level was enforced. Disposable latex gloves were used to prevent contact and cross contamination of suspected contamination. Boots, pants and a long-sleeve shirt were necessary to protect against briar bushes, Poison Ivy, and other natural hazards.
Problems Encountered/Corrective Actions Taken: None
Downtime/Standby: None
Special Notes: None

By Courtney Van Tassell Title Environmental Scientist

e²M DAILY QUALITY CONTROL REPORT

Day of Week:	Wednesday
Weather Conditions:	Overcast
Temperature:	50-70
Wind:	Moderate
Humidity:	Moderate

Technical PM: Phil Werner
Project: RVAAP Site Inspection
Project No.: 4100-993
Report No.: 3
Date: 10/03/2007

e²M Personnel: Phil Werner, Courtney Van Tassell, Kim Hawkins
Visitors Present:
Subcontractor Personnel: Steve Burhans, Gary Storrs (Malcolm Pirnie UXO)
Work Performed/Sampling Activities: At 0830, e²M* and subcontractor personnel mobilized to the Ramsdell Quarry Landfill MRS. Using hand-held GPS and MRS maps and aerial photographs, the meandering path magnetometer and metal detector survey was conducted of the old OB/OD area in the quarry and within the remaining area of the southern quarry area. A line abreast survey was conducted for the open northeastern section of the southern quarry area. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. Four items of munitions debris were found throughout the MRS. GPS coordinates for items found were recorded in the field journal as well as on the GPS unit. MI samples were taken at the four distinct areas designated. Kim Hawkins and Courtney Van Tassell collected the MI soil samples using a decontaminated step probe for each MI area. Individual samples were placed into a large bowl for homogenization. Debris and grass from the soil surface were removed to the greatest extent possible. Each sample was placed into an individual Ziploc bag. Samples named RVAAP-RQL-MC1, -MC2, -MC3, and -MC4. At approximately 1230, e²M* and Malcolm Pirnie personnel mobilized to the Load Line #1 MRS. Using hand-held GPS and MRS maps and aerial photographs, the meandering path UXO survey around the buildings and popping furnace was conducted. While no MEC or munitions debris was found during the survey, three pieces of suspected triple base propellant were found to the east and west of the easternmost building. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. One MI sample was collected from the propellant location to the west of the easternmost building. Samples collected from this MRS were RVAAP-LL1-MC1 and the duplicate RVAAP-LL1-MC2. The GPS coordinates of the corners of the MI sampling area were recorded in the field journal and saved on the GPS unit. Surface soil samples were collected

using a decontaminated step probe, placed in a bowl, homogenized, and placed into two Ziploc bags provided by the laboratory.

At approximately 1430, e²M* and Malcolm Pirnie personnel mobilized to the Firestone Test Facility MRS. Using hand-held GPS and MRS maps and aerial photographs, a line abreast UXO survey was conducted around the former test chambers and at the open field in the eastern end of the MRS. A meandering path UXO survey was also conducted around the pond area. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. No MEC or munitions debris items were discovered during the survey. One MI sample and a duplicate were taken from the designated distinct area in the open field.

Kim Hawkins collected the MI surface soil samples using decontaminated step probes and placed the samples into large bowls for homogenization. Debris and grass were removed and each sample was placed into a Ziploc bag provided by the laboratory. Samples RVAAP-FTF-MC1 and the duplicate sample RVAAP-FTF-MC2.

After all samples were collected, they were bagged and placed into a cooler and covered with ice in Ziploc bags. The chain of custody was filled out, placed in ziploc and taped to inside of cooler. Two coolers were picked up by the TestAmerica courier, one with 9 samples from 4 MRS locations and one with 8 samples from 3 MRS locations. Split samples for QA were sent to Kemron Laboratories by TestAmerica.

Quality Control Activities (including field calibrations): No field equipment was used which required calibrations. Prior to each sample being collected, a new set of gloves were donned and a decontaminated step probe was used to prevent cross contamination. Two duplicate samples were taken, one at Load Line #1 MRS and one at Firestone Test Facility MRS.

Health and Safety Levels and Activities: Modified D PPE level was enforced. Disposable latex gloves were used to prevent contact and cross contamination of suspected contamination. Boots, pants and a long-sleeve shirt were necessary to protect against briar bushes, Poison Ivy, and other natural hazards.

Problems Encountered/Corrective Actions Taken: None

Downtime/Standby: None

Special Notes: None

By Courtney Van Tassell Title Environmental Scientist

e²M DAILY QUALITY CONTROL REPORT

Day of Week:	Thursday
Weather Conditions:	Clear
Temperature:	70-85
Wind:	Still
Humidity:	Dry

Technical PM: Phil Werner
Project: RVAAP Site Inspection
Project No.: 4100-993
Report No.: 4
Date: 10/04/2007

e²M Personnel: Phil Werner, Courtney Van Tassell, Kim Hawkins
Visitors Present:
Subcontractor Personnel: Steve Burhans, Gary Storrs (Malcolm Pirnie UXO)
Work Performed/Sampling Activities: At 0830, e²M* and subcontractor personnel mobilized to the 40mm Firing Range MRS. Using hand-held GPS and MRS maps and aerial photographs, a meandering path magnetometer and metal detector survey was conducted of the down range target area, overshot area, and firing point. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. Suspect MEC items (parts of 40mm shells) were found in the overshot area. At approximately 1030, e²M* and subcontractor personnel mobilized to the Fuze and Booster Quarry MRS. Using hand-held GPS and MRS maps and aerial photographs, a meandering path UXO survey was conducted of the banks and surrounding areas at all three ponds. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. Munitions debris was observed in the water on the southeast side of the southern pond. At approximately 1230, e²M* and Malcolm Pirnie personnel mobilized to the Sand Creek Dump MRS. Using hand-held GPS and MRS maps and aerial photographs, a meandering path UXO survey was conducted of all open areas and the dump area. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. No MEC or munitions debris was observed at this MRS. At approximately 1330, e²M* and subcontractor personnel mobilized to the Demolition Area #2 MRS. Hand-held GPS and MRS maps and aerial photographs were used to conduct a meandering path UXO survey of the Bomb Disposal Area, Burial Sites 1 and 2, Rocket Ridge, and associated surrounding areas. GPS coordinates of the paths were recorded by Malcolm Pirnie on a GPS unit. Suspect MEC and munitions debris were found at multiple locations throughout the MRS, and a very large quantity of MEC was observed at Rocket Ridge.

Quality Control Activities (including field calibrations): No field equipment was used which required calibrations.
Health and Safety Levels and Activities: Modified D PPE level was enforced. Boots, pants and a long-sleeve shirt were necessary to protect against briar bushes, Poison Ivy, and other natural hazards.
Problems Encountered/Corrective Actions Taken: None
Downtime/Standby: None
Special Notes: None

By Courtney Van Tassell Title Environmental Scientist

e²M DAILY QUALITY CONTROL REPORT

Day of Week:	Friday
Weather Conditions:	Clear
Temperature:	70-85
Wind:	Still
Humidity:	Dry

Technical PM: Phil Werner
Project: RVAAP Site Inspection
Project No.: 4100-993
Report No.: 5
Date: 10/05/2007

e²M Personnel: Phil Werner, Courtney Van Tassell, Kim Hawkins
Visitors Present: Todd Fisher (OEPA)
Subcontractor Personnel: Steve Burhans, Gary Storrs (Malcolm Pirnie UXO)
Work Performed/Sampling Activities: At 0830, e²M* and subcontractor personnel met at RVAAP to caravan to the first resident's home in the Block D Igloo-TD MRS. At approximately 0900, e²M* and Malcolm Pirnie personnel arrived at the Smith property in the Block D Igloo-TD MRS. Using hand-held GPS and MRS maps and aerial photographs, a meandering path magnetometer and metal detector survey was conducted in the open field adjacent to RVAAP property, where MEC or munitions debris would be expected. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. No MEC or munitions debris was observed during the survey. One composite surface soil sample and a duplicate were collected from the center of the open field. e²M* and Malcolm Pirnie personnel were joined by Todd Fisher of OEPA while conducting activities at the Smith property. Kim Hawkins collected the composite soil sample using a plastic scoop and placed the aliquots into a large bowl for homogenization. Debris and grass from the soil surface were removed to the greatest extent possible. Enough soil was collected into the bowl and homegenized in order to fill the Ziploc bag for the sample and duplicate sample. GPS coordinates were recorded in the field journal as well as on the GPS unit. Samples named RVAAP-SMITH-SS-1 and duplicate RVAAP-SMITH-SS-2. At approximately 1000, e²M*, Malcolm Pirnie, and OEPA personnel mobilized to the Nirosky residence. Hand-held GPS, maps, and aerial photographs were used to conduct a meandering path UXO survey of the property. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. No suspect MEC or munitions debris was found during the survey. At approximately 1100, e²M*, Malcolm Pirnie, and OEPA personnel mobilized to the Dietz property. Hand-held GPS, maps, and aerial photographs were used to conduct a meandering path UXO survey of open areas on the property. GPS coordinates of the path were recorded by

Malcolm Pirnie on a GPS unit. No MEC or munitions debris was observed during the survey. One composite surface soil sample was collected from an open area of the property, behind Mr. Dietz's gardening area.

Kim Hawkins collected the composite soil sample using a plastic scoop and placed the aliquots into a large bowl for homogenization. Debris and grass from the soil surface were removed to the greatest extent possible. Enough soil was collected to fill a Ziploc bag provided by the laboratory. GPS coordinates were recorded in the field journal as well as on the GPS unit. Sample named RVAAP-DEETS-SS-1.

At approximately 1230, e²M* and Malcolm Pirnie personnel proceeded to the Howe residence. Hand-held GPS, maps, and aerial photographs were used to conduct a meandering path UXO survey of the property. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. No suspect MEC or munitions debris was found during the survey.

At approximately 1330, e²M* and Malcolm Pirnie personnel mobilized to the Janecek residence. Hand-held GPS, maps, and aerial photographs were used to conduct a meandering path UXO survey of the property. GPS coordinates of the path were recorded by Malcolm Pirnie on a GPS unit. No suspect MEC or munitions debris was found during the survey.

After all samples were collected, they were bagged and placed into a cooler and covered with ice in Ziploc bags. The chain of custody was filled out, placed in a Ziploc and taped to the inside of the cooler. One cooler was picked up by the TestAmerica courier with 3 samples taken from the 5 residences of the Block D Igloo-TD MRS.

Quality Control Activities (including field calibrations): No field equipment was used which required calibrations. Prior to each sample being collected, a new set of gloves were donned and a new plastic scoop was used to prevent cross contamination. One duplicate sample was taken at the Smith residence.

Health and Safety Levels and Activities: Modified D PPE level was enforced. Disposable latex gloves were used to prevent contact and cross contamination of suspected contamination. Boots, pants and a long-sleeve shirt were necessary to protect against briar bushes, Poison Ivy, and other natural hazards.

Problems Encountered/Corrective Actions Taken: None

Downtime/Standby: None

Special Notes: None

By Courtney Van Tassell Title Environmental Scientist

Daily Quality Control Report

Date: October 8, 2007

Project Information	
Technical Project Manager:	Phil Werner
Project:	Ravenna Army Ammunition Plant
Project Number:	400-993-01-01
Environmental Conditions	
Weather Conditions (Bright Sun, Clear, Overcast, Rain, Snow):	Clear
Temperature:	80s
Wind (Still, Moderate, High):	Still to Moderate
Humidity (Dry, Moderate, Humid):	Moderate
Personnel (include title and affiliation)	
e²M Personnel:	Kim Hawkins, Devin Scherer
Visitors Present:	
Subcontractor Personnel:	Steve Burhans, Gary Storrs (Malcom Pirnie)
Others:	
Work Performed	

Verbal and Written Instructions:

work plan

Work Performed/Sampling Activities (include location, type of samples, depth, etc.):

Meandering Path magnetometer survey of Erie Burning Grounds, Atlas Scrap Yard, Anchor Test Area, Building F (South)

Types of Tests Performed/Samples Collected/ and Personnel Involved:

Soil samples were not collected.

Visual & magnetometer-assisted UXO surveys

10/8/07

Quality Control Activities (including field calibrations):

S. Burhans & G. Storrs.
performed field checks of magnetometers prior to each MRS & throughout each MRS.

Problems Encountered/Corrective Actions Taken (include specifics regarding sampling problems and alternate sampling methods utilized):

None

Deviations from the Work Plan:

Atlas Scrap Yard - Extensive large piles of building rubble in southern portion, performed somewhat meandering UXO survey instead of line-abreast

Health and Safety Levels and Activities:

All field Activities performed in ~~Level~~ Modified Level D.

Equipment Used and Maintenance Performed:

Schonstedt magnetometer & White Matrix MG magnetometer. -each was function-checked prior to entering each MRS. & checked throughout each MRS survey

General observations and Special Remarks:

Should finish UXO surveys 10/9/07.
Need to speak w/ Katie Elginas. location of lead line is area of concern

Preparer: Kimberly A. Hawkins

Signature:

Kimberly A Hawkins

Daily Quality Control Report

Date: 10/9/07

Project Information	
Technical Project Manager:	Phil Werner
Project:	Ravenna Army Ammunition Plant
Project Number:	4100-993-0201
Environmental Conditions	
Weather Conditions (Bright Sun, Clear, Overcast, Rain, Snow):	Overcast ~~some~~
Temperature:	low 70s
Wind (Still, Moderate, High):	Moderate
Humidity (Dry, Moderate, Humid):	Moderate
Personnel (include title and affiliation)	
e²M Personnel:	Kim Hawkins, Devin Sherer
Visitors Present:	Eileen Mohr.
Subcontractor Personnel:	Steve Burhans, ~~Steve~~, Gary Sivers (Malcom Pirnie)
Others:	
~~Steve~~	
Work Performed	

Verbal and Written Instructions:

Phil Werner requested that we return to Erie Burning Grounds to look for previously observed debris

Work Performed/Sampling Activities (include location, type of samples, depth, etc.):

Returned to Erie Burning Grounds, magnetometer assisted UXO Survey looking for ~~the~~ previously photographed items. Performed magnetometer assisted UXO ~~survey~~ survey at Load line 12, Building # F- (North) Discuss Load line 1 activities performed by Shaw

Types of Tests Performed/Samples Collected/ and Personnel Involved:

Soil samples were not collected

Visual & magnetometer-assisted UXO surveys

10/9/07

Quality Control Activities (including field calibrations):
Steve Burhans + Gary Storrs performed field "function" tests of magnetometers prior to each MRS + throughout each MRS survey

Problems Encountered/Corrective Actions Taken (include specifics regarding sampling problems and alternate sampling methods utilized):

None

Deviations from the Work Plan:
Heavy undergrowth, trees + shrubs in UXO survey area, performed modified line-abreast survey.

Health and Safety Levels and Activities:

Modified Level D

Equipment Used and Maintenance Performed:
Schonstedt + White Matrix magnetometers.
- each was function checked prior to entry of each MRS + throughout MRS survey

General observations and Special Remarks:
Tim provided location of Load Line 12 area of concern.

Preparer: Kimberly A. Hawkins

Signature: Kimberly A Hawkins

Daily Quality Control Report

Date: 10/10/07

Project Information	
Technical Project Manager:	Phil Werner
Project:	Ravenna Army Ammunition Plant
Project Number:	4100-993-01-01
Environmental Conditions	
Weather Conditions (Bright Sun, Clear, Overcast, Rain, Snow):	Overcast, some rain
Temperature:	60
Wind (Still, Moderate, High):	Moderate
Humidity (Dry, Moderate, Humid):	Moderate
Personnel (include title and affiliation)	
e²M Personnel:	Kim Hawkins, Devin Scherer
Visitors Present:	none
Subcontractor Personnel:	none
Others:	none
Work Performed	

Verbal and Written Instructions:

Workplan

Work Performed/Sampling Activities (include location, type of samples, depth, etc.):

Pickup maps from RVAAP made copies in Ravenna. Photos of site except Demo Area 2 & Landfill N. of Winkelpeck. Clean up site/office, Discuss IDW liquid w/ OHEPA & RVAAP Demob. Contact Major Meade re. conval maps.

Types of Tests Performed/Samples Collected/ and Personnel Involved:

None

10/10/07

Quality Control Activities (including field calibrations):

None

Problems Encountered/Corrective Actions Taken (include specifics regarding sampling problems and alternate sampling methods utilized):

None

Deviations from the Work Plan:

None

Health and Safety Levels and Activities:

Modified Level D

Equipment Used and Maintenance Performed:

Trimble

General observations and Special Remarks:

None

Preparer: Kimberly A. Hawkins

Signature:

RVAAP FIELD NOTES

Landfill North of Winklepeck

- Munitions debris (105mm projectile empty of energetic material) in trees SW of MRS, outside the MRS footprint at the George Road wooded area, photo in MP pics (DSCF0696-DSCF0698).
- Munitions debris (two pieces of fragmented casing from an undistinguishable munition – projectile based on striations on the casing – void of energetic material) in trees near creek in SE portion of MRS, photo in MP pics (DSCF0699-DSCF0701).
- Munitions debris (empty flare canisters – carrying sleeves for pyrotechnic) on upper creek bank at NW portion of MRS, photo in MP pics (DSCF0702-DSCF0706).
- Composite surface soil sample RVAAP-LNWBG-SS-1 collected using CRREL seven-wheel method upgradient of empty canisters on the slope leading down to the creek and the marshy creek bank.
- Moderate amount of subsurface hits likely cultural artifacts based on observed metal debris and detections primarily from the metal detector (not magnetometer).
- No booster cups found, as reported.

Water Works # 4

- 6 – 10 subsurface hits in the open field with Schonstedt and White, each with a GPS point. Area was somewhat raised, suggesting possible presence of fill material.
- Metal debris, rebar, and metal sheeting on SE edge of open area.
- Collected a 7-wheel composite surface soil sample RVAAP-WW4-SS-1 and duplicate sample RVAAP-WW4-SS-2 from the vicinity of one of the subsurface hits.
- Phil & Eileen were in the woods W of open area and there are pics from MP with munitions debris, empty ogives (containing no energetic material) (DSCF0716-DSCF0722). Twenty or so found scattered indiscriminately around the woods along the eastern perimeter of the open area. Broken large clay pots scattered throughout wooded area. Origin and use could not be determined, but they were empty of material and surrounding area did not appear impacted.

Block D Igloo

- No MEC or munitions debris within the actual footprint of the igloo or within 100 feet of the perimeter. Moderate amount of subsurface hits within the footprint.
- Collected 7-wheel composite surface soil sample RVAAP-BDI-SS-1 from within the footprint.
- Inside of former igloo was overgrown with trees and shrubs and apparently used by deer as a bedding area. Area surrounding the igloo (~100 feet) was maintained through mowing but was since overgrown with emergent weeds.
- No evidence of MEC or munitions debris in any of the debris field areas (DL1 to DL4).
- Debris location near NE corner of Block E igloos: no MEC or munitions debris, some subsurface hits.
- Debris location north of Block E igloos, along railroad track: no MEC or munitions debris, some subsurface hits.
- Debris location in Block E, some subsurface hits, no visible MEC or debris.
- Subsurface hits in these areas appear to be from cultural artifacts, debris from removal of surrounding railroad and roadways.

Block D Igloo - TD

- Smith property (off Installation): no visible MEC or munitions debris, very few subsurface hits. Collected 7-wheel composite surface soil sample RVAAP-SMITH-SS-1 and duplicate sample RVAAP-SMITH-SS-2 in southern field. Owner reported that fields were turned every three years or so and have never found any items or heard any stories from family members (property has been in the family several generations).
- Nirosky property (off Installation): no visible MEC or munitions debris, very few subsurface hits. Homeowner reported having not observed any debris during ownership. Property was purchased approximately 3 years ago and owner cleared the area of much of metallic debris from previous use as junkyard. Owner had two large gardens (~0.5 acres) tilled annually where no munitions debris was found.
- Dietz property (off Installation): no visible MEC or munitions debris, very few subsurface hits. Property was a former sportsman's club and now consists of Mr. Dietz's garden and a cell tower. Collected 7-wheel composite surface soil sample RVAAP-DEETS-SS-1**.**
- Howe property (off Installation): no visible MEC or munitions debris, very few subsurface hits. Owner appeared to run a dog kennel.
- Jablonsky property (off Installation): no visible MEC or munitions debris, very few subsurface hits. Owner (former RVAAP employee) reported no observations of debris during 30 or so years of ownership.

Group 8 MRS

- Extensive subsurface hits throughout the MRS.
- MC3 and MC4 areas apparently bulldozed so metal debris smashed into soil. Areas littered with munitions debris.
- MC3 area contained fuzes. Items are potentially MEC as could not be determined if inert.
- MC2 area littered with metal debris, wood, and fencing trash. Some munitions debris.
- MC1 and MC5 areas clear of visible debris and very few subsurface hits.
- Collected five MI samples RVAAP-GR8-MC1 through RVAAP-GR8-MC5.

Ramsdell Quarry Landfill

- Some large caliber munitions debris (casings) and moderate amount of subsurface hits around the pond on northern portion of MRS.
- Fairly large caliber munitions debris (2 casings) empty of energetic material near railroad track N side of MC4. Location GPS'd and photos taken by MP (DSCF0740-DSCF0742).
- Munitions debris in northern portion of MC2, again close to RR.
- Munitions debris consisting of ceremonial 105mm shot round on E side of MC1, in bank of quarry pit. GPS location. MP photos (DSCF0743-DSCF0745).
- Some subsurface hits in woods of MC2, MC3 and MC4. Few subsurface hits in quarry pit of MC1. Likely insignificant due to lack of soil in quarry pit – basically bedrock.
- MI samples at each of the four (4) MC areas. Samples RVAAP-RQL-MC1 through RVAAP-RQL-MC4.

Load Line 1

- Three (3) propellant grains, one (1) on west side of Building CB-14 (eastern building), two (2) along railroad track on east side of CB-14. Photos (DSCF0746-DSCF0752).
- Evidence of removal of soil on western side of building.
- MI sample along west side of Building CB-14. Samples RVAAP-LL1-MC1 and duplicate sample RVAAP-LL1-MC2.
- Shaw doing work at MRS. Reported removing a fairly large quantity of propellant from SSE side of western building. They believed that propellant had been thrown out of southern windows of building.

Firestone Test Facility

- Few subsurface hits in MC1 area. No visible MEC or munitions debris. MC1 area littered with wood, concrete, and metal debris from former small building (shack).
- MI sample and duplicate in MC1 area. Samples RVAAP-FTF-MC1 and RVAAP-FTF-MC2.
- Remainder of MRS: no visible MEC or munitions debris, but many subsurface hits with White and Schonstedt. Area heavily overgrown.
- Location of Test Area Two is incorrect on map. New location should be just south of previously marked location.

40 mm Firing Range

- Moderate amount of subsurface hits.
- Inert 40mm aluminum caps and casings (munitions debris) at west side of range, downrange beyond target points. Found on downhill side of slope leading to the Fuze and Booster Quarry. Extended from top to approximately 200 feet down. Photos (DSCF0760-DSCF0761).
- No MEC or munitions debris along range floor or at firing points. No hits on White or Schonstedt. Range floor heavily overgrown with tall grasses and trees/shrubs.

Fuze and Booster Quarry

- South Pond- subsurface hits along south and east sides of pond. No visible MEC but munitions debris found on SE side of southern pond. No visible MEC or munitions debris in pond.
- Central Pond – some subsurface hits, mainly on E side. No visible MEC or munitions debris in or around pond.
- North Pond – some subsurface hits, mainly on E and N side. No visible MEC or munitions debris in or around pond.

Demo Area 2

- Burial area in south-central portion of MRS: Visible possible MEC observed in western portion of area, photos (DSCF0770-DSCF0771). Possible MEC was buried fuze.
- Visible munitions debris in southwestern area.
- MEC north of Rocket Ridge across the creek leading up the hill consisting of 40mm rounds with intact primers. Most likely the result of kick-out from the detonation area.
- Northeast portion of MRS: munitions debris including empty 40mm rounds and remnants of donor charge bags. Most likely the result of kick-out from the detonation area.

- Northwest portion of MRS: MEC consisting of a buried fuze. Location is outside current MRS footprint.
- Southwest portion of MRS: near creek and in the wooded area found metal debris – threaded end caps – not munitions related.

Sand Creek Dump

- No visible MEC or munitions debris. Some metal piping in creek bottom suggesting presence of metal debris.
- Very few subsurface hits.
- No other observations on banks of creek.

Load Line 12

- No visible MEC or munitions debris. Very few subsurface hits.

Erie Burning Grounds

- Meandering paths on NW and central portion of MRS as seen on the Field Sampling Plan, some subsurface hits. No visible MEC or munitions debris. Some metal debris, but it appeared to be associated with the railroad.
- SW meandering path as seen in the Field Sampling Plan, some subsurface hits. There was an area of metal debris in NW corner of this area with a possible MEC item - partially buried shell casing. The rest of the metal debris appeared to be railroad related.

Atlas Scrap Yard

- No visible MEC or munitions debris.
- Quite a bit of subsurface hits at northern three (3) meandering areas as seen on the Field Sampling Plan.
- Fewer subsurface hits, but still some, in southern portion of MRS. Area of line-abreast had quite a bit of large building debris, so access was somewhat limited.

Anchor Test Area

- No visible MEC or munitions debris. Small number of subsurface hits.

Building F-15 and F-16

- No visible MEC or munitions debris.
- At south building, some subsurface hits, especially around building and near railroad tracks to east. Few subsurface hits in woods to the north.
- At north building, some subsurface hits, especially around building and near railroad tracks to east. Few subsurface hits in woods to north and south. Limited access to south due to brambles.

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
e2M	Phil Werner	10/2/07	371321
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
2751 Prosperity Ave. Ste. 200	(301) 831-0344		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Fairfax / VA / 22031	Phil Werner		
Project Name and Location (State)	**Carrier/Waybill Number**		
RVAAP Ravenna, Ohio			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: TAL Metals	Explosives	Propellants	Special Instructions/ Conditions of Receipt
RVAAP-LNWBG-SS-1	10/1/07	1536				X							X	X	X	
RVAAP-GR8-MC4	10/2/07	1530				X							X	X	X	
RVAAP-LOW4-SS-1	10/1/07	1752				X							X	X	X	
RVAAP-LOW4-SS-2	10/1/07	1752				X							X	X	X	
RVAAP-BDI-SS-1	10/2/07	0840				X							X	X		
RVAAP-GR8-MC5	10/2/07	1544				X							X	X	X	
RVAAP-GR8-MC3	10/2/07	1512				X							X	X	X	
RVAAP-GR8-MC2	10/2/07	1612				X							X	X	X	
RVAAP-GR8-MC1	10/2/07	1640				X							X	X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/2/07	16:53	1. Received By Rick Robison	10-2-07	1700
2. Relinquished By Rick Robison	10-2-07	1800	2. Received By Matt Jenn TAL/NC	3 OCT 2007	0730
3. Relinquished By			3. Received By		

Comments
1 SEAL REMOVED (FRONT) BY COURIER

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
c2M	Phil Werner	10/3/07	371309
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
2751 Prosperity Ave. Ste. 200	(301) 831-0344		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Fairfax / VA / 22031	Phil Werner		
Project Name and Location (State)	**Carrier/Waybill Number**		
RVAAP Ravenna, Ohio			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: TAL Metals	Explosives	Propellants	Special Instructions/ Conditions of Receipt
RVAAP-RQL-MC1	10/3/07	1146				X							X	X	X	
RVAAP-RQL-MC2	10/3/07	1038				X							X	X	X	
RVAAP-RQL-MC3	10/3/07	1020				X							X	X	X	
RVAAP-RQL-MC4	10/3/07	0954				X							X	X	X	
RVAAP-LL1-MC1	10/3/07	1310				X							X	X	X	
RVAAP-LL1-MC2	10/3/07	1330				X							X	X	X	
RVAAP-FTF-MC1	10/3/07	1505				X							X	X	X	
RVAAP-FTF-MC2	10/3/07	1519				X							X	X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other Normal

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/3/07	1540	1. Received By: Rick Robison	10-3-07	1557
2. Relinquished By: Rick Robison	10-3-07	1640	2. Received By	10/03/07	1640
3. Relinquished By			3. Received By		

Comments
FRONT SEAL REMOVED BY COURIER ✓

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

Client: e2M	Project Manager: Phil Werner	Date: 10/5/07	Chain of Custody Number: 371310
Address: 2751 Prosperity Ave Ste 200	Telephone Number (Area Code)/Fax Number: (703) 752-7755	Lab Number:	Page 1 of 1
City: Fairfax / State: VA / Zip Code: 22031	Site Contact: Phil Werner	Lab Contact:	Analysis (Attach list if more space is needed)
Project Name and Location (State): RVAAP Ravenna, OH	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	TAL Metals	Explosives	Special Instructions/ Conditions of Receipt
RVAAP-SMITH-SS-1	10/5/07	0942				X							X	X	
RVAAP-SMITH-SS-2	10/5/07	0942				X							X	X	
RVAAP-DEETS-SS-1	10/5/07	1145				X							X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other normal

QC Requirements (Specify)

1. Relinquished By: Cindy Wall	Date: 10/5/07	Time: 1500	1. Received By: Rick Robison	Date: 10-5-07	Time: 1615
2. Relinquished By: Rick Robison	Date: 10-5-07	Time: 1738	2. Received By: Matt Jent TAL/NC	Date: 6 OCT 2007	Time: 0800
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton



Figure 1. Ramsdell Quarry Landfill MRS – Southern Quarry Area



Figure 2. Ramsdell Quarry Landfill MRS – Northern Quarry Area



Figure 3. Ramsdell Quarry Landfill MRS Munitions Debris – Empty Large Casing



Figure 4. Ramsdell Quarry Landfill MRS Munitions Debris – Empty Ceremonial 105mm Round



Figure 5. Erie Burning Grounds MRS



Figure 6. Erie Burning Grounds MRS MEC – Possible Large Casing



Figure 7. Demolition Area #2 MRS MEC – Buried Fuze



Figure 8. Demolition Area #2 MRS MEC – Buried Fuze



Figure 9. Demolition Area #2 MRS MEC – 40mm Round With Intact Primer



Figure 10. Load Line #1 MRS



Figure 11. Load Line #1 MRS – Suspected Triple Base Propellant Grain



Figure 12. Load Line #12 MRS



Figure 13. Fuze and Booster Quarry MRS – Southern Pond



Figure 14. Fuze and Booster Quarry MRS – Central Pond



Figure 35. Fuze and Booster Quarry MRS – Northern Pond



Figure 16. Landfill North of Winklepeck MRS – UXO Surveying



Figure 47. Landfill North of Winklepeck MRS Munitions Debris in SW



Figure 18. Landfill North of Winklepeck MRS Munitions Debris – Empty Flare Canisters



Figure 19. Wooded Area Off of George Road Munitions Debris – Empty 105mm Projectile



Figure 20. 40mm Firing Range MRS



Figure 21. 40mm Firing Range MRS Munitions Debris – 40mm Caps



Figure 22. Firestone Test Facility MRS



Figure 23. Sand Creek Dump MRS



Figure 24. Building #F-15 and F-16 MRS – Building F-15



Figure 25. Building #F-15 and F-16 MRS – Building F-16



Figure 26. Anchor Test Area MRS



Figure 27. Atlas Scrap Yard MRS



Figure 28. Atlas Scrap Yard MRS – Debris Piles



Figure 29. Block D Igloo MRS – Former Igloo Location



Figure 30. Block D Igloo MRS – Composite Surface Soil Sampling



Figure 31. Block D Igloo MRS – Reported Debris Location Surveyed



Figure 32. Block D Igloo MRS – Reported Debris Location Surveyed



Figure 33. Water Works #4 Dump MRS – Open Northeastern Section



Figure 34. Water Works #4 Dump MRS – UXO Surveying in Open Northeastern Section



Figure 35. Water Works #4 Dump MRS – ogive in Wooded Area



Figure 36. Group 8 MRS



Figure 37. Group 8 MRS – UXO Surveying



Figure 38. Group 8 MRS – MI Surface Soil Sampling

MRS	HRR Acreage	SI Acreage	Recommendation	Primary MEC	Primary MC	MRS-PP Scores			
						EHE	CHE	HHE	Priority
Ramsdell Quarry Landfill (RVAAP-001-R-01)	13.43	13.43	Further Characterization. MC is present in the southern portion of the MRS and MEC is potentially present in the pond in the northern quarry area.	105mm projectile	Metals	5	NK	8	5
Erie Burning Grounds (RVAAP-002-R-01)	33.93	33.93	Further Characterization. MEC is potentially present buried and in flooded sections of the MRS. MC in wet sediments unknown.	Large Caliber projectile	Metals/ Explosives	3	NK	5	3
Open Demolition Area #2 (RVAAP-004-R-01)	32.95	35.4	Further Characterization. MEC is present at Bomb Disposal Area, Rocket Ridge, Burial Sites 1 & 2, and surrounding areas. Increase MRS footprint to include northwestern area where MEC was found.	Fuzes, 40mm primers, WP Grenades	IRP[1]	3	NK	NLR	3
Load Line #1 (RVAAP-008-R-01)	4.63	0.41	Further Characterization. MC and MECD are present at the MRS. Reduce MRS size to include only the area sampled.	None	Metals	5	NK	8	5

MRS	HRR Acreage	SI Acreage	Recommendation	Primary MEC	Primary MC	MRS-PP Scores			
						EHE	CHE	HHE	Priority
Load Line #12 (RVAAP-012-R-01)	1.0	1.0	No Further Action.	None	IRP[1]	NK	NK	NLR	NK
Fuze and Booster Quarry (RVAAP-016-R-01)	12.74	4.92	Further Characterization. MEC may be present at bottom of ponds. Decrease footprint of MRS to only include the three ponds.	Unknown	IRP[1]	5	NK	NLR	5
Landfill North of Winklepeck (RVAAP-019-R-01)	14.05	2.32	Further Characterization. MEC is potentially present and MC is present at the MRS. Decrease MRS footprint to only include area adjacent to the landfill.	Unknown	Metals	5	NK	6	5
40mm Firing Range (RVAAP-032-R-01)	5.17	1.27	Further Characterization. MEC is potentially present at MRS and MC is not fully known. Decrease MRS size to include only impact/target area and 100 ft beyond.	40mm grenades	Metals, Explosives	5	NK	NK	5
Firestone Test Facility (RVAAP-033-R-01)	0.91	0.41	Further Characterization. MEC is potentially present in pond and test chamber area. Decrease MRS footprint to only include these areas.	Shape Charges	Metals, Explosives	5	NK	NLR	5

MRS	HRR Acreage	SI Acreage	Recommendation	Primary MEC	Primary MC	MRS-PP Scores			
						EHE	CHE	HHE	Priority
Sand Creek Dump (RVAAP-034-R-01)	0.85	0.85	Further Action required to assess presence of buried MEC in the former dump.	Unknown	IRP[1]	4	NK	NLR	4
Building #F-15 and F-16 (RVAAP-046-R-01)	12.23	12.23	No Further Action.	None	IRP[1]	NK	NK	NLR	NK
Anchor Test Area (RVAAP-048-R-01)	2.57	2.57	No Further Action.	None	IRP[1]	NK	NK	NLR	NK
Atlas Scrap Yard (RVAAP-050-R-01)	66.04	66.04	Further Characterization. Subsurface anomalies may represent MEC.	Unknown	IRP[1]	3	NK	NLR	3
Block D Igloo (RVAAP-060-R-01)	622.24	340.2	Further Characterization. MEC may be present at areas not surveyed during the SI. Decrease MRS footprint to eliminate areas surveyed.	M-110 fuze M-41 Fragment-ation Bombs	Metals	5	NK	8	5
Block D Igloo–TD (RVAAP-061-R-01)	19.25	14.13	Further Characterization. MEC may be present in debris locations to the northeast.	Unknown	Metals	4	NK	8	4
Water Works #4 Dump (RVAAP-062-R-01)	6.15	0.77	Further Characterization. MEC may be present in the subsurface. Decrease MRS footprint to only include this section of the MRS.	Unknown	Metals	6	NK	8	6

MRS	HRR Acreage	SI Acreage	Recommendation	Primary MEC	Primary MC	MRS-PP Scores			
						EHE	CHE	HHE	Priority
Group 8 MRS (RVAAP-063-R-01)	2.65	2.65	Further Characterization. MEC and MC are present at the MRS. Decrease MRS to include only areas where potential MEC were discovered.	Fuzes	Metals	4	NK	4	4

[1] Site is collocated with an IRP AOC, which will address chemical contamination.

-/+ = decrease or increase of the MRS acreage.

NE = Not Evaluated.

NK = No Known or Suspected Hazards NLR = Evaluation No Longer Required, site covered under the IRP or no MC found

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Ramsdell Quarry Landfill **AEDB-R No.:** RVAAP-001-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The RQL MRS consists of two separate but contiguous parcels that total 13.43 acres. One parcel was used between 1946 and 1950 as a OB/OD area that treated waste explosives from Load Line #1 and performed surface burning of approximately 18,000, 500-pound (lb) incendiary or napalm bombs. Activities performed at the second parcel are not fully understood but installation personnel stated that munitions debris had been found in this area (SI Report, Section 4.1). During the SI field activities, several large caliber projectile casings (possibly 155mm) were found at the former OB/OD area, while empty and unfuzed 105mm projectiles were discovered at the second parcel. No MEC was discovered at the former OB/OD area, yet numerous subsurface anomalies were identified. No MEC was discovered at the second parcel and few subsurface anomalies were identified (SI Report, Section 6.1). At the former OB/OD area, MC is covered under the IRP and will not be addressed further under the MMRP. However, MC will be addressed under the MMRP at the second parcel which contained concentrations of lead and thallium over Region 9 Residential Preliminary Remediation Goals.

Description of Pathways for Human and Ecological Receptors: Adequate historical data determining the presence of MEC and MC exists for the MRS, thus, there are surface and subsurface pathways for human receptors.

Description of Receptors (Human and Ecological): The human receptors include OHARNG and Contractor personnel.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There is historical evidence that munitions and munitions-related waste were burned at the former OB/OD area (Final HRR, Section 2.2). Munitions items demilitarized at the former OB/OD area disclosed in the HRR include 18,000 500-lb incendiary bombs. 155mm casings (empty/demil'd) were observed at the former OB/OD area, while numerous subsurface anomalies were recorded at the former OB/OD area.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**8**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS was used between 1946 and 1950 as an OB/OD area (Final HRR, Section 2.2).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

There is no physical evidence of MEC at the MRS; however, munitions debris (155mm casings) was observed at the former OB/OD area (SI Report, Section 6.1.1).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR, Section 5.3 and SI, Section 4.1).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG (Final HRR, Section 5.3.1.1).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are approximately 320 residences located within a 2-mile radius of the MRS. The residences are located to the north in the Township of Windham (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are approximately 320 residences located within a 2-mile radius of the MRS. The residences are located to the north in the Township of Windham (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Wetland habitat is located in the bottom of the former OB/OD area (Final HRR, Section 5.3.1.4 & Section 5.3.2).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	33
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**69**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	**G**
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
		Total from Table 27	
		Sum The Ratios	

CHF Scale	CHF Value
CHF > 100	**H (High)**
100 > CHF > 2	**M (Medium)**
2 > CHF	**L (Low)**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

MRS is collocated with an IRP site which is addressing groundwater, surface water, and sediment issues.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

MRS is collocated with an IRP site which is addressing groundwater, surface water, and sediment issues.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

MRS is collocated with an IRP site which is addressing groundwater, surface water, and sediment issues.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

MRS is collocated with an IRP site which is addressing groundwater, surface water, and sediment issues.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

MRS is collocated with an IRP site which is addressing groundwater, surface water, and sediment issues.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Lead	40.9	400	0.1022
Thallium	2.4	N/A	0
		Total from Table 27	0
		Sum the Ratios	0.1022

CHF Scale	CHF Value
CHF > 100	**H (High)**
100 > CHF > 2	**M (Medium)**
2 > CHF	**L (Low)**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Surface soils were evaluated in the separate southern area of the MRS, since this portion is outside the IRP footprint. The "low" migratory and receptor factors were selected based on the physical conditions (topography, vegetative cover, etc.) at the site and distance from potential receptors.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	**L**	**L**	**L**		**LLL**		**G**

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**G**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Erie Burning Grounds **AEDB-R No.:** RVAAP-002-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	☒ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
☒ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 3

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

Erie Burning Grounds is an undeveloped wetland area that covers 33.93 acres located on the northeastern corner of the facility next to the Portage/Trumbull County line. The MRS operated between 1941 and 1951 and was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (e.g., railcars) through open burning on the ground surface. There were four separate burn areas located at the MRS. Prior to its acquisition by the US Army in 1940, the area may have been used for brick manufacturing (SI Report, Section 4.2). During the SI field activities, several metallic items were observed possibly representing munitions debris. One partially uncovered projectile was observed that possibly could represent MEC (SI Report, Section 6.2). MC is covered under the IRP and will not be addressed under the MMRP. However, dry sediments requirement assessment and will be addressed under the MMRP. Therefore, existing IRP analytical data was used to populate the HHE Module sediment data element tables.

Description of Pathways for Human and Ecological Receptors: Adequate historical data determining the presence of MEC and MC exists for the MRS, thus, there are both Human and Ecological Receptor pathways.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There is historical evidence that munitions and munitions-related waste were burned at the four former OB/OD areas (Final HRR, Section 2.2). Munitions debris and possible partially buried MEC items (type unidentifiable) were observed at the MRS during the SI field activities (SI Report, Section 6.2).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**8**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS operated between 1941 and 1951 and was used to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (e.g., railcars) through open burning at four OB/OD areas (Final HRR, Section 2.2).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Potentially buried MEC (type unidentifiable) was observed by the UXO technicians during the SI field activities (SI Report, Section 6.2.1).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR, Section 5.4 and SI Report, Section 4.2).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The EBG has been transferred to the OHARNG (Final HRR, Section 5.4.1).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are approximately 220 residences and OHARNG office buildings located within a 2-mile radius of the MRS. The residences are located to the northwest in the Township of Windham and the OHARNG office buildings are located to the southeast (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are approximately 220 residences located within a 2-mile radius of the MRS. The residences are located to the northwest in the Township of Windham (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

The majority of the MRS is open water and wetlands (Final HRR, Section 5.4.1.4 & Section 5.4.2).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	33
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**84**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	**B**
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	**G**
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**B**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination in groundwater is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination in surface water is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
HMX	0.19	3,100	0.00006
Nitrobenzene	0.092	20	0.005
Aluminum	21,000	76,000	0.3
Antimony	1.0	31	0.03
Arsenic	9.4	22	0.4
CHF Scale	**CHF Value**	**Total from Table 27**	0.49
		Sum The Ratios	1.23
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Migratory pathway and receptor pathway factors were based on information presented in the Phase II Remedial Investigation Report For Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant, Ravenna, Ohio, September. MC in wet sediments will be covered under the MMRP	No known or suspected Sediment (Human Endpoint) MC Hazard	

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination in surface water is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
HMX	0.19	0.0047	40
Nitrobenzene	0.092	0.145	0.63
Aluminum	21,000	14,000	1.5
Antimony	1.0	2.0	0.5
Arsenic	9.4	9.8	0.96
CHF Scale	**CHF Value**	**Total from Table 27**	3.694
		Sum the Ratios	47.284
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**M**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**M**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	**M**
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**M**

Migratory pathway and receptor pathway factors were based on information presented in the Phase II Remedial Investigation Report For Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant, Ravenna, Ohio, September 2005	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface soil was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination in surface soil is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio
Sediment	Beryllium	0.76	NA[1]/150[2]	0[1]/0.005[2]
Sediment	Cobalt	7.2	50[1]/1,400[2]	0.144[1]/0.005[2]
Sediment	Copper	55.5	31.6[1]/3,100[2]	1.76[1]/0.02[2]
Sediment	Lead	36	35.8[1]/400[2]	1.0[1]/0.09[2]
Sediment	Nickel	18.1	22.7[1]/1,600[2]	0.79[1]/0.01[2]
Sediment	Vanadium	27.9	NA[1]/78[2]	0[1]/0.36[2]

[1] Sediment – Ecological Endpoint Data Values

[2] Sediment –Human Endpoint Data Values

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	**L**	**L**	**L**	**LLL**	**G**
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	**M**	**M**	**M**	**MMM**	**D**
Surface Soil (Table 26)	NA	NA	NA	NA	NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**D**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	**3**	C	3	B	3
C	4	D	4	C	4
D	5	E	5	**D**	**5**
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**3**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Open Demolition Area #2 **AEDB-R No.:** RVAAP-004-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 3

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The MRS consists of 32.95 acres and was used between 1948 and 1991 to detonate large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized by any other means due to their condition. White phosphorus rifle grenades and 500-lb bombs have also been disposed of at the site. The MRS consists of the former demolition area (excluding the non-MMRP eligible interim RCRA unit); Burial Sites 1 and 2 where possible MEC may have been buried; Rocket Ridge area where rocket-propelled grenades and various other potential MEC items have been discarded on the ground surface and into Sand Creek; bomb disposal area located outside and adjacent to the northwestern section of the MRS; and the areas between the sites listed above (SI Report, Section 4.3). During the SI field activities, MEC (primers associated with 40mm grenades, T-bar fuzes, and other unidentifiable fuzes) was observed lying on the ground surface and partially buried at the MRS (SI Report, Section 6.3).

The MRS is collocated with an IRP AOC. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Adequate historical data and observations made during the SI field activities have determined that MEC is present at the MRS. As such, there are surface and subsurface exposure pathways for MEC. MC exposure pathways are being addressed under the IRP and will not be addressed under the MMRP.

Description of Receptors (Human and Ecological): There are OHARNG & Contractor personnel receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	**30**
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There is historical and physical evidence that MEC (white phosphorus rifle grenades, 40mm canisters with intact primers, and unidentified T-bar fuzes) at the MRS (SI Report, Section 6.3).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	**10**
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS was used between 1948 and 1991 to detonate large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized by any other means due to their condition (SI Report, Section 4.3). However, a portion of the MRS was used as a 40mm prototype test range (SI Report, Section 5.3); therefore, the higher score of 10 was assigned.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Observations made during the SI field activities determined that white phosphorus rifle grenades, 40mm casings with intact primers, and unidentified T-bar fuzes have been observed lying on the ground surface at the MRS (SI Report, Section 6.3).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR, Section 5.5 and SI Report, Section 4.3).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	**3**
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

ODA #2 is owned by DoD, but will be transferred to the EBG once remediation has been completed (Final HRR, Section 5.5.1). Date of transfer is tentatively scheduled for 2009 (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are approximately 30 residences located within a 2-mile radius of the MRS. The residences are located to the northwest in the Township of Windham (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are approximately 30 residences located within a 2-mile radius of the MRS. The residences are located to the northwest in the Township of Windham (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Sand Creek runs through the MRS. Sand Creek contains wetlands (Final HRR, Section 5.5.1.4 & Section 5.5.2).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**91**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	**B**
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	**G**
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**B**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with groundwater will be covered under the IRP and not addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with surface water will be covered under the IRP and not addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with sediment will be covered under the IRP and not addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with surface water will be covered under the IRP and not addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	**L**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with sediment will be covered under the IRP and not addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. All chemical contamination associated with surface soil will be covered under the IRP and not addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	**3**	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**3**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Load Line #1 **AEDB-R No**.: RVAAP-008-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

Load Line #1 was used to melt and load trinitrotoluene (TNT) and Composition B explosives into large-caliber shells during World War II (WWII) and the Korean War. In 1971, the load line was declared inactive when the buildings with residual explosive dust were washed down, and the freestanding equipment was removed. From 1996 through 1998, salvage operations continued with the removal of the overhead steam lines and major rail spurs, and the removal of all telephone lines. By FY 2000, the majority of the buildings were demolished and removed. The MRS currently consists of approximately five acres of the load line site and is composed of several areas associated with Buildings CB-13, CB-13B, CB-14, CB-801 (where a 152mm shell is suspected to have been found) and areas where triple base propellants are being removed (SI Report, Section 4.4). A UXO survey was conducted around Buildings CB-13, CB-13B, and CB-14, and within and around the area where propellant was discovered, totaling approximately one acre. One piece of triple base propellant was found on the western side of Building CB-14, and two more pieces of propellant were found along the railroad track on the eastern side of the building. MC, in the form of metals (lead), was detected at the site (SI Report, Section 6.4).

Description of Pathways for Human and Ecological Receptors: Adequate historical data determining the presence of MEC and MC exists for the MRS, thus, there are both Human and Ecological Receptor pathways.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**15**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There is historical evidence that triple-based propellant was discarded at the MRS (Final HRR Report, Section 4.1.4). However, only three propellant grains were observed lying on the ground surface during the SI field activities. No other MEC was found at the MRS (SI Report, Section 6.4). Current site remediation/removal efforts are underway at the former load line.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**4**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Load Line #1 was used to melt and load trinitrotoluene (TNT) and Composition B explosives into large-caliber shells during World War II (WWII) and the Korean War (Final HRR, Section 4.1.5).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Two propellant grains were observed at the MRS during the SI field activities (SI Report, Section 6.4). Load Line #1 is currently undergoing remedial action to remove discarded propellant and contaminated soil.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR, Section 5.4).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG (Final HRR, Section 5.4.1).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are approximately 45 residences located within a 2-mile radius of the MRS. The residences are located to the north in the Township of Windham (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are approximately 45 residences located within a 2-mile radius of the MRS. The residences are located to the north in the Township of Windham (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are no ecological or cultural resources located at the former manufacturing facility (Final HRR, Section 5.4).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	15	19
Source of Hazard	Table 2	4	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	13
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**67**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	**G**
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	**NA**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Site is collocated with an IRP site that is addressing groundwater issues. As such, groundwater will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Site is collocated with an IRP site that is addressing surface water issues. As such, surface water issues will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Site is collocated with an IRP site that is addressing sediment issues. As such, sediment issues will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Site is collocated with an IRP site that is addressing surface water issues. As such, surface water issues will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Site is collocated with an IRP site that is addressing sediment issues. As such, sediment issues will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Lead	85.8	400	0.2
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	0.2
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

IRP Site has been remediated by removing contaminated soil and sediments. Two grains of propellant were observed outside of this operable unit; as such, the extent of potential contamination is limited to 0.41 acres not covered under the IRP.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	**L**	**L**	**L**		**LLL**		**G**

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**G**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Load Line #12 **AEDB-R No.:** RVAAP-012-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: **No Known or Suspected Hazards**

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

From 1941-43 and 1946, ammonium nitrate was produced at this MRS. Load Line #12 consisted of multiple buildings while operational. There are currently no structures at the MRS except for a small portion of the floor slab at Building FF-19 and some infrastructure including roads, ditches, etc. Building foundations also remain buried at the MRS. All other structures at Load Line #12 were removed between 1973 and 2000. In 1999, 110 90mm rounds were discovered just below the ground surface north of the access road in the northwest corner of the load line site. The MRS consists of the area immediately surrounding the location where the 90mm projectiles were found (i.e., one acre) (SI Report, Section 4.5). During the SI field activities, MEC was not observed lying on the ground surface and no surface anomalies were detected (SI Report, Section 6.5).

The MRS is collocated with an IRP site; all chemical contamination at the site will be addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: There are no pathways associated with the MRS due to the lack of MEC and presence of MC.

Description of Receptors (Human and Ecological): There are no receptors due to the lack of MEC and MC.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Based on the SI field activities, including visual and magnetometer surveys, there is no evidence of UXO or DMM remaining at the MRS (SI Report, Section 6.5).

Tables 2-9 are intentionally omitted according to Active-Army Guidance; that is, due to the absence of MEC or munitions debris.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	0	0
Source of Hazard	Table 2	0	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	0	NA
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	NA
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**NA**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**No Known or Suspected Explosive Hazard**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	**L**
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the groundwater will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the surface water will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the sediment will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the surface water will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the sediment will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP AOC. Chemical contamination in the surface soil will be addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**No Known or Suspected Hazards**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Fuze and Booster Quarry **AEDB-R No**.: RVAAP-016-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑Groundwater	❑Sediment (human receptor)
❑Surface soil	❑Surface Water (ecological receptor)
❑Sediment (ecological receptor)	❑Surface Water (human receptor)

MRS Score: 5

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Fuze and Booster Quarry MRS is an undeveloped 12.74 acre parcel in the southwestern portion of RVAAP consisting of three elongated ponds separated by berms. The ponds were constructed within an abandoned rock quarry, which was used for open burning of various types of munitions from 1945 to 1975. Installation personnel have stated that the northern and southern ponds contain MEC, while there is uncertainty about the contents of the middle pond (SI Report, Section 4.6). No MEC or munitions debris were observed during the SI field activities along the banks of any of the ponds. The contents of the ponds were not investigated (SI Report, Section 6.6).

MRS is collocated with an IRP site. Chemical contaminants, including MC, are being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Adequate historical data determining the presence of MEC exists for the MRS, thus, there are both Human and Ecological Receptor pathways.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "High Explosives (used or damaged)" category was selected due to the disposal of rockets, bombs, fuzes, detonators, flares, missiles, grenades, landmines, medium and large caliber ammunition, explosives, mortars, propellant, practice ordnance, pyrotechnics, and small arms in the ponds which are likely submerged and contain HE. This is based on information provided by Installation personnel and is presented in **Section 5.6** of the SI Report. Further, Installation personnel have stated that the northern and southern ponds contain MEC, which is visible when the water levels are low.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**8**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Operations at the MRS included the open burning of munitions produced or stored at the installation (SI Report, Section 6.6).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

MEC was not found at the MRS, but munitions debris was found along the southeastern side of the southern pond, providing physical evidence (SI Report, Section 5.6.2). Further, installation personnel have stated that MEC is visible in the southern and northern ponds when the water levels are low (SI Report, Section 5.6). The ponds were not investigated during the SI field activities.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.8).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG in FY 09 (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with the three ponds that comprise the MRS (Final HRR, 5.8).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	33
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**69**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with a IRP site. All chemical contamination at the site, including MC compounds, are being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				F
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				F
Sediment/Human Endpoint (Table 23)	NA	NA	NA				F
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				F
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				F
Surface Soil (Table 26)	NA	NA	NA				**G**

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Landfill North of Winklepeck **AEDB-R No.:** RVAAP-019-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

In the CTT, the Landfill North of Winklepeck was described as a 7.55 acre unlined landfill that accepted general plant refuse, explosive wastes residue, and open burn waste including flares and booster cups from Winklepeck Burning Grounds. Installation personnel reported that potential MEC (booster cups and other nondescript items) was present on the slope leading down to the small stream, outside of the CTT MRS boundary. To capture this potential MEC, the MRS boundary was adjusted in the HRR to cover the sloped area between the landfill and the small stream. Further, the boundary of the MRS was revised in the HRR to exclude the former landfill area. This landfill is covered under the IRP and any MEC/MC incidentally discovered during the investigation will be managed under the IRP. As such, the current MRS footprint consists of the slope on the east side of the landfill overlooking an unnamed stream, totaling 14.05 acres (SI Report, Section 4.7). While MEC items (booster cups, aluminum liners, and other items) have been reported in the past, only munitions debris (i.e., no MEC items) were observed lying on the ground surface during the SI field activities. However, multiple subsurface anomalies were recorded potentially representing buried MEC. MC, in the form of metals, was detected during the SI (SI Report, Section 6.7).

Description of Pathways for Human and Ecological Receptors: Historic data suggested that MEC is present at the MRS, although none were observed during the SI field activities. However, the presence of buried ferrous and metal items at the MRS may represent the presence of MEC. As such, there are both Human and Ecological Receptor pathways.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "High Explosive (used or damaged)" category was selected based on the disposal of demilitarized munitions originating from Winklepeck Burning Grounds and information provided by Installation personnel of the discovery of MEC items at the MRS (type not identified) (**Section 5.6** of the SI Report). Demilitarized munitions could have included anything produced at the Installation, most of which would have contained HE. Buried anomalies were identified at the MRS during the SI field work (**Section 5.6.2** of the SI Report).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Operations at the former landfill adjacent to the MRS was used from 1969 until 1976 to dispose of general plant refuse, including explosive wastes residue and open burn wastes generated at Winklepeck Burning Grounds. It is likely that munitions and munitions debris escaped placement in the landfill and ended up being thrown over the bank. (SI Report, Section 6.7).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No MEC items were found along the slope of the MRS. However, munitions debris (pyrotechnic flare canisters) were found lying on the ground surface on the slope leading down to the creek (SI Report, Section 6.7).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.9).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 56 residences located within a 2-mile radius of the MRS. The residences are located to the north and northwest outside the installation perimeter (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 56 residences located within a 2-mile radius of the MRS. The residences are located to the north and northwest outside the installation perimeter (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with the unnamed creek that flows adjacent to the MRS (Final HRR, 5.9).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	30
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**66**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Lead	94.9	400	0.24
CHF Scale	**CHF Value**	**Total from Table 27**	0
		Sum the Ratios	**0.24**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	**M**
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**M**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	**M**
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**M**

MRS is located on a hill slope leading down to an unnamed creek. The hill slope is void of ground cover (i.e., vegetation) and open to erosion and soil creep. The MRS, although remote, is visited by installation personnel and installation contractors.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Surface Soil (Table 26)	L	M	M	**LMM**	**E**

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**E**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	**E**	**6**
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: 40mm Firing Range **AEDB-R No.:** RVAAP-032-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The 40mm Firing Range MRS consists of an overgrown open field approximately 5.17 acres in size, which is surrounded by forest. The MRS, which is collocated with an IRP site, was used during the Viet Nam conflict (i.e., 1969 – 1971) to test the 40mm cartridge. The purpose of the range was to perform acceptance tests, which included muzzle velocity measurements and impact function tests. According to the ASR, the rounds tested may have included both the M407A1 practice round and the M406 HE round. The practice rounds contain yellow marker dye, M9 propellant, and RDX booster pellets, while the M406 HE round contains Composition B and M9 propellant. A wooden structure believed to be the former firing point is all that remains at the site. The impact area is in the western portion of the MRS, just uphill from the ponds at the Fuze and Booster Quarry (SI Report, Section 4.8). The backstop from the impact area is no longer present at the MRS. RVAAP personnel reported that UXO was present beyond the impact point, on the slope that leads down to the Fuze and Booster Quarry MRS. During the SI, pieces of detonated 40mm rounds (munitions debris) were observed on the slope beyond the former impact point; however, no MEC was observed (SI Report, Section 6.8).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Historic data suggests that MEC is present at the MRS, although no MEC items were observed during the SI field activities. The UXO survey did not cover 100 percent of the site and MEC may be present. As such, there are both Human and Ecological Receptor pathways.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The purpose of the range was to perform acceptance tests, which included muzzle velocity measurements and impact function tests. The rounds tested may have included both the M407A1 practice round and the M406 HE round. The practice rounds contain yellow marker dye, M9 propellant, and RDX booster pellets, while the M406 HE round contains Composition B and M9 propellant (Final HRR Report, Section 4.1.8).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	**10**
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The purpose of the range was to perform acceptance tests, which included muzzle velocity measurements and impact function tests (Final HRR Report, Section 4.1.8).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No MEC items were found along the slope of the MRS. However, during the SI field activities, pieces of 40mm cartridges and nose caps (munitions debris) were observed on the slope beyond the former impact point (SI Report, Section 6.8).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.9).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are no ecological or cultural resources located on the MRS (Final HRR, 5.10).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	13
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**68**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	**NA**
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not investigated during the SI. Release is not expected or expected to be minimal.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not investigated during the SI. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not investigated during the SI. Release is not expected or expected to be minimal.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface soil was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA		NA		NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA		NA		NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA		NA		NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA		NA		NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA		NA		NA
Surface Soil (Table 26)	NA	NA	NA		NA		NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Firestone Test Facility **AEDB-R No.:** RVAAP-033-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The MRS consisted of two buildings and a pond that were situated on the southeastern side of the Load Line 6. The buildings were used as test chambers for tube-launched, optically-tracked, wire-guided (TOW) missiles and Dragon missiles, while shaped charges were tested under water at the pond. It was also determined that there was an additional building located next to the pond that was used for testing shaped charges. The building, which measured 10 ft high and 10 ft square, was constructed of reinforced concrete and fitted with steel plates, and was surrounded by a barricade constructed of railroad ties. All test chambers have been demolished and the debris removed. Installation personnel also identified a suspected test range located northeast of the former test facility. The MRS currently comprises a small clearing and piles of dirt and some wood debris (SI Report, Section 4.9). UXO surveys were conducted at all areas; of these, only the pond and location of the adjacent test chamber have potential MEC (SI Report, Section 6.9).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP. However, one surface soil multi-incremental sample was collected from the open clearing, which was not included in the IRP site. The sample was collected to evaluate the presence of MC compounds.

Description of Pathways for Human and Ecological Receptors: Historic data suggests that MEC may be present at the MRS, especially in the pond. MEC items and munitions debris were not found at the open clearing, or two test chambers. A UXO survey of the pond was not conducted. As such, there are both Human and Ecological Receptor pathways for the pond.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the pond area of the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "High Explosives (used or damaged)" category was selected based on the use of the pond to test underwater HE shape charges (**Section 5.9** of the SI Report). The pond was not investigated during the SI and the potential exists that shaped charges may still be present. Further, numerous subsurface anomalies were detected adjacent to the pond where a former HE shape charge test chamber was located. It is unknown if the anomalies represent buried munitions.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	**10**
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The purpose of the pond was to test shape charges under water (Final HRR Report, Section 4.9). The former test chambers are no longer a concern, since everything has been removed.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Based on historical data, the purpose of the pond was to test shape charges under water (Final HRR Report, Section 4.9). The pond was not investigated during the SI field activities; therefore, a determination of the presence or absence of MEC can not be made.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**8**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.9).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by DoD, but is scheduled for transfer to the OHARNG in FY 09 (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with the pond (SI Report, 7.3.9).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	13
Ease of Access	Table 4	8	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**64**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Thallium	1.4	NA	NA
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**NA**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface soil was only evaluated for the open field where a suspected test chamber was located, which is outside of the IRP area of characterization. The remaining MRS is collocated with an IRP site. For the remaining MRS, chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Sand Creek Dump **AEDB-R No.:** RVAAP-034-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 4

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Sand Creek Dump MRS, which is collocated with an IRP AOC, encompasses approximately 0.85 acres of undeveloped land that stretches along the banks of Sand Creek for approximately 1,000 ft. The MRS is split into two sections by a railroad track. The area is heavily overgrown with trees, shrubs, and ground cover. Debris remains at the site and is reportedly entering Sand Creek due to erosion. The dump, which was in operation from 1950 to 1960, was reported by former workers to have been a construction landfill for concrete, wood, asbestos debris, lab bottles, 55-gallon drums, and fluorescent light tubes. During removal activities performed in October of 2003 under the IRP, two demilitarized 75mm projectiles were found at the MRS. The projectiles were removed by MKM Engineers and taken to Building 1501 (SI Report, Section 4.10). One defused and empty projectile (possibly a 105mm projectile) was observed lying on the bottom of Sand Creek during the SI UXO survey (SI Report, Section 6.10).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Historic data suggests that MEC may be present at the MRS, especially in the pond. MEC items and munitions debris were not found at the open clearing, or two test chambers. A UXO survey of the pond was not conducted. As such, there are both Human and Ecological Receptor pathways for the pond.

Description of Receptors (Human and Ecological): There are both human (OHARNG & Contractor personnel) and ecological receptors at the pond area of the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	**15**
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**15**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

One projectile was observed lying on the bottom of Sand Creek. It could not be determined if the projectile contained filler or not. The item was not fuzed (SI Report, Section 6.10).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The dump, which was in operation from 1950 to 1960, was reported by former workers to have been a construction landfill for concrete, wood, asbestos debris, lab bottles, 55-gallon drums, and fluorescent light tubes. There is no information to suggest that the dump was used to dispose of munitions (Final HRR Report, Section 4.1.10).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

One projectile (tentatively identified as a 105mm round) was observed lying on the bottom of Sand Creek submerged under water. Because of the location of the item, a determination could not be made whether or not the item contained energetic material (SI Report, Section 5.10.2). Further, two demilitarized 75mm projectiles were discovered at the MRS and removed during a removal action conducted at the dump in October 2003 (SI Report, Section 5.10).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.9).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is currently owned by the OHARNG (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 75 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 75 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with Sand Creek (Final HRR Report, 5.12).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	15	20
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**71**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	**C**
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**NA**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	**4**	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Building #F-15 and F-16 **AEDB-R No.:** RVAAP-046-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: **No Known or Suspected Hazard.**

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The MRS, which is collocated with an IRP AOC, encompasses approximately 12.23 acres of undeveloped land. All buildings at the MRS have been demolished. Remaining at the site are the raised foundation of Building F-15 and the foundation and building debris of Building F-16. Prior to their demolition, each building measured approximately 60 ft wide by 120 ft long. The area surrounding the buildings is forested land. The facility was used during WWII, the Korean War, and Vietnam War to test miscellaneous explosives and propellants. Buildings F-15 and F-16 were referred to as the Surveillance Work Shop, where large caliber artillery rounds (type not specified) were dismantled and inspected as part of a cyclic inspection procedure. The procedure involved the random selection of completed rounds from storage which were subsequently dismantled for inspection and testing of individual components (i.e., fuzes, primer, propellant, and HE) (SI Report, Section 4.11). A meandering path magnetometer/metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately 12 acres. No MEC or munitions debris were found during the survey (SI Report, Section 6.11).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Due to the lack of MEC, there are no Human or Ecological Receptor pathways for the MRS.

Description of Receptors (Human and Ecological): Due to the lack of MEC, there are no human or ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No evidence of MEC or munitions debris were found at the MRS during the SI field activities (SI Report, Section 6.11).

Tables 2-9 are intentionally omitted according to Active-Army Guidance; that is, due to the absence of MEC or munitions debris.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	0	4
Source of Hazard	Table 2	4	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	0	NA
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	NA
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**NA**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**No Known or Suspected Explosive Hazard**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**NA**
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface soil was not evaluated during the SI field activities. The MRS is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**No Known or Suspected Hazard**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Anchor Test Area **AEDB-R No.:** RVAAP-048-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: **No Known or Suspected Hazard.**

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Anchor Test Area, which is collocated with an IRP AOC, encompasses approximately 2.57 acres of heavily forested land located west and adjacent to Wilcox-Wayland Road. Due to the overgrown conditions, very few remnants of the original facility are visible at the MRS. Identifiable features at the MRS include several dirt mounds and a nearby sandpit. Little is known about the actual function of the MRS, but available information suggests that it was used to test fire experimental explosively-charged anchors into the ground. RVAAP personnel also believe the experimental munitions were used to drive anchors for ropes or cables into the ground. Metal debris of unknown origin has been found at the MRS (SI Report, Section 4.12). On 9 October 2007, a line abreast magnetometer/metal detector assisted UXO survey was conducted of the entire MRS, encompassing approximately three acres. No MEC or munitions debris was found during the survey (SI Report, Section 6.12).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Due to the lack of MEC, there are no Human or Ecological Receptor pathways for the MRS.

Description of Receptors (Human and Ecological): Due to the lack of MEC, there are no human or ecological receptors at the MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No evidence of MEC or munitions debris was found at the MRS during the SI field activities (SI Report, Section 6.12).

Tables 2-9 are intentionally omitted according to Active-Army Guidance; that is, due to the absence of MEC or munitions debris.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	0	0
Source of Hazard	Table 2	0	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	0	NA
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	NA
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**NA**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**NA**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**No Known or Suspected Hazard**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Atlas Scrap Yard **AEDB-R No.:** RVAAP-050-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 3

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Atlas Scrap Yard MRS, which is included in an IRP AOC, encompasses approximately 66.04 acres of mostly open land that contains a network of roads. Originally used as a construction camp, the MRS became a storage area for non-explosive scrap starting in 1969. Currently, the MRS is heavily overgrown with tall grasses, isolated stands of trees, and shrubs. There are scattered piles of debris located throughout the site that appear to be comprised of construction debris, dunnage, and metal scraps. RVAAP personnel indicated that any of the munitions made or stored at the plant may have been disposed of in this area, and UXO was reportedly uncovered in the southwest corner of the MRS (SI Report, Section 4.13). No MEC or munitions debris were found during the UXO surveys conducted during the SI field activities. However, based on historical data and the fact that a UXO survey was not conducted across the entire MRS, the potential presence of MEC may exist (SI Report, Section 6.13).

The MRS is collocated with an IRP site; all chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.

Description of Pathways for Human and Ecological Receptors: Although MEC and munitions debris were not observed at the MRS during the SI field activities, UXO surveys were only conducted at 10 percent of the MRS. MEC may be present in areas not included in the survey. As such, surface and subsurface pathways exist for human receptors.

Description of Receptors (Human and Ecological): Receptors at the MRS include OHARNG and contractor personnel.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	**30**
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "Sensitive" category was selected due to the possible presence of 40mm fragmentation shells reportedly buried in the central portion of the MRS. Installation personnel disclosed during the SI that these items are known to be buried in the central portion of the MRS. MEC (type not identified) was removed from the southwest corner of the MRS in 2003 which, according to Installation personnel, could include any munitions produced at the plant; such as, high explosives, mortars, medium/large caliber projectiles, landmines, hand grenades, bombs, and/or fuzes (Section 5.13, SI Report).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Based on available information, the MRS may have been used to dispose of demilitarized munitions and/or to store munitions (Final HRR Report, Section 4.1.13).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

There is historical evidence that two 90mm practice rounds were found lying on the ground surface and subsequently removed (SI Report, Section 5.13). There is further evidence that 40mm fragmentation shells are buried at the site (SI Report, Section 5.13).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.15).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS was transferred to the OHARNG in FY 1999 (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 200 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 200 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are no ecological or cultural resources associated with the MRS (Final HRR Report, 5.15).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	35
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	13
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**83**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	**B**
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**B**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or Suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
		Total from Table 27	
		Sum of Ratios	

CHF Scale	CHF Value
CHF > 100	**H (High)**
100 > CHF > 2	**M (Medium)**
2 > CHF	**L (Low)**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The site is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

The MRS is collocated with an IRP site. Chemical contamination is being addressed under the IRP and will not be addressed under the MMRP.	No known or suspected Surface Soil MC Hazard	**X**

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	NA	NA	NA				NA

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**NA**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	**3**	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		**No Longer Required**	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**3**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Block D Igloo **AEDB-R No.:** RVAAP-060-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 5

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS consists of the area (circle with a 3,000 ft radius) contained within the suspected debris field that resulted when Igloo 7-D-15 ("D" Block) accidentally exploded on 24 March 1943. The MRS boundary was established by the USACE, Huntsville District to capture the probable debris field resulting from the explosion and was based on the type of munitions stored in the bunker at the time of the explosion. The explosion was attributed to a combination of rough handling and a faulty design of the M-110 fuze which left the fuze in the armed position. The blast formed two fans: a smaller fan roughly conical in shape and extending to the rear of the igloo and a larger conical fan extending forward in an easterly direction toward the "E" block of igloos. A map was produced by the USACE that documented locations of debris (type not specified) that were found after the explosion. The debris field extends significantly further than the MRS foot print developed by the Huntsville District (SI Report, Section 4.14). A UXO survey was conducted around the former Igloo and at documented locations where debris from the blast were found, totaling approximately six acres or one percent of the MRS. No MEC or munitions debris was found within the former igloo footprint or at the documented debris locations. However, the potential presence of MEC or munitions debris remains at the areas not surveyed (SI Report, Section 6.14). MC was detected in the form of metals at the former igloo foot print (SI Report, Section 6.14).

Description of Pathways for Human and Ecological Receptors: Although MEC and munitions debris were not observed at the MRS during the SI field activities, UXO surveys were only conducted at 10 percent of the MRS. MEC may be present in areas not included in the survey. As such, a surface pathway exists for human receptors.

Description of Receptors (Human and Ecological): Receptors at the MRS include OHARNG, contractor personnel, and visitors.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	**30**
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "Sensitive" category was selected based on the fact that the explosion involved the M-110 fuze (which contained a design flaw) and 2,516 clusters (M-1A1) of 20 lb fragmentation bombs (M-41). While MEC was not found during the SI field work, only 10 percent of the MRS was surveyed. The areas not surveyed may potentially contain MEC (See **Section 5.14** of the SI Report).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The presence of MEC at the MRS is due to the accidental explosion and ejection of M-1A1 cluster bombs of comprised of 20 lb fragmentation bombs (M-41) armed with a M-110 fuze (Final HRR Report, Section 4.1.14).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

MEC has not been found at the MRS. A UXO survey of four debris locations located outside the MRS footprint did not find MEC. The score is based on historical data that reported that debris from the explosion had been found. (Final HRR, Section 4.1.14).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (Final HRR Report, Section 5.15).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS has been transferred to the OHARNG (IAP, 2007).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 156 residences located within a 2-mile radius of the MRS. The residences are located to the west and northwest outside the installation boundary (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 156 residences located within a 2-mile radius of the MRS. The residences are located to the west and northwest outside the installation boundary (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with unnamed streams that run through the MRS (Google Earth, 2007).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	35
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	15
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**66**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	**D**
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. Release not expected or expected to be minimal.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release not expected or expected to be minimal.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release not expected or expected be minimal.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Arsenic	21.9	22	0.99
Thallium	0.74	NA	0
Lead	81	400	0.2
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**1.2**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

The surface soil sample was collected from inside the remains of the former bunker. The soils are contained within the remaining earthen berm that overlaid the bunker. Access to the site by human receptors is minimal, at best, and contaminant migration from the area is contained by the earthen berm.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	L	L	L		**LLL**		G

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**G**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	**5**	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Block D Igloo - TD **AEDB-R No**.: RVAAP-061-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 4

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

Originally in the CTT and HRR, the Block D Igloo–TD consisted of the portion of the circle centered on Igloo 7-D-15 (Block D Igloo MRS RVAAP-060-R-01) that exploded on 24 March 1943 that extended to the northwest beyond the Installation boundary. This northwestern property, which encompassed 19.25 acres, consisted of farm fields that are separated by stands of woodlands, railroad tracks, and a right-of-way. The right-of-way runs adjacent to the RVAAP property boundary, separating the wooded areas and farm fields from the Installation. This area represented the debris field of the smaller of the two fans that resulted from the explosion (SI Report, Section 5.15). Based on UXO surveys, surface soil sampling, and interviews with property owners at the northwestern portion, MEC and MC are not a concern and this portion has been removed from the MRS footprint (SI Report, Section 7.15). During the SI Phase, two additional parcels were discovered located off the installations boundary to the northeast. These two separate northeastern parcels are part of the larger debris fan and were not included in the field investigation. These two parcels are composed of two separate areas located outside the Installation boundary, approximately 2.2 (Area 1) and 2.9 miles (Area 2) to the northeast of Igloo 7-D-15. Area 1 consists of privately owned agricultural land that includes approximately 12 acres, and is located at 41° 13" 51" N and 81° 03' 53" W. Area 2 is a densely wooded area encompassing 2.13 acres and is located at 41° 14' 20" N and 81° 03' 15 W. Combined, the MRS consists of 14.13 acres.

Description of Pathways for Human and Ecological Receptors: MEC may be present in Areas 1 and 2, which were not investigated during the SI field work. As such, a surface and subsurface pathway exists for human receptors.

Description of Receptors (Human and Ecological): Receptors at the MRS include farmers, residents, hunters/trappers, visitors, and trespassers.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	**30**
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "Sensitive" category was selected based on the fact that the explosion involved the M-110 fuze (which contained a design flaw) and 2,516 clusters (M-1A1) of 20 lb fragmentation bombs (M-41). The Areas 1 and 2 located to the northeast were not surveyed and potentially may contain MEC (See Section 5.15 and Section 7.15 of the SI Report).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The presence of MEC at the MRS is due to the accidental explosion and ejection of M-1A1 cluster bombs comprised of 20 lb fragmentation bombs (M-41) armed with an M-110 fuze (SI Report, Section 5.15). MEC present is the result of fall out from the explosion of non-detonated munitions.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

The score is based on historical data that indicated that debris from the explosion had been found within this portion of the MRS (SI Report, Section 5.15). Areas 1 and 2 were not surveyed during the SI field work.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS (SI Report, Section 5.15 and Section 7.15).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	**5**
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located to the northeast and off the installation. Areas 1 and 2 are privately owned properties (SI Report, Section 7.15).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 156 residences located within a 2-mile radius of the MRS. The residences are within and surrounding the MRS (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS encompasses residential properties, wooded areas used for hunting and recreation, agricultural land, commercial properties, educational centers, shopping centers, playgrounds, and religious sites located within a 2-mile radius of the MRS (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	**3**
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are wetlands associated with unnamed streams that run through the MRS (Google Earth, 2007).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	35
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	20
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
EHE MODULE TOTAL			**71**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	**C**
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	N/A
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	N/A
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**N/A**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Lead	41.9	400	0.1
Thallium	1.4	NA	0
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**0.1**
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

The surface soil sample was collected from inside the remains of the former bunker. The soils are contained within the remaining earthen berm that overlaid the bunker. Access to the site by human receptors is minimal, at best, and contaminant migration from the area is contained by the earthen berm.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA				NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA				NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA				NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA				NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA				NA
Surface Soil (Table 26)	L	L	L		**LLL**		G

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**G**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	**4**	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Water Works #4 Dump **AEDB-R No.:** RVAAP-062-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 6

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Water Works #4 Dump is an approximate 6.15 acre wooded area located immediately west of Water Works #4 and Load Line 7, in the southwestern portion of RVAAP. Large caliber casings were reportedly found scattered throughout the MRS lying on the ground surface and partially buried, as were metal parts defined as ogives from WWI 155mm shrapnel projectiles. According to RVAAP personnel, the dates of disposal are estimated to be between 1941 and 1949. The type and origin of the casings is unknown (SI Report, Section 4.16). Approximately 20 ogives (munitions debris) were observed at the MRS during the SI field activities; no MEC was found, but subsurface anomalies were detected in the open area at the MRS (SI Report, Section 6.16).

Description of Pathways for Human and Ecological Receptors: Potential pathways for human receptors include handle or tread underfoot and possibly via subsurface soil through intrusive activities (i.e., digging). There are no potential MC pathways.

Description of Receptors (Human and Ecological): Potential receptors include OHARNG and contractor personnel who may come into contact with MEC. There are no potential ecological receptors and MC is not a concern.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	**15**
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**15**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The "High Explosives (unused)" was selected based on the findings of the SI field work and historical data: specifically, large caliber casings have been found at the site, as well as ogives from WWI 155mm shrapnel projectiles. Ogives from WWI 155mm shrapnel projectiles were also discovered during the SI field work. Further, subsurface anomalies were detected indicating the presence of buried metallic items. The nature of the buried items is not known; therefore, it can not be dismissed that the items do not represent MEC containing high explosives (SI Report, Section 5.16).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	**5**
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

After completing UXO surveys at the MRS during the SI field activities, no evidence of MEC were found. However, several subsurface anomalies were detected which could represent buried MEC (SI Report, Section 6.16).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Although MEC was not observed at the MRS during the SI UXO surveys, munitions debris (ogives for 155mm projectiles) was found and subsurface anomalies detected (SI Report, Section 6.16).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is under the jurisdiction of the OHARNG.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 65 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are no cultural or ecological resources located at the MRS (Final HRR Report, Section 5.18).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	15	20
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**56**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	**E**
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**E**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Thallium	1.1	NA	0
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	**0**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**L**

Thallium levels are not suspected to be attributable to munitions. Thallium concentrations may be attributable to indigenous background levels. As such, there does not appear to be a MC contaminant source.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA		NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA		NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA		NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA		NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA		NA
Surface Soil (Table 26)	L	L	L	**LLL**	G

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**G**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	**6**	F	6	E	6
F	7	G	7	F	7
G	8			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				6	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Group 8 MRS **AEDB-R No**.: RVAAP-063-R-01
Component:
Installation/Property Name: Ravenna Army Ammunition Plant
Location (City, County, State): Newton Falls, Portage and Trumbull Counties, Ohio
Site Name/Project Name (Project No.): N/A

Date Information Entered/Updated: November 2007
Point of Contact (Name/Phone): Phil Werner (703) 752-7755 x108 Company: e2M
Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
☒ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Score: 4

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The Group 8 MRS encompasses 2.65 acres and consists of most of the area between Buildings 846 and 849. This area is disturbed land currently being used as an OHARNG vehicle staging area. The land between the buildings may have been used for burning of construction debris and rubbish in the past. In 1996, one anti-personnel fragmentation bomb (referred to as a "hammerhead" anti-personnel bomb) loaded with HE was found at the MRS. In addition, one demilitarized (i.e., cut into two halves) 175mm projectile was found on the ground surface at the MRS (SI Report, Section 4.17). Two partially buried fuzes (items could not be identified) were observed at the MRS during the SI field activities and MC, in the form of metals, were detected (SI Report, Section 6.17).

Description of Pathways for Human and Ecological Receptors: Potential pathways for human receptors include handle or tread underfoot and possibly via subsurface soil through intrusive activities (i.e., digging). Potential MC pathways include ingestion, dermal contact, and inhalation.

Description of Receptors (Human and Ecological): Potential receptors include OHARNG and contractor personnel who may come into contact with MEC and/or MC.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., sub-munitions, 40mm high explosives [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	**25**
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Two unidentified partially buried fuzes were observed at the MRS during the SI field activities. Based on historic information, the land between the buildings may have been used for burning of construction debris and rubbish in the past (SI Report, Section 6.17).

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**8**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The land between the buildings may have been used for burning of construction debris and rubbish in the past (SI Report, Section 6.17).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

After completing UXO surveys at the MRS during the SI field activities, two partially buried unidentified fuzes were observed at the MRS (SI Report, Section 6.17).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	**10**
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

There are no barriers restricting human access to the MRS.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is under the jurisdiction of the OHARNG.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	**3**
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**3**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

The population density for Portage County is 350 residents per square mile; the population density for Trumbull County is 353 residents per square mile (U.S. Census Bureau, 2007 at http://www.census.gov/).

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**5**
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are over 200 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	**5**
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are over 200 residences located within a 2-mile radius of the MRS. The residences are located to the south in Newton Falls, Ohio (Google Earth, 2007).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

There are no cultural or ecological resources located at the MRS (Final HRR Report, Section 5.19).

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	33
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	3	13
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			**81**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	**C**
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**0**
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no known historical or physical evidence of CWM being produced, stored, or used at RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally been omitted according to Active-Army Guidance.

Tables 12-19 are intentionally omitted according to Active-Army Guidance

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	N/A	
Accessibility Factor Data Elements			
Location of CWM	Table 13	N/A	NA
Ease of Access	Table 14	N/A	
Status of Property	Table 15	N/A	
Receptor Factor Data Elements			
Population Density	Table 16	N/A	NA
Population Near Hazard	Table 17	N/A	
Types of Activities/Structures	Table 18	N/A	
Ecological and/or Cultural Resources	Table 19	N/A	
CHE MODULE TOTAL			**NA**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Groundwater was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Groundwater MC Hazard	**X**

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Human Endpoint) MC Hazard	**X**

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum The Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Sediment (Human Endpoint) MC Hazard	**X**

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Surface water was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Total from Table 27**	
		Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**NA**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**NA**

Sediment was not evaluated during the SI field activities at this MRS. Release is not expected or expected to be minimal.	No known or suspected Surface Water (Ecological Endpoint) MC Hazard	**X**

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Aluminum	20,300	76,000	0.23
Antimony	36.8	31	1.2
Arsenic	20.2	22	0.92
Lead	1,230	400	3.1
Copper	2,520	3,100	0.81
CHF Scale	**CHF Value**	**Total from Table 27**	0
		Sum the Ratios	**6.26**
CHF > 100 **100 > CHF > 2**	**H (High)** **M (Medium)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		**M**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	**M**
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**M**

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	**H**
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	**H**

Current analytical data is insufficient to determine if contamination is migrating away from the source. OHARNG personnel use the area as an equipment storage area and have potential dermal contact, inhalation, and ingestion pathways.	No known or suspected Surface Soil MC Hazard	

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio
Soil	Thallium	2.6	NA	0

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA		NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA		NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA		NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA		NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA		NA
Surface Soil (Table 26)	M	M	H	**MMH**	C

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	**C**

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	**4**	D	4	**C**	**4**
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		No Known or Suspected MC Hazard	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

FINAL
SITE INSPECTION REPORT
IDW WATER LAB RESULTS
RAVENNA ARMY AMMUNITION PLANT, OHIO

MILITARY MUNITIONS RESPONSE PROGRAM
SITE INSPECTION
MUNITIONS RESPONSE SITES

Submitted To:

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CENWO-PM-HA
106 S. 15th STREET
OMAHA, NE 68102-1618

Prepared By:

engineering-environmental Management, Inc.
2751 Prosperity Avenue, Suite 200
Fairfax, VA 22031

Contract Number DACA-63-03-D0009
Task Order Number DK01

MAY 2008

TestAmerica North Canton
4101 Shuffel Street, N. W.
North Canton, OH 44720
phone 330.966.9279 fax 330.497.0772

Chain of Custody Record

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Phil Werner	Site Contact: Irv Venger	Date: 14 January 2008	COC No:
engineering-emvironmental Management, Inc.	Tel/Fax: 301-831-0344	Lab Contact: Mark Loeb	Carrier: Test America	1 of 1 COCs
Address: 2751 Prosperity Avenue, Suite 200	**Analysis Turnaround Time**			Job No.
City/State/Zip: Fairfax, VA 22031	Calendar (C) or Work Days (W) _____			
(301) 831-0344 Phone	TAT if different from Below _____			
(703) 752-7754 FAX	☐ 2 weeks			SDG No.
Project Name: Ravenna MMRP SI	☒ 1 week			
Site: Ravenna Army Ammunition Plant, Ohio	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	TCLP Metals (1311/6010B/7470A)	TCLP Corrosivity (9045A)	Sample Specific Notes:
001408-A	1/14/2008	1345		W	1		X	X	Decon Water

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification

☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For _____ Months*

Special Instructions/QC Requirements & Comments: None.

Relinquished by: Irv Venger	Company: BRAC - RVAAP	Date/Time: 1/14/08, 13: 45	Received by: Mark J. Loeb	Company: Test America	Date/Time: 1/14/08, 13:45
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

INSTRUCTIONS

1) Choose the correct TestAmerica Facility from the pull down list by clicking on cell A1

2) Fill in the appropriate information for your location and phone number

3) Choose a default TAT or enter a different one if appropriate

4) Please indicate whether the TAT is Working or Calendar Days

5) In the veritical columns enter the Method/Analysis being requested

6) Fill out the Sample Information -- each line represents one sample

7) Sample Date/Time is required on all samples

8) In the "# of Containers" field enter the total number of bottles for each sample

9) Check the "Field Filter" field if the sample was filtered in the field

10) The Sample name should be the one you wish to see in the final report

11) In the cell where the Sample Information intersects the method information please enter the number of containers submitted for the method. Alternatively simply "x" this field

12) In the last row of the eCOC please choose the code for the right preservative used

13) Use the Special Instructions field to add any special instructions to the lab

14) If samples are sent across the country, consider indicating the Time Zone where samples were collected

15) TestAmerica Terms and Conditions apply for the analysis performed on the submitted samples unless otherwise agreed upon between TestAmerica and Company

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from TestAmerica Laboratories, Inc., a Delaware corporation (referred to as "TestAmerica"), TestAmerica shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation or Price Schedule, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of TestAmerica's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by TestAmerica in writing.

1. ORDERS AND RECEIPT OF SAMPLES

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to TestAmerica in writing or by telephone subsequently confirmed in writing, or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient specification to enable TestAmerica to carry out the Client's requirements. In particular, samples must be accompanied by: a) adequate instruction on type of analysis requested, and b) complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.

1.2 The Client shall provide one week's advance notice of the sample delivery schedule, or any changes to the schedule, whenever possible. Upon timely delivery of samples, TestAmerica will use its best efforts to meet mutually agreed turnaround times. All turnaround times will be calculated from the point in time when TestAmerica has determined that it can proceed with defined work following receipt, inspection of samples, and resolution of any discrepancies in Chain-of-Custody forms and project guidance regarding work to be done (Sample Delivery Acceptance). In the event of any changes in the sample delivery schedule by the Client, prior to Sample Delivery Acceptance, TestAmerica reserves the right to modify its turnaround time commitment, to change the date upon which TestAmerica will accept samples, or refuse Sample Delivery Acceptance for the affected samples.

1.3 TestAmerica reserves the right, exercisable at any time, to refuse or revoke Sample Delivery Acceptance for any sample which in the sole judgment of TestAmerica: a) is of unsuitable volume; b) may pose a risk or become unsuitable for handling, transport, or processing for any health, safety, environmental or other reason, whether or not due to the presence in the sample of any hazardous substance and whether or not such presence has been disclosed to TestAmerica by the Client; or c) holding times cannot be met, due to passage of more than 48 hours from the time of sampling or 1/2 the holding time for the requested test, whichever is less.

1.4 Prior to Sample Delivery Acceptance, the entire risk of loss or damage to samples remains with the Client, except where TestAmerica provides courier services. In no event will TestAmerica have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from TestAmerica's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to TestAmerica's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.

2. PAYMENT TERMS

2.1 Services performed by TestAmerica will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Quoted prices do not include sales tax. Applicable sales tax will be added to invoices where required by law. Where requested services on a group of samples received and logged in together at the laboratory total less than $200, there will be a minimum transaction charge of $200 for the sample group, or as shown on any related quote from TestAmerica. An Environmental Management Fee of 5% of the invoice value will also be applied, at TestAmerica's discretion.

2.2 Invoices may be submitted to Client upon completion of any sample delivery group. Billing corrections must be requested within 30 days of invoice date. Payment in advance is required for all Clients except those whose credit has been established with TestAmerica. For Clients with approved credit, payment terms are net 30 days from the date of invoice by TestAmerica. All overdue payments are subject to an additional interest and service charge of one and one half percent (1.5%) (or the maximum rate permissible by law, whichever is lesser) per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party, that acknowledges and accepts payment responsibility.

2.3 TestAmerica may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. TestAmerica reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by TestAmerica after Sample Delivery Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. TestAmerica will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.

3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification, or acceleration in the performance of the work may be initiated by the Client after sample delivery acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. TestAmerica's acceptance of such changes is contingent upon technical feasibility and operational capacity.

3.3 Suspension or termination of all or any part of the work may be initiated by the Client. TestAmerica will be compensated consistent with Section 2 of these Terms and Conditions. TestAmerica will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, TestAmerica will use analytical methodologies which are in substantial conformity with published test methods. TestAmerica has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, TestAmerica reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of TestAmerica, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or TestAmerica's Laboratory Quality Manuals. Client may request that TestAmerica perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, TestAmerica will proceed with analyses under its standard Quality Manuals then in effect, and TestAmerica will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP.

4.2 TestAmerica shall start preparation and/or analysis within holding times provided that Sample Delivery Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Where resolution of inconsistencies leading to Sample Delivery Acceptance does not occur within this period, TestAmerica will use its best efforts to meet holding times and will proceed with the work provided that, in TestAmerica's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with TestAmerica's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.

4.3 TestAmerica warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to TestAmerica prior to Sample Delivery Acceptance. TestAmerica will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.

4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by TestAmerica in connection with any services performed by TestAmerica or any Results generated from such services, and TestAmerica gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of TestAmerica is authorized to give or make any other representation or warranty or modify this warranty in any way.

4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by TestAmerica, will be limited to repeating any services performed, contingent on the Client's providing, at the request of TestAmerica and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, TestAmerica's liability for resampling costs will be limited to actual cost or one hundred and fifty dollars ($150) per sample, whichever is less.

4.6 TestAmerica's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after TestAmerica's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall TestAmerica be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.

4.7 In no event shall TestAmerica have any responsibility or liability to the Client for any failure or delay in performance by TestAmerica which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of TestAmerica. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters,

accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond TestAmerica's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to TestAmerica or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by TestAmerica of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by TestAmerica for performance of work will be retained by TestAmerica, and Client shall not disclose such information to any third party.

5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by TestAmerica shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay TestAmerica for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.

5.3 Should the Results delivered by TestAmerica be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold TestAmerica's right to independently defend its data.

5.4 TestAmerica reserves the right to perform the services at any laboratory in the TestAmerica network, unless the Client has specified a particular location for the work. In addition, TestAmerica reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in TestAmerica's sole judgment, it is reasonably necessary, appropriate or advisable to do so. TestAmerica will in no way be liable for any subcontracted services (outside the TestAmerica network) except for work performed at laboratories which have been audited and approved by TestAmerica.

5.5 TestAmerica shall dispose of the Client's samples 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable federal, state or local requirements. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at his own expense. TestAmerica reserves the right to return to the Client any sample or unused portion of a sample that is not within TestAmerica's permitted capability or the capabilities of TestAmerica's designated waste disposal vendor(s). ALL DIOXIN, MIXED WASTE, AND RADIOACTIVE SAMPLES WILL BE RETURNED TO THE CLIENT, unless prior arrangements for disposal are made.

5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, TestAmerica agrees to retain all records for five (5) years.

5.7 In the event that TestAmerica is required to respond to legal process related to services for Client, Client agrees to reimburse TestAmerica for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 TestAmerica shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over TestAmerica's employees who are engaged in the performance of the work. TestAmerica shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $1,000,000 per occurrence/ $2,000,000aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate).

7. AUDIT

7.1 Upon prior notice to TestAmerica, the Client may audit and inspect TestAmerica's records and accounts covering reimbursable costs related to work done for the Client, for a period of two (2) years after completion of the work. The purpose of any such audit shall be only for verification of such costs, and TestAmerica shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

8. MISCELLANEOUS PROVISIONS

8.1 These Terms and Conditions, together with any additions or revisions which may be agreed to in writing by TestAmerica, embody the whole agreement of the parties and provide the only remedies available. There are no promises, terms, conditions, understandings, obligations or agreements other than those contained herein, and these Terms and Conditions shall supersede all previous communications, representations, or agreements, either verbal or written, between the Client and TestAmerica. These Terms and Conditions, and any transactions or agreements to which they apply, shall be governed both as to interpretation and performance by the laws of the state where TestAmerica's services are performed.

8.2 The invalidity or unenforceability, in whole or in part of any provision, term or condition hereof shall not affect in any way the validity or enforceability of the remainder to these Terms and Conditions, the intent of the parties being that the provisions be severable. The section headings of these Terms and Conditions are intended solely for convenient reference and shall not define, limit or affect in any way these Terms and Conditions or their interpretations. No waiver by either party of any provision, term or condition hereof or of any obligation of the other party hereunder shall constitute a waiver of any subsequent breach or other obligation.

8.3 The obligations, liabilities, and remedies of the parties, as provided herein, are exclusive and in lieu of any others available at law or in equity. Indemnifications, releases from liability and limitations of liability shall apply, notwithstanding the fault, negligence or strict liability of the party to be indemnified, released, or whose liability is limited, except to the extent of sole negligence or willful misconduct.

The following samples have been received by TestAmerica Laboratories, Inc. at North Canton, Ohio. Please verify that the sample ID's and the requested tests are correct. Contact the TestAmerica project manager listed below to resolve any discrepancies.

Report to:
Phil Werner
e2M Engineering-Environmental
9563 South Kingston Court
Suite 200
Englewood, CO80112

Bill to:
Donna Michlewicz, Accounts Pay
e2M Engineering-Environmental
9563 South Kingston Court
Suite 200
Englewood, CO 80112

Client
Project : RAVENNA ARMY AMUNITION PLANT
Number :
Manager : Phil Werner

TestAmerica
Date Rec: 1/14/08
Quote No: 077104
Manager : Mark J. Loeb

Due Dates
Preliminary: 1/21/08
Hard Copy : 1/28/08

Analytical TAT: 7

Client ID: 001408
Date Sampled: 1/14/08 Time Sampled: 13:45
LAB ID: A8A160297-001 Matrix: WATER

Parameter	Method		Rep
WATER, NONE, Archive 30, Special List	NONE	NONE	

Client ID: 001408-A
Date Sampled: 1/14/08 Time Sampled: 13:45
LAB ID: A8A160297-002 Matrix: WATER

Parameter	Method		Rep
WATER, 1311/7470A TCLP Metals Mercury	SW846	7470A	
WATER, 1311/6010B TCLP Metals ICP Metals: AG AS BA CD CR PB SE	SW846	6010B	
WATER, 9045A, Corrosivity	SW846	9045A	
WATER, 1311, TCLP Routine Prep	NONE	NONE	

TESTAMERICA LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A8A160297 RAVENNA ARMY AMUNITION PLANT **Date Reported:** 1/19/08

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: 001408					
Sample #: 001 Date Sampled: 01/14/08 13:45 Date Received: 01/14/08 Matrix: WATER					
Client Sample ID: 001408-A					
Sample #: 002 Date Sampled: 01/14/08 13:45 Date Received: 01/14/08 Matrix: WATER					
Mercury in Liquid Waste (Manual Cold-Vapor) TCLP					Reviewed
Mercury	**TCLP**	**0.0010 B**	**0.0020**	**mg/L**	**SW846 7470A**
Inductively Coupled Plasma (ICP) Metals TCLP					Reviewed
Silver	TCLP	ND	0.50	mg/L	SW846 6010B
Arsenic	**TCLP**	**0.0053 B**	**0.50**	**mg/L**	**SW846 6010B**
Barium	**TCLP**	**0.031 B,E**	**10.0**	**mg/L**	**SW846 6010B**
Cadmium	**TCLP**	**0.0027 B**	**0.10**	**mg/L**	**SW846 6010B**
Chromium	**TCLP**	**0.055 B**	**0.50**	**mg/L**	**SW846 6010B**
Lead	**TCLP**	**0.12 B**	**0.50**	**mg/L**	**SW846 6010B**
Selenium	**TCLP**	**0.011 B**	**0.25**	**mg/L**	**SW846 6010B**

B Estimated result. Result is less than RL.

E Matrix interference.

Inorganic Analysis					Reviewed
Corrosivity		**9.6**		**No Units**	**SW846 9045A**

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

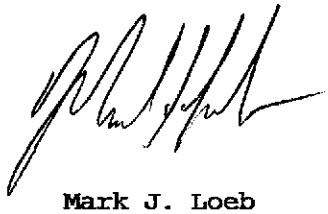
RVAAP, RAVENNA, OHIO

Lot #: A7J030104

Phil Werner

e2M Engineering-Environmental
2751 Prosperity Avenue
Suite 200
Fairfax, VA 22031

TESTAMERICA LABORATORIES, INC.



Mark J. Loeb
Project Manager

October 31, 2007

CASE NARRATIVE

CASE NARRATIVE

A7J030104

The following report contains the analytical results for eighteen solid samples submitted to TestAmerica North Canton by E2M Engineering-Environmental Mngmt. Inc. from the RVAAP, RAVENNA, OHIO Site. The samples were received October 03, 2007, according to documented sample acceptance procedures.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Phil Werner on October 29, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 2.3°C.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "J". Refer to the sample report pages for the affected analyte(s).

Matrix spike recovery and relative percent difference (RPD) data were not calculated for some analytes for RVAAP-LNWBG-SS-1 due to the sample concentration reading greater than four times the spike amount. See the Matrix Spike Report for the affected analytes which will be flagged with "NC, MSB".

The matrix spike/matrix spike duplicate(s) for RVAAP-LNWBG-SS-1 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The sample duplicate RPD was outside the acceptance limits for some analytes; however, the acceptable LCS analysis indicated that the analytical system was operating within control and this condition is most likely due to matrix interference. Refer to the sample duplicate report for RPDs that exceed 20%.

The sample duplicate RPD was outside the acceptance limits for some analytes. The result is less than five times the reporting limit; therefore, no corrective action is required. Refer to the sample duplicate report for RPDS that exceed 20%.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-LNWBG-SS-1 10/01/07 15:36 001				
2,6-Dinitrotoluene	0.032 J	0.24	mg/kg	SW846 8330
Mercury	0.068 B	0.10	mg/kg	SW846 7471A
Arsenic	12.5	1.0	mg/kg	SW846 6010B
Lead	94.9	1.0	mg/kg	SW846 6010B
Thallium	1.4 B	2.1	mg/kg	SW846 6010B
Aluminum	7460	20.8	mg/kg	SW846 6010B
Antimony	0.63 B	10.4	mg/kg	SW846 6010B
Barium	44.5	1.0	mg/kg	SW846 6010B
Beryllium	0.38 B	1.0	mg/kg	SW846 6010B
Cadmium	0.43 B	1.0	mg/kg	SW846 6010B
Calcium	1870	104	mg/kg	SW846 6010B
Chromium	22.3	2.1	mg/kg	SW846 6010B
Cobalt	6.9	2.1	mg/kg	SW846 6010B
Copper	33.1	2.1	mg/kg	SW846 6010B
Iron	36200	20.8	mg/kg	SW846 6010B
Magnesium	1710	104	mg/kg	SW846 6010B
Manganese	404	1.0	mg/kg	SW846 6010B
Nickel	22.4	2.1	mg/kg	SW846 6010B
Potassium	546 J	519	mg/kg	SW846 6010B
Vanadium	13.2	2.1	mg/kg	SW846 6010B
Zinc	92.3	4.2	mg/kg	SW846 6010B
Percent Solids	96.3	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.3 B	5.2	mg/kg	MCAWW 353.2
RVAAP-GR8-MC4 10/02/07 15:30 002				
2,4-Dinitrotoluene	0.040 J	0.24	mg/kg	SW846 8330
2,6-Dinitrotoluene	0.068 J	0.24	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	0.075 J	0.24	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	0.069 J	0.24	mg/kg	SW846 8330
Mercury	1.4	0.10	mg/kg	SW846 7471A
Arsenic	13.5	1.0	mg/kg	SW846 6010B
Lead	1230	1.0	mg/kg	SW846 6010B
Thallium	2.4	2.1	mg/kg	SW846 6010B
Aluminum	17700	20.8	mg/kg	SW846 6010B
Antimony	36.8	10.4	mg/kg	SW846 6010B
Barium	356	1.0	mg/kg	SW846 6010B
Beryllium	2.4	1.0	mg/kg	SW846 6010B
Cadmium	47.8	1.0	mg/kg	SW846 6010B
Calcium	61800	104	mg/kg	SW846 6010B
Chromium	94.2	2.1	mg/kg	SW846 6010B
Cobalt	7.8	2.1	mg/kg	SW846 6010B
Copper	2520	2.1	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-GR8-MC4 10/02/07 15:30 002				
Iron	53300	20.8	mg/kg	SW846 6010B
Magnesium	9850	104	mg/kg	SW846 6010B
Manganese	2250	1.0	mg/kg	SW846 6010B
Nickel	66.6	2.1	mg/kg	SW846 6010B
Potassium	1190 J	520	mg/kg	SW846 6010B
Silver	3.1	2.1	mg/kg	SW846 6010B
Sodium	542	104	mg/kg	SW846 6010B
Vanadium	11.3	2.1	mg/kg	SW846 6010B
Zinc	2280	20.8	mg/kg	SW846 6010B
Percent Solids	96.1	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	13.3	5.2	mg/kg	MCAWW 353.2
RVAAP-WW4-SS-1 10/01/07 17:52 003				
Mercury	0.039 B	0.11	mg/kg	SW846 7471A
Arsenic	12.6	1.1	mg/kg	SW846 6010B
Lead	13.8	1.1	mg/kg	SW846 6010B
Thallium	1.1 B	2.1	mg/kg	SW846 6010B
Aluminum	7680	21.1	mg/kg	SW846 6010B
Barium	47.3	1.1	mg/kg	SW846 6010B
Beryllium	0.49 B	1.1	mg/kg	SW846 6010B
Cadmium	0.13 B	1.1	mg/kg	SW846 6010B
Calcium	2260	105	mg/kg	SW846 6010B
Chromium	18.7	2.1	mg/kg	SW846 6010B
Cobalt	7.3	2.1	mg/kg	SW846 6010B
Copper	15.8	2.1	mg/kg	SW846 6010B
Iron	18800	21.1	mg/kg	SW846 6010B
Magnesium	2030	105	mg/kg	SW846 6010B
Manganese	446	1.1	mg/kg	SW846 6010B
Nickel	21.6	2.1	mg/kg	SW846 6010B
Potassium	735 J	527	mg/kg	SW846 6010B
Vanadium	13.9	2.1	mg/kg	SW846 6010B
Zinc	57.0	4.2	mg/kg	SW846 6010B
Percent Solids	94.9	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.4 B	5.3	mg/kg	MCAWW 353.2
RVAAP-WW4-SS-2 10/01/07 17:52 004				
Mercury	0.030 B	0.11	mg/kg	SW846 7471A
Arsenic	11.5	1.1	mg/kg	SW846 6010B
Lead	13.4	1.1	mg/kg	SW846 6010B
Thallium	0.95 B	2.1	mg/kg	SW846 6010B
Aluminum	7190	21.0	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-WW4-SS-2 10/01/07 17:52 004				
Barium	43.7	1.1	mg/kg	SW846 6010B
Beryllium	0.46 B	1.1	mg/kg	SW846 6010B
Cadmium	0.060 B	1.1	mg/kg	SW846 6010B
Calcium	2280	105	mg/kg	SW846 6010B
Chromium	16.5	2.1	mg/kg	SW846 6010B
Cobalt	6.6	2.1	mg/kg	SW846 6010B
Copper	14.2	2.1	mg/kg	SW846 6010B
Iron	17200	21.0	mg/kg	SW846 6010B
Magnesium	1910	105	mg/kg	SW846 6010B
Manganese	405	1.1	mg/kg	SW846 6010B
Nickel	19.1	2.1	mg/kg	SW846 6010B
Potassium	688 J	526	mg/kg	SW846 6010B
Vanadium	12.9	2.1	mg/kg	SW846 6010B
Zinc	52.1	4.2	mg/kg	SW846 6010B
Percent Solids	95.1	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.1 B	5.3	mg/kg	MCAWW 353.2
RVAAP-BDI-SS-1 10/02/07 08:40 005				
1,3,5-Trinitrobenzene	0.040 J	0.24	mg/kg	SW846 8330
Mercury	0.054 B	0.10	mg/kg	SW846 7471A
Arsenic	21.9	1.0	mg/kg	SW846 6010B
Lead	81.0	1.0	mg/kg	SW846 6010B
Selenium	0.56 B	1.0	mg/kg	SW846 6010B
Thallium	0.74 B	2.1	mg/kg	SW846 6010B
Aluminum	6450	21.0	mg/kg	SW846 6010B
Antimony	0.46 B	10.5	mg/kg	SW846 6010B
Barium	50.2	1.0	mg/kg	SW846 6010B
Beryllium	0.40 B	1.0	mg/kg	SW846 6010B
Cadmium	0.17 B	1.0	mg/kg	SW846 6010B
Calcium	2330	105	mg/kg	SW846 6010B
Chromium	27.0	2.1	mg/kg	SW846 6010B
Cobalt	6.2	2.1	mg/kg	SW846 6010B
Copper	19.5	2.1	mg/kg	SW846 6010B
Iron	22100	21.0	mg/kg	SW846 6010B
Magnesium	1470	105	mg/kg	SW846 6010B
Manganese	376	1.0	mg/kg	SW846 6010B
Nickel	20.1	2.1	mg/kg	SW846 6010B
Potassium	552 J	525	mg/kg	SW846 6010B
Vanadium	13.9	2.1	mg/kg	SW846 6010B
Zinc	65.1	4.2	mg/kg	SW846 6010B
Percent Solids	95.3	10.0	%	MCAWW 160.3 MOD

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-GR8-MC5 10/02/07 15:44 006				
2,4-Dinitrotoluene	0.034 J	0.25	mg/kg	SW846 8330
2,6-Dinitrotoluene	0.055 J	0.25	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	0.027 J	0.25	mg/kg	SW846 8330
Mercury	0.20	0.10	mg/kg	SW846 7471A
Arsenic	8.1	1.0	mg/kg	SW846 6010B
Lead	951	1.0	mg/kg	SW846 6010B
Selenium	0.32 B	1.0	mg/kg	SW846 6010B
Thallium	2.6	2.1	mg/kg	SW846 6010B
Aluminum	20300	21.0	mg/kg	SW846 6010B
Antimony	24.3	10.5	mg/kg	SW846 6010B
Barium	215	1.0	mg/kg	SW846 6010B
Beryllium	2.9	1.0	mg/kg	SW846 6010B
Cadmium	36.2	1.0	mg/kg	SW846 6010B
Calcium	90400	524	mg/kg	SW846 6010B
Chromium	47.1	2.1	mg/kg	SW846 6010B
Cobalt	5.0	2.1	mg/kg	SW846 6010B
Copper	333	2.1	mg/kg	SW846 6010B
Iron	33000	21.0	mg/kg	SW846 6010B
Magnesium	11500	105	mg/kg	SW846 6010B
Manganese	2440	1.0	mg/kg	SW846 6010B
Nickel	27.4	2.1	mg/kg	SW846 6010B
Potassium	1210 J	524	mg/kg	SW846 6010B
Silver	1.1 B	2.1	mg/kg	SW846 6010B
Sodium	571	105	mg/kg	SW846 6010B
Vanadium	10.8	2.1	mg/kg	SW846 6010B
Zinc	1740	21.0	mg/kg	SW846 6010B
Percent Solids	95.5	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	7.0	5.2	mg/kg	MCAWW 353.2
RVAAP-GR8-MC3 10/02/07 15:12 007				
2,4-Dinitrotoluene	0.038 J	0.24	mg/kg	SW846 8330
2,6-Dinitrotoluene	0.061 J	0.24	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	0.041 J	0.24	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	0.057 J	0.24	mg/kg	SW846 8330
Mercury	0.68	0.10	mg/kg	SW846 7471A
Arsenic	18.7	1.0	mg/kg	SW846 6010B
Lead	1160	1.0	mg/kg	SW846 6010B
Thallium	1.7 B	2.0	mg/kg	SW846 6010B
Aluminum	7250	20.5	mg/kg	SW846 6010B
Antimony	13.0	10.2	mg/kg	SW846 6010B
Barium	218	1.0	mg/kg	SW846 6010B
Beryllium	0.91 B	1.0	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-GR8-MC3 10/02/07 15:12 007				
Cadmium	16.5	1.0	mg/kg	SW846 6010B
Calcium	16300	102	mg/kg	SW846 6010B
Chromium	92.6	2.0	mg/kg	SW846 6010B
Cobalt	8.4	2.0	mg/kg	SW846 6010B
Copper	525	2.0	mg/kg	SW846 6010B
Iron	53000	20.5	mg/kg	SW846 6010B
Magnesium	2810	102	mg/kg	SW846 6010B
Manganese	842	1.0	mg/kg	SW846 6010B
Nickel	158	2.0	mg/kg	SW846 6010B
Potassium	583 J	512	mg/kg	SW846 6010B
Silver	2.8	2.0	mg/kg	SW846 6010B
Sodium	180	102	mg/kg	SW846 6010B
Vanadium	11.4	2.0	mg/kg	SW846 6010B
Zinc	1420	20.5	mg/kg	SW846 6010B
Percent Solids	97.6	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	6.0	5.1	mg/kg	MCAWW 353.2
RVAAP-GR8-MC2 10/02/07 16:12 008				
Mercury	0.18	0.10	mg/kg	SW846 7471A
Arsenic	20.2	1.0	mg/kg	SW846 6010B
Lead	217	1.0	mg/kg	SW846 6010B
Thallium	1.7 B	2.1	mg/kg	SW846 6010B
Aluminum	13200	20.9	mg/kg	SW846 6010B
Antimony	1.8 B	10.4	mg/kg	SW846 6010B
Barium	106	1.0	mg/kg	SW846 6010B
Beryllium	1.1	1.0	mg/kg	SW846 6010B
Cadmium	9.8	1.0	mg/kg	SW846 6010B
Calcium	19500	104	mg/kg	SW846 6010B
Chromium	52.5	2.1	mg/kg	SW846 6010B
Cobalt	8.2	2.1	mg/kg	SW846 6010B
Copper	575	2.1	mg/kg	SW846 6010B
Iron	26900	20.9	mg/kg	SW846 6010B
Magnesium	4170	104	mg/kg	SW846 6010B
Manganese	915	1.0	mg/kg	SW846 6010B
Nickel	46.2	2.1	mg/kg	SW846 6010B
Potassium	942 J	522	mg/kg	SW846 6010B
Silver	0.58 B	2.1	mg/kg	SW846 6010B
Sodium	110	104	mg/kg	SW846 6010B
Vanadium	16.3	2.1	mg/kg	SW846 6010B
Zinc	527	4.2	mg/kg	SW846 6010B
Percent Solids	95.9	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	2.4 B	5.2	mg/kg	MCAWW 353.2

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-GR8-MC1 10/02/07 16:40 009				
2,6-Dinitrotoluene	0.031 J	0.26	mg/kg	SW846 8330
Mercury	0.046 B	0.10	mg/kg	SW846 7471A
Arsenic	9.5	1.0	mg/kg	SW846 6010B
Lead	59.4	1.0	mg/kg	SW846 6010B
Selenium	0.70 B	1.0	mg/kg	SW846 6010B
Thallium	1.6 B	2.1	mg/kg	SW846 6010B
Aluminum	12200	20.7	mg/kg	SW846 6010B
Barium	110	1.0	mg/kg	SW846 6010B
Beryllium	1.5	1.0	mg/kg	SW846 6010B
Cadmium	0.94 B	1.0	mg/kg	SW846 6010B
Calcium	29900	103	mg/kg	SW846 6010B
Chromium	25.9	2.1	mg/kg	SW846 6010B
Cobalt	5.7	2.1	mg/kg	SW846 6010B
Copper	34.1	2.1	mg/kg	SW846 6010B
Iron	17300	20.7	mg/kg	SW846 6010B
Magnesium	5500	103	mg/kg	SW846 6010B
Manganese	1150	1.0	mg/kg	SW846 6010B
Nickel	28.0	2.1	mg/kg	SW846 6010B
Potassium	862 J	517	mg/kg	SW846 6010B
Sodium	134	103	mg/kg	SW846 6010B
Vanadium	12.3	2.1	mg/kg	SW846 6010B
Zinc	99.3	4.1	mg/kg	SW846 6010B
Percent Solids	96.8	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	2.0 B	5.2	mg/kg	MCAWW 353.2
RVAAP-LNWBG-SS-1(WET TS) 10/01/07 15:36 010				
Percent Solids	78.9	10.0	%	MCAWW 160.3 MOD
RVAAP-GR8-MC4(WET TS) 10/02/07 15:30 011				
Percent Solids	88.9	10.0	%	MCAWW 160.3 MOD
RVAAP-WW4-SS-1(WET TS) 10/01/07 17:52 012				
Percent Solids	75.7	10.0	%	MCAWW 160.3 MOD
RVAAP-WW4-SS-2(WET TS) 10/01/07 17:52 013				
Percent Solids	74.1	10.0	%	MCAWW 160.3 MOD

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J030104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-BDI-SS-1(WET TS) 10/02/07 08:40 014				
Percent Solids	78.5	10.0	%	MCAWW 160.3 MOD
RVAAP-GR8-MC5(WET TS) 10/02/07 15:44 015				
Percent Solids	86.2	10.0	%	MCAWW 160.3 MOD
RVAAP-GR8-MC3(WET TS) 10/02/07 15:12 016				
Percent Solids	84.9	10.0	%	MCAWW 160.3 MOD
RVAAP-GR8-MC2(WET TS) 10/02/07 16:12 017				
Percent Solids	81.8	10.0	%	MCAWW 160.3 MOD
RVAAP-GR8-MC1(WET TS) 10/02/07 16:40 018				
Percent Solids	83.7	10.0	%	MCAWW 160.3 MOD

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A7J030104

PARAMETER	ANALYTICAL METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Nitrocellulose as N, 353.2	MCAWW 353.2
Organics by UV/HPLC	SW846 8330 (Modified)
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

SAMPLE SUMMARY

A7J030104

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J748R	001	RVAAP-LNWBG-SS-1	10/01/07	15:36
J748X	002	RVAAP-GR8-MC4	10/02/07	15:30
J7481	003	RVAAP-WW4-SS-1	10/01/07	17:52
J7483	004	RVAAP-WW4-SS-2	10/01/07	17:52
J7484	005	RVAAP-BDI-SS-1	10/02/07	08:40
J7488	006	RVAAP-GR8-MC5	10/02/07	15:44
J749C	007	RVAAP-GR8-MC3	10/02/07	15:12
J749D	008	RVAAP-GR8-MC2	10/02/07	16:12
J749E	009	RVAAP-GR8-MC1	10/02/07	16:40
J749W	010	RVAAP-LNWBG-SS-1(WET TS)	10/01/07	15:36
J749X	011	RVAAP-GR8-MC4(WET TS)	10/02/07	15:30
J7490	012	RVAAP-WW4-SS-1(WET TS)	10/01/07	17:52
J7491	013	RVAAP-WW4-SS-2(WET TS)	10/01/07	17:52
J7492	014	RVAAP-BDI-SS-1(WET TS)	10/02/07	08:40
J7493	015	RVAAP-GR8-MC5(WET TS)	10/02/07	15:44
J7494	016	RVAAP-GR8-MC3(WET TS)	10/02/07	15:12
J7495	017	RVAAP-GR8-MC2(WET TS)	10/02/07	16:12
J7496	018	RVAAP-GR8-MC1(WET TS)	10/02/07	16:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
e2M	Phil Werner	10/2/07	371321
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
2751 Prosperity Ave. Ste. 200	(301) 831-0344		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Fairfax / VA / 22031	Phil Werner		
Project Name and Location (State)	**Carrier/Waybill Number**		
RVAAP Ravenna, Ohio			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: TAL Metals	Explosives	Propellants	Special Instructions/ Conditions of Receipt
RVAAP-LNWBG-SS-1	10/1/07	1536				X							X	X	X	
RVAAP-GR8-MC4	10/2/07	1530				X							X	X	X	
RVAAP-LOW4-SS-1	10/1/07	1752				X							X	X	X	
RVAAP-LOW4-SS-2	10/1/07	1752				X							X	X	X	
RVAAP-BDI-SS-1	10/2/07	0840				X							X	X		
RVAAP-GR8-MC5	10/2/07	1544				X							X	X	X	
RVAAP-GR8-MC3	10/2/07	1512				X							X	X	X	
RVAAP-GR8-MC2	10/2/07	1612				X							X	X	X	
RVAAP-GR8-MC1	10/2/07	1640				X							X	X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/2/07	16:53	1. Received By Rick Robison	10-2-07	1700
2. Relinquished By Rick Robison	10-2-07	1800	2. Received By Matt Jenn TAL/NC	3 OCT 2007	0730
3. Relinquished By			3. Received By		

Comments
1 SEAL REMOVED (FRONT) BY COURIER

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

TestAmerica Cooler Receipt Form/Narrative — Lot Number: A2J030104
North Canton Facility

Client: E2M — Project: RAVENNA — Quote#:

Cooler Received on: 3 OCT 2007 — Opened on: 3 OCT 2007 — By: Matt Jerul (Signature)

Fedx ☐ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☒

Stetson ☐ US Cargo ☐ Other:

TestAmerica Cooler No# L391 — Foam Box ☐ Client Cooler ☐ Other

1. Were custody seals on the outside of the cooler? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
   If YES, Quantity TWO
   Were the custody seals signed and dated? Yes ☒ No ☐ NA ☐
2. Shipper's packing slip attached to this form? Yes ☐ No ☐ NA ☒
3. Did custody papers accompany the samples? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☒ No ☐
5. Packing material used: Bubble Wrap ☐ Foam ☐ None ☐ Other: BAG ICE/PLASTIC BAG
6. Cooler temperature upon receipt 2.3 °C (see back of form for multiple coolers/temp)

METHOD: IR ☒ Other ☐

COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☒ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☒ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☒
12. Sufficient quantity received to perform indicated analyses? Yes ☒ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☒ Were VOAs on the COC? Yes ☐ No ☒

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning: _____

1. CHAIN OF CUSTODY

The following discrepancies occurred:

2. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

3. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot #042607-HNO3 - Sulfuric Acid Lot # 092006-H2SO4; Sodium Hydroxide Lot # 122805 -NaOH; Hydrochloric Acid Lot # 092006-HCl; Sodium Hydroxide and Zinc Acetate Lot # 050205-CH3COO2ZN/NaOH*

Sample(s) _____ were received with bubble > 6 mm in diameter (cc: PM)

4. Other (see below or back)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp °C	Method	Coolant

Discrepancies Cont'd

METALS DATA

FORMS DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-001 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 3.7

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**7460**	**20.8**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AG**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**12.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AC**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**94.9**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AD**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**0.63 B**	**10.4**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AH**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**44.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AJ**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J748R1AE
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.38 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AK**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.4 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AF**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.43 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AL**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**1870**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AM**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**22.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AN**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AP**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**33.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AQ**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**36200**	**20.8**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AR**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1710**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AT**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**404**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AU**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**22.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AV**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**546 J**	**519**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1AW**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/05-10/11/07	J748R1AX
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	104	mg/kg	SW846 6010B	10/05-10/11/07	J748R1A0
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**13.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1A1**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**92.3**	**4.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748R1A2**
		Dilution Factor: 1		Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.068 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J748R1A3**
		Dilution Factor: 1		Analysis Time..: 13:20	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

TOTAL Metals

Lot-Sample #...: A7J030104-002 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
% Moisture.....: 3.9

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**17700**	**20.8**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AQ**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**13.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AL**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**1230**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AM**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**36.8**	**10.4**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AR**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**356**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AT**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J748X1AN
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**2.4**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AU**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**2.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AP**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**47.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AV**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**61800**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AW**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

TOTAL Metals

Lot-Sample #...: A7J030104-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**94.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AX**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**7.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A0**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**2520**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A1**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**53300**	**20.8**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A2**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**9850**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A3**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**2250**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A4**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**66.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A5**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**1190 J**	**520**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A6**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	**3.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1A7**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**542**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AA**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

TOTAL Metals

Lot-Sample #...: A7J030104-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**11.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AC**
		Dilution Factor: 1		Analysis Time..: 11:17	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**2280**	**20.8**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J748X1AD**
		Dilution Factor: 5		Analysis Time..: 13:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**1.4**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J748X1AE**
		Dilution Factor: 1		Analysis Time..: 13:26	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-003 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**7680**	**21.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AQ**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**12.6**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AL**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**13.8**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AM**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.5	mg/kg	SW846 6010B	10/05-10/11/07	J74811AR
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**47.3**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AT**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.1	mg/kg	SW846 6010B	10/05-10/11/07	J74811AN
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.49 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AU**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.1 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AP**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.13 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AV**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**2260**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AW**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**18.7**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AX**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**7.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A0**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**15.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A1**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**18800**	**21.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A2**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**2030**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A3**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**446**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A4**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**21.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A5**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**735 J**	**527**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811A6**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/05-10/11/07	J74811A7
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	105	mg/kg	SW846 6010B	10/05-10/11/07	J74811AA
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**13.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AC**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**57.0**	**4.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74811AD**
		Dilution Factor: 1		Analysis Time..: 11:22	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.039 B**	**0.11**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J74811AE**
		Dilution Factor: 1		Analysis Time..: 13:15	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

TOTAL Metals

Lot-Sample #...: A7J030104-004 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 4.9

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**7190**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AQ**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**11.5**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AL**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**13.4**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AM**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.5	mg/kg	SW846 6010B	10/05-10/11/07	J74831AR
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**43.7**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AT**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.1	mg/kg	SW846 6010B	10/05-10/11/07	J74831AN
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.46 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AU**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**0.95 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AP**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.060 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AV**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**2280**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AW**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

TOTAL Metals

Lot-Sample #...: A7J030104-004 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**16.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AX**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A0**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**14.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A1**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17200**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A2**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1910**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A3**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**405**	**1.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A4**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**19.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A5**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**688 J**	**526**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831A6**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/05-10/11/07	J74831A7
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	105	mg/kg	SW846 6010B	10/05-10/11/07	J74831AA
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

TOTAL Metals

Lot-Sample #...: A7J030104-004 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**12.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AC**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**52.1**	**4.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74831AD**
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.030 B**	**0.11**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J74831AE**
		Dilution Factor: 1		Analysis Time..: 13:16	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-005 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
% Moisture.....: 4.8

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**6450**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AG**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**21.9**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AC**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**81.0**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AD**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**0.46 B**	**10.5**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AH**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**50.2**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AJ**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.56 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AE**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.40 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AK**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**0.74 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AF**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.17 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AL**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**2330**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AM**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-005 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**27.0**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AN**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AP**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**19.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AQ**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**22100**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AR**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1470**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AT**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**376**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AU**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**20.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AV**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**552 J**	**525**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841AW**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/05-10/11/07	J74841AX
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	105	mg/kg	SW846 6010B	10/05-10/11/07	J74841A0
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

TOTAL Metals

Lot-Sample #...: A7J030104-005 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**13.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841A1**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**65.1**	**4.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74841A2**
		Dilution Factor: 1		Analysis Time..: 11:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.054 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J74841A3**
		Dilution Factor: 1		Analysis Time..: 13:18	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

TOTAL Metals

Lot-Sample #...: A7J030104-006 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
% Moisture.....: 4.6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**20300**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AQ**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**8.1**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AL**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**951**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AM**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**24.3**	**10.5**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AR**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**215**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AT**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.32 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AN**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**2.9**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AU**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**2.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AP**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**36.2**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AV**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**90400**	**524**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AW**
		Dilution Factor: 5		Analysis Time..: 13:25	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

TOTAL Metals

Lot-Sample #...: A7J030104-006 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**47.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AX**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**5.0**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A0**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**333**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A1**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**33000**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A2**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**11500**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A3**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**2440**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A4**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**27.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A5**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**1210 J**	**524**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A6**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	**1.1 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881A7**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**571**	**105**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AA**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

TOTAL Metals

Lot-Sample #...: A7J030104-006 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**10.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AC**
		Dilution Factor: 1		Analysis Time..: 11:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**1740**	**21.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J74881AD**
		Dilution Factor: 5		Analysis Time..: 13:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.20**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J74881AE**
		Dilution Factor: 1		Analysis Time..: 13:19	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

TOTAL Metals

Lot-Sample #...: A7J030104-007 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
% Moisture.....: 2.4

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**7250**	**20.5**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AQ**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**18.7**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AL**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**1160**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AM**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**13.0**	**10.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AR**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**218**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AT**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J749C1AN
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.91 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AU**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.7 B**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AP**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**16.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AV**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**16300**	**102**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AW**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

TOTAL Metals

Lot-Sample #...: A7J030104-007 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**92.6**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AX**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**8.4**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A0**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**525**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A1**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**53000**	**20.5**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A2**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**2810**	**102**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A3**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**842**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A4**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**158**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A5**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**583 J**	**512**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A6**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	**2.8**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1A7**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**180**	**102**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AA**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

TOTAL Metals

Lot-Sample #...: A7J030104-007 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**11.4**	**2.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AC**
		Dilution Factor: 1		Analysis Time..: 11:59	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**1420**	**20.5**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749C1AD**
		Dilution Factor: 5		Analysis Time..: 13:30	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.68**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J749C1AE**
		Dilution Factor: 1		Analysis Time..: 13:28	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

TOTAL Metals

Lot-Sample #...: A7J030104-008 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
% Moisture.....: 4.2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**13200**	**20.9**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AQ**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**20.2**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AL**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**217**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AM**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	**1.8 B**	**10.4**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AR**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**106**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AT**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J749D1AN
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**1.1**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AU**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.7 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AP**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**9.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AV**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**19500**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AW**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

TOTAL Metals

Lot-Sample #...: A7J030104-008 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**52.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AX**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**8.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A0**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**575**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A1**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**26900**	**20.9**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A2**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**4170**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A3**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**915**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A4**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**46.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A5**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**942 J**	**522**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A6**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	**0.58 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1A7**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**110**	**104**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AA**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

TOTAL Metals

Lot-Sample #...: A7J030104-008 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**16.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AC**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**527**	**4.2**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749D1AD**
		Dilution Factor: 1		Analysis Time..: 12:04	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.18**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J749D1AE**
		Dilution Factor: 1		Analysis Time..: 13:29	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

TOTAL Metals

Lot-Sample #...: A7J030104-009 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
% Moisture.....: 3.2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7278028						
Aluminum	**12200**	**20.7**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AQ**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**9.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AL**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**59.4**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AM**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.3	mg/kg	SW846 6010B	10/05-10/11/07	J749E1AR
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**110**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AT**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.70 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AN**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**1.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AU**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.6 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AP**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.94 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AV**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**29900**	**103**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AW**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

TOTAL Metals

Lot-Sample #...: A7J030104-009 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**25.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AX**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**5.7**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A0**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**34.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A1**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17300**	**20.7**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A2**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**5500**	**103**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A3**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1150**	**1.0**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A4**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**28.0**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A5**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**862 J**	**517**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1A6**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/05-10/11/07	J749E1A7
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**134**	**103**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AA**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

TOTAL Metals

Lot-Sample #...: A7J030104-009 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**12.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AC**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**99.3**	**4.1**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J749E1AD**
		Dilution Factor: 1		Analysis Time..: 12:09	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.046 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/05/07**	**J749E1AE**
		Dilution Factor: 1		Analysis Time..: 13:30	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A7J050000-028 **Prep Batch #...:** 7278028						
Aluminum	ND	20.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AF
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Arsenic	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AA
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Antimony	ND	10.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AG
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Lead	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AC
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Barium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AH
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Selenium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AD
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Beryllium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AJ
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Thallium	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AE
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Cadmium	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AK
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Calcium	ND	100	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AL
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Chromium	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AM
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Cobalt	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AN
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Copper	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AP
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Iron	ND	20.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AQ
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Magnesium	ND	100	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AR
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Manganese	ND	1.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AT
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Nickel	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AU
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Potassium	**14.7 B**	**500**	**mg/kg**	**SW846 6010B**	**10/05-10/11/07**	**J8AG41AV**
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Silver	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AW
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Sodium	ND	100	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41AX
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Vanadium	ND	2.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41A0
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Zinc	ND	4.0	mg/kg	SW846 6010B	10/05-10/11/07	J8AG41A1
		Dilution Factor: 1				
		Analysis Time..: 10:44	Analyst ID.....: 001644		Instrument ID..: I5	
Mercury	ND	0.10	mg/kg	SW846 7471A	10/05/07	J8AG41A2
		Dilution Factor: 1				
		Analysis Time..: 13:04	Analyst ID.....: 001086		Instrument ID..: H1	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J050000-028 **Prep Batch #...:** 7278028					
Arsenic	91	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A3
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Aluminum	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A7
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Lead	92	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A4
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Antimony	101	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A8
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Selenium	90	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A5
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Barium	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A9
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Thallium	92	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41A6
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Beryllium	97	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CA
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Cadmium	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CC
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Calcium	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CD
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CE
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Cobalt	92	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CF
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Copper	97	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CG
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Iron	104	(73 - 137)	SW846 6010B	10/05-10/11/07	J8AG41CH
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Magnesium	93	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CJ
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Manganese	97	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CK
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Nickel	96	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CL
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Potassium	93	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CM
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Silver	98	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CN
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Sodium	95	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CP
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Vanadium	95	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CQ
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	94	(80 - 120)	SW846 6010B	10/05-10/11/07	J8AG41CR
		Dilution Factor: 1	Analysis Time..: 10:49	Analyst ID.....: 001644	
		Instrument ID..: I5			
Mercury	95	(81 - 116)	SW846 7471A	10/05/07	J8AG41CT
		Dilution Factor: 1	Analysis Time..: 13:05	Analyst ID.....: 001086	
		Instrument ID..: H1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J050000-028 **Prep Batch #...:** 7278028							
Arsenic	200	183	mg/kg	91	SW846 6010B	10/05-10/11/07	J8AG41A3
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Aluminum	200	188	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41A7
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Lead	50.0	46.0	mg/kg	92	SW846 6010B	10/05-10/11/07	J8AG41A4
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Antimony	50.0	50.3	mg/kg	101	SW846 6010B	10/05-10/11/07	J8AG41A8
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Selenium	200	180	mg/kg	90	SW846 6010B	10/05-10/11/07	J8AG41A5
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Barium	200	189	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41A9
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Thallium	200	185	mg/kg	92	SW846 6010B	10/05-10/11/07	J8AG41A6
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Beryllium	5.0	4.8	mg/kg	97	SW846 6010B	10/05-10/11/07	J8AG41CA
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Cadmium	5.0	4.7	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41CC
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Calcium	5000	4710	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41CD
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	20.0	18.8	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41CE
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Cobalt	50.0	45.8	mg/kg	92	SW846 6010B	10/05-10/11/07	J8AG41CF
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Copper	25.0	24.4	mg/kg	97	SW846 6010B	10/05-10/11/07	J8AG41CG
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Iron	100	104	mg/kg	104	SW846 6010B	10/05-10/11/07	J8AG41CH
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Magnesium	5000	4660	mg/kg	93	SW846 6010B	10/05-10/11/07	J8AG41CJ
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Manganese	50.0	48.3	mg/kg	97	SW846 6010B	10/05-10/11/07	J8AG41CK
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Nickel	50.0	48.0	mg/kg	96	SW846 6010B	10/05-10/11/07	J8AG41CL
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Potassium	5000	4630	mg/kg	93	SW846 6010B	10/05-10/11/07	J8AG41CM
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Silver	5.0	4.9	mg/kg	98	SW846 6010B	10/05-10/11/07	J8AG41CN
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Sodium	5000	4750	mg/kg	95	SW846 6010B	10/05-10/11/07	J8AG41CP
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Vanadium	50.0	47.6	mg/kg	95	SW846 6010B	10/05-10/11/07	J8AG41CQ
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	50.0	47.2	mg/kg	94	SW846 6010B	10/05-10/11/07	J8AG41CR
			Dilution Factor: 1		Analysis Time..: 10:49	Analyst ID.....: 001644	
			Instrument ID..: I5				
Mercury	0.83	0.79	mg/kg	95	SW846 7471A	10/05/07	J8AG41CT
			Dilution Factor: 1		Analysis Time..: 13:05	Analyst ID.....: 001086	
			Instrument ID..: H1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J030104-001 **Prep Batch #...:** 7278028					
Aluminum	NC,MSB	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CD
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Arsenic	84	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1A8
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Antimony	45 N	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CE
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Lead	93	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1A9
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Barium	91	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CF
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Selenium	82	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CA
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Beryllium	89	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CG
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Thallium	82	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CC
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Cadmium	85	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CH
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Calcium	88	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CJ
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	98	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CK
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Cobalt	84	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CL
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Copper	87	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CM
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Iron	NC,MSB	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CN
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Magnesium	93	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CP
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Manganese	NC,MSB	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CQ
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Nickel	89	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CR
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Potassium	95	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CT
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Silver	90	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CU
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Sodium	89	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CV
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			
Vanadium	96	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CW
		Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5	
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	72 N	(75 - 125)	SW846 6010B	10/05-10/11/07	J748R1CX
	Dilution Factor: 1	Analysis Time..: 10:56	Instrument ID..: I5		
	Analyst ID.....: 001644				
Mercury	89	(11 - 192)	SW846 7471A	10/05/07	J748R1C0
	Dilution Factor: 1	Analysis Time..: 13:20	Instrument ID..: H1		
	Analyst ID.....: 001086				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J030104-001 **Prep Batch #...:** 7278028								
Aluminum	7460	208	11100	mg/kg		SW846 6010B	10/05-10/11/07	J748R1CD
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Arsenic	12.5	208	187	mg/kg	84	SW846 6010B	10/05-10/11/07	J748R1A8
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Antimony	0.63	51.9	24.0 N	mg/kg	45	SW846 6010B	10/05-10/11/07	J748R1CE
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Lead	94.9	51.9	143	mg/kg	93	SW846 6010B	10/05-10/11/07	J748R1A9
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Barium	44.5	208	234	mg/kg	91	SW846 6010B	10/05-10/11/07	J748R1CF
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Selenium	ND	208	171	mg/kg	82	SW846 6010B	10/05-10/11/07	J748R1CA
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Beryllium	0.38	5.2	5.0	mg/kg	89	SW846 6010B	10/05-10/11/07	J748R1CG
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Thallium	1.4	208	173	mg/kg	82	SW846 6010B	10/05-10/11/07	J748R1CC
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Cadmium	0.43	5.2	4.8	mg/kg	85	SW846 6010B	10/05-10/11/07	J748R1CH
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Calcium	1870	5190	6440	mg/kg	88	SW846 6010B	10/05-10/11/07	J748R1CJ
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	22.3	20.8	42.7	mg/kg	98	SW846 6010B	10/05-10/11/07	J748R1CK
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Cobalt	6.9	51.9	50.5	mg/kg	84	SW846 6010B	10/05-10/11/07	J748R1CL
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Copper	33.1	26.0	55.7	mg/kg	87	SW846 6010B	10/05-10/11/07	J748R1CM
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Iron	36200	104	32600	mg/kg		SW846 6010B	10/05-10/11/07	J748R1CN
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Magnesium	1710	5190	6550	mg/kg	93	SW846 6010B	10/05-10/11/07	J748R1CP
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Manganese	404	51.9	468	mg/kg		SW846 6010B	10/05-10/11/07	J748R1CQ
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Nickel	22.4	51.9	68.7	mg/kg	89	SW846 6010B	10/05-10/11/07	J748R1CR
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Potassium	546	5190	5500	mg/kg	95	SW846 6010B	10/05-10/11/07	J748R1CT
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Silver	ND	5.2	4.7	mg/kg	90	SW846 6010B	10/05-10/11/07	J748R1CU
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Sodium	ND	5190	4620	mg/kg	89	SW846 6010B	10/05-10/11/07	J748R1CV
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	13.2	51.9	62.9	mg/kg	96	SW846 6010B	10/05-10/11/07	J748R1CW
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Zinc	92.3	51.9	130 N	mg/kg	72	SW846 6010B	10/05-10/11/07	J748R1CX
			Dilution Factor: 1		Analysis Time..: 10:56		Instrument ID..: I5	
			Analyst ID.....: 001644					
Mercury	0.068	0.17	0.22	mg/kg	89	SW846 7471A	10/05/07	J748R1C0
			Dilution Factor: 1		Analysis Time..: 13:20		Instrument ID..: H1	
			Analyst ID.....: 001086					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A7J030104 **Work Order #...:** J748R-SMP J748R-DUP **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 3.7

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Aluminum						SD Lot-Sample #: A7J030104-001		
	7460	7220	mg/kg	3.2	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Arsenic						SD Lot-Sample #: A7J030104-001		
	12.5	11.7	mg/kg	7.1	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Lead						SD Lot-Sample #: A7J030104-001		
	94.9	75.6	mg/kg	23	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Antimony						SD Lot-Sample #: A7J030104-001		
	0.63 B	0.56 B	mg/kg	12	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Barium						SD Lot-Sample #: A7J030104-001		
	44.5	44.7	mg/kg	0.49	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Selenium						SD Lot-Sample #: A7J030104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Beryllium						SD Lot-Sample #: A7J030104-001		
	0.38 B	0.37 B	mg/kg	1.5	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Thallium						SD Lot-Sample #: A7J030104-001		
	1.4 B	0.82 B	mg/kg	52	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cadmium						SD Lot-Sample #: A7J030104-001		
	0.43 B	0.41 B	mg/kg	4.1	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						

(Continued on next page)

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J030104-000 **Work Order #...:** J748R-SMP J748R-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Calcium						SD Lot-Sample #: A7J030104-001		
	1870	1940	mg/kg	3.8	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Chromium						SD Lot-Sample #: A7J030104-001		
	22.3	19.0	mg/kg	16	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cobalt						SD Lot-Sample #: A7J030104-001		
	6.9	6.0	mg/kg	15	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Copper						SD Lot-Sample #: A7J030104-001		
	33.1	24.9	mg/kg	28	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Iron						SD Lot-Sample #: A7J030104-001		
	36200	27900	mg/kg	26	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Magnesium						SD Lot-Sample #: A7J030104-001		
	1710	1710	mg/kg	0.055	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Manganese						SD Lot-Sample #: A7J030104-001		
	404	386	mg/kg	4.4	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Nickel						SD Lot-Sample #: A7J030104-001		
	22.4	19.7	mg/kg	13	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Potassium						SD Lot-Sample #: A7J030104-001		
	546 J	495 B	mg/kg	9.9	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						

(Continued on next page)

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J030104-000 **Work Order #...:** J748R-SMP J748R-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Silver						SD Lot-Sample #: A7J030104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Sodium						SD Lot-Sample #: A7J030104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Vanadium						SD Lot-Sample #: A7J030104-001		
	13.2	12.6	mg/kg	4.8	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Zinc						SD Lot-Sample #: A7J030104-001		
	92.3	73.7	mg/kg	22	(0-20)	SW846 6010B	10/05-10/11/07	7278028
		Dilution Factor: 1				Analysis Time..: 10:56	Analyst ID.....: 001644	
		Instrument ID..: I5						
Mercury						SD Lot-Sample #: A7J030104-001		
	0.068 B	0.073 B	mg/kg	7.0	(0-20)	SW846 7471A	10/05/07	7278028
		Dilution Factor: 1				Analysis Time..: 13:20	Analyst ID.....: 001086	
		Instrument ID..: H1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 10/05/07 10:24 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.26	**90.3**								

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICV 10/11/07 8:31 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	12500.0	12608.27	**100.9**								
Antimony	206.838	250.0	268.78	**107.5**								
Arsenic	189.042	250.0	251.27	**100.5**								
Barium	493.409	1000.0	1011.25	**101.1**								
Beryllium	313.042	1000.0	1023.20	**102.3**								
Cadmium	226.502	250.0	251.28	**100.5**								
Calcium	317.933	25000.0	25636.00	**102.5**								
Chromium	267.716	1000.0	1005.21	**100.5**								
Cobalt	228.616	1000.0	984.02	**98.4**								
Copper	324.753	1000.0	1035.16	**103.5**								
Iron	271.441	12500.0	12742.35	**101.9**								
Lead	220.353	250.0	249.91	**100.0**								
Magnesium	279.078	25000.0	25252.30	**101.0**								
Manganese	257.61	1000.0	1026.67	**102.7**								
Nickel	231.604	1000.0	1011.24	**101.1**								
Potassium	766.491	25000.0	24202.78	**96.8**								
Selenium	196.026	250.0	245.45	**98.2**								
Silver	328.068	500.0	482.45	**96.5**								
Sodium	330.232	25000.0	25605.54	**102.4**								
Thallium	190.864	500.0	500.10	**100.0**								
Vanadium	292.402	1000.0	1025.81	**102.6**								
Zinc	213.856	1000.0	983.04	**98.3**								

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/05/07 10:29 AM Found	% Rec	Ck2CCV 10/05/07 10:43 AM Found	% Rec	Ck2CCV 10/05/07 10:57 AM Found	% Rec	Ck2CCV 10/05/07 11:12 AM Found	% Rec	Ck2CCV 10/05/07 11:27 AM Found	% Rec
Mercury	253.7	5.0	5.16	**103.1**	5.19	**103.8**	5.17	**103.4**	5.19	**103.8**	5.18	**103.5**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/05/07 11:41 AM Found	% Rec	Ck2CCV 10/05/07 11:56 AM Found	% Rec	Ck2CCV 10/05/07 12:04 PM Found	% Rec	Ck2CCV 10/05/07 12:40 PM Found	% Rec	Ck2CCV 10/05/07 12:55 PM Found	% Rec
Mercury	253.7	5.0	5.16	**103.2**	5.14	**102.7**	5.15	**102.9**	5.02	**100.3**	5.02	**100.5**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/05/07 1:08 PM Found	% Rec	Ck2CCV 10/05/07 1:23 PM Found	% Rec	Ck2CCV 10/05/07 1:33 PM Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.11	**102.1**	5.10	**102.0**	5.10	**102.1**				

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/07 10:14 AM Found	% Rec	CCV 10/11/07 11:36 AM Found	% Rec	CCV 10/11/07 12:50 PM Found	% Rec	CCV 10/11/07 1:48 PM Found	% Rec	CCV 10/11/07 3:33 PM Found	% Rec
Aluminum	308.215	25000.0	24920.68	**99.7**	24913.53	**99.7**	24895.68	**99.6**	24822.39	**99.3**	24862.44	**99.4**
Antimony	206.838	500.0	528.34	**105.7**	529.51	**105.9**	522.33	**104.5**	523.26	**104.7**	525.32	**105.1**
Arsenic	189.042	500.0	486.14	**97.2**	484.35	**96.9**	480.94	**96.2**	478.37	**95.7**	487.49	**97.5**
Barium	493.409	2000.0	1980.11	**99.0**	1988.56	**99.4**	1988.98	**99.4**	1979.74	**99.0**	1985.17	**99.3**
Beryllium	313.042	2000.0	1970.92	**98.5**	1974.33	**98.7**	1963.77	**98.2**	1957.99	**97.9**	1965.37	**98.3**
Cadmium	226.502	500.0	488.98	**97.8**	489.19	**97.8**	487.43	**97.5**	486.45	**97.3**	489.75	**97.9**
Calcium	317.933	50000.0	49180.29	**98.4**	49347.66	**98.7**	49195.77	**98.4**	48984.94	**98.0**	49220.84	**98.4**
Chromium	267.716	2000.0	1944.72	**97.2**	1947.50	**97.4**	1938.45	**96.9**	1931.57	**96.6**	1942.92	**97.1**
Cobalt	228.616	2000.0	1913.58	**95.7**	1914.34	**95.7**	1905.73	**95.3**	1901.30	**95.1**	1916.33	**95.8**
Copper	324.753	2000.0	2024.83	**101.2**	2011.97	**100.6**	2006.66	**100.3**	2001.55	**100.1**	2013.86	**100.7**
Iron	271.441	25000.0	24644.73	**98.6**	24546.32	**98.2**	24423.21	**97.7**	24309.20	**97.2**	24504.69	**98.0**
Lead	220.353	500.0	482.39	**96.5**	482.20	**96.4**	480.51	**96.1**	479.27	**95.9**	478.64	**95.7**
Magnesium	279.078	50000.0	49319.36	**98.6**	49423.99	**98.8**	49276.67	**98.6**	48979.05	**98.0**	49537.77	**99.1**
Manganese	257.61	2000.0	1991.59	**99.6**	2059.19	**103.0**	2045.26	**102.3**	2030.41	**101.5**	2064.42	**103.2**
Nickel	231.604	2000.0	2013.87	**100.7**	2008.75	**100.4**	2003.69	**100.2**	2011.45	**100.6**	2048.70	**102.4**
Potassium	766.491	50000.0	48954.36	**97.9**	49120.77	**98.2**	49261.13	**98.5**	49226.89	**98.5**	49099.22	**98.2**
Selenium	196.026	500.0	479.77	**96.0**	480.74	**96.1**	472.96	**94.6**	473.25	**94.7**	475.26	**95.1**
Silver	328.068	1000.0	954.36	**95.4**	952.31	**95.2**	947.95	**94.8**	945.76	**94.6**	949.48	**94.9**
Sodium	330.232	50000.0	48256.94	**96.5**	48465.64	**96.9**	48525.59	**97.1**	48330.45	**96.7**	48776.45	**97.6**
Thallium	190.864	1000.0	978.49	**97.8**	975.29	**97.5**	968.23	**96.8**	965.23	**96.5**	968.31	**96.8**
Vanadium	292.402	2000.0	1979.57	**99.0**	1983.90	**99.2**	1976.76	**98.8**	1969.86	**98.5**	1980.08	**99.0**
Zinc	213.856	2000.0	1893.25	**94.7**	1887.41	**94.4**	1875.96	**93.8**	1874.02	**93.7**	1891.21	**94.6**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/07 4:42 PM Found	% Rec	CCV 10/11/07 5:49 PM Found	% Rec	CCV 10/11/07 6:57 PM Found	% Rec	CCV 10/11/07 8:04 PM Found	% Rec	CCV 10/11/07 9:12 PM Found	% Rec
Aluminum	308.215	25000.0	24821.29	**99.3**	24952.40	**99.8**	25044.67	**100.2**	25283.96	**101.1**	25437.55	**101.8**
Antimony	206.838	500.0	526.08	**105.2**	526.44	**105.3**	531.64	**106.3**	540.70	**108.1**	530.59	**106.1**
Arsenic	189.042	500.0	479.62	**95.9**	483.18	**96.6**	488.04	**97.6**	495.66	**99.1**	494.14	**98.8**
Barium	493.409	2000.0	1991.66	**99.6**	2015.29	**100.8**	2028.65	**101.4**	2046.08	**102.3**	2060.12	**103.0**
Beryllium	313.042	2000.0	1963.39	**98.2**	1971.22	**98.6**	1984.37	**99.2**	1999.46	**100.0**	2002.64	**100.1**
Cadmium	226.502	500.0	487.86	**97.6**	489.09	**97.8**	491.66	**98.3**	494.58	**98.9**	494.09	**98.8**
Calcium	317.933	50000.0	49226.69	**98.5**	49476.36	**99.0**	49844.07	**99.7**	50249.46	**100.5**	50363.72	**100.7**
Chromium	267.716	2000.0	1944.43	**97.2**	1956.48	**97.8**	1973.06	**98.7**	1991.67	**99.6**	1997.91	**99.9**
Cobalt	228.616	2000.0	1914.72	**95.7**	1926.55	**96.3**	1941.41	**97.1**	1957.84	**97.9**	1961.78	**98.1**
Copper	324.753	2000.0	2009.16	**100.5**	2024.84	**101.2**	2031.59	**101.6**	2049.98	**102.5**	2059.82	**103.0**
Iron	271.441	25000.0	24564.42	**98.3**	24756.67	**99.0**	25098.01	**100.4**	25469.62	**101.9**	25551.34	**102.2**
Lead	220.353	500.0	481.68	**96.3**	484.82	**97.0**	489.10	**97.8**	494.34	**98.9**	493.42	**98.7**
Magnesium	279.078	50000.0	49348.15	**98.7**	49599.61	**99.2**	49950.73	**99.9**	50334.71	**100.7**	50516.02	**101.0**
Manganese	257.61	2000.0	2057.61	**102.9**	2057.96	**102.9**	2068.68	**103.4**	2073.27	**103.7**	2080.96	**104.0**
Nickel	231.604	2000.0	2033.05	**101.7**	2031.22	**101.6**	2020.81	**101.0**	2015.11	**100.8**	2002.79	**100.1**
Potassium	766.491	50000.0	49429.96	**98.9**	49676.34	**99.4**	49561.18	**99.1**	49935.27	**99.9**	50222.73	**100.4**
Selenium	196.026	500.0	477.53	**95.5**	478.63	**95.7**	479.81	**96.0**	489.98	**98.0**	485.51	**97.1**
Silver	328.068	1000.0	945.29	**94.5**	947.69	**94.8**	946.90	**94.7**	952.69	**95.3**	954.93	**95.5**
Sodium	330.232	50000.0	48989.28	**98.0**	49292.45	**98.6**	49441.68	**98.9**	49939.42	**99.9**	50250.11	**100.5**
Thallium	190.864	1000.0	967.60	**96.8**	970.93	**97.1**	976.48	**97.6**	984.98	**98.5**	985.07	**98.5**
Vanadium	292.402	2000.0	1987.51	**99.4**	2006.39	**100.3**	2026.37	**101.3**	2048.57	**102.4**	2061.65	**103.1**
Zinc	213.856	2000.0	1884.44	**94.2**	1890.41	**94.5**	1894.74	**94.7**	1903.94	**95.2**	1902.66	**95.1**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/07 10:18 PM Found	% Rec	CCV 10/11/07 11:28 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	25000.0	25505.96	**102.0**	25543.27	**102.2**						
Antimony	206.838	500.0	542.22	**108.4**	543.13	**108.6**						
Arsenic	189.042	500.0	493.65	**98.7**	495.89	**99.2**						
Barium	493.409	2000.0	2061.42	**103.1**	2069.41	**103.5**						
Beryllium	313.042	2000.0	2013.01	**100.7**	2015.14	**100.8**						
Cadmium	226.502	500.0	495.92	**99.2**	497.07	**99.4**						
Calcium	317.933	50000.0	50711.48	**101.4**	50742.27	**101.5**						
Chromium	267.716	2000.0	2010.89	**100.5**	2011.34	**100.6**						
Cobalt	228.616	2000.0	1973.02	**98.7**	1974.52	**98.7**						
Copper	324.753	2000.0	2060.52	**103.0**	2066.64	**103.3**						
Iron	271.441	25000.0	25800.47	**103.2**	25762.38	**103.0**						
Lead	220.353	500.0	497.93	**99.6**	498.41	**99.7**						
Magnesium	279.078	50000.0	50783.98	**101.6**	50778.25	**101.6**						
Manganese	257.61	2000.0	2098.56	**104.9**	2113.71	**105.7**						
Nickel	231.604	2000.0	1993.27	**99.7**	1994.13	**99.7**						
Potassium	766.491	50000.0	50180.49	**100.4**	50187.97	**100.4**						
Selenium	196.026	500.0	487.84	**97.6**	490.38	**98.1**						
Silver	328.068	1000.0	955.20	**95.5**	957.37	**95.7**						
Sodium	330.232	50000.0	50518.02	**101.0**	50455.37	**100.9**						
Thallium	190.864	1000.0	990.04	**99.0**	992.48	**99.2**						
Vanadium	292.402	2000.0	2074.22	**103.7**	2075.27	**103.8**						
Zinc	213.856	2000.0	1903.45	**95.2**	1908.18	**95.4**						

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck3CRA\MRL 10/05/07 10:28 AM Found	% Rec	CRA 10/05/07 1:31 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	0.2	0.18	**89.2**	0.15	**76.1**						

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CRI/MRL 10/11/07 8:45 AM Found	% Rec	CRI/MRL 10/11/07 11:20 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	200.0	205.09	**102.5**	186.81	**93.4**						
Antimony	206.838	10.0	8.50	**85.0**	8.21	**82.1**						
Arsenic	189.042	15.0	13.36	**89.1**	14.00	**93.3**						
Barium	493.409	10.0	10.36	**103.6**	10.55	**105.5**						
Beryllium	313.042	5.0	5.27	**105.4**	5.10	**102.0**						
Cadmium	226.502	5.0	5.26	**105.1**	5.24	**104.9**						
Calcium	317.933	5000.0	5167.87	**103.4**	5209.10	**104.2**						
Chromium	267.716	5.0	4.99	**99.8**	5.02	**100.3**						
Cobalt	228.616	5.0	5.18	**103.5**	4.92	**98.3**						
Copper	324.753	15.0	15.22	**101.5**	15.77	**105.2**						
Iron	271.441	300.0	309.82	**103.3**	312.46	**104.2**						
Lead	220.353	10.0	10.46	**104.6**	10.79	**107.9**						
Magnesium	279.078	5000.0	5085.07	**101.7**	5120.92	**102.4**						
Manganese	257.61	15.0	15.96	**106.4**	16.60	**110.7**						
Nickel	231.604	25.0	27.62	**110.5**	26.50	**106.0**						
Potassium	766.491	5000.0	4474.39	**89.5**	4484.94	**89.7**						
Selenium	196.026	20.0	22.73	**113.6**	22.90	**114.5**						
Silver	328.068	5.0	4.85	**97.0**	5.15	**103.0**						
Sodium	330.232	5000.0	5376.67	**107.5**	5470.97	**109.4**						
Thallium	190.864	15.0	13.97	**93.1**	15.73	**104.8**						
Vanadium	292.402	7.0	6.94	**99.1**	7.32	**104.6**						
Zinc	213.856	40.0	46.08	**115.2**	45.67	**114.2**						

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 10/05/07 10:26 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 10/11/07 8:40 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	16.7	U								
Antimony	206.838	100	2.6	U								
Arsenic	189.042	10	1.9	U								
Barium	493.409	10	0.2	U								
Beryllium	313.042	10	0.1	U								
Cadmium	226.502	10	0.2	U								
Calcium	317.933	1000	**-3.8**	**B**								
Chromium	267.716	20	**-0.7**	**B**								
Cobalt	228.616	20	0.6	U								
Copper	324.753	20	**-1.2**	**B**								
Iron	271.441	200	**-7.8**	**B**								
Lead	220.353	10	1.1	U								
Magnesium	279.078	1000	3.2	U								
Manganese	257.61	10	0.1	U								
Nickel	231.604	20	1.7	U								
Potassium	766.491	5000	**136.0**	**B**								
Selenium	196.026	10	2.5	U								
Silver	328.068	20	1.2	U								
Sodium	330.232	1000	**-890.0**	**B**								
Thallium	190.864	20	**2.3**	**B**								
Vanadium	292.402	20	0.4	U								
Zinc	213.856	40	0.5	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/05/07 10:30 AM Found	Q	Ck1CCB 10/05/07 10:44 AM Found	Q	Ck1CCB 10/05/07 10:58 AM Found	Q	Ck1CCB 10/05/07 11:14 AM Found	Q	Ck1CCB 10/05/07 11:29 AM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/05/07 11:42 AM Found	Q	Ck1CCB 10/05/07 11:57 AM Found	Q	Ck1CCB 10/05/07 12:05 PM Found	Q	Ck1CCB 10/05/07 12:41 PM Found	Q	Ck1CCB 10/05/07 12:56 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11005a.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/05/07 1:10 PM Found	Q	Ck1CCB 10/05/07 1:24 PM Found	Q	Ck1CCB 10/05/07 1:34 PM Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U				

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/07 10:22 AM Found	Q	CCB 10/11/07 11:44 AM Found	Q	CCB 10/11/07 12:58 PM Found	Q	CCB 10/11/07 1:56 PM Found	Q	CCB 10/11/07 3:41 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	**0.1**	**B**	0.1	U	0.1	U	**0.1**	**B**	0.1	U
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**-6.8**	**B**	**-5.6**	**B**	**-4.9**	**B**	**-6.3**	**B**	**-6.4**	**B**
Chromium	267.716	20	0.6	U	**0.7**	**B**	**-0.6**	**B**	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	**0.8**	**B**	0.6	U	0.6	U	0.6	U
Copper	324.753	20	**-1.3**	**B**	**-1.4**	**B**	**-1.9**	**B**	1.1	U	**-1.9**	**B**
Iron	271.441	200	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	0.1	U	0.1	U	0.1	U	**0.1**	**B**
Nickel	231.604	20	1.7	U	**2.1**	**B**	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**147.0**	**B**	**163.0**	**B**	**138.0**	**B**	**143.0**	**B**	**144.0**	**B**
Selenium	196.026	10	**3.8**	**B**	2.5	U	2.5	U	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-420.0**	**B**	320.0	U	**-640.0**	**B**	**-730.0**	**B**	**-440.0**	**B**
Thallium	190.864	20	2.2	U	**3.4**	**B**	2.2	U	2.2	U	2.2	U
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/07 4:50 PM Found	Q	CCB 10/11/07 5:56 PM Found	Q	CCB 10/11/07 7:05 PM Found	Q	CCB 10/11/07 8:11 PM Found	Q	CCB 10/11/07 9:20 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	**-2.6**	**B**	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	0.1	U	0.1	U	0.1	U	**-0.1**	**B**	**-0.1**	**B**
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**-6.0**	**B**	3.4	U	3.4	U	3.4	U	**7.2**	**B**
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	**-2.0**	**B**	1.1	U	1.1	U	1.1	U	1.1	U
Iron	271.441	200	**-10.0**	**B**	**-9.3**	**B**	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	**0.1**	**B**	0.1	U	**0.1**	**B**	0.1	U
Nickel	231.604	20	1.7	U	1.7	U	1.7	U	**1.7**	**B**	1.7	U
Potassium	766.491	5000	**144.0**	**B**	**147.0**	**B**	**138.0**	**B**	**145.0**	**B**	**144.0**	**B**
Selenium	196.026	10	2.5	U	2.5	U	2.5	U	**2.9**	**B**	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-470.0**	**B**	320.0	U	**-630.0**	**B**	**-580.0**	**B**	**-420.0**	**B**
Thallium	190.864	20	2.2	U	**3.0**	**B**	2.2	U	**3.2**	**B**	2.2	U
Vanadium	292.402	20	**-0.5**	**B**	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	CCB 10/11/07 10:25 PM Found	Q	CCB 10/11/07 11:35 PM Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	16.7	U	16.7	U						
Antimony	206.838	100	2.6	U	2.6	U						
Arsenic	189.042	10	1.9	U	1.9	U						
Barium	493.409	10	0.2	U	0.2	U						
Beryllium	313.042	10	**-0.1**	**B**	**-0.2**	**B**						
Cadmium	226.502	10	0.2	U	0.2	U						
Calcium	317.933	1000	**7.9**	**B**	**8.8**	**B**						
Chromium	267.716	20	0.6	U	0.6	U						
Cobalt	228.616	20	0.6	U	0.6	U						
Copper	324.753	20	1.1	U	1.1	U						
Iron	271.441	200	7.6	U	7.6	U						
Lead	220.353	10	1.1	U	1.1	U						
Magnesium	279.078	1000	3.2	U	3.2	U						
Manganese	257.61	10	0.1	U	0.1	U						
Nickel	231.604	20	1.7	U	1.7	U						
Potassium	766.491	5000	**142.0**	**B**	**141.0**	**B**						
Selenium	196.026	10	2.5	U	2.5	U						
Silver	328.068	20	1.2	U	1.2	U						
Sodium	330.232	1000	**-640.0**	**B**	**-430.0**	**B**						
Thallium	190.864	20	2.2	U	**4.5**	**B**						
Vanadium	292.402	20	0.4	U	0.4	U						
Zinc	213.856	40	0.5	U	0.5	U						

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 10/11/07 10:00 AM Found	Found	Found	Found	Found
Aluminum	308.215		500000	488000				
Antimony	206.838	100		-5				
Arsenic	189.042	10		-1				
Barium	493.409	10		2				
Beryllium	313.042	10		0				
Cadmium	226.502	10		1				
Calcium	317.933		500000	471000				
Chromium	267.716	20		-2				
Cobalt	228.616	20		2				
Copper	324.753	20		1				
Iron	271.441		200000	188000				
Lead	220.353	10		0				
Magnesium	279.078		500000	510000				
Manganese	257.61	10		14				
Nickel	231.604	20		3				
Potassium	766.491	5000		131				
Selenium	196.026	10		-1				
Silver	328.068	20		0				
Sodium	330.232	1000		-840				
Thallium	190.864	20		4				
Vanadium	292.402	20		0				
Zinc	213.856	40		11				

U Result is less than the IDL

B Result is between IDL and RL

Form 4 Equivalent

Test America North Canton

Metals Data Reporting Form

Interference Check Standard AB

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 10/11/07 10:05 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	500000	489125.6	**97.8**								
Antimony	206.838	1000	1088.6	**108.9**								
Arsenic	189.042	1000	1006.6	**100.7**								
Barium	493.409	500	515.6	**103.1**								
Beryllium	313.042	500	496.2	**99.2**								
Cadmium	226.502	1000	944.7	**94.5**								
Calcium	317.933	500000	476214.9	**95.2**								
Chromium	267.716	500	477.0	**95.4**								
Cobalt	228.616	500	471.5	**94.3**								
Copper	324.753	500	527.3	**105.5**								
Iron	271.441	200000	190525.0	**95.3**								
Lead	220.353	1000	945.0	**94.5**								
Magnesium	279.078	500000	518170.8	**103.6**								
Manganese	257.61	500	497.8	**99.6**								
Nickel	231.604	1000	950.8	**95.1**								
Potassium	766.491	10000	9992.1	**99.9**								
Selenium	196.026	1000	944.6	**94.5**								
Silver	328.068	1000	1008.0	**100.8**								
Sodium	330.232	10000	10852.2	**108.5**								
Thallium	190.864	1000	950.2	**95.0**								
Vanadium	292.402	500	495.7	**99.1**								
Zinc	213.856	1000	989.9	**99.0**								

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL

Form 4 Equivalent

Test America North Canton

Metals Data Reporting Form

Post Digest Spike Sample Results

Spike Sample ID: J748RA

Original Sample ID: J748R **Client ID:** RVAAP-LNWBG-SS-1

Matrix: Soil **Units:** ug/L **Prep Date:** 10/05/07 **Prep Batch:** 7278028

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	PDS Conc	Q	Spike Level	% Rec	OS DF	PDS DF	Instr	OS Anal Date	OS Anal Time	PDS Anal Date	PDS Anal Time
Antimony	206.8	6.1	B	242		200	117.7	1	1	ICPST	10/11/07	10:56	10/11/07	13:14

Comments:

5.21.0

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL
B Result is between IDL and RL

Form 5B Equivalent

Test America North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: J748RL

Original Sample ID: J748R **Client ID:** RVAAP-LNWBG-SS-1

Matrix: Soil **Units:** ug/L **Prep Date:** 10/05/07 **Prep Batch:** 7272028

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	Serial Dilution Conc	Q	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	71900		72900		1.4	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Antimony	206.838	6.1	B	13.0	U		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Arsenic	189.042	121		122		0.6	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Barium	493.409	428		436		1.8	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Beryllium	313.042	3.6	B	4.0	B		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Cadmium	226.502	4.1	B	3.4	B		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Calcium	317.933	18000		18300		1.9	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Chromium	267.716	215		220		2.3	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Cobalt	228.616	66.9		68.8	B	2.8	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Copper	324.753	319		316		0.9	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Iron	271.441	349000		363000		4.1	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Lead	220.353	914		957		4.7	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Magnesium	279.078	16500		16900		2.6	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Manganese	257.61	3890		4050		4.3	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Nickel	231.604	215		224		4.1	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Potassium	766.491	5260		5130	B	2.5	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Selenium	196.026	2.5	U	12.5	U		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Silver	328.068	2.8	B	6.0	U		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Sodium	330.232	320	U	1600	U		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Thallium	190.864	13.4	B	24.5	B		1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Vanadium	292.402	127		129		1.2	1	5	ICPST	10/11/07	10:56	10/11/07	11:01
Zinc	213.856	889		921		3.6	1	5	ICPST	10/11/07	10:56	10/11/07	11:01

Comments:

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 9 Equivalent

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	02/01/07

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Aluminum	308.215	200.0	16.7	06/05/07
Antimony	206.838	100.0	2.6	06/05/07
Arsenic	189.042	10.0	1.9	06/05/07
Barium	493.409	10.0	0.20	06/05/07
Beryllium	313.042	10.0	0.089	06/05/07
Cadmium	226.502	10.0	0.15	06/05/07
Calcium	317.933	1000.0	3.4	06/05/07
Chromium	267.716	20.0	0.60	06/05/07
Cobalt	228.616	20.0	0.63	06/05/07
Copper	324.753	20.0	1.1	06/05/07
Iron	271.441	200.0	7.6	06/05/07
Lead	220.353	10.0	1.1	06/05/07
Magnesium	279.078	1000.0	3.2	06/05/07
Manganese	257.610	10.0	0.053	06/05/07
Nickel	231.604	20.0	1.7	06/05/07
Potassium	766.491	5000.0	16.9	06/05/07
Selenium	196.026	10.0	2.5	06/05/07
Silver	328.068	20.0	1.2	06/05/07
Sodium	330.232	1000.0	320	06/05/07
Thallium	190.864	20.0	2.2	06/05/07
Vanadium	292.402	20.0	0.43	06/05/07
Zinc	213.856	40.0	0.52	06/05/07

Test America North Canton

Metals Data Reporting Form

Inter-Element Correction Factors

Instrument: ICPST **Date of IEC's:** 06/05/07

Interfering Element	Wavelength /Mass	Correction Factor(s)
Aluminum	308.215	Cd(0.000004), Pb(-0.00001333), Sb(-0.00000667), Se(-0.00000667), Tl(-0.00002), Zn(0.000011)
Chromium	267.716	As(-0.00324), Fe(0.001539), Sb(0.01166), Tl(0.000317)
Copper	324.753	Pb(0.00008667), Zn(0.000506)
Iron	271.441	As(0.000006), Cd(0.000082), Mn(0.000006), Mo(-0.00001), Pb(0.00004867), Sb(0.00002267), Se(-0.00018), Tl(-0.00006), V(0.000027), Zn(0.000106)
Manganese	257.61	Ag(0.000126), Al(0.013466), Mg(-0.00193), Pb(0.00005733), Se(0.00056933), Tl(-0.00088)
Molybdenum	202.03	Al(0.014499), As(-0.00131), Cu(0.00048), Fe(0.002719), Pb(-0.00066333), Sb(-0.00739233), V(-0.00073)
Nickel	231.604	Cd(0.000027), Co(0.00022), Pb(0.00018667), Sb(-0.00275333), Zn(0.005936)
Titanium	334.941	Be(-0.00178)
Vanadium	292.402	Al(0.028359), Be(0.000207), Cr(0.000165), Cu(-0.00024), Fe(0.011236), Pb(-0.00014), Sb(-0.00009333), Tl(0.002281)

Test America North Canton

Metals Data Reporting Form

Linear Dynamic Ranges

Instrument: ICPST **Units:** ppb

Element	Wavelength /Mass	Linear Range	Date of Linear Range
Aluminum	308.22	500000	06/05/07
Antimony	206.84	10000	06/05/07
Arsenic	189.04	10000	06/05/07
Barium	493.41	25000	06/05/07
Beryllium	313.04	4000	06/05/07
Cadmium	226.50	2500	06/05/07
Calcium	317.93	600000	06/05/07
Chromium	267.72	50000	06/05/07
Cobalt	228.62	50000	06/05/07
Copper	324.75	50000	06/05/07
Iron	271.44	600000	06/05/07
Lead	220.35	15000	06/05/07
Magnesium	279.08	500000	06/05/07
Manganese	257.61	25000	06/05/07
Nickel	231.60	50000	06/05/07
Potassium	766.49	600000	06/05/07
Selenium	196.03	10000	06/05/07
Silver	328.07	2000	06/05/07
Sodium	330.23	600000	06/05/07
Thallium	190.86	20000	06/05/07
Vanadium	292.40	50000	06/05/07
Zinc	213.86	10000	06/05/07

Batch Number: **7278028**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/05/07
Due Date: 10/17/07

Lot	Work Order			ICP Weight	ICPMS Weight	Hg Weight
A7J050000 Solid	J8AG4	B	Due Date: SDG:	1.00 g		0.60 g
A7J050000 Solid	J8AG4	C	Due Date: SDG:	1.00 g		0.60 g
A7J030104 Solid	J748R Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J748R Total	S	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J748R Total	X	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J748X Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J7481 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J7483 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J7484 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J7488 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J749C Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J749D Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J030104 Solid	J749E Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J777D Total		Due Date: 11/01/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J777D Total	S	Due Date: 11/01/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J777D Total	X	Due Date: 11/01/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J777P Total		Due Date: 11/01/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J778P Total		Due Date: 11/01/07 SDG:	1.00 g		0.60 g
A7J040113 Solid	J7782 Total		Due Date: 11/01/07 SDG:	1.00 g		0.60 g

Batch Number: **7278028**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/05/07
Due Date: 10/17/07

Lot	Work Order	ICP Weight	ICPMS Weight	Hg Weight

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH	X
MS/MSD AND PDS ON BATCH	X
CORRECT SPIKES ADDED	X
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG	X

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICP ELEMENTS WITHIN THE BATCH:

AG AL AS BA BE CA CD CO CR CU FE KX MG MN NA NI PB SB SE TL VX ZN

Matrix Spike Information:

J748R	ICP-1	ICP-2A	Hg	Ag

Matrix Spike Information:

J777D	ICP-1	ICP-2A	Hg	Ag

Check Sample Information:

J8AG4	ICP-1	ICP-2A	Hg	Ag

Prep Method(s): SW846 3050B, SW846 7471A

: Instrument Upload Run Log - Page 1 :
: Started Fri Oct 5 11:56:40 2007 by LISTM :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG11005A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	05-OCT-2007	10:17:38			H1
2	STD2REP1	1	05-OCT-2007	10:18:46			H1
3	STD3REP1	1	05-OCT-2007	10:20:02			H1
4	STD4REP1	1	05-OCT-2007	10:21:31			H1
5	STD5REP1	1	05-OCT-2007	10:22:39			H1
6	STD6REP1	1	05-OCT-2007	10:23:45			H1
7	CK5ICV	1	05-OCT-2007	10:24:55			H1
8	CK4ICB	1	05-OCT-2007	10:26:02			H1
9	CK3CRA\MRL	1	05-OCT-2007	10:27:16			H1
10	CK3CRA\MRL	1	05-OCT-2007	10:28:35			H1
11	CK2CCV	1	05-OCT-2007	10:29:40			H1
12	CK1CCB	1	05-OCT-2007	10:30:46			H1
13	J72LDB	1	05-OCT-2007	10:31:50	7275022	A7J020000	H1
14	J72LDC	1	05-OCT-2007	10:32:56	7275022	A7J020000	H1
15	J7KE2	1	05-OCT-2007	10:34:00	7275022	A7I250111	H1
16	J7KE2S	1	05-OCT-2007	10:35:05	7275022	A7I250111	H1
17	J7KE2D	1	05-OCT-2007	10:36:10	7275022	A7I250111	H1
18	J7KE4	1	05-OCT-2007	10:37:19	7275022	A7I250111	H1
19	J7KE5	1	05-OCT-2007	10:38:26	7275022	A7I250111	H1
20	J7KE7	1	05-OCT-2007	10:39:43	7275022	A7I250111	H1
21	J7KE8	1	05-OCT-2007	10:41:10	7275022	A7I250111	H1
22	J71PC	1	05-OCT-2007	10:42:17	7275022	A7J010145	H1
23	CK2CCV	1	05-OCT-2007	10:43:25			H1
24	CK1CCB	1	05-OCT-2007	10:44:41			H1
25	J77T9B	1	05-OCT-2007	10:45:56	7277025	A7J040000	H1
26	J77T9C	1	05-OCT-2007	10:47:12	7277025	A7J040000	H1
27	J75A2	1	05-OCT-2007	10:48:19	7277025	A7J030111	H1
28	J7571	1	05-OCT-2007	10:49:24	7277025	A7J030220	H1
29	J7571S	1	05-OCT-2007	10:50:28	7277025	A7J030220	H1
30	J7571D	1	05-OCT-2007	10:51:37	7277025	A7J030220	H1
31	J75J4	1	05-OCT-2007	10:52:42	7277025	A7J030122	H1
32	J75J7	1	05-OCT-2007	10:53:59	7277025	A7J030122	H1
33	J75J8	1	05-OCT-2007	10:55:07	7277025	A7J030122	H1
34	J75J9	1	05-OCT-2007	10:56:13	7277025	A7J030122	H1
35	CK2CCV	1	05-OCT-2007	10:57:24			H1
36	CK1CCB	1	05-OCT-2007	10:58:31			H1
37	J75KD	1	05-OCT-2007	10:59:56	7277025	A7J030122	H1
38	J75KE	1	05-OCT-2007	11:01:28	7277025	A7J030122	H1
39	J75NM	1	05-OCT-2007	11:02:37	7277025	A7J030136	H1
40	J75NT	1	05-OCT-2007	11:04:05	7277025	A7J030136	H1
41	J76MM	1	05-OCT-2007	11:05:19	7277025	A7J030290	H1
42	J744NB	1	05-OCT-2007	11:06:29	7276018	A7J030000	H1
43	J744NC	1	05-OCT-2007	11:07:47	7276018	A7J030000	H1
44	J730T	1	05-OCT-2007	11:08:56	7276018	A7J020253	H1

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	J730TS	1	05-OCT-2007	11:10:22	7276018	A7J020253	H1
46	J730TD	1	05-OCT-2007	11:11:29	7276018	A7J020253	H1
47	CK2CCV	1	05-OCT-2007	11:12:47			H1
48	CK1CCB	1	05-OCT-2007	11:14:11			H1
49	J73DG	1	05-OCT-2007	11:15:22	7276018	A7J020188	H1
50	J73EX	1	05-OCT-2007	11:16:28	7276018	A7J020188	H1
51	J77T7B	1	05-OCT-2007	11:17:37	7277024	A7J040000	H1
52	J77T7C	1	05-OCT-2007	11:18:57	7277024	A7J040000	H1
53	J75EE	1	05-OCT-2007	11:20:34	7277024	A7J030114	H1
54	J75EES	1	05-OCT-2007	11:21:40	7277024	A7J030114	H1
55	J75EED	1	05-OCT-2007	11:22:50	7277024	A7J030114	H1
56	J75F1	1	05-OCT-2007	11:24:08	7277024	A7J030114	H1
57	J75F6	1	05-OCT-2007	11:25:17	7277024	A7J030114	H1
58	J75F9	1	05-OCT-2007	11:26:26	7277024	A7J030114	H1
59	CK2CCV	1	05-OCT-2007	11:27:31			H1
60	CK1CCB	1	05-OCT-2007	11:29:07			H1
61	J75FC	1	05-OCT-2007	11:30:13	7277024	A7J030114	H1
62	J75FE	1	05-OCT-2007	11:31:19	7277024	A7J030114	H1
63	J75FG	1	05-OCT-2007	11:32:25	7277024	A7J030114	H1
64	J75FJ	1	05-OCT-2007	11:33:31	7277024	A7J030114	H1
65	J75FL	1	05-OCT-2007	11:34:37	7277024	A7J030114	H1
66	J75FN	1	05-OCT-2007	11:35:48	7277024	A7J030114	H1
67	J75FR	1	05-OCT-2007	11:36:54	7277024	A7J030114	H1
68	J75FX	1	05-OCT-2007	11:38:11	7277024	A7J030114	H1
69	J75GE	1	05-OCT-2007	11:39:16	7277024	A7J030114	H1
70	J77T5B	1	05-OCT-2007	11:40:26	7277023	A7J040000	H1
71	CK2CCV	1	05-OCT-2007	11:41:42			H1
72	CK1CCB	1	05-OCT-2007	11:42:59			H1
73	J77T5C	1	05-OCT-2007	11:44:45	7277023	A7J040000	H1
74	J75H2	1	05-OCT-2007	11:45:57	7277023	A7J030119	H1
75	J75H5	1	05-OCT-2007	11:47:06	7277023	A7J030119	H1
76	J75H8	1	05-OCT-2007	11:48:13	7277023	A7J030119	H1
77	J75HP	1	05-OCT-2007	11:49:19	7277023	A7J030119	H1
78	J75HX	1	05-OCT-2007	11:50:30	7277023	A7J030119	H1
79	J75J2	1	05-OCT-2007	11:51:46	7277023	A7J030119	H1
80	J75JE	1	05-OCT-2007	11:52:52	7277023	A7J030119	H1
81	J75JG	1	05-OCT-2007	11:54:00	7277023	A7J030119	H1
82	J75JL	1	05-OCT-2007	11:55:11	7277023	A7J030119	H1
83	CK2CCV	1	05-OCT-2007	11:56:16			H1
84	CK1CCB	1	05-OCT-2007	11:57:23			H1
85	J75JN	1	05-OCT-2007	11:58:29	7277023	A7J030119	H1
86	J75JNS	1	05-OCT-2007	11:59:36	7277023	A7J030119	H1
87	J75JND	1	05-OCT-2007	12:00:52	7277023	A7J030119	H1
88	J75JR	1	05-OCT-2007	12:02:00	7277023	A7J030119	H1

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:       Instrument Upload                                    Run Log - Page  3 :
:       Started Fri Oct  5 11:56:40 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11005A.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J75JT	1	05-OCT-2007	12:03:07	7277023	A7J030119	H1
90	CK2CCV	1	05-OCT-2007	12:04:35			H1
91	CK1CCB	1	05-OCT-2007	12:05:39			H1
92	CK2CCV	1	05-OCT-2007	12:40:36			H1
93	CK1CCB	1	05-OCT-2007	12:41:50			H1
94	J73EX	5	05-OCT-2007	12:42:55	7276018	A7J020188	H1
95	J8AG6B	1	05-OCT-2007	12:44:13	7278029	A7J050000	H1
96	J8AG6C	1	05-OCT-2007	12:45:28	7278029	A7J050000	H1
97	J7801	1	05-OCT-2007	12:46:45	7278029	A7J040203	H1
98	J7805	1	05-OCT-2007	12:48:11	7278029	A7J040203	H1
99	J7808	1	05-OCT-2007	12:49:16	7278029	A7J040203	H1
100	J780E	1	05-OCT-2007	12:50:21	7278029	A7J040203	H1
101	J78W9	1	05-OCT-2007	12:51:40	7278029	A7J040203	H1
102	J78X2	1	05-OCT-2007	12:52:46	7278029	A7J040203	H1
103	J78X2S	1	05-OCT-2007	12:53:55	7278029	A7J040203	H1
104	CK2CCV	1	05-OCT-2007	12:55:02			H1
105	CK1CCB	1	05-OCT-2007	12:56:07			H1
106	J78X2D	1	05-OCT-2007	12:57:12	7278029	A7J040203	H1
107	J78XR	1	05-OCT-2007	12:58:18	7278029	A7J040203	H1
108	J78XW	1	05-OCT-2007	12:59:25	7278029	A7J040203	H1
109	J79G5	1	05-OCT-2007	13:00:31	7278029	A7J040282	H1
110	J780H	1	05-OCT-2007	13:01:35	7278029	A7J040210	H1
111	J780V	1	05-OCT-2007	13:03:00	7278029	A7J040210	H1
112	J8AG4B	1	05-OCT-2007	13:04:30	7278028	A7J050000	H1
113	J8AG4C	1	05-OCT-2007	13:05:35	7278028	A7J050000	H1
114	J777D	1	05-OCT-2007	13:06:40	7278028	A7J040113	H1
115	J777DX	1	05-OCT-2007	13:07:51	7278028	A7J040113	H1
116	CK2CCV	1	05-OCT-2007	13:08:58			H1
117	CK1CCB	1	05-OCT-2007	13:10:07			H1
118	J777DS	1	05-OCT-2007	13:11:13	7278028	A7J040113	H1
119	J777P	1	05-OCT-2007	13:12:20	7278028	A7J040113	H1
120	J7782	1	05-OCT-2007	13:13:26	7278028	A7J040113	H1
121	J778P	1	05-OCT-2007	13:14:31	7278028	A7J040113	H1
122	J7481	1	05-OCT-2007	13:15:37	7278028	A7J030104	H1
123	J7483	1	05-OCT-2007	13:16:53	7278028	A7J030104	H1
124	J7484	1	05-OCT-2007	13:18:08	7278028	A7J030104	H1
125	J7488	1	05-OCT-2007	13:19:26	7278028	A7J030104	H1
126	J748R	1	05-OCT-2007	13:20:33	7278028	A7J030104	H1
127	J748RX	1	05-OCT-2007	13:21:40	7278028	A7J030104	H1
128	CK2CCV	1	05-OCT-2007	13:23:00			H1
129	CK1CCB	1	05-OCT-2007	13:24:15			H1
130	J748RS	1	05-OCT-2007	13:25:33	7278028	A7J030104	H1
131	J748X	1	05-OCT-2007	13:26:50	7278028	A7J030104	H1
132	J749C	1	05-OCT-2007	13:28:12	7278028	A7J030104	H1

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:       Instrument Upload                                    Run Log - Page  4 :
:       Started Fri Oct  5 11:56:41 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11005A.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	J749D	1	05-OCT-2007	13:29:18	7278028	A7J030104	H1
134	J749E	1	05-OCT-2007	13:30:23	7278028	A7J030104	H1
135	CRA	1	05-OCT-2007	13:31:40			H1
136	CK2CCV	1	05-OCT-2007	13:33:16			H1
137	CK1CCB	1	05-OCT-2007	13:34:21			H1

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---------------------------------- End of Report -------------------------------
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:       Instrument Upload                                    Run Log - Page  1 :
:       Started Fri Oct 12 07:56:12 2007 by WILLIAML                           :
:       Data File: UPL$CAN_DATA_ROOT:<TJA>I51011A.ARC;1                        :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument	
1	STD1	1	11-OCT-2007	07:57:00			I5	
2	CAL1	1	11-OCT-2007	08:03:00			I5	
3	CAL2	1	11-OCT-2007	08:08:00			I5	
4	CAL3	1	11-OCT-2007	08:14:00			I5	
5	SCAL	1	11-OCT-2007	08:20:00			I5	
6	CAL	1	11-OCT-2007	08:24:00			I5	
7	ICV	1	11-OCT-2007	08:31:00			I5	
8	ICB	1	11-OCT-2007	08:40:00			I5	
9	CRI	MRL	11-OCT-2007	08:45:00			I5	
10	ICSA	1	11-OCT-2007	08:52:00			I5	
11	AL	1	11-OCT-2007	09:02:00			I5	
12	FE	1	11-OCT-2007	09:07:00			I5	
13	Z	1	11-OCT-2007	09:12:00			I5	
14	ICSA	1	11-OCT-2007	10:00:00			I5	
15	ICSAB	1	11-OCT-2007	10:05:00			I5	
16	CCV	1	11-OCT-2007	10:14:00			I5	
17	CCB	1	11-OCT-2007	10:22:00			I5	
18	J8FG1B	1	11-OCT-2007	10:38:00			I5	
19	J8AG4B	1	11-OCT-2007	10:44:00	7278028	A7J050000	I5	
20	J8AG4C	1	11-OCT-2007	10:49:00	7278028	A7J050000	I5	
21	J748R	1	11-OCT-2007	10:56:00	7278028	A7J030104	I5	
22	J748RL	1	11-OCT-2007	11:01:00			I5	
23	J748RX	1	11-OCT-2007	11:06:00	7278028	A7J030104	I5	
24	J748RS	1	11-OCT-2007	11:11:00	7278028	A7J030104	I5	- 5b PDS run @ 13:14
25	J748X	1	11-OCT-2007	11:17:00	7278028	A7J030104	I5	
26	J7481	1	11-OCT-2007	11:22:00	7278028	A7J030104	I5	
27	J7483	1	11-OCT-2007	11:27:00	7278028	A7J030104	I5	
28	CCV	1	11-OCT-2007	11:36:00			I5	
29	CCB	1	11-OCT-2007	11:44:00			I5	
30	J7484	1	11-OCT-2007	11:49:00	7278028	A7J030104	I5	
31	J7488	1	11-OCT-2007	11:54:00	7278028	A7J030104	I5	
32	J749C	1	11-OCT-2007	11:59:00	7278028	A7J030104	I5	
33	J749D	1	11-OCT-2007	12:04:00	7278028	A7J030104	I5	
34	J749E	1	11-OCT-2007	12:09:00	7278028	A7J030104	I5	
35	J777D	1	11-OCT-2007	12:14:00	7278028	A7J040113	I5	
36	J777DL	1	11-OCT-2007	12:19:00			I5	
37	J777DX	1	11-OCT-2007	12:24:00	7278028	A7J040113	I5	
38	J777DS	1	11-OCT-2007	12:29:00	7278028	A7J040113	I5	
39	J777P	1	11-OCT-2007	12:36:00	7278028	A7J040113	I5	
40	CCV	1	11-OCT-2007	12:50:00			I5	
41	CCB	1	11-OCT-2007	12:58:00			I5	
42	J778P	1	11-OCT-2007	13:05:00	7278028	A7J040113	I5	
43	J7782	1	11-OCT-2007	13:10:00	7278028	A7J040113	I5	
44	J748RA	1	11-OCT-2007	13:14:00	7278028	A7J030104	I5	- 5b PDS @ 200ppb

---------- (continued) ----------

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	J748X	5	11-OCT-2007	13:20:00	7278028	A7J030104	I5
46	J7488	5	11-OCT-2007	13:25:00	7278028	A7J030104	I5
47	J749C	5	11-OCT-2007	13:30:00	7278028	A7J030104	I5
48	Z	1	11-OCT-2007	13:39:00			I5
49	CCV	1	11-OCT-2007	13:48:00			I5
50	CCB	1	11-OCT-2007	13:56:00			I5
51	J8KMTB	1	11-OCT-2007	14:37:00	7283049	A7J100000	I5
52	J8KMTC	1	11-OCT-2007	14:42:00	7283049	A7J100000	I5
53	J7914	1	11-OCT-2007	14:49:00	7283049	A7J040354	I5
54	J7914L	1	11-OCT-2007	14:54:00			I5
55	J7914X	1	11-OCT-2007	14:59:00	7283049	A7J040354	I5
56	J7914S	1	11-OCT-2007	15:04:00	7283049	A7J040354	I5
57	J792M	1	11-OCT-2007	15:10:00	7283049	A7J040354	I5
58	J792N	1	11-OCT-2007	15:15:00	7283049	A7J040354	I5
59	J792R	1	11-OCT-2007	15:20:00	7283049	A7J040354	I5
60	J792W	1	11-OCT-2007	15:25:00	7283049	A7J040354	I5
61	CCV	1	11-OCT-2007	15:33:00			I5
62	CCB	1	11-OCT-2007	15:41:00			I5
63	J7920	1	11-OCT-2007	15:45:00	7283049	A7J040354	I5
64	J7923	1	11-OCT-2007	15:50:00	7283049	A7J040354	I5
65	J7927	1	11-OCT-2007	15:55:00	7283049	A7J040354	I5
66	J8AT0	1	11-OCT-2007	16:00:00	7283049	A7J050117	I5
67	J8AT0L	1	11-OCT-2007	16:08:00			I5
68	J8AT0X	1	11-OCT-2007	16:13:00	7283049	A7J050117	I5
69	J8AT0S	1	11-OCT-2007	16:17:00	7283049	A7J050117	I5
70	J8AT5	1	11-OCT-2007	16:24:00	7283049	A7J050117	I5
71	J8AT9	1	11-OCT-2007	16:29:00	7283049	A7J050117	I5
72	J8AVC	1	11-OCT-2007	16:34:00	7283049	A7J050117	I5
73	CCV	1	11-OCT-2007	16:42:00			I5
74	CCB	1	11-OCT-2007	16:50:00			I5
75	J8FKF	1	11-OCT-2007	16:54:00	7283049	A7J080104	I5
76	J8FKFL	1	11-OCT-2007	16:59:00			I5
77	J8FKFX	1	11-OCT-2007	17:04:00	7283049	A7J080104	I5
78	J8FKFS	1	11-OCT-2007	17:09:00	7283049	A7J080104	I5
79	J8FKG	1	11-OCT-2007	17:16:00	7283049	A7J080104	I5
80	J8FKH	1	11-OCT-2007	17:21:00	7283049	A7J080104	I5
81	J8FLN	1	11-OCT-2007	17:26:00	7283049	A7J080109	I5
82	J8FLNL	1	11-OCT-2007	17:31:00			I5
83	J8FLNX	1	11-OCT-2007	17:36:00	7283049	A7J080109	I5
84	J8FLNS	1	11-OCT-2007	17:41:00	7283049	A7J080109	I5
85	CCV	1	11-OCT-2007	17:49:00			I5
86	CCB	1	11-OCT-2007	17:56:00			I5
87	J8FRK	1	11-OCT-2007	18:01:00	7283049	A7J080109	I5
88	J8FR7	1	11-OCT-2007	18:06:00	7283049	A7J080109	I5

(continued)

: Instrument Upload Run Log - Page 3 :
: Started Fri Oct 12 07:56:12 2007 by WILLIAML :
: Data File: UPL$CAN_DATA_ROOT:<TJA>I51011A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J8FR7L	1	11-OCT-2007	18:11:00			I5
90	J8FR7X	1	11-OCT-2007	18:16:00	7283049	A7J080109	I5
91	J8FR7S	1	11-OCT-2007	18:21:00	7283049	A7J080109	I5
92	J8FTD	1	11-OCT-2007	18:26:00	7283049	A7J080109	I5
93	J8KMMB	1	11-OCT-2007	18:33:00	7283043	A7J100000	I5
94	J8KMMC	1	11-OCT-2007	18:37:00	7283043	A7J100000	I5
95	J8G44	1	11-OCT-2007	18:44:00	7283043	A7J090101	I5
96	J8G44L	1	11-OCT-2007	18:49:00			I5
97	CCV	1	11-OCT-2007	18:57:00			I5
98	CCB	1	11-OCT-2007	19:05:00			I5
99	J8G44X	1	11-OCT-2007	19:10:00	7283043	A7J090101	I5
100	J8G44S	1	11-OCT-2007	19:15:00	7283043	A7J090101	I5
101	J8G46	1	11-OCT-2007	19:21:00	7283043	A7J090101	I5
102	J8G5M	1	11-OCT-2007	19:26:00	7283043	A7J090101	I5
103	J8G5R	1	11-OCT-2007	19:31:00	7283043	A7J090101	I5
104	J8G5W	1	11-OCT-2007	19:36:00	7283043	A7J090101	I5
105	J8G51	1	11-OCT-2007	19:41:00	7283043	A7J090101	I5
106	J8G52	1	11-OCT-2007	19:46:00	7283043	A7J090101	I5
107	J8G55	1	11-OCT-2007	19:51:00	7283043	A7J090101	I5
108	J8G57	1	11-OCT-2007	19:56:00	7283043	A7J090101	I5
109	CCV	1	11-OCT-2007	20:04:00			I5
110	CCB	1	11-OCT-2007	20:11:00			I5
111	J8NFGB	1	11-OCT-2007	20:16:00	7284018	A7J110000	I5
112	J8NFGC	1	11-OCT-2007	20:21:00	7284018	A7J110000	I5
113	J8KP1	1	11-OCT-2007	20:28:00	7284018	A7J100103	I5
114	J8KP3	1	11-OCT-2007	20:33:00	7284018	A7J100103	I5
115	J8KP6	1	11-OCT-2007	20:38:00	7284018	A7J100103	I5
116	J8KP6L	1	11-OCT-2007	20:43:00			I5
117	J8KP6X	1	11-OCT-2007	20:48:00	7284018	A7J100103	I5
118	J8KP6S	1	11-OCT-2007	20:53:00	7284018	A7J100103	I5
119	J8KQA	1	11-OCT-2007	20:59:00	7284018	A7J100103	I5
120	J8KQG	1	11-OCT-2007	21:04:00	7284018	A7J100103	I5
121	CCV	1	11-OCT-2007	21:12:00			I5
122	CCB	1	11-OCT-2007	21:20:00			I5
123	J8KQH	1	11-OCT-2007	21:25:00	7284018	A7J100103	I5
124	J8KQK	1	11-OCT-2007	21:30:00	7284018	A7J100103	I5
125	J8KQN	1	11-OCT-2007	21:35:00	7284018	A7J100103	I5
126	J8KQQ	1	11-OCT-2007	21:40:00	7284018	A7J100103	I5
127	J8KQV	1	11-OCT-2007	21:45:00	7284018	A7J100103	I5
128	J8KQ0	1	11-OCT-2007	21:50:00	7284018	A7J100103	I5
129	J8KQ2	1	11-OCT-2007	21:55:00	7284018	A7J100103	I5
130	J8KQ5	1	11-OCT-2007	22:00:00	7284018	A7J100103	I5
131	J8KRD	1	11-OCT-2007	22:05:00	7284018	A7J100103	I5
132	J8KRDL	1	11-OCT-2007	22:09:00			I5

-sb PDS run @ 23:12

(continued)

```
:       Instrument Upload                                    Run Log - Page  4 :
:       Started Sat Oct 13 16:21:30 2007 by COUNTSK                            :
:       Data File: UPL$CAN_DATA_ROOT:<TJA>I51011A.ARC;1                        :
```

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument	
133	CCV	1	11-OCT-2007	22:18:00			I5	
134	CCB	1	11-OCT-2007	22:25:00			I5	
135	J8KRDX	1	11-OCT-2007	22:30:00	7284018	A7J100103	I5	
136	J8KRDS	1	11-OCT-2007	22:35:00	7284018	A7J100103	I5	
137	J8KRG	1	11-OCT-2007	22:42:00	7284018	A7J100103	I5	-
138	J7914A	1	11-OCT-2007	22:47:00	7283049	A7J040354	I5	Sb 200ppb
139	J8FKFA	1	11-OCT-2007	23:07:00	7283049	A7J080104	I5	Rerun
140	J8FR7A	1	11-OCT-2007	23:12:00			I5	Sb200ppb
141	CRI	MRL	11-OCT-2007	23:20:00			I5	
142	CCV	1	11-OCT-2007	23:28:00			I5	
143	CCB	1	11-OCT-2007	23:35:00			I5	
144	CCV	1	12-OCT-2007	00:09:00			I5	
145	CCB	1	12-OCT-2007	00:18:00			I5	
146	J8NFEB	1	12-OCT-2007	00:23:00			I5	
147	J8NFEC	1	12-OCT-2007	00:28:00			I5	
148	J8LFT	1	12-OCT-2007	00:35:00			I5	
149	J8LF5	1	12-OCT-2007	00:40:00			I5	
150	J8K71	1	12-OCT-2007	00:44:00			I5	
151	J8LPT	1	12-OCT-2007	00:49:00			I5	
152	J8LPTL	1	12-OCT-2007	00:54:00			I5	
153	J8LFC	1	12-OCT-2007	00:59:00	7284017	A7J100170	I5	
154	J8LLA	1	12-OCT-2007	01:04:00			I5	
155	J8LN1	1	12-OCT-2007	01:09:00			I5	
156	CCV	1	12-OCT-2007	01:18:00			I5	
157	CCB	1	12-OCT-2007	01:27:00			I5	
158	J8LP0	1	12-OCT-2007	01:32:00			I5	
159	J8LQG	1	12-OCT-2007	01:37:00			I5	
160	J8LR0	1	12-OCT-2007	01:42:00	7284017	A7J100211	I5	
161	J8KW0	1	12-OCT-2007	01:47:00	7284017	7J10109	I5	
162	J8KW0S	1	12-OCT-2007	01:52:00	7284017	7J10109	I5	
163	J8KW0D	1	12-OCT-2007	01:57:00	7284017	7J10109	I5	
164	CRI	MRL	12-OCT-2007	02:06:00			I5	
165	CCV	1	12-OCT-2007	02:14:00			I5	
166	CCB	1	12-OCT-2007	02:24:00			I5	
167	CCV	1	12-OCT-2007	07:41:00			I5	
168	CCB	1	12-OCT-2007	07:49:00			I5	
169	J8NFEC	1	12-OCT-2007	07:54:00			I5	
170	ZZZZZ	1	12-OCT-2007	07:59:00			I5	
171	CCV	1	12-OCT-2007	08:07:00			I5	
172	CCB	1	12-OCT-2007	08:15:00			I5	
173	CCV	1	12-OCT-2007	14:28:00			I5	
174	CCB	1	12-OCT-2007	14:36:00			I5	
175	J8FKFA	1	12-OCT-2007	14:41:00	7283049	A7J080104	I5	Sb 200ppb
176	J8RMGB	1	12-OCT-2007	14:48:00	7285020	A7J120000	I5	

---------- (continued) ----------

INSTRUMENT PRINTOUTS

Test America North Canton Hg Data Review Checklist

Run/Project Information

Run Date: 10-5-07 Analyst: ML Instrument: H1
Prep Batches Run: See Run Log

Circle Methods used: 7470A / 245.1 : CORP-MT-0005 Rev 1 (7471 / 245.1 : CORP-MT-0007 Rev 1)

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions and at SOP specified levels?	✓			✓
2. ICV/CCV analyzed at appropriate frequency and within control limits?	✓			✓
3. ICB/CCB analyzed at appropriate frequency and within +/- RL?	✓			✓
4. CRA run?	✓			✓
B. Sample Results				
1. Were samples with concentrations > high calibration standard diluted and reanalyzed?	✓			✓
2. All reported results bracketed by in control QC?	✓			✓
3. Sample analyses done within holding time?	✓			✓
C. Preparation/ Matrix QC				✓
1. LCS done per prep batch and within QC limits?	✓			✓
2. Method blank done per prep batch and < RL?	✓			✓
3. MS run at required frequency and within limits?	✓			✓
4. MSD or DU run at required frequency and RPD within SOP limits?	✓			✓
D. Other				✓
1. Are all nonconformances documented appropriately?	✓			✓
2. Current IDL/MDL data on file?	✓			✓
3. Calculations and Transcription checked for error?	✓			✓
4. All client/project specific requirements met?	✓			✓
5. Date of analysis verified as correct?	✓			✓

Level I Analyst: Michaela Zeit Date: 10-5-07
Comments:

2nd Level Reviewer: [signature] Date: 10.5.07

Curve Prepared Date: 10-5-07 Time: 9:15 am

ICV HPS 0707501 $SnCl_2$ 7MR 10606

CAL/CCV HPS 0707502 NACL $NH_2OH{\cdot}HCL$ 7MR467

Revised 09/21/2007

```
*** Standard: 1 Rep: 1              Seq:  0      10:17:38 05 Oct 2007 HG

Hg    .0000   ppb      6560

*** Standard: 2 Rep: 1              Seq:  1      10:18:46 05 Oct 2007 HG

Hg    .2000   ppb      17062

*** Standard: 3 Rep: 1              Seq:  2      10:20:02 05 Oct 2007 HG

Hg    .5000   ppb      35650

*** Standard: 4 Rep: 1              Seq:  3      10:21:31 05 Oct 2007 HG

Hg    1.000   ppb      73013

*** Standard: 5 Rep: 1              Seq:  4      10:22:39 05 Oct 2007 HG

Hg    5.000   ppb      351868

*** Standard: 6 Rep: 1              Seq:  5      10:23:45 05 Oct 2007 HG

Hg    10.00   ppb      671795
```

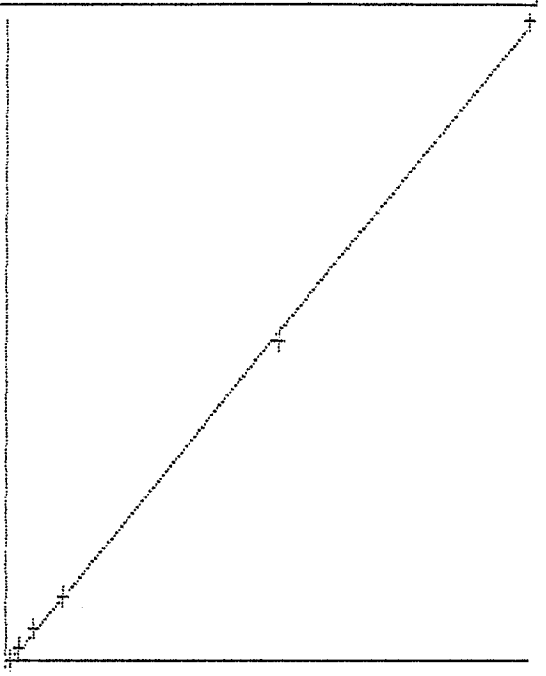
```
RunProt: HGPPB      Hg analysis in the ppb range
RunFold: HG110065A Seq: 6    Batch:
                   Prnt: R/T On                    Pump: On
                   Rev: 4.2    10:23:48 05 Oct 2007 Xmit: Off Gas:    0.70 LPM
State: Idle      Macro SCOTT      66: F3 Print     User: SMI          A/S: On
```

CALIBRATION: Line proto: HGPPB

	Hg Conc.	Calc.	Dev.	Accepted
S1	.00000	.0186	.0186	Quadratic
S2	.2000	.1671	-.0329	Wtd linear
S3	.5000	.4440	-.0560	
S4	1.000	1.001	.0007	Accept
S5	5.000	5.155	.1555	
S6	10.00	9.922	-.0778	

A .00000000 r .999784

B 1.48994e-5 C -8.71599e-2



	Mean		
S1	6560	0 SD	6560
S2	17062	0 %RSD	17062
S3	35650	0 %RSD	35650
S4	73013	0 %RSD	73013
S5	351868	0 %RSD	351868
S6	671795	0 %RSD	671795

New cal coefficients stored

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 5 Ck5ICV Seq: 6 10:24:55 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		90.28	2.257	2.500	ppb	.0000 %

*** Check Standard: 4 Ck4ICB Seq: 7 10:26:02 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		-537900	-.0538	.0000	ppb	.0000 %

*** Check Standard: 3 Ck3CRA\MRL Seq: 8 10:27:16 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		68.26	.1365	.2000	ppb	.0000 %

*** Check Standard: 3 Ck3CRA\MRL Seq: 9 10:28:35 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		89.19	.1784	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 10 10:29:40 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.1	5.156	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 11 10:30:46 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0649	.2000	ppb	.0000 %

*** Sample ID: J72LDB Seq: 12 10:31:50 05 Oct 2007 HG

7275022

Hg	-.0249	ppb	.0000 %	-.0249

*** Sample ID: J72LDC Seq: 13 10:32:56 05 Oct 2007 HG

SOLID

Hg	4.818	ppb	.0000 %	4.818

*** Sample ID: J7KE2 Seq: 14 10:34:00 05 Oct 2007 HG

SOLID

Hg	.1417	ppb	.0000 %	.1417

*** Sample ID: J7KE2S Seq: 15 10:35:05 05 Oct 2007 HG

SOLID

Hg	1.033	ppb	.0000 %	1.033

*** Sample ID: J7KE2D Seq: 16 10:36:10 05 Oct 2007 HG

SOLID

Hg	1.007	ppb	.0000 %	1.007

*** Sample ID: J7KE4 Seq: 17 10:37:19 05 Oct 2007 HG

SOLID

Hg	.0152	ppb	.0000 %	.0152

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J7KE5 Seq: 18 10:38:26 05 Oct 2007 HG

SOLID

Hg -.0070 ppb .0000 % -.0070

*** Sample ID: J7KE7 Seq: 19 10:39:43 05 Oct 2007 HG

SOLID

Hg .0482 ppb .0000 % .0482

*** Sample ID: J7KE8 Seq: 20 10:41:10 05 Oct 2007 HG

SOLID

Hg .0104 ppb .0000 % .0104

*** Sample ID: J71PC Seq: 21 10:42:17 05 Oct 2007 HG

SOLID

Hg .0294 ppb .0000 % .0294

*** Check Standard: 2 Ck2CCV Seq: 22 10:43:25 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.8	5.190	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 23 10:44:41 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0531	.2000	ppb	.0000 %

*** Sample ID: J77T9B Seq: 24 10:45:56 05 Oct 2007 HG

7277025

Hg -.0310 ppb .0000 % -.0310

*** Sample ID: J77T9C Seq: 25 10:47:12 05 Oct 2007 HG

SOLID

Hg 4.856 ppb .0000 % 4.856

*** Sample ID: J75A2 Seq: 26 10:48:19 05 Oct 2007 HG

SOLID

Hg .1876 ppb .0000 % .1876

*** Sample ID: J7571 Seq: 27 10:49:24 05 Oct 2007 HG

SOLID

Hg -.0417 ppb .0000 % -.0417

*** Sample ID: J7571S Seq: 28 10:50:28 05 Oct 2007 HG

SOLID

Hg .9286 ppb .0000 % .9286

*** Sample ID: J7571D Seq: 29 10:51:37 05 Oct 2007 HG

SOLID

Hg .9199 ppb .0000 % .9199

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J75J4 Seq: 30 10:52:42 05 Oct 2007 HG

SOLID

Hg .8731 ppb .0000 % .8731

*** Sample ID: J75J7 Seq: 31 10:53:59 05 Oct 2007 HG

SOLID

Hg .4037 ppb .0000 % .4037

*** Sample ID: J75J8 Seq: 32 10:55:07 05 Oct 2007 HG

SOLID

Hg -.0181 ppb .0000 % -.0181

*** Sample ID: J75J9 Seq: 33 10:56:13 05 Oct 2007 HG

SOLID

Hg .1795 ppb .0000 % .1795

*** Check Standard: 2 Ck2CCV Seq: 34 10:57:24 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.4	5.171	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 35 10:58:31 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0729	.2000	ppb	.0000 %

*** Sample ID: J75KD Seq: 36 10:59:56 05 Oct 2007 HG

SOLID

Hg .0677 ppb .0000 % .0677

*** Sample ID: J75KE Seq: 37 11:01:28 05 Oct 2007 HG

SOLID

Hg .0320 ppb .0000 % .0320

*** Sample ID: J75NM Seq: 38 11:02:37 05 Oct 2007 HG

SOLID

Hg .6623 ppb .0000 % .6623

*** Sample ID: J75NT Seq: 39 11:04:05 05 Oct 2007 HG

SOLID

Hg .7734 ppb .0000 % .7734

*** Sample ID: J76MM Seq: 40 11:05:19 05 Oct 2007 HG

SOLID

Hg -.0159 ppb .0000 % -.0159

*** Sample ID: J744NB Seq: 41 11:06:29 05 Oct 2007 HG

7276018

Hg -.0400 ppb .0000 % -.0400

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J744NC Seq: 42 11:07:47 05 Oct 2007 HG
SOLID
Hg 4.885 ppb .0000 % 4.885

*** Sample ID: J730T Seq: 43 11:08:56 05 Oct 2007 HG
SOLID
Hg .6710 ppb .0000 % .6710

*** Sample ID: J730TS Seq: 44 11:10:22 05 Oct 2007 HG
SOLID
Hg 1.064 ppb .0000 % 1.064

*** Sample ID: J730TD Seq: 45 11:11:29 05 Oct 2007 HG
SOLID
Hg 1.132 ppb .0000 % 1.132

*** Check Standard: 2 Ck2CCV Seq: 46 11:12:47 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.8	5.189	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 47 11:14:11 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0444	.2000	ppb	.0000 %

*** Sample ID: J73DG Seq: 48 11:15:22 05 Oct 2007 HG
SOLID
Hg -.0351 ppb .0000 % -.0351

*** Sample ID: J73EX Seq: 49 11:16:28 05 Oct 2007 HG
SOLID
Hg 28.91 ppb .0000 % 28.91

*** Sample ID: J77T7B Seq: 50 11:17:37 05 Oct 2007 HG
7277024
Hg -.1367 ppb .0000 % -.1367

*** Sample ID: J77T7C Seq: 51 11:18:57 05 Oct 2007 HG
SOLID
Hg 4.918 ppb .0000 % 4.918

*** Sample ID: J75EE Seq: 52 11:20:34 05 Oct 2007 HG
SOLID
Hg .1684 ppb .0000 % .1684

*** Sample ID: J75EES Seq: 53 11:21:40 05 Oct 2007 HG
SOLID
Hg .9916 ppb .0000 % .9916

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J75EED Seq: 54 11:22:50 05 Oct 2007 HG

SOLID

Hg 1.110 ppb .0000 % 1.110

*** Sample ID: J75F1 Seq: 55 11:24:08 05 Oct 2007 HG

SOLID

Hg -.0097 ppb .0000 % -.0097

*** Sample ID: J75F6 Seq: 56 11:25:17 05 Oct 2007 HG

SOLID

Hg 1.053 ppb .0000 % 1.053

*** Sample ID: J75F9 Seq: 57 11:26:26 05 Oct 2007 HG

SOLID

Hg .0321 ppb .0000 % .0321

*** Check Standard: 2 Ck2CCV Seq: 58 11:27:31 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.5	5.175	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 59 11:29:07 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0134	.2000	ppb	.0000 %

*** Sample ID: J75FC Seq: 60 11:30:13 05 Oct 2007 HG

SOLID

Hg -.0126 ppb .0000 % -.0126

*** Sample ID: J75FE Seq: 61 11:31:19 05 Oct 2007 HG

SOLID

Hg .1520 ppb .0000 % .1520

*** Sample ID: J75FG Seq: 62 11:32:25 05 Oct 2007 HG

SOLID

Hg .1342 ppb .0000 % .1342

*** Sample ID: J75FJ Seq: 63 11:33:31 05 Oct 2007 HG

SOLID

Hg .0455 ppb .0000 % .0455

*** Sample ID: J75FL Seq: 64 11:34:37 05 Oct 2007 HG

SOLID

Hg .0784 ppb .0000 % .0784

*** Sample ID: J75FN Seq: 65 11:35:48 05 Oct 2007 HG

SOLID

Hg -.0031 ppb .0000 % -.0031

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J75FR Seq: 66 11:36:54 05 Oct 2007 HG
SOLID
Hg .2856 ppb .0000 % .2856

*** Sample ID: J75FX Seq: 67 11:38:11 05 Oct 2007 HG
SOLID
Hg .2485 ppb .0000 % .2485

*** Sample ID: J75GE Seq: 68 11:39:16 05 Oct 2007 HG
SOLID
Hg .0477 ppb .0000 % .0477

*** Sample ID: J77T5B Seq: 69 11:40:26 05 Oct 2007 HG
7277023
Hg -.0183 ppb .0000 % -.0183

*** Check Standard: 2 Ck2CCV Seq: 70 11:41:42 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		103.2	5.162	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 71 11:42:59 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0184	.2000	ppb	.0000 %

*** Sample ID: J77T5C Seq: 72 11:44:45 05 Oct 2007 HG
SOLID
Hg 4.841 ppb .0000 % 4.841

*** Sample ID: J75H2 Seq: 73 11:45:57 05 Oct 2007 HG
SOLID
Hg .0201 ppb .0000 % .0201

*** Sample ID: J75H5 Seq: 74 11:47:06 05 Oct 2007 HG
SOLID
Hg .0349 ppb .0000 % .0349

*** Sample ID: J75H8 Seq: 75 11:48:13 05 Oct 2007 HG
SOLID
Hg -.0024 ppb .0000 % -.0024

*** Sample ID: J75HP Seq: 76 11:49:19 05 Oct 2007 HG
SOLID
Hg .0475 ppb .0000 % .0475

*** Sample ID: J75HX Seq: 77 11:50:30 05 Oct 2007 HG
SOLID
Hg .2046 ppb .0000 % .2046

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J75J2 Seq: 78 11:51:46 05 Oct 2007 HG

SOLID

Hg .0194 ppb .0000 % .0194

*** Sample ID: J75JE Seq: 79 11:52:52 05 Oct 2007 HG

SOLID

Hg .0705 ppb .0000 % .0705

*** Sample ID: J75JG Seq: 80 11:54:00 05 Oct 2007 HG

SOLID

Hg .1762 ppb .0000 % .1762

*** Sample ID: J75JL Seq: 81 11:55:11 05 Oct 2007 HG

SOLID

Hg .2251 ppb .0000 % .2251

*** Check Standard: 2 Ck2CCV Seq: 82 11:56:16 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.7	5.136	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 83 11:57:23 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0400	.2000	ppb	.0000 %

*** Sample ID: J75JN Seq: 84 11:58:29 05 Oct 2007 HG

SOLID

Hg .0242 ppb .0000 % .0242

*** Sample ID: J75JNS Seq: 85 11:59:36 05 Oct 2007 HG

SOLID

Hg .9638 ppb .0000 % .9638

*** Sample ID: J75JND Seq: 86 12:00:52 05 Oct 2007 HG

SOLID

Hg .9582 ppb .0000 % .9582

*** Sample ID: J75JR Seq: 87 12:02:00 05 Oct 2007 HG

SOLID

Hg .0714 ppb .0000 % .0714

*** Sample ID: J75JT Seq: 88 12:03:07 05 Oct 2007 HG

SOLID

Hg .2296 ppb .0000 % .2296

*** Check Standard: 2 Ck2CCV Seq: 89 12:04:35 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.9	5.147	5.000	ppb	.0000 %

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 1 Ck1CCB Seq: 90 12:05:39 05 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0217 .2000 ppb .0000 %

*** Check Standard: 2 Ck2CCV Seq: 91 12:40:36 05 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 100.3 5.016 5.000 ppb .0000 %

*** Check Standard: 1 Ck1CCB Seq: 92 12:41:50 05 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0242 .2000 ppb .0000 %

*** Sample ID: J73EX/5 Seq: 93 12:42:55 05 Oct 2007 HG
SOLID
Hg 6.543 ppb .0000 % 6.543

*** Sample ID: J8AG6B Seq: 94 12:44:13 05 Oct 2007 HG
7278029
Hg -.0490 ppb .0000 % -.0490

*** Sample ID: J8AG6C Seq: 95 12:45:28 05 Oct 2007 HG
SOLID
Hg 4.522 ppb .0000 % 4.522

*** Sample ID: J7801 Seq: 96 12:46:45 05 Oct 2007 HG
SOLID
Hg -.0281 ppb .0000 % -.0281

*** Sample ID: J7805 Seq: 97 12:48:11 05 Oct 2007 HG
SOLID
Hg .0277 ppb .0000 % .0277

*** Sample ID: J7808 Seq: 98 12:49:16 05 Oct 2007 HG
SOLID
Hg .1365 ppb .0000 % .1365

*** Sample ID: J780E Seq: 99 12:50:21 05 Oct 2007 HG
SOLID
Hg .0552 ppb .0000 % .0552

*** Sample ID: J78W9 Seq: 100 12:51:40 05 Oct 2007 HG
SOLID
Hg -.0044 ppb .0000 % -.0044

*** Sample ID: J78X2 Seq: 101 12:52:46 05 Oct 2007 HG
SOLID
Hg .2164 ppb .0000 % .2164

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J78X2S Seq: 102 12:53:55 05 Oct 2007 HG
SOLID
Hg 1.094 ppb .0000 % 1.094

*** Check Standard: 2 Ck2CCV Seq: 103 12:55:02 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		100.5	5.024	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 104 12:56:07 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0415	.2000	ppb	.0000 %

*** Sample ID: J78X2D Seq: 105 12:57:12 05 Oct 2007 HG
SOLID
Hg 1.050 ppb .0000 % 1.050

*** Sample ID: J78XR Seq: 106 12:58:18 05 Oct 2007 HG
SOLID
Hg .1291 ppb .0000 % .1291

*** Sample ID: J78XW Seq: 107 12:59:25 05 Oct 2007 HG
SOLID
Hg .0581 ppb .0000 % .0581

*** Sample ID: J79G5 Seq: 108 13:00:31 05 Oct 2007 HG
SOLID
Hg .4483 ppb .0000 % .4483

*** Sample ID: J780H Seq: 109 13:01:35 05 Oct 2007 HG
SOLID
Hg .2944 ppb .0000 % .2944

*** Sample ID: J780V Seq: 110 13:03:00 05 Oct 2007 HG
SOLID
Hg .1307 ppb .0000 % .1307

*** Sample ID: J8AG4B Seq: 111 13:04:30 05 Oct 2007 HG
7278028
Hg -.0358 ppb .0000 % -.0358

*** Sample ID: J8AG4C Seq: 112 13:05:35 05 Oct 2007 HG
SOLID
Hg 4.732 ppb .0000 % 4.732

*** Sample ID: J777D Seq: 113 13:06:40 05 Oct 2007 HG
SOLID
Hg .0330 ppb .0000 % .0330

Line Conc. Units SD/RSD 1 2 3 4 5

*** Sample ID: J777DX Seq: 114 13:07:51 05 Oct 2007 HG
SOLID
Hg -.0034 ppb .0000 % -.0034

*** Check Standard: 2 Ck2CCV Seq: 115 13:08:58 05 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 102.1 5.106 5.000 ppb .0000 %

*** Check Standard: 1 Ck1CCB Seq: 116 13:10:07 05 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0290 .2000 ppb .0000 %

*** Sample ID: J777DS Seq: 117 13:11:13 05 Oct 2007 HG
SOLID
Hg .9663 ppb .0000 % .9663

*** Sample ID: J777P Seq: 118 13:12:20 05 Oct 2007 HG
SOLID
Hg .0326 ppb .0000 % .0326

*** Sample ID: J7782 Seq: 119 13:13:26 05 Oct 2007 HG
SOLID
Hg .0597 ppb .0000 % .0597

*** Sample ID: J778P Seq: 120 13:14:31 05 Oct 2007 HG
SOLID
Hg -.0008 ppb .0000 % -.0008

*** Sample ID: J7481 Seq: 121 13:15:37 05 Oct 2007 HG
SOLID
Hg .2229 ppb .0000 % .2229

*** Sample ID: J7483 Seq: 122 13:16:53 05 Oct 2007 HG
SOLID
Hg .1736 ppb .0000 % .1736

*** Sample ID: J7484 Seq: 123 13:18:08 05 Oct 2007 HG
SOLID
Hg .3066 ppb .0000 % .3066

*** Sample ID: J7488 Seq: 124 13:19:26 05 Oct 2007 HG
SOLID
Hg 1.122 ppb .0000 % 1.122

*** Sample ID: J748R Seq: 125 13:20:33 05 Oct 2007 HG
SOLID
Hg .3905 ppb .0000 % .3905

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J748RX Seq: 126 13:21:40 05 Oct 2007 HG

SOLID

Hg -.4190 ppb .0000 % .4190

*** Check Standard: 2 Ck2CCV Seq: 127 13:23:00 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.0	5.098	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 128 13:24:15 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0410	.2000	ppb	.0000 %

*** Sample ID: J748RS Seq: 129 13:25:33 05 Oct 2007 HG

SOLID

Hg 1.280 ppb .0000 % 1.280

*** Sample ID: J748X Seq: 130 13:26:50 05 Oct 2007 HG

SOLID

Hg 8.025 ppb .0000 % 8.025

*** Sample ID: J749C Seq: 131 13:28:12 05 Oct 2007 HG

SOLID

Hg 3.967 ppb .0000 % 3.967

*** Sample ID: J749D Seq: 132 13:29:18 05 Oct 2007 HG

SOLID

Hg 1.027 ppb .0000 % 1.027

*** Sample ID: J749E Seq: 133 13:30:23 05 Oct 2007 HG

SOLID

Hg .2696 ppb .0000 % .2696

*** Sample ID: CRA Seq: 134 13:31:40 05 Oct 2007 HG

SOLID

Hg .1521 ppb .0000 % .1521

*** Check Standard: 2 Ck2CCV Seq: 135 13:33:16 05 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.1	5.104	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 136 13:34:21 05 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0444	.2000	ppb	.0000 %

SCAL	STD —	ICSA	STD 7H456	CAL1/CRI	STD 7J541
SCAL2	STD —	ICSAB	STD 7J517	CAL2 (2X)- CAL3	STD 7J532
CRI	STD 7J541	ICV	STD 7H417	SCAL (2X)- CAL 2	STD 7J540
		CCV	STD 7J529		

Test America North Canton ICP Data Review Checklist

Run/Project Information:

Run Date: 10.11.07 **Analyst:** LCW **Instrument:** 7 5

Prep Batches Run: SEE RUN LOG

Circle Methods used: (6010B / 200.7:) CORP-MT-0001 Rev 3.2
6010A/200.7: CORP-MT-0001NC, Rev 2

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions (2 exposures/sample) and at SOP specified levels ?	✓			/
2. ICV/CCV analyzed at appropriate frequency and within control limits ? *(ICV (2nd source):* 200.7=95 –105%, 6010B 90-110%) *(CCV: 90 – 110%)*	✓			/
3. ICB/CCB analyzed at appropriate frequency and within +/- RL ?	✓			/
4. High Std. (HCAL) reanalyzed before samples and recovered within QC limits ? (6010A only 95-105%)			✓	
5. CRI run at SOP or project-specific frequency? Recovered within QC limits? (6010A +/- 50%, project specific limits may vary)	✓			/
6. ICSA/ICSAB run at required frequency and within SOP limits ?	✓			/
B. Sample Results				
1. Were samples with concentrations > the linear range for any parameter diluted and reanalyzed ?	✓			/
2. All reported results bracketed by in control QC ?	✓			/
3. Sample analyses done within holding time ?	✓			/
C. Preparation/Matrix QC				
1. LCS done per prep batch and within QC limits ?	✓			/
2. Method blank done per prep batch and < RL ?	✓			/
3. MS/MSD run at required frequency and within limits ?	✓			/
4. MSD or DU run at required frequency and RPD within SOP limits ?	✓			/
5. Serial dilution done per prep batch ?	✓			/
6. Post digest spike analyzed if required?	✓			/
D. ther				
1. Are all nonconformances documented appropriately ?	✓			/
2. Current IDL/MDL/LR/IEC data on file ?	✓			/
3. Calculations checked for error ?	✓			/
4. Transcriptions checked for error ?	✓			/
5. All client/project specific requirements met ?	✓			/
6. Date/time of analysis verified as correct ?	✓			/

Level I Analyst: Lay R. Will Date: 10.12.07 Time: 07:57 – 08:15
Level I Analyst: Karen L. Counts Date: 10-13-07 Time: 14:28 - 18:09
Level I Analyst: _____ Date: _____ Time: _____
Level I Analyst: _____ Date: _____ Time: _____

Level II Reviewer: Karen L. Counts Date: 10-12-07 Time: 07:57-08:15
Level II Reviewer: [signature] Date: 10.15-07 Time: 14:24-18:09
Level II Reviewer: _____ Date: _____ Time: _____
Level II Reviewer: _____ Date: _____ Time: _____

Comments: _____

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: 01-10836
NCM Initiated By: Dorothy Leeson
Date Opened: 03/05/2004
Date Closed: 03/08/2004

Classification: Anomaly
Status: CLOSED
Production Area: Metals
Tests: None
Lot #'s (Sample #'s): ,
QC Batches: None.,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Dorothy Leeson	03/05/2004	Stock standard solutions used for ICP ICSA solutions commonly have low level contamination for certain elements, especially zinc.

Verified contamination is not corrected by interelement correction factors (IEC's) since instrumental determination of the presence of the analyte is due not to spectral interference but due to actual presence of the element in the solution. Contamination can be verified by performing a wavelength scan of the standard solution. If contamination exists, the peak apex will be directly at the expected wavelength for the element of concern. If the presence of the analyte is due to interference from another analyte which produces a peak near the element of concern, the peak apex of the interfering analyte will not be exactly at the wavelength for the element of concern, and an IEC would be generated.

If contamination for an element such as zinc is suspected, an IEC would be inappropriate, and the concentration during analysis of the daily ICSA solution may exceed SOP criteria. In these cases, this NCM will be referenced and a copy of this NCM will be included with the run.

Zinc contamination in ICSA stock solutions has been verified in this lab at various times with wavelength scans. Similarly, contamination for other elements has been verified when suspected. An example scan is included with the I6 ICP analytical run from 4/3/01.

Corrective Action

Name	Date	Corrective Action
Dorothy Leeson	03/05/2004	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
LAMBERTB		Verified/completed	

Method: ARMY Sample Name: STD1-Blank Operator:
Run Time: 10/11/07 07:57 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	-.00084	.05943	-.00085	.00284	.00077	.00323
SDev	.00134	.00127	.00352	.00004	.00007	0
%RSD	158.785	2.14857	413.743	1.71458	10.2808	.27448

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.01675	-.00802	-.00072	.00158	.00941	.00095
SDev	.00021	.00325	.00065	.00085	.00029	.00033
%RSD	1.29336	40.5956	90.409	54.0562	3.1877	35.2048

Elems	K	Mg	Mn	Mo	Na	Ni
Units	count	count	count	count	count	count
Avge	.01407	.00876	.0023	.00038	.00205	.00069
SDev	.00392	.00076	.00008	.00003	.00202	.00026
%RSD	27.8611	8.78019	3.91091	10.2808	98.8976	37.4628

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	.00177	.00007	-.03031	.00048	.0054	.01122
SDev	.00221	.00011	.00123	.00061	.00013	.00038
%RSD	124.836	141.421	4.08708	126.363	2.52675	3.46336

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	Y_3710
Units	count	count	count	count	count	count
Avge	-.0008	-.02091	.00844	-.00015	-.00511	5
SDev	.00702	.00065	.00445	.0008	.00185	0
%RSD	872.133	3.12912	52.7961	529.451	36.3419	0

Elems	*Y
Units	
Avge	19342.4
SDev	165.745
%RSD	.85689

Method: ARMY Sample Name: CAL1 Operator:
Run Time: 10/11/07 08:03 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	.02103	.09802	.06325	.05536	.01171	.02436
SDev	.002	.00043	.00781	.00004	.00007	0
%RSD	9.55103	.43953	12.3549	.07322	.6157	.0073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.48425	.13818	.00637	.0096	.02095	.03205
SDev	.00036	.00114	.00054	.00014	.00021	.00065
%RSD	.07561	.82614	8.59561	1.51335	1.03768	2.05688

Elems	Mg	Mn	Mo	Ni	Sn	Ti
Units	count	count	count	count	count	count
Avge	.97733	.06294	.00258	.01827	.0831	.01791
SDev	.00014	.00003	.00036	.00007	.00088	0
%RSD	.0151	.05067	14.1349	.40679	1.06137	.0073

Elems	Tl	V	Zn	2203\1	2203\2	1960\1
Units	count	count	count	count	count	count
Avge	.0096	.00859	.09131	.06865	.04717	.01971
SDev	.00189	.0004	.0005	.00393	.00809	.01715
%RSD	19.7757	4.67886	.55231	5.73462	17.1676	86.9955

Elems	1960\2	2068/2	2068/1	*Y
Units	count	count	count	
Avge	.05025	.00449	.01538	19373
SDev	.00522	.00036	.00832	1.41421
%RSD	10.3941	8.13494	54.0945	.00729

Method: ARMY Sample Name: CAL2 Operator:
Run Time: 10/11/07 08:08 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	3.878	2.10004	1.28922	2.15965	8.33636	14.3205
SDev	.01219	.02965	.00992	.00718	.03175	.11205
%RSD	.31445	1.41217	.76971	.33285	.3809	.78247

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	2.5401	3.11833	1.63144	7.83906	.4441	1.35755
SDev	.01728	.01979	.00047	.01838	.00264	.01087
%RSD	.68066	.6349	.02881	.23456	.5961	.8012

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	4.05764	1.73652	2.64513	2.43469	3.6424	2.00127
SDev	.03871	.00335	.02038	.01307	.00868	.03039
%RSD	.95412	.193	.77058	.53687	.23847	1.5189

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	2.63265	.86546	.99692	.16615	1.65398	19410.4
SDev	.00314	.009	.00681	.00143	.00428	236.174
%RSD	.11942	1.03994	.68323	.86594	.25894	1.21673

Method: ARMY Sample Name: CAL3 Operator:
Run Time: 10/11/07 08:14 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	7.75381	4.17655	2.58658	4.29783	16.2606	28.1341
SDev	.00901	.00623	.01265	.00679	.03784	.0493
%RSD	.1163	.14933	.48937	.15799	.23273	.17526

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	5.02068	6.17788	3.2368	15.6878	.88339	2.64888
SDev	.01344	.01596	.00303	.06774	.00246	.00072
%RSD	.26788	.2585	.09384	.43184	.27919	.0272

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	8.02938	3.44263	5.25293	4.84241	7.10918	4.00795
SDev	.01949	.00805	.01074	.01127	.0111	.00655
%RSD	.24273	.23399	.2045	.23281	.15625	.16365

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	5.28424	1.75296	1.96788	.33235	3.34766	19069.7
SDev	.02066	.00186	.0045	.00021	.01796	9.19238
%RSD	.39107	.10621	.22909	.06336	.53663	.0482

Method: ARMY Sample Name: SCAL Operator:
Run Time: 10/11/07 08:20 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	Mg	*Y
Units	count	count	count	count	
Avge	5.07165	4.55586	2.58508	9.68365	19218.1
SDev	.00303	.00101	.00165	.00026	13.7181
%RSD	.05992	.02229	.06383	.0027	.07138

Method: ARMY Sample Name: CAL 2 Operator:
Run Time: 10/11/07 08:24 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	K	Mg	Na
Units	count	count	count	count	count	count
Avge	10.1325	9.02645	5.11707	15.6477	19.5177	.89209
SDev	.02542	.03208	.01773	.02215	.08191	.00026
%RSD	.25087	.35545	.34659	.1416	.41969	.02925

Elems	*Y
Units	
Avge	19106.8
SDev	16.6874
%RSD	.08733

IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	19107	--	--	--	--	--	--
SDev	16.68745	--	--	--	--	--	--
%RSD	.0873377	--	--	--	--	--	--
#1	19119	--	--	--	--	--	--
#2	19095	--	--	--	--	--	--

Method: ARMY Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag	328.068	Multiple	Standards	247.410	.205564	10/11/07 08:14:34
Al	308.215	Multiple	Standards	5046.90	-299.903	10/11/07 08:24:34
As	189.042	Multiple	Standards	234.078	.198838	10/11/07 08:14:34
B	249.678	Multiple	Standards	3855.03	-10.9845	10/11/07 08:14:34
Ba	493.409	Multiple	Standards	923.719	-.717713	10/11/07 08:14:34
Be	313.042	Multiple	Standards	238.726	-.772681	10/11/07 08:14:34
Ca	317.933	Multiple	Standards	10934.6	-184.209	10/11/07 08:24:34
Cd	226.502	Multiple	Standards	34.9262	.279474	10/11/07 08:14:34
Co	228.616	Multiple	Standards	761.074	.544835	10/11/07 08:14:34
Cr	267.716	Multiple	Standards	637.577	-1.00881	10/11/07 08:14:34
Cu	324.753	Multiple	Standards	1256.63	-11.8209	10/11/07 08:14:34
Fe	271.441	Multiple	Standards	9699.32	-9.30579	10/11/07 08:24:34
K	766.491	CAL 2	STD1-Blank	1.48930	-.011437	10/11/07 08:24:34
Mg	279.078	Multiple	Standards	5151.92	-45.0625	10/11/07 08:24:34
Mn	257.610	Multiple	Standards	252.490	-.583856	10/11/07 08:14:34
Mo	202.030	Multiple	Standards	4531.83	-1.75741	10/11/07 08:14:34
Na	330.232	CAL 2	STD1-Blank	1.13257	-.001163	10/11/07 08:24:34
Ni	231.604	Multiple	Standards	1468.28	-1.03433	10/11/07 08:14:34
Se	196.026	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Pb	220.353	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sb	206.838	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sn	189.989	Multiple	Standards	1235.99	-2.19801	10/11/07 08:14:34
Ti	334.941	Multiple	Standards	2862.21	-.233580	10/11/07 08:14:34
Tl	190.864	Multiple	Standards	376.738	11.4209	10/11/07 08:14:34
V	292.402	Multiple	Standards	836.210	-.406296	10/11/07 08:14:34
Zn	213.856	Multiple	Standards	525.699	-2.88841	10/11/07 08:14:34
2203\1	220.351	Multiple	Standards	220.278	-2.49602	10/11/07 08:14:34
2203\2	220.352	Multiple	Standards	194.594	.162622	10/11/07 08:14:34
1960\1	196.021	Multiple	Standards	538.730	11.2495	10/11/07 08:14:34
1960\2	196.022	Multiple	Standards	498.003	-4.21471	10/11/07 08:14:34
2068/2	206.832	Multiple	Standards	2622.87	.375756	10/11/07 08:14:34
2068/1	206.831	Multiple	Standards	358.343	1.85655	10/11/07 08:14:34
Y_3710	371.030	NONE	STD1-Blank	1.00000	.000000	*NOT STANDARDIZED

Method: ARMY

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ag	328.068	STD1-Blank	.000000	-.004063	.004063
		CAL1	5.00000	5.40971	-.409714
		CAL2	1000.00	959.663	40.3374
		CAL3	2000.00	1918.58	81.4214

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Al	308.215	STD1-Blank	.000000	.057045	-.057045
		CAL1	200.000	194.810	5.19040
		SCAL	25000.0	25296.2	-296.229
		CAL 2	50000.0	50837.6	-837.625

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
As	189.042	STD1-Blank	.000000	-.000336	.000336
		CAL1	15.0000	15.0062	-.006248
		CAL2	500.000	491.774	8.22632
		CAL3	1000.00	977.840	22.1605

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
B	249.678	STD1-Blank	.000000	-.023507	.023507
		CAL1	200.000	202.432	-2.43208
		CAL2	5000.00	4959.01	40.9937
		CAL3	10000.0	9960.38	39.6172

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ba	493.409	STD1-Blank	.000000	-.001055	.001055
		CAL1	10.0000	10.1058	-.105811
		CAL2	2000.00	1994.20	5.79993
		CAL3	4000.00	3969.28	30.7246

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Be	313.042	STD1-Blank	.000000	-.001310	.001310
		CAL1	5.00000	5.04359	-.043585
		CAL2	2000.00	1989.33	10.6671
		CAL3	4000.00	3881.06	118.936

CorCoef: 0.99992

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ca	317.933	STD1-Blank	.000000	-1.03557	1.03557
		CAL1	5000.00	5110.94	-110.943
		SCAL	50000.0	49632.3	367.688
		CAL 2	100000.	98516.5	1483.48

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cd	226.502	STD1-Blank	.000000	-.000822	.000822
		CAL1	5.00000	5.10565	-.105647
		CAL2	500.000	500.439	-.439392
		CAL3	1000.00	982.897	17.1031

CorCoef: 0.99996

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Co	228.616	STD1-Blank	.000000	-.003904	.003904
		CAL1	5.00000	5.39659	-.396586
		CAL2	2000.00	1933.75	66.2462
		CAL3	4000.00	3821.66	178.342

CorCoef: 0.99998

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cr	267.716	STD1-Blank	.000000	-.001112	.001112
		CAL1	5.00000	5.11256	-.112559
		CAL2	2000.00	1987.17	12.8296
		CAL3	4000.00	3937.87	62.1321

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cu	324.753	STD1-Blank	.000000	.004859	-.004859
		CAL1	15.0000	14.5143	.485667
		CAL2	2000.00	2038.31	-38.3070
		CAL3	4000.00	4055.65	-55.6538

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Fe	271.441	STD1-Blank	.000000	-.014877	.014877
		CAL1	300.000	301.605	-1.60550
		SCAL	25000.0	25064.3	-64.3027
		CAL 2	50000.0	49622.8	377.180

CorCoef: 0.99999

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
K	766.491	STD1-Blank	.009531	.014079	-.004548
		CAL 2	23.2926	15.6477	7.64493

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mg	279.078	STD1-Blank	.000000	.101435	-.101435
		CAL1	5000.00	4990.11	9.88721
		SCAL	50000.0	49844.4	155.641
		CAL 2	100000.	100508.	-508.438

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mn	257.610	STD1-Blank	.000000	-.003064	.003064
		CAL1	15.0000	15.3100	-.309978
		CAL2	2000.00	1978.70	21.3013
		CAL3	4000.00	3960.43	39.5684

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mo	202.030	STD1-Blank	.000000	.000579	-.000579
		CAL1	10.0000	9.93879	.061211
		CAL2	2000.00	2010.84	-10.8359
		CAL3	4000.00	4001.62	-1.61963

CorCoef: 1.00000

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
Na	330.232	STD1-Blank	.001159	.002051	-.000892
		CAL 2	1.00920	.892091	.117105

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ni	231.604	STD1-Blank	.000000	-.007897	.007897

		CAL1	25.0000	25.7953	-.795326
		CAL2	2000.00	1992.24	7.76245
		CAL3	4000.00	3888.27	111.727
CorCoef:	0.99992				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Se	196.026	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Pb	220.353	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sb	206.838	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sn	189.989	STD1-Blank	.000000	-.005168	.005168
		CAL1	100.000	100.519	-.519455
		CAL2	5000.00	5013.01	-13.0068
		CAL3	10000.0	9922.04	77.9590
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Ti	334.941	STD1-Blank	.000000	-.010263	.010263
		CAL1	50.0000	51.0329	-1.03295
		CAL2	5000.00	4970.06	29.9429
		CAL3	10000.0	9853.30	146.703
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Tl	190.864	STD1-Blank	.000000	-.000557	.000557
		CAL1	15.0000	15.0380	-.037983
		CAL2	1000.00	1007.94	-7.94379
		CAL3	2000.00	1990.40	9.59656
CorCoef:	0.99998				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
V	292.402	STD1-Blank	.000000	.002196	-.002196
		CAL1	7.00000	6.78047	.219533
		CAL2	2000.00	2035.51	-35.5114
		CAL3	4000.00	4048.87	-48.8694
CorCoef:	1.00000				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Zn	213.856	STD1-Blank	.000000	-.048554	.048554
		CAL1	40.0000	45.1145	-5.11455
		CAL2	2000.00	1911.92	88.0815
		CAL3	4000.00	3734.40	265.600
CorCoef:	0.99993				
			Known	Measured	Residual

Element	Wavelength	Standard	Concentration	Concentration	Concentration
2203\1	220.351	STD1-Blank	.000000	-.024388	.024388
		CAL1	10.0000	12.6265	-2.62652
		CAL2	500.000	438.341	61.6589
		CAL3	1000.00	880.367	119.633

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2203\2	220.352	STD1-Blank	.000000	.005858	-.005858
		CAL1	10.0000	9.34330	.656696
		CAL2	500.000	512.460	-12.4600
		CAL3	1000.00	1028.44	-28.4418

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\1	196.021	STD1-Blank	.000000	-.018295	.018295
		CAL1	20.0000	21.8719	-1.87191
		CAL2	500.000	477.503	22.4971
		CAL3	1000.00	955.624	44.3758

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\2	196.022	STD1-Blank	.000000	-.008489	.008489
		CAL1	20.0000	20.8102	-.810184
		CAL2	500.000	492.259	7.74115
		CAL3	1000.00	975.798	24.2018

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/2	206.832	STD1-Blank	.000000	-.022027	.022027
		CAL1	10.0000	12.1545	-2.15453
		CAL2	500.000	436.183	63.8168
		CAL3	1000.00	872.111	127.889

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/1	206.831	STD1-Blank	.000000	.025305	-.025305
		CAL1	10.0000	7.36856	2.63144
		CAL2	500.000	594.550	-94.5496
		CAL3	1000.00	1201.47	-201.467

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Y_3710	371.030	STD1-Blank	.000000	.000000	.000000
		NONE	.000000	.000000	.000000

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31:14
Comment:
Mode: CONC Corr. Factor: 1

ICP 200.7

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.	25640.
SDev	.6	23.	1.36	2.	1.	1.	27.
%RSD	.1154	.1838	.54130	.2064	.1414	.0693	.1049

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.
SDev	.5567	23.17	1.3601	2.1	1.43	.7096
%RSD	.1154	.1838	.5413	.2064	.1414	.0693

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	25640.	251.3	984.0	1005.	1035.	12740.
SDev	26.89	.2562	.7156	1.294	1.996	18.64
%RSD	.1049	.102	.0727	.1287	.1928	.1463

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24200.	25250.	1027.	1015.	25610.	1011.
SDev	9.951	37.71	.6332	.6302	216.9	.4566
%RSD	.0411	.1493	.0617	.0621	.847	.0451

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	245.45	249.91	Q268.78	1020.	1015.	500.10
SDev	.00787	1.7341	1.4707	.9233	1.905	2.0773
%RSD	.0032	.69388	.54716	.0905	.1878	.41537

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1026.	983.0	222.47	263.61	240.50	247.92
SDev	1.108	.5696	.80286	2.199	.1515	.08743
%RSD	.108	.0579	.36089	.83418	.06299	.03526

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	231.71	287.29	5.0000	19294.2
SDev	1.2432	1.5842	0	5.65685
%RSD	.53653	.55144	0	.02931

Method: ARMY Sample Name: ICB Operator:
Run Time: 10/11/07 08:40 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3752	-9.689	-.50303	11.27	.0203	-.0098
SDev	1.074	5.834	.50837	.2989	.0331	.0014
%RSD	286.2	60.22	101.06	2.651	162.6	14.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.834	.0541	-.4757	-.6970	-1.165	-7.805
SDev	1.45	.0535	.8329	.999	.5123	2.117
%RSD	37.82	98.82	175.1	143.3	43.99	27.12

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	136.4	-.5769	.0279	-.0053	-893.1	.4791
SDev	16.1	2.477	.0179	.1666	434.4	.8551
%RSD	11.81	429.3	64.12	3134	48.64	178.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.50209	.75790	.02820	-.1909	-.0859	2.3307
SDev	.68654	1.0851	2.3218	.1368	.4174	2.6159
%RSD	136.73	143.17	8231.5	71.63	486.1	112.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0829	-.1797	-1.0595	1.6652	-.15295	.82913
SDev	.2129	.0839	2.452	2.8509	3.7994	2.9262
%RSD	256.9	46.69	231.43	171.2	2484	352.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7347	-.82374	5.0000	19398.8
SDev	1.5158	4.2377	0	15.5563
%RSD	87.383	514.45	0	.08019

Method: ARMY Sample Name: CRI/MRL Operator:
Run Time: 10/11/07 08:45 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.852	205.1	13.363	211.8	10.36	5.271
SDev	.0544	9.635	.58714	5.628	.263	.1158
%RSD	1.122	4.698	4.3938	2.656	2.54	2.197

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5168.	5.256	5.177	4.992	15.22	309.8
SDev	125.7	.1608	.1988	.552	.2908	7.406
%RSD	2.431	3.06	3.84	11.06	1.91	2.39

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4474.	5085.	15.96	10.65	5377.	27.62
SDev	108.8	123.4	.347	.3854	243.4	.234
%RSD	2.431	2.426	2.175	3.62	4.527	.8471

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.726	10.461	8.4972	104.1	51.31	13.968
SDev	1.0844	.18504	.82032	2.737	1.224	.61448
%RSD	4.7718	1.769	9.654	2.629	2.385	4.3991

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.935	46.08	12.568	9.4089	21.965	23.106
SDev	.0247	1.347	.38328	.08607	7.3742	5.3074
%RSD	.3563	2.925	3.0497	.91486	33.573	22.97

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	11.828	6.8344	5.0000	19190.3
SDev	1.9392	.26174	0	337.856
%RSD	16.395	3.8298	0	1.76055

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 08:52 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.198	489000.	-.41827	-1.178	1.910	.0485
SDev	.3721	223.3	.99852	1.629	.0683	.0009
%RSD	31.05	.0457	238.72	138.2	3.579	1.768

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	474900.	.8735	2.834	-.3119	1.894	191100.
SDev	1672	.2557	.5861	1.282	.8093	640.8
%RSD	.352	29.27	20.68	411	42.73	.3353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.6	515900.	13.62	-.0952	-407.7	4.026
SDev	18.94	2151	.0561	2.11	620.7	.1076
%RSD	12.83	.4169	.4122	2217	152.2	2.673

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.03995	Q-8.0739	-6.6988	-.2032	-8.298	6.3611
SDev	3.6436	.44097	3.8496	.0502	.1203	.99661
%RSD	9118.2	5.4618	57.467	24.69	1.449	15.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5730	10.51	-33.377	4.5589	19.054	-9.4529
SDev	.3992	.1327	3.9042	2.6103	9.7443	.59778
%RSD	69.66	1.263	11.697	57.257	51.14	6.3239

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5336	-10.809	5.0000	18278.7
SDev	1.6414	4.952	0	21.6372
%RSD	107.03	45.814	0	.11837

Method: ARMY Sample Name: AL 500PPM Operator: LRW
Run Time: 10/11/07 09:02 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3370	494800.	1.8761	392.5	.8295	.0658
SDev	.149	218.4	3.2232	3.413	.1061	.0368
%RSD	44.21	.0441	171.81	.8695	12.79	56

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	78.33	-.2294	.3422	-.0934	.6402	52.84
SDev	41.03	.0108	.0002	.1449	.441	5.542
%RSD	52.38	4.727	.07	155.1	68.88	10.49

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.9	25.77	1.510	1.375	316.4	1.425
SDev	3.958	21.2	.0405	.3368	131.1	.0522
%RSD	2.694	82.28	2.684	24.49	41.45	3.66

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.7245	-13.481	-5.0130	1.976	.3752	5.2360
SDev	4.2489	.38838	2.4762	1.074	.0008	1.4196
%RSD	89.932	2.881	49.395	54.36	.2013	27.113

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0062	-1.203	-18.787	-10.832	19.159	-2.4818
SDev	.5031	.6235	.01337	.58897	5.6863	3.5312
%RSD	8091	51.83	.07121	5.4375	29.68	142.29

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3727	-8.2010	5.0000	18806.9
SDev	3.1504	2.1395	0	23.3345
%RSD	229.5	26.089	0	.12407

Method: ARMY Sample Name: FE 200PPM Operator: LRW
Run Time: 10/11/07 09:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8379	-44.35	-1.7102	37.69	1.333	.0651
SDev	.2616	1.562	.89152	1.247	.0009	.0352
%RSD	31.22	3.522	52.13	3.308	.064	54.07

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-84.83	-.1954	.3088	-.5315	.9961	203300.
SDev	.0414	.0733	.111	.2559	.5915	325.1
%RSD	.0488	37.54	35.96	48.15	59.38	.1599

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	148.2	-18.32	-.4086	-.8942	-660.6	.9748
SDev	.5256	2.811	.0579	.6582	24.76	1.018
%RSD	.3546	15.34	14.16	73.61	3.748	104.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.4463	-1.0853	-1.4177	-.1558	-.2336	2.6641
SDev	.23763	.57475	.67743	1.443	0	4.6504
%RSD	6.8955	52.96	47.783	926.4	0	174.56

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3814	-3.095	1.5407	-2.3963	-.97846	-4.6784
SDev	.0188	.0464	.28402	1.0035	1.2686	.98963
%RSD	4.937	1.5	18.434	41.877	129.65	21.153

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.36235	-2.3064	5.0000	19364.3
SDev	.6423	.69497	0	8.06129
%RSD	177.26	30.132	0	.04162

Method: ARMY Sample Name: ZZZZZ Operator: LRW
Run Time: 10/11/07 09:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7100	-227.9	.11627	-5.598	-.0761	-.5403
SDev	.3201	3.235	1.5007	.2852	.0572	.0093
%RSD	45.08	1.419	1290.6	5.096	75.2	1.714

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-110.1	.0106	-.0325	-.8069	-8.705	14.64
SDev	.8876	.2018	.362	.4992	.0941	3.467
%RSD	.8059	1905	1114	61.86	1.08	23.68

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	128.0	4.314	.0236	-.7954	-227.3	.9762
SDev	12	.6559	.0493	.3462	441.2	.1053
%RSD	9.376	15.21	209.1	43.52	194.2	10.79

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6720	-.30963	1.0449	-1.841	-.5162	2.8936
SDev	.01834	.19242	1.3677	.9703	.0794	1.629
%RSD	1.0973	62.145	130.89	52.7	15.38	56.296

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3174	-1.292	.12491	-.52658	4.3830	.31852
SDev	.6196	.0372	1.2736	.92434	1.7254	.88889
%RSD	195.2	2.876	1019.6	175.54	39.364	279.06

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.8870	.62450	5.0000	35860.2
SDev	.39172	1.8549	0	2911.02
%RSD	20.759	297.03	0	8.11768

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 10:00 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2171	488200.	-1.3931	-7.493	1.868	.1367
SDev	.5953	1160	1.216	.7491	.0724	.0085
%RSD	274.2	.2376	87.285	9.998	3.873	6.248

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	471100.	.5489	1.881	-1.464	.8036	188300.
SDev	758.6	.2114	.709	1.089	.2943	473.6
%RSD	.161	38.51	37.69	74.38	36.62	.2515

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131.0	510200.	13.52	-.9938	-840.1	3.117
SDev	19.9	748.2	.0326	3.337	672.2	1.54
%RSD	15.19	.1466	.241	335.8	80.02	49.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.3749	.35802	-4.9930	.5841	-8.168	4.4089
SDev	2.0961	.69052	4.592	1.632	.3313	.26469
%RSD	152.45	192.87	91.968	279.4	4.056	6.0037

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1165	10.73	-32.240	16.632	12.815	-8.4595
SDev	.4384	.0835	2.1502	.0382	1.1855	3.7344
%RSD	376.2	.7788	6.6694	.2297	9.2503	44.144

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.5744	-6.2006	5.0000	18216.4
SDev	.04531	6.8619	0	4.52437
%RSD	1.7603	110.67	0	.02483

Method: ARMY Sample Name: ICSAB Operator:
Run Time: 10/11/07 10:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1008.	489100.	1006.6	1011.	515.6	496.2
SDev	1.895	583.3	1.8181	6.39	.8239	.4616
%RSD	.188	.1192	.18061	.6323	.1598	.093

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476200.	944.7	471.5	477.0	527.3	190500.
SDev	424	.9001	1.604	1.239	1.033	228.5
%RSD	.089	.0953	.3402	.2598	.196	.1199

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9992.	518200.	497.8	991.4	10850.	950.8
SDev	12.27	423.5	1.042	2.059	70.28	.4636
%RSD	.1228	.0817	.2092	.2077	.6476	.0488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.60	945.05	1088.6	990.7	975.2	950.15
SDev	.34133	1.0583	.38997	.2789	2.034	.37789
%RSD	.03613	.11198	.03582	.0282	.2086	.03977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	495.7	989.9	820.59	1007.2	936.49	948.65
SDev	.7687	2.048	3.4503	.1359	3.0305	1.0012
%RSD	.1551	.2069	.42045	.01349	.32359	.10553

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	920.74	1172.4	5.0000	18203.1
SDev	5.3564	3.2588	0	15.1324
%RSD	.58174	.27796	0	.08313

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 10:14 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.4	24920.	486.14	4797.	1980.	1971.
SDev	2.77	74.88	.5325	4.06	6.552	6.561
%RSD	.2903	.3005	.10953	.0846	.3309	.3329

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49180.	489.0	1914.	1945.	2025.	24640.
SDev	138.8	1.693	7.479	5.733	6.6	66.81
%RSD	.2822	.3463	.3908	.2948	.3259	.2711

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48950.	49320.	1992.	1972.	48260.	2014.
SDev	100.6	191.8	4.809	7.72	197.6	8.727
%RSD	.2056	.3888	.2415	.3915	.4094	.4334

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.77	482.39	528.34	4959.	4853.	978.49
SDev	1.7051	.78543	2.7937	16.44	12.92	2.0695
%RSD	.35539	.16282	.52876	.3316	.2661	.2115

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1893.	432.13	507.48	472.95	483.18
SDev	4.932	7.649	1.074	1.7138	2.6383	3.8735
%RSD	.2491	.404	.24853	.33769	.55783	.80167

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	451.21	566.85	5.0000	19311.9
SDev	.38911	4.3827	0	2.40305
%RSD	.08623	.77316	0	.01244

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 10:22 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1929	-1.101	-1.6741	9.933	-.0321	.1003
SDev	.4836	.9583	.81646	.8344	.0333	.0093
%RSD	250.7	87.06	48.771	8.4	103.9	9.279

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.773	.0362	-.0787	.1988	-1.335	-4.583
SDev	.7672	.0275	.0551	.1383	.3623	4.565
%RSD	11.33	76.09	70.02	69.57	27.13	99.61

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.3	.9574	-.0216	-1.062	-421.3	.8071
SDev	3.248	3.177	.0092	.3279	56.91	.3718
%RSD	2.205	331.8	42.54	30.89	13.51	46.06

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.7738	.56876	-1.5376	.8074	-.4533	1.5471
SDev	.42618	.37287	1.0495	1.656	.3108	1.2829
%RSD	11.293	65.559	68.255	205.1	68.55	82.924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2571	.0815	1.7838	-.03786	3.5138	3.9035
SDev	.0299	.1309	.47061	.32407	1.3837	.05187
%RSD	11.64	160.5	26.382	855.91	39.38	1.3289

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.7752	-3.6909	5.0000	19535.3
SDev	.38288	1.7647	0	2.68755
%RSD	13.797	47.812	0	.01375

Method: ARMY Sample Name: J8FG1B Operator: LRW
Run Time: 10/11/07 10:38 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	H2.130	-21.77	-.62704	.1968	1.468	.1451
SDev	2.614	12.91	3.5737	1.924	.6944	.0774
%RSD	122.8	59.29	569.93	977.6	47.32	53.32

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	466.0	.4286	1.627	1.342	1.607	8.193
SDev	7.182	.6037	2.024	1.946	2.69	24.03
%RSD	1.541	140.9	124.4	145	167.4	293.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	178.9	70.95	.9258	.5471	H2520.	2.811
SDev	42.6	10	.17	2.28	830.7	3.322
%RSD	23.81	14.1	18.36	416.7	32.97	118.2

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.1081	-.41857	.19789	3.055	.3482	7.8494
SDev	.44139	.79857	6.0759	.8538	1.029	6.5662
%RSD	14.202	190.78	3070.2	27.95	295.5	83.652

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1249	12.61	7.2253	-4.2348	15.027	-2.8423
SDev	1.174	.518	4.5477	3.4677	6.7033	2.6848
%RSD	940	4.108	62.941	81.886	44.609	94.46

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	6.7735	-3.0850	5.0000	19649.5
SDev	3.7768	7.2237	0	32.6678
%RSD	55.758	234.16	0	.16625

Method: ARMY Sample Name: J8AG4B Operator: LRW
Run Time: 10/11/07 10:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3738	-49.48	-1.4303	-5.099	.6690	.1258
SDev	.4454	1.676	.95842	.5518	.034	.0006
%RSD	119.2	3.386	67.007	10.82	5.076	.511

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	93.45	.0065	-.2494	.2079	-.9816	3.779
SDev	.643	.0214	.2467	.16	.2321	1.038
%RSD	.6881	327.1	98.91	76.94	23.65	27.47

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.7	30.44	.4055	-.4892	-390.1	1.170
SDev	4.702	.0392	.0187	.8147	40.18	.6857
%RSD	3.206	.1286	4.609	166.5	10.3	58.62

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.4951	.91630	.96334	6.325	-.3064	1.9701
SDev	1.486	1.3274	2.6354	.2268	.103	1.1066
%RSD	99.389	144.86	273.57	3.586	33.6	56.172

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3855	3.486	2.6332	.05914	-1.1563	2.8188
SDev	.0295	.2911	.51971	1.7306	3.7736	.34386
%RSD	7.662	8.352	19.737	2926.3	326.34	12.199

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1682	.36180	5.0000	19651
SDev	.08526	3.9085	0	10.1826
%RSD	3.9324	1080.3	0	.05181

Method: ARMY Sample Name: J8AG4C Operator: LRW
Run Time: 10/11/07 10:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49.24	1880.	1826.9	899.8	1885.	48.35
SDev	.0787	1.29	1.677	6.272	1.912	.1062
%RSD	.1599	.0686	.09179	.697	.1014	.2196

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47080.	46.97	458.0	188.2	243.6	1038.
SDev	134.9	.0344	.6796	.0002	.5961	5.595
%RSD	.2865	.0733	.1484	.0001	.2447	.5391

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46250.	46580.	483.0	943.0	47510.	479.7
SDev	29.12	155	1.231	.9756	48.29	1.22
%RSD	.063	.3329	.2548	.1035	.1016	.2544

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1801.3	460.17	502.82	1890.	940.6	1848.3
SDev	.68354	2.3068	1.2416	8.798	2.142	.57331
%RSD	.03794	.50129	.24693	.4656	.2277	.03101

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	475.5	472.3	414.25	483.09	1752.8	1825.5
SDev	1.53	.2155	.33026	3.2935	5.3474	1.6449
%RSD	.3217	.0456	.07972	.68176	.30507	.0901

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	426.76	540.80	5.0000	19275.7
SDev	3.8274	.04928	0	30.9704
%RSD	.89685	.00911	0	.16067

Method: ARMY Sample Name: J748R Operator: LRW
Run Time: 10/11/07 10:56 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.769	71860.	120.86	17.14	428.2	3.635
SDev	3.064	56.86	5.5632	6.573	1.36	.0802
%RSD	110.6	.0791	4.6032	38.34	.3176	2.207

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	17990.	4.115	66.92	215.1	318.9	349100.
SDev	173.4	.358	1.889	3.155	1.172	2854
%RSD	.9643	8.701	2.823	1.467	.3675	.8177

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5260.	16450.	3886.	25.26	-71.62	215.3
SDev	17.97	248.1	14.48	3.081	1048	4.338
%RSD	.3417	1.508	.3726	12.2	1463	2.015

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.3580	914.20	6.1109	1921.	477.1	13.439
SDev	2.0479	3.5837	2.6119	14.78	1.807	2.1656
%RSD	86.85	.39199	42.742	.7694	.3787	16.115

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	127.4	889.1	807.18	967.63	2.1137	-4.5905
SDev	3.562	3.81	5.6311	8.1841	2.343	4.2401
%RSD	2.796	.4286	.69762	.84578	110.85	92.368

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.7746	6.7779	5.0000	20412.3
SDev	2.9889	2.4236	0	75.3773
%RSD	62.6	35.758	0	.36927

Method: ARMY Sample Name: J748RL Operator: LRW
Run Time: 10/11/07 11:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.042	14570.	24.315	-1.137	87.22	.8079
SDev	.0386	10.22	.8736	1.485	.1903	.0118
%RSD	3.704	.0701	3.5929	130.6	.2182	1.464

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3666.	.6799	13.76	44.00	63.21	72660.
SDev	9.234	.0457	.5282	.7414	.2025	120
%RSD	.2518	6.719	3.839	1.685	.3203	.1651

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1026.	3375.	810.3	3.669	-502.5	44.84
SDev	21.23	18.05	.8065	.4721	690.5	.1117
%RSD	2.07	.5349	.0995	12.87	137.4	.249

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.14079	191.37	.77527	396.1	97.08	4.8929
SDev	1.4389	.93532	.5427	1.74	.3203	.74732
%RSD	1022	.48876	70.002	.4394	.3299	15.274

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	25.80	184.2	172.73	200.67	5.4031	-2.4864
SDev	.1439	.4722	.1773	1.4908	.6536	2.4836
%RSD	.5577	.2563	.10264	.74291	12.097	99.888

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.0399	-.85460	5.0000	19764.6
SDev	2.2238	.2966	0	65.0538
%RSD	55.047	34.706	0	.32914

Method: ARMY Sample Name: J748RX Operator: LRW
Run Time: 10/11/07 11:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.5284	69580.	112.56	8.572	430.3	3.581
SDev	.9505	354.7	1.0152	.8617	2.135	.0079
%RSD	179.9	.5098	.90192	10.05	.4961	.2206

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18680.	3.949	57.66	182.7	240.2	268500.
SDev	29.31	.1286	.5234	.6125	.8184	445.5
%RSD	.1569	3.257	.9077	.3353	.3408	.1659

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4765.	16460.	3718.	20.03	-813.7	189.8
SDev	3.313	12.66	12.5	.8661	467.2	.6047
%RSD	.0695	.0769	.3363	4.324	57.42	.3185

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.0394	728.01	5.4127	1221.	471.3	7.9095
SDev	.3925	2.0191	2.4717	6.66	1.676	2.095
%RSD	19.246	.27734	45.665	.5456	.3556	26.487

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	121.4	709.6	642.33	770.78	2.8174	-4.4642
SDev	.6469	2.329	3.4405	4.7448	6.5416	2.6774
%RSD	.5327	.3283	.53562	.61558	232.18	59.975

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6877	7.2724	5.0000	20400.1
SDev	1.9732	4.6908	0	76.7915
%RSD	116.91	64.501	0	.37642

Method: ARMY Sample Name: J748RS Operator: LRW
Run Time: 10/11/07 11:11 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.88	106500.	1796.7	787.1	2254.	48.04
SDev	.2013	400.6	.31591	.088	7.763	.114
%RSD	.4484	.3761	.01758	.0112	.3445	.2373

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	62030.	46.67	486.6	410.9	536.5	314300.
SDev	115.7	.2314	.969	.5925	2.733	467.4
%RSD	.1865	.4957	.1992	.1442	.5094	.1487

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52960.	63090.	4508.	864.0	44530.	662.0
SDev	249	104.4	6.367	.4799	124.9	2.336
%RSD	.4702	.1655	.1412	.0555	.2804	.3529

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1646.4	1376.8	230.89	3468.	1299.	1662.2
SDev	.14708	2.9472	3.0416	9.035	2.656	2.9352
%RSD	.00893	.21406	1.3173	.2605	.2045	.17659

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	606.0	1249.	1220.7	1454.7	1611.1	1664.0
SDev	.8194	3.656	2.5547	3.1431	.31134	.37599
%RSD	.1352	.2927	.20929	.21606	.01932	.02259

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	197.69	247.47	5.0000	20213.1
SDev	1.0481	4.0368	0	14.8492
%RSD	.53017	1.6312	0	.07346

Method: ARMY Sample Name: J748X Operator: LRW
Run Time: 10/11/07 11:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	29.57	170600.	130.15	270.2	3420.	23.34
SDev	.0164	135	.73497	.3809	1.148	.091
%RSD	.0555	.0792	.56471	.141	.0336	.39

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	593900.	459.0	75.35	905.6	24230.	512500.
SDev	4400	2.368	.094	4.192	19.77	2935
%RSD	.7409	.516	.1248	.4629	.0816	.5728

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11390.	94680.	21600.	80.74	5212.	640.0
SDev	5.241	593.2	54.92	.6562	38.25	.5475
%RSD	.046	.6266	.2542	.8127	.734	.0855

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.7884	11804.	353.48	665.7	2699.	22.730
SDev	2.0046	51.927	5.4632	3.853	8.775	2.596
%RSD	52.915	.43991	1.5456	.5788	.3252	11.421

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	109.1	H16280.	10549.	12431.	13.334	-12.337
SDev	.5066	78.58	48.379	53.699	2.8552	1.5799
%RSD	.4645	.4827	.45862	.43198	21.414	12.807

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	307.15	376.61	5.0000	21289.9
SDev	.08661	8.234	0	48.2241
%RSD	.0282	2.1864	0	.22651

Method: ARMY Sample Name: J7481 Operator: LRW
Run Time: 10/11/07 11:22 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7570	72870.	119.65	18.09	448.9	4.662
SDev	.0071	232.5	1.2637	.567	.7856	.0079
%RSD	.9378	.319	1.0562	3.134	.175	.1695

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21450.	1.234	69.27	177.4	149.9	178000.
SDev	68.11	.0478	.0185	.4648	.2025	637.1
%RSD	.3175	3.875	.0268	.2619	.1351	.358

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6972.	19270.	4235.	7.631	-523.6	204.8
SDev	37.14	22.78	6.953	.1718	317.8	.298
%RSD	.5327	.1182	.1642	2.252	60.7	.1455

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.4765	131.20	-5.9321	8.597	477.5	10.051
SDev	1.6973	.80525	2.4229	1.39	1.583	.32304
%RSD	114.95	.61374	40.844	16.17	.3316	3.2141

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131.8	540.3	113.59	140.00	6.5124	-1.0376
SDev	.3274	.0052	.60342	.906	2.5246	1.2842
%RSD	.2483	.001	.53124	.64715	38.767	123.76

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.1261	-8.3316	5.0000	20549.8
SDev	.37918	3.4432	0	25.739
%RSD	33.673	41.327	0	.12525

Method: ARMY Sample Name: J7483 Operator: LRW
Run Time: 10/11/07 11:27 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.272	68410.	109.12	19.15	415.3	4.388
SDev	.8517	61.61	1.725	.7902	.77	.0357
%RSD	66.95	.0901	1.5809	4.126	.1854	.8144

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21720.	.5722	63.24	157.1	134.8	163600.
SDev	172.4	.8321	1.07	8.308	.0428	1094
%RSD	.7936	145.4	1.692	5.29	.0318	.6685

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6542.	18150.	3851.	6.965	-3912.	181.6
SDev	162.8	182.9	22.08	1.579	4988	2.388
%RSD	2.489	1.008	.5735	22.67	127.5	1.315

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.4546	127.52	-1.6623	9.729	436.6	9.0628
SDev	2.3103	1.1054	.68284	3.199	.8221	3.3587
%RSD	94.12	.86687	41.079	32.88	.1883	37.06

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	122.3	495.4	107.61	137.46	3.9966	1.6848
SDev	.1254	1.295	6.4334	4.8692	3.1938	5.0582
%RSD	.1025	.2614	5.9785	3.5423	79.913	300.22

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.24080	-2.6124	5.0000	20465.5
SDev	3.793	.8699	0	6.08084
%RSD	1575.1	33.299	0	.02971

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 11:36 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	952.3	24910.	484.35	4820.	1989.	1974.
SDev	.4459	38.92	2.3641	2.655	1.286	1.733
%RSD	.0468	.1562	.4881	.0551	.0647	.0878

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49350.	489.2	1914.	1947.	2012.	24550.
SDev	11.29	.2599	1.79	1.359	.8323	2.659
%RSD	.0229	.0531	.0935	.0698	.0414	.0108

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49120.	49420.	2059.	1971.	48470.	2009.
SDev	174.6	42.97	2.394	3.381	142.4	.3531
%RSD	.3555	.0869	.1163	.1716	.2937	.0176

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	480.74	482.20	529.51	4939.	4862.	975.29
SDev	2.7688	1.7459	2.6375	12.06	1.963	.29701
%RSD	.57594	.36206	.4981	.2441	.0404	.03045

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1984.	1887.	433.97	506.27	477.57	482.32
SDev	.2106	.829	3.0973	1.0712	4.1921	2.0583
%RSD	.0106	.0439	.71369	.21159	.87779	.42674

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	448.42	570.00	5.0000	19271.6
SDev	1.3906	4.6486	0	50.9117
%RSD	.31011	.81554	0	.26417

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 11:44 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.099	-1.020	.23664	10.53	.0865	.0887
SDev	1.264	3.595	1.3599	.5481	.1342	.0079
%RSD	115	352.4	574.65	5.203	155.2	8.91

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.586	.1343	.7589	.7218	-1.364	-1.611
SDev	2.461	.2217	.6893	1.063	.1411	3.158
%RSD	44.06	165.1	90.83	147.2	10.34	196

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	162.8	1.634	.0497	-.1327	-169.3	2.123
SDev	19.25	.0224	.0369	.9854	478.5	1.062
%RSD	11.82	1.37	74.13	742.5	282.6	50.01

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3226	-.54835	-1.3718	1.410	-.2335	3.4036
SDev	2.8276	.89095	1.129	.8073	.2073	.89099
%RSD	121.74	162.48	82.3	57.26	88.76	26.178

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3645	-.1139	4.0084	-2.8233	5.0988	.93653
SDev	.1827	.1024	3.8859	3.2758	6.3177	1.0851
%RSD	50.12	89.9	96.944	116.03	123.91	115.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.6650	-4.3856	5.0000	19528
SDev	1.9046	2.6435	0	9.33325
%RSD	40.828	60.277	0	.04779

Method: ARMY Sample Name: J7484 Operator: LRW
Run Time: 10/11/07 11:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2844	61400.	208.74	18.74	478.6	3.822
SDev	.1219	61.35	1.4215	.298	.2833	.0569
%RSD	42.86	.0999	.68095	1.59	.0592	1.488

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22180.	1.577	59.12	256.8	185.4	210600.
SDev	.6339	.3273	.0526	.0977	2.342	63.53
%RSD	.0029	20.75	.0889	.0381	1.263	.0302

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5262.	13960.	3585.	14.44	-575.9	191.9
SDev	6.614	1.896	.0953	2.061	16.16	1.052
%RSD	.1257	.0136	.0027	14.27	2.806	.5483

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.3665	771.22	4.4131	10.01	671.6	7.0118
SDev	.09605	1.405	2.6772	1.881	.704	3.6942
%RSD	1.7899	.18217	60.666	18.79	.1048	52.685

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	132.5	619.7	684.37	814.57	9.7429	3.1816
SDev	.4929	.4509	.18476	2.0142	1.5532	.63142
%RSD	.3719	.0728	.02699	.24726	15.942	19.846

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	5.8458	3.6978	5.0000	20099
SDev	1.7671	3.1316	0	18.1016
%RSD	30.228	84.688	0	.09006

Method: ARMY Sample Name: J7488 Operator: LRW
Run Time: 10/11/07 11:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10.65	194100.	77.671	241.4	2049.	27.47
SDev	.4267	725	1.2619	2.006	8.739	.1734
%RSD	4.005	.3735	1.6246	.8309	.4264	.6313

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	H714300.	345.4	48.19	449.2	3180.	315300.
SDev	5379	2.153	.0346	2.949	12.02	2309
%RSD	.7531	.6234	.0718	.6565	.3781	.7322

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11590.	109600.	23320.	26.02	5448.	261.4
SDev	23.58	754	98.81	.6929	256.6	.6198
%RSD	.2035	.6881	.4237	2.663	4.71	.2371

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0766	9078.4	232.12	96.48	2356.	24.721
SDev	.96844	58.142	3.1967	.5507	14.61	2.6756
%RSD	31.477	.64044	1.3772	.5708	.62	10.823

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	103.5	H13010.	8083.8	9575.0	13.481	-2.1178
SDev	.112	69.31	65.342	54.548	7.1139	2.0997
%RSD	.1082	.5325	.8083	.56969	52.769	99.142

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	202.91	246.70	5.0000	21074.8
SDev	.17538	4.7051	0	37.9006
%RSD	.08643	1.9072	0	.17983

Method: ARMY Sample Name: J749C Operator: LRW
Run Time: 10/11/07 11:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	27.10	70710.	182.75	135.0	2126.	8.870
SDev	.6262	79.38	1.316	.079	.7309	.0161
%RSD	2.31	.1123	.72012	.0585	.0344	.1814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	158600.	160.6	82.24	904.0	5120.	517600.
SDev	251.6	.1677	.3224	1.121	7.471	12.22
%RSD	.1587	.1044	.392	.1241	.1459	.0024

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5693.	27400.	8220.	76.10	1757.	1543.
SDev	28.27	19.23	3.29	1.186	45.06	5.195
%RSD	.4967	.0702	.04	1.558	2.565	.3366

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-4.9061	11325.	127.15	3475.	1534.	16.256
SDev	1.9451	26.726	.11553	1.837	.8772	.32958
%RSD	39.646	.23598	.09086	.0529	.0572	2.0275

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	111.5	H11710.	10109.	11933.	2.8280	-8.7674
SDev	.1828	5.129	31.207	24.49	.22175	3.0269
%RSD	.1639	.0438	.30869	.20523	7.8412	34.524

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	109.29	136.07	5.0000	20326
SDev	.55024	.10148	0	67.0343
%RSD	.50347	.07458	0	.32979

Method: ARMY Sample Name: J749D Operator: LRW
Run Time: 10/11/07 12:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.589	126100.	193.98	67.90	1017.	10.66
SDev	1.131	145.2	1.6526	.0322	2.525	.022
%RSD	20.23	.1151	.85193	.0474	.2482	.2061

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	187200.	93.62	79.03	503.3	5511.	258100.
SDev	50.77	.0322	.6313	.0238	11.62	111.9
%RSD	.0271	.0344	.7988	.0047	.2109	.0434

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9033.	39960.	8774.	20.09	1058.	443.1
SDev	19.36	35.58	11.7	.2708	347.1	.0196
%RSD	.2144	.089	.1334	1.348	32.82	.0044

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.57120	2082.7	17.145	411.2	863.1	16.142
SDev	2.9897	9.1579	3.215	.9992	1.043	1.9975
%RSD	523.41	.4397	18.751	.243	.1208	12.375

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	155.8	5052.	1843.1	2202.4	1.3844	.16519
SDev	.2584	6.707	5.737	16.594	7.7705	.60294
%RSD	.1658	.1328	.31126	.75347	561.27	364.99

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	16.137	17.649	5.0000	20696.8
SDev	2.8419	6.2389	0	42.9926
%RSD	17.611	35.351	0	.20772

Method: ARMY Sample Name: J749E Operator: LRW
Run Time: 10/11/07 12:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1726	118200.	92.061	100.0	1064.	14.10
SDev	.363	138.6	.28166	1.561	.044	.0238
%RSD	210.4	.1173	.30595	1.561	.0041	.1688

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	289000.	9.086	55.33	250.8	329.6	167000.
SDev	50.71	.026	.1336	.0313	.2267	46.8
%RSD	.0175	.2857	.2416	.0125	.0688	.028

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8345.	53210.	11160.	8.442	1295.	271.3
SDev	30.65	41.53	10.62	1.225	219	1.839
%RSD	.3672	.0781	.0951	14.52	16.92	.6777

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.7373	575.08	.26732	17.13	1298.	15.103
SDev	.31588	1.1884	.75639	.2271	.0126	.95337
%RSD	4.6887	.20664	282.95	1.326	.001	6.3123

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118.9	961.2	504.15	610.49	15.825	2.2002
SDev	.1211	.1117	1.5693	.99825	1.4079	1.1765
%RSD	.1018	.0116	.31127	.16351	8.8966	53.473

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.5449	-.86976	5.0000	20718.9
SDev	2.1441	2.2045	0	27.8589
%RSD	84.252	253.46	0	.13446

Method: ARMY Sample Name: J777D Operator: LRW
Run Time: 10/11/07 12:14 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0435	26350.	13.977	.0488	314.5	2.677
SDev	.3516	21.16	.80337	.001	.3243	.0178
%RSD	807.6	.0803	5.7479	2.09	.1031	.6639

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4683.	.2106	37.24	29.30	56.52	65820.
SDev	2.003	.0414	.4085	1.265	1.076	25.59
%RSD	.0428	19.66	1.097	4.317	1.904	.0389

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3128.	6165.	3151.	.4937	-645.9	62.99
SDev	32.02	5.101	1.528	.9653	902.3	.8921
%RSD	1.024	.0827	.0485	195.5	139.7	1.416

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.89244	40.326	-.59903	8.725	192.5	3.9328
SDev	1.7027	.50761	4.0288	.35	.221	.37181
%RSD	190.79	1.2588	672.55	4.012	.1148	9.4542

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.40	201.3	38.739	41.118	4.9281	-1.1224
SDev	.677	.166	4.1413	2.8286	2.0446	1.532
%RSD	1.459	.0824	10.691	6.8792	41.489	136.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.7757	-2.7831	5.0000	19915.9
SDev	2.1704	4.9566	0	1.83958
%RSD	57.482	178.09	0	.00923

Method: ARMY Sample Name: J777DL Operator: LRW
Run Time: 10/11/07 12:19 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2386	5309.	2.5619	-3.375	64.07	.5915
SDev	.1077	29.97	.28157	.113	.2279	.0126
%RSD	45.13	.5645	10.991	3.349	.3556	2.123

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	898.4	.0607	7.527	5.921	9.702	13420.
SDev	4.6	.0001	.08	.4868	.3488	54.97
%RSD	.512	.1284	1.063	8.222	3.595	.4096

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	684.7	1257.	640.5	-.3449	-217.8	14.28
SDev	7.469	.8454	3.49	.1694	459.2	1.064
%RSD	1.091	.0673	.5449	49.1	210.8	7.449

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.0580	7.9627	-2.2758	2.780	38.58	2.8418
SDev	2.823	.493	.44359	1.586	.0327	2.2813
%RSD	137.17	6.1915	19.491	57.06	.0849	80.278

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.311	40.70	9.4505	7.2199	3.9576	1.1097
SDev	.6329	.235	.79376	1.1354	4.8574	1.8074
%RSD	6.797	.5775	8.3992	15.726	122.74	162.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.6819	-4.7510	5.0000	19503.3
SDev	1.6219	.14468	0	68.5893
%RSD	60.477	3.0453	0	.35168

Method: ARMY Sample Name: J777DX Operator: LRW
Run Time: 10/11/07 12:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0985	33180.	16.138	2.563	365.6	3.161
SDev	.784	10.45	1.9415	.4246	.0038	.0046
%RSD	795.8	.0315	12.03	16.57	.0011	.146

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5133.	.3607	41.54	37.04	66.58	75030.
SDev	7.203	.1528	.1634	.1994	.301	115.4
%RSD	.1403	42.35	.3935	.5382	.4521	.1538

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4282.	7376.	3478.	-.1027	17.96	71.57
SDev	7.106	10.86	3.234	1.278	44.98	1.333
%RSD	.166	.1472	.093	1244	250.4	1.863

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.9769	47.359	-3.2130	7.507	214.1	7.3747
SDev	.6715	.09162	.79784	3.105	.4372	.58125
%RSD	16.885	.19346	24.832	41.36	.2042	7.8818

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56.83	240.7	41.823	50.123	5.9675	2.9830
SDev	.5111	.1238	.28989	.00736	2.2065	2.1083
%RSD	.8995	.0515	.69313	.01468	36.975	70.678

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7803	-5.7059	5.0000	20061.8
SDev	.03082	1.1808	0	25.1727
%RSD	1.7313	20.694	0	.12547

Method: ARMY Sample Name: J777DS Operator: LRW
Run Time: 10/11/07 12:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47.72	24670.	1765.6	872.3	1967.	48.05
SDev	.0128	127.3	13.372	1.355	10.02	.2538
%RSD	.0268	.5158	.75734	.1553	.5092	.5281

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47730.	45.25	458.1	200.1	255.7	24390.
SDev	244.9	.2154	1.976	1.348	1.366	116.1
%RSD	.513	.4761	.4314	.674	.5342	.4761

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47460.	48650.	1598.	902.1	46600.	488.8
SDev	249.4	252.1	9.324	5.375	122.8	.8166
%RSD	.5256	.5182	.5834	.5959	.2635	.1671

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1631.5	459.27	396.64	1793.	973.9	1764.9
SDev	.72307	2.3494	2.1633	8.447	4.62	10.474
%RSD	.04431	.51155	.54541	.4711	.4744	.59346

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	486.6	532.9	413.83	481.96	1595.4	1649.6
SDev	1.984	3.167	2.825	2.1121	10.1	3.9581
%RSD	.4077	.5944	.68263	.43822	.63302	.23994

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	338.31	425.76	5.0000	19472.4
SDev	1.8786	2.3055	0	119.36
%RSD	.55528	.54149	0	.61297

Method: ARMY Sample Name: J777P Operator: LRW
Run Time: 10/11/07 12:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2315	54910.	23.377	4.175	468.9	4.972
SDev	.3803	192.4	1.8082	1.187	2.321	.0237
%RSD	164.3	.3504	7.7349	28.43	.4949	.4764

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15810.	.7581	64.16	70.13	120.6	131800.
SDev	27.8	.1449	.4054	.7655	.0294	97.16
%RSD	.1758	19.12	.6318	1.092	.0243	.0737

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6634.	16700.	2880.	1.244	571.4	119.3
SDev	14.11	46.3	2.33	1.429	297.5	2.319
%RSD	.2128	.2772	.0809	114.9	52.07	1.945

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.68662	76.880	-1.1291	6.636	345.5	11.057
SDev	1.1065	1.0622	3.1602	.7192	.2139	2.7198
%RSD	161.15	1.3816	279.89	10.84	.0619	24.598

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	90.98	427.0	63.822	83.399	-2.8745	2.4645
SDev	.8807	1.484	4.5823	3.8802	6.8941	5.1007
%RSD	.9681	.3476	7.1798	4.6526	239.84	206.97

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.1771	-1.1051	5.0000	20216
SDev	1.3242	5.399	0	35.9216
%RSD	112.49	488.56	0	.17768

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 12:50 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	948.0	24900.	480.94	4808.	1989.	1964.
SDev	.2198	34.67	.15865	11.86	1.495	.9682
%RSD	.0232	.1392	.03298	.2466	.0752	.0493

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49200.	487.4	1906.	1938.	2007.	24420.
SDev	39.13	.1558	1.623	1.416	2.263	27.43
%RSD	.0795	.032	.0852	.0731	.1128	.1123

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49260.	49280.	2045.	1964.	48530.	2004.
SDev	79.81	60.94	1.731	1.382	86.67	2.38
%RSD	.162	.1237	.0846	.0704	.1786	.1188

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	472.96	480.51	522.33	4919.	4845.	968.23
SDev	.45773	.18825	1.254	5.407	1.139	2.8493
%RSD	.09678	.03917	.24007	.1099	.0235	.29427

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1977.	1876.	430.49	505.48	463.05	477.91
SDev	1.318	1.364	1.1225	.27813	1.1667	.10373
%RSD	.0667	.0727	.26073	.05502	.25197	.0217

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	445.81	560.53	5.0000	19311.4
SDev	.26829	2.014	0	41.2939
%RSD	.06018	.35929	0	.21383

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 12:58 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4434	-5.410	-1.2888	12.15	-.0285	.0810
SDev	.2481	1.891	.00432	2.255	.1638	.0212
%RSD	55.95	34.96	.33545	18.55	575.2	26.14

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-4.853	.0400	.0545	-.6302	-1.921	-5.038
SDev	.7553	.0884	.1416	.3042	.3024	5.324
%RSD	15.56	220.8	260	48.28	15.75	105.7

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.7	1.236	-.0118	.1097	-638.1	-.0154
SDev	3.12	.1101	.0331	.0121	26.54	.5816
%RSD	2.265	8.907	280.7	11	4.16	3777

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1560	.77596	-2.0697	1.428	-.4557	-.74099
SDev	1.6875	.38243	1.7687	.5168	.3141	2.3144
%RSD	78.268	49.285	85.458	36.18	68.93	312.34

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3843	.0908	1.7479	.29072	.51040	2.9776
SDev	.0914	.131	.95254	.0978	4.8358	.11566
%RSD	23.78	144.2	54.497	33.64	947.45	3.8846

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.45492	-3.3301	5.0000	19417.9
SDev	1.0479	3.1749	0	124.876
%RSD	230.35	95.34	0	.64309

Method: ARMY Sample Name: J778P Operator: LRW
Run Time: 10/11/07 13:05 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0199	19990.	8.8495	8.400	158.8	2.023
SDev	.3187	36.23	.01246	.1674	.2109	.012
%RSD	1603	.1813	.14082	1.993	.1328	.5932

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42440.	.3937	28.05	28.23	46.23	50210.
SDev	93.32	.019	.1236	.1149	.2685	127.4
%RSD	.2199	4.818	.4407	.407	.5807	.2537

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3186.	9693.	1665.	.2335	86.09	52.39
SDev	4.947	23.92	3.288	.1655	122.8	.2916
%RSD	.1553	.2467	.1974	70.89	142.7	.5566

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9747	30.341	-2.5665	12.14	260.2	2.5931
SDev	3.3096	.67021	1.9965	.1106	.9097	2.542
%RSD	111.26	2.2089	77.789	.9111	.3496	98.032

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	36.02	172.1	27.379	31.820	4.1983	2.3638
SDev	.682	.3216	1.7478	.13222	1.6059	4.1602
%RSD	1.894	.1869	6.3837	.41552	38.252	176

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5803	-4.6368	5.0000	19787.8
SDev	.55835	3.272	0	30.2647
%RSD	35.333	70.565	0	.15294

Method: ARMY Sample Name: J7782 Operator: LRW
Run Time: 10/11/07 13:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4444	20580.	8.5085	4.456	156.4	2.149
SDev	.7044	10.53	.90746	.1477	.2369	.0112
%RSD	158.5	.0511	10.665	3.314	.1514	.521

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	35240.	.2484	30.92	29.63	51.18	55110.
SDev	88.39	.1005	.4812	.3839	.6686	161
%RSD	.2508	40.47	1.556	1.296	1.306	.2921

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2847.	9791.	1693.	-.0645	256.4	56.07
SDev	.1882	28.98	3.535	.6482	54.79	.5613
%RSD	.0066	.296	.2088	1005	21.37	1.001

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.59216	31.400	.47531	9.291	257.0	3.0945
SDev	1.7024	.20857	.78686	.8289	.5802	.53297
%RSD	287.48	.66424	165.55	8.922	.2257	17.224

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37.88	179.1	27.214	33.490	-.36216	1.0686
SDev	.007	.0492	2.2739	.82254	2.2051	1.4514
%RSD	.0184	.0275	8.3557	2.4561	608.87	135.82

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.0962	.16532	5.0000	19848.6
SDev	.00121	1.1803	0	13.2928
%RSD	.11063	713.91	0	.06697

Method: ARMY Sample Name: J748RA Sb 200ppb Operator: LRW
Run Time: 10/11/07 13:14 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.242	71330.	118.37	13.96	429.1	3.531
SDev	.0473	308.1	.72604	1.869	1.505	.0126
%RSD	3.809	.4319	.61335	13.39	.3506	.3554

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18030.	3.898	66.12	214.7	314.3	347900.
SDev	100.7	.0784	.3134	1.304	.9796	1942
%RSD	.5581	2.011	.474	.6072	.3116	.5582

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5197.	16510.	3977.	24.13	-506.6	212.5
SDev	14.37	98.97	19.66	.1081	176.5	.1926
%RSD	.2764	.5996	.4942	.4479	34.84	.0907

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6854	921.44	241.61	1917.	479.7	12.880
SDev	.8696	3.3957	.12196	8.683	4.123	.07626
%RSD	51.596	.36852	.05048	.453	.8594	.59208

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	125.8	885.3	818.64	972.76	8.7840	-1.8585
SDev	.5136	3.98	3.0417	3.5725	3.9547	.6706
%RSD	.4084	.4496	.37154	.36725	45.021	36.082

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	202.18	261.29	5.0000	20019
SDev	.58648	.10994	0	79.196
%RSD	.29008	.04207	0	.3956

Method: ARMY Sample Name: J748X/5 Operator: LRW
Run Time: 10/11/07 13:20 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.450	37930.	28.640	59.44	758.5	5.342
SDev	.604	93.56	.90858	.1085	2.183	.0154
%RSD	9.364	.2467	3.1725	.1825	.2878	.2881

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142200.	106.7	17.10	207.4	5318.	118500.
SDev	480.7	.3242	.1474	.5362	14.48	440.1
%RSD	.3379	.3039	.8623	.2586	.2723	.3713

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2246.	21200.	5227.	18.02	888.7	149.1
SDev	4.721	61.79	17.27	.8546	8.397	.1166
%RSD	.2102	.2915	.3305	4.743	.9449	.0782

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.55246	2760.0	76.760	152.6	603.2	7.7289
SDev	1.3052	12.374	.5957	.8924	2.033	1.1487
%RSD	236.25	.44834	.77607	.5849	.337	14.863

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24.00	4387.	2466.3	2906.7	1.7212	-.03101
SDev	.5597	5.388	13.454	11.835	6.1765	5.0404
%RSD	2.332	.1228	.5455	.40718	358.85	16252

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	67.919	81.173	5.0000	19870.1
SDev	1.0975	1.4411	0	46.8113
%RSD	1.616	1.7753	0	.23558

Method: ARMY Sample Name: J7488/5 Operator: LRW
Run Time: 10/11/07 13:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.448	43430.	16.411	50.36	450.5	6.232
SDev	.0463	83.67	.14111	.2957	.817	.0014
%RSD	1.892	.1926	.85987	.5872	.1814	.0234

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	172600.	79.77	11.24	103.1	685.6	73150.
SDev	274.5	.107	.1839	.0406	2.075	152.4
%RSD	.159	.1341	1.636	.0394	.3026	.2084

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2240.	24480.	5637.	6.426	1130.	60.18
SDev	3.365	24.53	8.813	.1493	157.5	.5381
%RSD	.1502	.1002	.1564	2.324	13.94	.8941

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6793	2109.4	48.552	21.00	527.7	5.7512
SDev	5.4302	1.4615	.81436	.2215	.9295	.61544
%RSD	323.36	.06928	1.6773	1.055	.1761	10.701

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.72	3320.	1882.2	2222.8	5.6085	-.28231
SDev	.142	4.312	.44548	2.4136	2.6419	6.8223
%RSD	.6247	.1299	.02366	.10858	47.106	2416.6

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	47.049	49.303	5.0000	19763.7
SDev	2.6343	2.5361	0	38.0415
%RSD	5.599	5.1439	0	.19248

Method: ARMY Sample Name: J749C/5 Operator: LRW
Run Time: 10/11/07 13:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.707	14840.	37.443	24.19	446.6	1.971
SDev	.4084	2.308	.27109	.0502	.0571	.0276
%RSD	7.156	.0156	.724	.2074	.0128	1.4

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34050.	34.32	17.35	193.3	1064.	111900.
SDev	25.24	.0405	.2212	.4312	.7685	157.8
%RSD	.0741	.118	1.275	.2231	.0722	.1411

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1146.	5819.	1764.	15.79	24.38	335.9
SDev	2.834	6.23	1.725	.1843	5.197	1.098
%RSD	.2474	.1071	.0978	1.167	21.31	.3269

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.22724	2464.3	25.658	742.3	323.7	2.6122
SDev	.635	.21855	.13886	.619	.6664	2.7224
%RSD	279.43	.00886	.5412	.0834	.2059	104.22

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	23.29	2775.	2203.5	2594.5	1.3717	-.34411
SDev	.0775	3.724	.67672	.6655	2.151	.12187
%RSD	.3328	.1342	.03071	.02565	156.82	35.416

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	23.286	26.842	5.0000	19728.3
SDev	3.4236	1.9174	0	28.1434
%RSD	14.703	7.1433	0	.14265

Method: ARMY Sample Name: ZZZZZ Operator: LRW
Run Time: 10/11/07 13:39 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q-.3339	Q-228.8	Q-.54612	Q-8.105	Q-.0536	Q-.5140
SDev	.6345	4.113	.47668	.5461	.1676	.0062
%RSD	190	1.798	87.284	6.739	312.6	1.199

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q-113.0	Q.0463	Q-.2382	Q-.8100	Q-8.455	Q-3.546
SDev	1.514	.1084	.0477	.7629	.7108	8.13
%RSD	1.34	234.1	20.03	94.19	8.407	229.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q119.5	Q-2.659	Q-.0607	Q-.6711	Q-211.6	Q.1032
SDev	18.41	4.025	.0971	.4548	330.6	.3186
%RSD	15.4	151.4	160	67.76	156.2	308.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q.62962	Q.56713	Q.84663	Q.2099	Q-.2733	Q3.8925
SDev	1.6919	.16905	.36476	2.963	.3992	2.2303
%RSD	268.72	29.809	43.084	1412	146	57.298

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q-.4063	Q-1.282	.53908	.58113	2.5620	-.33514
SDev	.2667	.131	4.4853	2.4928	12.661	3.7844
%RSD	65.65	10.22	832.03	428.94	494.18	1129.2

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.0347	.75275	5.0000	35482
SDev	3.5541	2.3213	0	102.956
%RSD	343.5	308.37	0	.29016

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 13:48 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.8	24820.	478.37	4755.	1980.	1958.
SDev	1.479	43.07	2.0668	13.58	2.351	5.294
%RSD	.1564	.1735	.43204	.2855	.1188	.2704

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48980.	486.4	1901.	1932.	2002.	24310.
SDev	150.9	.6487	4.812	5.336	1.938	86.62
%RSD	.308	.1333	.2531	.2762	.0968	.3563

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	48980.	2030.	1959.	48330.	2011.
SDev	124.8	85.39	4.888	4.327	118.7	2.905
%RSD	.2534	.1743	.2407	.2209	.2456	.1444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	473.25	479.27	523.26	4901.	4819.	965.23
SDev	3.3762	1.7394	1.1978	7.392	14.25	.17069
%RSD	.71339	.36293	.22891	.1508	.2957	.01768

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1970.	1874.	429.70	504.02	463.03	478.36
SDev	5.777	2.019	1.7705	1.7239	3.0335	3.5472
%RSD	.2933	.1077	.41204	.34202	.65514	.74154

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	444.69	562.48	5.0000	19340.2
SDev	.59202	1.5003	0	34.506
%RSD	.13313	.26673	0	.17841

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 13:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0084	-6.955	.04391	11.15	.0907	.0937
SDev	.1704	1.588	.08341	1.62	.0028	.0225
%RSD	2020	22.83	189.96	14.54	3.095	24.06

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.326	.1081	.0354	-.2045	-.9518	.9350
SDev	.6177	.0116	.1645	.0724	.4045	2.51
%RSD	9.765	10.72	464.1	35.39	42.5	268.4

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.9	1.887	.0206	-.3605	-730.6	1.498
SDev	2.66	3.164	.0297	1.645	189	.1516
%RSD	1.861	167.6	143.9	456.3	25.87	10.12

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.16400	.42941	-1.2057	.1543	-.0120	1.6316
SDev	3.456	.64134	.9621	1.162	.3133	3.0104
%RSD	2107.2	149.35	79.796	753.1	2608	184.5

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0887	-.0821	-.07737	.68243	-.68967	.59020
SDev	.1527	.0867	.34644	1.1345	7.6895	1.3424
%RSD	172	105.6	447.75	166.24	1115	227.44

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0620	-2.8371	5.0000	19424.9
SDev	.84061	1.0228	0	67.4569
%RSD	40.767	36.05	0	.34727

Method: ARMY Sample Name: J8KMTB Operator: LRW
Run Time: 10/11/07 14:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3809	-61.51	-1.0167	-5.583	.7178	.0845
SDev	.8553	3.405	.7797	.4033	.0297	.0236
%RSD	224.5	5.537	76.686	7.223	4.141	27.97

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81.28	.0347	.1947	.5012	-1.063	9.724
SDev	.2641	.0565	.6041	.5705	.2076	1.697
%RSD	.3249	162.9	310.2	113.8	19.53	17.45

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	156.7	32.38	.4775	-1.180	-429.7	1.472
SDev	8.507	1.293	.0117	.1647	209.4	.0467
%RSD	5.429	3.994	2.458	13.96	48.73	3.172

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8553	.32929	-1.0818	H31.05	-.2336	3.2829
SDev	3.1651	.45278	2.6508	1.699	0	1.012
%RSD	170.6	137.5	245.03	5.471	0	30.827

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1521	3.116	3.0153	-1.0117	4.9455	.31250
SDev	.2402	.1552	1.1271	.11611	2.0151	3.7393
%RSD	158	4.979	37.38	11.477	40.746	1196.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.2263	-3.7319	5.0000	19625.6
SDev	2.0611	5.0033	0	48.6481
%RSD	48.769	134.07	0	.24788

Method: ARMY Sample Name: J8KMTC Operator: LRW
Run Time: 10/11/07 14:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50.18	1923.	1857.3	897.5	1939.	49.76
SDev	.0514	.9924	1.0137	1.442	1.85	.0396
%RSD	.1024	.0516	.05458	.1607	.0954	.0796

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47780.	48.29	473.4	193.8	249.4	1132.
SDev	24.91	.0132	.2649	.1379	.2371	6.07
%RSD	.0521	.0273	.056	.0711	.0951	.5364

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47300.	47570.	504.9	955.3	48420.	503.1
SDev	102.7	26.02	.101	2.151	370.9	.0715
%RSD	.2171	.0547	.02	.2252	.7661	.0142

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1826.7	474.07	504.85	1913.	943.7	1882.9
SDev	3.8887	.42675	1.8029	2.12	1.164	.20698
%RSD	.21288	.09001	.3571	.1108	.1234	.01099

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	488.6	482.7	427.81	497.17	1773.3	1853.3
SDev	.2042	.8986	.66211	.97037	.80706	6.233
%RSD	.0418	.1862	.15476	.19518	.04551	.33631

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	426.58	543.93	5.0000	19320.7
SDev	1.0131	2.1971	0	23.3345
%RSD	.23749	.40393	0	.12077

Method: ARMY Sample Name: J7914 Operator: LRW
Run Time: 10/11/07 14:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2592	23810.	85.649	7.329	126.7	1.148
SDev	.3349	.9364	1.7772	.5956	.1124	.0044
%RSD	129.2	.0039	2.075	8.128	.0887	.3828

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	928.4	.1614	15.15	301.9	69.25	128200.
SDev	1.539	.0087	.0904	1.057	.4222	338
%RSD	.1658	5.399	.5965	.3502	.6096	.2637

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3279.	4127.	514.9	10.63	-512.9	216.7
SDev	3.343	6.299	.7418	.1315	274.3	1.253
%RSD	.1019	.1527	.1441	1.237	53.48	.5785

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6469	232.80	1.5756	15.63	256.4	5.7660
SDev	2.7032	1.8312	3.1515	.5293	.3187	2.2746
%RSD	102.13	.7866	200.03	3.385	.1243	39.448

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	65.75	221.3	208.52	244.92	7.3541	.29680
SDev	.1604	.0463	1.3824	2.0552	8.4026	.14228
%RSD	.244	.0209	.66297	.83915	114.26	47.939

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0207	1.3534	5.0000	19788.5
SDev	1.9656	5.7063	0	48.2241
%RSD	97.275	421.64	0	.24369

Method: ARMY Sample Name: J7914L Operator: LRW
Run Time: 10/11/07 14:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0022	4763.	17.365	-3.079	26.23	.3194
SDev	.1254	7.61	.69634	.2862	.0896	.0003
%RSD	5580	.1598	4.01	9.295	.3418	.1084

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	139.3	.0242	3.071	60.90	12.02	25930.
SDev	.2721	.0841	.1126	.1445	.1121	47.14
%RSD	.1954	348	3.667	.2373	.9323	.1818

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	700.2	829.9	103.7	2.102	-645.3	43.79
SDev	5.619	1.109	.0784	1.804	195.9	.6543
%RSD	.8025	.1337	.0756	85.79	30.36	1.494

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9321	47.292	-1.8785	4.202	51.20	2.7808
SDev	1.8777	.52838	.36604	.0842	.268	1.372
%RSD	64.038	1.1173	19.486	2.005	.5235	49.337

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12.86	45.49	44.651	48.611	4.0161	2.3909
SDev	.1001	.4424	.7144	1.1488	4.0964	.76995
%RSD	.7785	.9725	1.6	2.3634	102	32.203

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0585	-3.8441	5.0000	19505.2
SDev	2.0234	1.559	0	16.4057
%RSD	98.291	40.555	0	.0841

Method: ARMY Sample Name: J7914X Operator: LRW
Run Time: 10/11/07 14:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1694	24230.	90.411	5.225	135.1	1.174
SDev	.2186	17.77	.06981	.287	.0855	.0144
%RSD	129	.0734	.07722	5.493	.0633	1.226

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	999.5	.1756	14.48	298.3	72.51	127100.
SDev	.1305	.027	.066	.5764	.1486	251.8
%RSD	.0131	15.37	.4557	.1933	.205	.1981

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3616.	4173.	566.9	10.74	-686.2	218.4
SDev	9.686	4.95	.6184	.4689	95.75	.347
%RSD	.2678	.1186	.1091	4.365	13.95	.1589

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8254	251.63	-1.1843	8.537	215.2	5.5208
SDev	1.7135	.70352	2.2266	.7531	.6941	.62518
%RSD	60.645	.27958	188.01	8.822	.3226	11.324

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	66.19	228.1	223.12	265.86	8.6487	-.08186
SDev	.4979	.1672	.81102	.64985	.93932	2.1
%RSD	.7522	.0733	.36348	.24443	10.861	2565

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.81588	-1.3682	5.0000	19977.1
SDev	.20232	3.2372	0	17.3945
%RSD	24.799	236.6	0	.08707

Method: ARMY Sample Name: J7914S Operator: LRW
Run Time: 10/11/07 15:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.86	44450.	1819.2	837.7	1962.	47.39
SDev	.3149	10.74	2.0795	1.961	2.162	.0323
%RSD	.6721	.0242	.11431	.2341	.1102	.0682

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45140.	44.74	454.9	490.6	307.0	129400.
SDev	90.97	.0985	.0969	1.032	.7223	232.7
%RSD	.2015	.2203	.0213	.2104	.2353	.1798

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50660.	49610.	962.0	880.1	45290.	678.7
SDev	16.18	109.9	.6889	.8917	141.1	.2388
%RSD	.0319	.2216	.0716	.1013	.3114	.0352

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1693.5	667.01	263.02	1670.	1099.	1723.2
SDev	5.4964	1.7863	20.689	.9985	1.118	9.6322
%RSD	.32455	.26781	7.866	.0598	.1017	.55896

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	545.2	681.4	598.90	701.01	1660.4	1710.1
SDev	.5056	.3381	.71306	3.0342	2.4839	7.0003
%RSD	.0927	.0496	.11906	.43282	.1496	.40935

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	235.76	276.63	5.0000	19565.3
SDev	1.2392	30.399	0	42.0024
%RSD	.52564	10.989	0	.21467

Method: ARMY Sample Name: J792M Operator: LRW
Run Time: 10/11/07 15:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8101	104600.	95.862	5.665	781.8	6.310
SDev	.1866	133.1	.94543	1.092	.8987	.0222
%RSD	23.04	.1273	.98624	19.27	.1149	.3518

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1520.	1.395	125.6	142.5	110.7	171800.
SDev	1.451	.1053	.1402	.6169	.7894	163.3
%RSD	.0955	7.554	.1117	.4328	.7129	.095

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4826.	14170.	12410.	11.62	-617.6	185.5
SDev	23.07	16	9.786	1.577	93.26	.3246
%RSD	.478	.113	.0789	13.57	15.1	.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.0701	266.24	-6.9176	20.62	617.8	17.776
SDev	1.0061	.74515	.50499	2.032	.9179	3.1127
%RSD	19.843	.27988	7.3001	9.855	.1486	17.511

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	196.6	557.4	232.74	282.96	11.264	1.9775
SDev	.4214	.1319	1.5409	.34785	1.1337	.94234
%RSD	.2144	.0237	.66209	.12293	10.064	47.654

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.67159	-10.707	5.0000	20608.5
SDev	1.2992	1.4057	0	41.4362
%RSD	193.45	13.13	0	.20106

Method: ARMY Sample Name: J792N Operator: LRW
Run Time: 10/11/07 15:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6984	101100.	90.332	-.1242	841.3	7.018
SDev	.3069	195.9	2.1583	4.605	.7322	.0069
%RSD	43.94	.1937	2.3893	3707	.087	.0987

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1653.	2.131	156.6	138.8	103.2	157400.
SDev	.939	.0124	.0859	.7409	.0426	71.3
%RSD	.0568	.5846	.0548	.5339	.0412	.0453

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4519.	12170.	17620.	13.67	-338.7	156.0
SDev	2.405	23.3	17.45	.1382	199.7	.1243
%RSD	.0532	.1915	.0991	1.011	58.98	.0797

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.4167	388.14	-3.8531	6.046	478.8	23.054
SDev	.50884	.24494	8.4543	4.596	.2479	4.3453
%RSD	9.3939	.0631	219.41	76.01	.0518	18.848

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.8	578.2	352.57	405.89	21.797	-2.7612
SDev	1.8	1.148	12.097	5.672	12.323	5.3892
%RSD	.9848	.1986	3.431	1.3974	56.533	195.17

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	6.1572	-8.8508	5.0000	20770.5
SDev	6.248	9.5557	0	23.0514
%RSD	101.48	107.97	0	.11098

Method: ARMY Sample Name: J792R Operator: LRW
Run Time: 10/11/07 15:20 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5845	101600.	93.172	1.676	687.0	5.169
SDev	.5865	298.5	1.7051	.5869	1.508	.0008
%RSD	100.3	.2937	1.83	35.03	.2195	.0148

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	1.387	147.1	161.1	105.7	172400.
SDev	6.281	.0024	.6481	.9117	.1893	766.1
%RSD	.5097	.173	.4406	.5658	.1791	.4443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4170.	12020.	13360.	12.43	-638.1	141.9
SDev	13.49	59.58	49.54	.2387	218.5	.4014
%RSD	.3236	.4955	.3707	1.921	34.25	.2829

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0988	282.16	-6.8775	9.015	483.7	17.308
SDev	2.1473	.39515	2.6873	1.081	1.637	.31171
%RSD	69.294	.14004	39.074	11.99	.3384	1.8009

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	203.1	465.5	245.03	300.69	9.8235	-.25846
SDev	.8314	.874	1.5004	.15666	.76445	2.8377
%RSD	.4093	.1877	.61233	.0521	7.7819	1097.9

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.48387	-10.553	5.0000	20551.2
SDev	2.1517	2.9548	0	123.886
%RSD	444.68	28	0	.60281

Method: ARMY Sample Name: J792W Operator: LRW
Run Time: 10/11/07 15:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9490	145900.	67.700	163.2	1449.	26.55
SDev	.3314	337.6	1.1654	.407	2.762	.0478
%RSD	34.93	.2313	1.7215	.2495	.1906	.1801

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476900.	5.951	46.72	266.3	166.8	158200.
SDev	1660	.0076	.083	.1455	.0364	453.8
%RSD	.348	.1284	.1776	.0546	.0218	.2868

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10650.	98950.	11640.	11.63	2984.	224.2
SDev	27.79	320.6	27.21	.2575	39.52	.8033
%RSD	.2609	.324	.2338	2.214	1.324	.3583

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.2723	834.28	-5.8807	5.119	2236.	17.747
SDev	.71503	2.4621	.86713	.7344	1.955	1.5604
%RSD	11.4	.29511	14.746	14.35	.0875	8.7924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	120.1	676.8	733.49	884.60	20.013	-.58756
SDev	.1641	.7596	3.4948	1.9464	6.1213	1.9841
%RSD	.1366	.1122	.47646	.22003	30.588	337.67

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.09474	-8.7693	5.0000	21872.2
SDev	.38273	1.4911	0	74.104
%RSD	403.96	17.004	0	.3388

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 15:33 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	949.5	24860.	487.49	4772.	1985.	1965.
SDev	2.355	4.422	3.6644	2.723	4.05	7.497
%RSD	.2481	.0178	.75168	.0571	.204	.3814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49220.	489.7	1916.	1943.	2014.	24500.
SDev	244.6	3.481	9.712	8.623	1.491	144.4
%RSD	.497	.7109	.5068	.4438	.0741	.5892

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49100.	49540.	2064.	1973.	48780.	2049.
SDev	.6436	333.2	3.852	8.265	598.4	22.45
%RSD	.0013	.6726	.1866	.419	1.227	1.096

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	475.26	478.64	525.32	4944.	4834.	968.31
SDev	.30601	.79702	5.3954	35.12	3.887	7.6283
%RSD	.06438	.16651	1.0271	.7104	.0804	.78779

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1891.	431.29	502.28	468.54	478.62
SDev	4.635	5.869	.02388	1.183	.49858	.70771
%RSD	.2341	.3104	.00553	.23552	.10641	.14786

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	449.16	563.35	5.0000	19498.3
SDev	.55877	7.8102	0	17.3945
%RSD	.1244	1.3864	0	.08921

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 15:41 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0344	-11.39	-.71842	10.90	-.0058	.0729
SDev	.4941	2.972	.81132	1.025	.0014	.0162
%RSD	1435	26.08	112.93	9.395	24.88	22.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.382	.0763	-.1393	-.0256	-1.942	-7.305
SDev	.7552	.0085	.4685	.3727	.254	6.349
%RSD	11.83	11.17	336.4	1454	13.08	86.92

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.2	2.721	.0584	-.7098	-442.4	1.004
SDev	7.235	1.406	.0079	.1625	74.55	1.178
%RSD	5.018	51.69	13.57	22.89	16.85	117.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.98458	-.34146	-1.1766	2.025	-.4545	-.33941
SDev	2.2661	1.1691	2.0727	.4855	.3124	.48351
%RSD	230.15	342.39	176.15	23.98	68.74	142.46

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1088	-.0832	.84641	-.93450	-2.3036	2.6262
SDev	.1815	.0745	1.789	2.646	2.1604	2.3188
%RSD	166.9	89.58	211.36	283.14	93.779	88.295

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3353	-3.4292	5.0000	19461.7
SDev	4.1926	5.2006	0	39.174
%RSD	125.7	151.66	0	.20128

Method: ARMY Sample Name: J7920 Operator: LRW
Run Time: 10/11/07 15:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9874	124400.	86.646	95.66	1133.	18.22
SDev	.2916	295.3	.64087	1.628	1.276	.0205
%RSD	29.53	.2373	.73964	1.702	.1126	.1127

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	320800.	6.513	67.11	245.5	217.2	164000.
SDev	278.8	.0257	.0891	.1113	.3658	92.44
%RSD	.0869	.394	.1327	.0453	.1684	.0564

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8626.	68800.	10700.	8.162	1899.	207.8
SDev	6.157	90.07	6.002	.7735	108.1	.7743
%RSD	.0714	.1309	.0561	9.477	5.694	.3726

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6593	721.22	-9.0513	13.17	1221.	14.536
SDev	.66303	.37413	8.4829	1.105	.7829	1.0847
%RSD	24.933	.05187	93.72	8.388	.0641	7.462

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.6	824.8	635.32	764.11	8.7208	-.36690
SDev	.0809	2.036	2.6508	1.8843	1.2573	1.6217
%RSD	.0584	.2468	.41724	.2466	14.417	442

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1575	-14.148	5.0000	21075.2
SDev	1.6164	13.525	0	36.2047
%RSD	139.65	95.596	0	.17178

Method: ARMY Sample Name: J7923 Operator: LRW
Run Time: 10/11/07 15:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7099	89340.	77.391	29.58	643.3	8.507
SDev	.2785	33.87	1.2775	.3997	.1044	.0023
%RSD	39.23	.0379	1.6507	1.351	.0162	.027

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	123000.	1.949	57.35	262.1	202.8	169900.
SDev	154.2	.032	.3634	.3344	.7825	262.2
%RSD	.1254	1.642	.6336	.1276	.3859	.1543

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8209.	31200.	6156.	24.78	542.6	214.0
SDev	8.323	41.46	8.035	.3924	278.2	1.037
%RSD	.1014	.1329	.1305	1.584	51.27	.4844

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.36826	236.20	-3.6289	4.005	516.4	12.819
SDev	1.521	.34116	1.4444	.2769	.0736	2.5335
%RSD	413.01	.14443	39.803	6.915	.0143	19.764

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	127.5	479.3	206.81	250.88	10.937	-4.9080
SDev	.159	.2729	3.2156	1.0939	1.5714	1.4958
%RSD	.1247	.0569	1.5549	.43602	14.368	30.476

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.88847	-5.8842	5.0000	20621.2
SDev	.83154	2.5807	0	65.6187
%RSD	93.593	43.858	0	.3182

Method: ARMY Sample Name: J7927 Operator: LRW
Run Time: 10/11/07 15:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6299	90250.	83.531	30.68	667.2	8.083
SDev	.1252	80.35	1.8788	.1857	.2479	.0256
%RSD	19.87	.089	2.2492	.6054	.0372	.3167

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118200.	2.974	61.94	230.7	207.4	167600.
SDev	157.3	.1236	.1201	.705	.4101	294
%RSD	.1331	4.158	.1939	.3055	.1977	.1755

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8433.	30500.	5531.	11.13	356.6	218.1
SDev	.0269	38.66	5.092	.4384	108.2	1.345
%RSD	.0003	.1268	.0921	3.939	30.34	.6166

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2412	231.24	-4.9460	2.908	612.8	11.238
SDev	3.6705	.30885	.2046	.4292	.4397	.7114
%RSD	295.72	.13356	4.1367	14.76	.0718	6.3306

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	133.2	504.9	201.79	245.94	7.3108	-1.7890
SDev	.3862	.7196	1.6222	1.2729	3.3742	3.8184
%RSD	.2899	.1425	.80391	.51757	46.154	213.43

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.0053	-6.4142	5.0000	20817.3
SDev	2.0357	1.3231	0	38.0429
%RSD	101.52	20.627	0	.18274

Method: ARMY Sample Name: J8AT0 Operator: LRW
Run Time: 10/11/07 16:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5325	59980.	82.739	48.36	930.2	6.368
SDev	.0322	223.4	.14203	.0823	2.975	.0539
%RSD	6.051	.3725	.17166	.1702	.3199	.8471

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	159600.	11.59	37.14	252.2	249.4	107300.
SDev	364.8	.1562	.3203	1.037	.9713	239.3
%RSD	.2285	1.348	.8626	.4111	.3895	.2231

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5029.	29160.	7169.	5.788	364.5	153.0
SDev	15.3	56.2	17.14	.4876	38.66	.8231
%RSD	.3043	.1928	.2392	8.424	10.61	.5381

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8595	1565.6	-3.3675	4.983	981.8	12.071
SDev	3.3345	3.5608	1.0186	.3605	2.712	.3276
%RSD	116.61	.22744	30.247	7.234	.2762	2.7139

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76.35	1124.	1399.0	1648.7	9.7484	-.57974
SDev	.6098	5.435	3.1779	3.7519	.52196	5.2599
%RSD	.7986	.4836	.22714	.22756	5.3544	907.27

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.59128	-5.3440	5.0000	20656.1
SDev	.08155	1.4864	0	63.2156
%RSD	13.793	27.815	0	.30603

Method: ARMY Sample Name: J8AT0L Operator: LRW
Run Time: 10/11/07 16:08 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0612	12430.	16.920	6.152	193.6	1.387
SDev	.2843	17.92	.7921	.1445	.2343	.0009
%RSD	464.5	.1441	4.6815	2.349	.121	.0616

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33910.	2.454	7.748	53.57	50.14	22890.
SDev	25.36	.0179	.3528	.0193	.5179	12.94
%RSD	.0748	.731	4.553	.036	1.033	.0565

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	984.9	6105.	1540.	.7739	-345.3	32.72
SDev	1.469	3.828	.3738	.6521	121	.4628
%RSD	.1492	.0627	.0243	84.26	35.03	1.415

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3241	334.24	-3.0032	2.982	206.5	2.6512
SDev	.30579	1.8871	4.2992	.579	.0728	.99916
%RSD	13.158	.56457	143.15	19.42	.0352	37.688

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15.91	238.9	299.81	351.43	5.5819	.69758
SDev	.4445	.0115	.12999	2.7643	1.5475	1.2311
%RSD	2.793	.0048	.04335	.78657	27.723	176.47

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4729	-5.2379	5.0000	19684.3
SDev	1.3286	5.7822	0	6.93019
%RSD	90.204	110.39	0	.0352

Method: ARMY Sample Name: J8AT0X Operator: LRW
Run Time: 10/11/07 16:13 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.036	90020.	100.76	65.66	1292.	9.681
SDev	.5105	405.5	.36231	.3084	6.202	.0702
%RSD	49.3	.4504	.35956	.4698	.4799	.7249

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	269200.	18.75	57.46	461.6	385.2	175700.
SDev	902.3	.0589	.3051	1.851	2.026	644
%RSD	.3352	.3141	.5309	.4011	.5259	.3666

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7166.	43360.	10920.	10.56	950.1	260.9
SDev	16.19	151.8	38.2	.0036	205.4	.574
%RSD	.2259	.35	.3498	.0339	21.62	.22

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.79047	3499.7	-4.8087	15.37	1164.	16.084
SDev	.42226	4.8286	.15455	.4722	4.178	4.2795
%RSD	53.419	.13797	3.214	3.071	.359	26.606

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118.7	1806.	3129.0	3684.7	5.3887	-3.8754
SDev	.4441	8.583	1.6191	8.0477	5.8049	3.5312
%RSD	.374	.4753	.05174	.2184	107.72	91.118

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.70722	-7.5626	5.0000	21453.2
SDev	4.1187	2.288	0	20.3638
%RSD	582.37	30.254	0	.09492

Method: ARMY Sample Name: J8AT0S Operator: LRW
Run Time: 10/11/07 16:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.75	61880.	1294.1	663.9	2020.	38.27
SDev	.0902	111	1.3141	2.084	2.951	.0571
%RSD	.2756	.1795	.10154	.314	.1461	.1493

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	173900.	41.14	340.8	360.0	406.7	83160.
SDev	69.63	.0082	.3815	.0601	.7896	13.31
%RSD	.04	.0199	.112	.0167	.1941	.016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38430.	57260.	6179.	616.4	33690.	466.5
SDev	63.21	2.458	2.422	1.677	70.79	.6179
%RSD	.1645	.0043	.0392	.2721	.2101	.1325

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1214.9	1512.4	171.28	1182.	1729.	1242.5
SDev	.10651	3.0758	.40189	.5237	1.419	1.0752
%RSD	.00876	.20337	.23464	.0443	.0821	.08653

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	398.3	1198.	1353.3	1591.8	1192.8	1226.0
SDev	.0411	1.887	2.4454	5.8322	7.3871	3.5283
%RSD	.0103	.1575	.18068	.36638	.61928	.28779

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	147.65	183.07	5.0000	20237.1
SDev	1.4573	1.3301	0	2.12132
%RSD	.98695	.72653	0	.01048

Method: ARMY Sample Name: J8AT5 Operator: LRW
Run Time: 10/11/07 16:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1146	49660.	68.349	11.02	860.1	3.868
SDev	.2592	106.7	.15173	.0143	1.418	.0077
%RSD	226.2	.2149	.222	.13	.1649	.2002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44140.	28.64	58.19	334.7	237.9	134700.
SDev	155.8	.0096	.0497	1.324	.4883	484.5
%RSD	.3529	.0335	.0855	.3957	.2052	.3596

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3825.	13800.	3893.	12.24	-57.85	204.4
SDev	11.33	40.97	8.816	.0843	284.2	.0048
%RSD	.2963	.2969	.2264	.6884	491.3	.0024

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.00761	4932.0	-1.6340	24.39	490.1	2.6042
SDev	1.6228	19.784	.28154	2.23	2.083	7.6977
%RSD	21319	.40113	17.231	9.141	.425	295.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89.79	2363.	4421.9	5186.6	8.3456	-4.1551
SDev	.0034	2.972	19.229	20.061	1.8545	3.3589
%RSD	.0038	.1258	.43484	.38678	22.221	80.837

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46758	-2.6832	5.0000	20238.3
SDev	3.404	2.1216	0	110.733
%RSD	728	79.07	0	.54714

Method: ARMY Sample Name: J8AT9 Operator: LRW
Run Time: 10/11/07 16:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8001	44760.	47.737	42.86	525.0	6.519
SDev	.0526	4.4	.11043	.4938	.5012	.0202
%RSD	6.575	.0098	.23134	1.152	.0955	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	165800.	2.645	27.70	295.0	85.18	94770.
SDev	399.1	.1105	.1767	.312	.0852	221.3
%RSD	.2407	4.178	.6378	.1058	.1001	.2335

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3395.	25030.	13090.	1.502	468.4	103.8
SDev	5.837	71.11	28.79	.1462	1.731	.7313
%RSD	.172	.2841	.2198	9.738	.3696	.7044

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3573	197.61	-6.0027	3.505	1020.	16.358
SDev	.95395	1.4906	1.38	1.086	1.713	.33448
%RSD	70.281	.75431	22.989	30.99	.168	2.0447

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98.72	348.1	172.05	210.37	7.2676	-1.5934
SDev	.1969	.7792	.53277	1.9688	.19054	1.5253
%RSD	.1994	.2239	.30967	.93586	2.6218	95.731

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.03396	-8.9825	5.0000	20583.3
SDev	.6365	2.3867	0	64.3467
%RSD	1874.3	26.57	0	.31261

Method: ARMY Sample Name: J8AVC Operator: LRW
Run Time: 10/11/07 16:34 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3072	100300.	89.926	36.25	737.3	8.557
SDev	.3288	185.5	.38224	.8783	1.373	.0011
%RSD	107	.185	.42507	2.423	.1863	.0125

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	164100.	1.624	62.68	179.3	94.60	154700.
SDev	225.4	.0527	.0556	.6281	.2977	188.7
%RSD	.1373	3.243	.0887	.3503	.3146	.122

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5572.	34100.	6763.	6.717	616.3	154.7
SDev	15.42	26.64	4.188	.9553	119.2	1.025
%RSD	.2768	.0781	.0619	14.22	19.34	.6629

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.84553	158.97	-4.4071	3.532	533.5	13.472
SDev	.71287	.14653	.60153	1.473	.9894	1.8141
%RSD	84.31	.09217	13.649	41.7	.1855	13.466

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.6	405.5	136.11	170.39	8.3292	-2.8907
SDev	.0564	.1151	.51412	.47636	.15989	1.1486
%RSD	.0385	.0284	.37772	.27957	1.9197	39.735

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.2506	-5.9831	5.0000	20280.4
SDev	.85884	1.3306	0	26.87
%RSD	68.677	22.24	0	.13249

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 16:42 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.3	24820.	479.62	4808.	1992.	1963.
SDev	.8058	18.23	.60369	33.1	1.924	1.612
%RSD	.0852	.0734	.12587	.6885	.0966	.0821

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	487.9	1915.	1944.	2009.	24560.
SDev	81.11	.6098	1.869	2.412	.1529	72.4
%RSD	.1648	.125	.0976	.124	.0076	.2948

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49430.	49350.	2058.	1973.	48990.	2033.
SDev	45.19	77.24	2.211	4.332	211.5	7.091
%RSD	.0914	.1565	.1074	.2196	.4318	.3488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	477.53	481.68	526.08	4919.	4849.	967.60
SDev	1.1845	.73865	1.8865	3.475	10.36	.7213
%RSD	.24804	.15334	.35858	.0706	.2136	.07454

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1988.	1884.	435.20	504.89	469.69	481.45
SDev	2.343	.1735	.69648	1.4552	.83576	1.3586
%RSD	.1179	.0092	.16003	.28821	.17793	.28218

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	446.21	565.96	5.0000	19209.9
SDev	1.1327	3.3938	0	8.05991
%RSD	.25385	.59964	0	.04195

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 16:50 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1422	-8.778	.50619	11.08	-.0300	.0296
SDev	.0536	3.964	.78909	1.169	.0364	.0053
%RSD	37.72	45.16	155.89	10.55	121.2	17.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.973	.0135	.2123	-.0921	-2.047	-10.29
SDev	1.132	.0109	.1396	.05	.087	3.517
%RSD	18.95	80.71	65.77	54.27	4.249	34.19

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.7	.5676	-.0004	-.3656	-465.9	.5122
SDev	3.437	2.62	.0207	1.968	26.47	.5927
%RSD	2.391	461.5	4677	538.4	5.681	115.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8474	.42735	-2.1869	-.2953	-.3068	-.21571
SDev	1.5066	.75789	.16658	.4408	.1036	1.5668
%RSD	81.55	177.34	7.6172	149.3	33.76	726.31

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4697	-.0150	3.3901	-1.0518	3.3485	1.0980
SDev	.4535	.0112	.33134	1.3017	1.8902	1.3151
%RSD	96.55	74.89	9.7738	123.76	56.449	119.77

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7866	-4.1707	5.0000	19478.6
SDev	.45292	.47587	0	80.327
%RSD	25.351	11.41	0	.41238

Method: ARMY Sample Name: J8FKF Operator: LRW
Run Time: 10/11/07 16:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7190	114200.	78.823	7.734	598.3	5.176
SDev	.2606	107.2	.6412	.3897	.6912	.0071
%RSD	36.24	.0939	.81347	5.039	.1155	.1379

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12720.	2.127	75.28	161.7	68.11	185200.
SDev	6.316	.1113	.043	.4442	.0304	51.51
%RSD	.0496	5.233	.0571	.2748	.0447	.0278

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4975.	16580.	6636.	16.01	-592.2	111.9
SDev	10.98	1.967	5.612	.4942	309.2	1.295
%RSD	.2207	.0119	.0846	3.087	52.22	1.157

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.5502	216.29	-3.8267	4.943	485.6	9.2490
SDev	1.4104	.39158	.27529	.7902	3.375	1.6614
%RSD	18.68	.18105	7.1941	15.99	.6951	17.963

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223.5	486.1	185.41	231.70	14.067	4.2970
SDev	.3311	1.371	.70333	.23595	2.186	3.2059
%RSD	.1481	.282	.37933	.10183	15.541	74.609

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35010	-5.5623	5.0000	20079.3
SDev	.83926	.00627	0	18.8088
%RSD	239.72	.11272	0	.09367

Method: ARMY Sample Name: J8FKFL Operator: LRW
Run Time: 10/11/07 16:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.348	23420.	15.309	.4616	121.6	1.095
SDev	.9197	43.1	.85745	.1664	.2634	.0224
%RSD	68.24	.184	5.6011	36.06	.2166	2.043

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2562.	.5253	16.51	33.77	12.71	38310.
SDev	7.386	.0767	.7527	.601	.3462	79.98
%RSD	.2883	14.6	4.559	1.78	2.723	.2088

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	987.8	3410.	1386.	2.997	-180.7	24.23
SDev	12.38	12.61	4.189	.9858	240.3	.7811
%RSD	1.253	.3698	.3022	32.89	133	3.224

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6516	44.091	-2.9305	2.161	98.04	6.1855
SDev	.64962	.93706	1.5883	1.01	.4778	4.8717
%RSD	24.499	2.1253	54.2	46.73	.4874	78.76

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45.58	100.2	42.618	44.827	8.1886	-.11269
SDev	.0318	.1939	3.5881	3.1963	.93136	.50897
%RSD	.0698	.1935	8.4194	7.1302	11.374	451.65

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6400	-6.2108	5.0000	19703.2
SDev	.9053	1.9293	0	48.3664
%RSD	24.871	31.064	0	.24547

Method: ARMY Sample Name: J8FKFX Operator: LRW
Run Time: 10/11/07 17:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3782	107900.	78.900	5.688	565.5	4.982
SDev	.5397	1312	2.5593	2.352	6.308	.0651
%RSD	142.7	1.216	3.2438	41.35	1.116	1.306

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11760.	1.729	71.82	149.7	64.10	187200.
SDev	154.9	.0413	.8475	2.194	.9778	2411
%RSD	1.318	2.391	1.18	1.466	1.525	1.288

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4678.	15560.	6735.	15.54	-552.4	103.3
SDev	45.92	217.7	85.05	1.31	304.5	1.472
%RSD	.9816	1.399	1.263	8.43	55.13	1.425

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6786	202.67	-3.7183	4.221	453.5	11.290
SDev	2.8017	2.1555	2.1406	.549	5.658	1.3641
%RSD	59.883	1.0635	57.57	13.01	1.248	12.082

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	217.4	451.1	174.63	216.68	10.254	1.8950
SDev	2.977	4.467	2.0807	2.1929	1.1869	4.793
%RSD	1.369	.9901	1.1915	1.0121	11.575	252.93

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.92428	-5.1132	5.0000	20132.4
SDev	.93735	2.7413	0	224.294
%RSD	101.41	53.613	0	1.11409

Method: ARMY Sample Name: J8FKFS Operator: LRW
Run Time: 10/11/07 17:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.76	151100.	1818.8	766.0	2494.	51.88
SDev	.037	40.4	.03513	2.277	1.707	.088
%RSD	.0827	.0267	.00193	.2973	.0684	.1697

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57380.	46.60	516.2	369.1	313.2	194700.
SDev	115.4	.0038	.5129	1.134	.0603	371.3
%RSD	.201	.0081	.0993	.3071	.0192	.1906

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52440.	64740.	7229.	888.2	46090.	587.1
SDev	61.1	158.9	10.45	5.393	144.5	1.881
%RSD	.1165	.2454	.1445	.6072	.3134	.3204

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1703.5	648.62	167.82	1542.	1621.	1728.8
SDev	5.7989	2.0548	3.362	.3921	1.463	6.1293
%RSD	.34041	.31679	2.0034	.0254	.0903	.35453

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	744.2	1001.	575.88	684.94	1674.1	1718.2
SDev	.9986	1.388	2.0756	2.0444	2.8926	10.138
%RSD	.1342	.1387	.36041	.29848	.17278	.59004

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	146.10	178.66	5.0000	19581.7
SDev	2.8163	3.6344	0	53.8824
%RSD	1.9277	2.0342	0	.27516

Method: ARMY Sample Name: J8FKG Operator: LRW
Run Time: 10/11/07 17:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3267	104800.	72.010	7.171	539.1	4.619
SDev	.2497	289.7	.5889	1.964	.4186	.0088
%RSD	76.44	.2763	.81781	27.38	.0777	.1904

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11500.	1.663	62.89	146.7	60.60	167100.
SDev	53.36	.0367	.4949	.179	.0752	703.7
%RSD	.4641	2.204	.7869	.122	.1241	.4212

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4665.	15300.	5526.	13.47	-787.7	103.5
SDev	3.707	86.27	19.87	1.007	222.6	.378
%RSD	.0795	.5637	.3597	7.477	28.26	.3651

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.6676	184.11	-4.0424	7.443	475.5	13.479
SDev	1.1528	2.0137	.3235	.5267	1.072	1.6975
%RSD	31.433	1.0938	8.0027	7.077	.2254	12.594

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	205.8	449.0	159.11	196.59	6.5704	2.2185
SDev	1.266	1.712	2.1089	1.9662	4.3092	3.8798
%RSD	.6154	.3813	1.3254	1.0002	65.585	174.89

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.02582	-6.0735	5.0000	20060.7
SDev	2.478	1.7222	0	82.4484
%RSD	9597	28.355	0	.41099

Method: ARMY Sample Name: J8FKH Operator: LRW
Run Time: 10/11/07 17:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1816	127800.	64.334	12.56	2961.	8.312
SDev	.0226	206.6	.80669	.6778	4.743	.016
%RSD	12.46	.1616	1.2539	5.397	.1602	.1926

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	64010.	11.32	36.20	144.1	373.8	86670.
SDev	76.26	.1168	.2099	.2362	.0695	93.69
%RSD	.1191	1.031	.58	.1639	.0186	.1081

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7654.	18940.	1711.	10.12	4421.	183.1
SDev	10.59	21.11	3.217	.975	2.19	.3851
%RSD	.1384	.1115	.188	9.636	.0495	.2103

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.8996	371.35	2.9799	39.76	222.2	11.060
SDev	1.7821	.71513	2.2263	2.001	1.68	2.0861
%RSD	18.001	.19257	74.711	5.031	.7563	18.861

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	180.8	931.3	325.84	394.06	17.997	5.8571
SDev	.1599	.3139	1.682	1.9119	.63551	2.3545
%RSD	.0884	.0337	.51619	.48517	3.5313	40.199

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.9727	1.9850	5.0000	22431.6
SDev	1.5708	2.5535	0	48.9326
%RSD	31.588	128.64	0	.21814

Method: ARMY Sample Name: J8FLN Operator: LRW
Run Time: 10/11/07 17:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6205	101900.	108.76	7.885	578.6	5.017
SDev	.1021	252.9	.02397	.9697	1.145	.0014
%RSD	16.46	.2482	.02204	12.3	.1979	.0283

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	19160.	1.339	76.35	189.5	151.1	213800.
SDev	40.66	.0319	.1257	.2985	.0024	445.2
%RSD	.2123	2.384	.1647	.1575	.0016	.2082

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7110.	21810.	2915.	8.547	-550.6	199.5
SDev	7.482	59.65	6.836	.013	171.2	.3795
%RSD	.1052	.2735	.2346	.1526	31.1	.1903

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.09272	174.52	-2.3032	3.219	376.1	11.016
SDev	.01733	1.076	.47106	.3289	.8696	1.4876
%RSD	18.694	.61656	20.453	10.22	.2312	13.504

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	171.2	537.6	149.10	187.22	1.9862	-.85260
SDev	.7026	.5471	2.3706	.42976	4.2538	2.0977
%RSD	.4103	.1018	1.59	.22955	214.17	246.04

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.58024	-3.1633	5.0000	20533.5
SDev	1.0499	.18209	0	43.9815
%RSD	180.93	5.7565	0	.21419

Method: ARMY Sample Name: J8FLNL Operator: LRW
Run Time: 10/11/07 17:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1541	21210.	22.194	-3.444	119.9	1.027
SDev	.3273	50.19	2.638	.6555	.3621	.0011
%RSD	212.4	.2367	11.886	19.03	.3021	.1073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3965.	.3081	15.79	39.83	29.63	45280.
SDev	12.6	.0221	.1026	.4534	.2041	112.8
%RSD	.3177	7.182	.6497	1.138	.6889	.2491

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1358.	4549.	613.7	1.690	-579.1	42.06
SDev	15.91	16.35	1.986	.3416	114.9	.1569
%RSD	1.171	.3595	.3236	20.21	19.85	.373

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.45799	36.455	-2.2547	-.0633	78.02	5.6718
SDev	.84091	.53227	.01386	.3448	.7972	5.316
%RSD	183.61	1.4601	.61491	544.9	1.022	93.727

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	35.45	112.5	32.987	38.186	5.2836	-1.9512
SDev	.1806	.2809	.77665	.41026	3.4863	.4798
%RSD	.5096	.2498	2.3544	1.0744	65.984	24.59

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3573	-4.0580	5.0000	19677.8
SDev	.83703	.3971	0	97.0145
%RSD	61.669	9.7857	0	.49301

Method: ARMY Sample Name: J8FLNX Operator: LRW
Run Time: 10/11/07 17:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4967	107000.	111.76	9.407	624.2	5.310
SDev	.2571	184	.3833	1.209	1.093	.0305
%RSD	51.76	.1719	.34296	12.85	.175	.5752

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20360.	1.514	78.93	212.9	154.2	219600.
SDev	43.8	.1348	.2592	1.057	.6246	594.2
%RSD	.2151	8.903	.3284	.4966	.4051	.2705

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7888.	22650.	3361.	7.950	-407.9	212.6
SDev	7.22	55.81	8.355	1.239	108.2	.4734
%RSD	.0915	.2464	.2486	15.59	26.52	.2227

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.5878	175.23	-2.5734	3.948	447.1	9.1500
SDev	1.182	.61262	.21436	.5074	1.465	.14962
%RSD	74.445	.34961	8.33	12.85	.3276	1.6352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.1	556.0	149.95	187.85	6.9207	-5.8357
SDev	.4474	.2029	.67195	.58299	8.5666	2.5047
%RSD	.2456	.0365	.44812	.31035	123.78	42.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.6217	-3.0486	5.0000	20512.9
SDev	1.2219	.28865	0	12.8688
%RSD	75.348	9.4684	0	.06273

Method: ARMY Sample Name: J8FLNS Operator: LRW
Run Time: 10/11/07 17:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42.60	140100.	1747.1	761.0	2362.	48.75
SDev	.2822	226.1	.28001	2.725	3.63	.0456
%RSD	.6624	.1614	.01602	.3581	.1537	.0935

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	60860.	43.32	494.5	406.3	378.4	223400.
SDev	20.14	.0681	.1259	.1144	.5512	120.6
%RSD	.0331	.1572	.0255	.0282	.1457	.054

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54340.	67220.	3537.	815.7	43760.	647.5
SDev	72.93	44.09	3.26	3.718	40.44	.0866
%RSD	.1342	.0656	.0922	.4559	.0924	.0134

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1590.6	607.24	149.51	1452.	1210.	1620.3
SDev	1.5523	.42433	1.9587	1.389	1.493	3.4661
%RSD	.09759	.06987	1.3101	.0957	.1234	.21391

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	664.6	975.3	538.80	641.42	1572.4	1599.7
SDev	1.45	.61	2.3132	1.791	5.2462	.29192
%RSD	.2181	.0625	.42931	.27923	.33364	.01824

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	127.55	160.47	5.0000	20069
SDev	1.8823	3.8763	0	42.1433
%RSD	1.4758	2.4156	0	.20999

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 17:49 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	947.7	24950.	483.18	4903.	2015.	1971.
SDev	1.59	18.81	.01834	25.36	.8329	1.488
%RSD	.1677	.0754	.00379	.5171	.0413	.0755

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49480.	489.1	1927.	1956.	2025.	24760.
SDev	65.79	.0071	1.259	1.77	2.193	58.71
%RSD	.133	.0014	.0654	.0905	.1083	.2372

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49680.	49600.	2058.	1991.	49290.	2031.
SDev	50.76	43.82	2.151	2.952	217.8	7.369
%RSD	.1022	.0883	.1045	.1483	.4418	.3628

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	478.63	484.82	526.44	4929.	4898.	970.93
SDev	3.2791	.61336	2.6436	.956	8.435	1.5972
%RSD	.6851	.12651	.50217	.0194	.1722	.1645

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2006.	1890.	437.84	508.27	474.55	480.66
SDev	1.576	.2691	1.5722	.13463	3.1929	3.3221
%RSD	.0785	.0142	.35907	.02648	.67282	.69115

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	450.01	564.60	5.0000	19183.8
SDev	2.0368	4.9803	0	41.2953
%RSD	.4526	.8821	0	.21526

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 17:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1989	-8.682	-1.1010	11.89	-.0533	-.0064
SDev	.2247	1.816	.70991	.9259	.0016	.0068
%RSD	113	20.92	64.48	7.786	2.973	106.4

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.303	.0205	.0954	.1053	-1.071	-9.299
SDev	1.226	.0621	.4135	.2343	.2934	.709
%RSD	37.11	303.4	433.5	222.5	27.39	7.624

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.0	.3292	.0648	-.3620	-280.7	1.117
SDev	10.03	4.197	.0168	1.314	9.754	.6986
%RSD	6.825	1275	25.93	362.9	3.475	62.57

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1650	.27897	-1.5997	1.550	-.2336	3.0214
SDev	2.3513	.24318	1.7487	.907	0	.82878
%RSD	108.61	87.17	109.32	58.52	0	27.431

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4279	.0372	1.3418	-.25165	2.6837	1.9060
SDev	.0922	.0162	.9436	.83569	1.6434	4.3456
%RSD	21.54	43.6	70.322	332.08	61.235	228

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0525	-3.4231	5.0000	19463
SDev	1.4468	3.3441	0	46.3859
%RSD	70.487	97.692	0	.23832

Method: ARMY Sample Name: J8FRK Operator: LRW
Run Time: 10/11/07 18:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6082	101500.	114.95	12.39	587.2	5.163
SDev	.069	81.25	.21698	1.841	.7581	.0043
%RSD	11.35	.0801	.18876	14.86	.1291	.0834

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21440.	2.721	76.66	172.1	151.8	222400.
SDev	5.556	.036	.0815	.079	.0017	3.447
%RSD	.0259	1.324	.1064	.0459	.0011	.0016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7073.	22090.	3471.	9.886	-554.5	197.1
SDev	12.38	8.168	1.497	.4601	210.4	.4663
%RSD	.1751	.037	.0431	4.654	37.95	.2366

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.67878	171.71	-.78393	3.304	423.6	12.589
SDev	1.2537	1.0547	1.6866	2.485	.7334	1.0704
%RSD	184.7	.61419	215.14	75.21	.1731	8.5024

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	178.7	567.0	146.25	184.43	2.8822	-2.4566
SDev	.091	1.017	.02354	1.5929	2.4822	.64042
%RSD	.0509	.1794	.01609	.86372	86.119	26.069

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35112	-1.0000	5.0000	20446.3
SDev	1.1747	1.9422	0	21.9203
%RSD	334.54	194.21	0	.1072

Method: ARMY Sample Name: J8FR7 Operator: LRW
Run Time: 10/11/07 18:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4481	101000.	115.43	13.01	975.9	8.064
SDev	.1985	90.03	1.3164	1.306	1.386	.0314
%RSD	44.29	.0891	1.1405	10.03	.1421	.3898

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53620.	2.097	102.7	160.2	139.0	228000.
SDev	24.59	.1618	.2394	.1048	.2443	198.9
%RSD	.0459	7.716	.2331	.0654	.1758	.0872

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6335.	20360.	12230.	9.074	102.9	172.3
SDev	3.998	32.35	1.164	.1482	173.8	1.103
%RSD	.0631	.1589	.0095	1.633	168.9	.6402

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.04428	180.50	-5.2760	7.009	408.7	16.188
SDev	2.8267	.19795	.99688	1.102	.2749	3.6183
%RSD	6382.6	.10967	18.895	15.72	.0673	22.351

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	193.9	586.2	157.40	192.03	7.7949	-3.8252
SDev	.4072	.958	4.5863	2.5865	3.9663	2.2578
%RSD	.21	.1634	2.9137	1.347	50.883	59.023

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4301	-8.6240	5.0000	20402.7
SDev	2.3846	2.6851	0	25.8798
%RSD	166.74	31.135	0	.12684

Method: ARMY Sample Name: J8FR7L Operator: LRW
Run Time: 10/11/07 18:11 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3535	21290.	23.807	.3917	205.7	1.681
SDev	.2562	45.44	2.6511	1.7	.3317	.0257
%RSD	72.46	.2134	11.136	434.1	.1612	1.532

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11370.	.4018	21.67	34.11	28.04	48920.
SDev	43.06	.1006	.0133	.8926	.5348	145.5
%RSD	.3786	25.03	.0613	2.617	1.907	.2974

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	4302.	2685.	.1155	-481.2	37.13
SDev	14.58	20.09	9.462	.3319	397.9	.2998
%RSD	1.183	.4671	.3524	287.4	82.69	.8074

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3981	38.794	-2.4467	1.824	86.98	4.3004
SDev	3.0688	.69316	.0992	1.232	.6922	2.6863
%RSD	127.97	1.7868	4.0547	67.54	.7959	62.467

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	41.27	123.9	33.228	41.573	1.8737	2.6599
SDev	.2248	.3549	.07653	1.0774	4.8764	2.1664
%RSD	.5447	.2863	.23031	2.5917	260.25	81.445

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3263	-4.3305	5.0000	19659.1
SDev	.94359	.32235	0	63.2156
%RSD	71.143	7.4439	0	.32155

Method: ARMY Sample Name: J8FR7X Operator: LRW
Run Time: 10/11/07 18:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4374	97400.	113.60	12.08	810.9	7.527
SDev	.1892	72.32	1.6966	1.554	1.234	.0226
%RSD	43.25	.0742	1.4935	12.86	.1522	.3002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50260.	1.788	86.10	151.8	117.1	214000.
SDev	53.29	.1112	.2405	.9099	.0226	299.2
%RSD	.106	6.221	.2794	.5994	.0193	.1398

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6236.	18850.	9792.	6.495	-125.2	157.2
SDev	14.36	10.67	13.65	.1735	412	.7735
%RSD	.2303	.0566	.1394	2.672	329.2	.4921

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3603	171.75	-5.6997	5.409	399.1	14.569
SDev	1.6901	.92478	3.0781	.2834	1.173	1.1897
%RSD	71.606	.53844	54.005	5.239	.2939	8.1657

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	185.2	521.5	147.52	183.85	9.8090	-1.3585
SDev	.0343	.2093	.82915	1.8004	.31138	2.3784
%RSD	.0185	.0401	.56205	.97931	3.1745	175.08

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.5111	-7.7908	5.0000	20390
SDev	2.4572	3.3881	0	44.6886
%RSD	162.6	43.489	0	.21916

Method: ARMY Sample Name: J8FR7S Operator: LRW
Run Time: 10/11/07 18:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.18	150300.	1898.1	851.6	2836.	55.72
SDev	.1075	291.5	4.6792	.8067	4.611	.0886
%RSD	.2329	.1939	.24652	.0947	.1626	.159

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	96730.	47.15	555.2	385.7	373.3	225000.
SDev	119.7	.1575	1.314	.8576	.307	319.3
%RSD	.1237	.334	.2367	.2223	.0822	.1419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57300.	70020.	11580.	893.7	48120.	651.1
SDev	5.519	117.2	14.52	1.255	157.7	1.887
%RSD	.0096	.1674	.1254	.1404	.3278	.2897

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1728.8	623.42	167.61	1578.	1468.	1775.5
SDev	7.2585	.35463	.64838	1.149	2.277	7.2427
%RSD	.41986	.05688	.38683	.0728	.1551	.40791

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	730.1	1095.	553.35	658.40	1718.6	1733.9
SDev	1.081	3.329	.31958	.69118	2.6944	12.228
%RSD	.1481	.304	.05775	.10497	.15677	.70521

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	145.94	178.44	5.0000	19963.2
SDev	.13893	1.0415	0	18.6679
%RSD	.0952	.58366	0	.09351

Method: ARMY Sample Name: J8FTD Operator: LRW
Run Time: 10/11/07 18:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3513	102800.	116.56	17.04	819.0	7.759
SDev	.2255	27.1	1.8284	1.127	.518	.0053
%RSD	64.18	.0264	1.5686	6.614	.0632	.0679

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47770.	1.653	92.56	160.1	113.6	232700.
SDev	11.32	.1009	.1646	.3158	.1468	28.96
%RSD	.0237	6.105	.1778	.1973	.1292	.0124

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6688.	19280.	10260.	8.889	-5.088	154.4
SDev	1.243	20.65	6.556	.1346	163.8	.9612
%RSD	.0186	.1071	.0639	1.514	3220	.6225

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.2648	167.44	-5.2276	5.787	467.2	17.544
SDev	2.3545	.58431	.9765	1.69	.5472	.48345
%RSD	72.118	.34895	18.68	29.21	.1171	2.7556

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	207.1	538.7	144.74	178.78	8.8838	.45954
SDev	.1014	.5321	1.9171	.08106	.86682	3.0973
%RSD	.049	.0988	1.3245	.04534	9.7573	673.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46194	-8.0681	5.0000	20427
SDev	1.1114	2.0189	0	54.0232
%RSD	240.58	25.023	0	.26446

Method: ARMY Sample Name: J8KMMB Operator: LRW
Run Time: 10/11/07 18:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4586	-54.99	.29489	-2.899	.2041	-.0338
SDev	.0167	1.232	1.6981	.5202	.1045	.0046
%RSD	3.648	2.24	575.82	17.94	51.22	13.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-66.17	.1062	.2527	.3115	-.5050	3.098
SDev	.242	.0195	.0263	.3398	.0387	1.342
%RSD	.3657	18.39	10.41	109.1	7.664	43.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.8	1.468	.2947	-1.292	-635.1	.8048
SDev	10.15	3.385	.0772	.6579	291.5	.5757
%RSD	7.06	230.6	26.18	50.92	45.89	71.54

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.27823	-.43427	-.87323	3.123	-.0132	1.7330
SDev	1.2478	.14906	.15649	4.138	.3117	.52098
%RSD	448.48	34.325	17.922	132.5	2361	30.063

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2120	.3349	.37484	-.83822	-.81518	-.01016
SDev	.4504	.0186	.43173	.43902	3.9975	.12492
%RSD	212.5	5.557	115.18	52.375	490.38	1228.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2369	-2.4260	5.0000	19545.9
SDev	1.9195	.72367	0	90.935
%RSD	85.811	29.83	0	.46523

Method: ARMY Sample Name: J8KMMC Operator: LRW
Run Time: 10/11/07 18:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.10	2107.	2076.6	1072.	2131.	53.92
SDev	.0401	1.007	6.8404	6.382	1.28	.0591
%RSD	.0728	.0478	.3294	.5952	.0601	.1096

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51830.	52.42	515.7	210.3	273.2	1131.
SDev	78.17	.0663	.5527	.6056	.1681	7.04
%RSD	.1508	.1264	.1072	.2879	.0615	.6223

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51880.	52460.	555.4	1055.	53800.	535.0
SDev	12.54	68.95	.3825	4.292	92.12	2.787
%RSD	.0242	.1314	.0689	.4069	.1712	.5208

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2087.3	516.81	558.27	2057.	1039.	2072.0
SDev	2.2972	.24587	1.9821	2.026	1.847	12.641
%RSD	.11005	.04757	.35504	.0985	.1778	.61007

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	539.5	519.4	466.71	541.82	2061.3	2100.3
SDev	.9547	1.119	2.6409	.94982	.22252	3.3332
%RSD	.177	.2154	.56584	.1753	.01079	.1587

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	469.17	602.75	5.0000	19433.8
SDev	.81621	2.5642	0	36.4864
%RSD	.17396	.42541	0	.18774

Method: ARMY Sample Name: J8G44 Operator: LRW
Run Time: 10/11/07 18:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1492	1012.	.35576	53.72	18.29	.2406
SDev	.116	3.874	1.0286	1.304	.1239	.0099
%RSD	77.73	.3827	289.12	2.428	.6773	4.111

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18780.	.8811	13.60	-.3280	4.575	39.79
SDev	4.484	.0162	.0655	.3202	.5182	.4138
%RSD	.0239	1.841	.4813	97.62	11.33	1.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2337.	5070.	765.3	-1.412	18490.	43.59
SDev	2.624	.9516	.2689	.4885	19.48	.1016
%RSD	.1123	.0188	.0351	34.61	.1054	.2331

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3110	1.0816	-3.0602	1.606	-.3792	5.1254
SDev	.04331	.64083	3.5909	1.472	.0002	3.4057
%RSD	3.3036	59.247	117.34	91.62	.0489	66.449

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1107	43.96	.49079	1.3766	3.0801	.42774
SDev	.0601	.0792	.69531	.61363	.24199	.18575
%RSD	54.33	.1801	141.67	44.576	7.8567	43.425

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.50975	-4.3336	5.0000	19660.5
SDev	.27814	5.2448	0	25.0318
%RSD	54.565	121.03	0	.12732

Method: ARMY Sample Name: J8G44L Operator: LRW
Run Time: 10/11/07 18:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1820	179.4	-1.2719	7.424	3.693	-.0255
SDev	.0716	2.429	.51369	.2962	.0632	.0004
%RSD	39.31	1.354	40.387	3.99	1.71	1.551

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3697.	.1827	2.790	-.2885	.3416	-1.828
SDev	7.28	.0349	.2466	.1395	.1262	7.748
%RSD	.1969	19.08	8.841	48.34	36.93	423.8

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	521.2	999.7	152.3	-.5939	3641.	8.917
SDev	7.667	4.479	.2221	.3302	140.1	.311
%RSD	1.471	.448	.1459	55.6	3.848	3.488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6133	.36517	-2.1867	.4361	-.3071	1.3949
SDev	4.9133	.66001	3.0733	1.034	.104	2.4114
%RSD	304.54	180.74	140.55	237.2	33.86	172.87

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1704	56.07	2.0590	-.48049	1.6241	1.6079
SDev	.3949	.1106	1.4291	1.703	3.4697	5.6339
%RSD	231.8	.1973	69.404	354.43	213.64	350.38

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.63973	-3.5978	5.0000	19476.2
SDev	.38423	4.7995	0	17.2537
%RSD	60.061	133.4	0	.08858

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 18:57 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	946.9	25040.	488.04	5025.	2029.	1984.
SDev	.1224	13.43	1.2198	32.02	.7783	.6487
%RSD	.0129	.0536	.24994	.6372	.0384	.0327

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49840.	491.7	1941.	1973.	2032.	25100.
SDev	22.7	.4986	1.172	.2126	.8983	14.52
%RSD	.0455	.1014	.0604	.0108	.0442	.0579

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49560.	49950.	2069.	2003.	49440.	2021.
SDev	16.91	23.67	1.019	.3075	156.8	7.198
%RSD	.0341	.0474	.0493	.0154	.3172	.3562

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.81	489.10	531.64	4960.	4951.	976.48
SDev	4.5339	2.0807	.49002	1.012	7.212	1.1223
%RSD	.94495	.42542	.09217	.0204	.1457	.11493

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2026.	1895.	441.57	512.83	475.72	481.85
SDev	2.133	1.353	.00041	3.1197	7.5146	3.0459
%RSD	.1053	.0714	.00009	.60834	1.5796	.63211

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	448.93	572.94	5.0000	19251.4
SDev	.71558	1.0919	0	14.1421
%RSD	.15939	.19058	0	.07346

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 19:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2001	-10.67	-1.2367	12.41	-.0081	-.0583
SDev	.2873	1.509	.96001	2.127	.001	.007
%RSD	143.6	14.14	77.625	17.14	12.29	12.05

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.650	-.0017	-.2154	-.1273	-1.073	-6.324
SDev	.2565	.1008	.084	.0911	.561	.0073
%RSD	15.55	5960	38.99	71.56	52.29	.115

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.3	1.375	.0175	-.2488	-628.3	.5831
SDev	3.04	.8115	.01	.1662	57.46	1.119
%RSD	2.198	59.02	57.17	66.82	9.144	191.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2070	.15436	-2.6331	1.125	-.4532	-2.0833
SDev	1.9093	.61518	.22654	.4075	.3106	2.9287
%RSD	158.19	398.53	8.6038	36.21	68.54	140.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0211	-.1041	1.1143	-.32486	.57331	1.5233
SDev	.3021	.1363	1.2965	.27502	2.7553	1.4869
%RSD	1432	130.9	116.36	84.659	480.6	97.606

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1110	-4.5023	5.0000	19526.2
SDev	2.1803	1.4282	0	27.4349
%RSD	196.25	31.721	0	.1405

Method: ARMY Sample Name: J8G44X Operator: LRW
Run Time: 10/11/07 19:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1019	1334.	-1.1282	82.19	19.74	.2096
SDev	.2865	4.946	.83914	.5922	.0286	.0073
%RSD	281.1	.3708	74.381	.7205	.1451	3.491

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20580.	.9911	14.65	-.1610	4.571	42.55
SDev	15.03	.0221	.1087	.1829	.0603	1.152
%RSD	.073	2.231	.7421	113.6	1.319	2.708

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2511.	5471.	822.4	-.7140	19920.	46.36
SDev	18.75	5.734	.674	.162	133.5	1.044
%RSD	.7468	.1048	.082	22.68	.6702	2.253

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8537	.43207	-2.6227	-.2690	-.4535	3.1035
SDev	1.9907	.65674	2.1362	.7636	.311	4.3095
%RSD	107.39	152	81.447	283.9	68.58	138.86

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2798	46.68	.41116	.44251	4.6147	.47531
SDev	.1814	.2364	1.5711	1.769	7.9782	.99851
%RSD	64.83	.5064	382.11	399.76	172.89	210.07

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.69932	-4.2813	5.0000	19549.4
SDev	1.6127	2.3975	0	36.4878
%RSD	230.61	55.999	0	.18664

Method: ARMY Sample Name: J8G44S Operator: LRW
Run Time: 10/11/07 19:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.22	3270.	2134.5	1162.	2197.	55.12
SDev	.4125	4.246	4.0022	.1158	5.663	.1192
%RSD	.7469	.1298	.1875	.01	.2578	.2162

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	71970.	53.58	537.7	212.5	282.2	1201.
SDev	169.7	.0163	.8022	.1923	.4112	2.75
%RSD	.2358	.0303	.1492	.0905	.1457	.229

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55880.	58660.	1347.	1065.	73150.	584.2
SDev	141.2	110	3.574	2.472	39.76	1.774
%RSD	.2527	.1876	.2653	.2321	.0544	.3037

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2126.4	522.84	574.20	2103.	1056.	2084.0
SDev	1.4727	.41725	.15316	.4513	2.99	4.2406
%RSD	.06926	.0798	.02667	.0215	.283	.20348

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	547.1	570.7	470.38	549.03	2100.9	2139.1
SDev	1.428	1.181	.57761	.33719	1.6445	3.0292
%RSD	.2609	.2069	.12279	.06141	.07827	.14161

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	482.30	620.08	5.0000	19442.9
SDev	3.4039	1.929	0	12.0208
%RSD	.70575	.31109	0	.06182

Method: ARMY Sample Name: J8G46 Operator: LRW
Run Time: 10/11/07 19:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1769	24.40	1.8431	81.96	16.26	-.0531
SDev	.0363	1.298	1.9695	1.51	.0209	.0009
%RSD	20.51	5.321	106.86	1.842	.1285	1.632

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47380.	.1095	1.927	-.0620	.5945	47.80
SDev	49.82	.0226	.3047	.4627	.3788	.6359
%RSD	.1052	20.63	15.81	746	63.71	1.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3344.	8982.	120.2	-1.176	4610.	6.782
SDev	5.584	11.48	.1121	.8209	165.3	.2222
%RSD	.167	.1278	.0932	69.77	3.585	3.276

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.92150	-.96808	-.42251	-.6796	-.8196	2.6099
SDev	2.4986	.71304	.02063	.0019	.0007	2.7248
%RSD	271.15	73.656	4.8842	.275	.088	104.41

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2586	4.668	-.16965	-1.3667	5.5916	-1.4100
SDev	.0916	.103	2.171	.01485	2.5865	2.4548
%RSD	35.43	2.207	1279.7	1.0866	46.257	174.09

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.9079	-2.0852	5.0000	19535.8
SDev	.93913	.43792	0	24.0416
%RSD	32.296	21.001	0	.12306

Method: ARMY Sample Name: J8G5M Operator: LRW
Run Time: 10/11/07 19:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1016	-41.59	-1.5843	51.28	5.387	-.0675
SDev	.6246	3.208	1.0371	.6227	.0929	.0163
%RSD	614.9	7.714	65.459	1.214	1.724	24.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	23450.	.1115	.8350	-.6506	-.2783	12.23
SDev	11.82	.0322	.3025	.5526	.985	3.126
%RSD	.0504	28.83	36.22	84.95	353.9	25.57

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	747.5	8961.	135.5	-.3687	4820.	5.934
SDev	8.453	21.45	.2782	1.637	226.9	.0978
%RSD	1.131	.2393	.2053	443.9	4.706	1.648

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.49950	-.16941	-3.7959	-.0214	-.8178	.97636
SDev	2.3306	.00773	.14152	.9391	.0007	.43654
%RSD	466.58	4.5676	3.7284	4389	.0835	44.711

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1084	3.085	.98390	-.74520	6.4188	-2.4557
SDev	.3605	.1054	1.7602	.89036	1.9969	4.491
%RSD	332.6	3.417	178.9	119.48	31.109	182.88

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.71192	-6.0464	5.0000	19595.8
SDev	1.0594	.7411	0	22.9105
%RSD	148.81	12.257	0	.11691

Method: ARMY Sample Name: J8G5R Operator: LRW
Run Time: 10/11/07 19:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0573	-63.59	-.05465	89.48	19.37	-.0842
SDev	.3702	1.685	.65261	.7869	.0841	0
%RSD	646.1	2.65	1194.2	.8795	.434	.0254

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55360.	.0873	5.041	-.3500	.2852	19.76
SDev	106.2	.051	.1353	.2334	.1474	2.814
%RSD	.1918	58.38	2.685	66.69	51.68	14.24

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2082.	37790.	921.7	-.8206	8426.	23.35
SDev	1.185	69.43	2.449	.6628	137.2	.2883
%RSD	.0569	.1837	.2657	80.78	1.628	1.235

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7169	-.58721	-1.0575	.0992	-1.195	3.4278
SDev	.52207	1.0519	.45736	2.797	.3144	.9162
%RSD	19.215	179.13	43.251	2819	26.32	26.729

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4721	3.814	-1.3114	-.22565	6.3318	.91219
SDev	.1532	.081	.28392	1.4353	2.4346	1.9982
%RSD	32.45	2.123	21.65	636.05	38.45	219.05

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0598	-2.6137	5.0000	19359.5
SDev	1.0451	1.2075	0	15.9803
%RSD	50.74	46.198	0	.08254

Method: ARMY Sample Name: J8G5W Operator: LRW
Run Time: 10/11/07 19:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0942	-66.01	16.791	28.25	26.99	-.0315
SDev	.7022	.5849	1.019	1.611	.1177	.0595
%RSD	745.8	.886	6.0683	5.7	.4362	188.9

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37450.	.2537	2.950	-.0908	.7110	5450.
SDev	119.1	.1284	.3641	.2335	1.348	31.72
%RSD	.318	50.62	12.34	257.2	189.6	.582

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	821.9	16860.	1591.	-.7704	5130.	7.004
SDev	3.198	81.4	3.938	.6603	143.7	.5726
%RSD	.3891	.4827	.2474	85.71	2.801	8.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.15070	-.86543	-2.0685	.0266	-.7487	3.6070
SDev	3.175	1.0375	8.015	.7229	.105	2.3637
%RSD	2106.8	119.88	387.48	2720	14.02	65.532

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3372	4.143	-.51125	-1.0423	3.3766	-1.9117
SDev	.3631	.3991	4.0673	3.586	5.8041	1.8624
%RSD	107.7	9.635	795.55	344.06	171.89	97.422

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.96027	-3.5808	5.0000	19451.9
SDev	1.8972	11.07	0	35.2145
%RSD	197.57	309.14	0	.18103

Method: ARMY Sample Name: J8G51 Operator: LRW
Run Time: 10/11/07 19:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3402	-2.156	.37228	74.10	6.726	-.0997
SDev	.2675	.1167	2.222	.2632	.0259	.0146
%RSD	78.62	5.415	596.86	.3552	.3856	14.66

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38840.	.1226	.2907	-.3219	.3377	19.32
SDev	99.87	.0659	.1372	.1827	.3615	1.155
%RSD	.2571	53.75	47.21	56.77	107	5.976

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1922.	4256.	1.878	-.3610	2318.	2.093
SDev	3.676	9.189	.0647	.3338	4.732	.0424
%RSD	.1912	.2159	3.447	92.46	.2042	2.025

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.4019	-.09770	-.49003	-.2629	-.5270	2.8606
SDev	2.9197	.31094	.03601	.1413	.2067	1.3921
%RSD	85.826	318.25	7.349	53.75	39.23	48.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1710	2.196	-.97449	.34003	7.3050	1.4533
SDev	.0314	.1731	.98852	.02734	5.5783	1.5925
%RSD	18.36	7.881	101.44	8.0409	76.362	109.57

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.91225	-1.1901	5.0000	19483.4
SDev	.38931	.14037	0	67.8822
%RSD	42.677	11.795	0	.34841

Method: ARMY Sample Name: J8G52 Operator: LRW
Run Time: 10/11/07 19:46 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7500	129.8	-.96608	14.53	.2501	-.0715
SDev	.6733	11.9	.5532	1.607	.103	.0069
%RSD	89.77	9.171	57.263	11.06	41.17	9.637

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.9	-.0491	-.3116	-1.402	.0596	-.6072
SDev	3.406	.0794	.5524	1.43	.0561	12.29
%RSD	2.469	161.8	177.3	102	94.16	2024

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	114.0	4.045	.3195	-1.757	-1722.	.0531
SDev	29.9	5.17	.112	.3276	855.5	.3682
%RSD	26.22	127.8	35.07	18.65	49.68	693.8

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.64422	.42837	-13.939	.1400	-.1606	-1.9720
SDev	.64253	.19028	21.66	.7214	.1032	8.5775
%RSD	99.736	44.421	155.39	515.4	64.26	434.96

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0007	.2931	-4.0678	2.6731	-2.8107	2.3691
SDev	.6356	.0466	5.2669	2.3442	6.8734	4.3949
%RSD	92020	15.91	129.48	87.698	244.54	185.51

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.1130	-20.342	5.0000	19569.2
SDev	2.4492	33.696	0	57.1334
%RSD	220.06	165.65	0	.29195

Method: ARMY Sample Name: J8G55 Operator: LRW
Run Time: 10/11/07 19:51 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2157	-57.48	23.104	25.87	94.48	-.0970
SDev	.1265	2.684	2.1173	1.112	.2408	.0181
%RSD	58.67	4.669	9.1646	4.299	.2549	18.62

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	95320.	.1240	.2102	-.1355	.0311	1253.
SDev	123.1	.0734	.1947	.1634	.143	.5549
%RSD	.1291	59.18	92.62	120.6	459.4	.0443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1425.	34010.	223.8	1.417	14190.	1.432
SDev	9.161	53.61	.4962	.8268	84.22	.5893
%RSD	.6427	.1576	.2217	58.35	.5935	41.15

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9677	-.50539	-2.2250	-.6011	-1.713	5.7732
SDev	1.848	1.191	2.7983	.6317	.2086	2.3428
%RSD	62.27	235.65	125.77	105.1	12.18	40.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4170	1.264	-1.0163	-.25030	4.0468	2.4290
SDev	.0911	.1205	.87065	1.3509	7.0121	.73017
%RSD	21.85	9.528	85.667	539.68	173.27	30.061

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1784	-4.4234	5.0000	19348.7
SDev	1.4507	4.9195	0	7.77817
%RSD	66.593	111.22	0	.04019

Method: ARMY Sample Name: J8G57 Operator: LRW
Run Time: 10/11/07 19:56 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3768	-44.30	-.21237	26.02	4.346	-.0732
SDev	.3502	4.139	.41837	1.758	.0918	.033
%RSD	92.94	9.342	197	6.754	2.111	45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18040.	.0800	.0153	-.0728	-.1443	-6.053
SDev	13.39	.0536	.0819	.6283	.3905	.3581
%RSD	.0742	66.98	535.5	863.2	270.6	5.917

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1060.	7215.	25.05	-1.291	14230.	3.162
SDev	8.625	8.137	.0918	.3291	129.5	1.023
%RSD	.8133	.1128	.3663	25.49	.9099	32.36

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6181	-.13856	-1.0805	-.1633	-.6017	3.4210
SDev	.08752	.50061	2.0547	1.526	.3119	2.1952
%RSD	5.4092	361.28	190.17	934.3	51.84	64.167

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2779	6.769	.17272	-.29397	4.3915	.23354
SDev	.0609	.1225	1.4613	1.4801	4.1106	2.1834
%RSD	21.9	1.81	846.03	503.47	93.604	934.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8555	-3.0455	5.0000	19425.7
SDev	.48415	2.8388	0	34.9314
%RSD	16.955	93.212	0	.17982

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 20:04 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	952.7	25280.	495.66	5121.	2046.	1999.
SDev	3.181	48.31	2.9237	2.894	5.666	6.195
%RSD	.3339	.1911	.58986	.0565	.2769	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50250.	494.6	1958.	1992.	2050.	25470.
SDev	168.8	1.888	6.493	5.929	6.024	53.58
%RSD	.3359	.3818	.3316	.2977	.2939	.2104

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49940.	50330.	2073.	2025.	49940.	2015.
SDev	128	206.7	6.039	12.79	83.61	12.9
%RSD	.2564	.4107	.2913	.6317	.1674	.6403

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	489.98	494.34	540.70	4982.	5012.	984.98
SDev	2.2066	2.413	4.0178	15.44	11.8	3.9463
%RSD	.45034	.48812	.74308	.3099	.2354	.40065

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2049.	1904.	448.56	517.20	486.75	491.59
SDev	4.61	8.202	6.2159	.5144	6.8076	.09052
%RSD	.225	.4308	1.3857	.09946	1.3986	.01841

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.53	583.22	5.0000	19166.6
SDev	6.2802	2.8884	0	81.4595
%RSD	1.3786	.49524	0	.425

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 20:11 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2184	-12.54	-.70115	13.45	.0470	-.1120
SDev	0	1.701	.62959	1.549	.0001	.0267
%RSD	.0025	13.56	89.794	11.51	.1907	23.86

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.358	.1255	.1507	-.1017	-.0850	-1.278
SDev	.0217	.044	.2227	.35	.3235	.7105
%RSD	1.601	35.07	147.8	344.2	380.8	55.58

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.8	2.251	.0563	-.3506	-578.6	1.738
SDev	1.773	3.199	.0555	.663	370.3	.2683
%RSD	1.225	142.1	98.61	189.1	64	15.43

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9317	-.27074	-1.1915	2.310	-.0115	3.2042
SDev	1.6485	.00172	.7663	.7693	.3141	2.4108
%RSD	56.23	.63667	64.314	33.29	2740	75.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2857	.0391	1.7450	-1.2771	2.8730	2.9611
SDev	.122	.0786	.73243	.36308	1.0437	1.9505
%RSD	42.68	200.9	41.974	28.431	36.327	65.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9326	-2.7512	5.0000	19327.6
SDev	1.8102	.24514	0	2.26357
%RSD	93.667	8.9105	0	.01171

Method: ARMY Sample Name: J8NFGB Operator: LRW
Run Time: 10/11/07 20:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4712	-75.36	-.52205	-2.021	.7929	-.0899
SDev	.4831	15.64	.37425	2.639	.0654	.0006
%RSD	102.5	20.75	71.689	130.5	8.246	.7032

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	189.6	-.0751	.6227	-1.466	.3169	-7.071
SDev	2.03	.2891	.6051	1.843	.7158	19.96
%RSD	1.071	385.1	97.17	125.8	225.9	282.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	111.0	44.06	.7065	-.9468	-1813.	.8792
SDev	35.3	6.063	.1264	.1643	1147	.1609
%RSD	31.82	13.76	17.9	17.35	63.24	18.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0569	-1.3759	-3.0193	-1.536	-.3068	4.2770
SDev	1.6672	.6303	2.6486	2.456	.1035	3.8446
%RSD	157.73	45.811	87.722	159.9	33.74	89.892

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7705	4.294	4.7956	-4.4570	12.871	-4.8414
SDev	.9365	.2767	6.3936	4.137	1.168	3.0826
%RSD	121.5	6.444	133.32	92.821	9.0744	63.673

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.6011	-6.8237	5.0000	19567.2
SDev	2.7747	2.5856	0	17.8199
%RSD	60.305	37.892	0	.09107

Method: ARMY Sample Name: J8NFGC Operator: LRW
Run Time: 10/11/07 20:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51.58	1981.	1946.9	1034.	2009.	50.39
SDev	.0053	5.884	.66153	.9817	3.094	.0501
%RSD	.0103	.2971	.03397	.0949	.154	.0995

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48640.	48.83	484.5	197.3	257.3	1070.
SDev	48.03	.0994	.5146	.278	.4339	9.609
%RSD	.0988	.2036	.1062	.1409	.1686	.8977

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49170.	48870.	516.5	986.0	50820.	492.5
SDev	123.4	67.79	.5712	.3874	55.28	.7671
%RSD	.2509	.1387	.1106	.0393	.1088	.1557

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1961.2	485.15	525.13	1919.	985.3	1940.7
SDev	1.1982	.51263	.99717	.2526	.739	10.402
%RSD	.06109	.10566	.18989	.0132	.075	.53598

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	509.8	489.0	436.56	509.41	1941.4	1971.0
SDev	1.108	.3507	2.2794	1.9065	5.3906	4.4877
%RSD	.2172	.0717	.52212	.37426	.27766	.22768

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	440.03	567.61	5.0000	19302.2
SDev	6.4579	4.7191	0	18.3848
%RSD	1.4676	.83139	0	.09524

Method: ARMY Sample Name: J8KP1 Operator: LRW
Run Time: 10/11/07 20:28 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4501	812.7	2.3633	40.51	31.77	-.0764
SDev	.6681	7.537	.75417	2.08	.4074	.0289
%RSD	148.5	.9274	31.912	5.135	1.282	37.85

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	88110.	.3676	1.055	1.721	1.562	1240.
SDev	318.3	.1752	.445	.7033	1.266	21.09
%RSD	.3612	47.66	42.19	40.87	81.06	1.702

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1638.	29060.	191.2	1.294	9957.	3.661
SDev	28.09	123.2	.5732	.3373	235.3	.5456
%RSD	1.715	.4239	.2998	26.08	2.363	14.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6327	.11692	-8.6684	2.011	7.443	1.6588
SDev	2.4228	.22944	12.991	1.902	.8517	6.9291
%RSD	148.4	196.23	149.87	94.59	11.44	417.73

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.309	21.67	.15666	.09709	4.2161	.34286
SDev	.9488	.0092	2.8669	1.0873	5.1218	1.0754
%RSD	72.47	.0425	1830	1119.9	121.48	313.64

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6796	-13.835	5.0000	19391.2
SDev	1.3392	20.146	0	42.1433
%RSD	79.731	145.62	0	.21733

Method: ARMY Sample Name: J8KP3 Operator: LRW
Run Time: 10/11/07 20:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0605	1306.	1.2729	39.66	34.11	-.0371
SDev	.5326	4.547	.04469	.0727	.0131	.009
%RSD	879.8	.3481	3.511	.1833	.0383	24.2

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89130.	.2454	.9370	1.508	2.223	1977.
SDev	5.817	.0067	.3894	.113	.3025	2.643
%RSD	.0065	2.727	41.55	7.489	13.61	.1337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1752.	29450.	190.4	-.3336	9802.	4.157
SDev	2.095	2.382	.0631	.6635	13.11	.2749
%RSD	.1195	.0081	.0331	198.9	.1338	6.613

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.22032	.36094	-1.7794	1.376	15.43	1.0110
SDev	2.181	.92628	.01567	1.9	.3968	3.3144
%RSD	989.92	256.63	.88064	138	2.572	327.84

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.958	22.10	-.24782	.66487	-.26686	-.19709
SDev	.0572	.071	.18697	1.4821	7.6335	.54109
%RSD	2.923	.3214	75.447	222.91	2860.5	274.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.60091	-2.3678	5.0000	19373
SDev	.87126	.41148	0	26.0221
%RSD	144.99	17.378	0	.13432

Method: ARMY Sample Name: J8KP6 Operator: LRW
Run Time: 10/11/07 20:38 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.240	-65.04	61.224	2076.	173.5	.8458
SDev	3.485	17.5	3.6269	11.81	.4848	.0614
%RSD	155.6	26.91	5.9241	.569	.2794	7.256

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	84850.	.7112	5.275	.6366	2.386	142300.
SDev	607.7	.526	2.249	2.653	2.658	728.9
%RSD	.7162	73.96	42.64	416.7	111.4	.5123

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6988.	36690.	1283.	1.069	19720.	17.57
SDev	53.69	345.4	4.068	3.316	1115	3.804
%RSD	.7683	.9414	.3169	310.2	5.655	21.65

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31725	-.98560	-3.6101	2.364	-1.046	8.5187
SDev	.55062	.94941	2.3243	6.091	.5225	7.0014
%RSD	173.56	96.328	64.383	257.7	49.94	82.189

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.271	.1919	-.03211	-1.4616	1.1571	-1.0533
SDev	2.15	.4349	2.8122	2.8274	2.1471	1.8974
%RSD	169.2	226.6	8757.3	193.44	185.55	180.14

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0121	-6.4170	5.0000	19371.2
SDev	1.1407	4.0542	0	1.41421
%RSD	56.689	63.179	0	.0073

Method: ARMY Sample Name: J8KP6L Operator: LRW
Run Time: 10/11/07 20:43 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3973	-58.30	9.7712	406.6	34.07	.0557
SDev	.3897	1.64	.85511	1.453	.1175	.0157
%RSD	98.08	2.812	8.7514	.3574	.345	28.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	16860.	.1355	.8004	-.3143	.3679	28460.
SDev	10.33	.016	.1944	.0451	.5234	12.54
%RSD	.0613	11.82	24.29	14.35	142.3	.0441

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1286.	7176.	256.2	-1.119	3769.	3.686
SDev	.0138	12.13	.2351	.8321	14.85	1.496
%RSD	.0011	.169	.0917	74.35	.3941	40.6

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.7043	-.72739	-1.5748	-.4367	-.7533	-1.3942
SDev	.23836	.29114	.06924	1.401	.1063	3.2279
%RSD	13.986	40.026	4.397	320.8	14.11	231.52

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2531	.0834	.54299	-1.3616	-2.1507	-1.4814
SDev	.2479	.0998	.24738	.31299	1.7948	1.2534
%RSD	97.94	119.6	45.56	22.987	83.453	84.612

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7690	-3.2442	5.0000	19279
SDev	.46276	.12722	0	47.517
%RSD	26.16	3.9215	0	.24647

Method: ARMY Sample Name: J8KP6X Operator: LRW
Run Time: 10/11/07 20:48 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3967	-75.66	62.272	2142.	179.9	.8260
SDev	.1625	2.355	.05333	4.322	.3388	.0256
%RSD	40.97	3.113	.08565	.2018	.1883	3.095

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	87430.	.4919	3.893	-1.356	1.069	146600.
SDev	262.2	.1352	.1649	.1633	.1742	391
%RSD	.2999	27.49	4.236	12.04	16.29	.2667

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7200.	37700.	1327.	-.5261	19680.	16.46
SDev	18.88	118.1	2.825	.6681	24.4	.4434
%RSD	.2622	.3131	.2128	127	.124	2.693

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.62380	-1.1637	-2.0123	-1.493	-1.642	7.6356
SDev	2.6643	.08085	1.1913	.4533	.3156	1.4298
%RSD	427.11	6.9482	59.199	30.35	19.22	18.726

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0618	-.4278	-1.9581	-.76710	7.0626	-4.4612
SDev	.1707	.1211	.53372	.14523	1.627	4.8068
%RSD	276.1	28.3	27.257	18.933	23.037	107.75

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.17216	-2.9310	5.0000	19302.8
SDev	2.5059	.53495	0	14.4253
%RSD	1455.5	18.252	0	.07473

Method: ARMY Sample Name: J8KP6S Operator: LRW
Run Time: 10/11/07 20:53 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.99	2028.	2090.8	3141.	2262.	52.66
SDev	.3259	1.005	8.1954	13.68	4.352	.1401
%RSD	.6036	.0496	.39197	.4354	.1924	.2661

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131800.	50.19	504.7	201.5	271.9	139300.
SDev	443.4	.0774	.6696	.196	.4712	474.2
%RSD	.3364	.1542	.1327	.0973	.1733	.3405

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	58990.	86780.	1784.	1018.	70460.	516.2
SDev	69.39	323.5	5.554	2.714	233.4	.8613
%RSD	.1176	.3728	.3113	.2666	.3313	.1669

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2023.0	496.04	546.55	1991.	1015.	1988.6
SDev	1.6874	1.9275	4.7415	12.34	2.852	12.6
%RSD	.08341	.38856	.86753	.6198	.2809	.63362

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	525.7	498.6	446.87	520.59	2017.7	2025.6
SDev	.3705	1.377	1.7425	3.7597	.87551	2.967
%RSD	.0705	.2761	.38994	.72219	.04339	.14647

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	459.21	590.15	5.0000	19187.8
SDev	1.3864	6.4165	0	11.8799
%RSD	.3019	1.0873	0	.06191

Method: ARMY Sample Name: J8KQA Operator: LRW
Run Time: 10/11/07 20:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7594	-60.25	33.066	82.69	76.14	-.0983
SDev	.2726	1.725	2.524	2.712	.0695	.0156
%RSD	35.89	2.864	7.6331	3.28	.0912	15.87

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	117100.	.1269	.8197	.6048	-.3338	1213.
SDev	221.7	.0504	.055	.0423	.1209	2.835
%RSD	.1893	39.69	6.709	6.993	36.23	.2337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3360.	47150.	69.43	2.119	17810.	1.090
SDev	.6684	110.8	.1955	1.5	101.3	.5418
%RSD	.0199	.235	.2815	70.78	.5689	49.71

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2625	-.12325	-3.9229	-.4424	-2.155	1.7466
SDev	2.6097	.33038	4.3803	.0497	.005	.82299
%RSD	206.71	268.04	111.66	11.24	.2325	47.119

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5887	1.309	.47556	-.42222	6.5919	-1.3982
SDev	.3962	.0659	2.4291	.71738	4.218	1.8067
%RSD	67.31	5.035	510.78	169.91	63.988	129.21

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0623	-7.4102	5.0000	19361.3
SDev	.22076	6.6773	0	50.4877
%RSD	7.2092	90.11	0	.26076

Method: ARMY Sample Name: J8KQG Operator: LRW
Run Time: 10/11/07 21:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1417	-62.34	36.799	233.5	10.52	-.1343
SDev	.1006	1.696	.38332	.7407	.153	.0076
%RSD	71.02	2.72	1.0417	.3172	1.454	5.692

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223700.	.1554	2.903	-.1378	-.3006	4344.
SDev	446.9	.0489	.2301	.2355	.0652	10.09
%RSD	.1998	31.49	7.923	170.9	21.7	.2323

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4508.	120400.	228.2	3.407	100400.	4.521
SDev	3.965	223.9	.3056	1.187	27.84	.3365
%RSD	.088	.186	.1339	34.84	.0277	7.444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1469	-1.0766	-3.1082	-2.686	-4.369	3.2029
SDev	2.5783	.58149	1.8708	.6896	.0995	.22532
%RSD	120.1	54.01	60.187	25.68	2.277	7.0352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9806	.8533	-.66490	-1.2822	4.9922	.72638
SDev	.0936	.1623	.45479	1.0989	3.4719	2.1322
%RSD	9.543	19.02	68.399	85.7	69.546	293.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0118	-6.1637	5.0000	19031.5
SDev	1.5347	2.0385	0	31.5367
%RSD	50.955	33.074	0	.1657

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 21:12 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.9	25440.	494.14	5211.	2060.	2003.
SDev	.4283	15.32	1.7294	31.61	2.63	3.847
%RSD	.0449	.0602	.34998	.6065	.1277	.1921

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50360.	494.1	1962.	1998.	2060.	25550.
SDev	127.8	.1606	4.382	4.118	.3064	74.86
%RSD	.2538	.0325	.2234	.2061	.0149	.293

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50220.	50520.	2081.	2030.	50250.	2003.
SDev	19.11	111.3	5.476	3.543	139	5.146
%RSD	.0381	.2203	.2631	.1745	.2767	.2569

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	485.51	493.42	530.59	4983.	5046.	985.07
SDev	1.4371	.47057	11.021	14.98	14.74	3.8837
%RSD	.296	.09537	2.0772	.3006	.2921	.39426

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2062.	1903.	444.01	518.08	484.37	486.08
SDev	5.553	.1281	.00157	.70628	1.4904	2.8987
%RSD	.2693	.0067	.00035	.13632	.30769	.59634

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	453.74	568.96	5.0000	19169.5
SDev	.70244	16.875	0	50.7708
%RSD	.15481	2.9659	0	.26485

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 21:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4344	-8.203	-1.8389	17.65	.0419	-.1104
SDev	.1616	.9979	1.9203	2.41	.0664	.0008
%RSD	37.21	12.17	104.43	13.66	158.5	.757

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.161	.1256	-.1206	-.2059	-.0979	-2.326
SDev	.2096	.0997	.2774	.024	.2399	1.403
%RSD	2.927	79.35	229.9	11.64	245.1	60.32

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.9	2.867	.0326	.1060	-425.0	1.494
SDev	2.464	.4215	.0098	.0018	64.88	.4828
%RSD	1.712	14.7	30.03	1.712	15.27	32.31

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7989	.33980	-2.0318	2.535	-.1600	1.2169
SDev	1.4276	.22163	1.3489	.4895	.1041	1.6603
%RSD	79.36	65.225	66.387	19.31	65.07	136.44

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0623	.1971	1.8224	-.40038	3.7181	.84077
SDev	.0004	.2868	.10076	.28198	1.5589	1.3621
%RSD	.6035	145.5	5.5293	70.429	41.926	162

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8055	-4.4468	5.0000	19455.7
SDev	1.3324	1.3571	0	19.0919
%RSD	47.492	30.519	0	.09813

Method: ARMY Sample Name: J8KQH Operator: LRW
Run Time: 10/11/07 21:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2889	-68.28	-.05744	3.831	.2290	-.1246
SDev	.0009	3.878	.91138	1.371	.0653	.001
%RSD	.2973	5.679	1586.7	35.79	28.52	.7722

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-72.42	.0335	-.0017	-.2737	.5434	7.595
SDev	2.176	.0131	.4973	.068	.2518	2.782
%RSD	3.004	38.91	28890	24.85	46.34	36.62

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.4	2.328	.2248	-.9444	-754.9	.4702
SDev	5.664	.2691	.0077	.1656	89.97	.3166
%RSD	4.123	11.56	3.437	17.54	11.92	67.33

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.03418	-.27187	-4.7333	.3675	-.1603	2.5385
SDev	1.6057	.57709	1.7543	.318	.1036	1.4078
%RSD	4696.5	212.27	37.062	86.53	64.61	55.457

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0859	-.1572	-.36232	-.22671	3.2270	-1.6624
SDev	.0901	.0882	.36095	.685	.85341	1.9813
%RSD	105	56.11	99.622	302.15	26.446	119.18

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.09683	-7.1447	5.0000	19514
SDev	1.1432	2.0593	0	33.9411
%RSD	1180.6	28.823	0	.17393

Method: ARMY Sample Name: J8KQK Operator: LRW
Run Time: 10/11/07 21:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2211	22100.	34.318	118.4	212.3	1.484
SDev	.8069	379.7	.19419	.6447	1.464	.0281
%RSD	365	1.718	.56585	.5447	.6896	1.891

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76710.	.2687	17.38	36.66	21.21	31600.
SDev	100.8	.0573	.4849	.4597	.3426	12.65
%RSD	.1314	21.34	2.79	1.254	1.615	.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7946.	31860.	465.6	.9963	13350.	37.78
SDev	136.3	15.85	.4664	.494	82.54	.6123
%RSD	1.715	.0498	.1002	49.58	.6184	1.621

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.77083	11.968	-.71395	-1.533	262.0	1.6819
SDev	3.3586	.29363	4.3972	.2234	26.26	1.6509
%RSD	435.7	2.4536	615.9	14.57	10.02	98.162

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37.73	63.55	9.6769	13.112	6.0643	-1.8719
SDev	.9426	.2485	.11825	.38119	4.8374	2.6203
%RSD	2.498	.391	1.2221	2.9073	79.768	139.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.93391	-1.5367	5.0000	19521.4
SDev	.7737	6.2062	0	13.0097
%RSD	82.845	403.88	0	.06664

Method: ARMY Sample Name: J8KQN Operator: LRW
Run Time: 10/11/07 21:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4414	-45.02	-1.2580	36.25	15.29	-.1221
SDev	.5405	1.964	1.616	.5487	.0966	.0177
%RSD	122.5	4.363	128.46	1.513	.6318	14.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34430.	.2205	1.632	.2551	.2462	5106.
SDev	13.31	.1415	.2212	.2086	.2254	1.804
%RSD	.0386	64.19	13.56	81.8	91.54	.0353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1236.	15620.	1461.	-1.240	10180.	46.89
SDev	.6046	3.281	.3754	.0001	117.2	.7355
%RSD	.0489	.021	.0257	.0087	1.151	1.568

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.44455	-.56045	-3.0482	-.8617	-.5283	4.0513
SDev	1.7165	.01873	.65825	.3596	.2085	.35975
%RSD	386.12	3.3435	21.595	41.74	39.46	8.8799

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3277	106.5	1.5906	-1.6344	5.9359	-2.2970
SDev	.4263	.3867	.86336	.40294	.43316	2.3572
%RSD	130.1	.3632	54.279	24.654	7.2974	102.62

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6669	-6.4007	5.0000	19422.3
SDev	1.9066	1.9387	0	5.23286
%RSD	51.993	30.289	0	.02694

Method: ARMY Sample Name: J8KQQ Operator: LRW
Run Time: 10/11/07 21:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6042	-50.42	10.821	31.70	125.9	-.1343
SDev	.1901	1.382	.68111	.4695	.0731	.0167
%RSD	31.46	2.741	6.2942	1.481	.058	12.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98900.	.0853	.1711	-.1368	-.0147	5565.
SDev	159	.1126	.0273	.3016	.3537	9.374
%RSD	.1608	132.1	15.96	220.5	2398	.1684

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1540.	24270.	636.5	.6375	10510.	2.149
SDev	7.543	32.44	1.057	.3282	10.64	.2179
%RSD	.4898	.1337	.1661	51.47	.1013	10.14

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.07078	-.80939	-.92676	-.0922	-1.416	1.9376
SDev	.52065	.10711	2.8763	.3633	.0013	1.509
%RSD	735.59	13.234	310.36	394	.0927	77.879

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1438	1.817	-.46194	-.98285	.81889	-.51494
SDev	.0305	.1689	1.635	.6557	.53898	1.0497
%RSD	21.21	9.295	353.95	66.715	65.818	203.84

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4866	-3.1301	5.0000	19371
SDev	.09402	4.3592	0	21.4963
%RSD	2.6968	139.27	0	.11097

Method: ARMY Sample Name: J8KQV Operator: LRW
Run Time: 10/11/07 21:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1664	-58.78	-1.9304	58.84	19.13	-.1184
SDev	.2455	.2435	.31201	1.064	.0544	.0081
%RSD	147.5	.4142	16.163	1.808	.2842	6.872

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	298200.	.1331	.2670	.2505	.4587	-.7305
SDev	270.9	.0227	.2235	.0456	.7516	4.984
%RSD	.0908	17.04	83.7	18.2	163.9	682.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4109.	14840.	56.08	-.5797	1959.	4.766
SDev	.8	5.093	.0119	.0012	81.65	.006
%RSD	.0195	.0343	.0213	.2005	4.168	.1252

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.40112	-.59353	-2.7548	-2.808	-5.440	3.1189
SDev	3.6884	.05995	.72793	.2265	.0054	.11533
%RSD	919.51	10.101	26.425	8.066	.0985	3.6977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5805	1.934	.91413	-1.3462	6.0482	-2.4182
SDev	.1844	.0529	1.1948	.50661	6.7856	2.1421
%RSD	31.76	2.734	130.7	37.632	112.19	88.583

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4323	-5.8437	5.0000	19239.8
SDev	.48585	.84879	0	19.799
%RSD	14.155	14.525	0	.1029

Method: ARMY Sample Name: J8KQ0 Operator: LRW
Run Time: 10/11/07 21:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3714	-97.67	36.024	146.9	62.47	-.1416
SDev	.0812	3.848	1.6548	1.559	.0069	.0086
%RSD	21.86	3.94	4.5935	1.061	.011	6.089

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33930.	.1780	5.437	-.4511	.2331	17380.
SDev	37.13	.0214	.1113	.1854	.1358	17.42
%RSD	.1094	12.04	2.048	41.11	58.25	.1002

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5123.	51980.	2401.	-.6513	2480.	5.951
SDev	14.4	66.2	1.336	.0003	342.5	.373
%RSD	.2811	.1274	.0557	.0424	13.81	6.268

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.87744	-.70310	-3.0527	-1.658	-.8224	4.2593
SDev	.77501	.35285	1.3183	2.023	.0001	2.3419
%RSD	88.327	50.186	43.186	122	.0078	54.984

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.192	-.4319	-.47056	-.81919	-.12001	-1.2556
SDev	.0299	.001	.55911	.24988	1.9604	2.1407
%RSD	2.51	.2217	118.82	30.503	1633.5	170.49

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7840	-5.4674	5.0000	19442.7
SDev	.0939	1.9296	0	2.12132
%RSD	5.2639	35.293	0	.01091

Method: ARMY Sample Name: J8KQ2 Operator: LRW
Run Time: 10/11/07 21:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3534	-92.31	34.486	144.0	62.01	-.1236
SDev	.2981	1.446	1.3695	.0885	.0104	.0154
%RSD	84.35	1.567	3.9712	.0615	.0168	12.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34010.	.1656	5.356	.0238	.1608	16900.
SDev	10.75	.1213	.2361	.0726	.375	9.911
%RSD	.0316	73.29	4.407	304.7	233.2	.0586

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5110.	51000.	2406.	.1601	2558.	6.513
SDev	2.59	8.565	.1548	.829	163.2	.404
%RSD	.0507	.0168	.0064	518	6.379	6.203

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8058	-.44646	-1.2140	1.836	-.8221	4.9212
SDev	4.0415	.36401	.54359	.392	.0018	1.7375
%RSD	223.81	81.534	44.777	21.35	.2181	35.308

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9201	-.2255	1.1827	-1.2598	5.2629	.07981
SDev	.1521	.0995	1.6709	1.3799	3.5211	4.3013
%RSD	16.53	44.11	141.28	109.54	66.904	5388.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4039	-2.5210	5.0000	19453.7
SDev	.11132	.87056	0	59.2547
%RSD	7.9294	34.532	0	.30459

Method: ARMY Sample Name: J8KQ5 Operator: LRW
Run Time: 10/11/07 22:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1777	-79.45	51.431	1113.	55.74	-.1335
SDev	.0905	1.946	1.2018	2.414	.2075	.0166
%RSD	50.92	2.45	2.3368	.2169	.3724	12.43

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140100.	.2155	6.874	-.2321	.2950	19360.
SDev	110.9	.0787	.0768	.3497	.1057	10.7
%RSD	.0791	36.51	1.117	150.6	35.83	.0553

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8755.	105600.	2729.	.0806	10420.	12.32
SDev	30.57	167.2	1.174	.002	33.04	.9299
%RSD	.3492	.1583	.043	2.421	.3171	7.546

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.0417	-1.2652	-3.1818	.4936	-2.533	3.2563
SDev	1.4492	1.0531	.60047	1.181	.1023	2.4832
%RSD	139.12	83.236	18.872	239.2	4.04	76.259

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.073	9.615	-.24271	-1.7756	.95466	-2.0383
SDev	.0311	.2602	.15743	1.5002	1.8672	1.2405
%RSD	2.899	2.706	64.864	84.49	195.59	60.858

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4613	-5.4998	5.0000	19291.1
SDev	2.7934	.49432	0	21.6372
%RSD	191.16	8.9881	0	.11216

Method: ARMY Sample Name: J8KRD Operator: LRW
Run Time: 10/11/07 22:05 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2129	-64.80	40.523	88.56	72.37	-.1238
SDev	.0218	.378	.8461	2.281	.9062	.0143
%RSD	10.25	.5834	2.088	2.575	1.252	11.54

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81460.	.0648	.1490	-.0813	.0287	796.5
SDev	840	.0378	.0593	.0389	.2418	15.54
%RSD	1.031	58.28	39.8	47.81	841.5	1.952

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3230.	65350.	56.13	.8376	25500.	.6051
SDev	16.49	771.5	.6595	.6433	196.2	.1476
%RSD	.5104	1.181	1.175	76.8	.7692	24.39

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.0236	.00414	-.72275	-.6951	-1.423	3.8994
SDev	4.4097	.20851	.39702	1.395	.0103	1.4223
%RSD	217.91	5036	54.932	200.6	.7259	36.475

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.054	.5472	.26061	-.12390	6.5214	-.22193
SDev	.5773	.1248	.15511	.39004	8.0757	2.5795
%RSD	54.76	22.8	59.517	314.8	123.83	1162.3

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.97022	-1.5680	5.0000	19248.4
SDev	.10041	.64537	0	167.159
%RSD	10.349	41.159	0	.86843

Method: ARMY Sample Name: J8KRDL Operator: LRW
Run Time: 10/11/07 22:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1273	-61.45	8.3429	15.95	14.10	-.1493
SDev	.2898	1.398	.30022	.2717	.0619	.0082
%RSD	227.7	2.274	3.5985	1.703	.4386	5.507

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15990.	.0335	.2293	-.1673	.1131	154.8
SDev	.9301	.0724	.1116	.2104	.0415	7.741
%RSD	.0058	216	48.65	125.8	36.67	4.999

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	659.2	12540.	11.08	1.059	5028.	1.853
SDev	.7981	12.99	.0046	.001	133	.1086
%RSD	.1211	.1036	.0413	.0958	2.645	5.859

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7935	.28577	-1.5323	1.352	-.3076	2.0803
SDev	.07418	.87553	1.5956	2.215	.1047	2.9749
%RSD	2.6558	306.37	104.13	163.9	34.04	143.01

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0635	.0233	1.3673	-.25415	5.2568	1.5637
SDev	.4281	.1526	1.4441	.59165	9.4214	4.5924
%RSD	674.2	655.2	105.62	232.79	179.23	293.68

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.3554	-3.4732	5.0000	19321.5
SDev	1.4387	1.674	0	7.49505
%RSD	61.08	48.198	0	.03879

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 22:18 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	955.2	25510.	493.65	5278.	2061.	2013.
SDev	.9866	8.902	.71854	26.65	1.509	2.284
%RSD	.1033	.0349	.14555	.505	.0732	.1135

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50710.	495.9	1973.	2011.	2061.	25800.
SDev	105.6	.1143	3.33	2.16	.7163	64.58
%RSD	.2083	.023	.1688	.1074	.0348	.2503

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50180.	50780.	2099.	2043.	50520.	1993.
SDev	.6712	171.9	3.03	5.848	71.51	.2101
%RSD	.0013	.3386	.1444	.2862	.1415	.0105

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	487.84	497.93	542.22	5006.	5083.	990.04
SDev	.71036	.20657	1.2319	2.767	8.142	7.8609
%RSD	.14561	.04148	.22719	.0553	.1602	.794

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2074.	1903.	449.48	522.12	486.99	488.26
SDev	2.729	.1163	.7431	.06128	1.142	1.6351
%RSD	.1316	.0061	.16532	.01173	.2345	.33489

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.92	585.30	5.0000	19177.8
SDev	2.2693	2.98	0	20.3652
%RSD	.49774	.50913	0	.10619

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 22:25 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1293	-11.18	-1.2269	14.47	.0416	-.1353
SDev	.0181	1.271	.16021	2.068	.001	.0008
%RSD	13.98	11.37	13.059	14.3	2.36	.6233

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.924	.0907	.1145	-.2389	-.3289	-7.316
SDev	.2485	.0558	.0004	.2095	.259	3.52
%RSD	3.136	61.54	.3327	87.68	78.75	48.11

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.0	2.581	.0064	-.0113	-644.9	1.115
SDev	1.181	1.436	.0267	.1624	244.7	.7973
%RSD	.8315	55.62	417.1	1433	37.95	71.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.29993	-.19987	-1.3517	.5628	-.2336	1.3932
SDev	1.0974	.91233	1.645	2.376	0	.56055
%RSD	365.89	456.45	121.7	422.2	0	40.234

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1738	-.0311	1.9480	-1.2722	.66120	.11957
SDev	.0904	.1438	1.0313	1.8827	.65979	1.3159
%RSD	52.01	462.5	52.942	147.99	99.786	1100.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6595	-2.8550	5.0000	19463.8
SDev	1.4266	3.1785	0	25.1727
%RSD	85.964	111.33	0	.12933

Method: ARMY Sample Name: J8KRDX Operator: LRW
Run Time: 10/11/07 22:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3512	-67.51	48.570	105.2	83.27	-.1378
SDev	.4897	.0049	2.6261	.224	.0259	.0259
%RSD	139.4	.0072	5.4068	.2128	.0311	18.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	93670.	.1709	.8995	.5285	.2642	926.1
SDev	46.3	.0861	.2785	.0222	.1297	5.019
%RSD	.0494	50.37	30.96	4.2	49.12	.5419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3708.	75100.	64.06	2.951	29500.	1.592
SDev	2.633	42.31	.0368	.0033	34.38	1.129
%RSD	.071	.0563	.0574	.1116	.1165	70.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31312	-.38922	-.63054	-.2748	-1.495	4.2160
SDev	1.0535	1.2639	1.2557	1.723	.1058	1.3717
%RSD	336.43	324.72	199.14	627.1	7.079	32.536

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2772	.2485	.08404	-.62549	4.2792	-2.6058
SDev	.521	.1831	.52241	1.6341	4.2611	.54797
%RSD	187.9	73.68	621.6	261.24	99.578	21.029

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.37703	-1.1336	5.0000	19286.3
SDev	.96202	2.3628	0	13.7181
%RSD	255.16	208.44	0	.07112

Method: ARMY Sample Name: J8KRDS Operator: LRW
Run Time: 10/11/07 22:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56.73	2166.	2186.2	1238.	2282.	54.63
SDev	.6484	9.599	2.0423	2.888	3.447	.0441
%RSD	1.143	.4432	.09341	.2332	.151	.0807

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138600.	52.60	522.7	213.7	280.8	2031.
SDev	182.9	.0645	.7101	.1853	.9395	7.261
%RSD	.132	.1226	.1358	.0867	.3346	.3574

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57760.	124100.	623.8	1075.	81350.	525.8
SDev	153	112.9	.9428	2.59	125.7	2.969
%RSD	.2649	.0909	.1511	.2409	.1546	.5647

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2131.6	523.23	580.72	2090.	1072.	2096.6
SDev	6.3419	.58488	1.151	2.771	.4816	3.5514
%RSD	.29752	.11178	.1982	.1326	.0449	.16939

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	553.4	526.4	470.64	549.48	2122.4	2136.1
SDev	.4712	2.128	.25646	1.0049	1.1366	8.9405
%RSD	.0852	.4043	.05449	.18288	.05355	.41854

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	486.59	627.71	5.0000	19182.3
SDev	.83791	2.144	0	31.2536
%RSD	.1722	.34155	0	.16292

Method: ARMY Sample Name: J8KRG Operator: LRW
Run Time: 10/11/07 22:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5917	-67.69	24.645	38.40	79.40	-.1440
SDev	.1612	1.133	1.7465	.864	.0489	.0027
%RSD	27.24	1.674	7.0868	2.25	.0616	1.884

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146800.	.1871	.7425	-.0315	.2928	4386.
SDev	271.6	.0369	.0563	.1141	.361	4.588
%RSD	.1851	19.7	7.588	362.4	123.3	.1046

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2147.	80540.	206.3	.9961	26850.	.8748
SDev	7.612	174.2	.3368	.8412	96.16	.9772
%RSD	.3545	.2163	.1633	84.45	.3581	111.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.49570	.04820	-1.1884	-.2390	-2.315	3.5872
SDev	1.0688	1.6882	1.1148	.0392	.4141	1.9954
%RSD	215.62	3502	93.812	16.42	17.89	55.627

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5438	2.818	-1.2504	.69651	1.9767	-1.7300
SDev	.0926	.2188	2.2148	1.4252	3.7711	.28027
%RSD	17.03	7.766	177.14	204.62	190.78	16.201

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3524	-3.4554	5.0000	19243.1
SDev	1.1335	1.1055	0	60.6689
%RSD	33.812	31.994	0	.31527

Method: ARMY Sample Name: J7914A Sb 200ppb Operator: LRW
Run Time: 10/11/07 22:47 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2870	24170.	86.957	12.46	130.6	.9224
SDev	.3363	82.16	.98196	.8486	.3758	.02
%RSD	117.2	.3399	1.1293	6.812	.2877	2.168

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	982.1	.7195	15.37	307.0	71.99	132600.
SDev	.581	.0638	.1487	1.06	.4308	410
%RSD	.0592	8.861	.9676	.3453	.5985	.3091

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3302.	4195.	525.7	11.17	-574.7	211.1
SDev	17.43	11.53	1.393	.501	72.84	1.126
%RSD	.5278	.2747	.265	4.487	12.67	.5336

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7809	238.01	230.43	16.15	266.9	5.8413
SDev	2.0903	.70532	1.009	.547	1.046	2.0234
%RSD	75.166	.29633	.43789	3.386	.392	34.639

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	67.20	223.7	210.74	251.63	1.3228	3.5089
SDev	.0796	.6622	1.8528	.13244	3.9657	1.154
%RSD	.1184	.296	.87916	.05263	299.8	32.888

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	192.61	249.31	5.0000	19734.8
SDev	.22619	1.3999	0	16.6874
%RSD	.11743	.56149	0	.08455

Method: ARMY Sample Name: J8FKFA SB 200PPB Operator: LRW
Run Time: 10/11/07 23:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3792	115200.	79.218	6.217	608.7	5.024
SDev	.0905	174.2	1.3066	1.156	.4527	.0006
%RSD	23.88	.1512	1.6493	18.59	.0744	.012

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12910.	2.762	76.48	164.8	69.87	190700.
SDev	25.22	.0024	.3308	.9659	.1196	500.2
%RSD	.1954	.0874	.4325	.5861	.1711	.2622

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4967.	16780.	6676.	17.76	-200.5	108.3
SDev	4.3	41.74	6.841	.0915	257.8	.226
%RSD	.0866	.2487	.1025	.5152	128.6	.2086

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.6826	217.37	255.30	6.348	499.5	10.353
SDev	1.7592	.01253	.76561	2.773	.208	1.9589
%RSD	22.899	.00576	.29988	43.68	.0416	18.92

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	228.8	483.6	188.13	231.97	12.926	5.0649
SDev	.7515	.2718	.62989	.29567	.82265	2.2268
%RSD	.3284	.0562	.33482	.12746	6.3644	43.966

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	213.93	275.96	5.0000	19947.8
SDev	2.2884	2.2904	0	72.6911
%RSD	1.0697	.82996	0	.3644

Method: ARMY Sample Name: J8FR7A SB 200PPB Operator: LRW
Run Time: 10/11/07 23:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3911	102600.	117.70	11.20	994.2	8.029
SDev	.1059	565.4	3.7087	.4271	6.635	.053
%RSD	27.08	.5509	3.151	3.813	.6674	.6606

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54410.	3.065	104.1	163.3	141.5	234400.
SDev	316.8	.1167	.7219	1.23	.5804	1509
%RSD	.5823	3.807	.6932	.7536	.4101	.6438

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6388.	20580.	12420.	8.278	275.2	167.6
SDev	24.91	108.4	58.71	.2106	148.6	1.239
%RSD	.39	.5267	.4725	2.544	53.98	.7393

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6105	182.50	245.25	5.374	425.8	16.148
SDev	.78413	.22395	.73208	.9401	2.895	1.1569
%RSD	17.007	.12271	.2985	17.49	.6798	7.1641

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	198.5	583.8	156.07	195.69	8.3541	2.7415
SDev	1.145	4.348	1.0979	.88392	4.5076	1.0748
%RSD	.5768	.7448	.70349	.45169	53.957	39.205

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	206.13	264.78	5.0000	20329.6
SDev	2.0011	.09853	0	100.126
%RSD	.97081	.03721	0	.49251

Method: ARMY Sample Name: CRI/MRL Operator: LRW
Run Time: 10/11/07 23:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.148	186.8	13.998	218.8	10.55	5.101
SDev	.1633	2.488	.30527	.0736	.0109	.0034
%RSD	3.172	1.332	2.1809	.0336	.1033	.0666

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5209.	5.244	4.917	5.017	15.77	312.5
SDev	5.785	.1048	.2041	.487	.1188	1.976
%RSD	.1111	1.999	4.151	9.705	.7534	.6325

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4485.	5121.	16.60	9.767	5471.	26.50
SDev	2.279	1.103	.0239	1.107	36.25	.962
%RSD	.0508	.0215	.1442	11.33	.6626	3.63

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.905	10.788	8.2090	104.0	52.48	15.727
SDev	2.5104	.10473	1.0091	.778	.104	.13999
%RSD	10.96	.97082	12.293	.7483	.1981	.8902

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.325	45.67	11.172	10.597	21.103	23.804
SDev	.0296	.0528	1.4443	.87811	.64566	4.086
%RSD	.4047	.1156	12.928	8.2866	3.0596	17.165

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	9.8866	7.3715	5.0000	19466.5
SDev	.58775	1.8063	0	76.7915
%RSD	5.945	24.504	0	.39448

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 23:28 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	957.4	25540.	495.89	5286.	2069.	2015.
SDev	.5924	4.558	1.8039	3.661	2.138	3.655
%RSD	.0619	.0178	.36377	.0693	.1033	.1814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50740.	497.1	1975.	2011.	2067.	25760.
SDev	54.26	.5255	4.173	1.441	2.031	38.5
%RSD	.1069	.1057	.2114	.0717	.0983	.1494

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50190.	50780.	2114.	2042.	50460.	1994.
SDev	35.69	27.65	3.356	.3198	302.8	2.513
%RSD	.0711	.0545	.1588	.0157	.6001	.126

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	490.38	498.41	543.13	5009.	5091.	992.48
SDev	.67331	.10215	1.5249	1.343	9.526	6.5383
%RSD	.1373	.02049	.28075	.0268	.1871	.65878

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2075.	1908.	449.20	522.97	490.71	490.22
SDev	3.561	.6724	.43913	.37237	1.4994	1.758
%RSD	.1716	.0352	.09775	.0712	.30556	.35862

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.73	586.77	5.0000	19246.5
SDev	1.4199	2.9951	0	20.5061
%RSD	.31156	.51043	0	.10654

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 23:35 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4559	-15.34	.93137	14.79	.0691	-.1633
SDev	.6782	1.641	.74355	2.775	.1042	.0063
%RSD	148.8	10.7	79.833	18.77	150.8	3.863

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8.802	.1397	.1331	-.0705	.5022	-1.038
SDev	.7635	.1475	.4147	.2597	.1404	5.341
%RSD	8.675	105.6	311.6	368.4	27.96	514.6

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140.8	.0076	.0287	.2310	-434.2	.4078
SDev	9.081	.0096	.0392	.1733	116.9	1.185
%RSD	6.447	127.2	136.7	75.01	26.93	290.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7390	-.18396	1.3169	.7382	-.2336	4.4521
SDev	.46288	.92575	.33184	.9138	0	1.3338
%RSD	26.618	503.22	25.199	123.8	0	29.958

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1766	.2710	1.2728	-.91127	2.9059	1.1564
SDev	.0328	.4461	1.213	1.9935	.77987	.30462
%RSD	18.58	164.6	95.301	218.76	26.837	26.343

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9369	1.0073	5.0000	19375.4
SDev	.10148	.54818	0	76.6493
%RSD	5.2396	54.419	0	.3956

MISCELLANEOUS DATA

Metals Internal Chain of Custody

Date Prepared: 10/05/07 **Prep Analyst:** Karen Counts

Laboratory Sample ID			Lab ID	Method	Analysis Date	Analyst	Instrument
A7J030104	1		J748R	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	1	S	J748R	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	1	X	J748R	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	1		J748R	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	1	S	J748R	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	1	X	J748R	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	2		J748X	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	2		J748X	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	3		J7481	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	3		J7481	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	4		J7483	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	4		J7483	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	5		J7484	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	5		J7484	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	6		J7488	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	6		J7488	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	7		J749C	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	7		J749C	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	8		J749D	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	8		J749D	SW846 7471A	10/05/07	Michaelyn List	H1
A7J030104	9		J749E	SW846 6010B	10/11/07	Larry Williams	I5
A7J030104	9		J749E	SW846 7471A	10/05/07	Michaelyn List	H1

U - Unfiltered F - Filtered T - TCLP L - SPLP East

METALS PREPARATION SUMMARY

Preparation Type	Matrix	Amount of Standard added to LCS & MS/MSD		Initial Sample Vol/Wt	Final Sample Volume
		Amount	Standard name		
ICP	water	1 mL 1 mL 1.0 mL	Ag ICP-1 ICP-2A	50 mL	50 mL
ICPMS	water	0.5ml 0.5ml	ICPMS-1 ICPMS-2	50 mL	50 mL
Hg - CVAA	water	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL
Hg - CVAF (low level)	water	0.2 mL (LCS/MS/MSD)	HG ICAL	40 ml	40 ml
ICP	solid	2 mL 2 mL 2 mL	Ag ICP-1 ICP-2A	1.00 +/- .02g	100 mL
ICPMS	solid	1ml 1ml	ICPMS-1 ICPMS-2	1.00 +/- .02g	100ml
Hg - CVAA	solid	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	0.60 +/- .01g	100 mL
ICP	TCLP	1 mL (LCS) 1 mL(LCS)	Ag ICP-1	50 mL	50 mL
ICP	TCLP	0.5 mL(MS/MSD)	TCLP Spike I RCRA	50 mL	50 mL
ICP	TCLP	1 mL(MS/MSD)	TCLP Spike II Non-RCRA	50 mL	50 mL
Hg - CVAA	TCLP	5 mL (LCS) 5 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL

Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.0002 ppm		0.2 mL	HG-2	0.1 ppm
0.0005 ppm		0.5 mL	HG-2	0.1 ppm
0.001 ppm		1 mL	HG-2	0.1 ppm
0.005 ppm		5 mL	HG-2	0.1 ppm
0.010 ppm		10 mL	HG-2	0.1 ppm
ICV Preparation				
0.0025 ppm		2.5 mL	HG-1	0.1 ppm
CCV Preparation:				
0.005 ppm		5 mL	HG-2	0.1 ppm

Low Level Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.5 ppt		20 ul	HG ICAL	1.0 ppb
1.0 ppt		40 ul	HG ICAL	1.0 ppb
2 ppt		80 ul	HG ICAL	1.0 ppb
5 ppt		200 ul	HG ICAL	1.0 ppb
10 ppt		400 ul	HG ICAL	1.0 ppb
25 ppt		1000 ul	HG ICAL	1.0 ppb
ICV Preparation				
5 ppt		200 ul	HG ICV	1.0 ppb
CCV Preparation:				
5 ppt		200 ul	HG ICAL	1.0 ppb

SPIKING STANDARD DEFINITIONS

Elements	Ag	ICP-1	ICP-2A	ICPMS-1	ICPMS-2	HG-1	HG-2	HG ICAL	HG ICV	TCLP Spike I	TCLP Spike II
Ag	2.5 ppm			10ppm						100 ppm	
Al		100 ppm			100ppm						100 ppm
As		100 ppm		10ppm						500 ppm	
Ba		100 ppm		10ppm						5000 ppm	
Be		2.5 ppm		10ppm							2.5 ppm
Cd		2.5 ppm		10ppm						100 ppm	
Ca			2500 ppm		100ppm						
Co		25 ppm		10ppm							25 ppm
Cr		10 ppm		10ppm						500 ppm	
Cu		12.5 ppm		10ppm							12.5 ppm
Fe		50 ppm			100ppm						50 ppm
Hg						0.1 ppm	0.1 ppm	1.0 ppb	1.0 ppb		
K			2500 ppm		100ppm						
Mg			2500 ppm		100ppm						
Mn		25 ppm		10ppm							25 ppm
Na			2500 ppm		100ppm						
Ni		25 ppm		10ppm							25 ppm
Pb		25 ppm		10ppm						500 ppm	
Sb		25 ppm		10ppm							25 ppm
Se		100 ppm		10ppm						100 ppm	
Tl		100 ppm		10ppm							100 ppm
V		25 ppm		10ppm							25 ppm
Zn		25 ppm		10ppm							25 ppm
B		50 ppm		10ppm							50 ppm
Sr		50 ppm		10ppm							
Mo		50 ppm		10ppm							50 ppm
W		50 ppm		10ppm							
Sn		100 ppm		10ppm							100 ppm
Zr		50 ppm		10ppm							
Ti		50 ppm		10ppm							

TestAmerica North Canton
Revised 4/5/02
N:\Metals\Preplog.xls

DATE: 10-5-07

METALS PREPARATION REAGENTS/STANDARDS

Reagents and Standards listed on this form are used for the entire day's prep batches unless otherwise noted on the individual prep log.

REAGENT NAME	REAGENT NUMBER
1:1 HNO_3 (nitric acid)	7MR680
1:1 HCl (hydrochloric acid)	7MR674
HNO_3 (nitric acid)	7MR675
HCl (hydrochloric acid)	7MR650
$KMnO_4$ (potassium permanganate)	7MR673
$K_2S_2O_8$ (potassium persulfate)	7MR660
H_2O_2 (hydrogen peroxide)	7MR624
H_2SO_4 (sulfuric acid)	7MR651
HCl/HNO_3 (aqua regia)	7MR681

STANDARD NAME	STANDARD/LOT NUMBER
ICP-1	7H461
ICP-2A	7H462
RCRA	US F00785
non-RCRA	HPS 0712210
Ag	7J508
Hg	7J538
ICPMS-1	HPS 0712908 + HPS 0712909
ICPMS-2	HPS 634703

Waters

Hg time in the water bath 11:45

Hg time out of the water bath 1:45

Solids

Hg time in the water bath 10:25

Hg time out of the water bath 10:55

Times listed are for the waters and solids for that day unless otherwise noted.

Daily Batch Level II Michael List

STL North Canton
Revision Date: 08/09/07
n:\metals\reagent1.doc

Hg Standard Curve Preparation Summary

Date: 10-5-07

Time In: 8:45 > solid

Time Out: 9:15

Standard Concentrations	Standard Numbers
S0	
0.2 ppb	
CRA - 0.2 ppb	
0.5 ppb	
1.0 ppb	STD 7J539
5.0 ppb	
10.0 ppb	
CCV - 5.0 ppb	
CCB	
ICV - 2.5 ppb	STD 7J538
ICB	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

GENERAL CHEMISTRY DATA

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SAMPLE DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

General Chemistry

Lot-Sample #...: A7J030104-001 **Work Order #...:** J748R **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 3.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.3 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

General Chemistry

Lot-Sample #...: A7J030104-002 **Work Order #...:** J748X **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
% Moisture.....: 3.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**13.3**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

General Chemistry

Lot-Sample #...: A7J030104-003 **Work Order #...:** J7481 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.4 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**94.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

General Chemistry

Lot-Sample #...: A7J030104-004 **Work Order #...:** J7483 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 4.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**95.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

General Chemistry

Lot-Sample #...: A7J030104-005 **Work Order #...:** J7484 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
% Moisture.....: 4.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**95.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

General Chemistry

Lot-Sample #...: A7J030104-006 **Work Order #...:** J7488 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
% Moisture.....: 4.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**7.0**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**95.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

General Chemistry

Lot-Sample #...: A7J030104-007 **Work Order #...:** J749C **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
% Moisture.....: 2.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**6.0**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**97.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

General Chemistry

Lot-Sample #...: A7J030104-008 **Work Order #...:** J749D **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
% Moisture.....: 4.2

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.4 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**95.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

General Chemistry

Lot-Sample #...: A7J030104-009 **Work Order #...:** J749E **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
% Moisture.....: 3.2

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.0 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**96.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-010 **Work Order #...:** J749W **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**78.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-011 **Work Order #...:** J749X **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**88.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-012 **Work Order #...:** J7490 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**75.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-013 **Work Order #...:** J7491 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 26

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**74.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-014 **Work Order #...:** J7492 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**78.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-015 **Work Order #...:** J7493 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
% Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**86.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-016 **Work Order #...:** J7494 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-017 **Work Order #...:** J7495 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**81.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-018 **Work Order #...:** J7496 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**83.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AA		MB Lot-Sample #:	G7J150000-097	
	ND	5.0	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids		Work Order #: J8VEM1AA		MB Lot-Sample #:	A7J120000-436	
	ND	10.0	%	MCAWW 160.3 MOD	10/12-10/13/07	7285436
		Dilution Factor: 1				
Percent Solids		Work Order #: J8X071AA		MB Lot-Sample #:	A7J130000-139	
	ND	10.0	%	MCAWW 160.3 MOD	10/13-10/14/07	7286139
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC	LCS Lot-Sample#: G7J150000-097		
	89	(30 - 122)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC		LCS Lot-Sample#: G7J150000-097			
	50.1	44.4	mg/kg	89	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001	
	67	(30 - 122)			MCAWW 353.2	10/15-10/17/07	7288097
	64	(30 - 122)	4.7	(0-45)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose			WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001		
	1.3	52.0	36.1	mg/kg	67		MCAWW 353.2	10/15-10/17/07	7288097
	1.3	51.6	34.5	mg/kg	64	4.7	MCAWW 353.2	10/15-10/17/07	7288097
			Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J75KR-SMP **Matrix.....:** SOLID
J75KR-DUP
Date Sampled...: 10/02/07 13:40 **Date Received..:** 10/03/07
% Moisture.....: 19

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J030122-012		
	80.9	84.1	%	3.9	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285436

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J8C4M-SMP **Matrix.....:** SOLID
J8C4M-DUP
Date Sampled...: 10/04/07 13:15 **Date Received..:** 10/05/07
% Moisture.....: 27

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J050249-001		
	72.7	73.7	%	1.4	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285436

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J8XP3-SMP **Matrix.....:** SOLID
J8XP3-DUP
Date Sampled...: 10/10/07 14:00 **Date Received..:** 10/13/07
% Moisture.....: 87

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J130160-001		
	13.0	18.6	%	36	(0-20)	MCAWW 160.3 MOD	10/13-10/14/07	7286139

Dilution Factor: 1

SUPPORTIVE RAW DATA

			TestAmerica, North Canton			
		Percent Total Solid/Percent Moisture Logsheet				
Analysis	TS			Batch	7285436	
Prep Date	10/12/2007	Time In	12:31	Analyst	JB	
Anal date	10/13/2007	Time Out	9:41	RL	10	
Sample	Tare	Wet	Dry	Result TS	Result MS	comments
ID	wt	wt	wt	%	%	
BLK-D	4.5334	4.4670	4.4479	2.21	ND	
J75KL	4.5334	15.8595	14.0950	84.421	15.579	
J75KN	4.5334	8.1262	7.2193	74.758	25.242	
J75KR	4.5334	9.5121	8.5593	80.862	19.138	
J75KR-X	4.5334	8.0270	7.4714	84.097	15.903	
J75KV	4.5334	9.3661	8.2995	77.930	22.070	
J75KW	4.5334	11.4581	10.2673	82.804	17.196	
J79NX	4.5334	17.7573	17.6679	99.324	0.676	
J8H0X	4.5334	17.2591	13.7526	72.446	27.554	
J748R	4.5334	11.7486	11.4823	96.309	3.691	
J748X	4.5334	11.2471	10.9863	96.115	3.885	
J7481	4.5334	11.6600	11.2943	94.869	5.131	
J7483	4.5334	11.7767	11.4222	95.106	4.894	
J7484	4.5334	11.2493	10.9309	95.259	4.741	
J7488	4.5334	12.1780	11.8308	95.458	4.542	
J749C	4.5334	14.8285	14.5803	97.589	2.411	
J749D	4.5334	11.9499	11.6427	95.858	4.142	
J749E	4.5334	14.0295	13.7232	96.774	3.226	
J8C4M	4.5334	11.4517	9.5607	72.667	27.333	
J8C4M-X	4.5334	13.8519	11.4035	73.725	26.275	
J8C4Q	4.5334	20.8514	16.7225	74.697	25.303	
J8C4R	4.5334	18.2961	14.8884	75.240	24.760	
J8MEA	4.5334	12.4507	8.9284	55.511	44.489	

			TestAmerica, North Canton			
		Percent Total Solid/Percent Moisture Logsheet				
Analysis	TS			Batch	7286139	
Prep Date	10/13/2007	Time In	3:50	Analyst	JM	
Anal date	10/14/2007	Time Out	1:30	RL	10	
Sample	Tare	Wet	Dry	Result TS	Result MS	comments
ID	wt	wt	wt	%	%	
BLANK B	4.5334	4.4730	4.4613	2.01	ND	
J749W	4.5334	11.7712	10.2415	78.865	21.135	
J749X	4.5334	18.3235	16.7865	88.854	11.146	
J7490	4.5334	15.2108	12.6201	75.737	24.263	
J7491	4.5334	20.7350	16.5316	74.056	25.944	
J7492	4.5334	12.5685	10.8405	78.494	21.506	
J7493	4.5334	17.8017	15.9768	86.246	13.754	
J7494	4.5334	12.8855	11.6226	84.879	15.121	
J7495	4.5334	14.5910	12.7580	81.775	18.225	
J7496	4.5334	17.9504	15.7624	83.692	16.308	
J8XP3	4.5334	6.4655	4.7840	12.970	87.030	
J8XP3-X	4.5334	6.7713	4.9492	18.580	81.420	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	
	4.5334			100.000	0.000	

TestAmerica North Canton

Sample Control Chain of Custody for General Chemistry

Lot Number	Sample	Suffix	Lab ID	Test	Prep Date	Prepared by	Analysis Date	Analyzed by
A7J030104	1		J748R1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	2		J748X1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	3		J74811AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	4		J74831AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	5		J74841AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	6		J74881AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	7		J749C1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	8		J749D1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	9		J749E1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J030104	10		J749W1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	11		J749X1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	12		J74901AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	13		J74911AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	14		J74921AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	15		J74931AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	16		J74941AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	17		J74951AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere
A7J030104	18		J74961AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/13/07	Samantha Scott	10/14/07	Kumudu Kulasekere

TESTAMERICA WEST SACRAMENTO DATA

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER A7J030104

General Comments
The samples were received at ambient temperature.

The samples were dried & chopped prior to our receipt.

There were no other anomalies associated with this project.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

HPLC

Lot-Sample #...: A7J030104-001 **Work Order #...:** J748R1A4 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 0.97
% Moisture.....: 3.7 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	**0.032 J**	**0.24**	**mg/kg**
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	ND	0.24	mg/kg
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

HPLC

Lot-Sample #...: A7J030104-001 **Work Order #...:** J748R1A6 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 3.7 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1

General Chemistry

Lot-Sample #...: A7J030104-001 **Work Order #...:** J748R **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 3.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.3 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

HPLC

Lot-Sample #...: A7J030104-002 **Work Order #...:** J748X1AF **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 0.98
% Moisture.....: 3.9 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	**0.040 J**	**0.24**	**mg/kg**
2,6-Dinitrotoluene	**0.068 J**	**0.24**	**mg/kg**
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.075 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	**0.069 J**	**0.24**	**mg/kg**
Nitroglycerin	ND	0.49	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

HPLC

Lot-Sample #...: A7J030104-002 **Work Order #...:** J748X1AH **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 3.9 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4

General Chemistry

Lot-Sample #...: A7J030104-002 **Work Order #...:** J748X **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
% Moisture.....: 3.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**13.3**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

HPLC

Lot-Sample #...: A7J030104-003 **Work Order #...:** J74811AF **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 0.97
% Moisture.....: 5.1 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	ND	0.24	mg/kg
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	91	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

HPLC

Lot-Sample #...: A7J030104-003 **Work Order #...:** J74811AH **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 5.1 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1

General Chemistry

Lot-Sample #...: A7J030104-003 **Work Order #...:** J7481 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.4 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**94.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

HPLC

Lot-Sample #...: A7J030104-004 **Work Order #...:** J74831AF **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1
% Moisture.....: 4.9 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	94	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

HPLC

Lot-Sample #...: A7J030104-004 **Work Order #...:** J74831AH **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 4.9 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2

General Chemistry

Lot-Sample #...: A7J030104-004 **Work Order #...:** J7483 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 4.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**95.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

HPLC

Lot-Sample #...: A7J030104-005 **Work Order #...:** J74841A4 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.97
% Moisture.....: 4.8 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.040 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1

General Chemistry

Lot-Sample #...: A7J030104-005 **Work Order #...:** J7484 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
% Moisture.....: 4.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**95.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

HPLC

Lot-Sample #...: A7J030104-006 **Work Order #...:** J74881AF **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.99
% Moisture.....: 4.6 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	**0.034 J**	**0.25**	**mg/kg**
2,6-Dinitrotoluene	**0.055 J**	**0.25**	**mg/kg**
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	**0.027 J**	**0.25**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

HPLC

Lot-Sample #...: A7J030104-006 **Work Order #...:** J74881AH **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 4.6 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5

General Chemistry

Lot-Sample #...: A7J030104-006 **Work Order #...:** J7488 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
% Moisture.....: 4.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**7.0**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**95.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

HPLC

Lot-Sample #...: A7J030104-007 **Work Order #...:** J749C1AF **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.97
% Moisture.....: 2.4 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	**0.038 J**	**0.24**	**mg/kg**
2,6-Dinitrotoluene	**0.061 J**	**0.24**	**mg/kg**
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.041 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	**0.057 J**	**0.24**	**mg/kg**
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

HPLC

Lot-Sample #...: A7J030104-007 **Work Order #...:** J749C1AH **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 2.4 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3

General Chemistry

Lot-Sample #...: A7J030104-007 **Work Order #...:** J749C **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
% Moisture.....: 2.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**6.0**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**97.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

HPLC

Lot-Sample #...: A7J030104-008 **Work Order #...:** J749D1AF **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.99
% Moisture.....: 4.2 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

HPLC

Lot-Sample #...: A7J030104-008 **Work Order #...:** J749D1AH **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 4.2 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2

General Chemistry

Lot-Sample #...: A7J030104-008 **Work Order #...:** J749D **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
% Moisture.....: 4.2

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.4 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**95.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

HPLC

Lot-Sample #...: A7J030104-009 **Work Order #...:** J749E1AF **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 1.02
% Moisture.....: 3.2 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.31	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.26	mg/kg
1,3-Dinitrobenzene	ND	0.26	mg/kg
2,4-Dinitrotoluene	ND	0.26	mg/kg
2,6-Dinitrotoluene	**0.031 J**	**0.26**	**mg/kg**
HMX	ND	0.26	mg/kg
Nitrobenzene	ND	0.26	mg/kg
2-Nitrotoluene	ND	0.26	mg/kg
3-Nitrotoluene	ND	0.26	mg/kg
4-Nitrotoluene	ND	0.26	mg/kg
RDX	ND	0.26	mg/kg
Tetryl	ND	0.26	mg/kg
1,3,5-Trinitrobenzene	ND	0.26	mg/kg
2,4,6-Trinitrotoluene	ND	0.26	mg/kg
Nitroglycerin	ND	0.51	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	95	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

HPLC

Lot-Sample #...: A7J030104-009 **Work Order #...:** J749E1AH **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 3.2 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1

General Chemistry

Lot-Sample #...: A7J030104-009 **Work Order #...:** J749E **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
% Moisture.....: 3.2

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.0 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**96.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285436**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LNWBG-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-010 **Work Order #...:** J749W **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**78.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC4(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-011 **Work Order #...:** J749X **Matrix.....:** SO
Date Sampled...: 10/02/07 15:30 **Date Received..:** 10/03/07
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**88.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-012 **Work Order #...:** J7490 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**75.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-WW4-SS-2(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-013 **Work Order #...:** J7491 **Matrix.....:** SO
Date Sampled...: 10/01/07 17:52 **Date Received..:** 10/03/07
% Moisture.....: 26

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**74.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-BDI-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-014 **Work Order #...:** J7492 **Matrix.....:** SO
Date Sampled...: 10/02/07 08:40 **Date Received..:** 10/03/07
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**78.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC5(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-015 **Work Order #...:** J7493 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:44 **Date Received..:** 10/03/07
% Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**86.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC3(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-016 **Work Order #...:** J7494 **Matrix.....:** SO
Date Sampled...: 10/02/07 15:12 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-017 **Work Order #...:** J7495 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:12 **Date Received..:** 10/03/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**81.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-GR8-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J030104-018 **Work Order #...:** J7496 **Matrix.....:** SO
Date Sampled...: 10/02/07 16:40 **Date Received..:** 10/03/07
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**83.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/13-10/14/07**	**7286139**

Dilution Factor: 1

METHOD BLANK REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J8W2J1AA **Matrix.....:** SOLID
MB Lot-Sample #: G7J120000-667
Prep Date.....: 10/14/07
Analysis Date..: 10/26/07 **Prep Batch #...:** 7285667
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg	SW846 8330
1,3-Dinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
2,6-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
HMX	ND	0.25	mg/kg	SW846 8330
Nitrobenzene	ND	0.25	mg/kg	SW846 8330
2-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
3-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
4-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
RDX	ND	0.25	mg/kg	SW846 8330
Tetryl	ND	0.25	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	ND	0.25	mg/kg	SW846 8330
Nitroglycerin	ND	0.50	mg/kg	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J80HJ1AA **Matrix.....:** SOLID
MB Lot-Sample #: G7J140000-049
Prep Date.....: 10/15/07
Analysis Date..: 10/16/07 **Prep Batch #...:** 7287049
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Nitroguanidine	ND	0.25	mg/kg	SW846 8330 (Modif

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AA		MB Lot-Sample #:	G7J150000-097	
	ND	5.0	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids		Work Order #: J8VEM1AA		MB Lot-Sample #:	A7J120000-436	
	ND	10.0	%	MCAWW 160.3 MOD	10/12-10/13/07	7285436
		Dilution Factor: 1				
Percent Solids		Work Order #: J8X071AA		MB Lot-Sample #:	A7J130000-139	
	ND	10.0	%	MCAWW 160.3 MOD	10/13-10/14/07	7286139
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
1,3-Dinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
2,6-Dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
HMX	**99**	**(60 - 120)**	**SW846 8330**
Nitrobenzene	**99**	**(60 - 120)**	**SW846 8330**
2-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
3-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Nitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
RDX	**103**	**(60 - 120)**	**SW846 8330**
Tetryl	**82**	**(60 - 120)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4,6-Trinitrotoluene	**95**	**(60 - 120)**	**SW846 8330**
Nitroglycerin	**97**	**(60 - 120)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2-Amino-4,6-dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
1,3-Dinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4-Dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
2,6-Dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
HMX	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
Nitrobenzene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
2-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
3-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Nitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
RDX	**1.0**	**1.0**	**mg/kg**	**103**	**SW846 8330**
Tetryl	**1.0**	**0.82**	**mg/kg**	**82**	**SW846 8330**
1,3,5-Trinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4,6-Trinitrotoluene	**1.0**	**0.95**	**mg/kg**	**95**	**SW846 8330**
Nitroglycerin	**5.0**	**4.9**	**mg/kg**	**97**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J80HJ1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J140000-049
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Nitroguanidine	**87**	**(79 - 117)**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J80HJ1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J140000-049
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Nitroguanidine	**1.0**	**0.87**	**mg/kg**	**87**	**SW846 8330 (Modi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC	LCS Lot-Sample#: G7J150000-097		
	89	(30 - 122)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC		LCS Lot-Sample#: G7J150000-097			
	50.1	44.4	mg/kg	89	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**6.5**	**(0-50)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**89**	**(50 - 140)**			**SW846 8330**
	84	**(50 - 140)**	**10**	**(0-50)**	**SW846 8330**
1,3-Dinitrobenzene	**99**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**5.5**	**(0-50)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**4.3**	**(0-50)**	**SW846 8330**
2,6-Dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.5**	**(0-50)**	**SW846 8330**
HMX	**97**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**4.4**	**(0-50)**	**SW846 8330**
Nitrobenzene	**101**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**7.8**	**(0-50)**	**SW846 8330**
2-Nitrotoluene	**97**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**3.3**	**(0-50)**	**SW846 8330**
3-Nitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**3.4**	**(0-50)**	**SW846 8330**
4-Nitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.2**	**(0-50)**	**SW846 8330**
RDX	**100**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**5.4**	**(0-50)**	**SW846 8330**
Tetryl	**81**	**(50 - 140)**			**SW846 8330**
	75	**(50 - 140)**	**12**	**(0-50)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(50 - 140)**			**SW846 8330**
	101	**(50 - 140)**	**3.1**	**(0-50)**	**SW846 8330**
2,4,6-Trinitrotoluene	**94**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**5.2**	**(0-50)**	**SW846 8330**
Nitroglycerin	**97**	**(50 - 140)**			**SW846 8330**
	96	**(50 - 140)**	**4.7**	**(0-500)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

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MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2-Amino-4,6-dinitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**6.5**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**ND**	**1.0**	**0.90**	**mg/kg**	**89**		**SW846 8330**
	ND	**0.96**	**0.81**	**mg/kg**	**84**	**10**	**SW846 8330**
1,3-Dinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**99**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**5.5**	**SW846 8330**
2,4-Dinitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**4.3**	**SW846 8330**
2,6-Dinitrotoluene	**0.032**	**1.0**	**1.0**	**mg/kg**	**96**		**SW846 8330**
	0.032	**0.96**	**0.96**	**mg/kg**	**97**	**3.5**	**SW846 8330**
HMX	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**4.4**	**SW846 8330**
Nitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**101**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**7.8**	**SW846 8330**
2-Nitrotoluene	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**3.3**	**SW846 8330**
3-Nitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**3.4**	**SW846 8330**
4-Nitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**3.2**	**SW846 8330**
RDX	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**5.4**	**SW846 8330**
Tetryl	**ND**	**1.0**	**0.81**	**mg/kg**	**81**		**SW846 8330**
	ND	**0.96**	**0.72**	**mg/kg**	**75**	**12**	**SW846 8330**
1,3,5-Trinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.97**	**mg/kg**	**101**	**3.1**	**SW846 8330**
2,4,6-Trinitrotoluene	**ND**	**1.0**	**0.95**	**mg/kg**	**94**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**5.2**	**SW846 8330**
Nitroglycerin	**ND**	**5.0**	**4.8**	**mg/kg**	**97**		**SW846 8330**
	ND	**4.8**	**4.6**	**mg/kg**	**96**	**4.7**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DU-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DV-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Nitroguanidine	**81**	**(79 - 117)**			**SW846 8330 (Modified**
	84	**(79 - 117)**	**4.2**	**(0-20)**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J030104 **Work Order #...:** J748R1DU-MS **Matrix.....:** SO
MS Lot-Sample #: A7J030104-001 J748R1DV-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Nitroguanidine	**ND**	**1.0**	**0.81**	**mg/kg**	**81**		**SW846 8330 (Modified**
	ND	**1.0**	**0.84**	**mg/kg**	**84**	**4.2**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001	
	67	(30 - 122)			MCAWW 353.2	10/15-10/17/07	7288097
	64	(30 - 122)	4.7	(0-45)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J030104 **Matrix.....:** SO
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose			WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001		
	1.3	52.0	36.1	mg/kg	67		MCAWW 353.2	10/15-10/17/07	7288097
	1.3	51.6	34.5	mg/kg	64	4.7	MCAWW 353.2	10/15-10/17/07	7288097
			Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J75KR-SMP **Matrix.....:** SOLID
J75KR-DUP
Date Sampled...: 10/02/07 13:40 **Date Received..:** 10/03/07
% Moisture.....: 19

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J030122-012		
	80.9	84.1	%	3.9	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285436

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J8C4M-SMP **Matrix.....:** SOLID
J8C4M-DUP
Date Sampled...: 10/04/07 13:15 **Date Received..:** 10/05/07
% Moisture.....: 27

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J050249-001		
	72.7	73.7	%	1.4	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285436

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J030104 **Work Order #...:** J8XP3-SMP **Matrix.....:** SOLID
J8XP3-DUP
Date Sampled...: 10/10/07 14:00 **Date Received..:** 10/13/07
% Moisture.....: 87

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J130160-001		
	13.0	18.6	%	36	(0-20)	MCAWW 160.3 MOD	10/13-10/14/07	7286139

Dilution Factor: 1

SOLID, 8330, Explosives

Raw Data Package

Run/Batch Data

Includes (as applicable):

runlogs

continuing calibration standards

interference/performance check standards

continuing calibration blanks

method blanks

lcs

ms/sd

sample raw data

ms tune data

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 45
Book# 399

GC/LC SEMI-VOLATILES

Standard ID's

Curve: 10202007.B

Inst ID : LC10.I
Batch ID : 10252007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
25-OCT-2007	17:04	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
25-OCT-2007	17:57	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
25-OCT-2007	18:50	KenneyF	STD_5 E070821L 100/200/100/100	A-000003.	0 g	0 mL	1	
25-OCT-2007	19:43	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000004.	0 g	0 mL	1	
25-OCT-2007	20:36	KenneyF	J87W81AAB 7290638 MB	A-000005.	1000 mL	20 mL	1	
25-OCT-2007	21:29	KenneyF	J87W81ACC 7290638 LCS	A-000006.	1000 mL	20 mL	1	
25-OCT-2007	22:22	KenneyF	J86KW1AA 7290638 G7J170250-1	A-000007.	927 mL	20 mL	1	
25-OCT-2007	23:15	KenneyF	J8RHF1AP 7290551 A7J110400-1	A-000008.	911 mL	20 mL	1	
26-OCT-2007	00:08	KenneyF	J8RHF1AQS 7290551 A7J110400-1M	A-000009.	879 mL	20 mL	1	
26-OCT-2007	01:01	KenneyF	J8RHF1ARD 7290551 A7J110400-1M	A-000010.	857 mL	20 mL	1	
26-OCT-2007	01:54	KenneyF	J8RHR1AG 7290551 A7J110400-3	A-000011.	878 mL	20 mL	1	
26-OCT-2007	02:47	KenneyF	J8RHV1AG 7290551 A7J110400-5	A-000012.	885 mL	20 mL	1	
26-OCT-2007	03:40	KenneyF	STD_6 E070821P 200/500/200/200	A-000013.	0 g	0 mL	1	
26-OCT-2007	04:33	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000014.	0 g	0 mL	1	
26-OCT-2007	05:26	KenneyF	J8RH01AG 7290551 A7J110400-8	A-000015.	945 mL	20 mL	1	
26-OCT-2007	06:19	KenneyF	J8RH21AG 7290551 A7J110400-10	A-000016.	1013 mL	20 mL	1	
26-OCT-2007	07:12	KenneyF	J8RH41AG 7290551 A7J110400-12	A-000017.	1021 mL	20 mL	1	
26-OCT-2007	08:05	KenneyF	J8RH61AG 7290551 A7J110400-14	A-000018.	1002 mL	20 mL	1	
26-OCT-2007	08:58	KenneyF	J8RJA1AG 7290551 A7J110400-18	A-000019.	988 mL	20 mL	1	
26-OCT-2007	09:51	KenneyF	J8RJE1AF 7290551 A7J110400-20	A-000020.	868 mL	20 mL	1	
26-OCT-2007	10:44	KenneyF	J8RJF1AG 7290551 A7J110400-21	A-000021.	991 mL	20 mL	1	
26-OCT-2007	11:37	KenneyF	J8RJH1AG 7290551 A7J110400-23	A-000022.	1000 mL	20 mL	1	
26-OCT-2007	12:30	KenneyF	J8RJK1AG 7290551 A7J110400-25	A-000023.	904 mL	20 mL	1	
26-OCT-2007	13:23	KenneyF	STD_5 E070821L 100/200/100/100	A-000024.	0 g	0 mL	1	
26-OCT-2007	14:16	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000025.	0 g	0 mL	1	
26-OCT-2007	16:09	KenneyF	J8W2J1AAB 7285667 MB	A-000026.	2 g	40 mL	1	
26-OCT-2007	17:02	KenneyF	J8W2J1ACC 7285667 LCS	A-000027.	2 g	40 mL	1	
26-OCT-2007	17:55	KenneyF	J748R1A4 7285667 A7J030104-1	A-000028.	2.05 g	40 mL	1	
26-OCT-2007	18:47	KenneyF	J748R1DRS 7285667 A7J030104-1M	A-000029.	1.99 g	40 mL	1	
26-OCT-2007	19:40	KenneyF	J748R1DTD 7285667 A7J030104-1M	A-000030.	2.08 g	40 mL	1	
26-OCT-2007	20:33	KenneyF	J748X1AF 7285667 A7J030104-2	A-000031.	2.03 g	40 mL	1	
26-OCT-2007	21:26	KenneyF	J74811AF 7285667 A7J030104-3	A-000032.	2.06 g	40 mL	1	
26-OCT-2007	22:19	KenneyF	J74831AF 7285667 A7J030104-4	A-000033.	1.99 g	40 mL	1	
26-OCT-2007	23:12	KenneyF	STD_5 E070821M 100/200/100/100	A-000034.	0 g	0 mL	1	
27-OCT-2007	00:05	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
27-OCT-2007	00:58	KenneyF	J74841A4 7285667 A7J030104-5	A-000036.	2.06 g	40 mL	1	
27-OCT-2007	01:52	KenneyF	J74881AF 7285667 A7J030104-6	A-000037.	2.02 g	40 mL	1	
27-OCT-2007	02:45	KenneyF	J749C1AF 7285667 A7J030104-7	A-000038.	2.05 g	40 mL	1	
27-OCT-2007	03:38	KenneyF	J749D1AF 7285667 A7J030104-8	A-000039.	2.02 g	40 mL	1	
27-OCT-2007	04:31	KenneyF	J749E1AF 7285667 A7J030104-9	A-000040.	1.95 g	40 mL	1	
27-OCT-2007	05:24	KenneyF	J79141A4 7285667 A7J040354-1	A-000041.	1.97 g	40 mL	1	
27-OCT-2007	06:17	KenneyF	J792M1AF 7285667 A7J040354-2	A-000042.	2.05 g	40 mL	1	
27-OCT-2007	07:10	KenneyF	J792N1AF 7285667 A7J040354-3	A-000043.	1.99 g	40 mL	1	
27-OCT-2007	08:04	KenneyF	STD_5 E070821M 100/200/100/100	A-000044.	0 g	0 mL	1	
27-OCT-2007	08:57	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000045.	0 g	0 mL	1	
27-OCT-2007	09:50	KenneyF	J792R1AF 7285667 A7J040354-4	A-000046.	1.99 g	40 mL	1	
27-OCT-2007	10:43	KenneyF	J792W1AF 7285667 A7J040354-5	A-000047.	2.02 g	40 mL	1	
27-OCT-2007	11:36	KenneyF	J79201AF 7285667 A7J040354-6	A-000048.	2.04 g	40 mL	1	
27-OCT-2007	12:29	KenneyF	J79231AF 7285667 A7J040354-7	A-000049.	2.04 g	40 mL	1	

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/26/2007 13:23 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000024.D **Vial Num:** 2
Instrument ID: LC10

Sample : **STD_5 E070821L 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**
Samp. Info: STD_5 E070821L 100/200/100/100ng/mL;2
Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.72	4931	99.4800<	100	-1%	Acceptable		18.72	9660	101.3000	100	1%	Acceptable		(±15)	
HMX	5.27	13428	102.5000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.95	8501	106.9000<	100	7%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.31	17406	210.9000	200	5%	Acceptable		9.31	25651	211.2000<	200	6%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.49	15274	102.6000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.70	14530	101.7000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.84	8829	97.3700<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.72	6136	94.4900<	100	-6%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.20	9056	101.5000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.19	6618	101.0000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.36	7545	100.9000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.21	5235	99.7200<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.99	8594	100.6000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.92	3347	92.1500<	100	-8%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.87	4131	94.1000<	100	-6%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.07	3962	93.4800<	100	-7%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.35	7718	102.9000<	100	3%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.97	4247	106.0000<	100	6%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/26/2007 2:52 PM

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Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

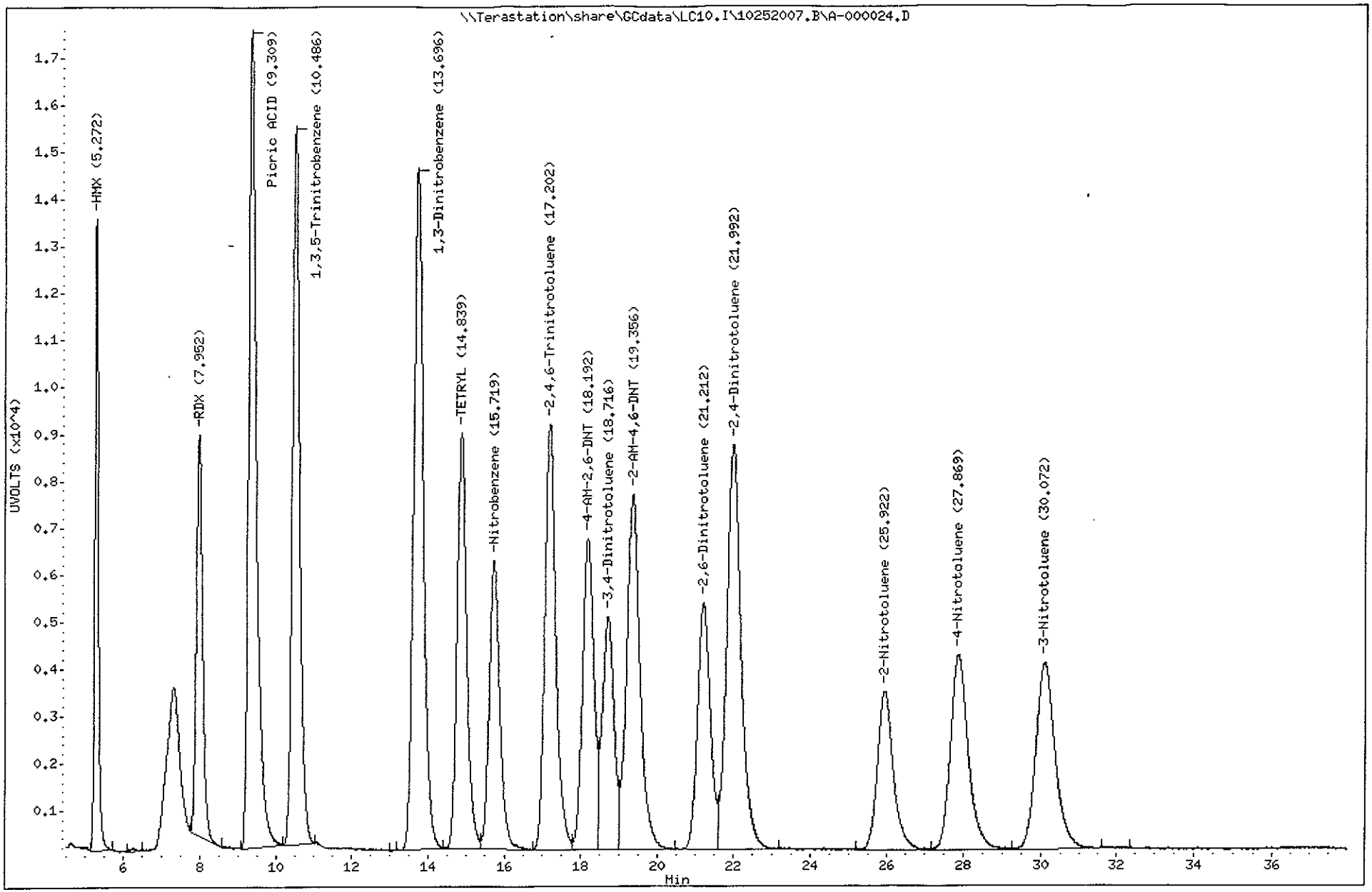
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.272	82943	13428	0.162	9.75		4	HMX
6.279	883	70	0.079	0.05			
7.952	92895	8501	0.092	6.17		5	RDX
9.309	248154	17406	0.070	12.72		6	Picric ACID
10.486	203880	15274	0.075	11.09		7	1,3,5-Trinitrobenze
13.089	137	26	0.190	0.01			
13.696	251460	14530	0.058	10.55		8	1,3-Dinitrobenzene
14.839	156264	8829	0.057	6.41		9	TETRYL
15.719	121784	6136	0.050	4.45		10	Nitrobenzene
17.202	180602	9056	0.050	6.57		11	2,4,6-Trinitrotolue
18.192	137225	6618	0.048	4.80		12	4-AM-2,6-DNT
18.716	104151	4931	0.047	3.58	$	13	3,4-Dinitrotoluene
19.356	182751	7545	0.041	5.48		14	2-AM-4,6-DNT
21.212	122954	5235	0.043	3.80		15	2,6-Dinitrotoluene
21.992	223568	8594	0.038	6.24		16	2,4-Dinitrotoluene
25.922	100151	3347	0.033	2.43		17	2-Nitrotoluene
27.869	131723	4131	0.031	3.00		18	4-Nitrotoluene
30.072	136177	3962	0.029	2.87		19	3-Nitrotoluene
31.876	1010	47	0.047	0.03			
	2478711	137666		100.000			

Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Test America West Sacramento

Method 8330

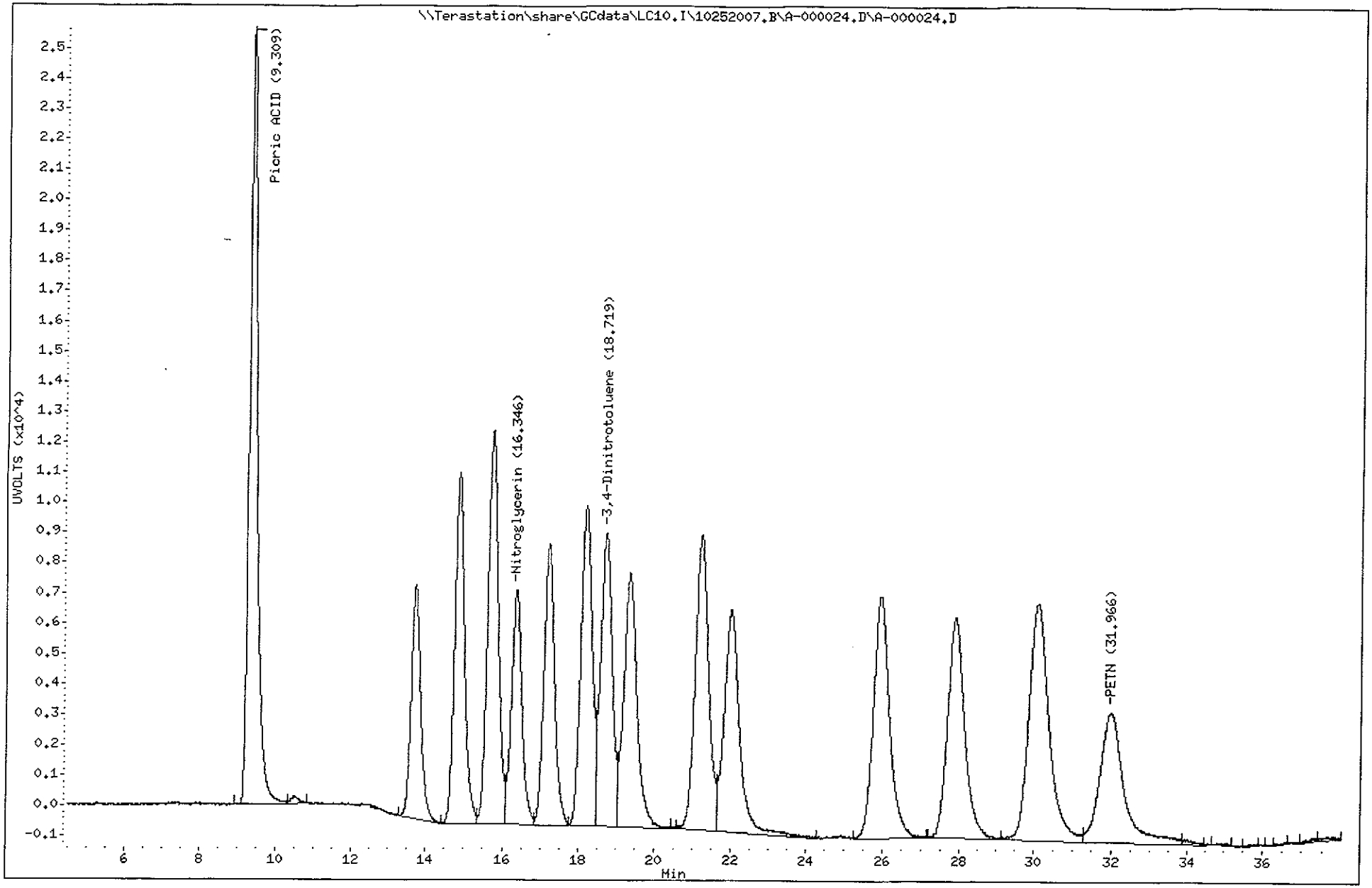
Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.309	364884	25651	0.070	17.36		6 Picric ACID
10.496	3240	241	0.074	0.16		
13.696	134890	7690	0.057	5.17		
14.842	203974	11556	0.057	7.77		
15.719	248630	12982	0.052	8.73		
16.346	146551	7718	0.053	5.19		1 Nitroglycerin
17.199	180831	9278	0.051	6.24		
18.192	213223	10540	0.049	7.09		
18.719	206341	9660	0.047	6.49	$	13 3,4-Dinitrotoluene
19.349	203849	8350	0.041	5.61		
21.212	234151	9725	0.042	6.54		
21.992	206273	7318	0.035	4.92		
25.919	236160	7948	0.034	5.34		
27.859	232126	7253	0.031	4.87		
30.072	277878	7775	0.028	5.23		
31.966	181790	4247	0.023	2.85		2 PETN
33.916	3851	196	0.051	0.13		
34.822	1692	87	0.051	0.05		
35.676	1031	68	0.066	0.04		
36.216	410	57	0.139	0.03		
36.572	742	56	0.075	0.03		
37.322	1661	128	0.077	0.08		
37.656	2439	125	0.051	0.08		
	3286616	148649		100.000		

Total unknown % height = 68.11

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



TestAmerica West Sacramento

A-000025.D

Chromatography Summary

Injection Date: 10/26/2007 14:16 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000025.D **Vial Num:** 5

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: :1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.70**	**944**	**19.0400<**	~~20~~ 5	**281%**	**Fails**	-5%	**18.72**	**1736**	**18.2100**	**5**	**264%**	**Fails**		(±15)	
HMX	5.27	645	4.9220<	5	-2%	Acceptable					5	-100%	Fails		(±15)	45
RDX	7.94	373	4.6920<	5	-6%	Acceptable					5	-100%	Fails		(±15)	45
Picric ACID	**9.33**	**4275**	**51.7900**	~~50~~ 10	**418%**	**Fails**	+4%	**9.33**	**6293**	**51.8000<**	**10**	**418%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.49	738	4.9560<	5	-1%	Acceptable					5	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.69	760	5.3200<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
TETRYL	14.83	445	4.9080<	5	-2%	Acceptable					5	-100%	Fails		(±15)	45
Nitrobenzene	15.70	345	5.3130<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.18	464	5.2010<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.17	341	5.2040<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.35	394	5.2710<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.18	296	5.6380<	5	13%	Acceptable					5	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.97	432	5.0590<	5	1%	Acceptable					5	-100%	Fails		(±15)	45
2-Nitrotoluene	**25.94**	**219**	**6.0290<**	**5**	**21%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.83	248	5.6500<	5	13%	Acceptable					5	-100%	Fails		(±15)	45
3-Nitrotoluene	30.06	237	5.5920<	5	12%	Acceptable					5	-100%	Fails		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.34**	**1581**	**21.0800<**	~~20~~ **5**	**322%**	**Fails**	+5%	(±15)	45
PETN				**5**	**-100%**	**Fails**		**31.85**	**782**	**19.5300<**	~~20~~ **5**	**291%**	**Fails**	-2%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

10/26/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/26/2007 3:20 PM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.275	3723	645	0.173	5.69		4	HMX
7.945	3419	373	0.109	3.29		5	RDX
9.331	61101	4275	0.070	37.83		6	Picric ACID
10.488	9067	738	0.081	6.51		7	1,3,5-Trinitrobenze
12.791	466	28	0.060	0.24			
13.695	13518	760	0.056	6.70		8	1,3-Dinitrobenzene
14.828	7795	445	0.057	3.92		9	TETRYL
15.705	7067	345	0.049	3.04		10	Nitrobenzene
17.178	9382	464	0.049	4.09		11	2,4,6-Trinitrotolue
18.175	6502	341	0.052	3.00		12	4-AM-2,6-DNT
18.698	20139	944	0.047	8.33	$	13	3,4-Dinitrotoluene
19.351	9578	394	0.041	3.47		14	2-AM-4,6-DNT
21.178	6553	296	0.045	2.61		15	2,6-Dinitrotoluene
21.971	10983	432	0.039	3.81		16	2,4-Dinitrotoluene
24.058	318	34	0.107	0.30			
24.588	398	40	0.101	0.35			
25.945	7367	219	0.030	1.93		17	2-Nitrotoluene
27.828	7856	248	0.032	2.18		18	4-Nitrotoluene
29.405	317	31	0.098	0.27			
30.058	8599	237	0.028	2.09		19	3-Nitrotoluene
33.725	511	40	0.078	0.35			
	194658	11329		100.000			

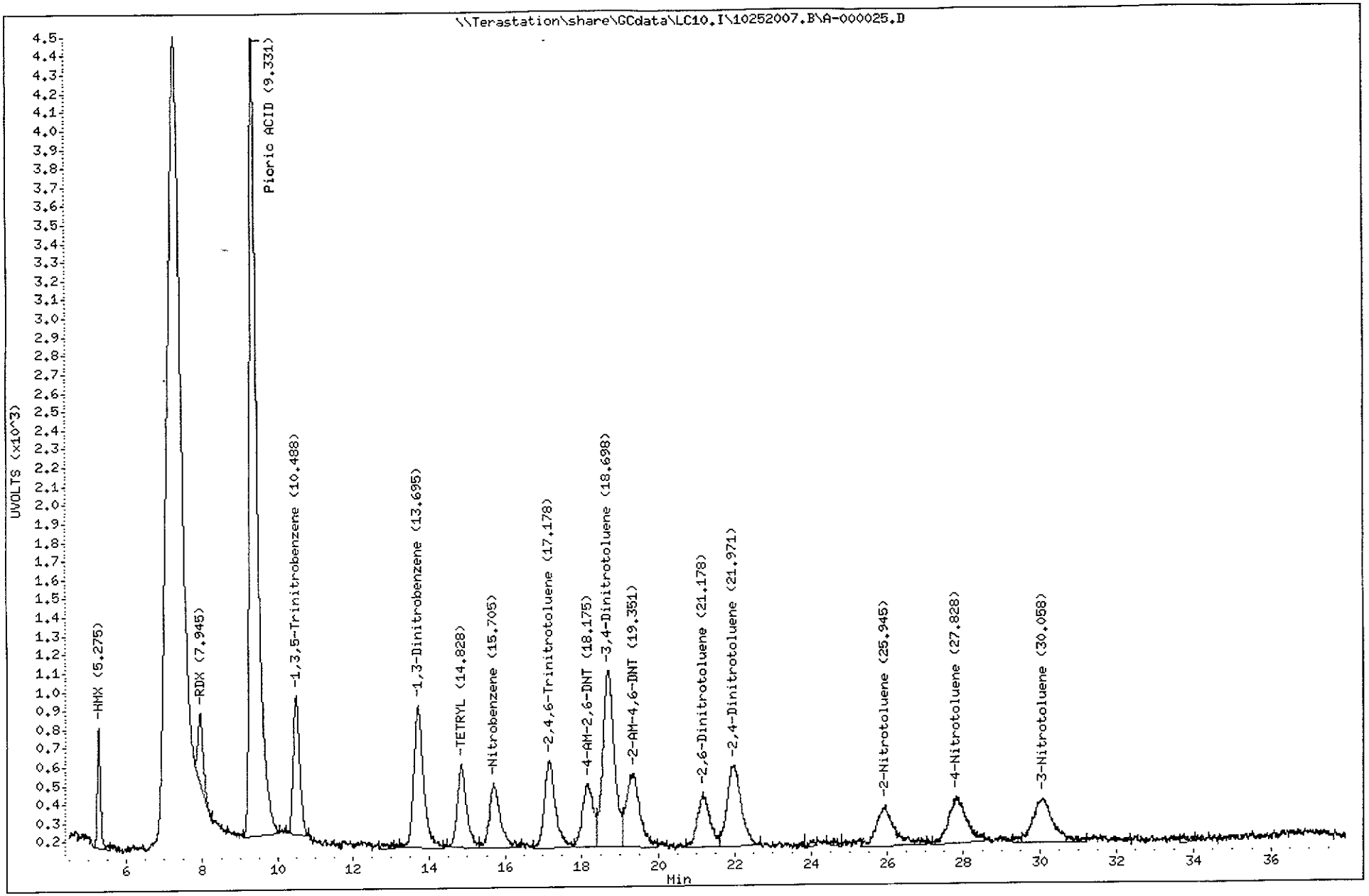
Total unknown % height = 1.510

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.331	88427	6293	0.071	36.49	6 Picric ACID
13.691	6784	398	0.059	2.29	
14.825	11141	615	0.055	3.55	
15.721	16934	846	0.050	4.88	
16.341	29375	1581	0.054	9.12	1 Nitroglycerin
17.175	9955	499	0.050	2.88	
18.175	9562	518	0.054	2.99	
18.725	35862	1736	0.048	10.02	$ 13 3,4-Dinitrotoluene
21.178	13152	553	0.042	3.19	
21.975	5692	281	0.049	1.62	
25.948	13369	490	0.037	2.82	
26.718	565	55	0.097	0.31	
27.228	457	67	0.147	0.38	
27.855	17368	505	0.029	2.91	
28.958	2689	136	0.051	0.78	
29.088	1329	187	0.141	1.07	
29.358	3159	249	0.079	1.43	
30.015	30470	660	0.022	3.81	
31.855	30418	782	0.026	4.51	2 PETN
33.515	919	62	0.067	0.35	
34.201	2774	121	0.044	0.69	
34.678	985	78	0.079	0.45	
35.048	1096	94	0.086	0.54	
35.495	255	59	0.231	0.34	
35.858	924	94	0.102	0.54	
36.015	351	98	0.280	0.56	
36.288	409	52	0.127	0.30	
36.651	429	33	0.077	0.19	
37.011	1624	70	0.043	0.40	
37.401	581	57	0.098	0.32	
37.691	189	48	0.254	0.27	
	337244	17317		100.000	

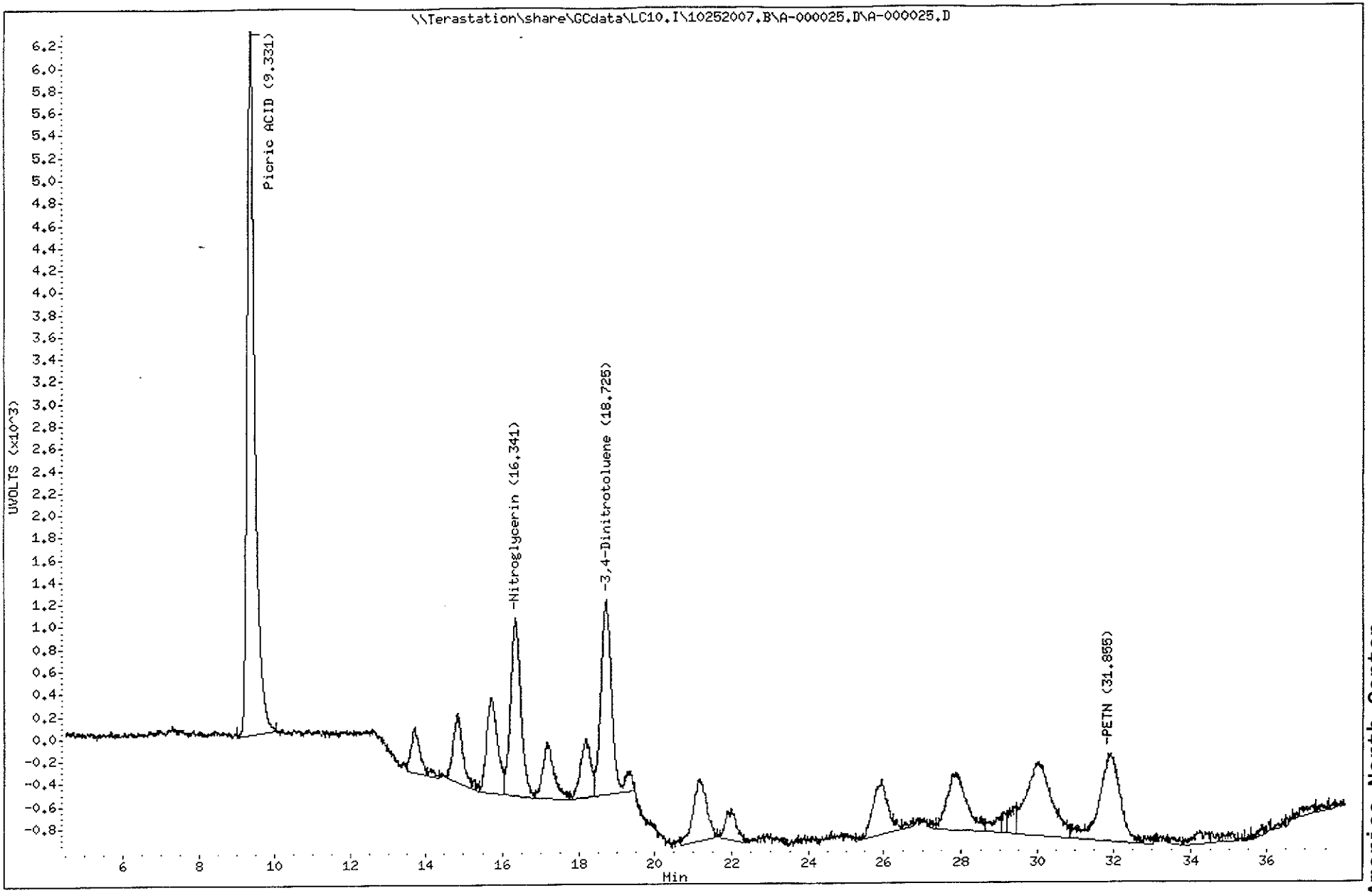
Total unknown % height = 39.86

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000026.D

Chromatography Summary

Injection Date: 10/26/2007 16:09 **Operator:** KenneyF

DataFile: LC10.M\10252007.B\A-000026.D **Vial Num:** 30

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1AAB 7285667 MB**

Method File: LC10.M\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J8W2J1AAB 7285667 MB;0

Misc. Info: : : :2;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.73**	**0.028**	**4613**	**1861.0000<**		**18.72**	**-0.002**	**9166**	**1923.0000**		**0.0000**	**0.00**	
HMX											30.0000	250.00	
RDX											40.0000	250.00	
Picric ACID											250.0000	1000.00	
1,3,5-Trinitrobenzene											20.0000	250.00	
1,3-Dinitrobenzene											50.0000	250.00	
TETRYL											50.0000	250.00	
Nitrobenzene											50.0000	250.00	
2,4,6-Trinitrotoluene											20.0000	250.00	
4-AM-2,6-DNT											20.0000	250.00	
2-AM-4,6-DNT											100.0000	250.00	
2,6-Dinitrotoluene											30.0000	250.00	
2,4-Dinitrotoluene											20.0000	250.00	
2-Nitrotoluene											80.0000	250.00	
4-Nitrotoluene											80.0000	250.00	
3-Nitrotoluene											70.0000	250.00	
Nitroglycerin											130.0000	500.00	
PETN											160.0000	500.00	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2000.0000**	**1861.0000**	**93**	**2000.0000**	**1923.0000**	**96**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.293	177	42	0.237	0.78	
9.616	2159	126	0.058	2.34	
11.790	86	24	0.280	0.44	
14.240	568	44	0.077	0.81	
15.083	489	31	0.063	0.57	
16.656	173	27	0.156	0.50	
18.230	268	21	0.078	0.39	
18.726	99580	4613	0.046	86.04	$ 13 3,4-Dinitrotoluene
21.116	1994	71	0.036	1.32	
22.540	693	44	0.063	0.81	
26.563	824	36	0.044	0.67	
27.236	564	42	0.074	0.78	
29.620	3333	97	0.029	1.80	
30.630	323	29	0.090	0.54	
32.486	599	47	0.079	0.87	
33.333	245	36	0.147	0.67	
33.986	433	36	0.083	0.67	
	112508	5366		100.000	

Total unknown % height = 13.96

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D

Date : 26-OCT-2007 16:09

Client ID:

Instrument: LC10.i

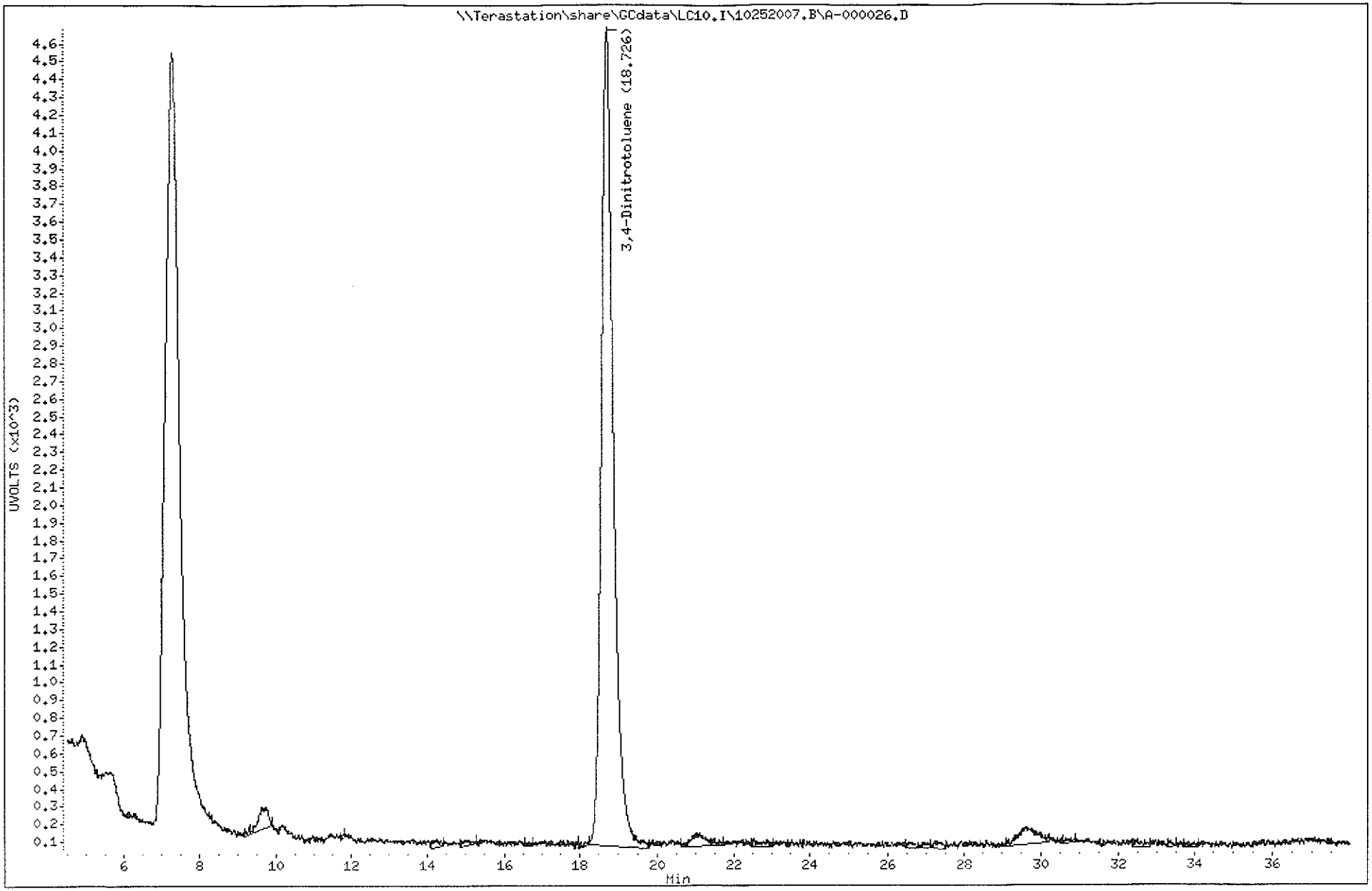
Sample Info: J8W2J1AAB 7285667 MB:0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

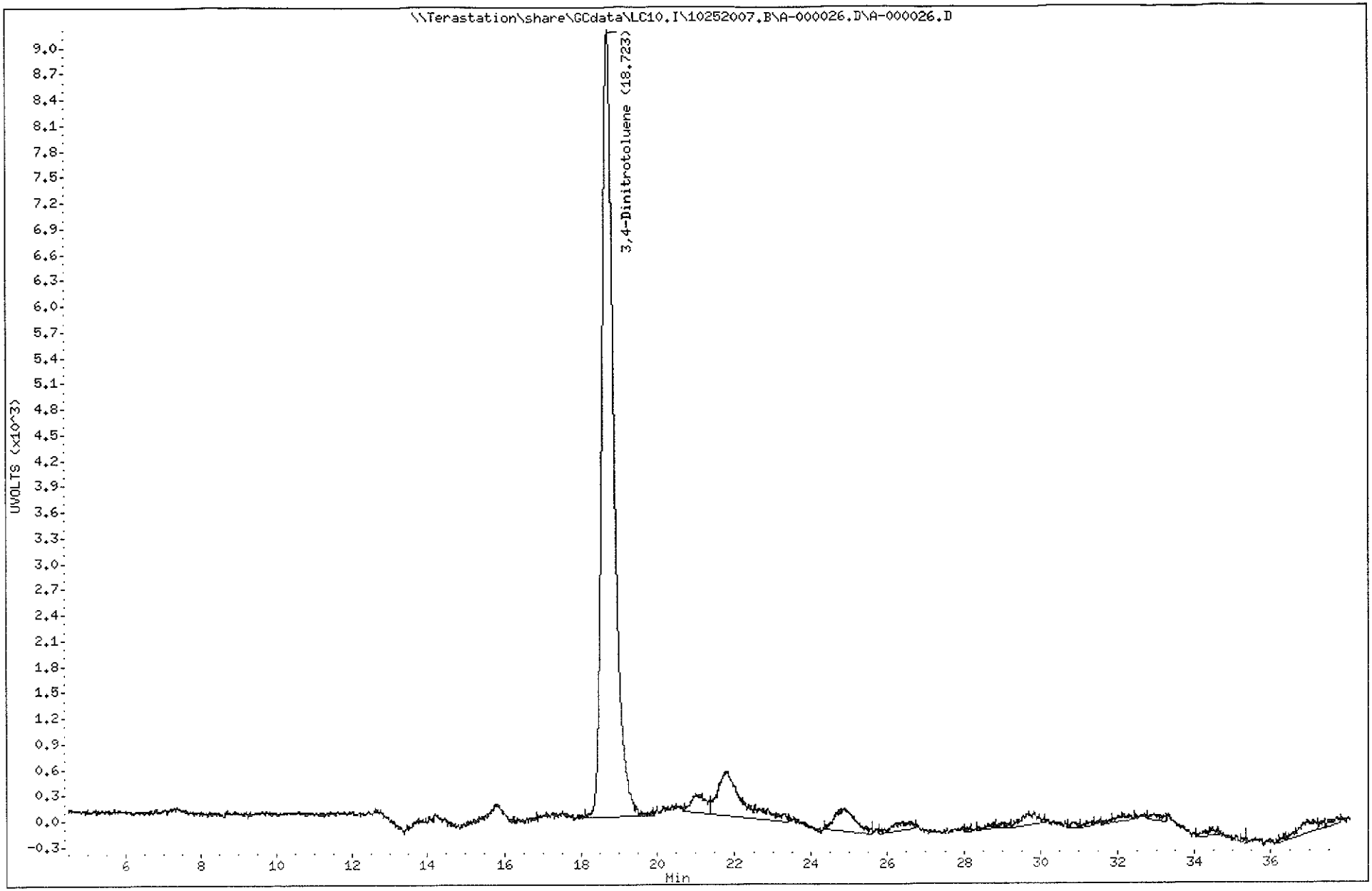
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.723	199424	9166	0.046	79.51	$ 13 3,4-Dinitrotoluene
21.016	5871	222	0.038	1.92	
21.806	22459	514	0.023	4.45	
24.906	9689	269	0.028	2.33	
26.416	3135	100	0.032	0.86	
28.133	306	57	0.187	0.49	
28.606	1086	73	0.067	0.63	
29.016	1000	73	0.073	0.63	
29.673	4189	155	0.037	1.34	
30.846	726	65	0.090	0.56	
31.210	701	66	0.094	0.57	
31.793	406	46	0.113	0.39	
32.106	1372	82	0.060	0.71	
32.926	1413	80	0.057	0.69	
34.286	1553	74	0.048	0.64	
35.340	321	77	0.240	0.66	
36.326	476	96	0.202	0.83	
36.936	4604	155	0.034	1.34	
37.323	718	87	0.121	0.75	
37.680	1224	81	0.066	0.70	
	260672	11538		100.000	

Total unknown % height = 20.49

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026.D
Date : 26-OCT-2007 16:09
Client ID:
Sample Info: J8W2J1AAB 7285667 MB:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000027.D

Chromatography Summary

Injection Date: 10/26/2007 17:02 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000027.D **Vial Num:** 31

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1ACC 7285667 LCS**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J8W2J1ACC 7285667 LCS;3

Misc. Info: LCS;;;2;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.74	4626	1866.0000<	2000	93%	Acceptable		18.74	9105	1910.0000	2000	96%	Acceptable		(84-127)	
HMX	5.28	6486	989.9000<	1000	99%	Acceptable					1000	0%	Fails		(87-117)	45
RDX	7.96	4089	1029.0000<	1000	103%	Acceptable					1000	0%	Fails		(85-115)	45
Picric ACID				5000	0%	Fails					5000	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7447	1000.0000<	1000	100%	Acceptable					1000	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	7116	996.2000<	1000	100%	Acceptable					1000	0%	Fails		(85-115)	45
TETRYL	14.86	3732	823.2000<	1000	82%	Acceptable					1000	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3204	986.8000<	1000	99%	Acceptable					1000	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4216	945.1000<	1000	95%	Acceptable					1000	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	3206	978.6000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3694	988.4000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2601	990.9000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.02	4199	983.5000<	1000	98%	Acceptable					1000	0%	Fails		(81-115)	45
2-Nitrotoluene	25.99	1791	986.2000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
4-Nitrotoluene	27.91	2152	980.5000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2104	992.9000<	1000	99%	Acceptable					1000	0%	Fails		(88-118)	45
Nitroglycerin				5000	0%	Fails		16.37	18270	4871.0000<	5000	97%	Acceptable		(50-112)	45
PETN				5000	0%	Fails		32.01	9410	4699.0000<	5000	94%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000	1866.0000	93	2000.0000	1910.0000	96	(84-127)

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

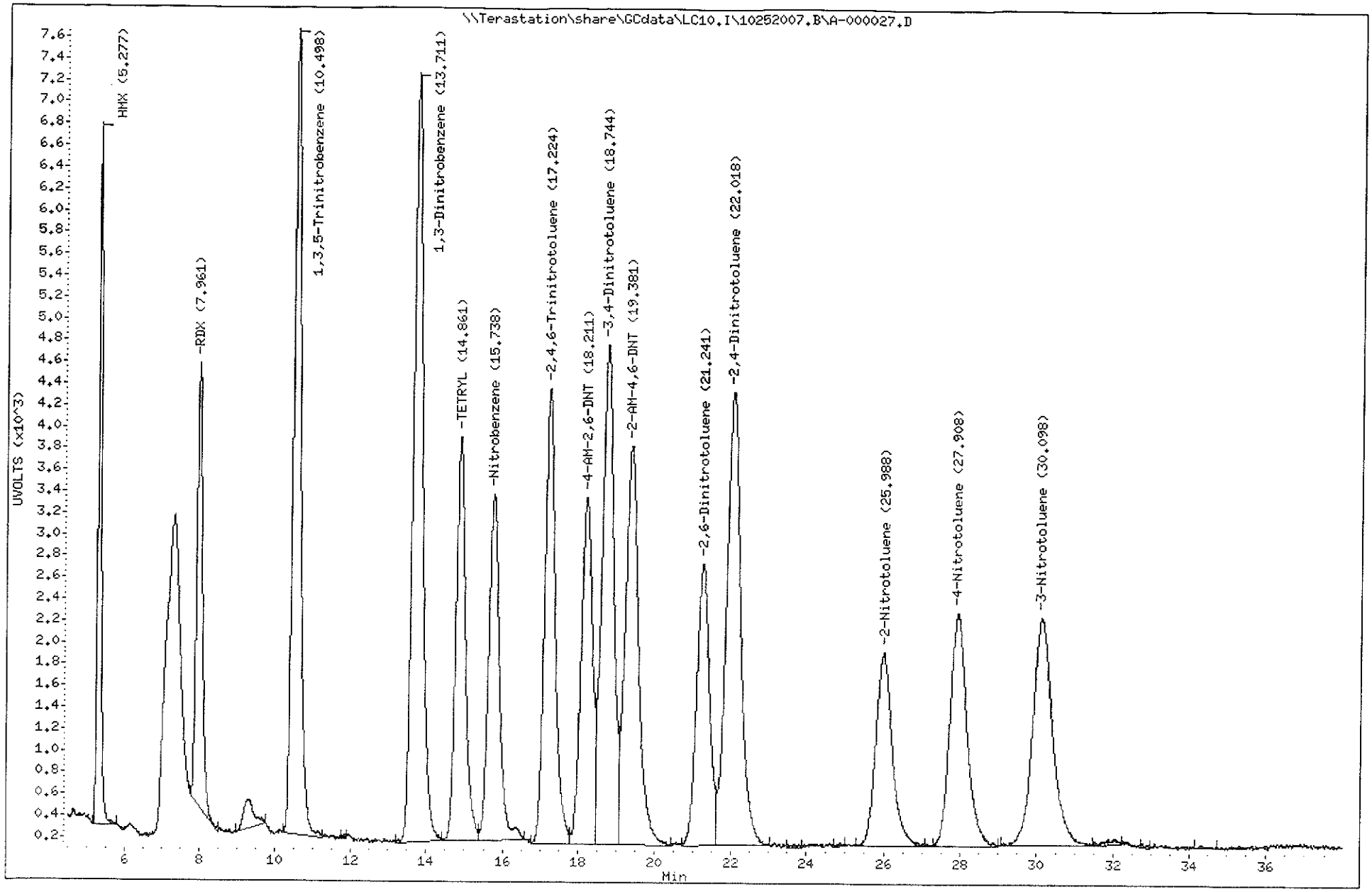
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.277	40050	6486	0.162	10.60		4 HMX
7.961	44308	4089	0.092	6.68		5 RDX
9.254	5180	268	0.052	0.43		
10.498	101339	7447	0.073	12.28		7 1,3,5-Trinitrobenze
11.808	198	37	0.187	0.06		
13.711	124530	7116	0.057	11.63		8 1,3-Dinitrobenzene
14.861	66187	3732	0.056	6.10		9 TETRYL
15.738	63956	3204	0.050	5.23		10 Nitrobenzene
17.224	84496	4216	0.050	6.89		11 2,4,6-Trinitrotolue
18.211	65195	3206	0.049	5.24		12 4-AM-2,6-DNT
18.744	99141	4626	0.047	7.56	$	13 3,4-Dinitrotoluene
19.381	91570	3694	0.040	6.03		14 2-AM-4,6-DNT
21.241	61419	2601	0.042	4.25		15 2,6-Dinitrotoluene
22.018	109972	4199	0.038	6.86		16 2,4-Dinitrotoluene
23.724	466	41	0.088	0.06		
24.874	316	35	0.111	0.05		
25.988	53070	1791	0.034	2.92		17 2-Nitrotoluene
27.908	68135	2152	0.032	3.51		18 4-Nitrotoluene
30.098	74888	2104	0.028	3.43		19 3-Nitrotoluene
31.868	1099	54	0.049	0.08		
32.754	279	43	0.154	0.07		
34.331	377	29	0.077	0.04		
	1156171	61170		100.000		

Total unknown % height = 0.7900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

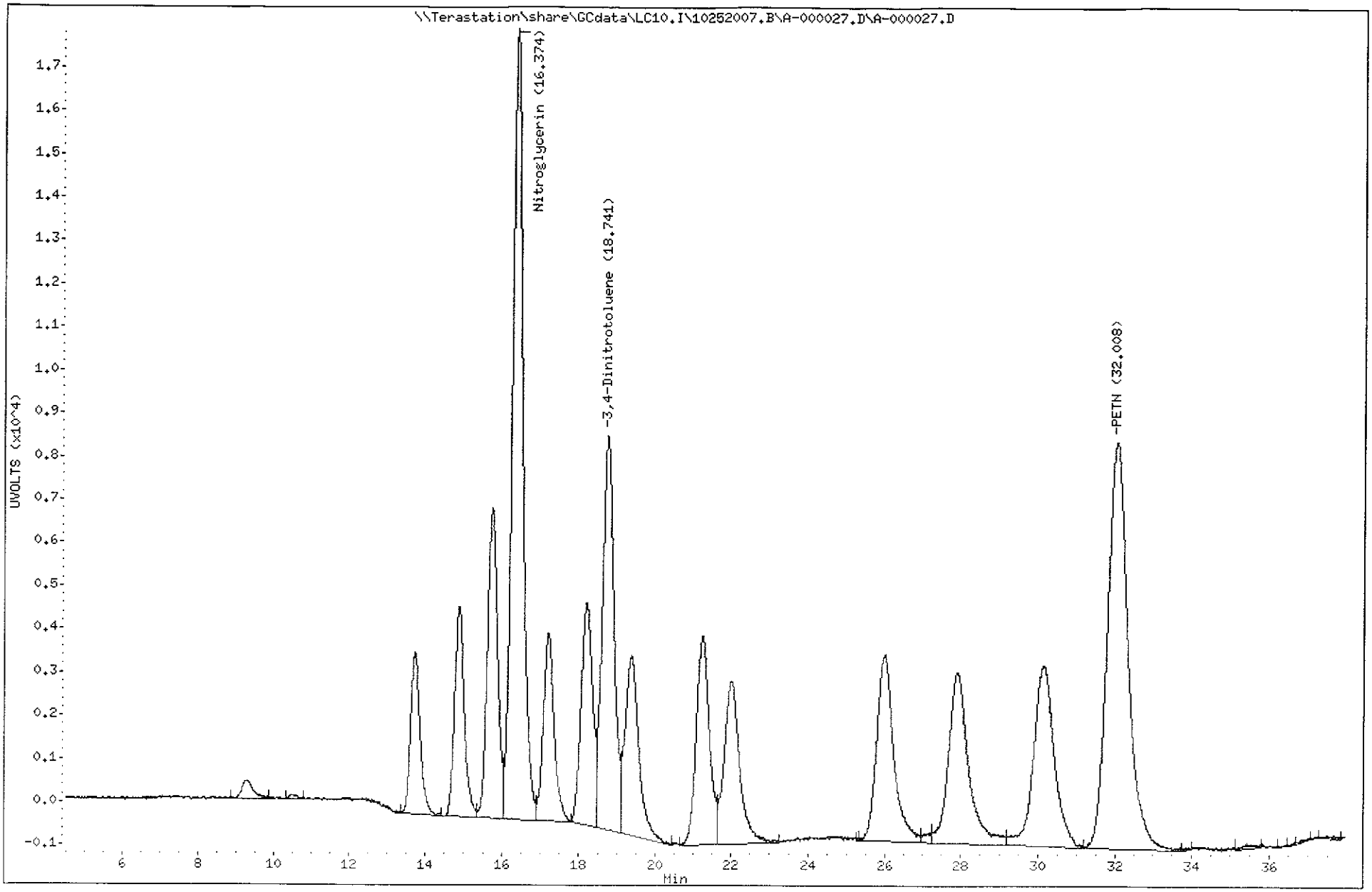
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.254	8975	431	0.048	0.48		
10.501	1435	109	0.076	0.12		
13.708	65223	3740	0.057	4.22		
14.858	87192	4873	0.056	5.50		
15.738	138464	7166	0.052	8.10		
16.374	346324	18270	0.053	20.77		1 Nitroglycerin
17.218	85875	4337	0.051	4.90		
18.214	101710	5123	0.050	5.79		
18.741	196686	9105	0.046	10.29	$	13 3,4-Dinitrotoluene
19.371	105694	4166	0.039	4.70		
21.238	118122	4805	0.041	5.43		
22.018	107726	3763	0.035	4.25		
25.301	191	71	0.372	0.08		
25.971	136859	4322	0.032	4.88		
27.231	3673	233	0.063	0.26		
27.924	143196	3948	0.028	4.46		
30.111	154237	4175	0.027	4.71		
32.008	354605	9410	0.027	10.63		2 PETN
33.928	439	71	0.162	0.08		
35.404	1865	104	0.056	0.11		
36.424	233	35	0.150	0.03		
36.618	295	69	0.234	0.07		
36.974	837	52	0.062	0.05		
37.484	1288	81	0.063	0.09		

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	2161143	88459		100.000	

Total unknown % height = 58.31

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000028.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/26/2007 17:55 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000028.D **Vial Num:** 32
Instrument ID: LC10

Sample : **J748R1A4 7285667 A7J030104-1**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J748R1A4 7285667 A7J030104-1;0
Misc. Info: : : :2.05:40:2:EXPS.sub; :0:1:0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	Conc (ug/Kg)	Flag	RT	Diff	Response	Conc (ug/Kg)	Flag	MDL	RL	Flag
3,4-Dinitrotoluene	**18.75**	**0.049**	**4600**	**1811.0000<**		**18.75**	**0.026**	**9084**	**1859.0000**		**0.0000**	**0.00**	
HMX											29.2683	243.90	
RDX											39.0244	243.90	
Picric ACID											243.9024	975.61	
1,3,5-Trinitrobenzene											19.5122	243.90	
1,3-Dinitrobenzene											48.7805	243.90	
TETRYL											48.7805	243.90	
Nitrobenzene											48.7805	243.90	
2,4,6-Trinitrotoluene											19.5122	243.90	
4-AM-2,6-DNT											19.5122	243.90	
2-AM-4,6-DNT											97.5610	243.90	
2,6-Dinitrotoluene	21.13	-0.044	87	32.3400<							29.2683	243.90	45
2,4-Dinitrotoluene											19.5122	243.90	
2-Nitrotoluene											78.0488	243.90	
4-Nitrotoluene											78.0488	243.90	
3-Nitrotoluene											68.2927	243.90	
Nitroglycerin											126.8293	487.80	
PETN											156.0976	487.80	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**1951.2195**	**1811.0000**	**93**	**1951.2195**	**1859.0000**	**95**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

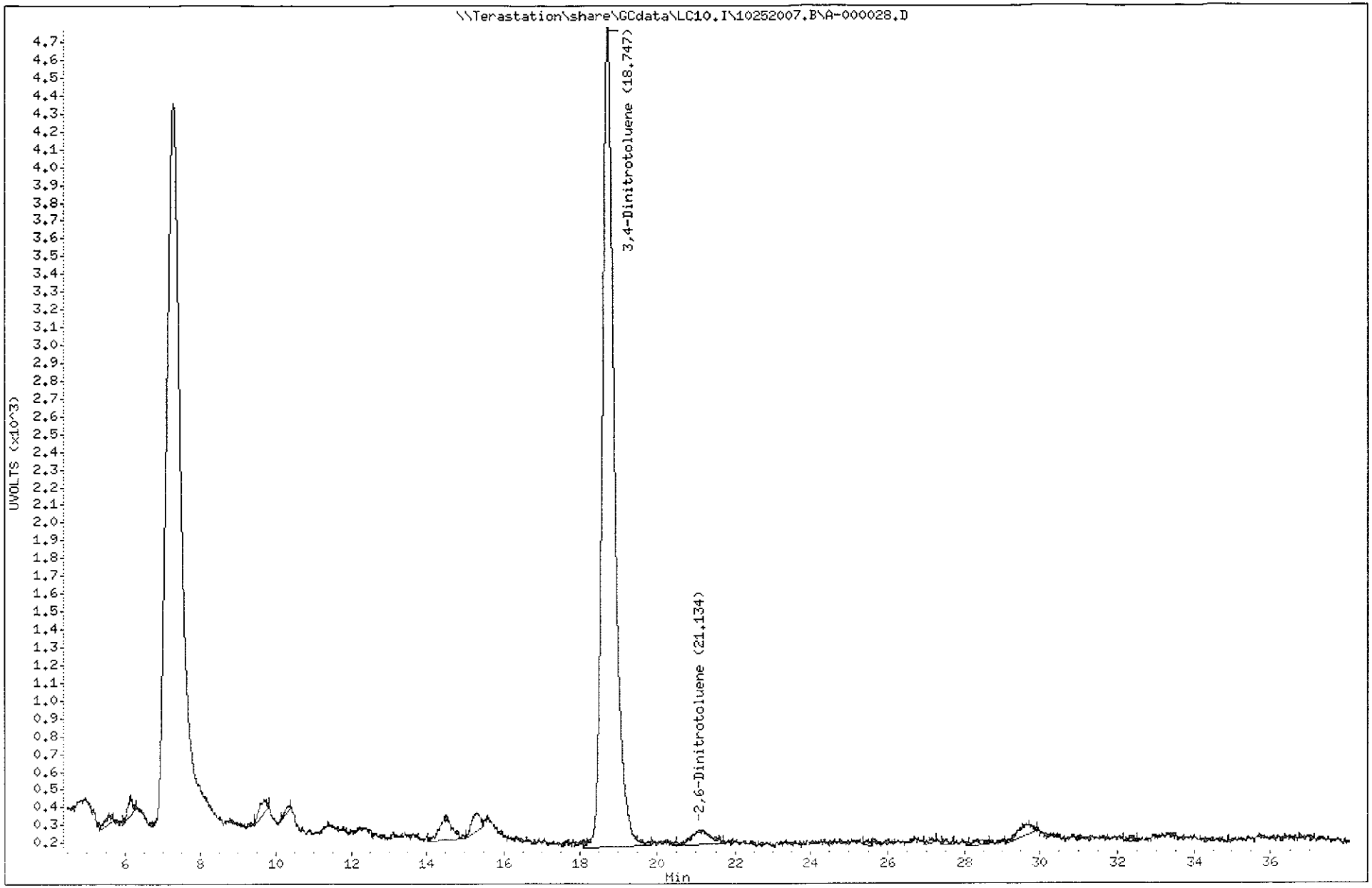
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.500	636	42	0.066	0.77		
6.140	1005	112	0.111	2.06		
9.654	1090	66	0.061	1.21		
10.317	308	36	0.117	0.66		
14.500	3035	139	0.046	2.55		
15.290	1697	106	0.062	1.95		
18.747	100098	4600	0.046	84.74	$	13 3,4-Dinitrotoluene
21.134	2810	87	0.031	1.60		15 2,6-Dinitrotoluene
25.497	265	36	0.136	0.66		
27.080	297	33	0.111	0.60		
27.494	325	32	0.098	0.58		
28.337	504	36	0.071	0.66		
29.540	1648	71	0.043	1.30		
32.370	318	36	0.113	0.66		
	114037	5432		100.000		

Total unknown % height = 13.66

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

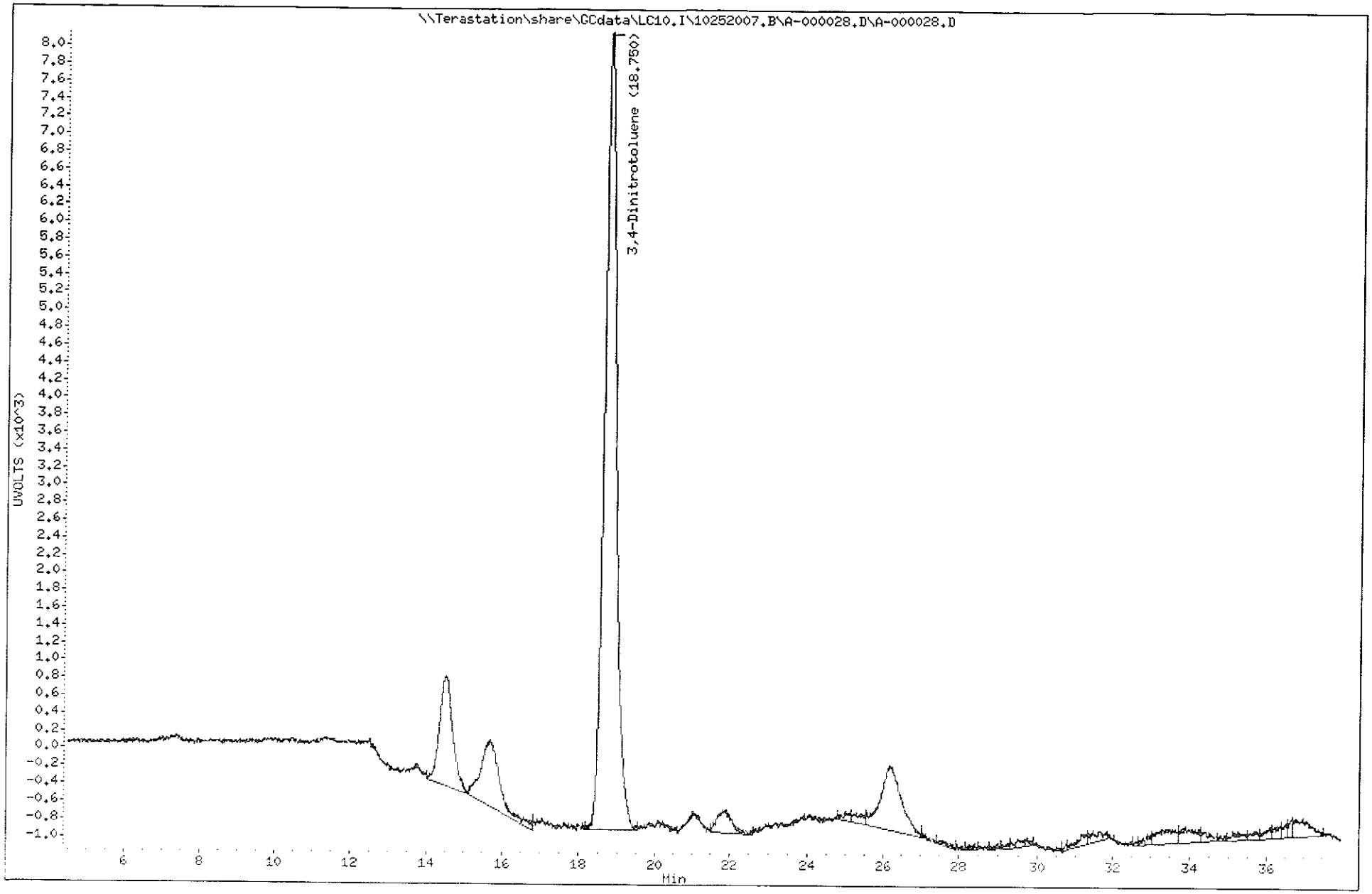
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
14.484	31196	1249	0.040	8.51	
15.684	25937	744	0.029	5.07	
18.750	192104	9084	0.047	62.06	$ 13 3,4-Dinitrotoluene
21.920	7208	261	0.036	1.77	
24.987	1307	112	0.086	0.76	
25.287	2106	128	0.061	0.87	
26.167	28902	738	0.026	5.03	
27.504	957	52	0.054	0.35	
28.277	610	66	0.108	0.44	
28.824	438	50	0.114	0.34	
29.257	449	56	0.125	0.38	
29.484	1845	85	0.046	0.57	
30.744	266	60	0.226	0.40	
31.267	2079	115	0.055	0.78	
31.457	2640	140	0.053	0.95	
32.597	220	44	0.200	0.29	
32.930	1309	124	0.095	0.84	
33.437	5459	167	0.031	1.13	
33.884	4595	179	0.039	1.22	
34.400	1861	115	0.062	0.78	
34.800	463	73	0.158	0.49	
35.107	1746	101	0.058	0.68	
35.737	1335	92	0.069	0.62	
36.074	1516	124	0.082	0.84	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
36.343	1533	129	0.084	0.87	
36.517	1418	158	0.111	1.07	
36.674	1304	204	0.156	1.39	
36.983	6207	221	0.036	1.50	
	327008	14671		100.000	

Total unknown % height = 37.94

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000029.D

Chromatography Summary

Injection Date: 10/26/2007 18:47 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000029.D **Vial Num:** 33

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1DRS 7285667 A7J030104-1MS**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DRS 7285667 A7J030104-1MS;3

Misc. Info: MS: : :1.99:40:2:EXPS.sub;SOIL.spk:1:1.0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.70	4578	1856.0000<	2010.050251	92%	Acceptable		18.70	9043	1906.0000	2010.050251	95%	Acceptable		(84-127)	
HMX	5.27	6324	970.0000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(87-117)	45
RDX	7.94	3969	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(85-115)	45
Picric ACID				5025.125628	0%	Fails					5025.125628	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.47	7439	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.68	7073	995.1000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(85-115)	45
TETRYL	14.82	3674	814.4000<	1005.025126	81%	Acceptable					1005.025126	0%	Fails		(75-109)	45
Nitrobenzene	15.70	3286	1017.0000<	1005.025126	101%	Acceptable					1005.025126	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.17	4207	947.8000<	1005.025126	94%	Acceptable					1005.025126	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.17	2925	897.3000<	1005.025126	89%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.32	3579	962.5000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.18	2609	998.9000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	21.97	4182	984.4000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(81-115)	45
2-Nitrotoluene	25.91	1754	970.7000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(84-114)	45
4-Nitrotoluene	27.83	2104	963.4000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
3-Nitrotoluene	30.04	2074	983.6000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(88-118)	45
Nitroglycerin				5025.125628	0%	Fails		16.33	18098	4850.0000<	5025.125628	97%	Acceptable		(50-112)	45
PETN				5025.125628	0%	Fails		31.92	9466	4751.0000<	5025.125628	95%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2010.0503	1856.0000	92	2010.0503	1906.0000	95	(84-127)

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

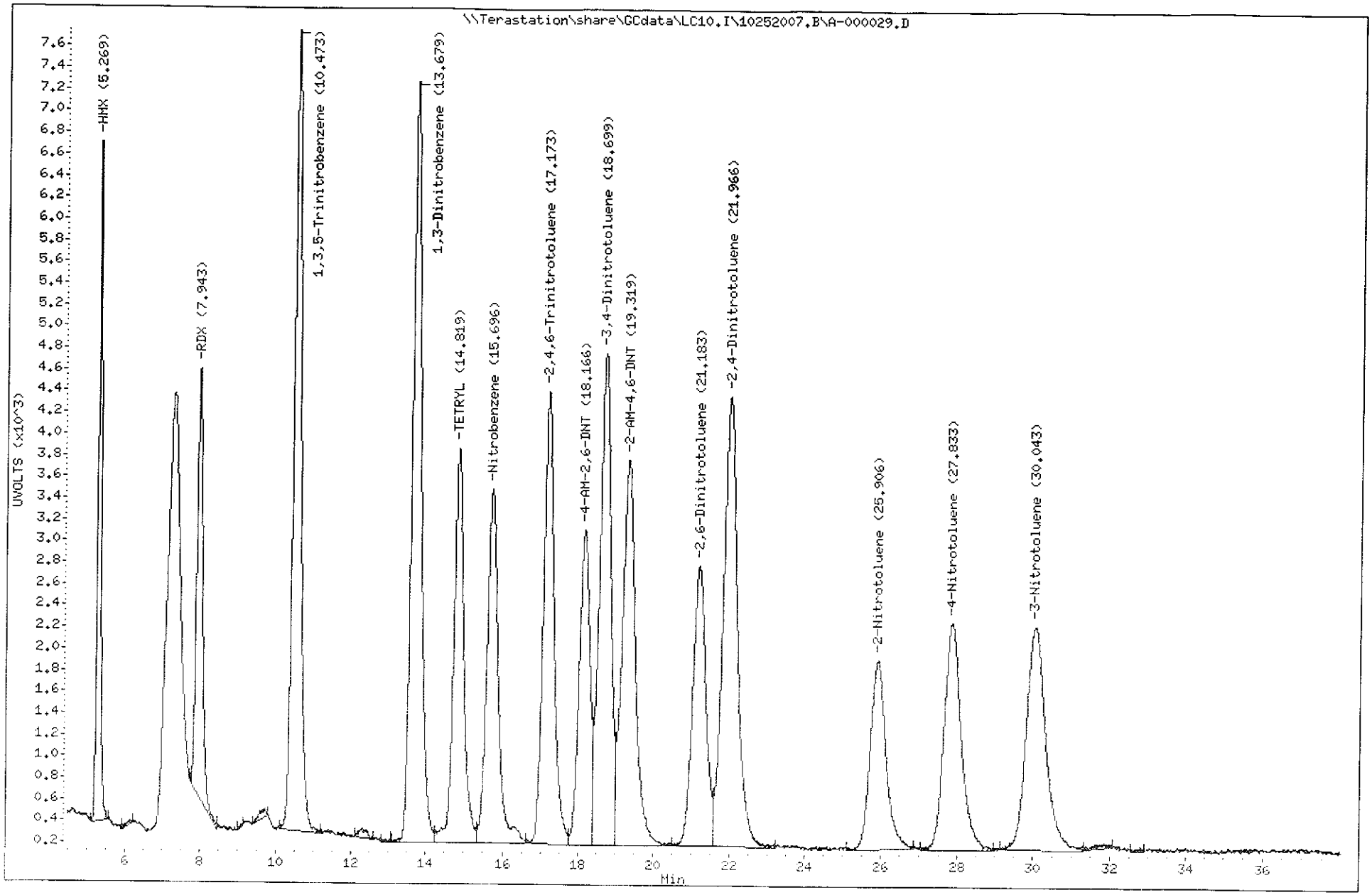
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.269	37852	6324	0.167	10.52		4 HMX
6.133	293	38	0.130	0.06		
7.943	42661	3969	0.093	6.60		5 RDX
9.079	111	30	0.271	0.04		
9.619	1063	74	0.070	0.12		
10.473	100518	7439	0.074	12.49		7 1,3,5-Trinitrobenze
12.296	1404	87	0.062	0.14		
13.063	208	22	0.106	0.03		
13.679	121511	7073	0.058	11.76		8 1,3-Dinitrobenzene
14.819	67443	3674	0.054	6.11		9 TETRYL
15.696	67697	3286	0.049	5.46		10 Nitrobenzene
17.173	83569	4207	0.050	7.00		11 2,4,6-Trinitrotolue
18.166	58584	2925	0.050	4.86		12 4-AM-2,6-DNT
18.699	95916	4578	0.048	7.61	$	13 3,4-Dinitrotoluene
19.319	87258	3579	0.041	5.95		14 2-AM-4,6-DNT
21.183	62413	2609	0.042	4.34		15 2,6-Dinitrotoluene
21.966	108090	4182	0.039	6.95		16 2,4-Dinitrotoluene
25.906	51540	1754	0.034	2.91		17 2-Nitrotoluene
27.833	66859	2104	0.031	3.50		18 4-Nitrotoluene
30.043	72210	2074	0.029	3.45		19 3-Nitrotoluene
31.686	1122	44	0.039	0.07		
32.639	280	23	0.082	0.03		
	1128600	60095		100.000		

Total unknown % height = 0.4900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

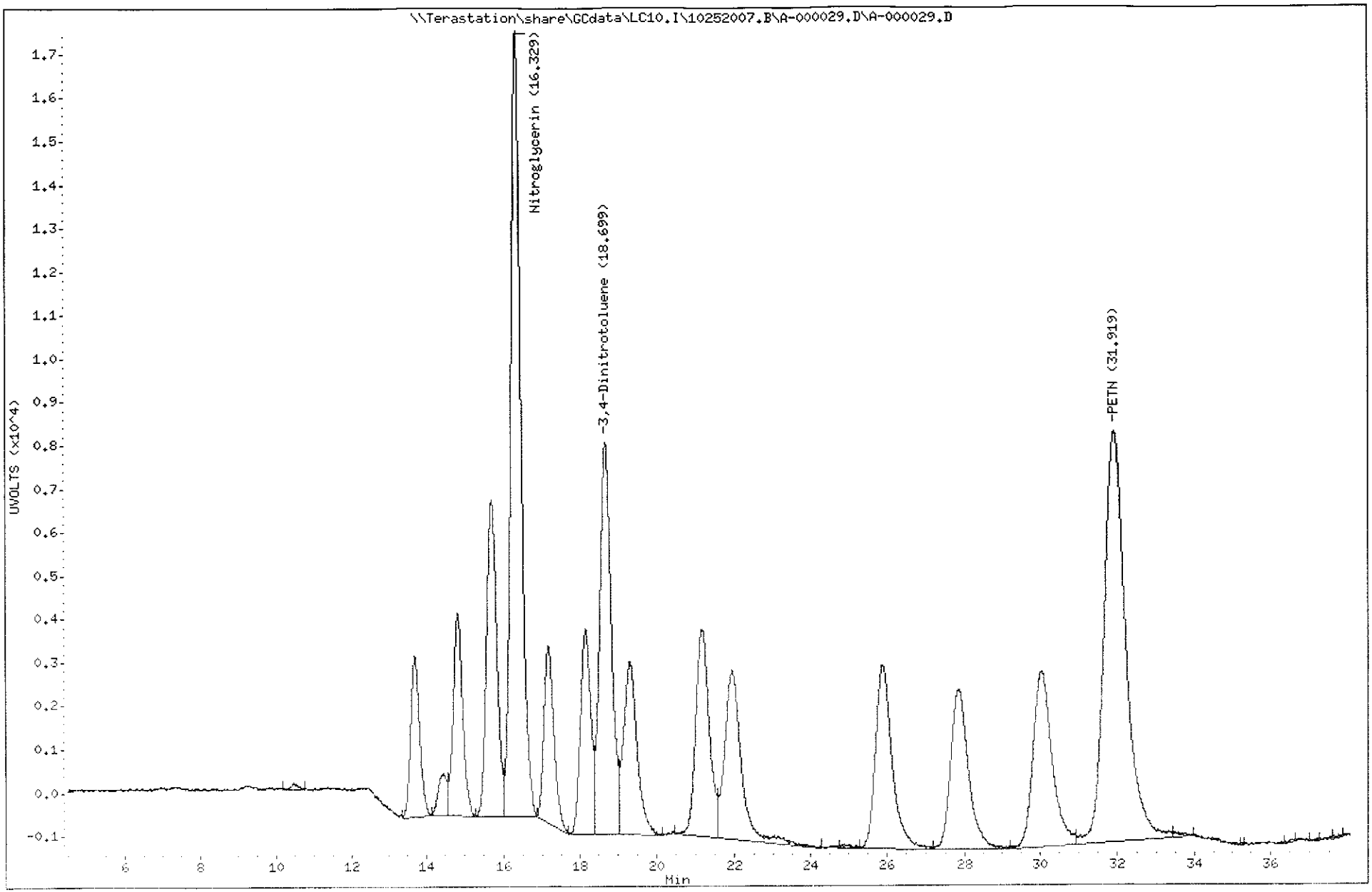
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
10.449	1961	146	0.074	0.16		
13.679	59811	3688	0.062	4.22		
14.439	15968	973	0.061	1.11		
14.819	80072	4675	0.058	5.35		
15.693	136926	7286	0.053	8.34		
16.329	329536	18098	0.055	20.82		1 Nitroglycerin
17.173	74028	4072	0.055	4.66		
18.169	91363	4716	0.052	5.40		
18.699	192279	9043	0.047	10.36	$	13 3,4-Dinitrotoluene
19.316	94991	3973	0.042	4.55		
21.173	115832	4769	0.041	5.46		
21.943	117221	3903	0.033	4.47		
24.833	1663	106	0.064	0.12		
25.886	128176	4226	0.033	4.84		
27.826	120307	3687	0.031	4.22		
30.039	141034	4044	0.029	4.63		
31.919	361530	9466	0.026	10.84		2 PETN
33.556	2522	135	0.054	0.15		
35.259	300	82	0.274	0.09		
36.566	615	58	0.094	0.06		
37.176	449	63	0.140	0.07		
37.713	517	72	0.139	0.08		
	2067100	87281		100.000		

Total unknown % height = 57.98

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000030.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/26/2007 19:40 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000030.D **Vial Num:** 34

Instrument ID: LC10

Sample : **J748R1DTD 7285667 A7J030104-1MSD**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DTD 7285667 A7J030104-1MSD;3

Misc. Info: MS; , ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.75	4543	1762.0000<	1923.076923	92%	Acceptable		18.75	9105	1836.0000	1923.076923	95%	Acceptable		(84-127)	
HMX	5.28	6323	927.9000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(87-117)	45
RDX	7.96	3930	950.7000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(85-115)	45
Picric ACID				4807.692308	0%	Fails					4807.692308	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7534	973.1000<	961.538462	101%	Acceptable					961.538462	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	6997	941.8000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
TETRYL	14.85	3416	724.5000<	961.538462	75%	Acceptable					961.538462	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3178	941.1000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4172	899.3000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	2755	808.6000<	961.538462	84%	Acceptable					961.538462	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3504	901.5000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2632	964.1000<	961.538462	100%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.03	4185	942.5000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(81-115)	45
2-Nitrotoluene	25.95	1774	939.2000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(84-114)	45
4-Nitrotoluene	27.92	2129	932.7000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2095	950.6000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(88-118)	45
Nitroglycerin				4807.692308	0%	Fails		16.37	18039	4625.0000<	4807.692308	96%	Acceptable		(50-112)	45
PETN				4807.692308	0%	Fails		31.99	9739	4677.0000<	4807.692308	97%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	1923.0769	1762.0000	92	1923.0769	1836.0000	96	(84-127)

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

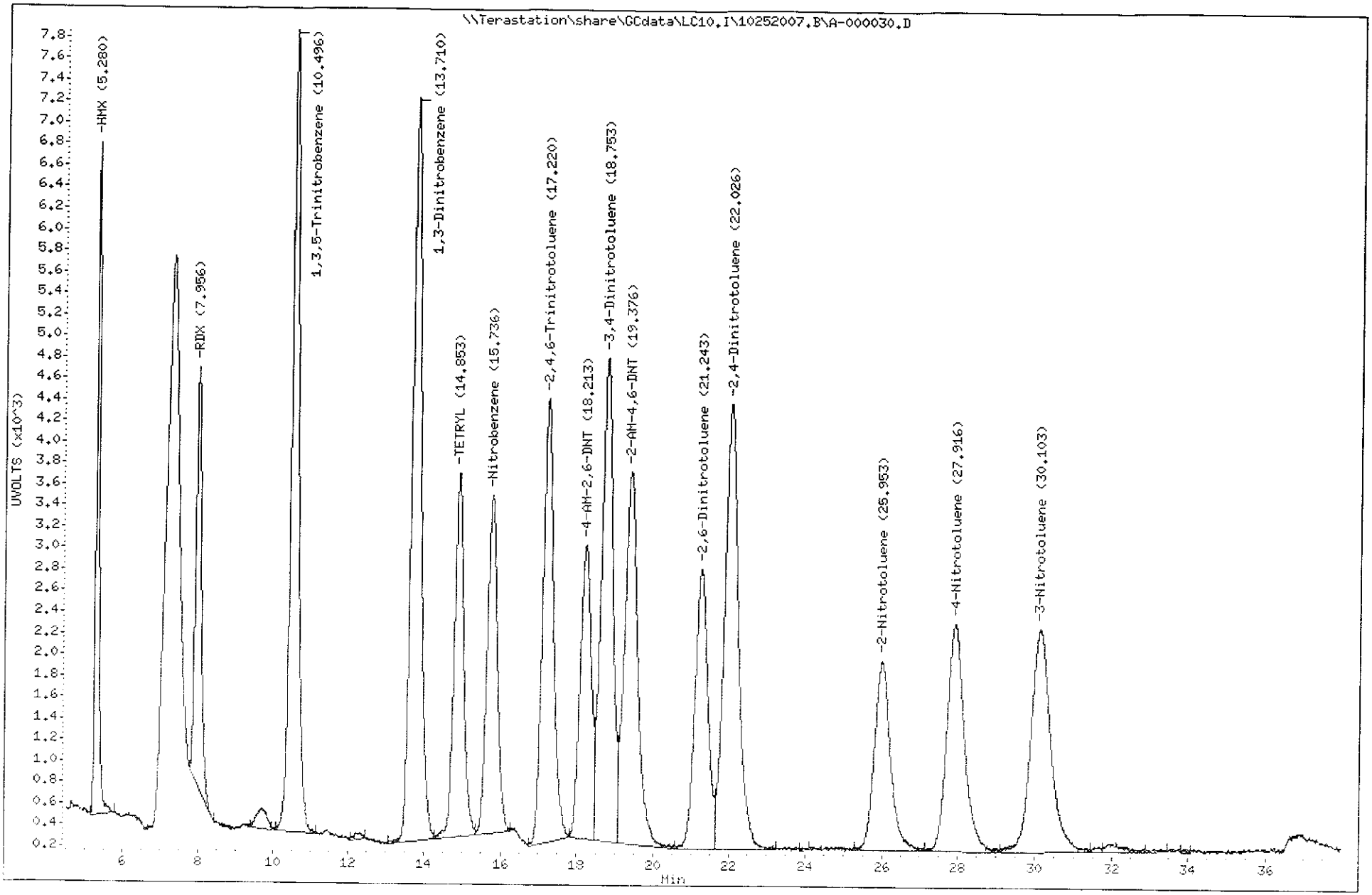
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.280	39367	6323	0.161	10.59		4 HMX
7.956	42212	3930	0.093	6.58		5 RDX
9.696	3717	198	0.053	0.33		
10.496	105058	7534	0.072	12.73		7 1,3,5-Trinitrobenze
12.193	808	64	0.079	0.10		
13.710	120005	6997	0.058	11.72		8 1,3-Dinitrobenzene
14.853	59126	3416	0.058	5.72		9 TETRYL
15.736	59585	3178	0.053	5.32		10 Nitrobenzene
17.220	81451	4172	0.051	6.99		11 2,4,6-Trinitrotolue
18.213	54416	2755	0.051	4.61		12 4-AM-2,6-DNT
18.753	95475	4543	0.048	7.61	$	13 3,4-Dinitrotoluene
19.376	84938	3504	0.041	5.87		14 2-AM-4,6-DNT
21.243	63638	2632	0.041	4.41		15 2,6-Dinitrotoluene
22.026	108729	4185	0.038	7.01		16 2,4-Dinitrotoluene
23.926	268	32	0.120	0.05		
25.953	52797	1774	0.034	2.97		17 2-Nitrotoluene
27.916	68188	2129	0.031	3.56		18 4-Nitrotoluene
30.103	74838	2095	0.028	3.51		19 3-Nitrotoluene
31.663	602	48	0.080	0.08		
31.916	2723	81	0.030	0.13		
33.106	570	34	0.060	0.05		
33.876	329	37	0.112	0.06		
	1118840	59661		100.000		

Total unknown % height = 0.8000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

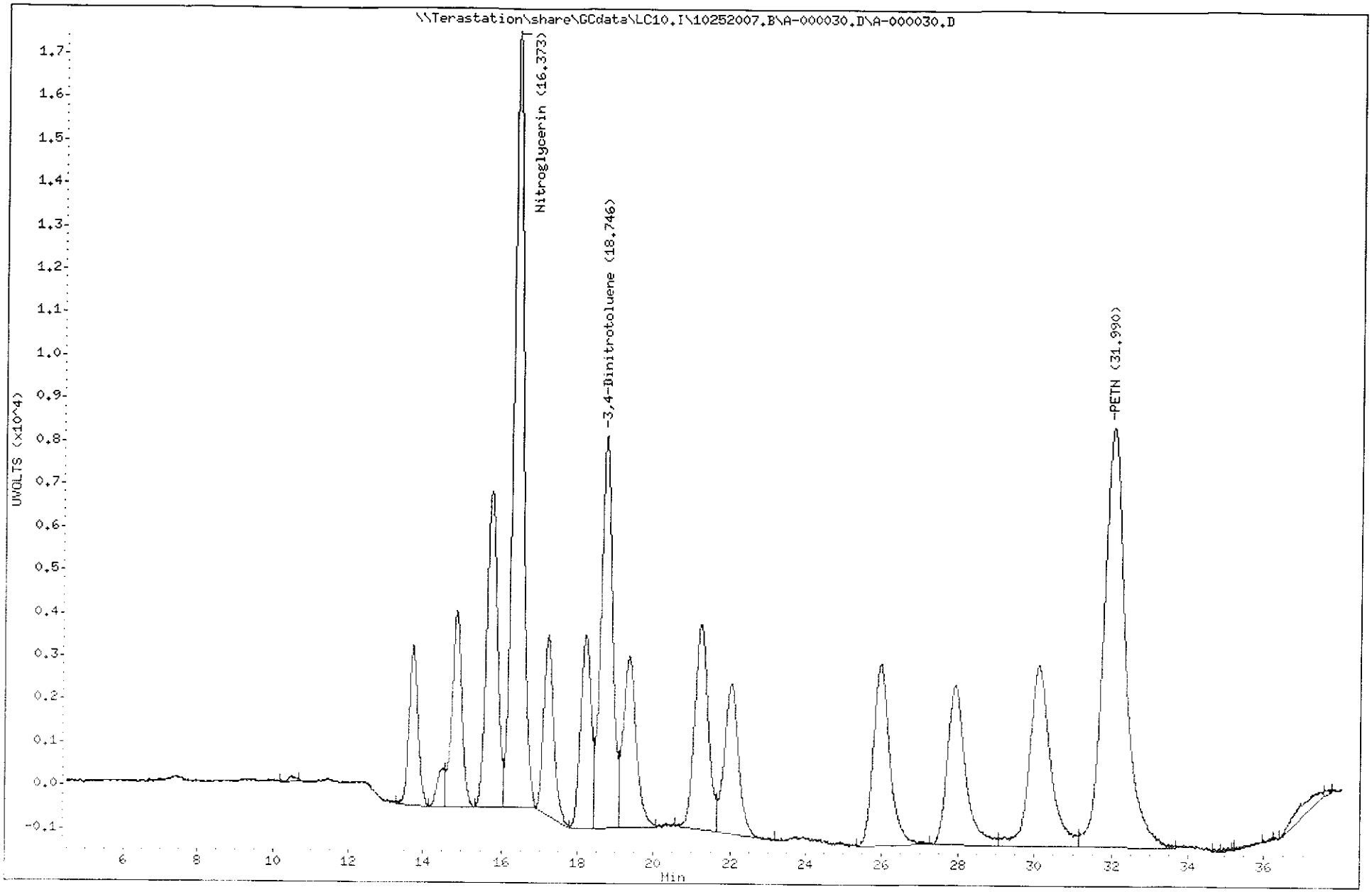
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
10.473	1852	148	0.080	0.17		
13.716	60996	3710	0.061	4.26		
14.503	12963	911	0.070	1.04		
14.846	81259	4555	0.056	5.23		
15.733	140121	7367	0.053	8.46		
16.373	330442	18039	0.055	20.83		1 Nitroglycerin
17.223	77921	4173	0.054	4.79		
18.213	86538	4483	0.052	5.15		
18.746	196179	9105	0.046	10.46	$	13 3,4-Dinitrotoluene
19.380	95533	3974	0.042	4.56		
21.233	114202	4746	0.042	5.45		
22.003	90032	3473	0.039	3.99		
25.983	127119	4211	0.033	4.83		
27.916	123901	3716	0.030	4.27		
30.113	159111	4197	0.026	4.82		
31.990	384345	9739	0.025	11.19		2 PETN
34.846	416	56	0.134	0.06		
35.110	585	55	0.094	0.06		
35.946	1434	28	0.020	0.03		
36.193	624	75	0.120	0.08		
37.470	14090	130	0.009	0.14		
37.586	1081	115	0.106	0.13		
	2100746	87006		100.000		

Total unknown % height = 57.52

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000031.D

Chromatography Summary

Injection Date: 10/26/2007 20:33 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000031.D **Vial Num:** 35

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748X1AF 7285667 A7J030104-2**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL SubList: EXPS.sub SpikeList:

Samp. Info: J748X1AF 7285667 A7J030104-2:0

Misc. Info: : : :2.0:3:40:2.EXPS.sub: :0.1:0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	Conc (ug/Kg)	Flag	RT	Diff	Response	Conc (ug/Kg)	Flag	MDL	RL	Flag
3,4-Dinitrotoluene	18.73	0.030	4619	1836.0000<		18.73	0.037	8984	1857.0000		0.0000	0.00	
HMX											29.5567	246.31	
RDX											39.4089	246.31	
Picric ACID											246.3054	985.22	
1,3,5-Trinitrobenzene	10.34	-0.123	568	75.1700<							19.7044	246.31	45
1,3-Dinitrobenzene											49.2611	246.31	
TETRYL											49.2611	246.31	
Nitrobenzene											49.2611	246.31	
2,4,6-Trinitrotoluene	17.24	0.097	314	69.3500<							19.7044	246.31	45
4-AM-2,6-DNT											19.7044	246.31	
2-AM-4,6-DNT											98.5222	246.31	
2,6-Dinitrotoluene	21.31	0.163	181	67.9300<							29.5567	246.31	45
2,4-Dinitrotoluene	21.92	-0.013	174	40.1500<							19.7044	246.31	45
2-Nitrotoluene											78.8177	246.31	
4-Nitrotoluene											78.8177	246.31	
3-Nitrotoluene											68.9655	246.31	
Nitroglycerin											128.0788	492.61	
PETN											157.6355	492.61	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	1970.4434	1836.0000	93	1970.4434	1857.0000	94	(84-127)

Notes
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- S = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000031.D
Lab Smp Id: J748X1AF 7285667 A7
Inj Date : 26-OCT-2007 20:33
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748X1AF 7285667 A7J030104-2;0
Misc Info : ; ; ;2.03;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 35
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.030	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

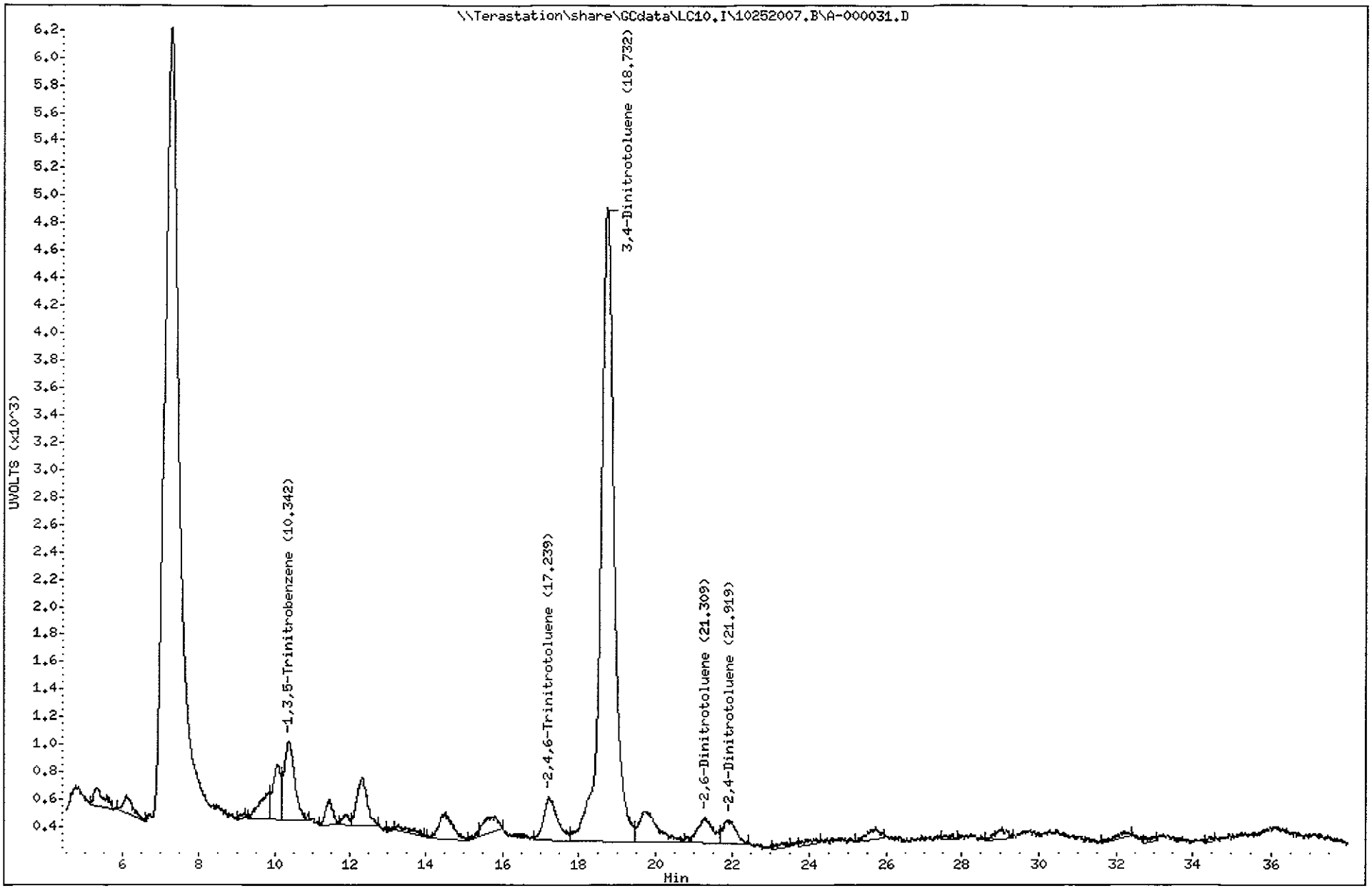
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.319	2455	136	0.055	1.61			
6.109	2227	135	0.061	1.60			
9.076	271	34	0.126	0.40			
9.842	3536	193	0.055	2.29			
10.039	5816	400	0.069	4.75			
10.342	11172	568	0.051	6.74		7	1,3,5-Trinitrobenze
11.432	2507	187	0.075	2.22			
11.902	863	76	0.088	0.90			
12.296	6627	348	0.053	4.13			
13.009	197	37	0.188	0.43			
13.262	1072	44	0.041	0.52			
14.509	4895	196	0.040	2.32			
15.356	328	45	0.137	0.53			
15.649	3061	120	0.039	1.42			
17.239	8032	314	0.039	3.72		11	2,4,6-Trinitrotolue
18.732	109157	4619	0.042	54.99	$	13	3,4-Dinitrotoluene
19.719	7582	223	0.029	2.64			
21.309	5173	181	0.035	2.14		15	2,6-Dinitrotoluene
21.919	4090	174	0.043	2.06		16	2,4-Dinitrotoluene
23.306	587	40	0.068	0.47			
23.906	725	32	0.044	0.38			
25.659	1725	71	0.041	0.84			
27.772	475	37	0.078	0.43			
29.022	1584	86	0.054	1.02			

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
32.089	1042	40	0.038	0.47	
33.056	609	43	0.071	0.51	
34.439	290	40	0.138	0.47	
	186100	8419		100.000	

Total unknown % height = 30.35

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000031.D
Date : 26-OCT-2007 20:33
Client ID:
Sample Info: J748X1AF 7285667 A7J030104-2;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000031.D\A-000031
Lab Smp Id: J748X1AF 7285667 A7
Inj Date : 26-OCT-2007 20:33
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748X1AF 7285667 A7J030104-2;0
Misc Info : ; ; ;2.03;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 35
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.030	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.426	2371	160	0.067	1.19	
14.362	7803	210	0.027	1.57	
15.896	13353	505	0.038	3.77	
17.329	9764	392	0.040	2.93	
18.206	11618	519	0.045	3.88	
18.732	198161	8984	0.045	67.34	$ 13 3,4-Dinitrotoluene
21.192	4844	223	0.046	1.66	
21.882	7243	366	0.051	2.73	
25.046	1052	69	0.066	0.51	
25.582	1536	60	0.039	0.44	
26.272	2113	101	0.048	0.75	
26.622	1028	93	0.090	0.69	
26.949	1569	89	0.057	0.66	
27.766	366	80	0.219	0.59	
27.986	506	79	0.156	0.59	
28.346	4816	161	0.033	1.20	
29.022	1883	113	0.060	0.84	
30.436	3046	102	0.033	0.76	
31.229	973	65	0.067	0.48	
31.819	803	75	0.093	0.56	
32.089	2296	107	0.047	0.80	
33.129	881	100	0.114	0.74	
33.416	3678	151	0.041	1.12	
34.266	635	61	0.096	0.45	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
34.812	320	58	0.181	0.43	
35.289	1564	114	0.073	0.85	
35.909	902	66	0.073	0.49	
36.599	382	77	0.202	0.57	
37.209	1435	98	0.068	0.73	
37.602	1887	91	0.048	0.68	
	288827	13369		100.000	

Total unknown % height = 32.66

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000031.D\A-000031.D

Date : 26-OCT-2007 20:33

Client ID:

Instrument: LC10.i

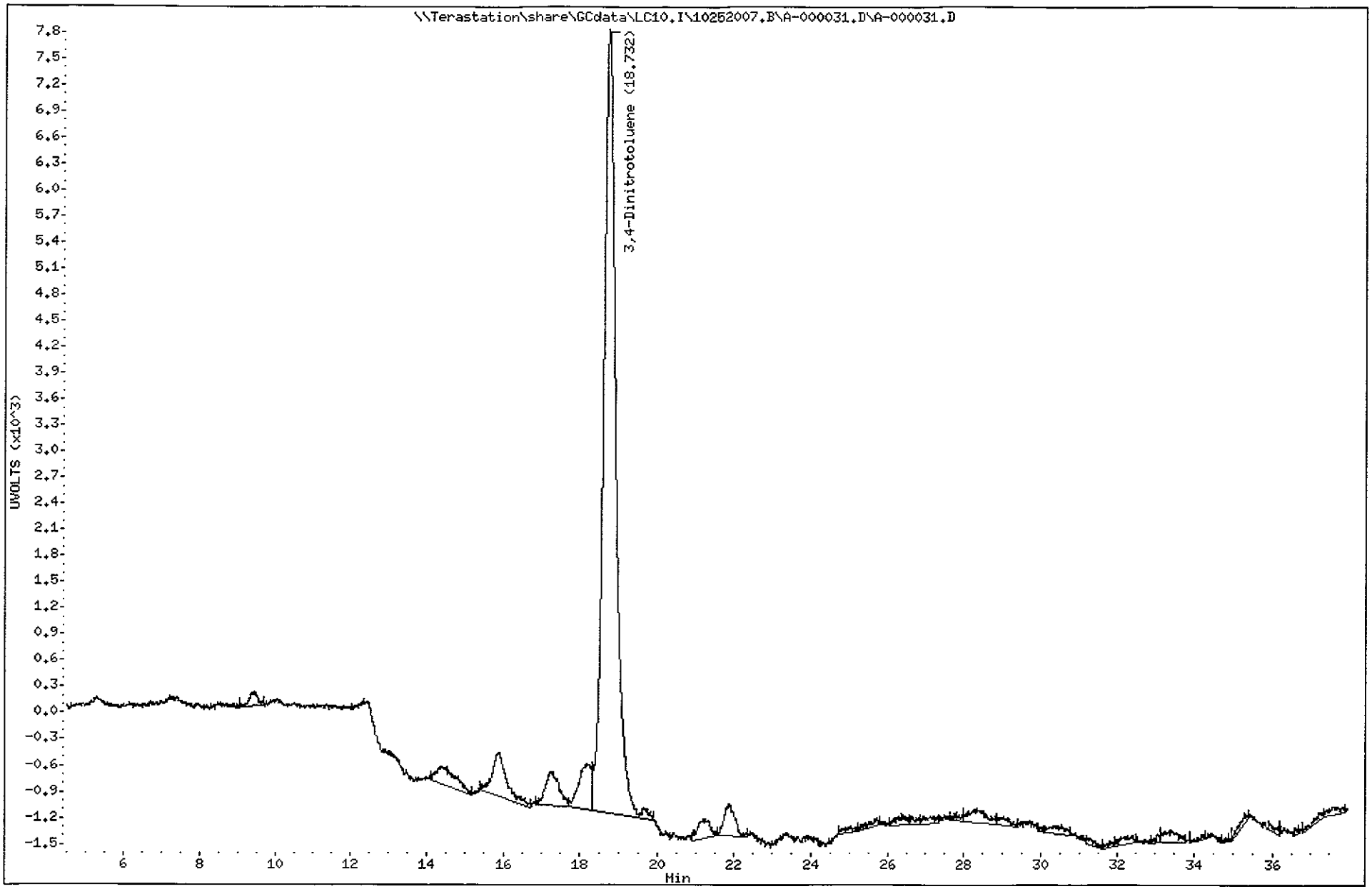
Sample Info: J748X1AF 7285667 A7J030104-2:0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000032.D

Chromatography Summary

Injection Date: 10/26/2007 21:26 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000032.D **Vial Num:** 36

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J74811AF 7285667 A7J030104-3**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J74811AF 7285667 A7J030104-3;0

Misc. Info: ; ; ;2.06;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	Conc (ug/Kg)	Flag	RT	Diff	Response	Conc (ug/Kg)	Flag	MDL	RL	Flag
3,4-Dinitrotoluene	**18.75**	**0.051**	**4534**	**1776.0000<**		**18.76**	**0.061**	**9069**	**1847.0000**		**0.0000**	**0.00**	
HMX											29.1262	242.72	
RDX											38.8350	242.72	
Picric ACID											242.7184	970.87	
1,3,5-Trinitrobenzene											19.4175	242.72	
1,3-Dinitrobenzene											48.5437	242.72	
TETRYL											48.5437	242.72	
Nitrobenzene											48.5437	242.72	
2,4,6-Trinitrotoluene											19.4175	242.72	
4-AM-2,6-DNT											19.4175	242.72	
2-AM-4,6-DNT											97.0874	242.72	
2,6-Dinitrotoluene											29.1262	242.72	
2,4-Dinitrotoluene											19.4175	242.72	
2-Nitrotoluene											77.6699	242.72	
4-Nitrotoluene											77.6699	242.72	
3-Nitrotoluene											67.9612	242.72	
Nitroglycerin											126.2136	485.44	
PETN											155.3398	485.44	

Surrogates:	Spiked	Recovered	%Rec		Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**1941.7476**	**1776.0000**	**91**		**1941.7476**	**1847.0000**	**95**	**(84-127)**

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:44 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000032.D
Lab Smp Id: J74811AF 7285667 A7
Inj Date : 26-OCT-2007 21:26
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74811AF 7285667 A7J030104-3;0
Misc Info : ; ; ;2.06;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 36
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

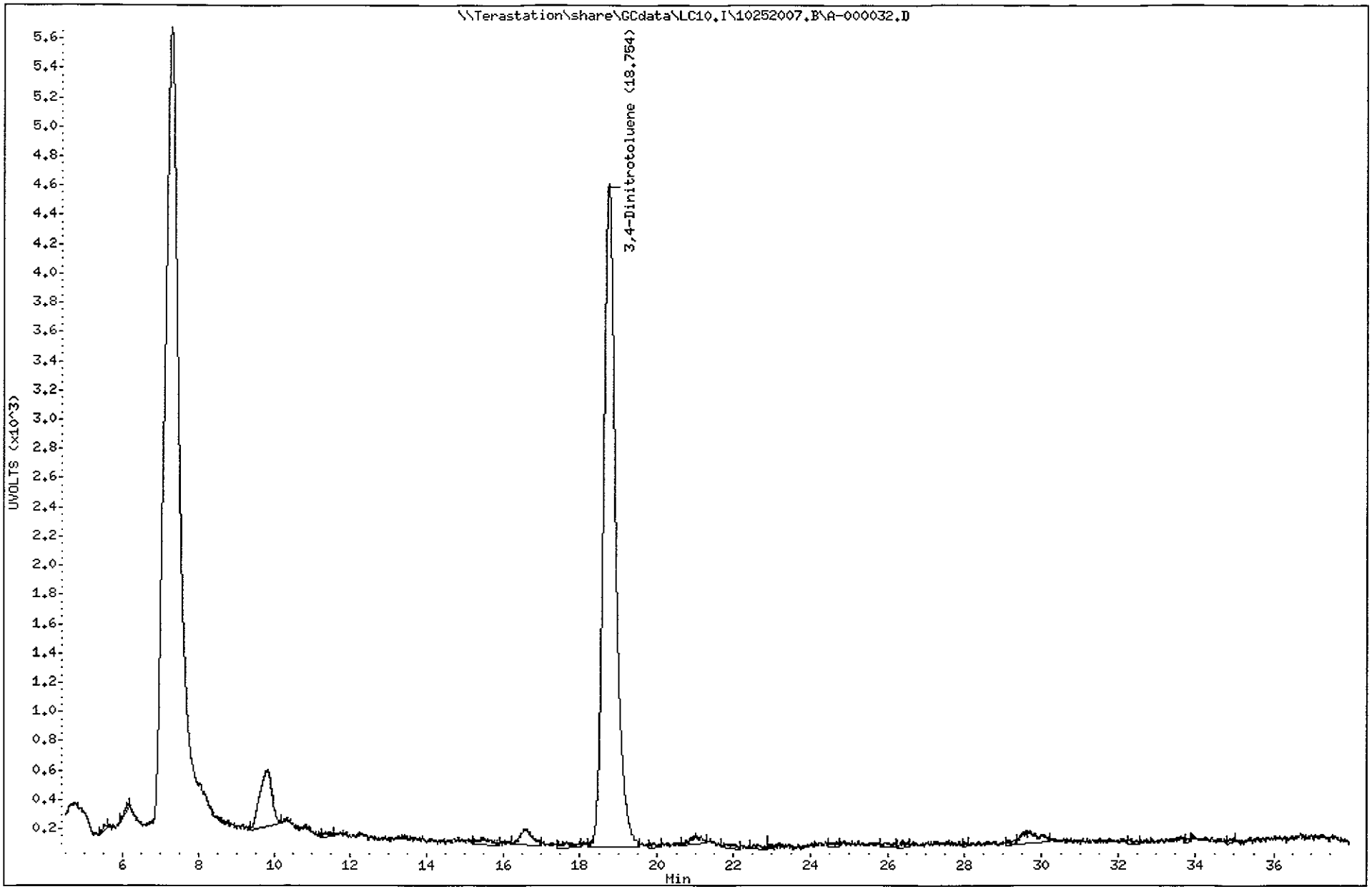
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.060	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.520	252	38	0.151	0.65	
6.107	345	57	0.165	0.98	
9.757	8721	384	0.044	6.64	
11.337	390	32	0.082	0.55	
15.477	1264	54	0.043	0.93	
16.663	2484	112	0.045	1.93	
17.704	760	36	0.047	0.62	
18.754	97660	4534	0.046	78.60	$ 13 3,4-Dinitrotoluene
19.940	312	35	0.112	0.60	
21.007	1265	72	0.057	1.24	
21.757	506	28	0.055	0.48	
22.644	490	33	0.067	0.57	
24.497	340	28	0.082	0.48	
25.937	459	32	0.070	0.55	
26.407	434	47	0.108	0.81	
28.014	169	32	0.189	0.55	
29.297	336	31	0.092	0.53	
29.650	2384	90	0.038	1.55	
32.330	332	34	0.102	0.58	
33.750	174	34	0.195	0.58	
34.884	237	34	0.143	0.58	
	119313	5777		100.000	

Total unknown % height = 21.40

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000032.D
Date : 26-OCT-2007 21:26
Client ID:
Sample Info: J74811AF 7285667 A7J030104-3:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000032.D\A-000032
Lab Smp Id: J74811AF 7285667 A7
Inj Date : 26-OCT-2007 21:26
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74811AF 7285667 A7J030104-3;0
Misc Info : ; ; ;2.06;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 36
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.060	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

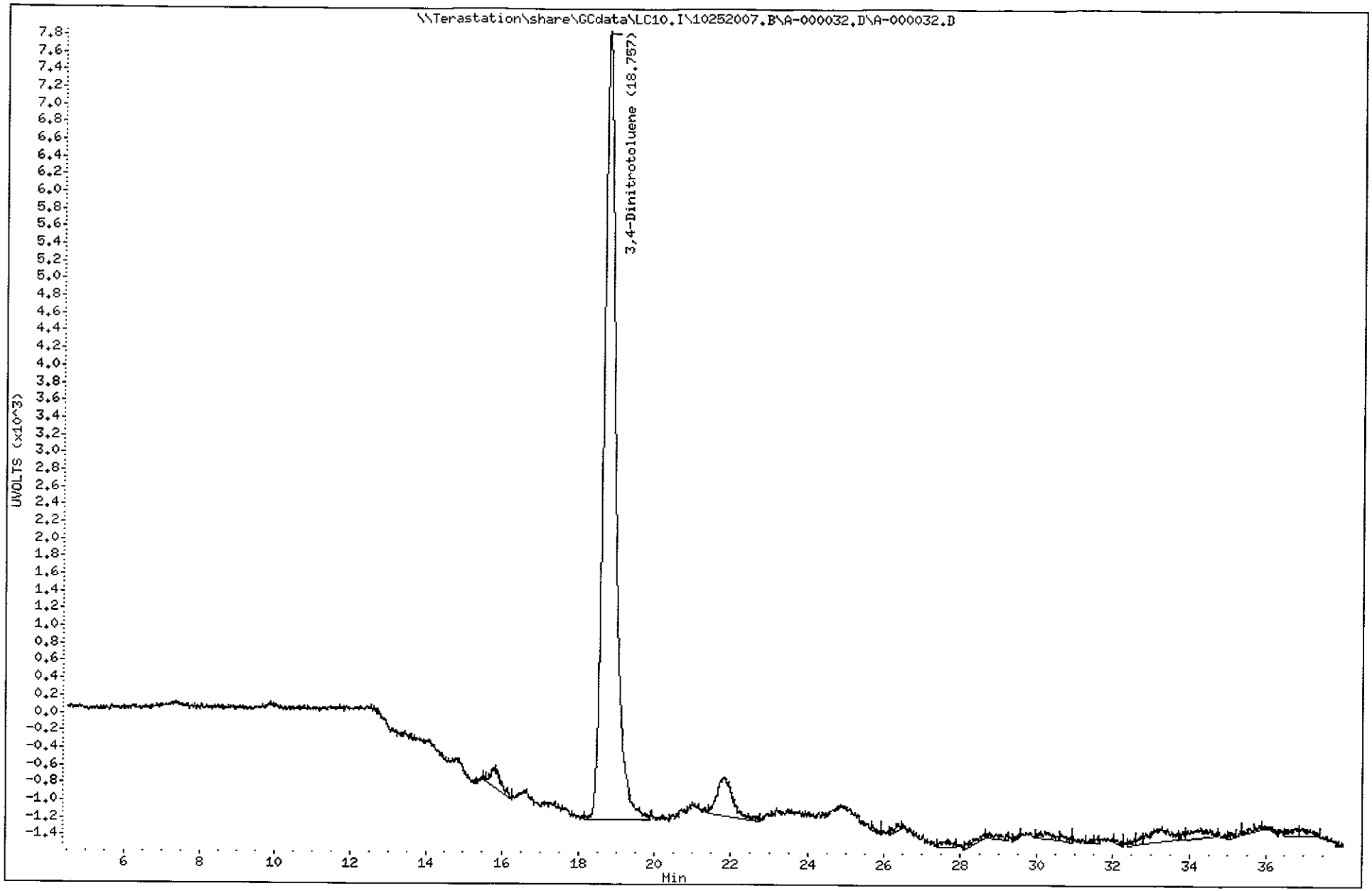
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.837	4774	270	0.057	2.35	
18.757	199523	9069	0.045	79.12	$ 13 3,4-Dinitrotoluene
21.877	12815	447	0.035	3.89	
25.694	604	70	0.116	0.60	
26.397	873	74	0.085	0.64	
27.634	1649	79	0.048	0.68	
28.627	1338	65	0.049	0.56	
28.930	1372	57	0.042	0.49	
29.527	403	51	0.127	0.44	
30.090	1771	77	0.043	0.67	
30.647	981	89	0.091	0.77	
31.470	318	53	0.167	0.46	
31.620	350	76	0.217	0.66	
32.104	454	52	0.114	0.45	
32.560	551	83	0.151	0.72	
32.733	784	105	0.134	0.91	
33.273	5930	179	0.030	1.55	
33.824	537	95	0.177	0.82	
34.270	3400	109	0.032	0.94	
35.007	493	77	0.156	0.67	
35.554	489	64	0.131	0.55	
35.837	466	55	0.118	0.47	
36.504	1588	89	0.056	0.77	
36.967	1681	95	0.057	0.82	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	243145	11480		100.000	

Total unknown % height = 20.88

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000032.D\A-000032.D
Date : 26-OCT-2007 21:26
Client ID:
Sample Info: J74811AF 7285667 A7J030104-3;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000033.D

Chromatography Summary

Injection Date: 10/26/2007 22:19 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000033.D **Vial Num:** 37

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J74831AF 7285667 A7J030104-4**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J74831AF 7285667 A7J030104-4;0

Misc. Info: ; ; ;1.99;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	Conc (ug/Kg)	Flag	RT	Diff	Response	Conc (ug/Kg)	Flag	MDL	RL	Flag
3,4-Dinitrotoluene	**18.72**	**0.021**	**4675**	**1896.0000<**		**18.72**	**0.024**	**9275**	**1955.0000**		**0.0000**	**0.00**	
HMX											30.1508	251.26	
RDX											40.2010	251.26	
Picric ACID											251.2563	1005.03	
1,3,5-Trinitrobenzene											20.1005	251.26	
1,3-Dinitrobenzene											50.2513	251.26	
TETRYL											50.2513	251.26	
Nitrobenzene											50.2513	251.26	
2,4,6-Trinitrotoluene											20.1005	251.26	
4-AM-2,6-DNT											20.1005	251.26	
2-AM-4,6-DNT											100.5025	251.26	
2,6-Dinitrotoluene											30.1508	251.26	
2,4-Dinitrotoluene											20.1005	251.26	
2-Nitrotoluene											80.4020	251.26	
4-Nitrotoluene											80.4020	251.26	
3-Nitrotoluene											70.3518	251.26	
Nitroglycerin											130.6533	502.51	
PETN											160.8040	502.51	

Surrogates:	Spiked	Recovered	%Rec		Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**2010.0503**	**1896.0000**	**94**		**2010.0503**	**1955.0000**	**97**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:44 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000033.D
Lab Smp Id: J74831AF 7285667 A7
Inj Date : 26-OCT-2007 22:19
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74831AF 7285667 A7J030104-4;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 37
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

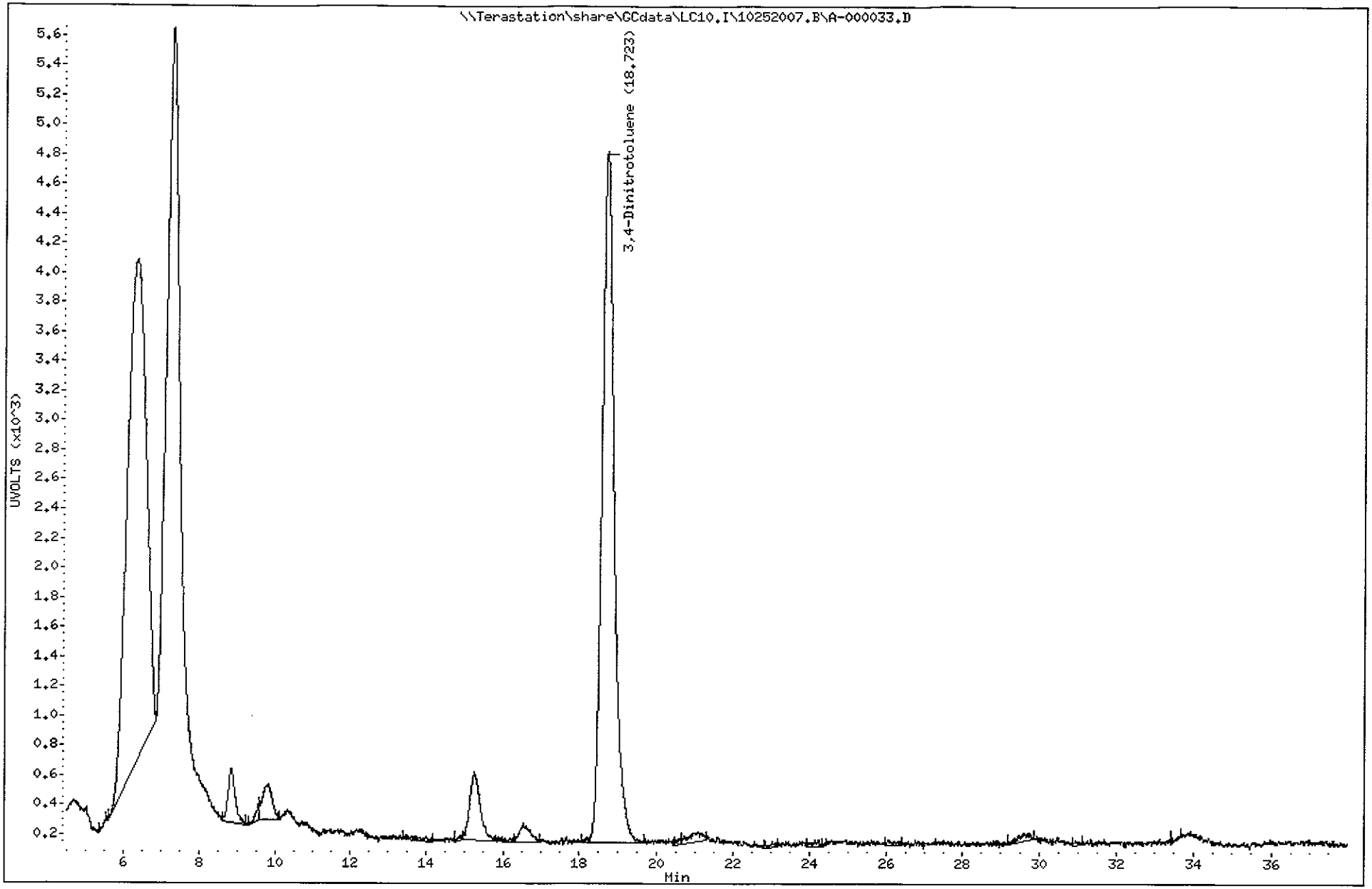
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.520	118	23	0.194	0.23	
6.346	117211	3403	0.029	34.77	
8.836	4705	364	0.077	3.71	
9.550	710	114	0.160	1.16	
9.763	4302	232	0.054	2.37	
13.463	739	33	0.045	0.33	
14.896	189	30	0.159	0.30	
15.240	9272	456	0.049	4.65	
16.550	2429	130	0.054	1.32	
18.723	100627	4675	0.046	47.85	$ 13 3,4-Dinitrotoluene
20.616	342	46	0.135	0.47	
20.990	1688	67	0.040	0.68	
23.040	396	36	0.091	0.36	
24.146	538	50	0.093	0.51	
26.056	569	39	0.068	0.39	
29.453	1051	47	0.045	0.48	
30.920	208	30	0.144	0.30	
33.660	204	12	0.059	0.12	
	245298	9787		100.000	

Total unknown % height = 52.15

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000033.D
Date : 26-OCT-2007 22:19
Client ID:
Sample Info: J74831AF 7285667 A7J030104-4;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000033.D\A-000033
Lab Smp Id: J74831AF 7285667 A7
Inj Date : 26-OCT-2007 22:19
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74831AF 7285667 A7J030104-4;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 37
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.233	11813	574	0.049	2.12	
16.570	7233	227	0.031	0.84	
18.720	198743	9275	0.047	34.32	$ 13 3,4-Dinitrotoluene
21.733	12422	386	0.031	1.42	
26.160	500660	15025	0.030	55.72	
28.240	196	64	0.326	0.23	
28.613	1165	90	0.077	0.33	
29.093	1571	69	0.044	0.25	
29.450	367	50	0.136	0.18	
29.733	1140	90	0.079	0.33	
30.456	2788	102	0.037	0.37	
31.906	3951	136	0.034	0.50	
32.576	3564	147	0.041	0.54	
32.996	3916	150	0.038	0.55	
34.576	768	67	0.087	0.24	
35.110	1431	68	0.048	0.25	
35.583	1146	110	0.096	0.40	
35.933	1113	64	0.057	0.23	
36.413	543	55	0.101	0.20	
36.770	345	47	0.136	0.17	
36.913	360	67	0.186	0.24	
37.373	1239	88	0.071	0.32	
37.586	592	70	0.118	0.25	
	757067	27021		100.000	

Total unknown % height = 65.68

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000033.D\A-000033.D

Date : 26-OCT-2007 22:19

Client ID:

Instrument: LC10.i

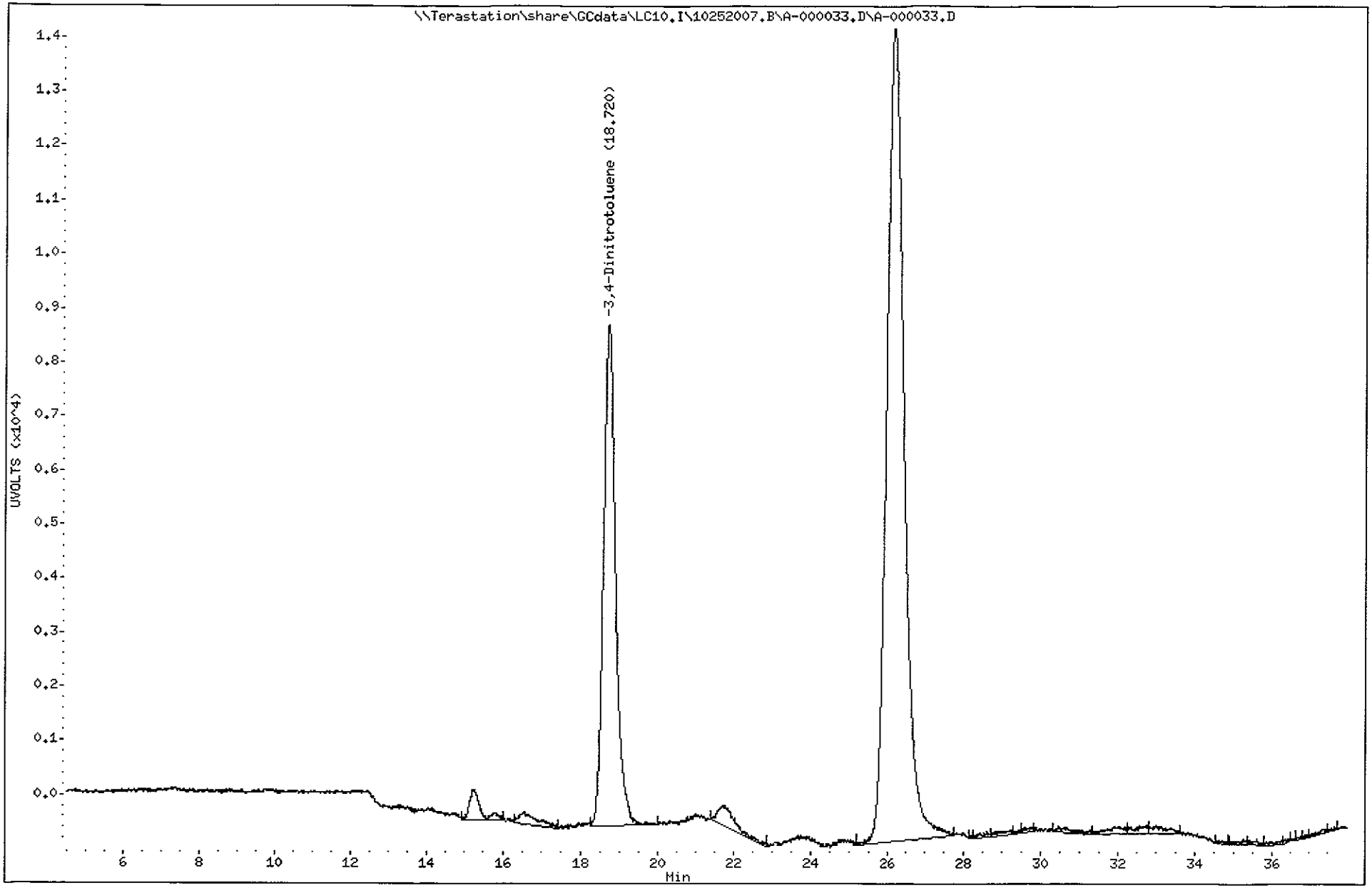
Sample Info: J74831AF 7285667 A7J030104-4;0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000034.D

Chromatography Summary

Injection Date: 10/26/2007 23:12 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000034.D **Vial Num:** 6

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.71	4774	96.3100<	100	-4%	Acceptable		18.72	9534	100.0000	100	0%	Acceptable		(±15)	
HMX	5.27	13088	99.8800<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
RDX	7.95	8099	101.9000<	100	2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Picric ACID	9.31	17021	206.2000	200	3%	Acceptable		9.31	25092	206.6000<	200	3%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.48	14839	99.6600<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	14145	99.0100<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
TETRYL	14.84	8681	95.7400<	100	-4%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.71	6385	98.3200<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.20	8848	99.1700<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.19	6480	98.8900<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.35	7352	98.3600<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.20	5143	97.9600<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.99	8436	98.7900<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.92	3556	97.9000<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.87	4282	97.5400<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.07	4161	98.1800<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**100**	**-100%**	**Fails**		16.36	7769	103.6000<	100	4%	Acceptable		(±15)	45
PETN				**100**	**-100%**	**Fails**		31.98	3861	96.4100<	100	-4%	Acceptable		(±15)	45
3,5-Dinitroaniline				**100**	**-100%**	**Fails**					**100**	**-100%**	**Fails**		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:45 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

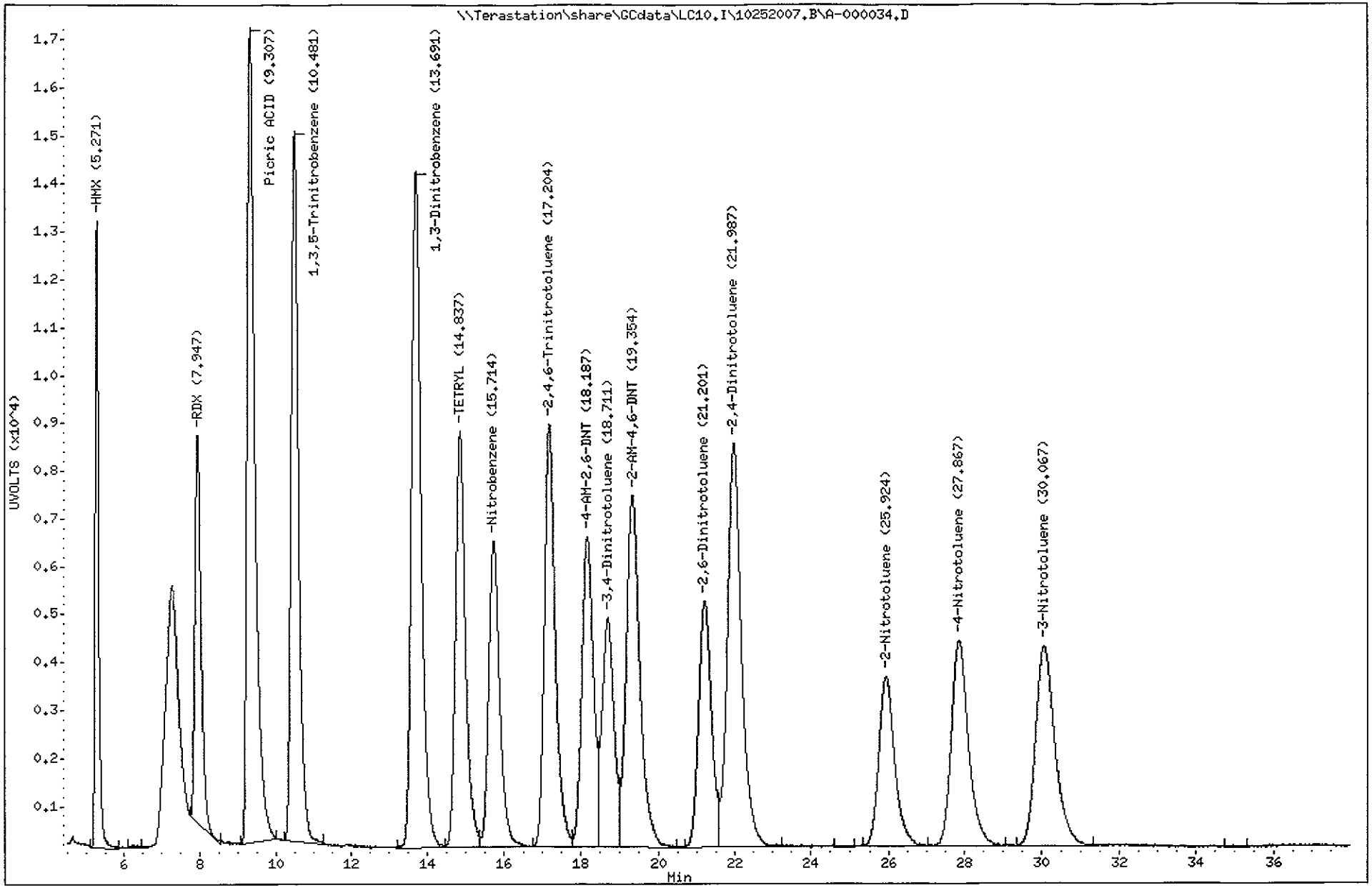
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.271	81883	13088	0.160	9.66		4	HMX
6.277	470	43	0.091	0.03			
7.947	89353	8099	0.091	5.97		5	RDX
9.307	240755	17021	0.071	12.66		6	Picric ACID
10.481	201533	14839	0.074	10.95		7	1,3,5-Trinitrobenze
13.691	248300	14145	0.057	10.44		8	1,3-Dinitrobenzene
14.837	154043	8681	0.056	6.40		9	TETRYL
15.714	128252	6385	0.050	4.71		10	Nitrobenzene
17.204	176782	8848	0.050	6.53		11	2,4,6-Trinitrotolue
18.187	134093	6480	0.048	4.78		12	4-AM-2,6-DNT
18.711	101881	4774	0.047	3.52	$	13	3,4-Dinitrotoluene
19.354	178248	7352	0.041	5.42		14	2-AM-4,6-DNT
20.617	197	28	0.142	0.02			
21.201	120566	5143	0.043	3.79		15	2,6-Dinitrotoluene
21.987	220929	8436	0.038	6.22		16	2,4-Dinitrotoluene
24.827	473	32	0.068	0.02			
25.924	105377	3556	0.034	2.62		17	2-Nitrotoluene
27.867	136211	4282	0.031	3.16		18	4-Nitrotoluene
30.067	142366	4161	0.029	3.07		19	3-Nitrotoluene
34.967	685	52	0.076	0.03			
	2462396	135445		100.000			

Total unknown % height = 0.1000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Date : 26-OCT-2007 23:12
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.307	356809	25092	0.070	16.91	6 Picric ACID
10.484	3368	246	0.073	0.16	
13.691	135654	7548	0.056	5.04	
14.841	204837	11374	0.056	7.60	
15.714	271549	13794	0.051	9.22	
16.357	152251	7769	0.051	5.19	1 Nitroglycerin
17.204	190106	9277	0.049	6.20	
18.187	220659	10587	0.048	7.08	
18.724	205087	9534	0.046	6.37	$ 13 3,4-Dinitrotoluene
19.351	207290	8242	0.040	5.51	
21.217	224660	9449	0.042	6.31	
21.984	180691	6952	0.038	4.64	
25.144	524	71	0.135	0.04	
25.924	255692	8499	0.033	5.68	
27.847	264369	7731	0.029	5.17	
29.231	8166	375	0.046	0.25	
30.064	306654	8314	0.027	5.56	
31.981	147097	3861	0.026	2.58	2 PETN
33.444	565	81	0.143	0.05	
33.817	1293	116	0.090	0.07	
34.331	4822	144	0.030	0.09	
35.011	964	89	0.092	0.05	
35.777	1274	34	0.027	0.02	
36.144	437	66	0.151	0.04	
36.531	2252	109	0.048	0.07	
37.194	553	47	0.085	0.03	
37.564	340	55	0.162	0.03	
37.824	534	70	0.131	0.04	
	3348495	149526		100.000	

Total unknown % height = 68.95

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034.D

Date : 26-OCT-2007 23:12

Client ID:

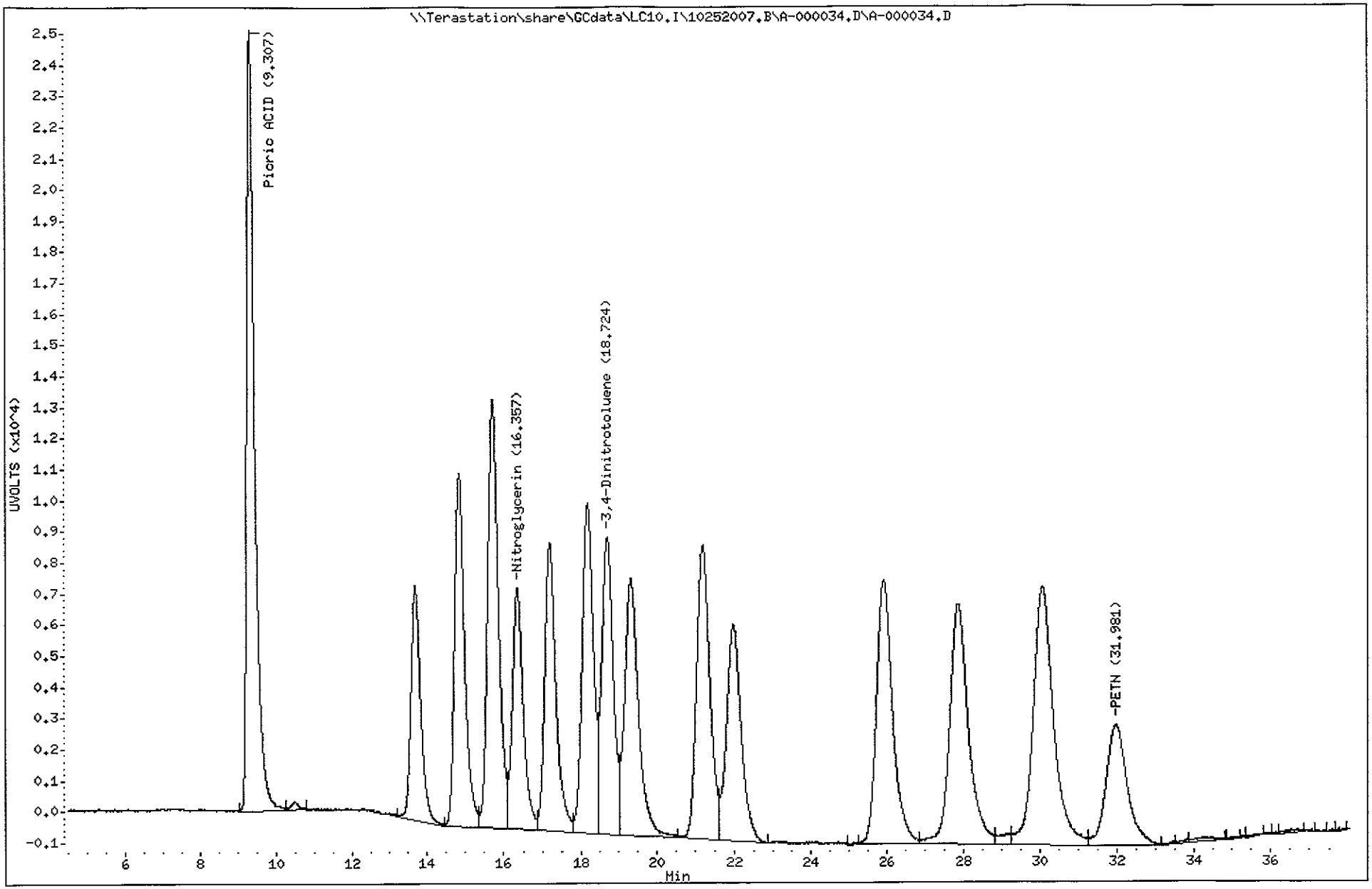
Instrument: LC10.i

Sample Info: STD_5 E070821M 100/200/100/100ng/mL:2

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000035.D

Chromatography Summary

Injection Date: 10/27/2007 0:05 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000035.D **Vial Num:** 5

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.71**	**960**	**19.3700<**	~~20~~ 5	**287%**	**Fails**	-30%	**18.69**	**1809**	**18.9700**	**5**	**279%**	**Fails**		(±15)	
HMX	5.27	668	5.0980<	5	2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
RDX	7.93	366	4.6040<	5	-8%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4284**	**51.9000**	~~50~~ 10	**419%**	**Fails**	+40%	**9.33**	**6310**	**51.9400<**	**10**	**419%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.47	743	4.9900<	5	0%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	735	5.1450<	5	3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
TETRYL	14.81	446	4.9190<	5	-2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.70	339	5.2200<	5	4%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.18	478	5.3580<	5	7%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.17	347	5.2960<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.32	400	5.3510<	5	7%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.18	283	5.3900<	5	8%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.95	440	5.1530<	5	3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.93	192	5.2860<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.85	239	5.4440<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.03	206	4.8600<	5	-3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.31**	**1517**	**20.2200<**	O **5**	**304%**	**Fails**	+10%	(±15)	45
PETN				**5**	**-100%**	**Fails**		**31.93**	**828**	**20.6800<**	O **5**	**314%**	**Fails**	+30%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:45 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.267	4219	668	0.158	5.88		4	HMX
7.927	3479	366	0.105	3.22		5	RDX
9.333	61272	4284	0.070	37.88		6	Picric ACID
10.470	9790	743	0.076	6.54		7	1,3,5-Trinitrobenze
11.257	124	34	0.274	0.29			
13.687	13389	735	0.055	6.47		8	1,3-Dinitrobenzene
14.807	8483	446	0.053	3.93		9	TETRYL
15.697	7215	339	0.047	2.98		10	Nitrobenzene
17.177	10094	478	0.047	4.21		11	2,4,6-Trinitrotolue
18.166	6956	347	0.050	3.05		12	4-AM-2,6-DNT
18.710	20419	960	0.047	8.45	$	13	3,4-Dinitrotoluene
19.320	10101	400	0.040	3.52		14	2-AM-4,6-DNT
20.673	226	46	0.204	0.40			
21.180	6721	283	0.042	2.49		15	2,6-Dinitrotoluene
21.947	11060	440	0.040	3.87		16	2,4-Dinitrotoluene
25.277	504	39	0.077	0.34			
25.930	5499	192	0.035	1.69		17	2-Nitrotoluene
27.053	135	26	0.192	0.22			
27.853	8502	239	0.028	2.10		18	4-Nitrotoluene
29.097	297	31	0.104	0.27			
29.530	162	19	0.117	0.16			
30.033	5612	206	0.037	1.81		19	3-Nitrotoluene
31.597	130	27	0.208	0.23			
	194389	11348		100.000			

Total unknown % height = 1.910

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D

Date : 27-OCT-2007 00:05

Client ID:

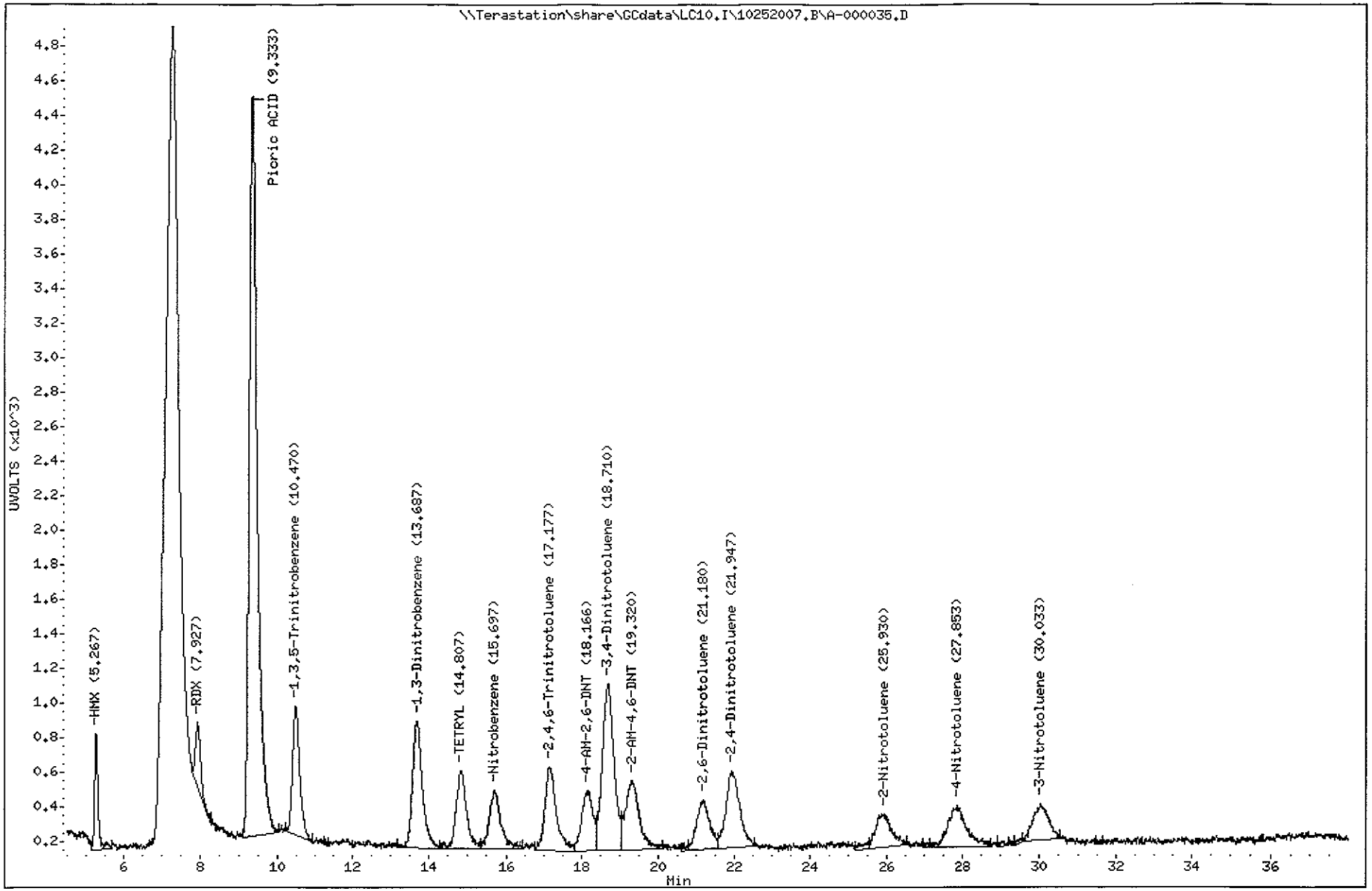
Instrument: LC10.i

Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

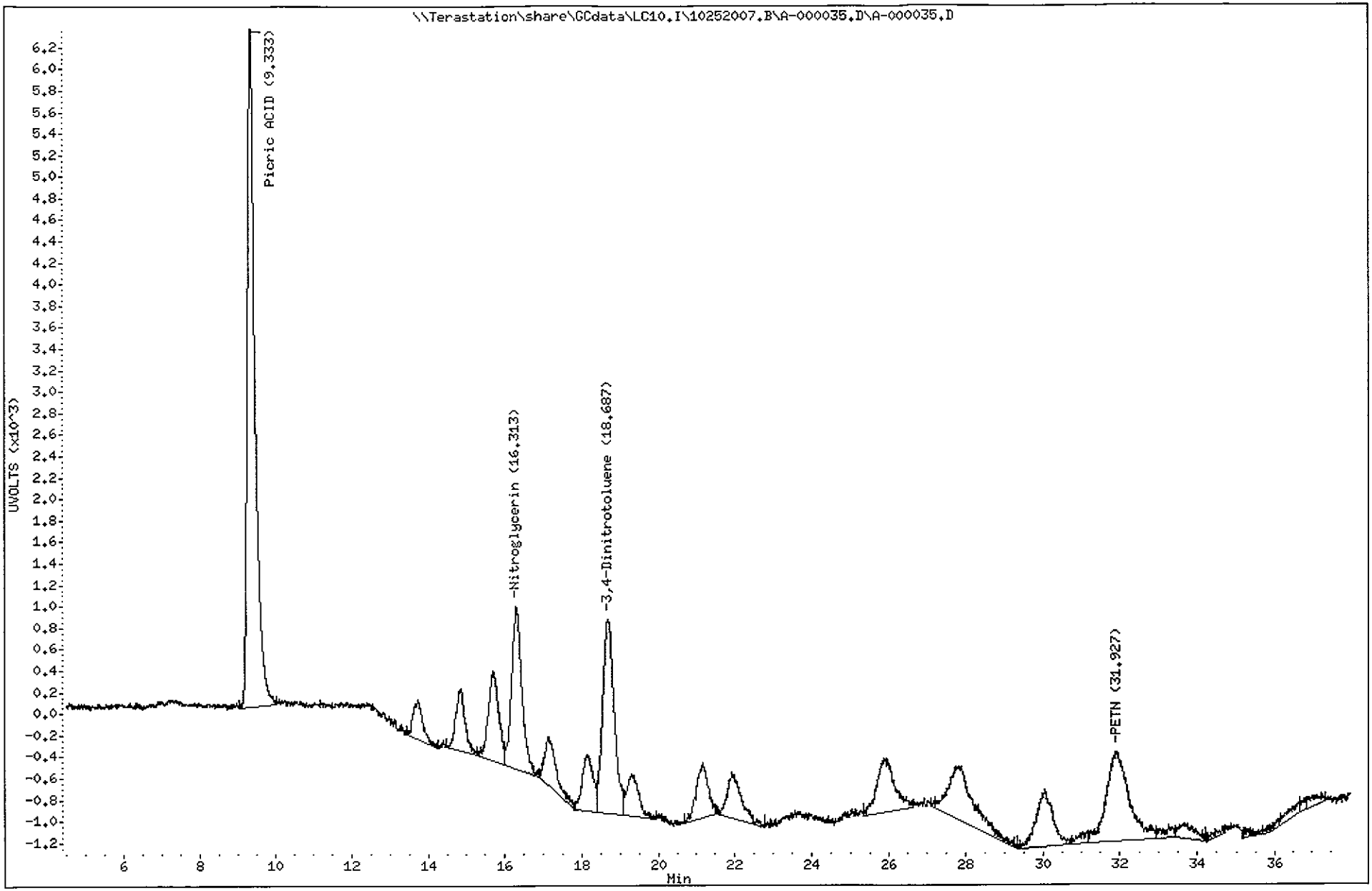
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.333	89466	6310	0.071	36.85	6 Picric ACID
13.700	6397	360	0.056	2.09	
14.843	10172	586	0.058	3.41	
15.707	16386	844	0.052	4.91	
16.313	28380	1517	0.053	8.83	1 Nitroglycerin
17.143	9725	454	0.047	2.64	
18.157	10530	529	0.050	3.07	
18.687	37270	1809	0.049	10.52	$ 13 3,4-Dinitrotoluene
19.297	8761	394	0.045	2.29	
21.183	10998	511	0.046	2.97	
21.940	11015	423	0.038	2.46	
25.863	16562	500	0.030	2.91	
27.177	168	65	0.386	0.37	
27.820	22897	497	0.022	2.89	
30.040	16153	537	0.033	3.12	
31.023	1855	112	0.060	0.65	
31.927	33277	828	0.025	4.81	2 PETN
33.236	1980	116	0.059	0.67	
33.730	4062	142	0.035	0.82	
34.440	420	49	0.117	0.28	
34.663	606	71	0.117	0.41	
35.187	569	94	0.165	0.54	
35.640	501	47	0.094	0.27	
35.790	393	71	0.181	0.41	
36.627	3243	101	0.031	0.58	
36.823	806	106	0.131	0.61	
36.993	1911	107	0.056	0.62	
	344503	17180		100.000	

Total unknown % height = 38.99

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035.D
Date : 27-OCT-2007 00:05
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000036.D

Chromatography Summary

Injection Date: 10/27/2007 0:58 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000036.D **Vial Num:** 38

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J74841A4 7285667 A7J030104-5**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J74841A4 7285667 A7J030104-5;0

Misc. Info: ; ; ;2.06;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.75**	**0.045**	**4617**	**1809.0000<**		**18.76**	**0.069**	**9916**	**2020.0000**		**0.0000**	**0.00**	
HMX											29.1262	242.72	
RDX											38.8350	242.72	
Picric ACID											242.7184	970.87	
1,3,5-Trinitrobenzene	10.33	-0.142	309	40.3000<							19.4175	242.72	45
1,3-Dinitrobenzene											48.5437	242.72	
TETRYL											48.5437	242.72	
Nitrobenzene											48.5437	242.72	
2,4,6-Trinitrotoluene											19.4175	242.72	
4-AM-2,6-DNT											19.4175	242.72	
2-AM-4,6-DNT											97.0874	242.72	
2,6-Dinitrotoluene											29.1262	242.72	
2,4-Dinitrotoluene											19.4175	242.72	
2-Nitrotoluene											77.6699	242.72	
4-Nitrotoluene											77.6699	242.72	
3-Nitrotoluene											67.9612	242.72	
Nitroglycerin											126.2136	485.44	
PETN											155.3398	485.44	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1941.7476**	**1809.0000**	**93**	**1941.7476**	**2020.0000**	**104**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:46 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000036.D
Lab Smp Id: J74841A4 7285667 A7
Inj Date : 27-OCT-2007 00:58
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74841A4 7285667 A7J030104-5;0
Misc Info : ; ; ;2.06;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 38
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.060	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.578	185	24	0.130	0.26	
5.865	131	29	0.221	0.31	
9.235	264	47	0.178	0.51	
9.728	18715	601	0.032	6.56	
10.328	5105	309	0.061	3.37	7 1,3,5-Trinitrobenze
11.441	18607	1039	0.056	11.35	
12.258	12906	556	0.043	6.07	
13.065	1228	49	0.040	0.53	
13.951	9779	367	0.038	4.01	
15.265	5214	281	0.054	3.07	
17.271	1410	55	0.039	0.60	
18.755	102826	4617	0.045	50.58	$ 13 3,4-Dinitrotoluene
19.531	39320	804	0.020	8.78	
21.875	1080	45	0.042	0.49	
23.365	459	40	0.087	0.43	
24.088	1110	41	0.037	0.44	
25.005	1222	47	0.038	0.51	
26.668	234	38	0.163	0.41	
27.278	560	41	0.073	0.44	
28.485	254	27	0.106	0.29	
29.595	311	28	0.090	0.30	
31.401	773	27	0.035	0.29	
32.368	622	37	0.059	0.40	
	222315	9149		100.000	

Total unknown % height = 46.05

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000036.D

Page 2

Date : 27-OCT-2007 00:58

Client ID:

Instrument: LC10.i

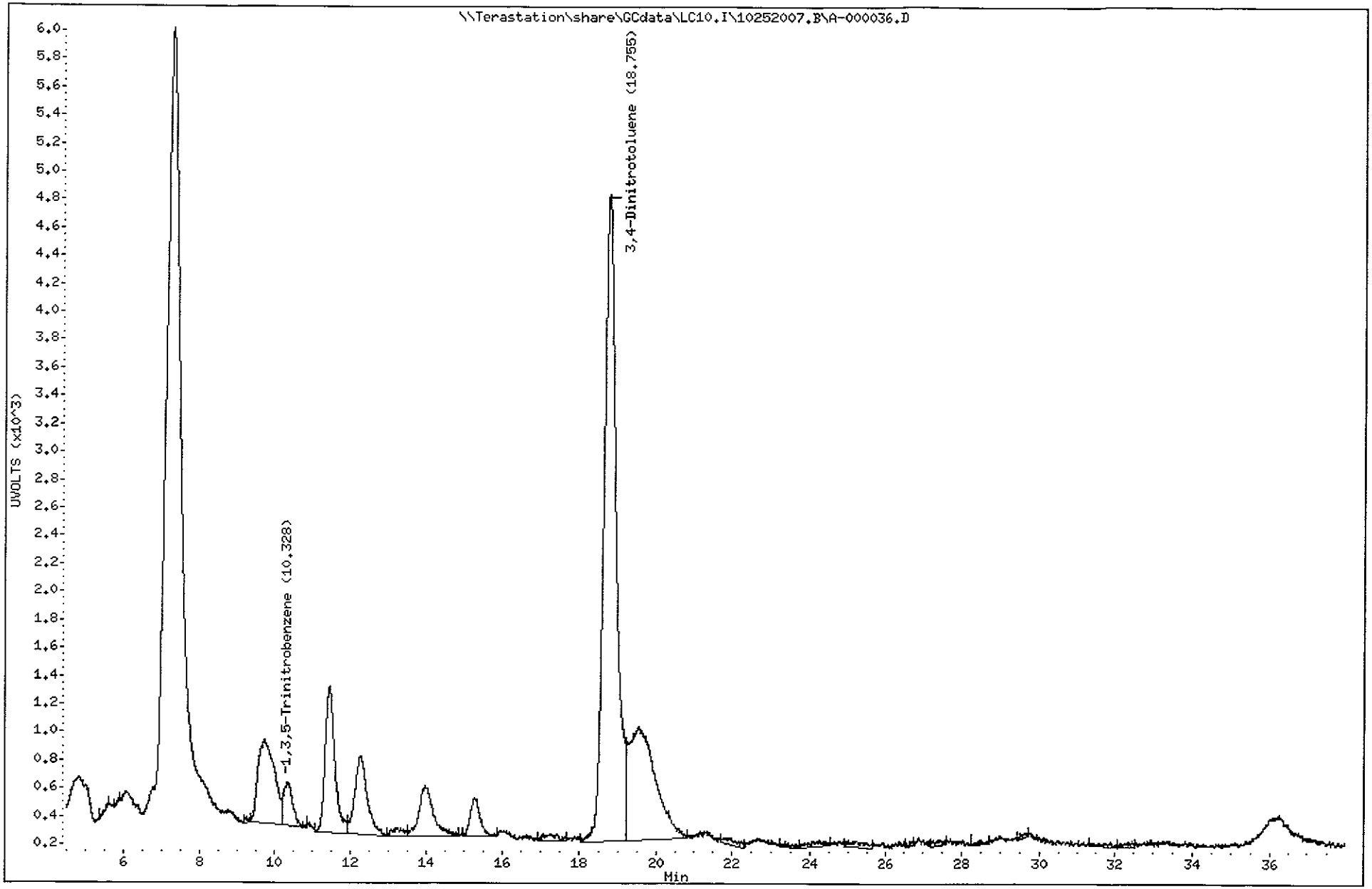
Sample Info: J74841A4 7285667 A7J030104-5;0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000036.D\A-000036
Lab Smp Id: J74841A4 7285667 A7
Inj Date : 27-OCT-2007 00:58
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74841A4 7285667 A7J030104-5;0
Misc Info : ; ; ;2.06;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 38
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.060	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
13.901	72207	3132	0.043	10.81	
15.278	4196	265	0.063	0.91	
15.951	6778	256	0.038	0.88	
16.758	9421	279	0.030	0.96	
18.765	215501	9916	0.046	34.24	$ 13 3,4-Dinitrotoluene
19.538	673936	12142	0.018	42.05	
21.808	4688	237	0.051	0.81	
22.658	16435	556	0.034	1.92	
25.981	1332	142	0.107	0.49	
26.298	10265	311	0.030	1.07	
27.445	165	49	0.297	0.16	
27.718	1502	84	0.056	0.29	
28.011	1903	111	0.058	0.38	
28.901	1591	68	0.043	0.23	
29.315	318	64	0.201	0.22	
29.651	449	42	0.094	0.14	
30.658	263	70	0.267	0.24	
30.988	1038	74	0.071	0.25	
31.605	1446	72	0.050	0.24	
32.415	784	46	0.059	0.15	
33.075	353	58	0.164	0.20	
33.368	1728	99	0.057	0.34	
34.245	933	62	0.066	0.21	
34.721	740	46	0.062	0.15	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
35.028	382	59	0.154	0.20	
36.198	30289	673	0.022	2.32	
37.701	917	43	0.047	0.14	
	1059561	28956		100.000	

Total unknown % height = 65.76

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000036.D\A-000036.D

Date : 27-OCT-2007 00:58

Client ID:

Instrument: LC10.i

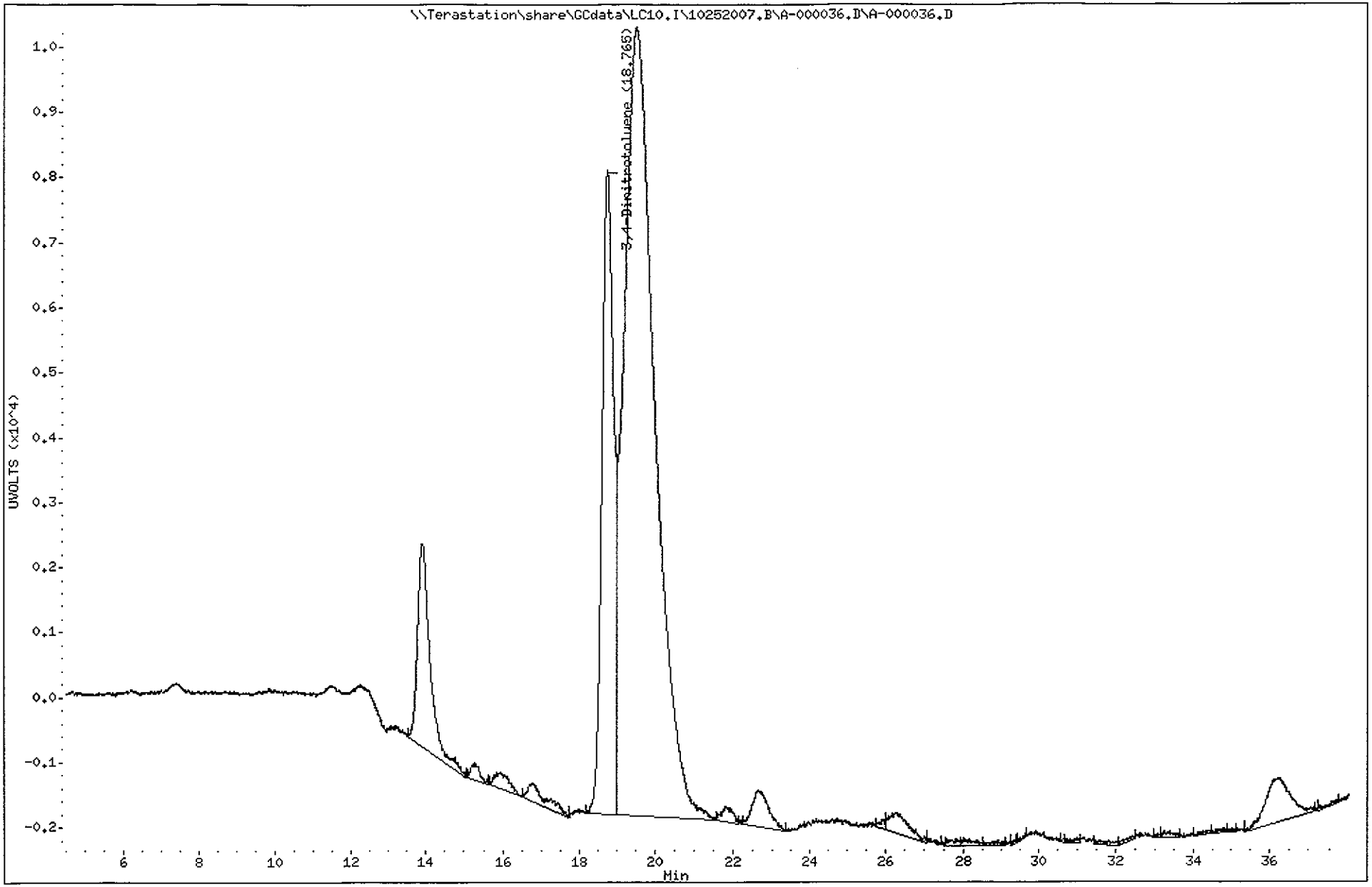
Sample Info: J74841A4 7285667 A7J030104-5:0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000037.D

Chromatography Summary

Injection Date: 10/27/2007 1:52 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000037.D **Vial Num:** 39

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J74881AF 7285667 A7J030104-6**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J74881AF 7285667 A7J030104-6;0

Misc. Info: ; ; ;2.02;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.75**	**0.038**	**4550**	**1818.0000<**		**18.75**	**0.056**	**9050**	**1880.0000**		**0.0000**	**0.00**	
HMX											29.7030	247.52	
RDX											39.6040	247.52	
Picric ACID											247.5248	990.10	
1,3,5-Trinitrobenzene	10.36	-0.112	203	27.0000<							19.8020	247.52	45
1,3-Dinitrobenzene											49.5050	247.52	
TETRYL											49.5050	247.52	
Nitrobenzene											49.5050	247.52	
2,4,6-Trinitrotoluene											19.8020	247.52	
4-AM-2,6-DNT											19.8020	247.52	
2-AM-4,6-DNT											99.0099	247.52	
2,6-Dinitrotoluene	21.36	0.185	145	54.6900<							29.7030	247.52	45
2,4-Dinitrotoluene	21.93	-0.018	147	34.0900<							19.8020	247.52	45
2-Nitrotoluene											79.2079	247.52	
4-Nitrotoluene											79.2079	247.52	
3-Nitrotoluene											69.3069	247.52	
Nitroglycerin											128.7129	495.05	
PETN											158.4158	495.05	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1980.1980**	**1818.0000**	**92**	**1980.1980**	**1880.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000037.D
Lab Smp Id: J74881AF 7285667 A7
Inj Date : 27-OCT-2007 01:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74881AF 7285667 A7J030104-6;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 39
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

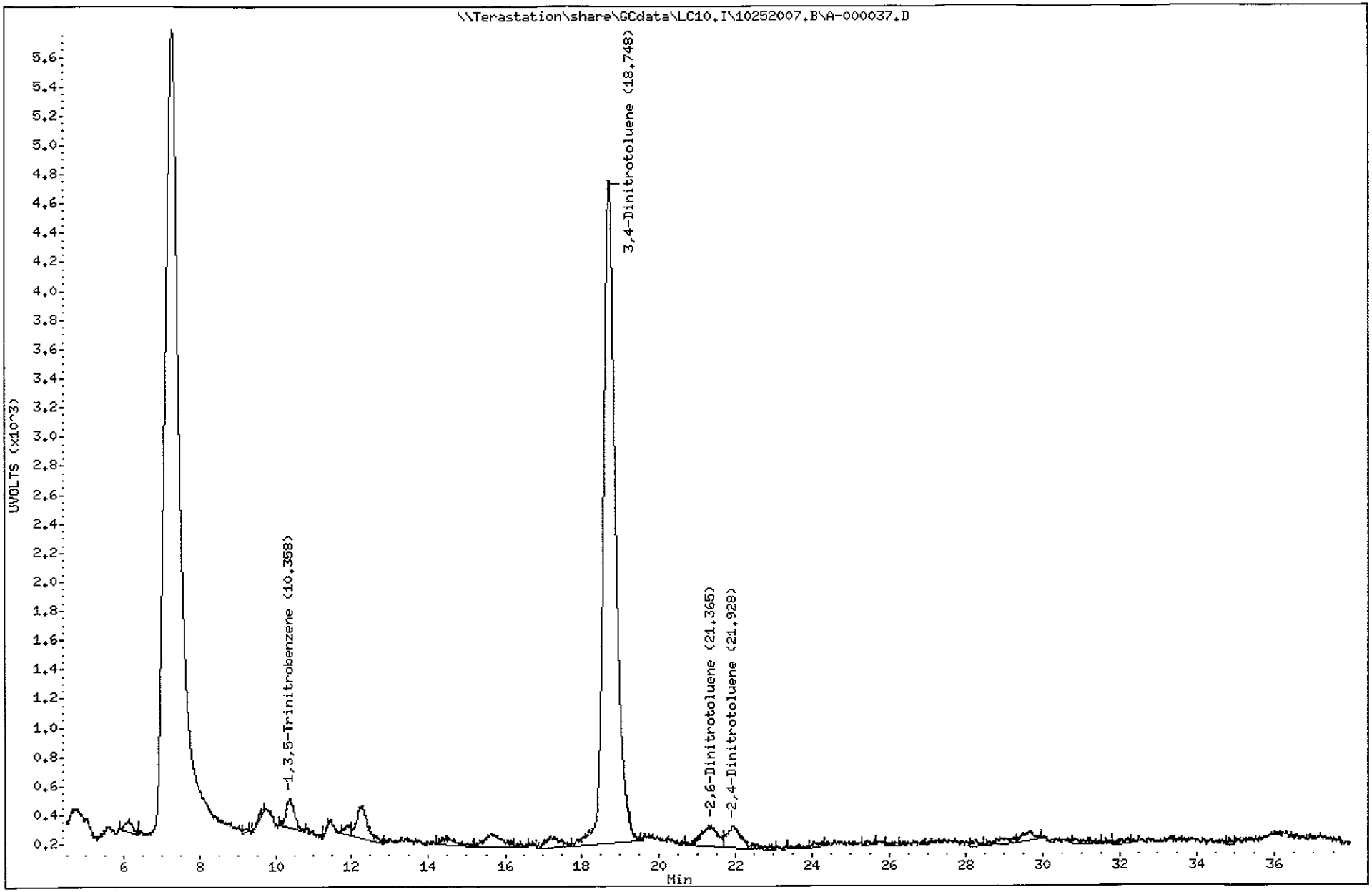
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
6.131	1230	97	0.079	1.56		
9.161	151	23	0.153	0.37		
9.598	477	46	0.096	0.74		
10.358	3110	203	0.065	3.26		7 1,3,5-Trinitrobenze
11.348	98	27	0.277	0.43		
11.901	680	71	0.104	1.14		
12.231	4662	216	0.046	3.47		
14.471	1536	64	0.042	1.03		
15.645	3124	98	0.031	1.57		
16.411	381	40	0.105	0.64		
17.231	1877	77	0.041	1.23		
18.748	99552	4550	0.046	73.35	$	13 3,4-Dinitrotoluene
21.365	4383	145	0.033	2.33		15 2,6-Dinitrotoluene
21.928	4392	147	0.033	2.36		16 2,4-Dinitrotoluene
23.665	447	32	0.072	0.51		
24.088	543	44	0.081	0.70		
25.421	330	35	0.106	0.56		
26.145	366	35	0.096	0.56		
28.271	417	39	0.094	0.62		
28.891	1143	43	0.038	0.69		
29.478	1264	58	0.046	0.93		
30.765	873	44	0.050	0.70		
32.041	523	32	0.061	0.51		
34.858	234	46	0.197	0.74		

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	131791	6212		100.000	

Total unknown % height = 18.70

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000037.D
Date : 27-OCT-2007 01:52
Client ID:
Sample Info: J74881AF 7285667 A7J030104-6;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000037.D\A-000037
Lab Smp Id: J74881AF 7285667 A7
Inj Date : 27-OCT-2007 01:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : J74881AF 7285667 A7J030104-6;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 39
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

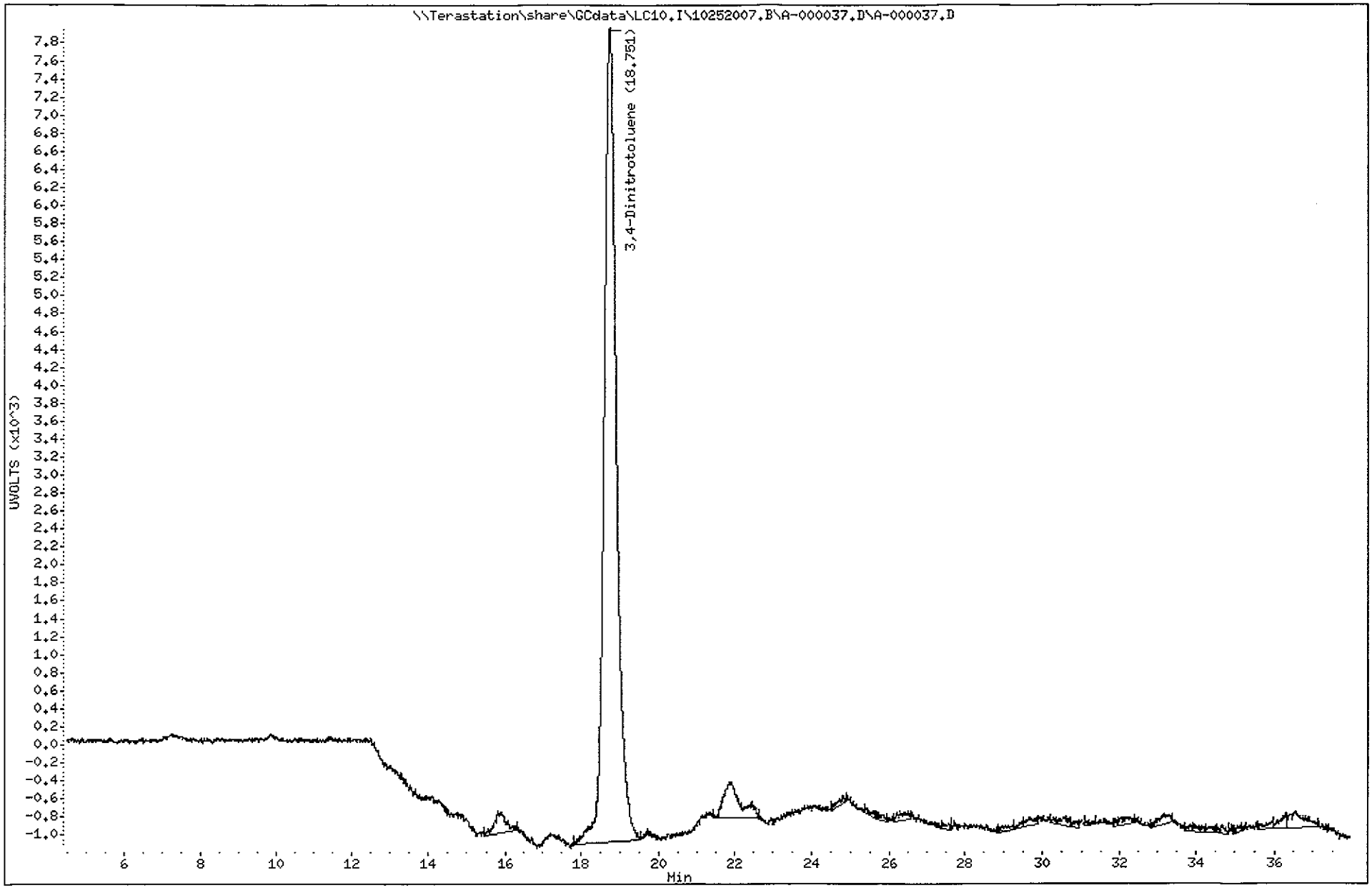
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.798	5043	242	0.048	2.12	
18.751	197783	9050	0.046	79.47	$ 13 3,4-Dinitrotoluene
21.925	12620	405	0.032	3.55	
24.821	1111	80	0.072	0.70	
25.415	729	70	0.096	0.61	
25.695	680	69	0.102	0.60	
26.278	1668	100	0.060	0.87	
27.425	609	63	0.103	0.55	
28.955	903	76	0.084	0.66	
29.458	527	68	0.129	0.59	
29.661	1408	100	0.071	0.87	
30.345	1675	75	0.045	0.65	
30.815	543	66	0.122	0.57	
31.345	463	56	0.121	0.49	
32.038	1872	92	0.049	0.80	
33.095	2069	67	0.032	0.58	
33.925	1307	78	0.060	0.68	
34.358	692	63	0.091	0.55	
34.681	867	91	0.105	0.79	
35.061	442	70	0.158	0.61	
35.911	1135	88	0.077	0.77	
36.275	1789	159	0.089	1.39	
36.545	4890	175	0.036	1.53	
	240825	11403		100.000	

Total unknown % height = 20.53

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000037.D\A-000037.D
Date : 27-OCT-2007 01:52
Client ID:
Sample Info: J74881AF 7285667 A7J030104-6;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000038.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 2:45 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000038.D **Vial Num:** 40

Instrument ID: LC10

Sample : **J749C1AF 7285667 A7J030104-7**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J749C1AF 7285667 A7J030104-7;0

Misc. Info: ; ; ;2.05;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.68**	**-0.027**	**4632**	**1823.0000<**		**18.68**	**-0.017**	**9032**	**1848.0000**		**0.0000**	**0.00**	
HMX											29.2683	243.90	
RDX											39.0244	243.90	
Picric ACID											243.9024	975.61	
1,3,5-Trinitrobenzene	10.33	-0.144	312	40.8900<							19.5122	243.90	45
1,3-Dinitrobenzene											48.7805	243.90	
TETRYL											48.7805	243.90	
Nitrobenzene											48.7805	243.90	
2,4,6-Trinitrotoluene	17.18	0.006	260	56.8600<							19.5122	243.90	45
4-AM-2,6-DNT											19.5122	243.90	
2-AM-4,6-DNT											97.5610	243.90	
2,6-Dinitrotoluene	21.30	0.119	164	60.9500<							29.2683	243.90	45
2,4-Dinitrotoluene	21.86	-0.084	166	37.9300<							19.5122	243.90	45
2-Nitrotoluene											78.0488	243.90	
4-Nitrotoluene											78.0488	243.90	
3-Nitrotoluene											68.2927	243.90	
Nitroglycerin											126.8293	487.80	
PETN											156.0976	487.80	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1951.2195**	**1823.0000**	**93**	**1951.2195**	**1848.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:46 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000038.D
Lab Smp Id: J749C1AF 7285667 A7
Inj Date : 27-OCT-2007 02:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749C1AF 7285667 A7J030104-7;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 40
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

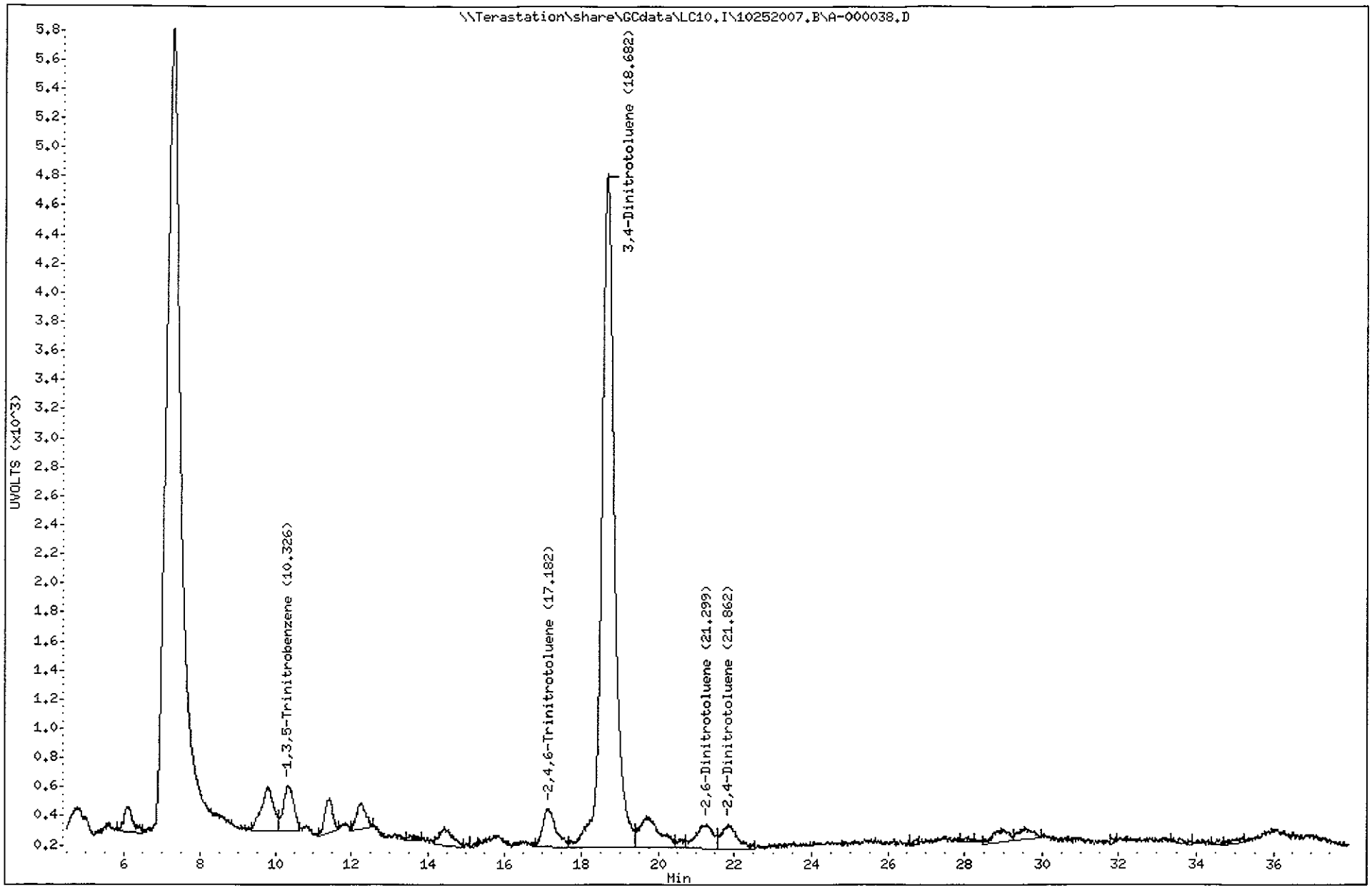
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
6.089	2893	171	0.059	2.34		
9.779	6772	306	0.045	4.19		
10.326	6055	312	0.052	4.27		7 1,3,5-Trinitrobenze
11.426	3489	241	0.069	3.30		
12.272	2876	173	0.060	2.36		
13.612	415	36	0.087	0.49		
14.412	2924	123	0.042	1.68		
15.262	191	31	0.163	0.42		
17.182	6172	260	0.042	3.56		11 2,4,6-Trinitrotolue
18.682	105038	4632	0.044	63.51	$	13 3,4-Dinitrotoluene
19.696	7767	217	0.028	2.97		
20.599	835	62	0.074	0.84		
21.299	5298	164	0.031	2.24		15 2,6-Dinitrotoluene
21.862	4867	166	0.034	2.27		16 2,4-Dinitrotoluene
26.769	292	39	0.133	0.53		
28.106	355	41	0.115	0.56		
28.936	2421	95	0.039	1.30		
29.539	2102	87	0.041	1.19		
31.916	237	35	0.148	0.47		
33.562	597	35	0.059	0.47		
34.582	313	37	0.118	0.50		
35.032	671	40	0.060	0.54		
	162579	7303		100.000		

Total unknown % height = 24.15

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000038.D
Date : 27-OCT-2007 02:45
Client ID:
Sample Info: J749C1AF 7285667 A7J030104-7;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000038.D\A-000038
Lab Smp Id: J749C1AF 7285667 A7
Inj Date : 27-OCT-2007 02:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749C1AF 7285667 A7J030104-7;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 40
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

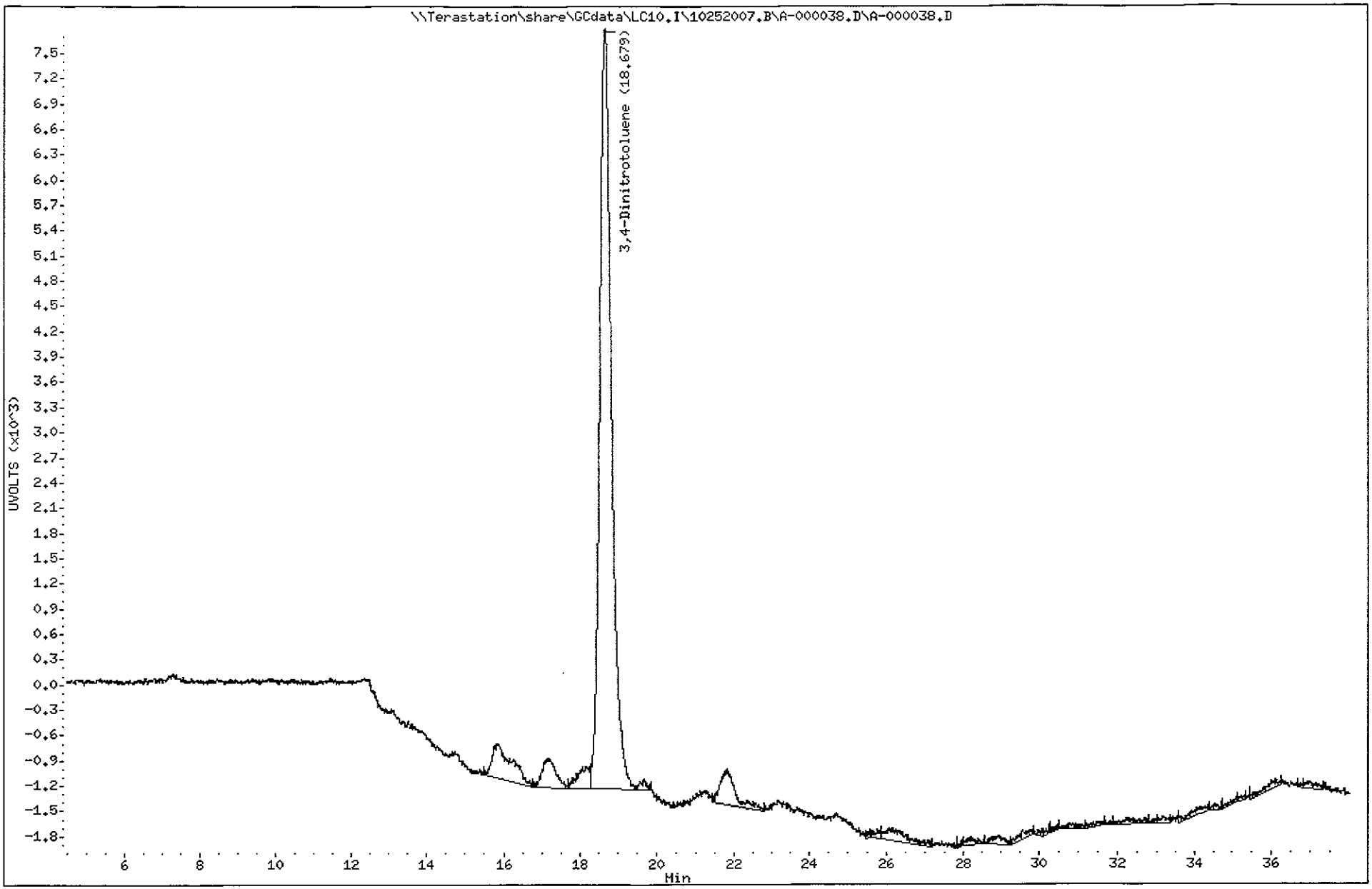
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.812	15187	408	0.027	3.32	
17.159	9075	361	0.040	2.94	
18.179	5775	273	0.047	2.22	
18.679	194249	9032	0.046	73.82	$ 13 3,4-Dinitrotoluene
21.826	11515	431	0.037	3.51	
25.526	234	72	0.308	0.58	
25.766	978	99	0.101	0.80	
26.149	5864	145	0.025	1.18	
27.949	297	77	0.259	0.62	
28.192	1676	103	0.061	0.84	
28.939	2410	114	0.047	0.92	
29.559	1981	113	0.057	0.92	
29.979	542	63	0.116	0.51	
30.169	338	73	0.216	0.59	
30.442	298	53	0.178	0.43	
30.756	1352	66	0.049	0.53	
31.552	981	47	0.048	0.38	
31.816	358	52	0.145	0.42	
32.276	1975	71	0.036	0.57	
32.926	314	55	0.175	0.44	
33.152	983	72	0.073	0.58	
34.282	2190	76	0.035	0.61	
34.516	724	90	0.124	0.73	
35.036	837	34	0.041	0.27	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
35.329	390	44	0.113	0.35	
36.089	1884	88	0.047	0.71	
36.722	249	59	0.237	0.48	
36.922	1554	90	0.058	0.73	
	264210	12261		100.000	

Total unknown % height = 26.18

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000038.D\A-000038.D
Date : 27-OCT-2007 02:45
Client ID:
Sample Info: J749C1AF 7285667 A7J030104-7:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



A-000039.D

Chromatography Summary

Injection Date: 10/27/2007 3:38 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000039.D **Vial Num:** 41

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J749D1AF 7285667 A7J030104-8**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J749D1AF 7285667 A7J030104-8;0

Misc. Info: ; ; ;2.02;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.71**	**-0.003**	**4611**	**1842.0000<**		**18.71**	**0.011**	**9087**	**1887.0000**		**0.0000**	**0.00**	
HMX											29.7030	247.52	
RDX											39.6040	247.52	
Picric ACID											247.5248	990.10	
1,3,5-Trinitrobenzene											19.8020	247.52	
1,3-Dinitrobenzene											49.5050	247.52	
TETRYL											49.5050	247.52	
Nitrobenzene											49.5050	247.52	
2,4,6-Trinitrotoluene											19.8020	247.52	
4-AM-2,6-DNT											19.8020	247.52	
2-AM-4,6-DNT											99.0099	247.52	
2,6-Dinitrotoluene											29.7030	247.52	
2,4-Dinitrotoluene											19.8020	247.52	
2-Nitrotoluene											79.2079	247.52	
4-Nitrotoluene											79.2079	247.52	
3-Nitrotoluene											69.3069	247.52	
Nitroglycerin											128.7129	495.05	
PETN											158.4158	495.05	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1980.1980**	**1842.0000**	93	**1980.1980**	**1887.0000**	95	(84-127)

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:47 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000039.D
Lab Smp Id: J749D1AF 7285667 A7
Inj Date : 27-OCT-2007 03:38
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749D1AF 7285667 A7J030104-8;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 41
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

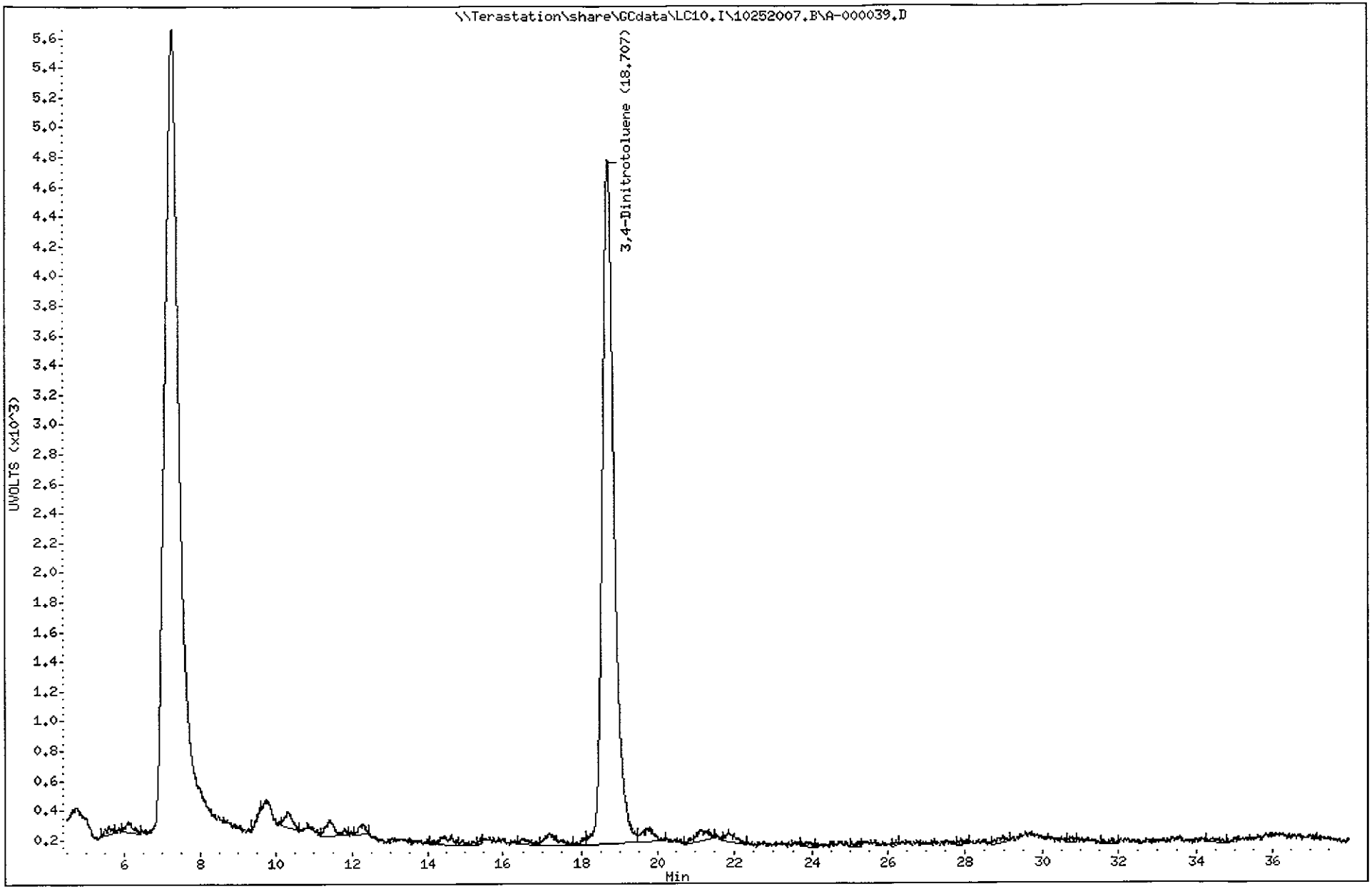
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.501	560	44	0.079	0.74	
6.111	952	71	0.075	1.20	
9.591	231	28	0.121	0.47	
10.301	1454	108	0.074	1.83	
11.397	1748	109	0.062	1.84	
12.217	811	63	0.078	1.06	
14.414	1281	53	0.041	0.89	
14.924	427	36	0.084	0.61	
15.407	142	39	0.275	0.66	
16.531	677	42	0.062	0.71	
17.204	2066	84	0.041	1.42	
18.084	405	52	0.128	0.88	
18.707	100199	4611	0.046	78.26	$ 13 3,4-Dinitrotoluene
19.797	2231	107	0.048	1.81	
21.167	1817	78	0.043	1.32	
21.861	1196	81	0.068	1.37	
23.867	546	39	0.071	0.66	
25.241	313	35	0.112	0.59	
26.214	188	33	0.176	0.55	
27.901	312	39	0.125	0.66	
28.971	575	43	0.075	0.72	
30.791	288	36	0.125	0.61	
31.857	361	37	0.102	0.62	
34.414	471	31	0.066	0.52	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	119251	5899		100.000	

Total unknown % height = 21.74

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000039.D
Date : 27-OCT-2007 03:38
Client ID:
Sample Info: J749D1AF 7285667 A7J030104-8;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000039.D\A-000039
Lab Smp Id: J749D1AF 7285667 A7
Inj Date : 27-OCT-2007 03:38
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749D1AF 7285667 A7J030104-8;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 41
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.761	11244	311	0.028	2.66	
18.707	191786	9087	0.047	77.98	$ 13 3,4-Dinitrotoluene
21.824	13805	383	0.028	3.27	
26.061	1035	72	0.070	0.61	
27.484	368	61	0.166	0.52	
28.051	623	68	0.109	0.58	
28.364	383	72	0.188	0.61	
28.824	1737	89	0.051	0.76	
29.341	218	45	0.207	0.38	
29.564	1106	101	0.091	0.86	
30.161	422	58	0.138	0.49	
30.634	725	84	0.116	0.71	
30.861	1920	119	0.062	1.01	
31.694	301	53	0.176	0.45	
31.877	624	83	0.133	0.71	
32.251	1453	85	0.059	0.72	
32.807	566	69	0.122	0.59	
32.910	315	92	0.292	0.78	
33.127	711	75	0.105	0.64	
33.387	570	77	0.135	0.65	
34.197	350	77	0.220	0.65	
34.444	1880	100	0.053	0.85	
34.991	179	67	0.374	0.57	
35.277	1218	73	0.060	0.62	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
35.557	205	56	0.273	0.47	
35.934	164	42	0.256	0.35	
36.221	342	29	0.085	0.24	
36.641	866	44	0.051	0.37	
37.071	1233	106	0.086	0.90	
	236349	11678		100.000	

Total unknown % height = 22.02

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000039.D\A-000039.D

Date : 27-OCT-2007 03:38

Client ID:

Instrument: LC10.i

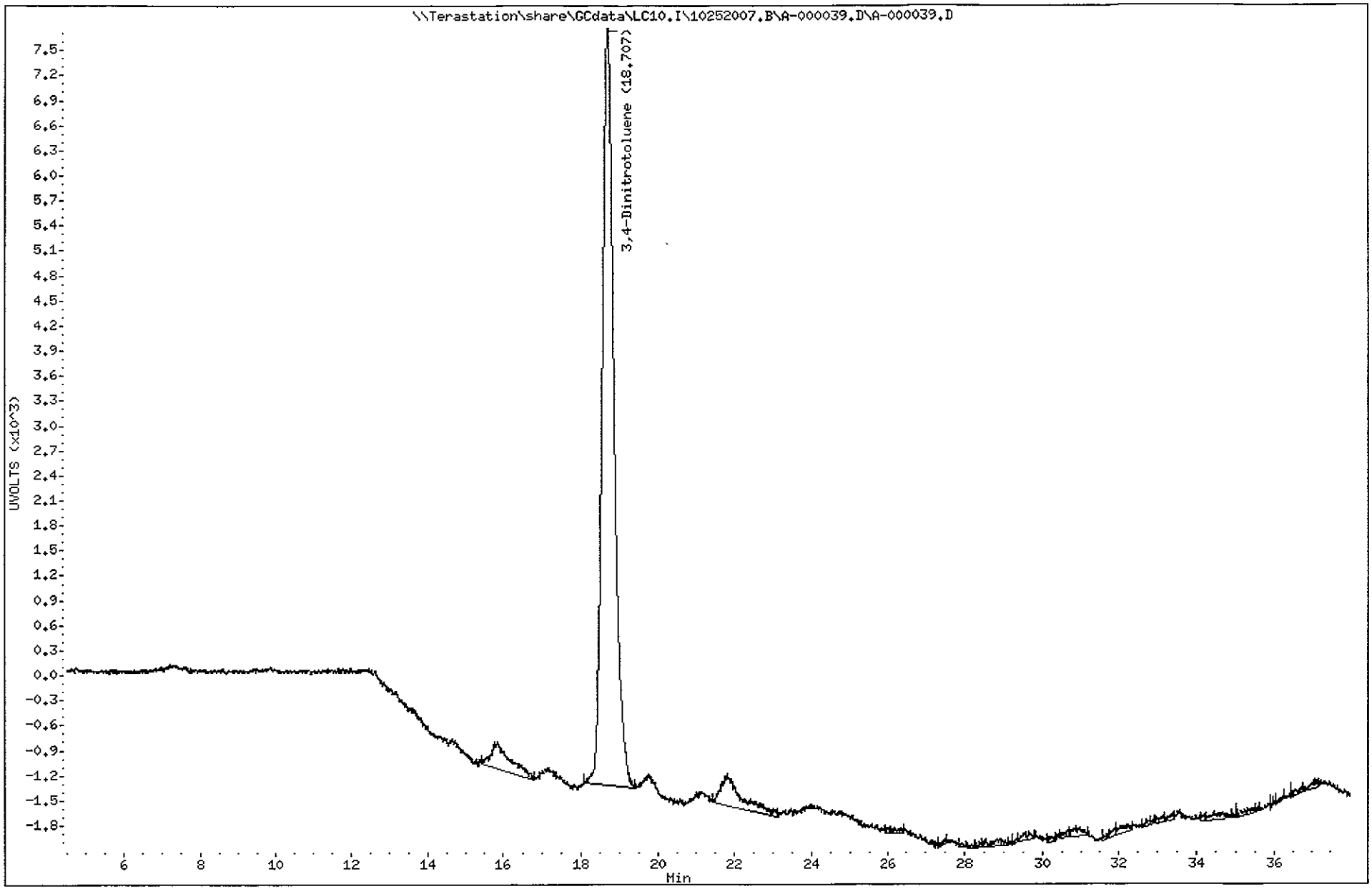
Sample Info: J749D1AF 7285667 A7J030104-8;0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000040.D

Chromatography Summary

Injection Date: 10/27/2007 4:31 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000040.D **Vial Num:** 42

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J749E1AF 7285667 A7J030104-9**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J749E1AF 7285667 A7J030104-9;0

Misc. Info: ; ; ;1.95;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.67**	**-0.037**	**4691**	**1941.0000<**		**18.67**	**-0.023**	**9322**	**2006.0000**		**0.0000**	**0.00**	
HMX											30.7692	256.41	
RDX											41.0256	256.41	
Picric ACID											256.4103	1025.64	
1,3,5-Trinitrobenzene											20.5128	256.41	
1,3-Dinitrobenzene											51.2821	256.41	
TETRYL											51.2821	256.41	
Nitrobenzene											51.2821	256.41	
2,4,6-Trinitrotoluene											20.5128	256.41	
4-AM-2,6-DNT											20.5128	256.41	
2-AM-4,6-DNT											102.5641	256.41	
2,6-Dinitrotoluene	21.08	-0.100	79	30.8700<							30.7692	256.41	45
2,4-Dinitrotoluene											20.5128	256.41	
2-Nitrotoluene											82.0513	256.41	
4-Nitrotoluene											82.0513	256.41	
3-Nitrotoluene											71.7949	256.41	
Nitroglycerin											133.3333	512.82	
PETN											164.1026	512.82	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2051.2821**	**1941.0000**	**95**	**2051.2821**	**2006.0000**	**98**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:47 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000040.D
Lab Smp Id: J749E1AF 7285667 A7
Inj Date : 27-OCT-2007 04:31
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749E1AF 7285667 A7J030104-9;0
Misc Info : ; ; ;1.95;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 42
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.950	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

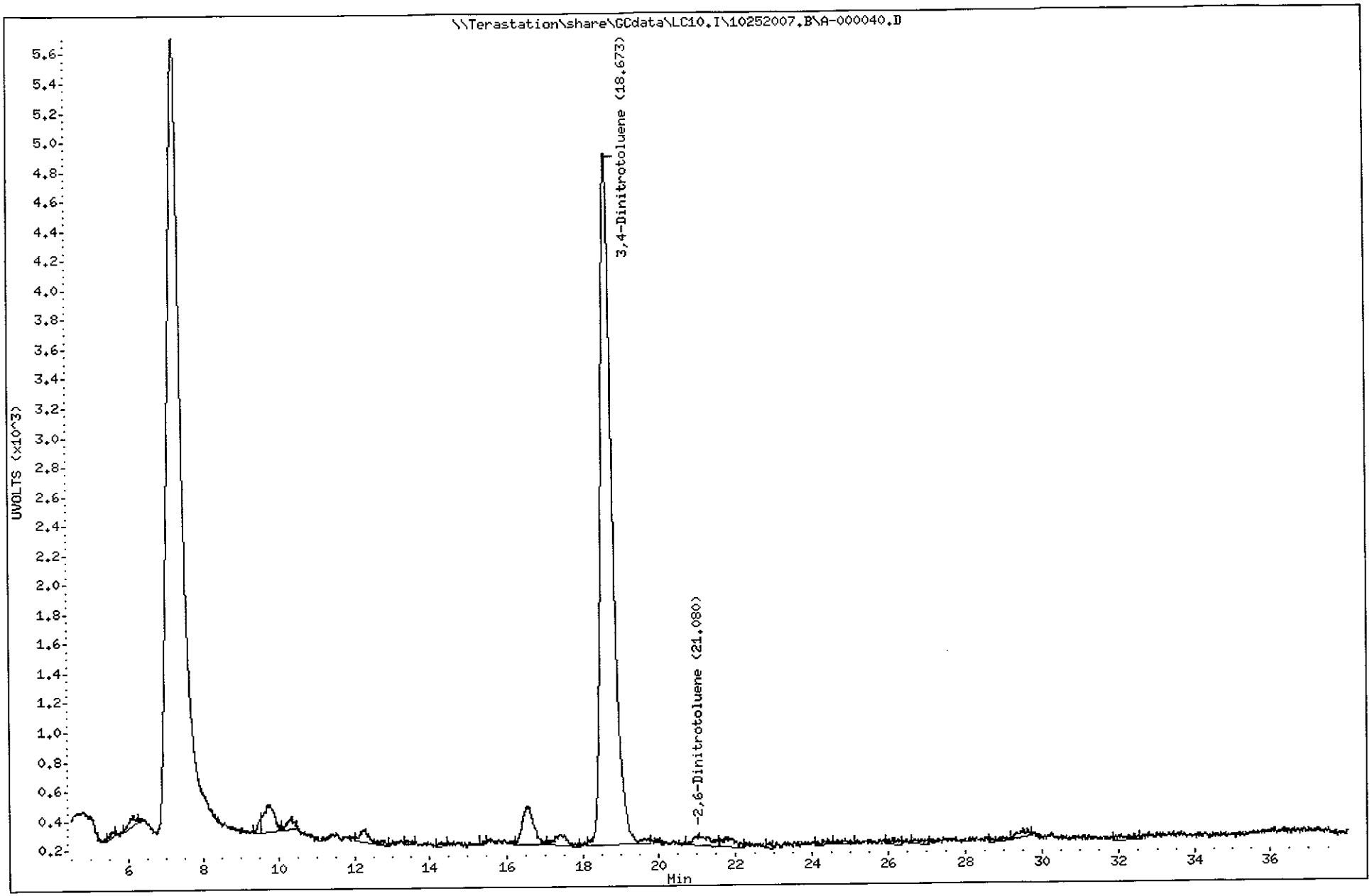
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.583	338	37	0.109	0.60	
6.123	828	69	0.083	1.13	
9.503	553	97	0.175	1.59	
9.733	3743	187	0.050	3.07	
10.317	982	66	0.067	1.08	
12.247	1724	87	0.050	1.42	
13.387	294	32	0.109	0.52	
14.297	269	35	0.130	0.57	
15.417	122	24	0.196	0.39	
16.603	5482	259	0.047	4.25	
17.420	1959	79	0.040	1.29	
18.673	100373	4691	0.047	77.13	$ 13 3,4-Dinitrotoluene
21.080	2107	79	0.037	1.29	15 2,6-Dinitrotoluene
21.813	1345	65	0.048	1.06	
22.890	253	37	0.146	0.60	
24.280	499	37	0.074	0.60	
24.633	476	26	0.055	0.42	
26.183	489	40	0.082	0.65	
26.673	602	32	0.053	0.52	
29.007	475	27	0.057	0.44	
29.330	921	42	0.046	0.68	
32.053	1008	43	0.043	0.70	
	124843	6091		100.000	

Total unknown % height = 21.58

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000040.D
Date : 27-OCT-2007 04:31
Client ID:
Sample Info: J749E1AF 7285667 A7J030104-9;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000040.D\A-000040
Lab Smp Id: J749E1AF 7285667 A7
Inj Date : 27-OCT-2007 04:31
Operator : KenneyF Inst ID: LC10.i
Smp Info : J749E1AF 7285667 A7J030104-9;0
Misc Info : ; ; ;1.95;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 42
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.950	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
16.500	7738	323	0.042	2.65	
18.673	202676	9322	0.046	76.81	$ 13 3,4-Dinitrotoluene
21.073	6225	224	0.036	1.84	
21.680	11808	376	0.032	3.09	
24.993	293	55	0.188	0.45	
25.410	781	72	0.092	0.59	
25.967	1382	90	0.065	0.74	
28.983	480	75	0.156	0.61	
29.277	975	135	0.138	1.11	
29.537	7469	257	0.034	2.11	
31.160	368	54	0.147	0.44	
31.417	1027	63	0.061	0.51	
32.760	605	49	0.081	0.40	
33.190	3812	142	0.037	1.16	
34.060	390	81	0.207	0.66	
34.750	1706	82	0.048	0.67	
35.163	331	87	0.263	0.71	
35.486	718	52	0.072	0.42	
35.627	327	81	0.248	0.66	
36.467	312	77	0.247	0.63	
36.797	809	79	0.098	0.64	
37.040	1649	116	0.070	0.95	
37.363	1377	134	0.097	1.10	
37.537	2676	128	0.048	1.05	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	255934	12154		100.000	

Total unknown % height = 23.19

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000040.D\A-000040.D

Date : 27-OCT-2007 04:31

Client ID:

Sample Info: J749E1AF 7285667 A7J030104-9;0

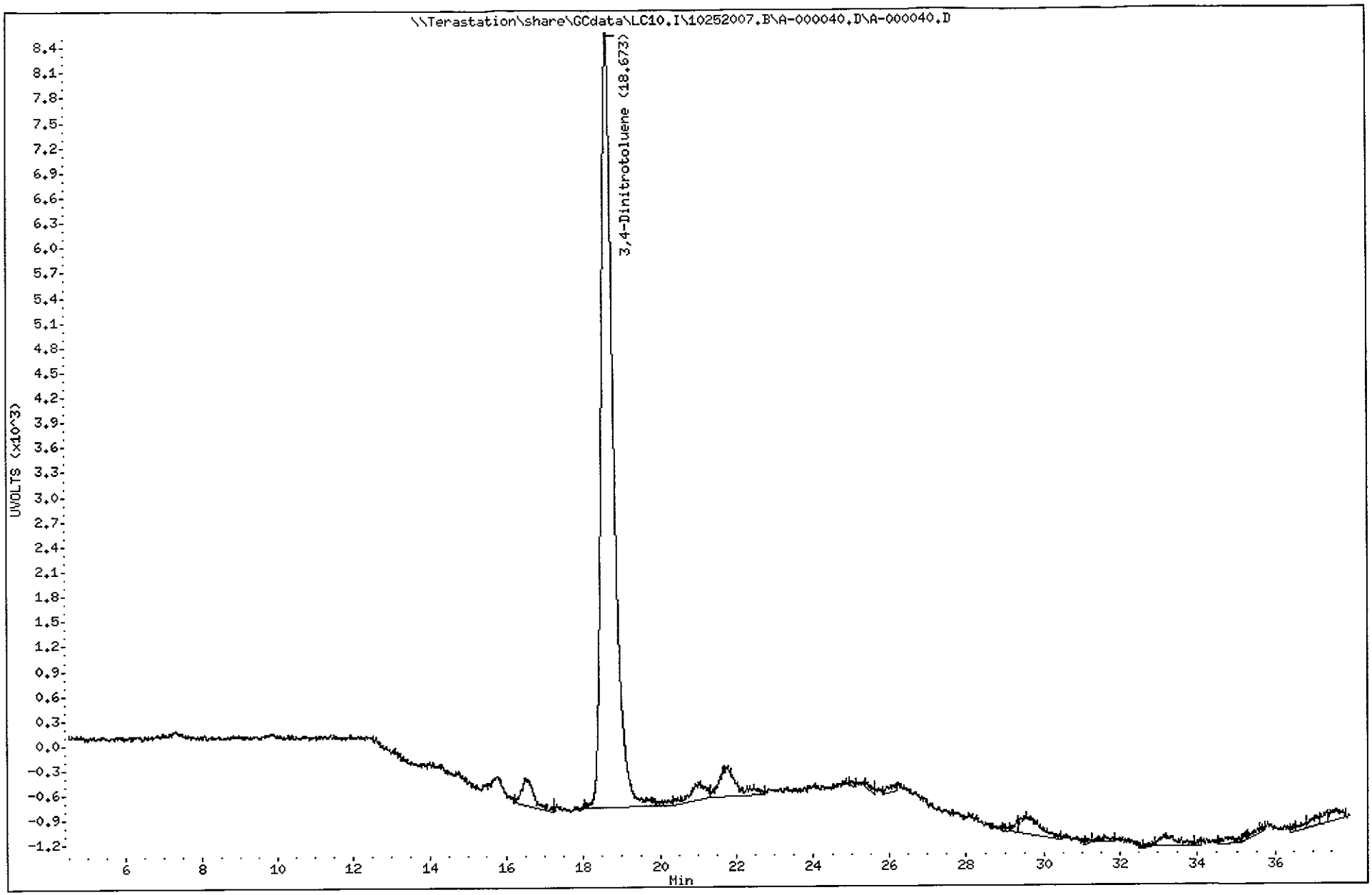
Volume Injected (uL): 500.0

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF

Column diameter: 4.60



TestAmerica West Sacramento

A-000044.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 8:04 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000044.D **Vial Num:** 6

Instrument ID: LC10

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.68	4811	97.0600<	100	-3%	Acceptable		18.68	9312	97.6700	100	-2%	Acceptable		(±15)	
HMX	5.27	13109	100.0000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.94	8195	103.1000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.30	17078	206.9000	200	3%	Acceptable		9.30	25153	207.0000<	200	4%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.47	14926	100.2000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.67	14216	99.5000<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.82	8708	96.0400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.69	6285	96.7800<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.17	8904	99.8000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.15	6537	99.7600<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.30	7405	99.0700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.16	5175	98.5700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.94	8489	99.4100<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.86	3487	96.0000<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.79	4222	96.1800<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.01	4066	95.9400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.32	7628	101.7000<	100	2%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.88	4066	101.5000<	100	2%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 08:52 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.265	81313	13109	0.161	9.66		4 HMX
6.219	480	39	0.081	0.02		
7.935	90605	8195	0.090	6.04		5 RDX
9.295	243490	17078	0.070	12.68		6 Picric ACID
10.469	203591	14926	0.073	11.00		7 1,3,5-Trinitrobenze
13.672	249006	14216	0.057	10.47		8 1,3-Dinitrobenzene
14.815	154270	8708	0.056	6.41		9 TETRYL
15.685	125279	6285	0.050	4.63		10 Nitrobenzene
17.169	177738	8904	0.050	6.56		11 2,4,6-Trinitrotolue
18.149	135374	6537	0.048	4.81		12 4-AM-2,6-DNT
18.682	100892	4811	0.048	3.54	$	13 3,4-Dinitrotoluene
19.302	180044	7405	0.041	5.45		14 2-AM-4,6-DNT
21.162	121144	5175	0.043	3.81		15 2,6-Dinitrotoluene
21.935	221681	8489	0.038	6.25		16 2,4-Dinitrotoluene
25.855	103452	3487	0.034	2.57		17 2-Nitrotoluene
27.789	134855	4222	0.031	3.11		18 4-Nitrotoluene
30.005	138871	4066	0.029	2.99		19 3-Nitrotoluene
	2462085	135652		100.000		

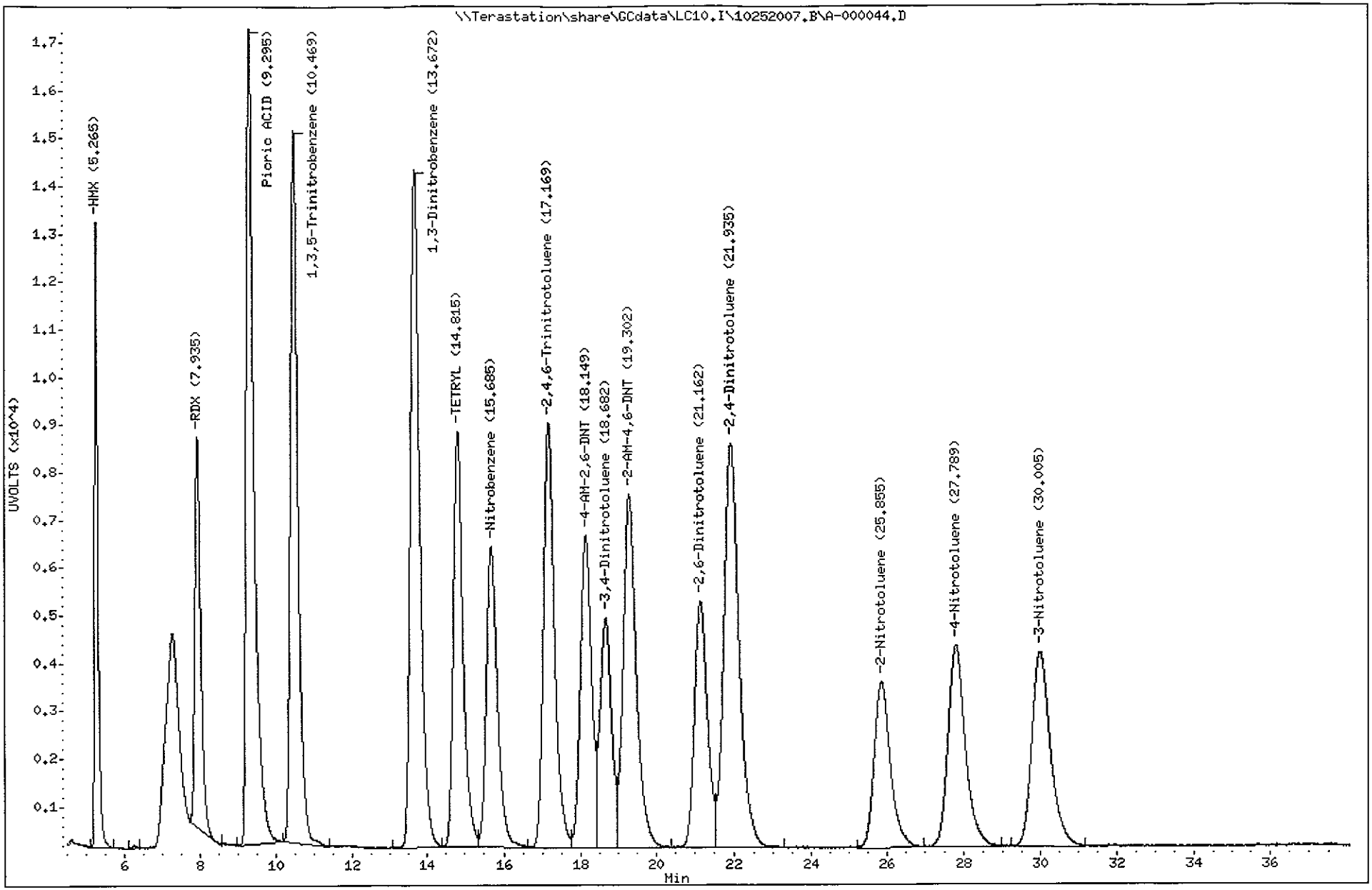
Total unknown % height = 0.02000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Date : 27-OCT-2007 08:04
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 08:52 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.295	359763	25153	0.070	17.13	6 Picric ACID
10.435	3718	239	0.064	0.16	
13.669	131197	7480	0.057	5.05	
14.819	199955	11366	0.057	7.68	
15.689	257393	13326	0.052	9.01	
16.319	144450	7628	0.053	5.15	1 Nitroglycerin
17.172	176840	9124	0.052	6.17	
18.149	209025	10395	0.050	7.03	
18.679	196447	9312	0.047	6.29	$ 13 3,4-Dinitrotoluene
19.302	197674	8117	0.041	5.49	
21.159	224613	9485	0.042	6.41	
21.929	185414	7078	0.038	4.78	
25.079	1082	85	0.079	0.05	
25.859	255275	8366	0.033	5.65	
27.782	265474	7602	0.029	5.14	
29.202	2522	318	0.126	0.21	
29.989	304755	8221	0.027	5.56	
31.882	153801	4066	0.026	2.75	2 PETN
33.915	790	79	0.100	0.05	
34.399	773	89	0.115	0.06	
35.009	222	50	0.226	0.03	
35.399	1022	67	0.066	0.04	
35.995	261	39	0.149	0.02	
36.355	650	55	0.085	0.03	
36.815	392	51	0.130	0.03	
37.242	480	52	0.108	0.03	
	3273988	147843		100.000	

Total unknown % height = 68.68

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044.D

Date : 27-OCT-2007 08:04

Client ID:

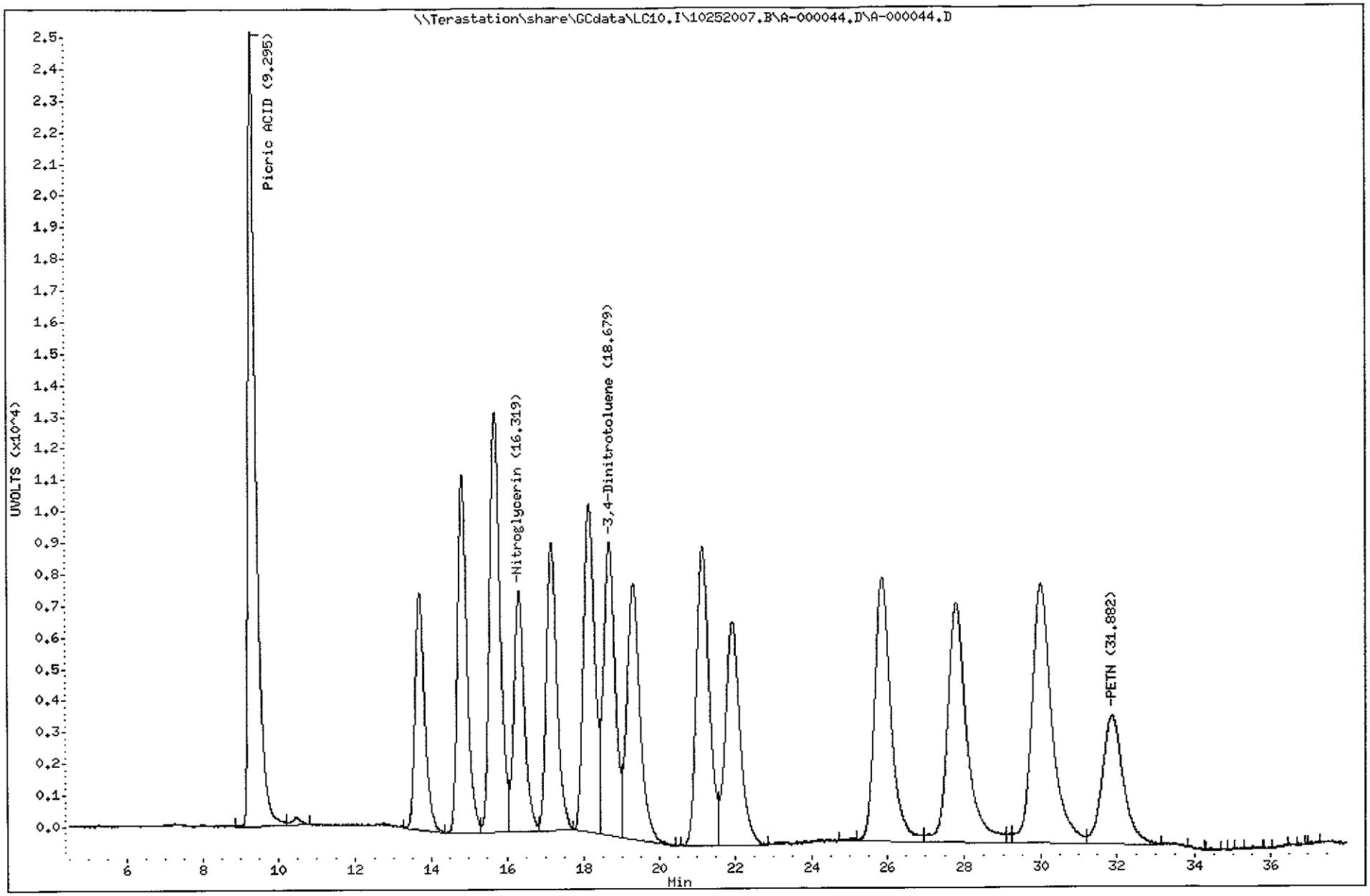
Instrument: LC10.i

Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000045.D

Chromatography Summary

Injection Date: 10/27/2007 8:57 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000045.D **Vial Num:** 7

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

		Signal 1 UV 250-265						Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.70**	**954**	**19.2500<**	20 5	**285%**	**Fails**	-40%	**18.70**	**1857**	**19.4800**	**5**	**290%**	**Fails**		(±15)	
HMX	5.27	653	4.9830<	5	0%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
RDX	7.93	349	4.3900<	5	-12%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4234**	**51.2900**	50 10	**413%**	**Fails**	+30%	**9.33**	**6265**	**51.5700<**	**10**	**416%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.47	763	5.1240<	5	2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.66	749	5.2430<	5	5%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
TETRYL	14.80	460	5.0730<	5	1%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.68	353	5.4360<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.14	475	5.3240<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.12	358	5.4640<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.32	408	5.4580<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.15	288	5.4860<	5	10%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.93	469	5.4920<	5	10%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	**25.88**	**211**	**5.8090<**	**5**	**16%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.79	247	5.6270<	5	13%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	**29.97**	**58**	**1.3680<**	**5**	**-73%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.32**	**1539**	**20.5200<**	20 **5**	**310%**	**Fails**	+30%	(±15)	45
PETN				**5**	**-100%**	**Fails**		**31.89**	**897**	**22.4000<**	20 **5**	**348%**	**Fails**	+120%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

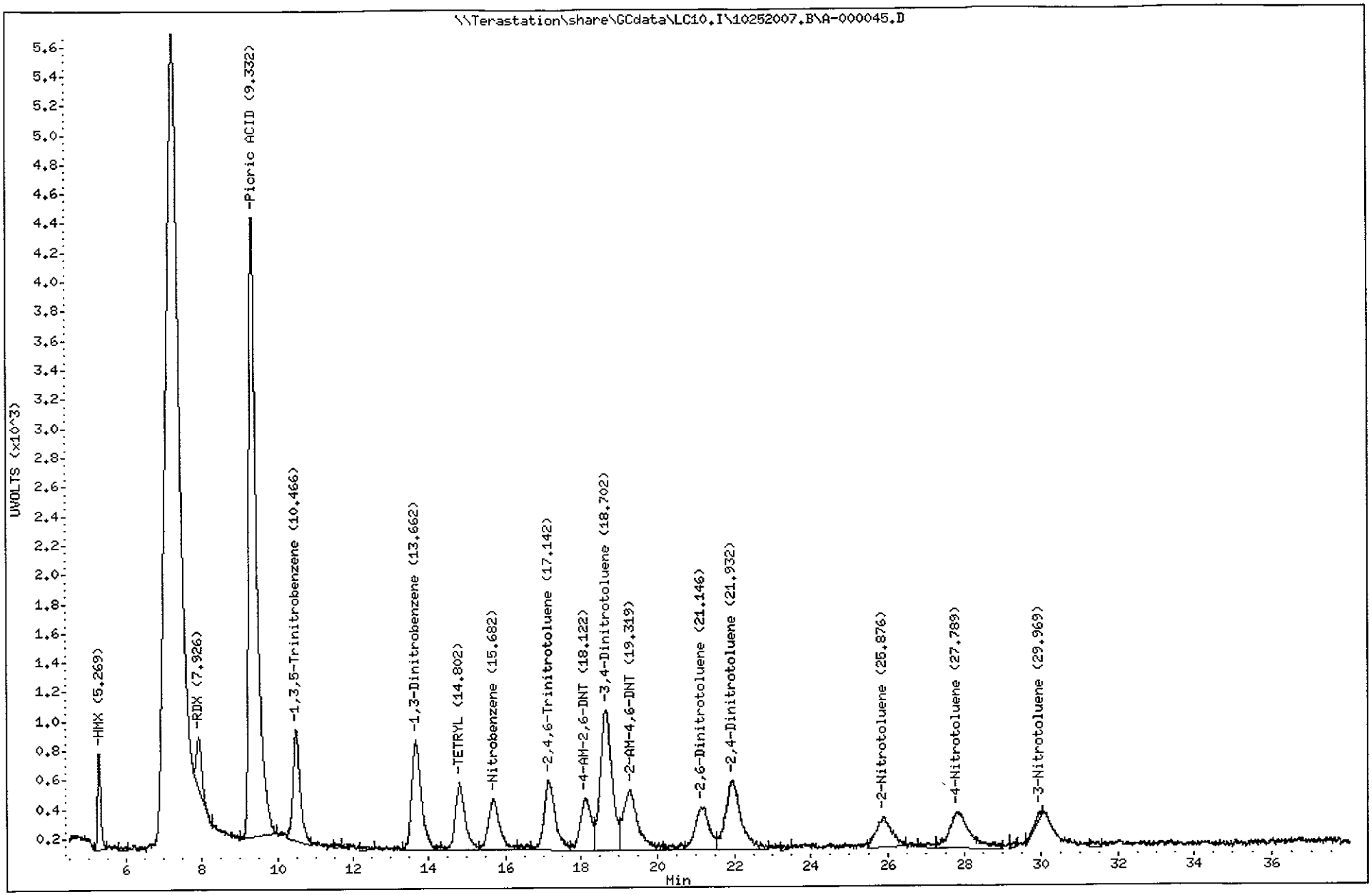
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.269	3813	653	0.171	5.75		4	HMX
5.842	222	27	0.122	0.23			
7.926	3427	349	0.102	3.07		5	RDX
9.332	60399	4234	0.070	37.42		6	Picric ACID
10.466	10152	763	0.075	6.72		7	1,3,5-Trinitrobenze
11.492	207	33	0.160	0.29			
12.219	377	31	0.082	0.27			
13.662	13283	749	0.056	6.60		8	1,3-Dinitrobenzene
14.802	8356	460	0.055	4.05		9	TETRYL
15.682	7318	353	0.048	3.11		10	Nitrobenzene
16.542	529	40	0.076	0.35			
17.142	9963	475	0.048	4.18		11	2,4,6-Trinitrotolue
18.122	7030	358	0.051	3.15		12	4-AM-2,6-DNT
18.702	20732	954	0.046	8.40	$	13	3,4-Dinitrotoluene
19.319	10873	408	0.038	3.59		14	2-AM-4,6-DNT
20.402	725	39	0.054	0.34			
21.146	7419	288	0.039	2.53		15	2,6-Dinitrotoluene
21.932	13309	469	0.035	4.13		16	2,4-Dinitrotoluene
23.392	340	31	0.091	0.27			
25.876	5808	211	0.036	1.85		17	2-Nitrotoluene
27.026	564	36	0.064	0.31			
27.789	9273	247	0.027	2.17		18	4-Nitrotoluene
29.356	330	45	0.136	0.39			
29.969	728	58	0.080	0.51		19	3-Nitrotoluene
31.362	459	37	0.081	0.32			
	195635	11348		100.000			

Total unknown % height = 2.770

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

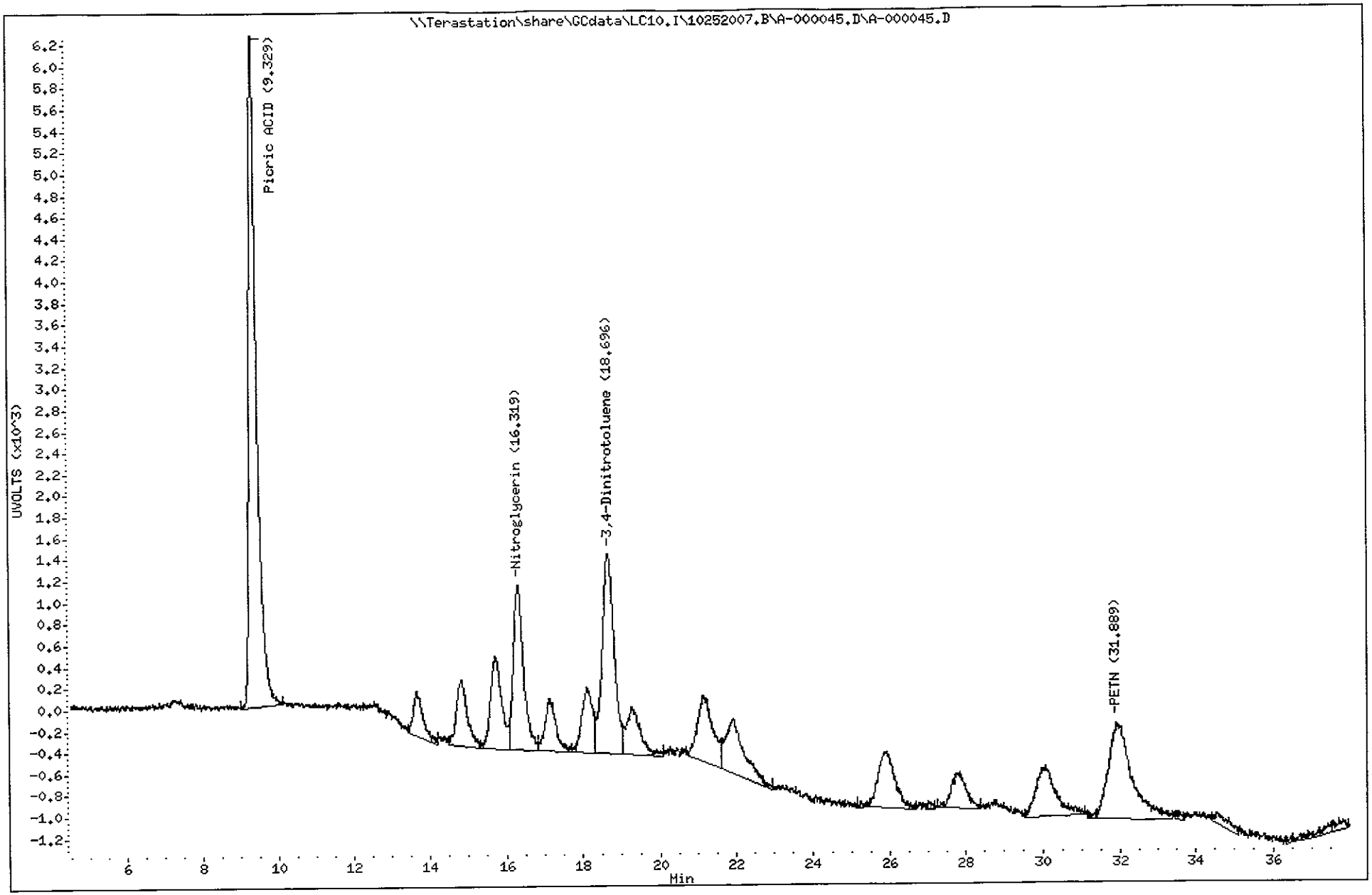
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.329	88602	6265	0.071	36.61	6 Picric ACID
13.656	7273	419	0.058	2.44	
14.826	11908	617	0.052	3.59	
15.702	18013	869	0.048	5.06	
16.319	29066	1539	0.053	8.96	1 Nitroglycerin
17.142	9628	495	0.051	2.88	
18.119	11296	602	0.053	3.50	
18.696	40081	1857	0.046	10.81	$ 13 3,4-Dinitrotoluene
19.282	10914	441	0.040	2.56	
21.132	17708	608	0.034	3.54	
21.949	17658	518	0.029	3.01	
25.412	406	46	0.113	0.26	
25.906	15992	521	0.033	3.03	
27.026	407	68	0.167	0.39	
27.869	9431	341	0.036	1.98	
30.059	16375	478	0.029	2.78	
31.889	38362	897	0.023	5.22	2 PETN
33.506	587	85	0.145	0.49	
34.542	2604	98	0.038	0.57	
36.456	358	50	0.140	0.29	
36.686	674	71	0.105	0.41	
37.176	706	78	0.111	0.45	
37.402	1118	87	0.078	0.50	
37.699	1478	116	0.079	0.67	
	350644	17166		100.000	

Total unknown % height = 38.40

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Initial Calibration

Includes (as applicable):

runlog

standard raw data

statistical summary

ms tune data

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
1 Nitroglycerin	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
2 PETN	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
3 3,5-Dinitroaniline	102	103	104	100	94.22000	95.69500		
	96.51400	97.04200					99	3.684
4 HMX	131	132	129	132	132	131		
	132	131					131	0.627
5 RDX	74.60000	74.10000	75.25000	80.50000	81.80000	82.05000		
	83.96600	83.71100					79.49712	5.245
6 Picric ACID	+++++	+++++	86.90000	85.54000	86.58500	84.38800		
	79.62500	72.23700					82.54583	6.905
7 1,3,5-Trinitrobenzene	149	150	147	149	149	149		
	150	150					149	0.574
8 1,3-Dinitrobenzene	147	145	141	141	142	142		
	143	143					143	1.343

JAK 10/29/07

ICAL passes criteria ± 20%
No Manual Integrations

reviewed by KMarsh
date 10-23-07

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
9 TETRYL	91.20000	93.90000	91.75000	89.26000	89.88000	89.73000		
	89.97400	89.70500					90.67488	1.708
10 Nitrobenzene	67.20000	66.90000	65.10000	62.68000	64.39000	64.30000		
	64.54000	64.39400					64.93800	2.273
11 2,4,6-Trinitrotoluene	93.60000	91.00000	89.55000	88.42000	87.84000	87.84500		
	87.73400	87.74900					89.21725	2.369
12 4-AM-2,6-DNT	69.60000	67.40000	65.35000	64.42000	64.45000	64.27000		
	64.35600	64.35500					65.52512	2.988
14 2-AM-4,6-DNT	79.80000	77.10000	73.95000	73.60000	73.47000	73.46000		
	73.34400	73.24000					74.74550	3.220
15 2,6-Dinitrotoluene	57.20000	54.30000	52.15000	51.00000	51.54000	51.35000		
	51.20400	51.24700					52.49888	4.148
16 2,4-Dinitrotoluene	89.80000	87.20000	84.60000	83.80000	84.47000	84.35500		
	84.39000	84.52100					85.39200	2.406
17 2-Nitrotoluene	39.20000	38.40000	35.95000	35.52000	35.52000	35.48000		
	35.24000	35.26400					36.32175	4.294
18 4-Nitrotoluene	50.00000	45.00000	42.65000	42.52000	42.86000	42.84000		
	42.66800	42.64300					43.89763	5.915
19 3-Nitrotoluene	45.60000	44.80000	41.45000	41.36000	41.55000	41.58500		
	41.43800	41.27300					42.38200	4.141
$ 13 3,4-Dinitrotoluene	+++++	51.70000	49.90000	48.92000	47.23000	48.13500		
	50.22333	50.87000					49.56833	3.160

Report Date: 23-Oct-2007 11:03

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d\A-00
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d\A-00
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d\A-00
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d\A-00
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d\A-00
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d\A-00
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d\A-00
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d\A-00

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
1 Nitroglycerin	+++++	+++++	76.05000	73.76000	76.17000	73.20500		
	74.38600	76.48400					75.00917	1.867
2 PETN	+++++	+++++	44.40000	38.02000	41.10000	39.51500		
	38.49600	38.75300					40.04733	5.965
3 3,5-Dinitroaniline	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
4 HMX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
5 RDX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
6 Picric ACID	+++++	+++++	128	126	128	124		
	117	106					121	6.966
7 1,3,5-Trinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
8 1,3-Dinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
9 TETRYL	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
10 Nitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
11 2,4,6-Trinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
12 4-AM-2,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
14 2-AM-4,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
15 2,6-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
16 2,4-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
17 2-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
18 4-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
19 3-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
$ 13 3,4-Dinitrotoluene	+++++	97.90000	94.10000	94.22000	91.61000	93.67500		
	96.60667	99					95.34024	2.811

Report Date: 23-Oct-2007 12:10

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 43
Book# 3029

GC/LC SEMI-VOLATILES

Standard ID's

CCV°1 10202007.B

Inst ID : LC10.I
Batch ID : 10202007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
20-OCT-2007	14:09	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
20-OCT-2007	15:02	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
20-OCT-2007	15:55	KenneyF	Blank	A-000003.	0 g	0 mL	1	
20-OCT-2007	16:48	KenneyF	STD_1 E070927A 5.0/0/0/0ng/mL	A-000004.	0 g	0 mL	1	
20-OCT-2007	17:41	KenneyF	STD_2 E070927B 10/20/10/10ng/m	A-000005.	0 g	0 mL	1	
20-OCT-2007	18:34	KenneyF	STD_3 E070927C 20/50/20/20ng/m	A-000006.	0 g	0 mL	1	
20-OCT-2007	19:27	KenneyF	STD_4 E070927D 50/100/50/50ng/	A-000007.	0 g	0 mL	1	
20-OCT-2007	20:20	KenneyF	STD_5 E071007D 100/200/100/100	A-000008.	0 g	0 mL	1	
20-OCT-2007	21:13	KenneyF	STD_6 E071007E 200/500/200/200	A-000009.	0 g	0 mL	1	
20-OCT-2007	22:06	KenneyF	STD_7 E071007F 500/1000/500/30	A-000010.	0 g	0 mL	1	
20-OCT-2007	22:59	KenneyF	STD_8 E071007G 1000/2000/1000/	A-000011.	0 g	0 mL	1	
20-OCT-2007	23:52	KenneyF	Blank	A-000012.	0 g	0 mL	1	
21-OCT-2007	00:45	KenneyF	ICV_6 E071007C 200/500/200/500	A-000013.	0 g	0 mL	1	
21-OCT-2007	01:38	KenneyF	STD_5 E071007D 100/200/100/100	A-000014.	0 g	0 mL	1	
21-OCT-2007	02:31	KenneyF	8330-H2O-MDL-MB	A-000015.	1000 mL	20 mL	1	
21-OCT-2007	03:24	KenneyF	8330-H2O-MDL-1	A-000016.	1000 mL	20 mL	1	
21-OCT-2007	04:18	KenneyF	8330-H2O-MDL-2	A-000017.	1000 mL	20 mL	1	
21-OCT-2007	05:11	KenneyF	8330-H2O-MDL-3	A-000018.	1000 mL	20 mL	1	
21-OCT-2007	06:04	KenneyF	8330-H2O-MDL-4	A-000019.	1000 mL	20 mL	1	
21-OCT-2007	06:57	KenneyF	8330-H2O-MDL-5	A-000020.	1000 mL	20 mL	1	
21-OCT-2007	07:50	KenneyF	8330-H2O-MDL-6	A-000021.	1000 mL	20 mL	1	
21-OCT-2007	08:43	KenneyF	8330-H2O-MDL-7	A-000022.	1000 mL	20 mL	1	
21-OCT-2007	09:36	KenneyF	8330-H2O-MDL-CHECK	A-000023.	1000 mL	20 mL	1	
21-OCT-2007	10:29	KenneyF	STD_5 E071007D 100/200/100/100	A-000024.	0 g	0 mL	1	
21-OCT-2007	11:22	KenneyF	8330-SOIL-MDL-MB	A-000025.	2 g	40 mL	1	
21-OCT-2007	12:15	KenneyF	8330-SOIL-MDL-1	A-000026.	2 g	40 mL	1	
21-OCT-2007	13:08	KenneyF	8330-SOIL-MDL-2	A-000027.	2 g	40 mL	1	
21-OCT-2007	14:01	KenneyF	8330-SOIL-MDL-3	A-000028.	2 g	40 mL	1	
21-OCT-2007	14:54	KenneyF	8330-SOIL-MDL-4	A-000029.	2 g	40 mL	1	
21-OCT-2007	15:47	KenneyF	8330-SOIL-MDL-5	A-000030.	2 g	40 mL	1	
21-OCT-2007	16:40	KenneyF	8330-SOIL-MDL-6	A-000031.	2 g	40 mL	1	
21-OCT-2007	17:33	KenneyF	8330-SOIL-MDL-7	A-000032.	2 g	40 mL	1	
21-OCT-2007	18:26	KenneyF	8330-SOIL-MDL-CHECK	A-000033.	2 g	40 mL	1	
21-OCT-2007	19:19	KenneyF	STD_5 E071007D 100/200/100/100	A-000034.	0 g	0 mL	1	
21-OCT-2007	20:12	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
21-OCT-2007	21:05	KenneyF	J8AT51AD 7285666 A7J050117 50X	A-000036.	2 g	40 mL	50	
21-OCT-2007	21:58	KenneyF	J7E161AA 7275532 G7I210330-9 R	A-000037.	2.03 g	40 mL	1	
21-OCT-2007	22:51	KenneyF	J7E2A1AA 7275532 G7I210330-10	A-000038.	2 g	40 mL	1	
21-OCT-2007	23:44	KenneyF	J7E271AA 7275532 G7I210330-21	A-000039.	2 g	40 mL	1	
22-OCT-2007	00:37	KenneyF	STD_5 E070821L 100/200/100/100	A-000040.	0 g	0 mL	1	
22-OCT-2007	01:30	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000041.	0 g	0 mL	1	

TestAmerica West Sacramento

A-000013.D

Chromatography Summary

Injection Date: 10/21/2007 0:45 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000013.D **Vial Num:** 20

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **ICV_6 E071007C 200/500/200/500ng/ml**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.83	9566	193.0000<	200	-4%	Acceptable		18.83	18642	195.5000	200	-2%	Acceptable		(±15)	
HMX	5.28	28071	214.2000<	200	7%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
RDX	7.98	17241	216.9000<	200	8%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
Picric ACID	9.31	41167	498.7000	500	0%	Acceptable		9.31	60647	510.5000<	500	2%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.54	30578	205.4000<	200	3%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.76	29042	203.3000<	200	2%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
TETRYL	14.92	17697	195.2000<	200	-2%	Acceptable ✓					**200**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.79	12874	198.2000<	200	-1%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.30	17619	197.5000<	200	-1%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.29	12738	194.4000<	200	-3%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.45	14705	196.7000<	200	-2%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.34	10415	198.4000<	200	-1%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	22.11	16602	194.4000<	200	-3%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	26.08	7065	194.5000<	200	-3%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	28.04	8476	193.1000<	200	-3%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.27	8300	195.8000<	200	-2%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**200**	**-100%**	**Fails**		16.45	15681	209.0000<	200	5%	Acceptable		(±15)	45
PETN				**200**	**-100%**	**Fails**		32.21	8123	202.8000<	200	1%	Acceptable		(±15)	45
3,5-Dinitroaniline	14.54	19614	198.0000<	200	-1%	Acceptable					**200**	**-100%**	**Fails**		(±15)	45

ICV passes criteria ±15%

10/23/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

✓ ILM 10-23-07

Printed: 10/23/2007 11:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.282	171401	28071	0.164	9.29		4 HMX
7.976	185452	17241	0.093	5.70		5 RDX
9.306	589232	41167	0.070	13.75		6 Picric ACID
10.536	408314	30578	0.075	10.12		7 1,3,5-Trinitrobenze
11.912	2043	128	0.063	0.04		
12.666	848	47	0.055	0.01		
13.756	497411	29042	0.058	9.61		8 1,3-Dinitrobenzene
14.542	325796	19614	0.060	6.49		3 3,5-Dinitroaniline
14.919	326376	17697	0.054	5.86		9 TETRYL
15.792	253065	12874	0.051	4.26		10 Nitrobenzene
17.299	349591	17619	0.050	5.83		11 2,4,6-Trinitrotolue
18.289	261026	12738	0.049	4.21		12 4-AM-2,6-DNT
18.826	200938	9566	0.048	3.16	$	13 3,4-Dinitrotoluene
19.452	353275	14705	0.042	4.86		14 2-AM-4,6-DNT
21.336	242901	10415	0.043	3.44		15 2,6-Dinitrotoluene
22.112	427638	16602	0.039	5.49		16 2,4-Dinitrotoluene
26.079	207484	7065	0.034	2.33		17 2-Nitrotoluene
28.036	267174	8476	0.032	2.80		18 4-Nitrotoluene
30.266	283743	8300	0.029	2.74		19 3-Nitrotoluene
32.199	799	44	0.055	0.01		
	5354507	301989		100.000		

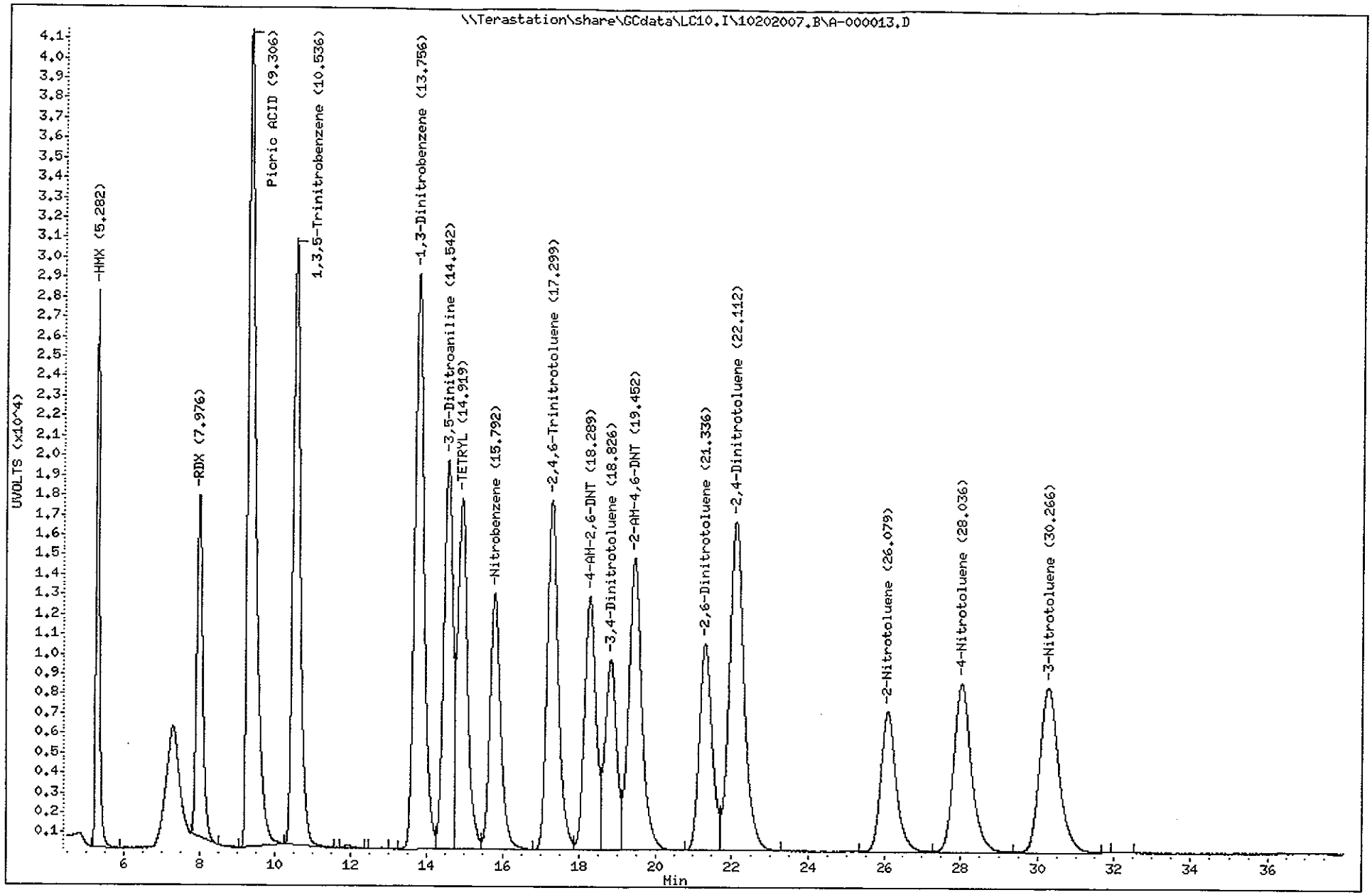
Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.306	875369	60647	0.069	19.11	6 Picric ACID
10.539	8528	536	0.063	0.16	
13.756	250568	15065	0.060	4.71	
14.542	251461	15839	0.063	4.96	
14.922	391688	21923	0.056	6.86	
15.792	499029	26746	0.054	8.37	
16.449	284217	15681	0.055	4.91	1 Nitroglycerin
17.299	338122	17755	0.053	5.56	
18.286	413216	20407	0.049	6.39	
18.829	390451	18642	0.048	5.83	$ 13 3,4-Dinitrotoluene
19.449	390149	16155	0.041	5.06	
21.336	451228	19071	0.042	5.97	
22.112	366490	13802	0.038	4.32	
25.262	3273	176	0.054	0.05	
26.082	508527	16945	0.033	5.30	
27.299	1179	194	0.165	0.06	
28.032	483515	15023	0.031	4.70	
30.249	541720	16038	0.030	5.02	
32.212	300262	8123	0.027	2.54	2 PETN
34.192	1413	64	0.045	0.02	
35.156	678	80	0.118	0.02	
35.599	1357	74	0.055	0.02	
35.879	442	52	0.118	0.01	
36.956	810	44	0.054	0.01	
37.215	520	57	0.110	0.01	
37.452	1429	100	0.070	0.03	
	6755641	319239		100.000	

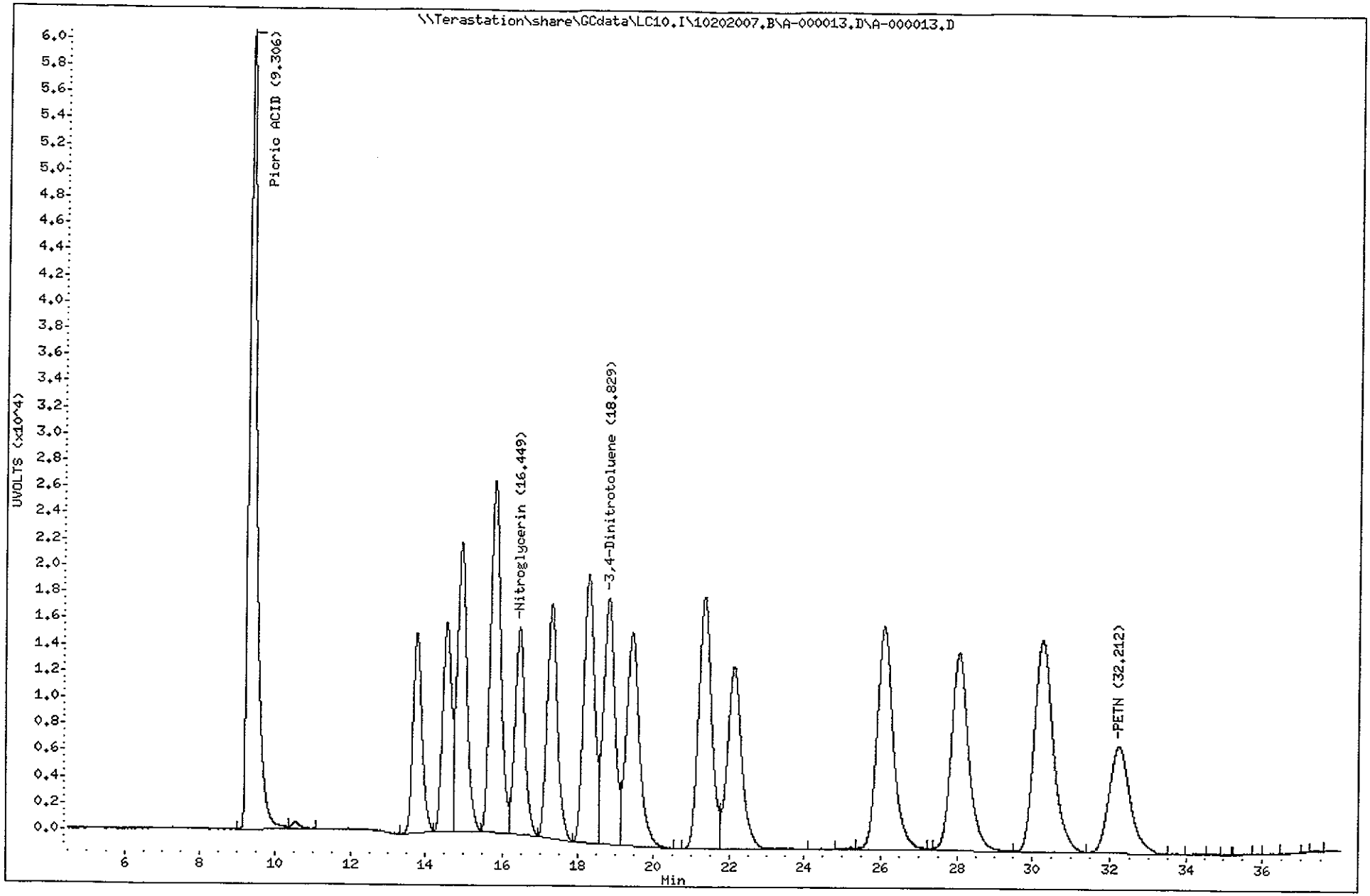
Total unknown % height = 67.61

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000003.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 15:55 **Operator:** KenneyF
DataFile: LC10.I\10202007.B\A-000003.D **Vial Num:** 11
Instrument ID: LC10

Sample : **Blank**

Method File: LC10.I\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**
Samp. Info: Blank;0
Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**PPB**	**Flag**	**RT**	**Diff**	**Response**	**PPB**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	
4-AM-2,6-DNT	**18.40**	**0.132**		**40**	**0.6104<**						**0.0000**	**0.00**	**45**
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN											0.0000	0.00	
3,5-Dinitroaniline											0.0000	0.00	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2000.0000**		**0**	**2000.0000**		**0**	**0--1.#QNAN**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/23/2007 11:12 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 15:53 kenneyf Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
6.396	218	38	0.174	7.43	
9.566	204	31	0.152	6.06	
10.162	208	27	0.130	5.28	
16.862	376	30	0.080	5.87	
18.396	268	40	0.149	7.82	12 4-AM-2,6-DNT
19.799	237	27	0.114	5.28	
20.152	777	51	0.066	10.03	
23.479	118	30	0.254	5.87	
24.842	604	44	0.073	8.61	
26.642	514	43	0.084	8.41	
27.392	643	40	0.062	7.82	
28.876	174	39	0.224	7.63	
29.992	147	34	0.231	6.65	
34.769	356	37	0.104	7.24	
	4845	511		100.000	

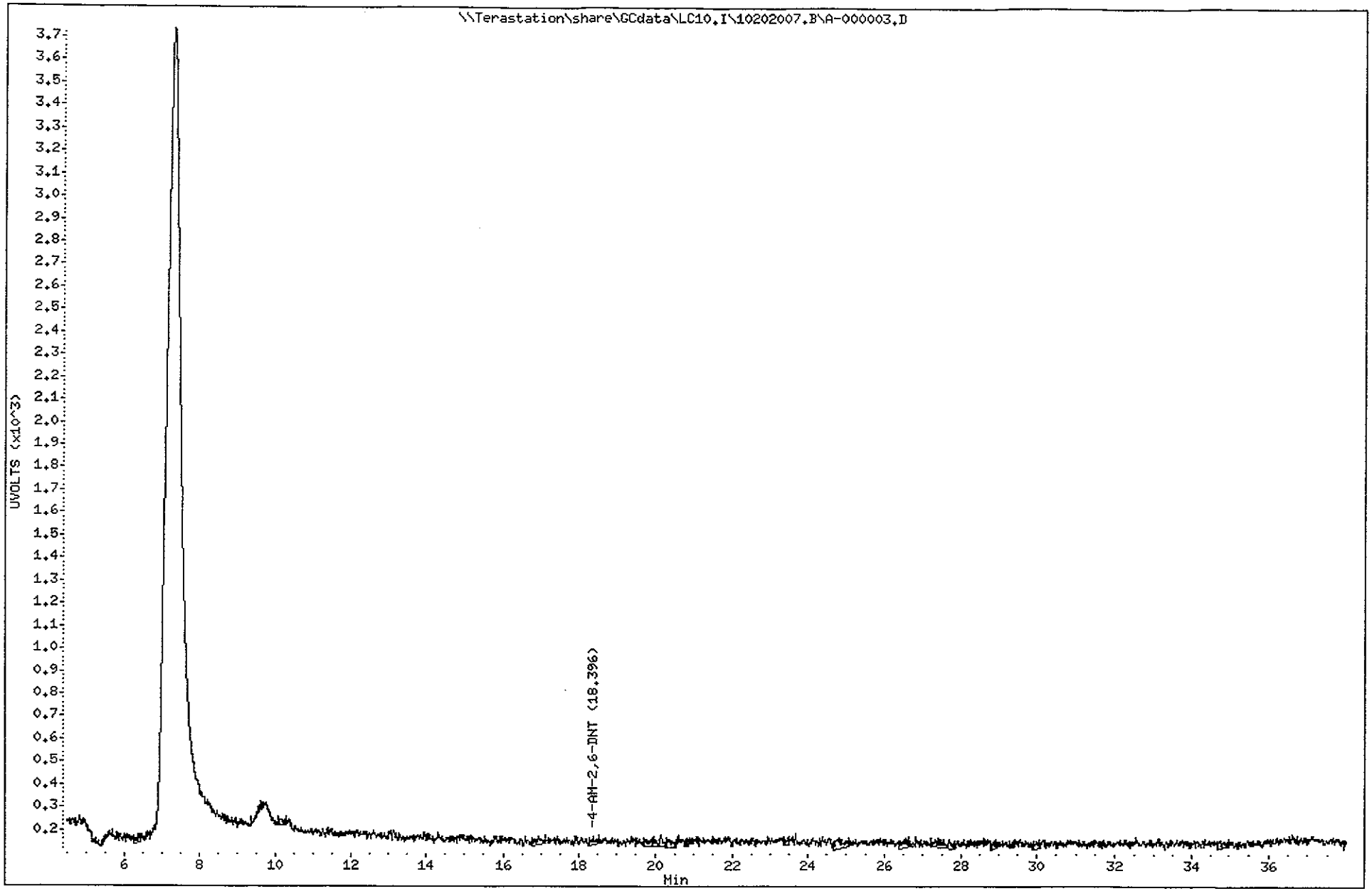
Total unknown % height = 92.18

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 15:51 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.892	6885	257	0.037	11.19	
24.529	756	38	0.050	1.63	
25.752	971	70	0.072	3.01	
26.582	1061	63	0.059	2.71	
27.326	483	61	0.126	2.62	
28.356	1332	86	0.065	3.70	
29.109	551	50	0.091	2.15	
29.696	318	56	0.176	2.41	
30.029	1432	89	0.062	3.83	
30.662	908	55	0.061	2.37	
31.006	652	85	0.130	3.66	
31.406	2226	98	0.044	4.22	
31.872	993	102	0.103	4.39	
32.552	459	73	0.159	3.14	
33.509	666	75	0.113	3.23	
33.886	2619	115	0.044	4.95	
34.866	1166	90	0.077	3.87	
35.349	1569	85	0.054	3.66	
35.959	976	96	0.098	4.13	
36.162	1107	116	0.105	5.00	
36.526	3579	162	0.045	6.98	
36.842	1474	171	0.116	7.37	
37.246	4847	227	0.047	9.78	
	37030	2320		100.000	

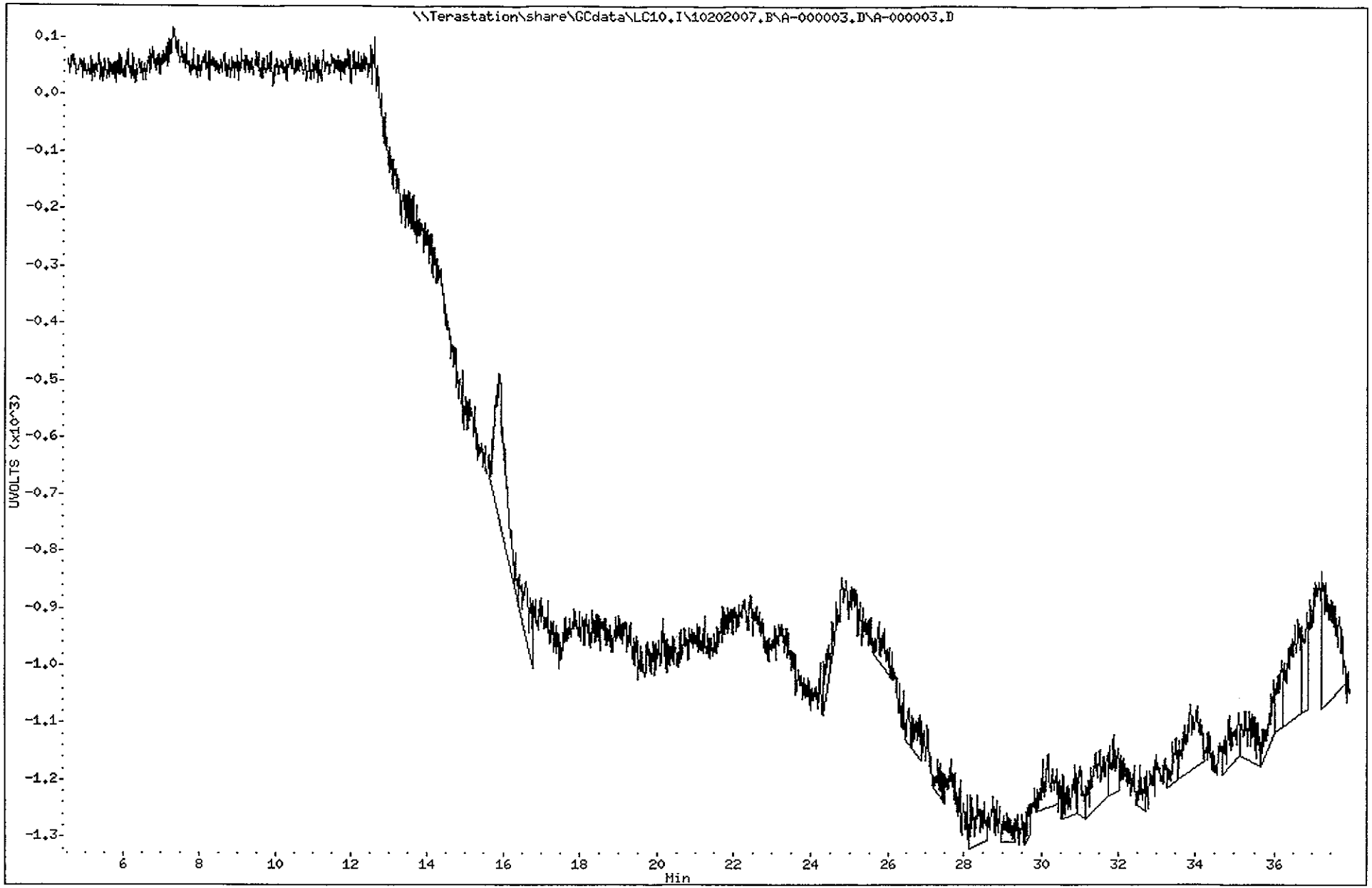
Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank;0

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000004.D

Chromatography Summary

Injection Date: 10/20/2007 16:48 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000004.D **Vial Num:** 12

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_1 E070927A 5.0/0/0/0ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 16:48

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Misc. Info: ;1; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene			5		0			5		0
HMX	5.28	657	5		131.4			5		0
RDX	7.96	373	5		74.6			5		0
Picric ACID	9.36	22	10		2.2			10		0
1,3,5-Trinitrobenzene	10.51	744	5		148.8			5		0
1,3-Dinitrobenzene	13.74	734	5		146.8			5		0
TETRYL	14.89	456	5		91.2			5		0
Nitrobenzene	15.77	336	5		67.2			5		0
2,4,6-Trinitrotoluene	17.27	468	5		93.6			5		0
4-AM-2,6-DNT	18.31	348	5		69.6			5		0
2-AM-4,6-DNT	19.46	399	5		79.8			5		0
2,6-Dinitrotoluene	21.34	286	5		57.2			5		0
2,4-Dinitrotoluene	22.14	449	5		89.8			5		0
2-Nitrotoluene	26.07	196	5		39.2			5		0
4-Nitrotoluene	28.00	250	5		50			5		0
3-Nitrotoluene	30.28	228	5		45.6			5		0
Nitroglycerin			5		0			5		0
PETN			5		0	32.15	53	5		10.6
3,5-Dinitroaniline	14.56	511	5		102.2			5		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 17:36 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.277	3840	657	0.171	9.80	4 HMX
7.957	3706	373	0.101	5.56	5 RDX
9.361	54	22	0.407	0.32	6 Picric ACID
10.511	10375	744	0.072	11.22	7 1,3,5-Trinitrobenze
13.737	12995	734	0.056	10.95	8 1,3-Dinitrobenzene
14.564	8731	511	0.059	7.62	3 3,5-Dinitroaniline
14.887	8211	456	0.056	6.80	9 TETRYL
15.774	6171	336	0.054	5.01	10 Nitrobenzene
17.267	9681	468	0.048	6.98	11 2,4,6-Trinitrotolue
18.311	7897	348	0.044	5.19	12 4-AM-2,6-DNT
19.457	9921	399	0.040	5.95	14 2-AM-4,6-DNT
21.344	6691	286	0.043	4.26	15 2,6-Dinitrotoluene
22.144	12238	449	0.037	6.70	16 2,4-Dinitrotoluene
25.231	354	39	0.110	0.58	
26.067	6537	196	0.030	2.92	17 2-Nitrotoluene
28.004	7702	250	0.032	3.73	18 4-Nitrotoluene
29.774	177	39	0.221	0.58	
30.277	7902	228	0.029	3.40	19 3-Nitrotoluene
32.151	153	36	0.235	0.53	
32.887	903	39	0.043	0.58	
33.557	723	46	0.064	0.68	
34.801	798	43	0.054	0.64	
	125760	6699		100.000	

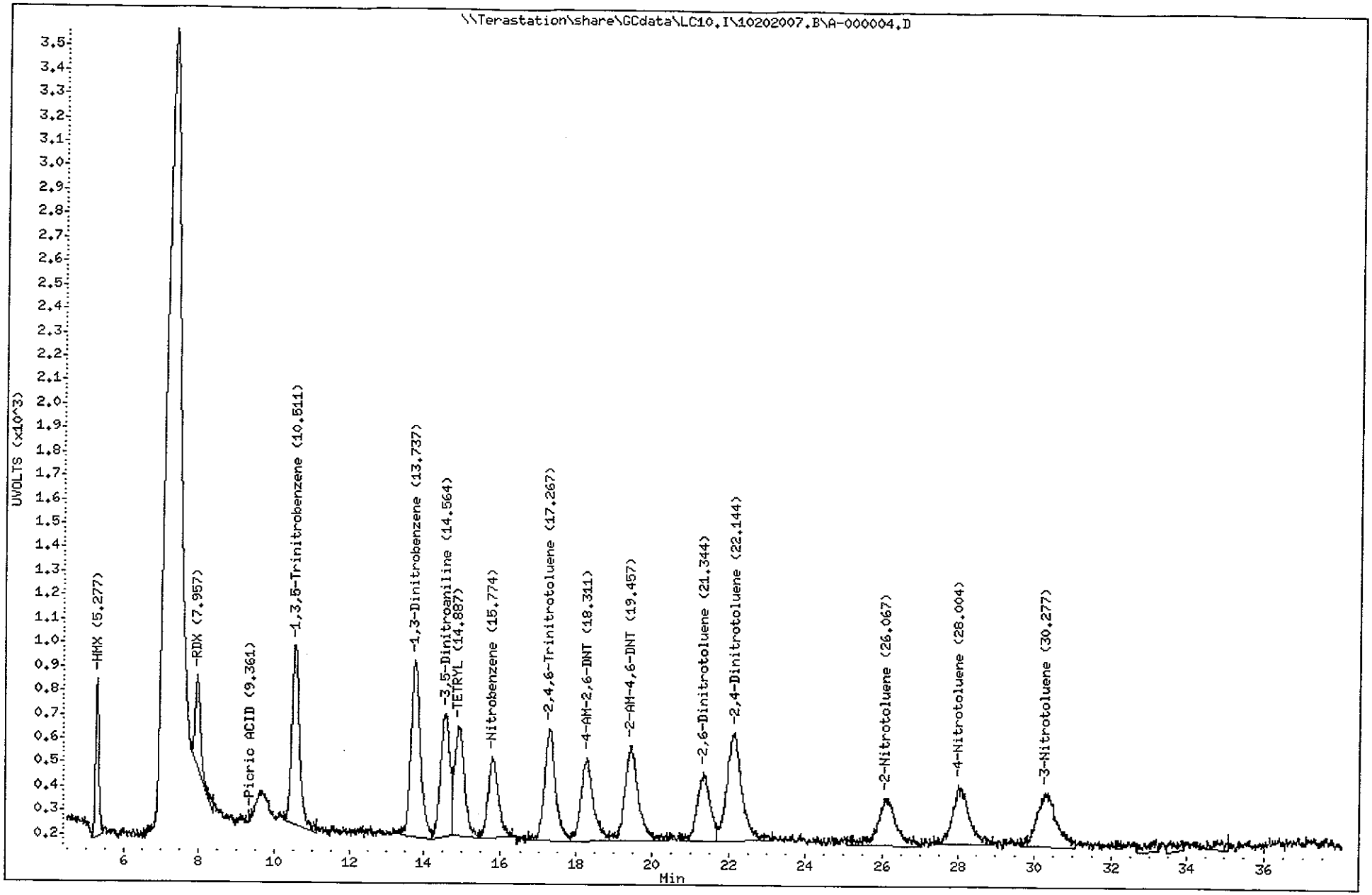
Total unknown % height = 3.590

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL:1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 17:37 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
13.724	7411	408	0.055	5.82	
14.517	6980	419	0.060	5.98	
14.891	9147	545	0.060	7.78	
15.797	17953	808	0.045	11.67	
17.314	10811	515	0.048	7.35	
18.311	11134	539	0.048	7.69	
19.461	14207	452	0.032	6.45	
21.327	12918	530	0.041	7.57	
22.107	8295	358	0.043	5.11	
26.097	12999	440	0.034	6.28	
27.494	463	76	0.164	1.08	
28.091	14088	445	0.032	6.35	
29.214	756	83	0.110	1.18	
29.437	945	83	0.088	1.18	
30.321	17876	482	0.027	6.88	
31.671	344	53	0.154	0.75	
32.151	488	53	0.109	0.75	2 PETN
33.361	525	81	0.154	1.15	
33.814	1006	47	0.047	0.67	
34.097	707	83	0.117	1.18	
34.487	2600	120	0.046	1.71	
34.811	969	123	0.127	1.75	
35.057	2345	109	0.046	1.55	
35.834	733	90	0.123	1.28	
37.391	875	59	0.067	0.84	
	156573	7001		100.000	

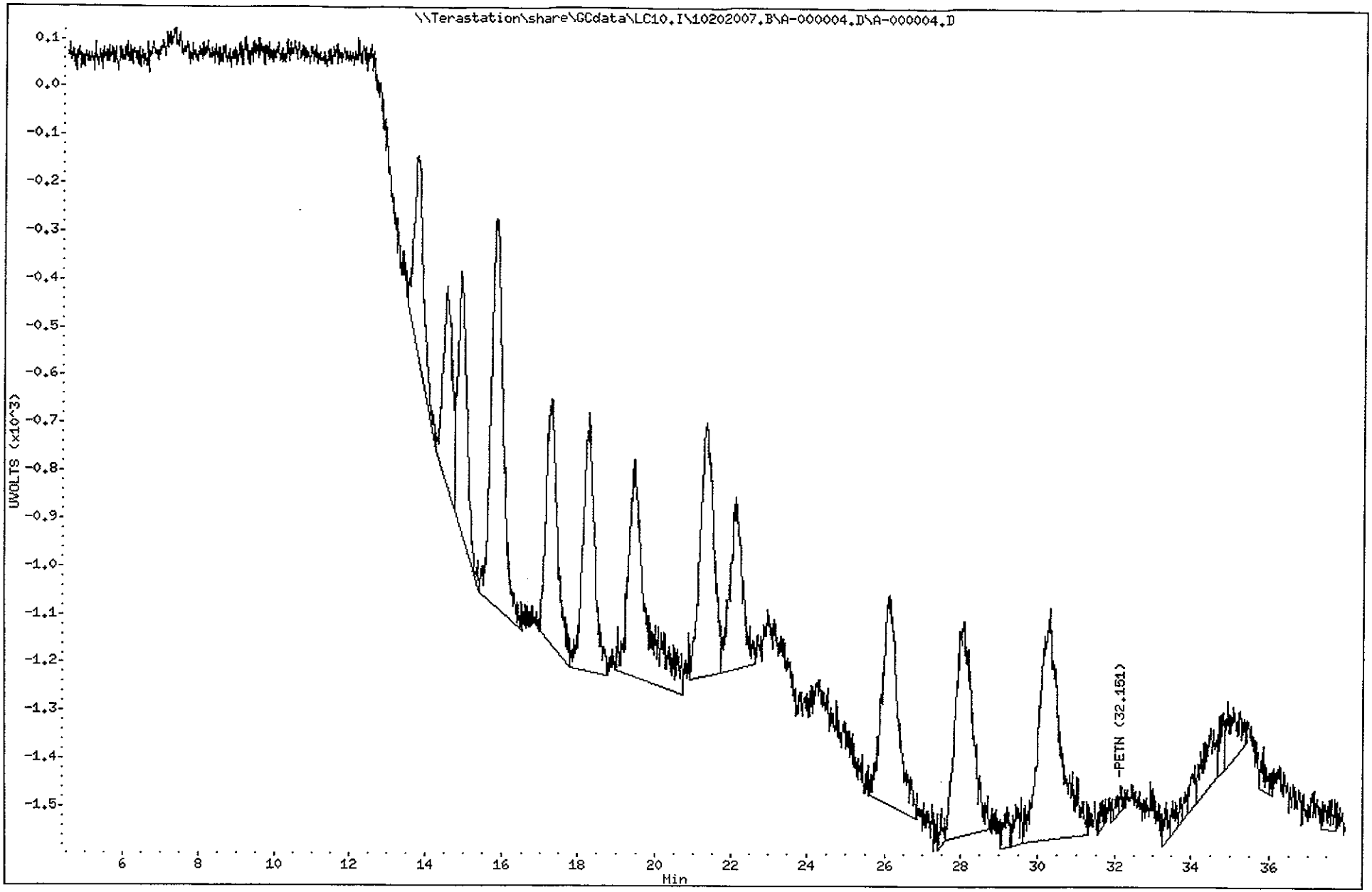
Total unknown % height = 99.25

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000005.D

Chromatography Summary

Injection Date: 10/20/2007 17:41 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000005.D **Vial Num:** 13

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_2 E070927B 10/20/10/10ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 17:41

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_2 E070927B 10/20/10/10ng/mL;1

Misc. Info: ;2; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	517	10		51.7	18.85	979	10		97.9
HMX	5.29	1315	10		131.5			10		0
RDX	7.98	741	10		74.1			10		0
Picric ACID	9.42	1664	20		83.2	9.42	2466	20		123.3
1,3,5-Trinitrobenzene	10.55	1496	10		149.6			10		0
1,3-Dinitrobenzene	13.79	1445	10		144.5			10		0
TETRYL	14.96	939	10		93.9			10		0
Nitrobenzene	15.80	669	10		66.9			10		0
2,4,6-Trinitrotoluene	17.32	910	10		91			10		0
4-AM-2,6-DNT	18.35	674	10		67.4			10		0
2-AM-4,6-DNT	19.51	771	10		77.1			10		0
2,6-Dinitrotoluene	21.35	543	10		54.3			10		0
2,4-Dinitrotoluene	22.15	872	10		87.2			10		0
2-Nitrotoluene	26.13	384	10		38.4			10		0
4-Nitrotoluene	28.08	450	10		45			10		0
3-Nitrotoluene	30.30	448	10		44.8			10		0
Nitroglycerin			10		0	16.47	775	10		77.5
PETN			10		0	32.21	396	10		39.6
3,5-Dinitroaniline	14.57	1032	10		103.2			10		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 18:29 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.291	8148	1315	0.161	8.76		4	HMX
7.981	7337	741	0.101	4.93		5	RDX
9.424	24887	1664	0.067	11.20		6	Picric ACID
10.551	20340	1496	0.074	9.96		7	1,3,5-Trinitrobenze
12.247	378	37	0.098	0.24			
13.021	479	34	0.071	0.22			
13.787	26093	1445	0.055	9.62		8	1,3-Dinitrobenzene
14.574	17279	1032	0.060	6.87		3	3,5-Dinitroaniline
14.957	18302	939	0.051	6.25		9	TETRYL
15.804	14899	669	0.045	4.45		10	Nitrobenzene
17.317	19161	910	0.047	6.06		11	2,4,6-Trinitrotolue
18.351	14095	674	0.048	4.49		12	4-AM-2,6-DNT
18.871	11527	517	0.045	3.44	$	13	3,4-Dinitrotoluene
19.514	18977	771	0.041	5.13		14	2-AM-4,6-DNT
21.351	13185	543	0.041	3.61		15	2,6-Dinitrotoluene
22.154	23851	872	0.037	5.80		16	2,4-Dinitrotoluene
24.737	323	30	0.093	0.19			
26.131	11530	384	0.033	2.55		17	2-Nitrotoluene
28.081	14722	450	0.031	2.99		18	4-Nitrotoluene
30.304	15967	448	0.028	2.98		19	3-Nitrotoluene
33.200	684	40	0.058	0.26			
	282164	15011		100.000			

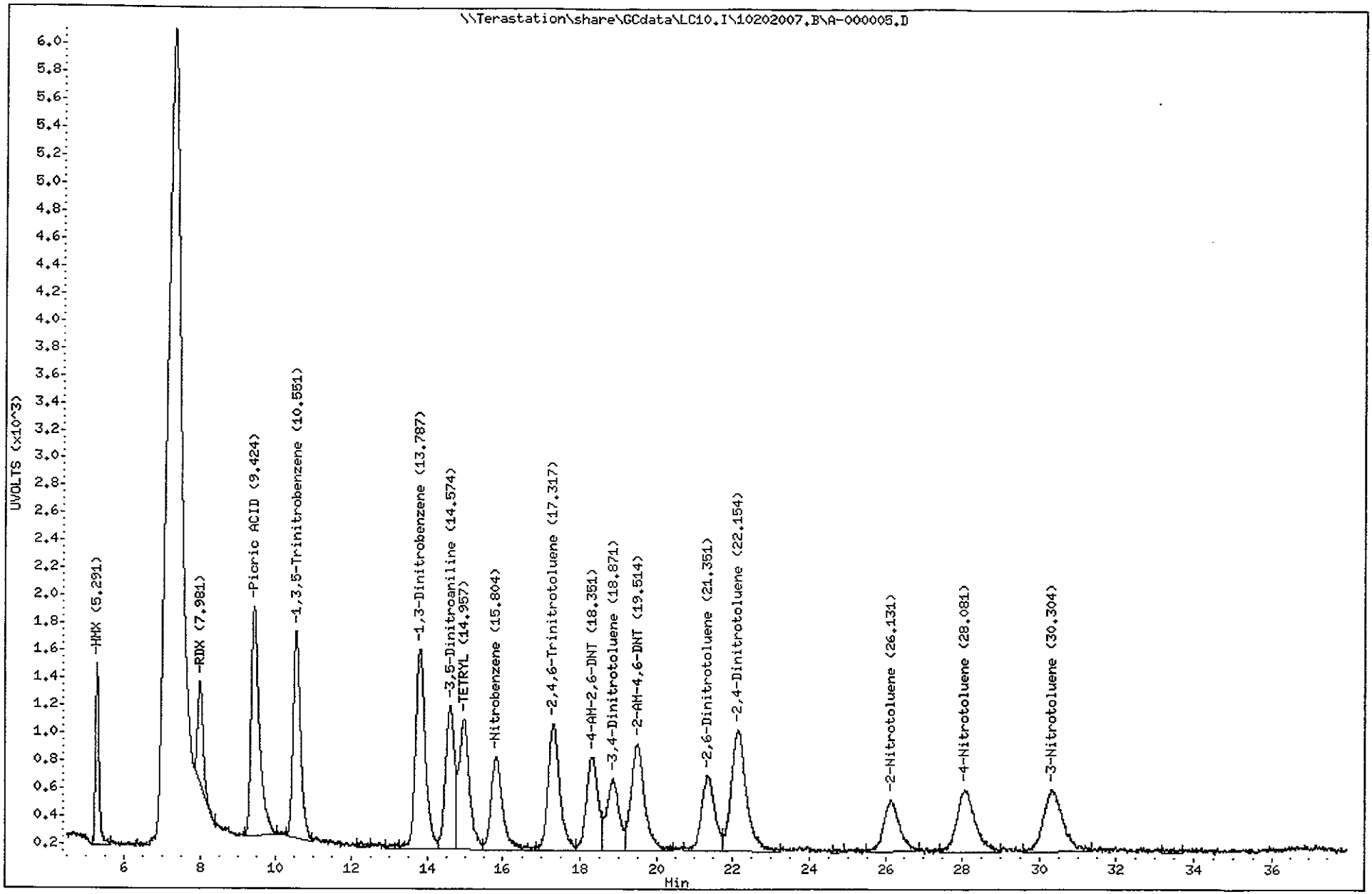
Total unknown % height = 0.9100

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 18:30 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.421	35582	2466	0.069	14.66	6 Picric ACID
13.791	13782	774	0.056	4.55	
14.574	14339	864	0.060	5.08	
14.967	21298	1161	0.055	6.82	
15.824	28665	1460	0.051	8.58	
16.471	14085	775	0.055	4.55	1 Nitroglycerin
17.347	17948	899	0.050	5.28	
18.337	21358	1040	0.049	6.11	
18.851	21837	979	0.045	5.75	$ 13 3,4-Dinitrotoluene
19.514	21993	851	0.039	5.00	
21.381	27121	1047	0.039	6.15	
22.140	25925	821	0.032	4.82	
25.531	764	38	0.050	0.22	
26.137	30757	948	0.031	5.57	
27.474	1172	99	0.084	0.58	
28.081	28945	831	0.029	4.88	
29.497	796	48	0.060	0.28	
30.351	36511	929	0.025	5.46	
31.671	345	64	0.186	0.37	
32.211	13411	396	0.030	2.32	2 PETN
33.291	409	68	0.166	0.39	
35.381	1725	64	0.037	0.37	
36.020	341	86	0.252	0.50	
36.317	431	28	0.065	0.16	
36.511	267	54	0.202	0.31	
36.881	1003	72	0.072	0.42	
37.174	2566	140	0.055	0.82	
	383379	17002		100.000	

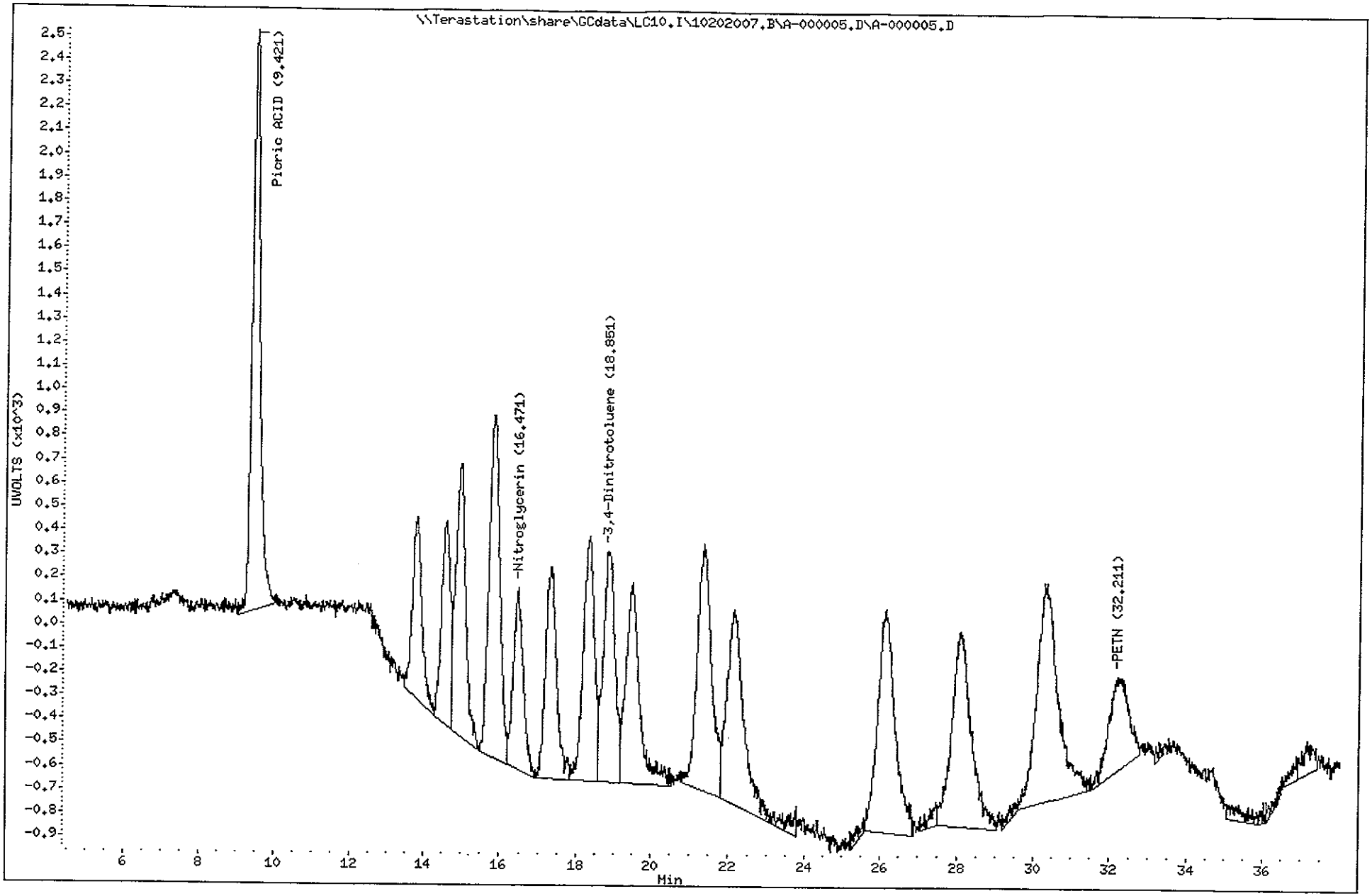
Total unknown % height = 72.72

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000006.D

Chromatography Summary

Injection Date: 10/20/2007 18:34 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000006.D **Vial Num:** 14

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_3 E070927C 20/50/20/20ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 18:34

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_3 E070927C 20/50/20/20ng/mL;1

Misc. Info: ;3; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	998	20		49.9	18.87	1882	20		94.1
HMX	5.29	2584	20		129.2			20		0
RDX	7.98	1505	20		75.25			20		0
Picric ACID	9.40	4345	50		86.9	9.41	6397	50		127.94
1,3,5-Trinitrobenzene	10.55	2940	20		147			20		0
1,3-Dinitrobenzene	13.79	2829	20		141.45			20		0
TETRYL	14.96	1835	20		91.75			20		0
Nitrobenzene	15.82	1302	20		65.1			20		0
2,4,6-Trinitrotoluene	17.32	1791	20		89.55			20		0
4-AM-2,6-DNT	18.34	1307	20		65.35			20		0
2-AM-4,6-DNT	19.48	1479	20		73.95			20		0
2,6-Dinitrotoluene	21.39	1043	20		52.15			20		0
2,4-Dinitrotoluene	22.15	1692	20		84.6			20		0
2-Nitrotoluene	26.15	719	20		35.95			20		0
4-Nitrotoluene	28.11	853	20		42.65			20		0
3-Nitrotoluene	30.31	829	20		41.45			20		0
Nitroglycerin			20		0	16.47	1521	20		76.05
PETN			20		0	32.29	888	20		44.4
3,5-Dinitroaniline	14.58	2071	20		103.55			20		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 19:23 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 14 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

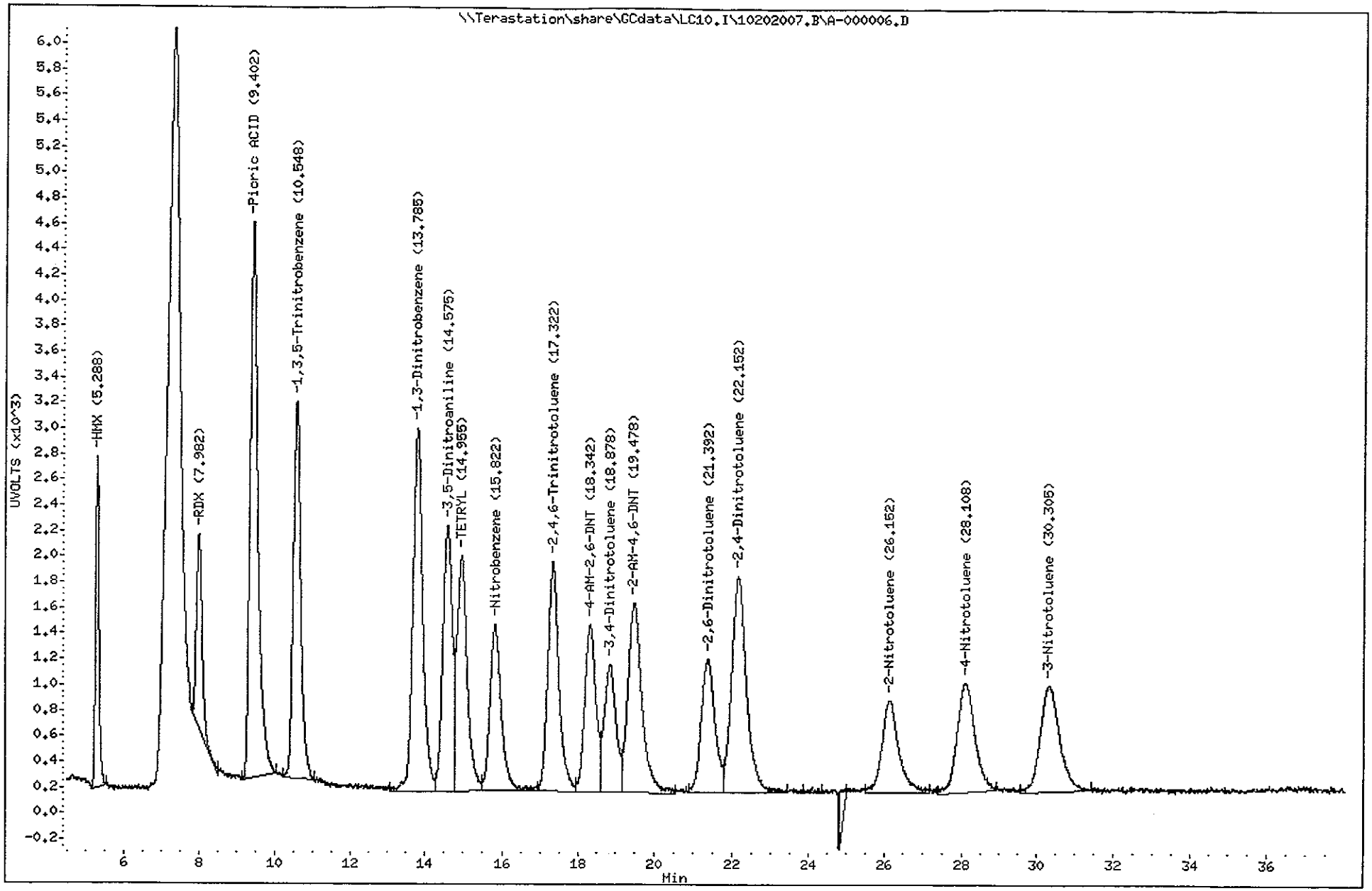
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.288	15506	2584	0.167	8.53		4 HMX
7.982	15805	1505	0.095	4.97		5 RDX
9.402	61763	4345	0.070	14.48		6 Picric ACID
10.548	39417	2940	0.075	9.71		7 1,3,5-Trinitrobenze
13.785	51005	2829	0.055	9.34		8 1,3-Dinitrobenzene
14.575	34921	2071	0.059	6.84		3 3,5-Dinitroaniline
14.955	34678	1835	0.053	6.06		9 TETRYL
15.822	26759	1302	0.049	4.30		10 Nitrobenzene
17.322	35948	1791	0.050	5.91		11 2,4,6-Trinitrotolue
18.342	27623	1307	0.047	4.31		12 4-AM-2,6-DNT
18.878	21365	998	0.047	3.29	$	13 3,4-Dinitrotoluene
19.478	37009	1479	0.040	4.88		14 2-AM-4,6-DNT
21.392	25042	1043	0.042	3.44		15 2,6-Dinitrotoluene
22.152	45221	1692	0.037	5.59		16 2,4-Dinitrotoluene
24.102	541	45	0.083	0.14		
24.978	2374	93	0.039	0.30		
26.152	22587	719	0.032	2.37		17 2-Nitrotoluene
28.108	27852	853	0.031	2.81		18 4-Nitrotoluene
30.305	29152	829	0.028	2.73		19 3-Nitrotoluene
	554567	30260		100.000		

Total unknown % height = 0.4400

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 19:23 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 14 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.405	90361	6397	0.071	18.98	6 Picric ACID
13.785	26195	1501	0.057	4.42	
14.578	27652	1705	0.062	5.02	
14.948	40367	2243	0.056	6.61	
15.822	55667	2805	0.050	8.26	
16.468	28565	1521	0.053	4.48	1 Nitroglycerin
17.318	32499	1732	0.053	5.10	
18.345	43232	2059	0.048	6.07	
18.865	39547	1882	0.048	5.54	$ 13 3,4-Dinitrotoluene
19.505	42176	1637	0.039	4.82	
21.365	49944	2003	0.040	5.90	
22.158	41886	1454	0.035	4.28	
24.865	5112	411	0.080	1.21	
25.465	480	66	0.138	0.19	
26.152	47203	1647	0.035	4.85	
28.112	51464	1525	0.030	4.49	
29.402	800	99	0.124	0.29	
29.605	1192	136	0.114	0.40	
30.322	62540	1673	0.027	4.93	
32.292	39523	888	0.022	2.61	2 PETN
33.578	921	88	0.096	0.25	
35.552	1493	86	0.058	0.25	
36.398	332	58	0.174	0.17	
36.735	788	79	0.100	0.23	
36.998	3128	133	0.043	0.39	
37.638	586	91	0.155	0.26	
	733654	33919		100.000	

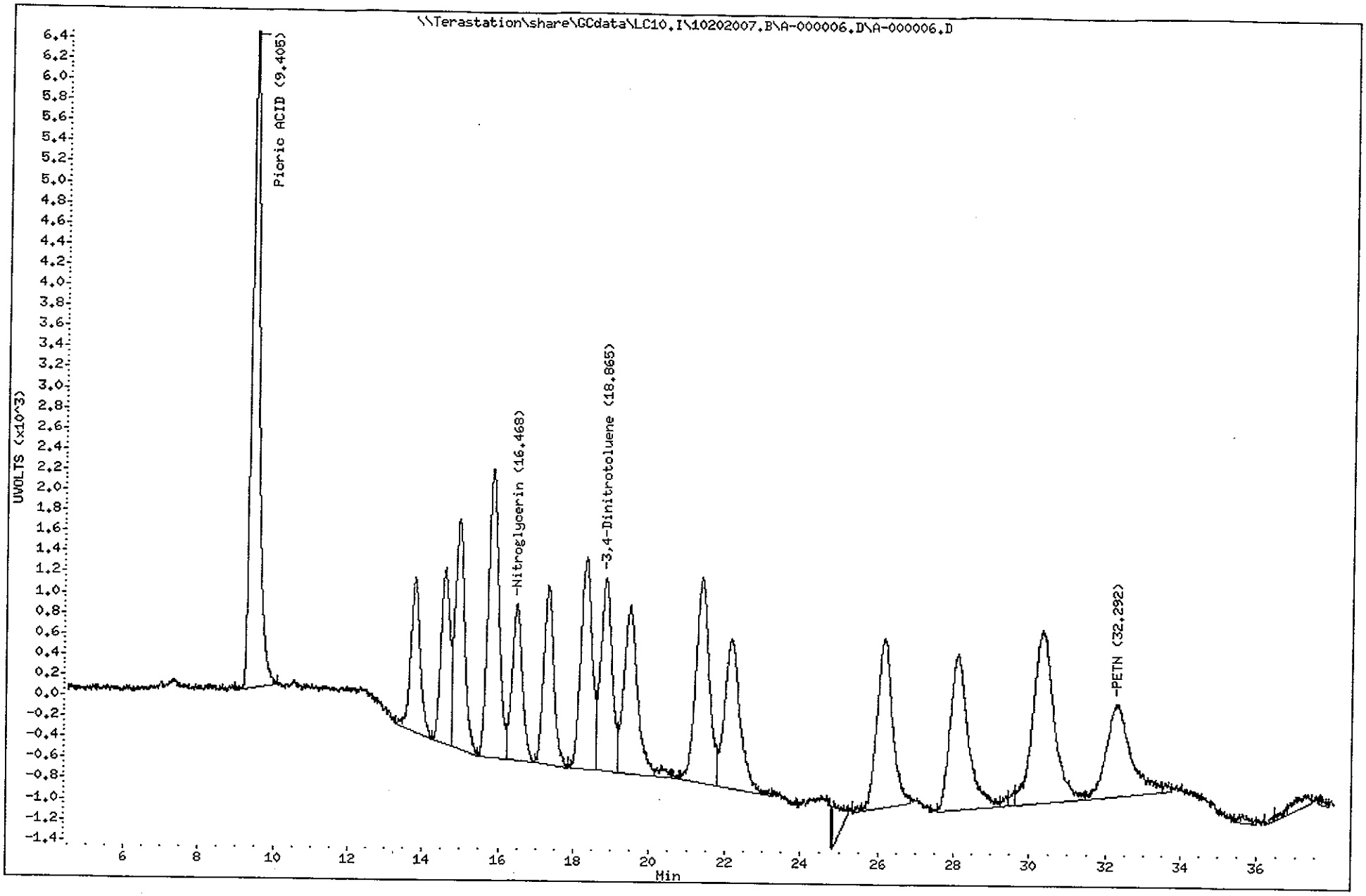
Total unknown % height = 68.39

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000007.D

Chromatography Summary

Injection Date: 10/20/2007 19:27 **Operator:** KenneyF

DataFile: LC10.B\10202007.B\A-000007.D **Vial Num:** 15

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_4 E070927D 50/100/50/50ng/mL**

Method File: LC10.B\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 19:27

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_4 E070927D 50/100/50/50ng/mL;1

Misc. Info: ;4; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	2446	50		48.92	18.88	4711	50		94.22
HMX	5.29	6576	50		131.52			50		0
RDX	7.99	4025	50		80.5			50		0
Picric ACID	9.39	8554	100		85.54	9.39	12576	100		125.76
1,3,5-Trinitrobenzene	10.55	7440	50		148.8			50		0
1,3-Dinitrobenzene	13.78	7048	50		140.96			50		0
TETRYL	14.96	4463	50		89.26			50		0
Nitrobenzene	15.82	3134	50		62.68			50		0
2,4,6-Trinitrotoluene	17.33	4421	50		88.42			50		0
4-AM-2,6-DNT	18.34	3221	50		64.42			50		0
2-AM-4,6-DNT	19.51	3680	50		73.6			50		0
2,6-Dinitrotoluene	21.39	2550	50		51			50		0
2,4-Dinitrotoluene	22.17	4190	50		83.8			50		0
2-Nitrotoluene	26.15	1776	50		35.52			50		0
4-Nitrotoluene	28.09	2126	50		42.52			50		0
3-Nitrotoluene	30.35	2068	50		41.36			50		0
Nitroglycerin			50		0	16.48	3688	50		73.76
PETN			50		0	32.30	1901	50		38.02
3,5-Dinitroaniline	14.58	4996	50		99.92			50		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:47 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

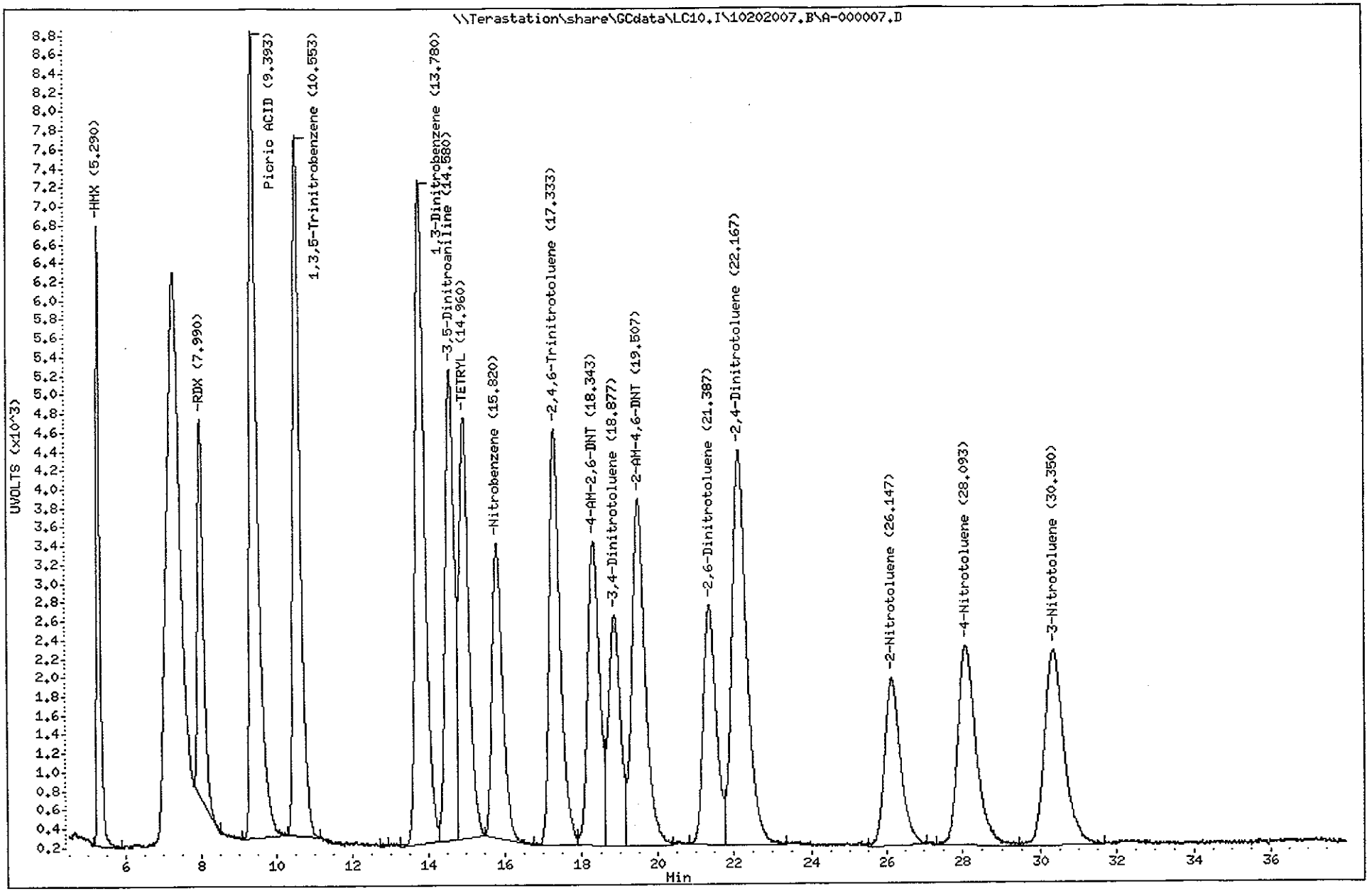
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.290	41171	6576	0.160	9.03		4	HMX
7.990	43387	4025	0.093	5.53		5	RDX
9.393	123968	8554	0.069	11.86		6	Picric ACID
10.553	100035	7440	0.074	10.22		7	1,3,5-Trinitrobenze
12.773	265	32	0.121	0.04			
13.780	123152	7048	0.057	9.68		8	1,3-Dinitrobenzene
14.580	84004	4996	0.059	6.86		3	3,5-Dinitroaniline
14.960	81009	4463	0.055	6.13		9	TETRYL
15.820	60573	3134	0.052	4.30		10	Nitrobenzene
17.333	88986	4421	0.050	6.07		11	2,4,6-Trinitrotolue
18.343	67148	3221	0.048	4.42		12	4-AM-2,6-DNT
18.877	52424	2446	0.047	3.36	$	13	3,4-Dinitrotoluene
19.507	90136	3680	0.041	5.05		14	2-AM-4,6-DNT
21.387	61040	2550	0.042	3.50		15	2,6-Dinitrotoluene
22.167	109998	4190	0.038	5.75		16	2,4-Dinitrotoluene
26.147	53033	1776	0.033	2.44		17	2-Nitrotoluene
28.093	69593	2126	0.031	2.92		18	4-Nitrotoluene
30.350	72866	2068	0.028	2.84		19	3-Nitrotoluene
	1322790	72746		100.000			

Total unknown % height = 0.04000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.393	179377	12576	0.070	16.30	6 Picric ACID
13.773	61726	3644	0.059	4.69	
14.580	68535	4110	0.060	5.29	
14.957	100107	5661	0.057	7.29	
15.823	129545	6781	0.052	8.73	
16.483	68273	3688	0.054	4.75	1 Nitroglycerin
17.333	84929	4447	0.052	5.72	
18.340	105334	5158	0.049	6.64	
18.877	101259	4711	0.047	6.06	$ 13 3,4-Dinitrotoluene
19.510	97523	4074	0.042	5.24	
21.370	117085	4776	0.041	6.15	
22.173	97888	3504	0.036	4.51	
25.300	1564	123	0.079	0.15	
26.143	135781	4319	0.032	5.56	
27.467	523	65	0.124	0.08	
28.100	116919	3682	0.031	4.74	
30.330	139582	4015	0.029	5.17	
32.297	69868	1901	0.027	2.44	2 PETN
34.787	454	67	0.148	0.08	
35.443	394	62	0.157	0.07	
35.947	1240	66	0.053	0.08	
37.183	1474	97	0.066	0.12	
37.380	1904	114	0.060	0.14	
	1681285	77641		100.000	

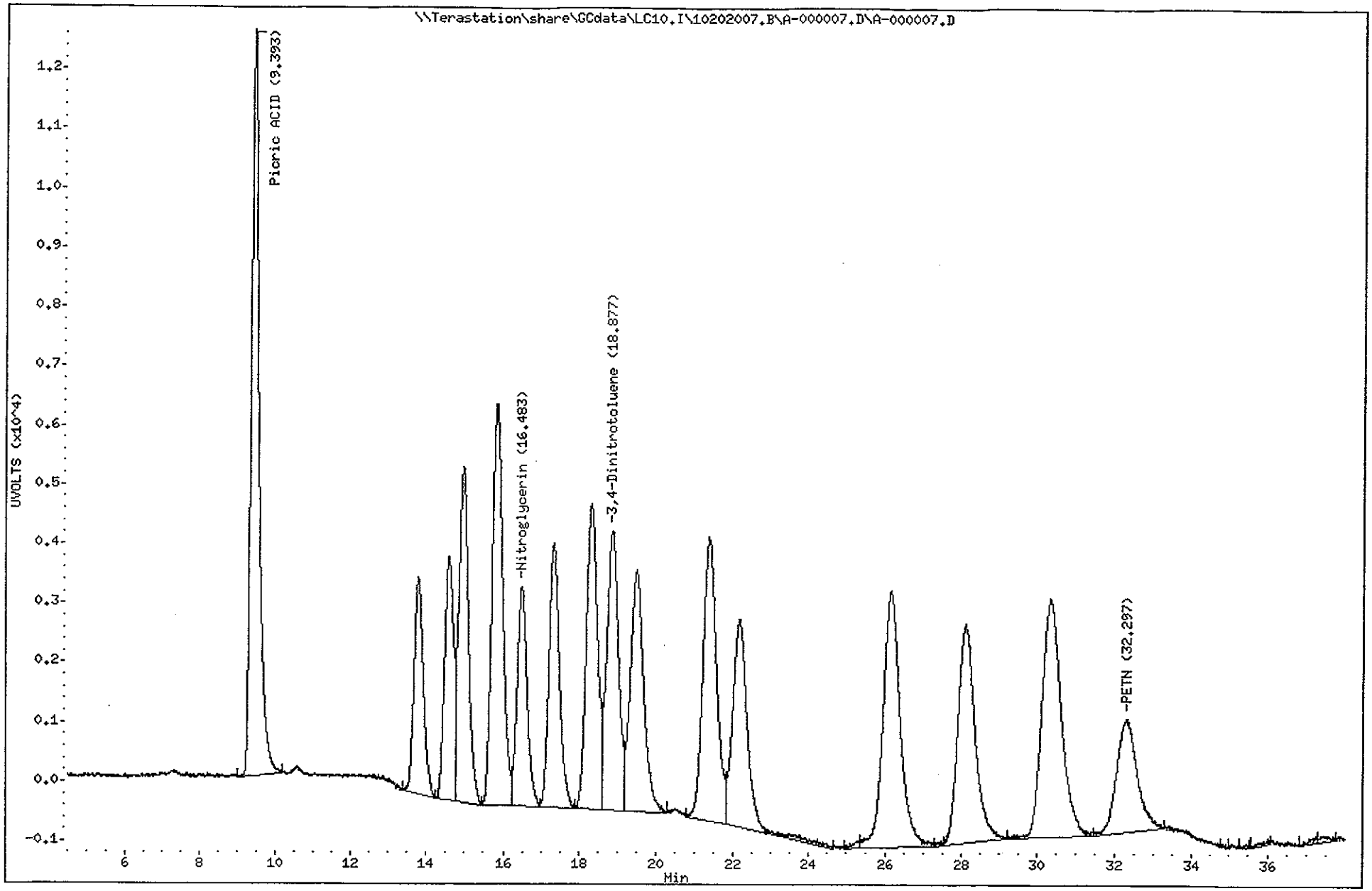
Total unknown % height = 70.45

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000008.D

Chromatography Summary

Injection Date: 10/20/2007 20:20 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000008.D **Vial Num:** 16

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E071007D 100/200/100/100ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 20:20

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_5 E071007D 100/200/100/100ng/mL;1

Misc. Info: ;5; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	4723	100		47.23	18.87	9161	100		91.61
HMX	5.28	13153	100		131.53			100		0
RDX	7.98	8180	100		81.8			100		0
Picric ACID	9.37	17317	200		86.585	9.37	25508	200		127.54
1,3,5-Trinitrobenzene	10.55	14896	100		148.96			100		0
1,3-Dinitrobenzene	13.78	14209	100		142.09			100		0
TETRYL	14.95	8988	100		89.88			100		0
Nitrobenzene	15.82	6439	100		64.39			100		0
2,4,6-Trinitrotoluene	17.33	8784	100		87.84			100		0
4-AM-2,6-DNT	18.33	6445	100		64.45			100		0
2-AM-4,6-DNT	19.50	7347	100		73.47			100		0
2,6-Dinitrotoluene	21.37	5154	100		51.54			100		0
2,4-Dinitrotoluene	22.15	8447	100		84.47			100		0
2-Nitrotoluene	26.11	3552	100		35.52			100		0
4-Nitrotoluene	28.07	4286	100		42.86			100		0
3-Nitrotoluene	30.29	4155	100		41.55			100		0
Nitroglycerin			100		0	16.48	7617	100		76.17
PETN			100		0	32.23	4110	100		41.1
3,5-Dinitroaniline	14.58	9422	100		94.22			100		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.285	81462	13153	0.161	9.02		4 HMX
6.228	587	61	0.104	0.04		
7.981	90345	8180	0.091	5.61		5 RDX
9.368	250164	17317	0.069	11.99		6 Picric ACID
10.548	200917	14896	0.074	10.22		7 1,3,5-Trinitrobenze
13.231	127	27	0.213	0.01		
13.781	249537	14209	0.057	9.75		8 1,3-Dinitrobenzene
14.578	159490	9422	0.059	6.46		3 3,5-Dinitroaniline
14.951	166633	8988	0.054	6.17		9 TETRYL
15.818	130004	6439	0.050	4.42		10 Nitrobenzene
17.328	177433	8784	0.050	6.03		11 2,4,6-Trinitrotolue
18.328	134667	6445	0.048	4.42		12 4-AM-2,6-DNT
18.868	100998	4723	0.047	3.24	$	13 3,4-Dinitrotoluene
19.501	181043	7347	0.041	5.04		14 2-AM-4,6-DNT
21.371	122716	5154	0.042	3.53		15 2,6-Dinitrotoluene
22.155	222535	8447	0.038	5.79		16 2,4-Dinitrotoluene
26.115	106988	3552	0.033	2.43		17 2-Nitrotoluene
28.075	137833	4286	0.031	2.94		18 4-Nitrotoluene
30.288	144554	4155	0.029	2.85		19 3-Nitrotoluene
32.075	482	39	0.081	0.02		
33.138	1107	36	0.033	0.02		
	2659621	145660		100.000		

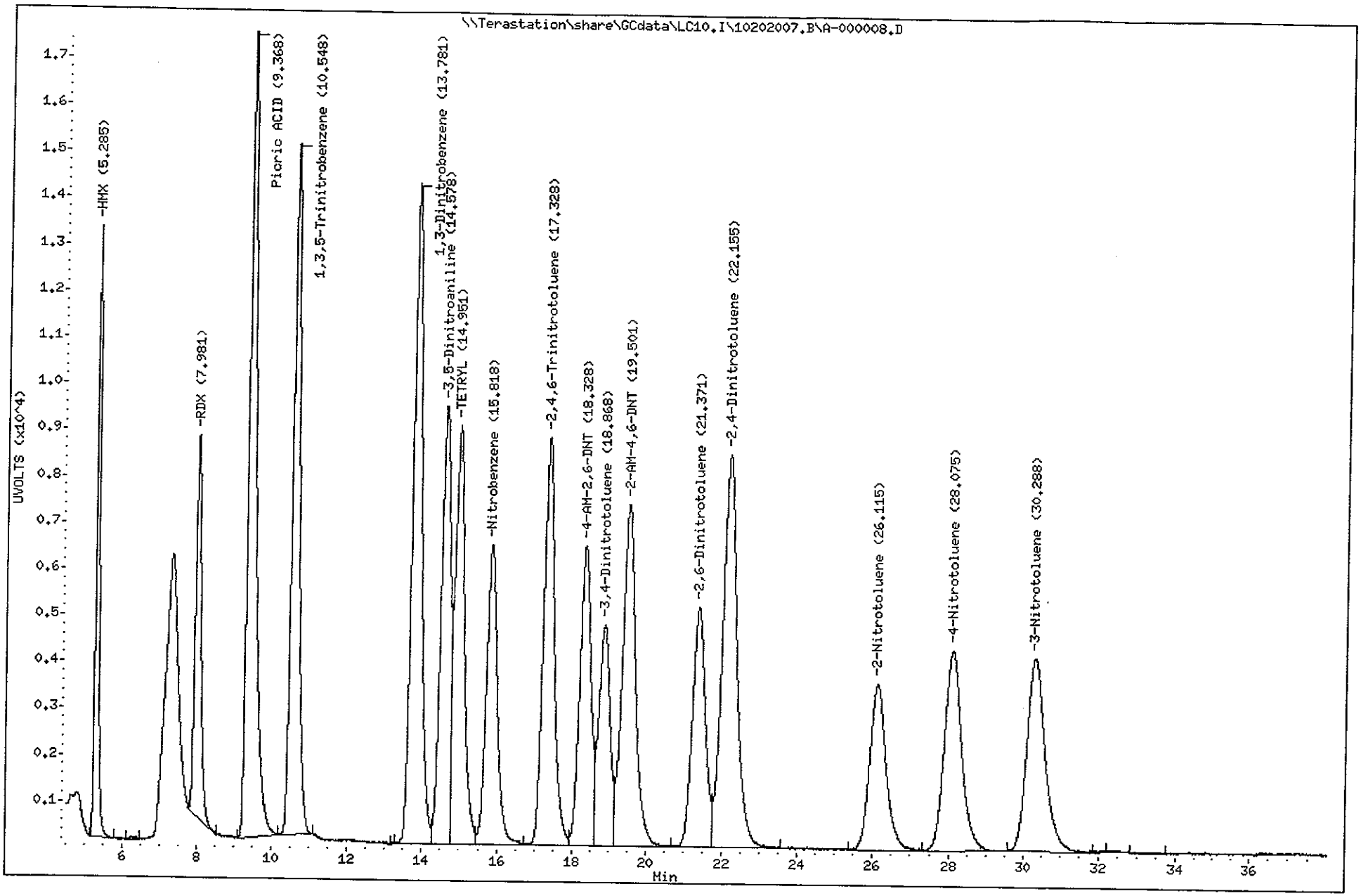
Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL:1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

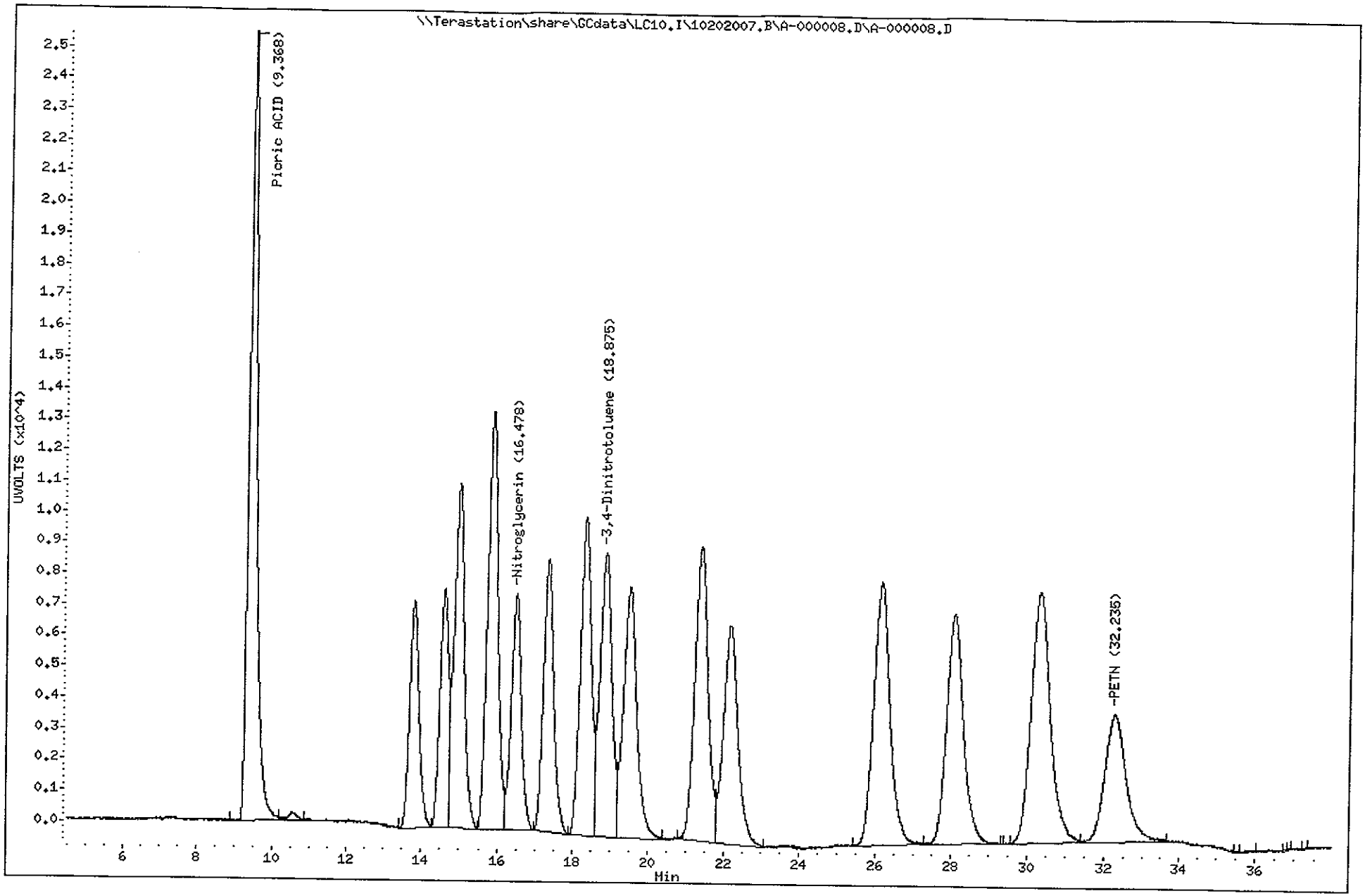
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.368	368386	25508	0.069	16.62		6 Picric ACID
10.505	4399	262	0.060	0.16		
13.778	124635	7299	0.059	4.72		
14.578	121667	7687	0.063	4.97		
14.955	203655	11124	0.055	7.20		
15.818	258138	13514	0.052	8.75		
16.478	140715	7617	0.054	4.93		1 Nitroglycerin
17.325	170577	8804	0.052	5.70		
18.328	208877	10306	0.049	6.67		
18.875	197871	9161	0.046	5.93	$	13 3,4-Dinitrotoluene
19.498	199092	8078	0.041	5.23		
21.375	230580	9499	0.041	6.15		
22.148	188673	7034	0.037	4.55		
26.118	254477	8504	0.033	5.50		
28.051	236370	7411	0.031	4.79		
29.461	339	57	0.168	0.03		
30.288	283465	8129	0.029	5.26		
32.235	158155	4110	0.026	2.66		2 PETN
35.515	288	65	0.225	0.04		
35.958	1016	67	0.066	0.04		
36.725	274	76	0.278	0.04		
36.868	175	69	0.395	0.04		
37.301	263	42	0.159	0.02		
	3352087	154423		100.000		

Total unknown % height = 69.86

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL:1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000009.D

Chromatography Summary

Injection Date: 10/20/2007 21:13 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000009.D **Vial Num:** 17

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_6 E071007E 200/500/200/200ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 21:13

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_6 E071007E 200/500/200/200ng/mL;1

Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.85	9627	200		48.135	18.86	18735	200		93.675
HMX	5.29	26225	200		131.125			200		0
RDX	7.99	16410	200		82.05			200		0
Picric ACID	9.33	42194	500		84.388	9.33	62164	500		124.328
1,3,5-Trinitrobenzene	10.55	29758	200		148.79			200		0
1,3-Dinitrobenzene	13.77	28344	200		141.72			200		0
TETRYL	14.94	17946	200		89.73			200		0
Nitrobenzene	15.81	12860	200		64.3			200		0
2,4,6-Trinitrotoluene	17.32	17569	200		87.845			200		0
4-AM-2,6-DNT	18.32	12854	200		64.27			200		0
2-AM-4,6-DNT	19.49	14692	200		73.46			200		0
2,6-Dinitrotoluene	21.36	10270	200		51.35			200		0
2,4-Dinitrotoluene	22.14	16871	200		84.355			200		0
2-Nitrotoluene	26.11	7096	200		35.48			200		0
4-Nitrotoluene	28.05	8568	200		42.84			200		0
3-Nitrotoluene	30.28	8317	200		41.585			200		0
Nitroglycerin			200		0	16.47	14641	200		73.205
PETN			200		0	32.22	7903	200		39.515
3,5-Dinitroaniline	14.57	19139	200		95.695			200		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:48 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.289	163008	26225	0.161	8.77		4 HMX
6.059	129	24	0.186	0.00		
6.279	1078	108	0.100	0.03		
7.989	183479	16410	0.089	5.48		5 RDX
9.332	615660	42194	0.069	14.21		6 Picric ACID
10.549	406166	29758	0.073	9.95		7 1,3,5-Trinitrobenze
11.966	1271	84	0.066	0.02		
12.686	80	23	0.287	0.00		
13.769	497180	28344	0.057	9.48		8 1,3-Dinitrobenzene
14.566	324925	19139	0.059	6.40		3 3,5-Dinitroaniline
14.936	333352	17946	0.054	6.00		9 TETRYL
15.806	258417	12860	0.050	4.30		10 Nitrobenzene
17.316	351675	17569	0.050	5.87		11 2,4,6-Trinitrotolue
18.316	268224	12854	0.048	4.29		12 4-AM-2,6-DNT
18.852	204311	9627	0.047	3.21	$	13 3,4-Dinitrotoluene
19.486	358173	14692	0.041	4.91		14 2-AM-4,6-DNT
21.362	242697	10270	0.042	3.43		15 2,6-Dinitrotoluene
22.142	441736	16871	0.038	5.64		16 2,4-Dinitrotoluene
26.106	210604	7096	0.034	2.37		17 2-Nitrotoluene
28.052	272856	8568	0.031	2.86		18 4-Nitrotoluene
30.282	285300	8317	0.029	2.78		19 3-Nitrotoluene
	5420322	298979		100.000		

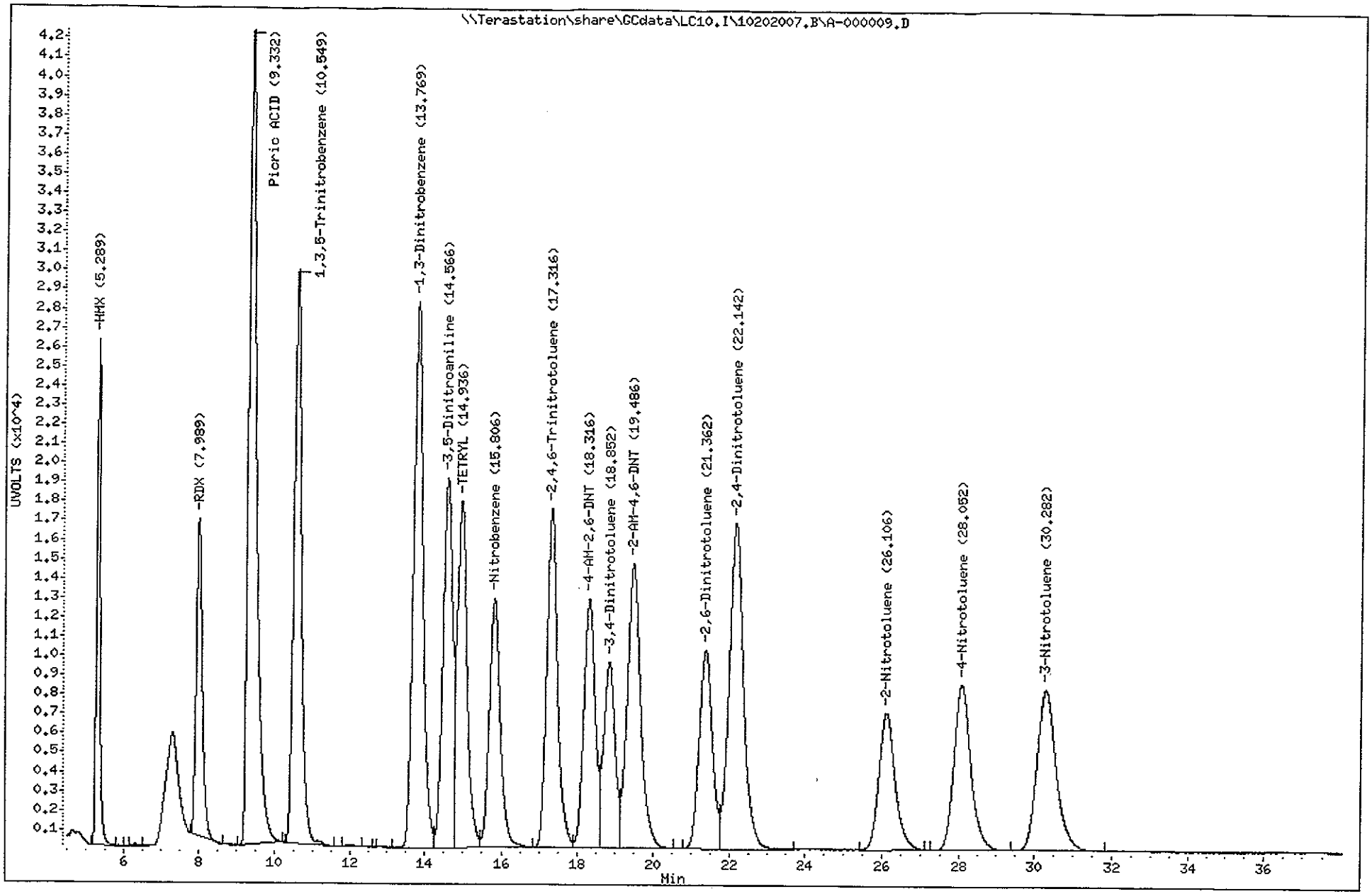
Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.289	883	102	0.116	0.03	
9.332	912724	62164	0.068	19.54	6 Picric ACID
10.546	7894	491	0.062	0.15	
13.769	251003	14729	0.059	4.60	
14.566	246725	15439	0.063	4.82	
14.942	403012	22223	0.055	6.94	
15.806	511259	26779	0.052	8.36	
16.466	268657	14641	0.054	4.57	1 Nitroglycerin
17.316	341261	17686	0.052	5.52	
18.316	421866	20584	0.049	6.43	
18.856	400001	18735	0.047	5.85	$ 13 3,4-Dinitrotoluene
19.482	393088	16204	0.041	5.06	
21.366	459888	18984	0.041	5.93	
22.142	384904	14200	0.037	4.43	
26.109	505043	16985	0.034	5.30	
28.049	481217	14978	0.031	4.68	
29.582	1125	115	0.102	0.03	
30.282	560830	16235	0.029	5.07	
32.219	324053	7903	0.024	2.46	2 PETN
34.269	8333	285	0.034	0.08	
34.829	8854	237	0.027	0.07	
36.056	857	66	0.077	0.02	
36.572	403	67	0.166	0.02	
36.902	727	83	0.114	0.02	
37.566	2545	80	0.031	0.02	
	6897152	319995		100.000	

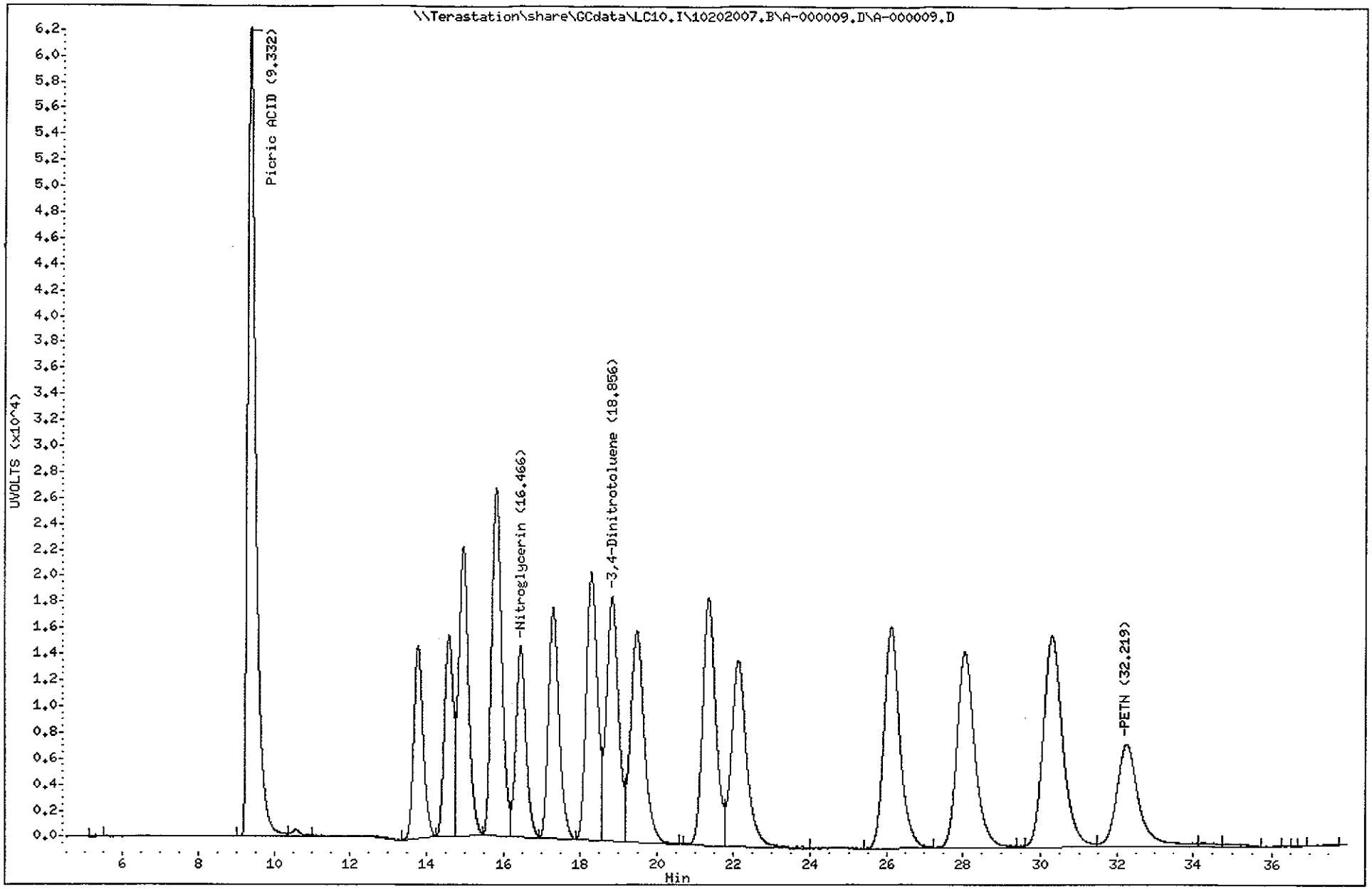
Total unknown % height = 67.58

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL;1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000010.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 22:06 **Operator:** KenneyF
DataFile: LC10.B\10202007.B\A-000010.D **Vial Num:** 18
Instrument ID: LC10

Sample : **STD_7 E071007F 500/1000/500/300ng/mL**

Method File: LC10.B\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:06

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**
Samp. Info: STD_7 E071007F 500/1000/500/300ng/mL;1
Misc. Info: ;7; ; ; ;3;EXPSDNA.sub; ;0;1

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.82	15067	300		50.22333333	18.82	28982	300		96.60666667
HMX	5.28	65773	500		131.546			500		0
RDX	7.97	41983	500		83.966			500		0
Picric ACID	9.26	79625	1000		79.625	9.26	117141	1000		117.141
1,3,5-Trinitrobenzene	10.53	74825	500		149.65			500		0
1,3-Dinitrobenzene	13.75	71394	500		142.788			500		0
TETRYL	14.91	44987	500		89.974			500		0
Nitrobenzene	15.78	32270	500		64.54			500		0
2,4,6-Trinitrotoluene	17.29	43867	500		87.734			500		0
4-AM-2,6-DNT	18.29	32178	500		64.356			500		0
2-AM-4,6-DNT	19.45	36672	500		73.344			500		0
2,6-Dinitrotoluene	21.32	25602	500		51.204			500		0
2,4-Dinitrotoluene	22.10	42195	500		84.39			500		0
2-Nitrotoluene	26.06	17620	500		35.24			500		0
4-Nitrotoluene	28.00	21334	500		42.668			500		0
3-Nitrotoluene	30.22	20719	500		41.438			500		0
Nitroglycerin			500		0	16.44	37193	500		74.386
PETN			500		0	32.16	19248	500		38.496
3,5-Dinitroaniline	14.55	48257	500		96.514			500		0

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

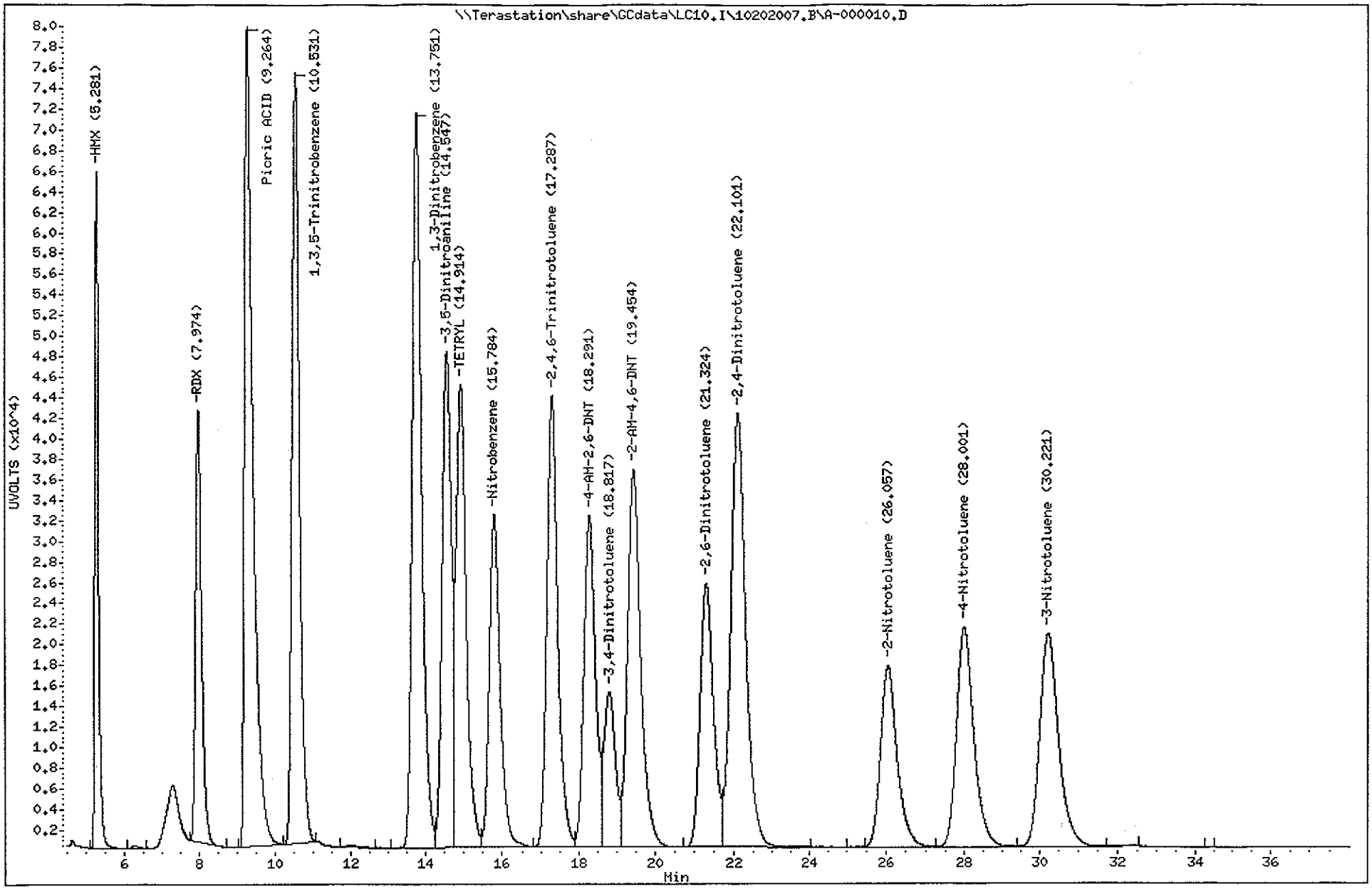
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.281	410325	65773	0.160	9.19		4 HMX
6.281	2950	254	0.086	0.03		
7.974	465148	41983	0.090	5.87		5 RDX
9.264	1228542	79625	0.065	11.24		6 Picric ACID
10.531	1002306	74825	0.075	10.46		7 1,3,5-Trinitrobenze
11.941	3703	200	0.054	0.02		
13.751	1240420	71394	0.058	9.98		8 1,3-Dinitrobenzene
14.547	809193	48257	0.060	6.74		3 3,5-Dinitroaniline
14.914	834916	44987	0.054	6.29		9 TETRYL
15.784	643162	32270	0.050	4.51		10 Nitrobenzene
17.287	879213	43867	0.050	6.13		11 2,4,6-Trinitrotolue
18.291	677729	32178	0.047	4.50		12 4-AM-2,6-DNT
18.817	316217	15067	0.048	2.10	$	13 3,4-Dinitrotoluene
19.454	884689	36672	0.041	5.12		14 2-AM-4,6-DNT
21.324	603867	25602	0.042	3.58		15 2,6-Dinitrotoluene
22.101	1104143	42195	0.038	5.90		16 2,4-Dinitrotoluene
25.331	420	31	0.074	0.00		
26.057	521699	17620	0.034	2.46		17 2-Nitrotoluene
28.001	677190	21334	0.032	2.98		18 4-Nitrotoluene
30.221	707457	20719	0.029	2.89		19 3-Nitrotoluene
32.101	2194	82	0.037	0.01		
34.354	295	41	0.139	0.00		
	13015777	714976		100.000		

Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

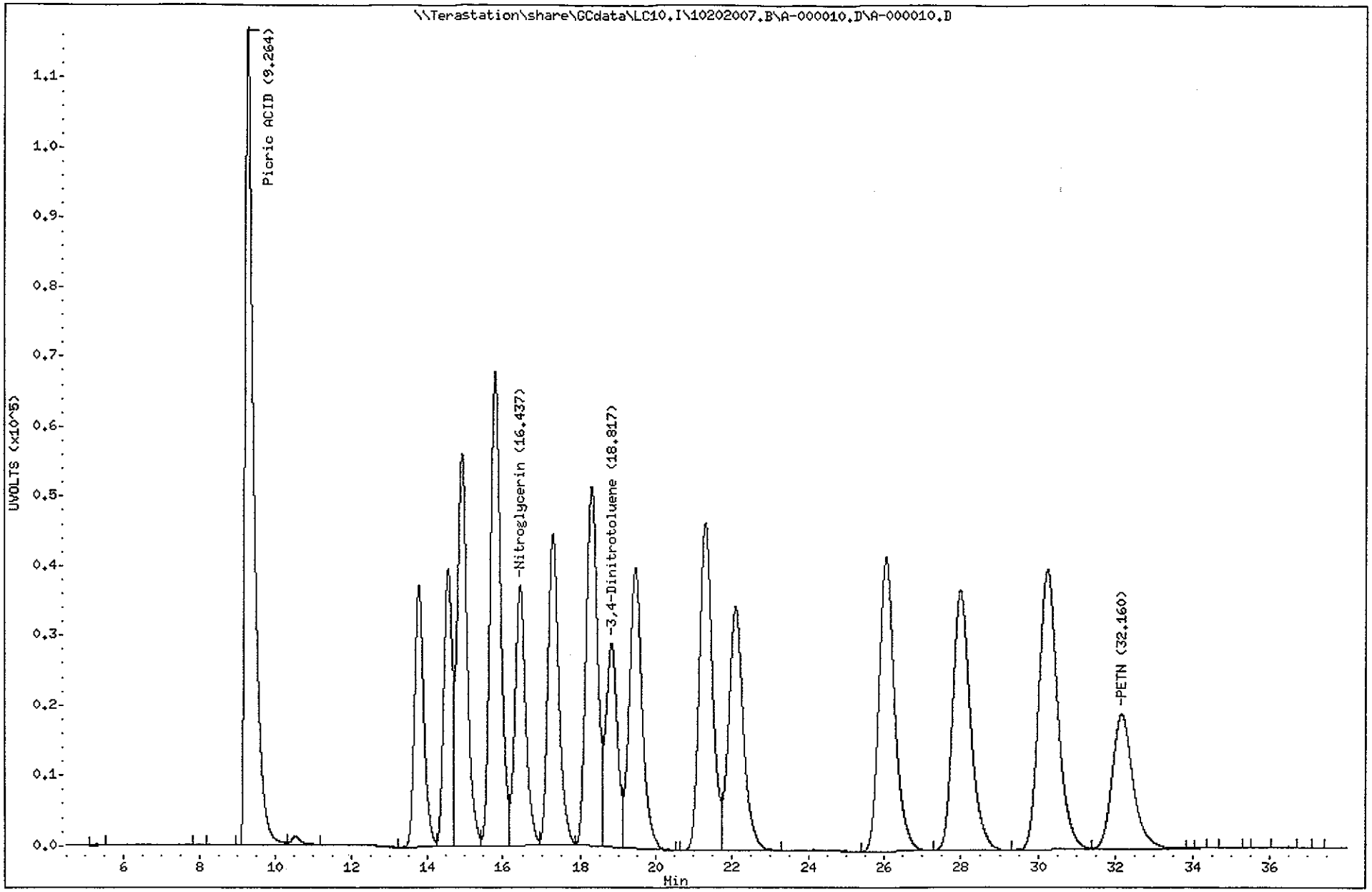
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.294	1833	199	0.109	0.02	
7.964	1343	136	0.101	0.01	
9.264	1821347	117141	0.064	15.88	6 Picric ACID
10.527	20260	1218	0.060	0.16	
13.751	644528	37394	0.058	5.02	
14.547	635653	39676	0.062	5.33	
14.917	1043481	56362	0.054	7.58	
15.784	1306817	67971	0.052	9.14	
16.437	701571	37193	0.053	5.00	1 Nitroglycerin
17.287	869130	44560	0.051	5.99	
18.291	1061954	51459	0.048	6.92	
18.817	610675	28982	0.047	3.89	$ 13 3,4-Dinitrotoluene
19.454	965244	40106	0.042	5.39	
21.321	1122816	46976	0.042	6.31	
22.101	921502	34951	0.038	4.70	
26.057	1240736	42066	0.034	5.65	
28.001	1176921	37224	0.032	5.00	
30.224	1370990	40129	0.029	5.39	
32.160	722564	19248	0.027	2.58	2 PETN
33.964	301	50	0.166	0.00	
34.297	642	62	0.097	0.00	
34.621	1117	115	0.103	0.01	
35.054	2033	81	0.040	0.01	
35.717	1545	69	0.045	0.00	
36.467	1989	80	0.040	0.01	
37.124	905	78	0.086	0.01	
	16247898	743526		100.000	

Total unknown % height = 72.65

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000011.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 22:59 Operator: KenneyF
DataFile: LC10.I\10202007.B\A-000011.D Vial Num: 19
Instrument ID: LC10

Sample : **STD_8 E071007G 1000/2000/1000/500ng/mL**

Method File: LC10.I\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 22:59

Matrix: NONE SubList: EXPSDNA.sub SpikeList:
Samp. Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc. Info: ;8; ; ; ;3;EXPSDNA.sub; ;0;1

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.80	25435	500	O	50.87	18.80	49635	500	O	99.27
HMX	5.28	130528	1000		130.528			1000		0
RDX	7.96	83711	1000	O	83.711			1000		0
Picric ACID	9.17	144474	2000		72.237	9.17	212345	2000		106.1725
1,3,5-Trinitrobenzene	10.52	149546	1000	O	149.546			1000		0
1,3-Dinitrobenzene	13.73	142622	1000		142.622			1000		0
TETRYL	14.90	89705	1000		89.705			1000		0
Nitrobenzene	15.77	64394	1000		64.394			1000		0
2,4,6-Trinitrotoluene	17.27	87749	1000		87.749			1000		0
4-AM-2,6-DNT	18.26	64355	1000		64.355			1000		0
2-AM-4,6-DNT	19.43	73240	1000		73.24			1000		0
2,6-Dinitrotoluene	21.31	51247	1000		51.247			1000		0
2,4-Dinitrotoluene	22.08	84521	1000		84.521			1000		0
2-Nitrotoluene	26.05	35264	1000		35.264			1000		0
4-Nitrotoluene	27.99	42643	1000		42.643			1000		0
3-Nitrotoluene	30.23	41273	1000		41.273			1000		0
Nitroglycerin			1000		0	16.42	76484	1000	O	76.484
PETN			1000		0	32.18	38753	1000		38.753
3,5-Dinitroaniline	14.52	97042	1000		97.042			1000		0

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

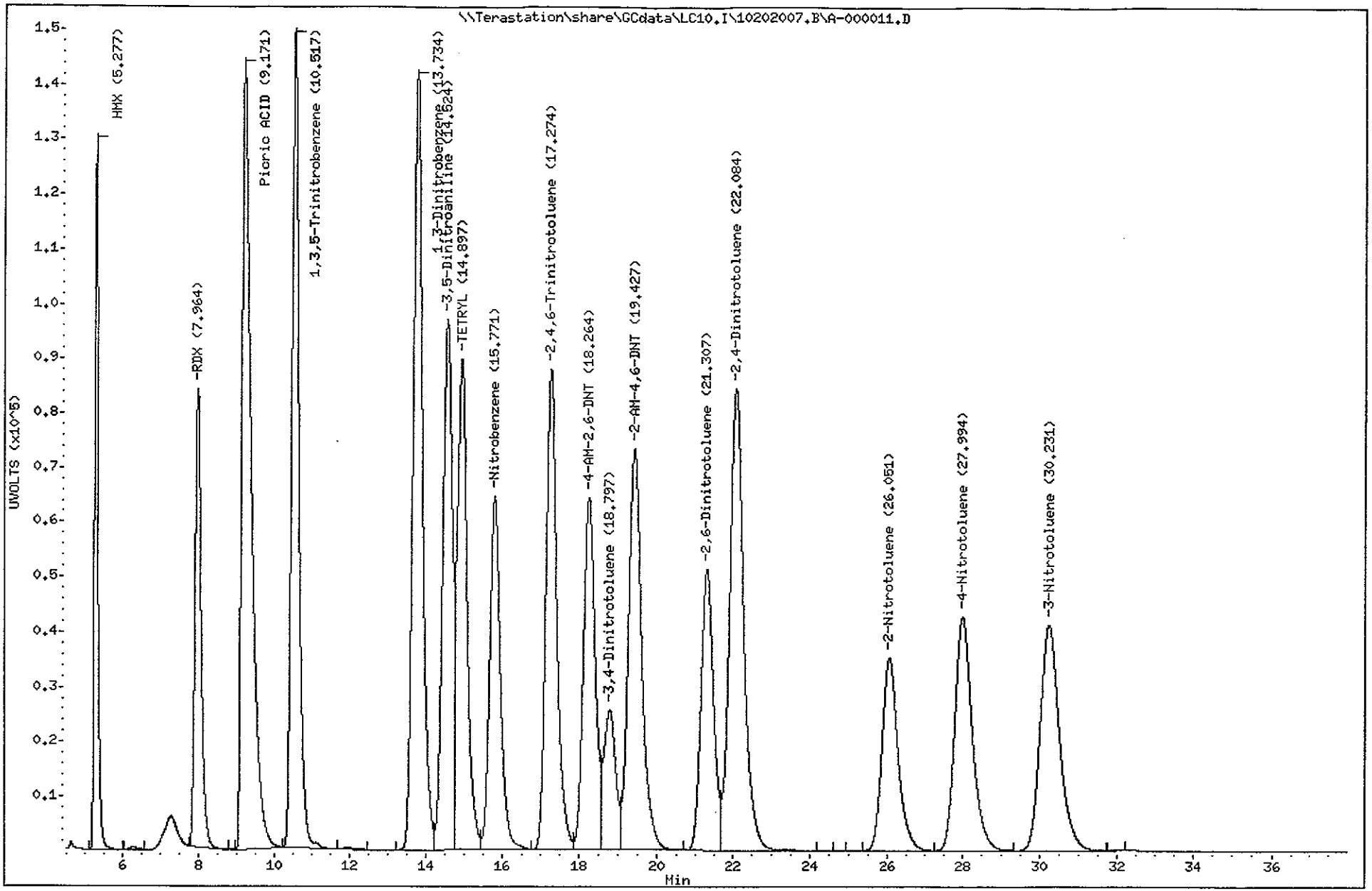
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.277	813735	130528	0.160	9.26		4	HMX
6.264	5963	553	0.093	0.03			
7.964	932373	83711	0.090	5.94		5	RDX
9.171	2457170	144474	0.059	10.25		6	Picric ACID
10.517	2031609	149546	0.074	10.74		7	1,3,5-Trinitrobenze
11.957	5975	351	0.059	0.02			
13.734	2469243	142622	0.058	10.12		8	1,3-Dinitrobenzene
14.524	1628874	97042	0.060	6.88		3	3,5-Dinitroaniline
14.897	1658970	89705	0.054	6.36		9	TETRYL
15.771	1279506	64394	0.050	4.57		10	Nitrobenzene
17.274	1747288	87749	0.050	6.22		11	2,4,6-Trinitrotolue
18.264	1360417	64355	0.047	4.56		12	4-AM-2,6-DNT
18.797	520428	25435	0.049	1.80	$	13	3,4-Dinitrotoluene
19.427	1758508	73240	0.042	5.19		14	2-AM-4,6-DNT
21.307	1202009	51247	0.043	3.63		15	2,6-Dinitrotoluene
22.084	2196247	84521	0.038	5.99		16	2,4-Dinitrotoluene
24.707	378	32	0.085	0.00			
26.051	1040936	35264	0.034	2.50		17	2-Nitrotoluene
27.994	1349165	42643	0.032	3.02		18	4-Nitrotoluene
30.231	1408843	41273	0.029	2.92		19	3-Nitrotoluene
32.090	558	49	0.088	0.00			
	25868196	1408734		100.000			

Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

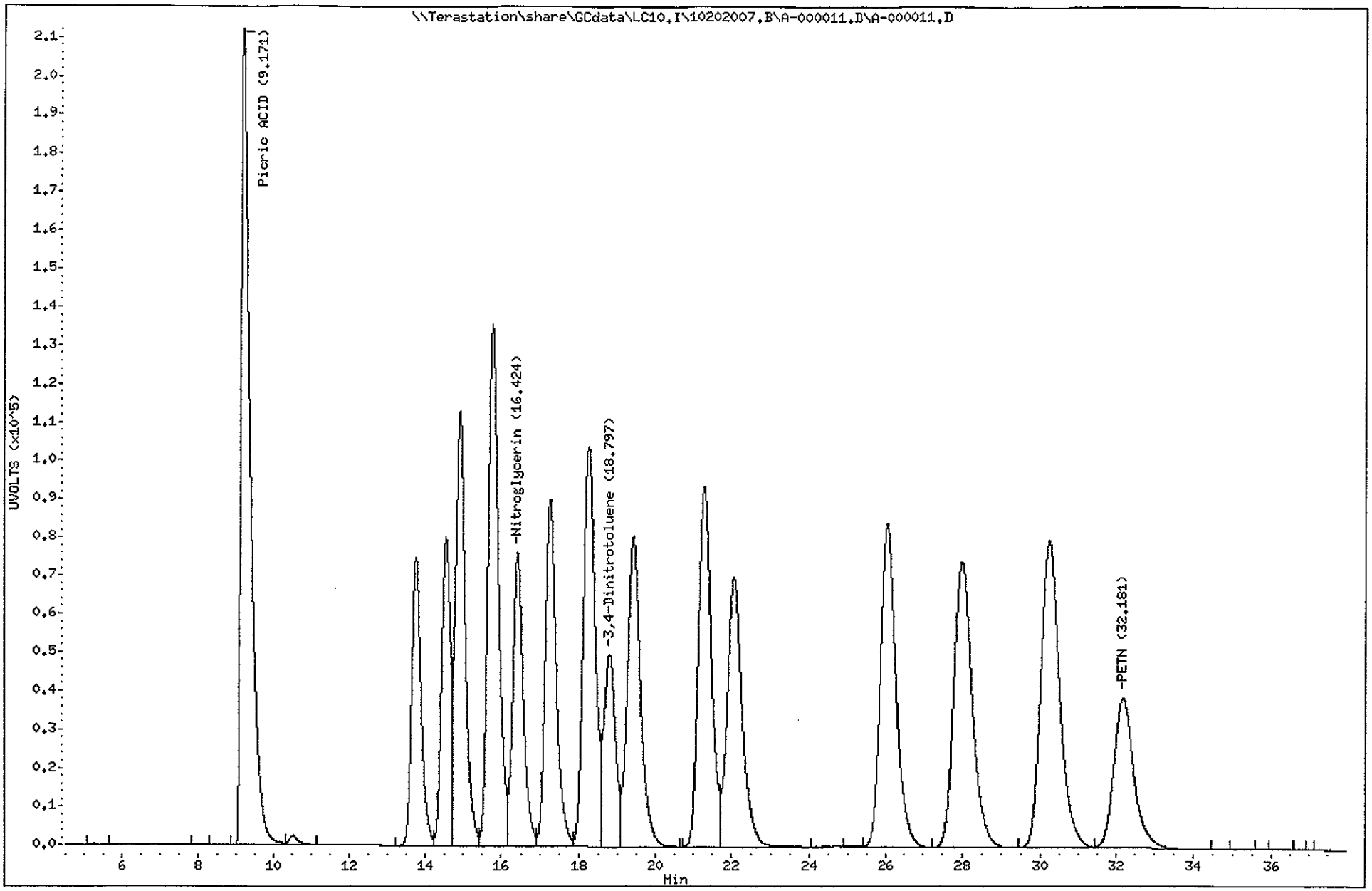
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.267	2842	303	0.107	0.02	
7.957	1951	177	0.091	0.01	
9.171	3634124	212345	0.058	14.62	6 Picric ACID
10.517	35777	2280	0.064	0.15	
13.734	1303508	75093	0.058	5.13	
14.524	1298822	80294	0.062	5.48	
14.901	2108795	113352	0.054	7.74	
15.771	2630858	135938	0.052	9.29	
16.424	1468801	76484	0.052	5.22	1 Nitroglycerin
17.274	1810190	90599	0.050	6.19	
18.264	2181688	104340	0.048	7.13	
18.797	1048205	49635	0.047	3.39	$ 13 3,4-Dinitrotoluene
19.427	1951260	80724	0.041	5.51	
21.304	2230581	93908	0.042	6.41	
22.084	1849536	70033	0.038	4.78	
25.171	3681	185	0.050	0.01	
26.051	2480593	84166	0.034	5.75	
27.994	2348458	74345	0.032	5.08	
30.231	2716024	79877	0.029	5.45	
32.181	1439721	38753	0.027	2.64	2 PETN
35.214	1442	82	0.057	0.00	
36.137	1778	80	0.045	0.00	
36.721	888	66	0.074	0.00	
37.051	405	60	0.148	0.00	
	32549929	1463119		100.000	

Total unknown % height = 74.13

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007C 1000/2000/1000/500ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000012.D

Chromatography Summary

Method 8330 Target Analyte Results

Sample : **Blank**

Injection Date: 10/20/2007 23:52 Operator: KenneyF
DataFile: LC10.I\10202007.B\A-000012.D Vial Num: 11
Instrument ID: LC10

Method File: LC10.I\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE SubList: EXPSDNA.sub SpikeList:
Samp. Info: Blank;0
Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	PPB	Flag	RT	Diff	Response	PPB	Flag	MDL	RL	Flag
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	
4-AM-2,6-DNT											0.0000	0.00	
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN						**32.31**	**0.132**	**82**	**2.0480<**		**0.0000**	**0.00**	**45**
3,5-Dinitroaniline											0.0000	0.00	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000		0	2000.0000		0	i0--1.#QNAI

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.639	1558	92	0.059	28.70	
10.136	172	31	0.180	9.65	
17.519	400	36	0.090	11.21	
20.953	596	34	0.057	10.59	
21.879	145	29	0.200	9.03	
27.176	553	37	0.067	11.52	
30.679	868	32	0.037	9.96	
32.629	605	30	0.050	9.34	
	4896	321		100.000	

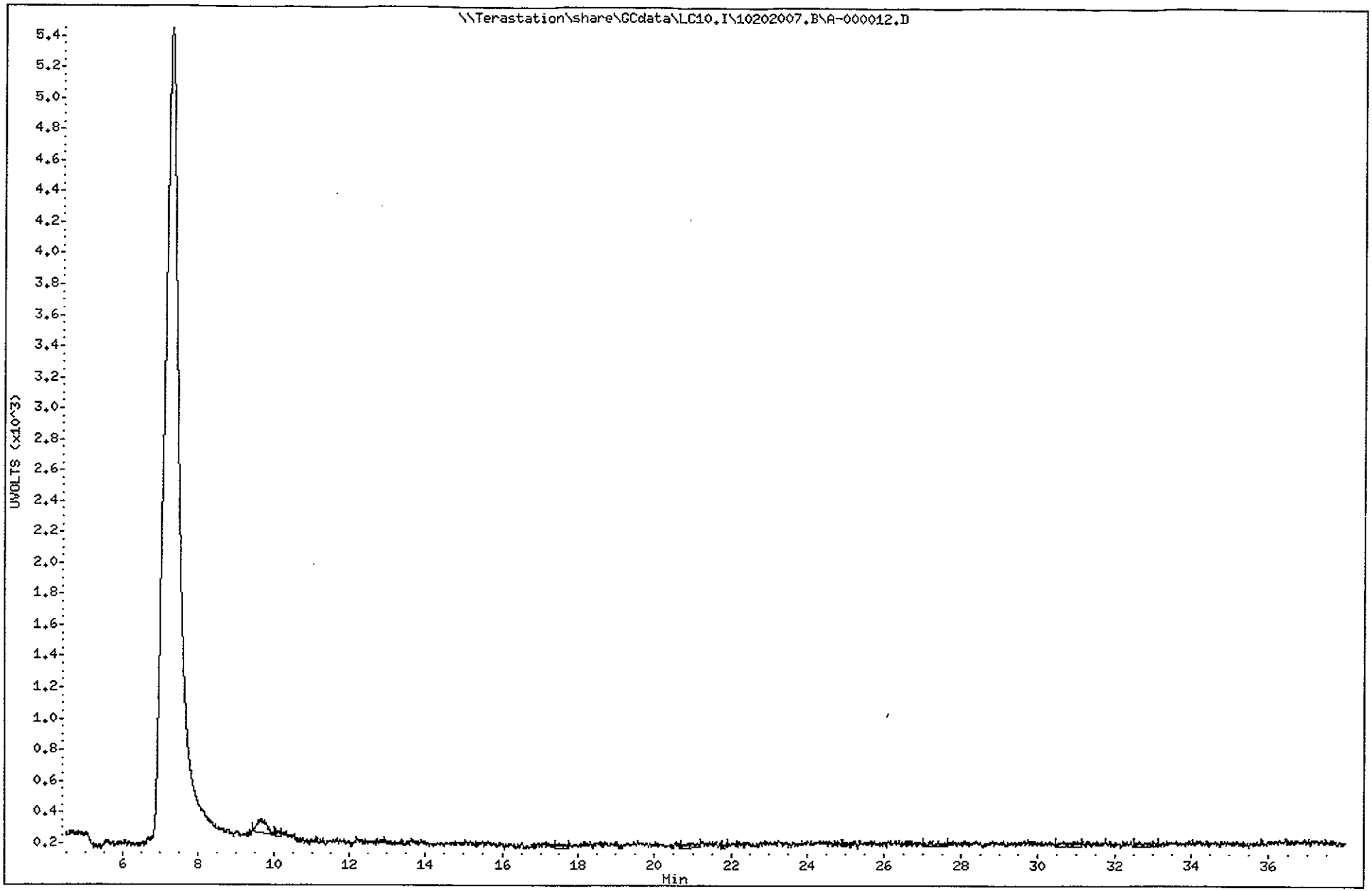
Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

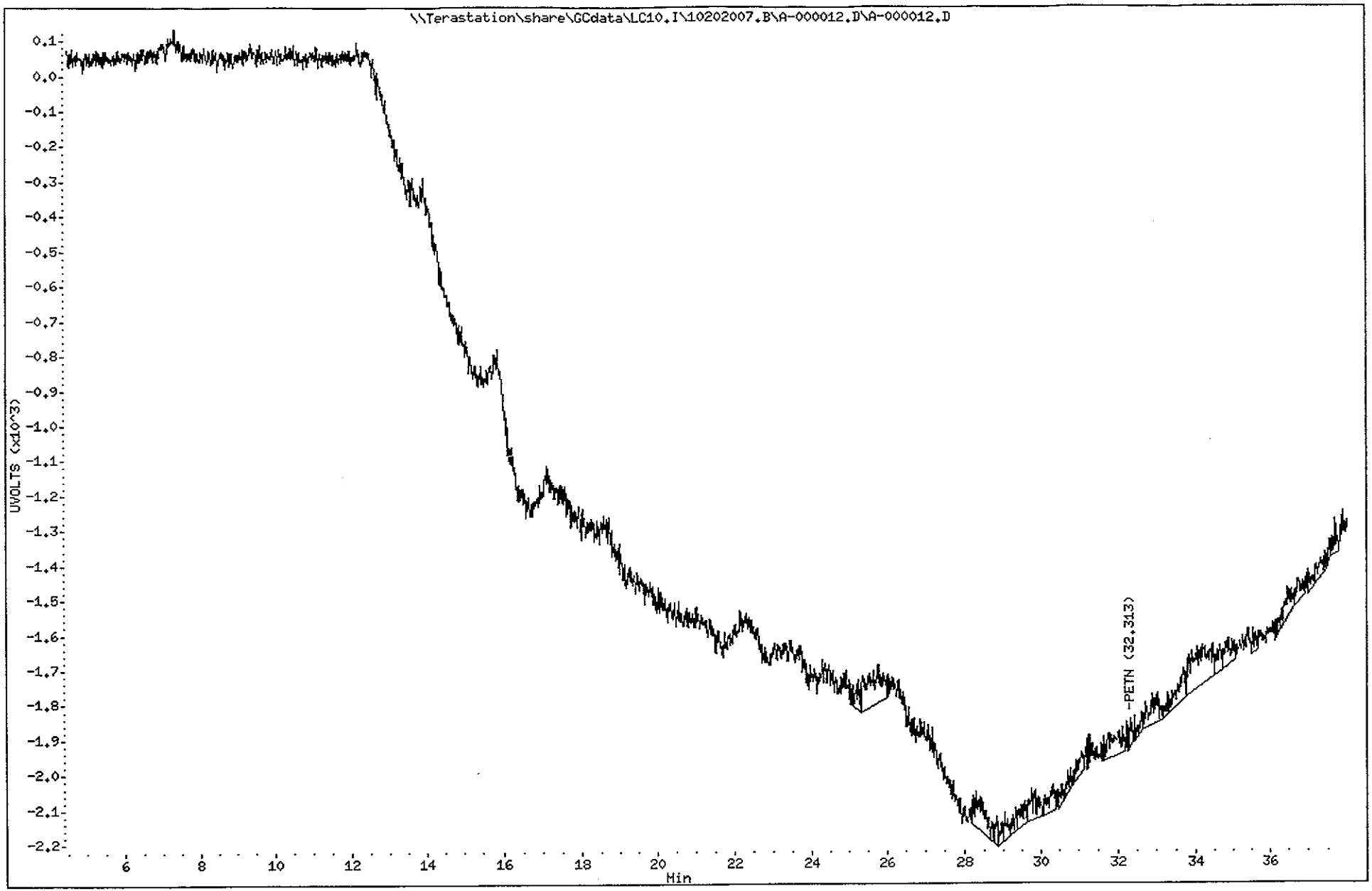
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
25.249	707	88	0.125	4.66	
25.549	2835	98	0.035	5.19	
28.276	2226	100	0.045	5.30	
29.033	721	79	0.110	4.18	
29.456	967	60	0.062	3.18	
29.753	1179	90	0.076	4.77	
30.313	806	73	0.091	3.87	
30.789	619	52	0.084	2.75	
31.066	634	60	0.095	3.18	
31.259	219	84	0.384	4.45	
31.763	1484	71	0.048	3.76	
32.313	407	82	0.202	4.34	2 PETN
32.616	354	56	0.158	2.96	
32.892	1438	90	0.063	4.77	
33.666	1560	94	0.060	4.98	
34.179	3836	113	0.029	6.11	
34.623	610	78	0.128	4.13	
34.956	1048	65	0.062	3.44	
35.519	370	71	0.192	3.76	
36.256	262	37	0.141	1.96	
36.453	951	86	0.090	4.55	
36.743	591	62	0.105	3.28	
37.396	844	45	0.053	2.38	
37.536	225	55	0.244	2.91	
37.672	437	97	0.222	5.14	
	25329	1886		100.000	

Total unknown % height = 95.66

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Appendix

Includes (as applicable):

retention time windows

MDL summaries

calculation explanation sheets

standard raw data

statistical summary

STL Sacramento

Retention Time Window

INSTRUMENT ID: LC10-C18
COLUMN ID: Synergi Hydro-RP
COLUMN SN: 389480-1
DATE: 11-Sep-07
date - time
STANDARD 1: 9/6/07 736
STANDARD 2: 9/7/07 1603
STANDARD 3: 9/8/07 1928

METHOD ID: 8330M
Isocratic run 5:90:5
Flow rate 1.0 mL/min
Column Temperature 29 degrees
Injection volume 500 uL
SOP # SAC-LC-0009

	ANALYTE	RETENTION TIME 1	RETENTION TIME 2	RETENTION TIME 3	STANDARD DEVIATION	+/- 3X STD Deviation	RTW	
Channel 109; 250/265 nm								
1	HMX	5.380	5.370	5.380	0.006	0.018	0.15	*
2	RDX	8.210	8.200	8.210	0.006	0.018	0.15	*
3	Picric Acid	9.660	9.620	9.680	0.031	0.093	0.15	*
3	1,3,5-Trinitrobenzene	10.850	10.840	10.860	0.010	0.030	0.15	*
4	1,3-Dinitrobenzene	14.290	14.270	14.290	0.012	0.036	0.15	*
5	TETRYL	15.590	15.570	15.600	0.015	0.045	0.15	*
6	Nitrobenzene	16.410	16.400	16.420	0.010	0.030	0.15	*
7	2,4,6-Trinitrotoluene	18.010	17.990	18.010	0.012	0.036	0.15	*
9	4-AM-2,6-Dinitrotoluene	19.160	19.130	19.170	0.021	0.063	0.15	*
8	3,4-Dinitrotoluene (surr)	19.720	19.680	19.720	0.023	0.069	0.15	*
10	2-AM-4,6-Dinitrotoluene	20.390	20.360	20.400	0.021	0.063	0.15	*
11	2,6-Dinitrotoluene	22.350	22.310	22.360	0.026	0.078	0.15	*
12	2,4-Dinitrotoluene	23.160	23.130	23.170	0.021	0.063	0.15	*
13	2-Nitrotoluene	27.330	27.290	27.340	0.026	0.078	0.15	*
14	4-Nitrotoluene	29.370	29.330	29.400	0.035	0.105	0.15	*
15	3-Nitrotoluene	31.740	31.710	31.770	0.030	0.090	0.15	*
Channel 110; 200 nm								
17	Nitroglycerin	17.140	17.120	17.140	0.012	0.036	0.15	*
18	PETN	33.990	33.950	34.000	0.026	0.078	0.15	*

Note: The retention time window is the retention time +/- 0.15 minute, or 3X the standard deviation, whichever is greater. A * indicates that 3X the standard deviation is less than 0.15 minute, and that 0.15 minute was substituted in the 3X standard deviation column.

Prepared by: Frank Kenney 11-Sep-07

Sample Extraction/Preparation Log Copies and Checklists

STL Sacramento

GC/HPLC Data Review Checklist

SEVERN TRENT SERVICES

Lot ID: A7J030104 **Test:** 8330-5 **PM:** MJL

Prep Batch(es) 7285667

A. Calibration/Instrument Run QC	Analyst	Reviewer	N/A
1. ICAL or ICAL Summary and CCV included.	—	/	
2. ICAL, CCV Criteria met.	—	/	
3. Multiple-eluters (TPH-D, 8081A, 8082) ICAL/CCVs appropriate and within critiera.		/	—
4. CCVs every 10 samples/12 hours, all samples bracketed front and back.	—	/	
5. PEM frequency and criteria met.		/	—
6. Peaks correctly ID'd by data system.	—	/	
7. Copy of logbook for ICAL included	—	/	
8. Method Number is identified on data.	—	/	
B. QA/QC		/	
1. Method blank, LCS/LCSD and MS/SD frequencies met.	—	/	
2. LCS/LCSD and MB data is included.	—	/	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present in Clouseau.	—	/	
4. MS/MSD data complete.	—	/	
5. Holding Times were met.	—	/	
C. Sample Analysis		/	
1. Logbook copies for all injections made, including ICV standards and ICAL.	—	/	
2. Logbooks/prep sheets properly filled out.	—	/	
3. Manual Integrations reviewed and appropriate.	—	/	
4. All raw data for samples is included (applies to unused data as well)	—	/	
5. All analytes correctly reported.	—	/	
6. Correct reporting limits used. (Based on client request, prep factors, and dilutions)	—	/	
D. Documentation		/	—
1. Are all nonconformances documented appropriately?		/	
2. Quantims entry correct, including dates and times.	—	/	
3. Appropriate footnotes used.	—	/	
4. Report sheets included and error-free.	—	/	

Analyst: _____ Date: 10/27/07

2nd Level Reviewer: _____ Date: 10/29/07

Comments:

q:\forms\qa-507_gc_review.doc

QA-508 GC Review
3/4/02 ERS

TestAmerica North Canton

TestAmerica West Sacramento
ESC-Extraction Master Sheet

Holding Time Due: 10/15/07 | Project Due: | Date: 10/14/07

BATCH #: 7285667 | Initiated By: | Date: 10/14/07

Test #: 8330-S | Extn Comp'd By: | Date: 10/26/07

QC Code	Lab ID	Sample Size / Initial Mass	Final Volume / Final Mass	Difference in Mass
-B	-MB	2.00g	40.00ml	
-C	-LCS	2.00g	40.00ml	
	A7J0730104-1	2.05g	40.00ml	
-S	-1MS	1.99g	40.00ml	
-D	-1MSD	2.08g	40.00ml	
	-2	2.03	40.00ml	
	-3	2.06g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.06g	40.00ml	
	-6	2.02g	40.00ml	
	-7	2.05g	40.00ml	
	-8	2.02g	40.00ml	
	-9	1.95g	40.00ml	
	A7J0403541	1.97g	40.00ml	
	-2	2.05g	40.00ml	
	-3	1.99g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.02g	40.00ml	
	-6	2.04g	40.00ml	
	-7	2.04g	40.00ml	
	-8	1.99g	40.00ml	
	A7J0801041	2.02g	40.00ml	
	-2	2.08g	40.00ml	
	-3	2.07g	40.00ml	

SOP No.: SAC-LC-0009

EXTRACTION COMMENTS:

Samples Sedond / weighed out 10/14/07 JL

Fort. filtered as below / extracted as per SOP 10/14/07

Extracts filtered / diluted / filtered and Vialed for Analysis 10/26/07 JL

QC Codes	Standard Information				
	Volume	STD ID	Exp. Date	STD Name/Conc.	ppm/ppb
All	80.0µl	E071007B	4/07/08	3,4-DNT 50.0µg/ml	2.0
C,S,D	40.0µl	E070821A	2/11/08	8330 mix 50.0µg/ml	1.0
C,S,D	200µl	E071007A	4/07/08	NG/PETN 50.0µg/ml	5.0

Spiked By / Date: 10/14/07 Witnessed By / Date: 10-14-07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD, FB = Filter Blank

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

LEV 1	LEV 2		LEV 1	LEV 2	
Y	–	Blank	Y	–	Weights/Volumes
Y	–	Check	Y	–	Spike & Surrogate Worksheet
Y	–	MS/MSD	Y	–	Vial contains correct volume
			Y	–	Labels, greenbars, worksheets computer batch: correct & all match
			–	–	Anomalies to Extraction Method

– Expanded Deliverable
– COC Completed
Y Bench Sheet Copied
– Package Submitted to AnalyticalGroup
– Bench Sheet Copied per COC

Extractionist: 002531 Jonathan Reed

Concentrationist: 002531 Jonathan Reed

Reviewer/Date: REEDJ / 10/26/07

****
* *
* QC BATCH: 7285667 *
* *
****

PREP DATE: 10/14/07
COMP DATE: 10/26/07

Nitroaromatics & Nitramines: Explosives (8330)
SONICATION - Low Level

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJ1	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/15/07	10/17/07	A7J030104-001 **J748R-1-A4**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DRS**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DTD**	7285372 D	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-002 **J748X-1-AF**	7285372 D	13	A0	SOLID	**2.03g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-003 **J7481-1-AF**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-004 **J7483-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-005 **J7484-1-A4**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJ1	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/16/07	10/17/07	A7J030104-006 **J7488-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-007 **J749C-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-008 **J749D-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-009 **J749E-1-AF**	7285372 D	13	A0	SOLID	**1.95g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-001 **J7914-1-A4**	7285372 D	13	A0	SOLID	**1.97g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-002 **J792M-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-003 **J792N-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-004 **J792R-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-005 **J792W-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-006 **J7920-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/17/07	10/17/07	A7J040354-007 **J7923-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-008 **J7927-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-001 **J8FKF-1-A4**	7285372 DR	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-002 **J8FKG-1-AF**	7285372 DR	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-003 **J8FKH-1-AF**	7285372 DR	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-AAB**		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-ACC**		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															

FILTERS:MILLIPORE:R7KN80394 0.1%HOAC IN ACN:RP5-27B
1.3G/L CACL2 SOLUTION:RP5-24A

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 24

SOLID, Nitroguanidine

Raw Data Package

Run/Batch Data

Includes (as applicable):

runlogs

continuing calibration standards

interference/performance check standards

continuing calibration blanks

method blanks

lcs

ms/sd

sample raw data

ms tune data

****

Varian Star Workstation - RecalcList Wed Oct 17 11:18:49 2007

RecalcList: C:\Star\Sample list\NQ-10.16.2007.RCL

Created: Tue Oct 16 19:46:02 2007
Modified: Wed Oct 17 11:15:25 2007

NQ Analysis 16 Oct 2007

****

STC-LC-0010

Line	Sample Type	Sample Name	Data F
1	Verification	PRIMER	nq-10-16-2007=19;58;53-primer.
2	Verification	PRIMER	nq-10-16-2007=20;19;36-primer.
3	Verification	PRIMER	nq-10-16-2007=20;40;18-primer.
4	Verification	PRIMER	nq-10-16-2007=21;01;03-primer.
5	Verification	PRIMER	nq-10-16-2007=21;21;47-primer.
6	Verification	PRIMER	nq-10-16-2007=21;42;28-primer.
7	Verification	PRIMER	nq-10-16-2007=22;03;09-primer.
8	Verification	PRIMER	nq-10-16-2007=22;23;52-primer.
9	Verification	PRIMER	nq-10-16-2007=22;44;33-primer.
10	Analysis	Blank	nq-10-16-2007=23;05;19-blank.
11	Verification	E071004F STD 4	nq-10-16-2007=23;26;02-e071004f std 4.
12	Verification	E070427E STD 2 MRL	nq-10-16-2007=23;46;49-e070427e std 2 mrl.
13	Analysis	G7J140000-049-MB	nq-10-17-2007=00;07;35-g7j140000-049-mb.
14	Analysis	G7J140000-049-LCS	nq-10-17-2007=00;28;17-g7j140000-049-lcs.
15	Analysis	A7I260304-1	nq-10-17-2007=00;49;03-a7i260304-1.
16	Analysis	A7I260304-1MS	nq-10-17-2007=01;09;45-a7i260304-1ms.
17	Analysis	A7I260304-1MSD	nq-10-17-2007=01;30;27-a7i260304-1msd.
18	Analysis	A7I260304-2	nq-10-17-2007=01;51;08-a7i260304-2.
19	Analysis	A7I270359-2	nq-10-17-2007=02;11;51-a7i270359-2.
20	Analysis	A7J030104-1	nq-10-17-2007=02;32;33-a7j030104-1.
21	Analysis	A7J030104-1MS	nq-10-17-2007=02;53;13-a7j030104-1ms.
22	Analysis	A7J030104-1MSD	nq-10-17-2007=03;13;55-a7j030104-1msd.
23	Verification	E070427F STD 5	nq-10-17-2007=03;34;41-e070427f std 5.
24	Verification	E070427E STD 2 MRL	nq-10-17-2007=03;55;28-e070427e std 2 mrl.
25	Analysis	A7J030104-2	nq-10-17-2007=04;16;10-a7j030104-2.
26	Analysis	A7J030104-3	nq-10-17-2007=04;36;52-a7j030104-3.
27	Analysis	A7J030104-4	nq-10-17-2007=04;57;36-a7j030104-4.
28	Analysis	A7J030104-6	nq-10-17-2007=05;18;17-a7j030104-6.
29	Analysis	A7J030104-7	nq-10-17-2007=05;38;59-a7j030104-7.
30	Analysis	A7J030104-8	nq-10-17-2007=05;59;41-a7j030104-8.
31	Analysis	A7J030104-9	nq-10-17-2007=06;20;23-a7j030104-9.
32	Analysis	A7J040354-1	nq-10-17-2007=06;41;04-a7j040354-1.
33	Analysis	A7J040354-2	nq-10-17-2007=07;01;46-a7j040354-2.
34	Analysis	A7J040354-3	nq-10-17-2007=07;22;28-a7j040354-3.
35	Verification	E071004F STD 4	nq-10-17-2007=07;43;15-e071004f std 4.
36	Verification	E070427E STD 2 MRL	nq-10-17-2007=08;04;02-e070427e std 2 mrl.
37	Analysis	A7J040354-4	nq-10-17-2007=08;24;45-a7j040354-4.
38	Analysis	A7J040354-5	nq-10-17-2007=08;45;27-a7j040354-5.
39	Analysis	A7J040354-6	nq-10-17-2007=09;06;08-a7j040354-6.
40	Analysis	A7J040354-7	nq-10-17-2007=09;26;48-a7j040354-7.
41	Analysis	A7J040354-8	nq-10-17-2007=09;47;29-a7j040354-8.
42	Verification	E071004F STD 4	nq-10-17-2007=10;08;16-e071004f std 4.
43	Verification	E070427E STD 2 MRL	nq-10-17-2007=10;29;02-e070427e std 2 mrl.
44	Analysis	END RUN	nq-10-17-2007=11;05;20-end run.

Page 12

Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;26;02-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/16/2007 23:26 Calculation Date: 10/16/2007 23:36

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	187.1361	6.4	4.325	0.042	537	
	Totals:		187.1361			0.042	537	

Total Unidentified Counts : 0 counts

Detected Peaks: 7 Rejected Peaks: 6 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -91 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 4; 200ng/ml NQ
****

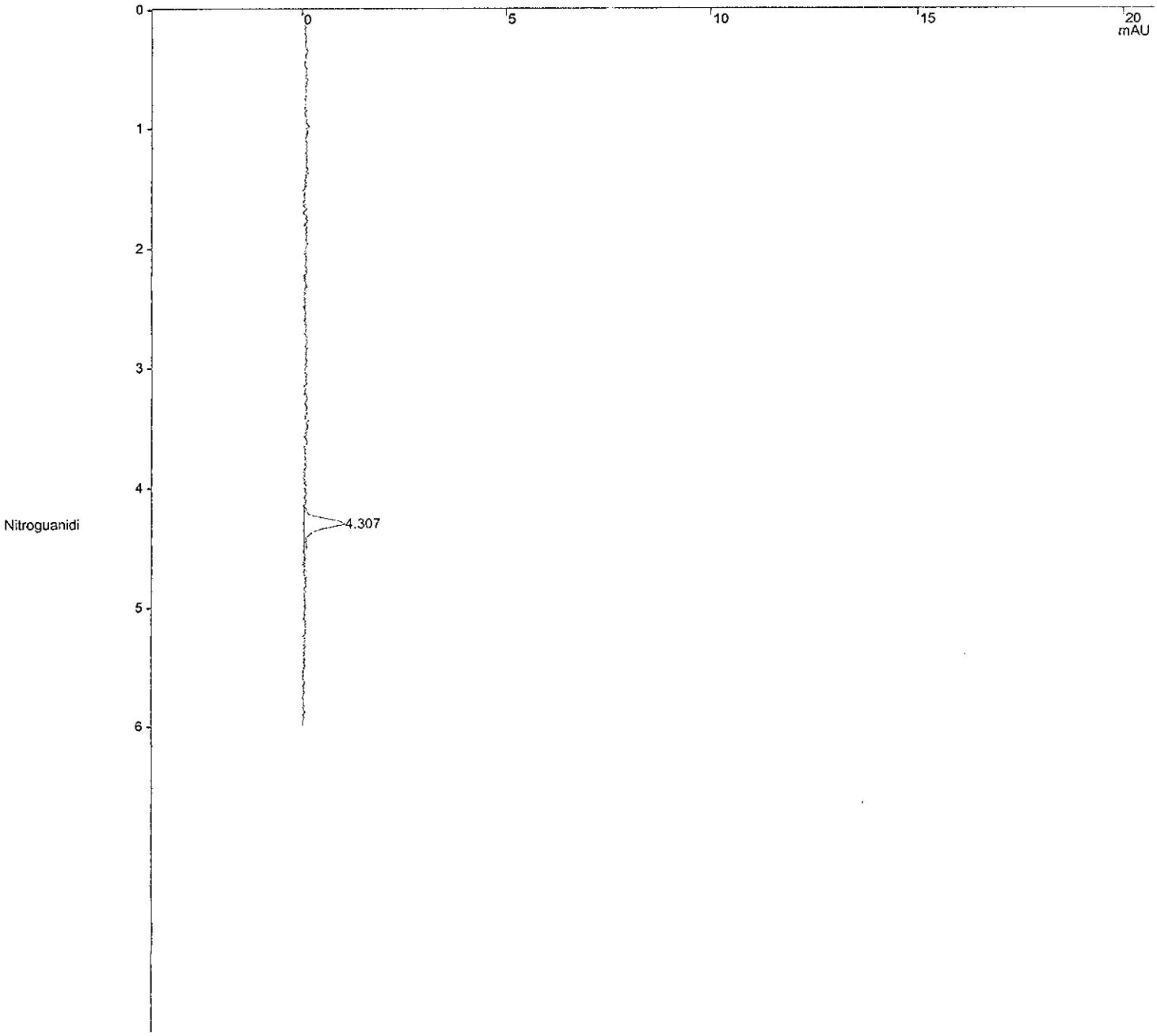
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;46;49-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/16/2007 23:46 Calculation Date: 10/16/2007 23:56

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;46;49-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/16/2007 23:46 Calculation Date: 10/16/2007 23:56

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	44.9190	10.2	4.307	0.024	129	
	Totals:		44.9190			0.024	129	

Total Unidentified Counts : 0 counts

Detected Peaks: 2 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

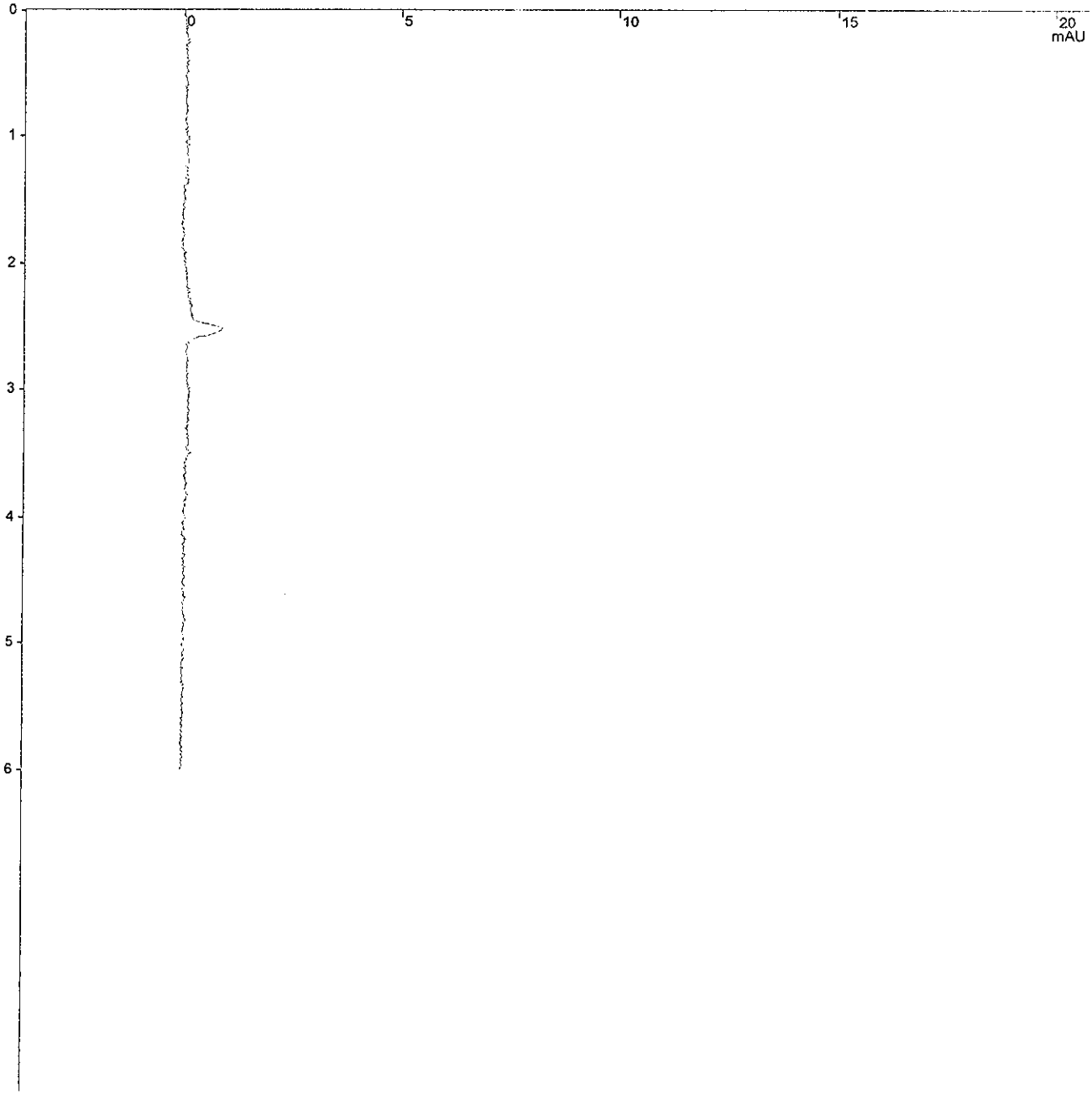
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;07;35-g7j140000-049-mb.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-MB

Injection Date: 10/17/2007 00:07 Calculation Date: 10/17/2007 00:17

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;07;35-g7j140000-049-mb.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-MB

Injection Date: 10/17/2007 00:07 Calculation Date: 10/17/2007 00:17

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
Totals:		0.0000		0.000	0			

Total Unidentified Counts : 0 counts

Detected Peaks: 0 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 92 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 3 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Data Handling: No peaks

Original Notes:

J80HJ1AAB 7287049 NQ soil @ 2g/10ml.
****

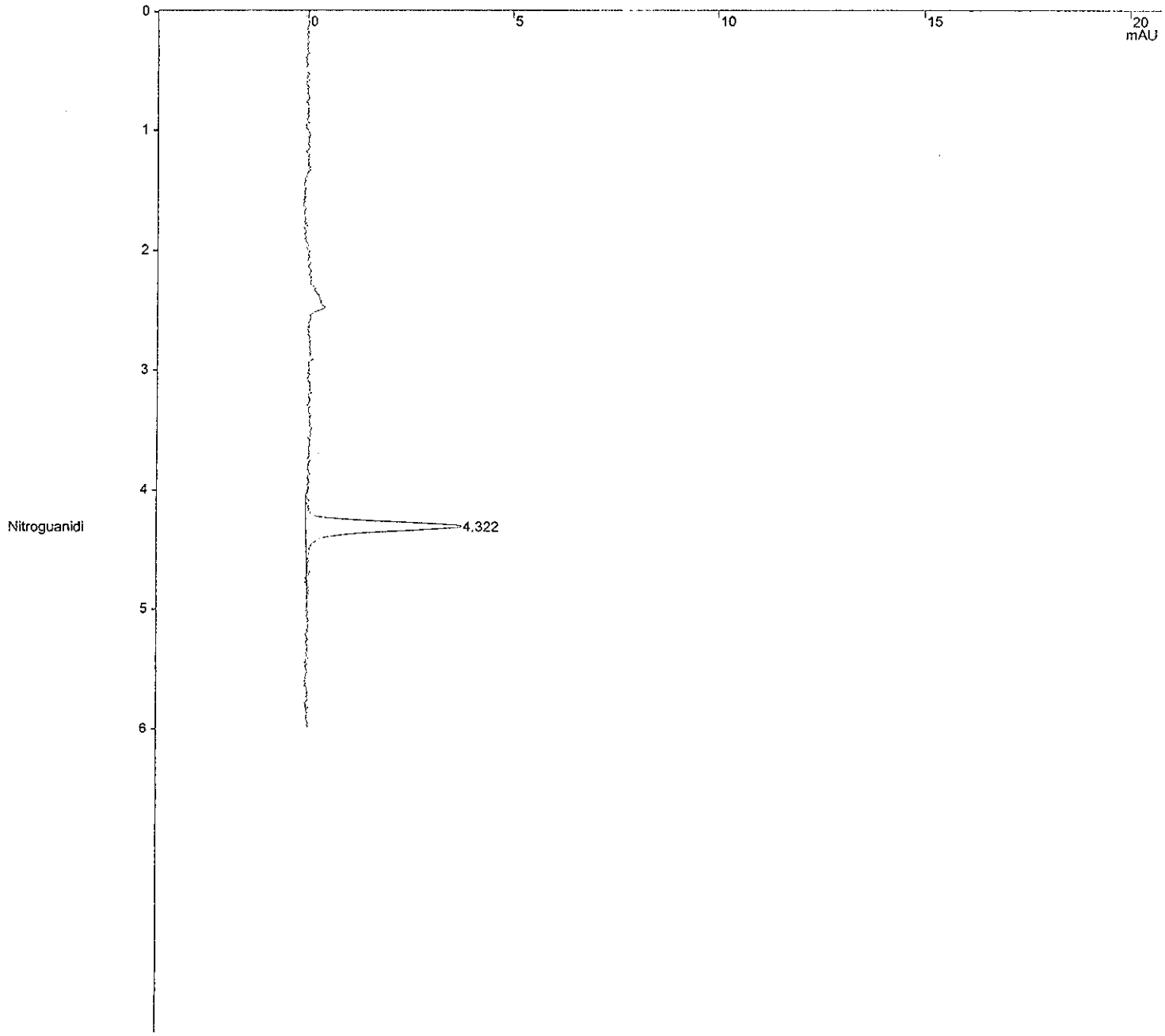
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;28;17-g7j140000-049-lcs.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-LCS

Injection Date: 10/17/2007 00:28 Calculation Date: 10/17/2007 00:38

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star.#1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;28;17-g7j140000-049-lcs.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-LCS

Injection Date: 10/17/2007 00:28 Calculation Date: 10/17/2007 00:38

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	870.7800	4.322	0.039	500	BB	5.3	
	Totals:	870.7800		0.039	500			

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 3 Identified Peaks: 1

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 23 microAU

Noise (used): 83 microAU - monitored before this run

Vial: 5 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J80HJ1ACC 7287049 NQ soil @ 2g/10ml.
****

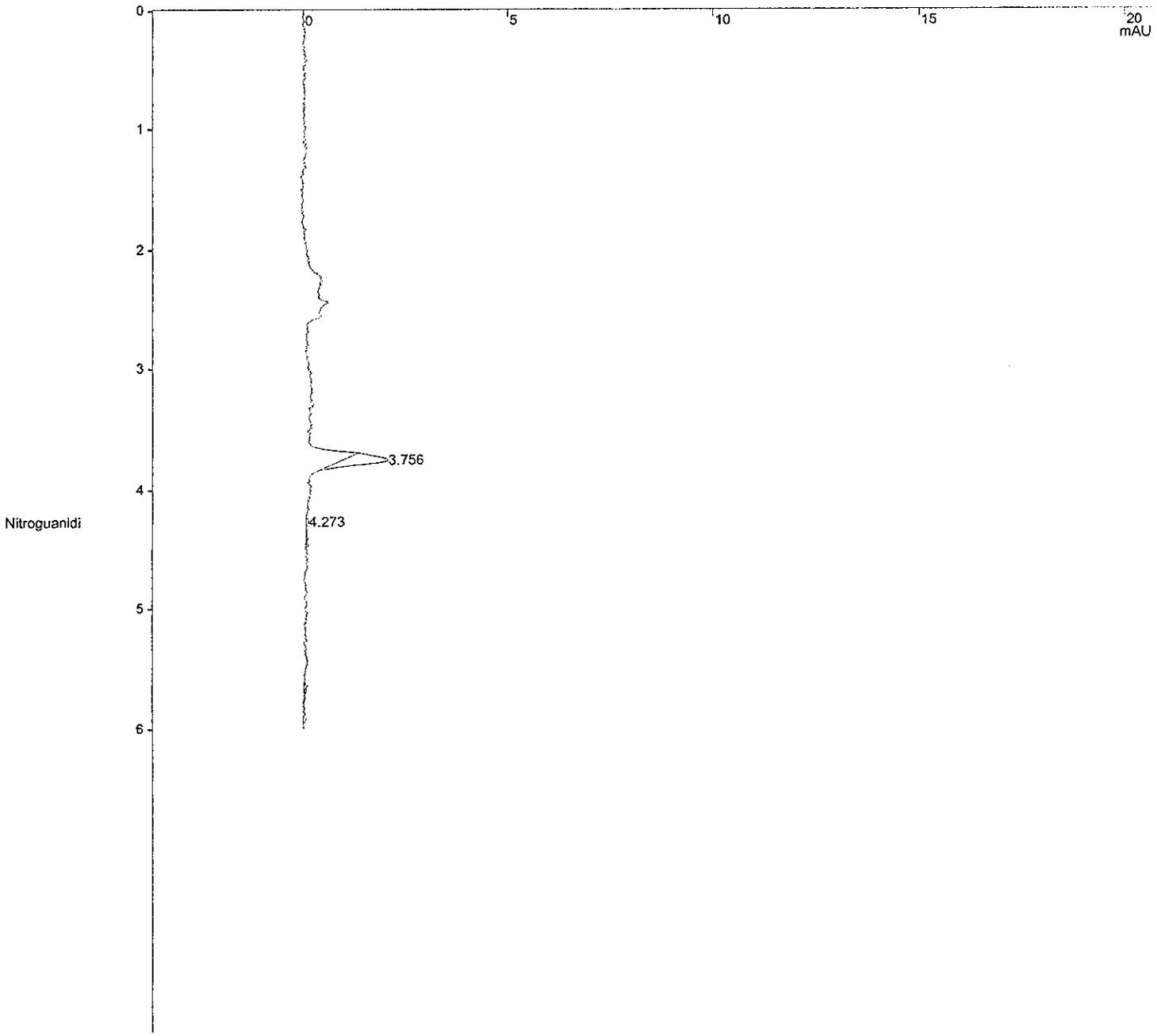
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;49;03-a7i260304-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1

Injection Date: 10/17/2007 00:49 Calculation Date: 10/17/2007 00:59

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;49;03-a7i260304-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1

Injection Date: 10/17/2007 00:49 Calculation Date: 10/17/2007 00:59

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.756	0.000	141	BB	3.8	
2	Nitroguanidi	18.7760	4.273	-0.010	11	BB	0.9	
	Totals:	18.7760		-0.010	152			

Total Unidentified Counts : 141 counts

Detected Peaks: 4 Rejected Peaks: 2 Identified Peaks: 1

Multiplier: 10 Divisor: 2.04 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 7 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AD 7287049 NQ soil @ 2g/10ml.
****

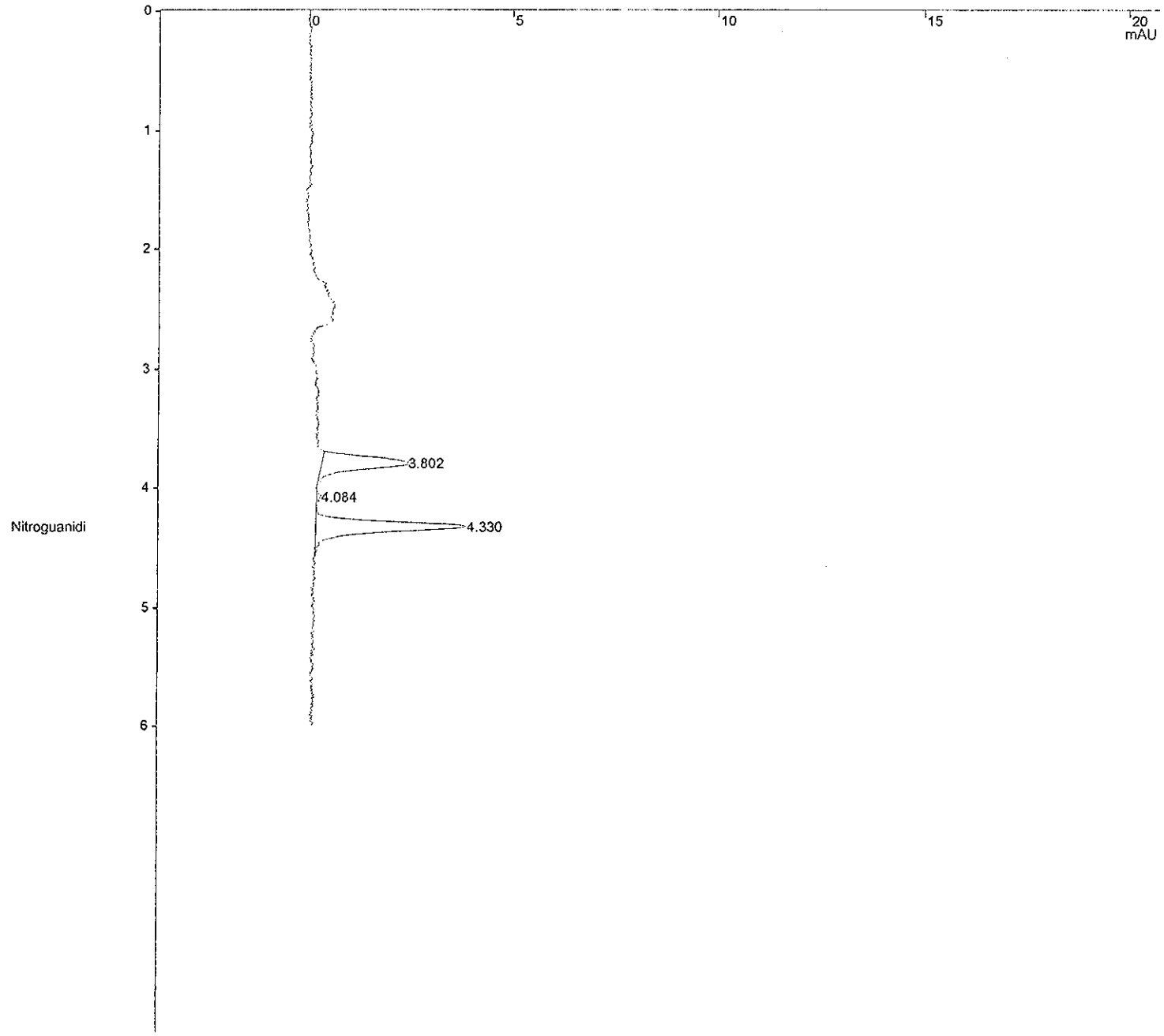
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;09;45-a7i260304-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MS

Injection Date: 10/17/2007 01:09 Calculation Date: 10/17/2007 01:19

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;09;45-a7i260304-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MS

Injection Date: 10/17/2007 01:09 Calculation Date: 10/17/2007 01:19

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.802	0.000	288	BP	6.3	
2		0.0000	4.084	0.000	15	PV	0.0	
3	Nitroguanidi	845.6499	4.330	0.047	481	VB	5.0	
	Totals:	845.6499		0.047	784			

Total Unidentified Counts : 303 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 31 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 9 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AES 7287049 NQ soil @ 2g/10ml.
****

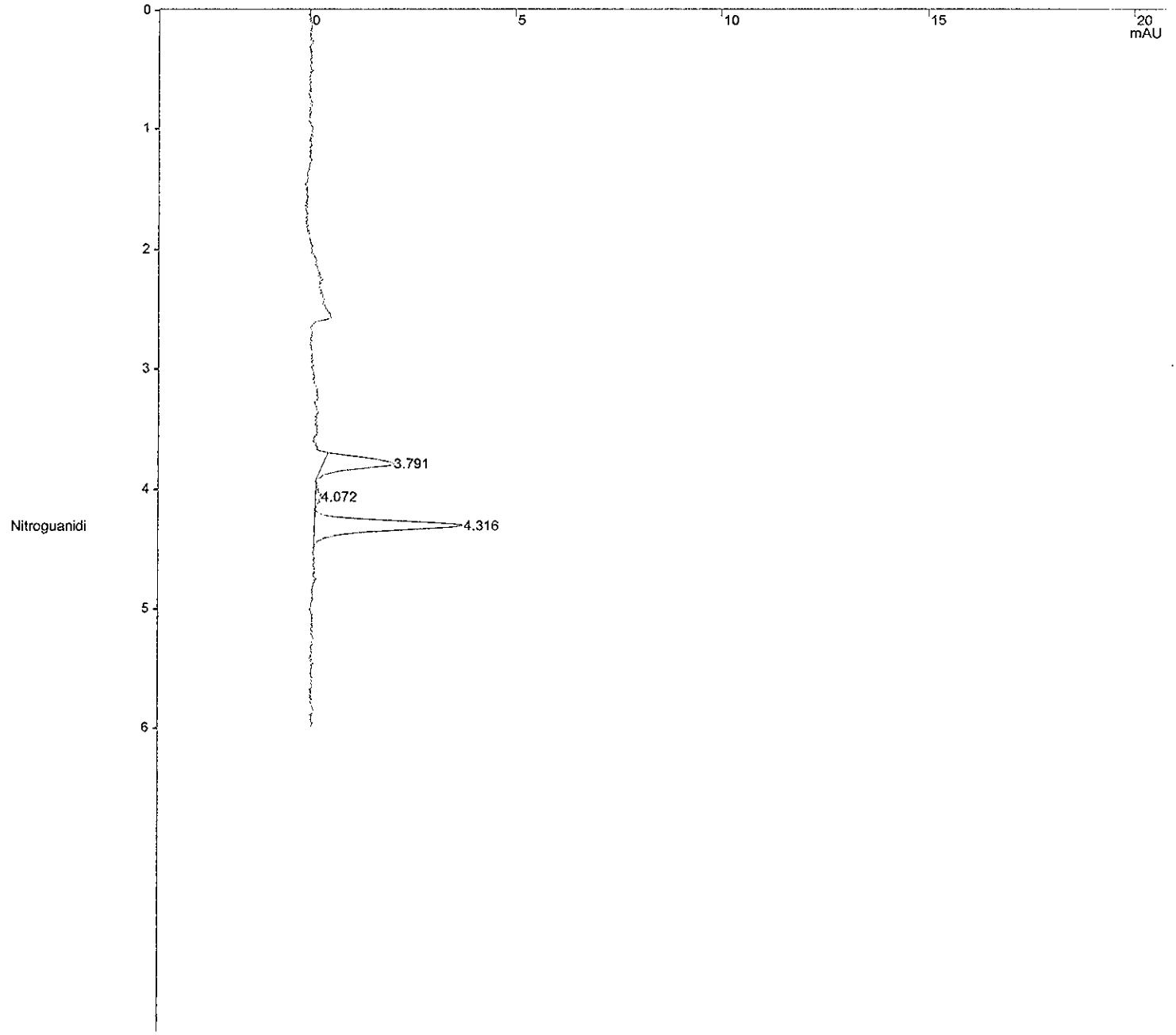
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;30;27-a7i260304-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MSD

Injection Date: 10/17/2007 01:30 Calculation Date: 10/17/2007 01:40

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;30;27-a7i260304-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MSD

Injection Date: 10/17/2007 01:30 Calculation Date: 10/17/2007 01:40

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.791	0.000	224	BP	5.9	
2		0.0000	4.072	0.000	18	PV	0.0	
3	Nitroguanidi	806.1050	4.316	0.033	468	VB	4.9	
	Totals:	806.1050		0.033	710			

Total Unidentified Counts : 242 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 2.02 Unidentified Peak Factor: 0

Baseline Offset: 38 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 11 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AFD 7287049 NQ soil @ 2g/10ml.
****

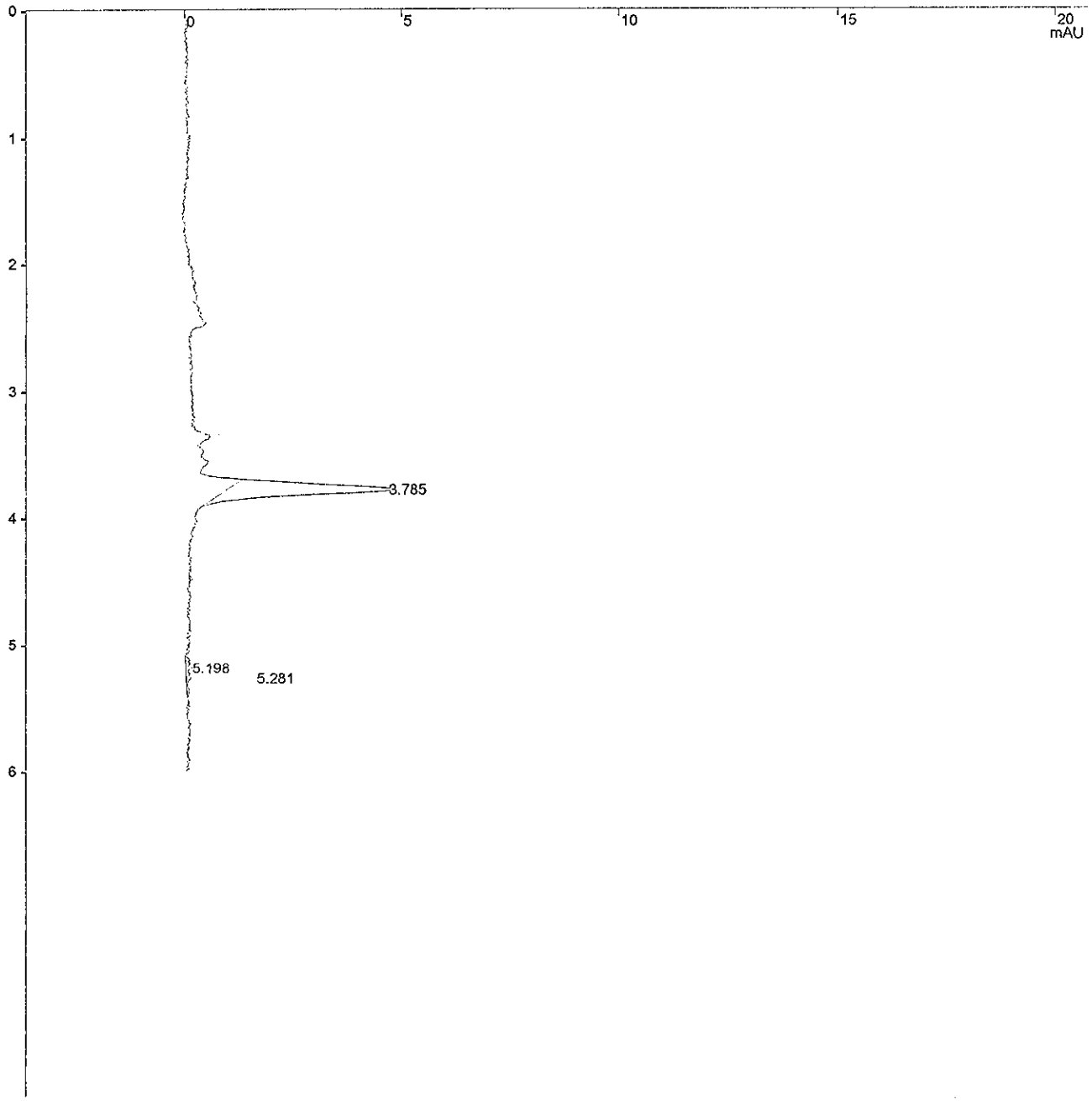
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;32;33-a7j030104-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1

Injection Date: 10/17/2007 02:32 Calculation Date: 10/17/2007 02:42

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;32;33-a7j030104-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1

Injection Date: 10/17/2007 02:32 Calculation Date: 10/17/2007 02:42

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.785	0.000	504	BB	4.9	
2		0.0000	5.198	0.000	20	BV	1.6	
3		0.0000	5.281	0.000	14	VP	7.3	
	Totals:	0.0000		0.000	538			

Total Unidentified Counts : 538 counts

Detected Peaks: 5 Rejected Peaks: 2 Identified Peaks: 0

Multiplier: 10 Divisor: 2.02 Unidentified Peak Factor: 0

Baseline Offset: 15 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 17 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1A6 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;53;13-a7j030104-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MS

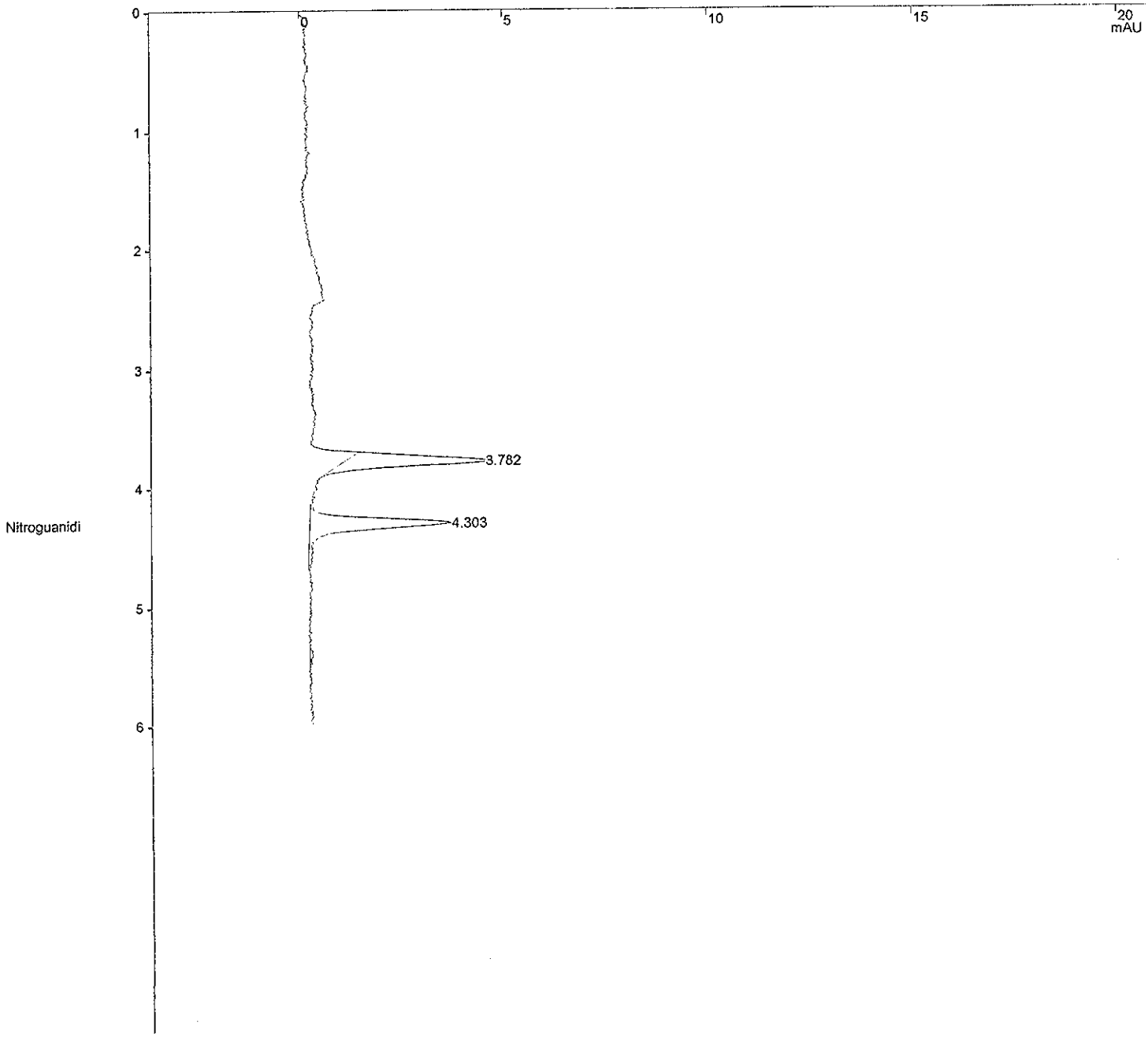
Injection Date: 10/17/2007 02:53 Calculation Date: 10/17/2007 03:03

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;53;13-a7j030104-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MS

Injection Date: 10/17/2007 02:53 Calculation Date: 10/17/2007 03:03

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.782	0.000	459	BB	4.8	
2	Nitroguanidi	808.4978	4.303	0.020	457	BB	5.3	
	Totals:	808.4978		0.020	916			

Total Unidentified Counts : 459 counts

Detected Peaks: 3 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: 10 Divisor: 1.97 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 19 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1DUS 7287049 NQ soil @ 2g/10ml.
****

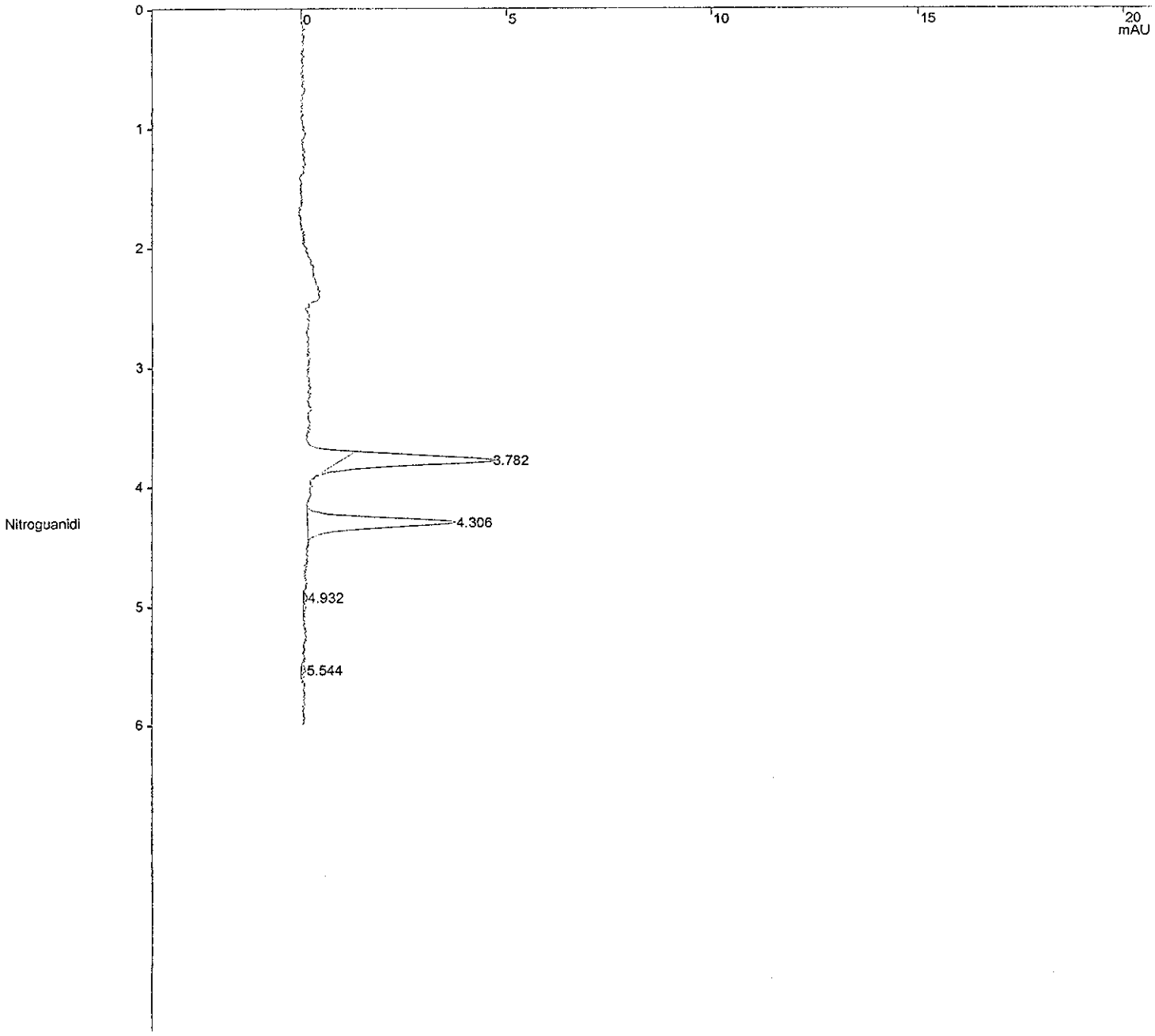
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;13;55-a7j030104-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MSD

Injection Date: 10/17/2007 03:13 Calculation Date: 10/17/2007 03:24

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;13;55-a7j030104-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MSD

Injection Date: 10/17/2007 03:13 Calculation Date: 10/17/2007 03:24

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.782	0.000	489	BB	4.9	
2	Nitroguanidi	842.9666	4.306	0.023	474	BB	5.2	
3		0.0000	4.932	0.000	11	BB	3.6	
4		0.0000	5.544	0.000	13	BB	3.1	
	Totals:	842.9666		0.023	987			

Total Unidentified Counts : 513 counts

Detected Peaks: 4 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 1.96 Unidentified Peak Factor: 0

Baseline Offset: 69 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 21 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1DVD 7287049 NQ soil @ 2g/10ml.
****

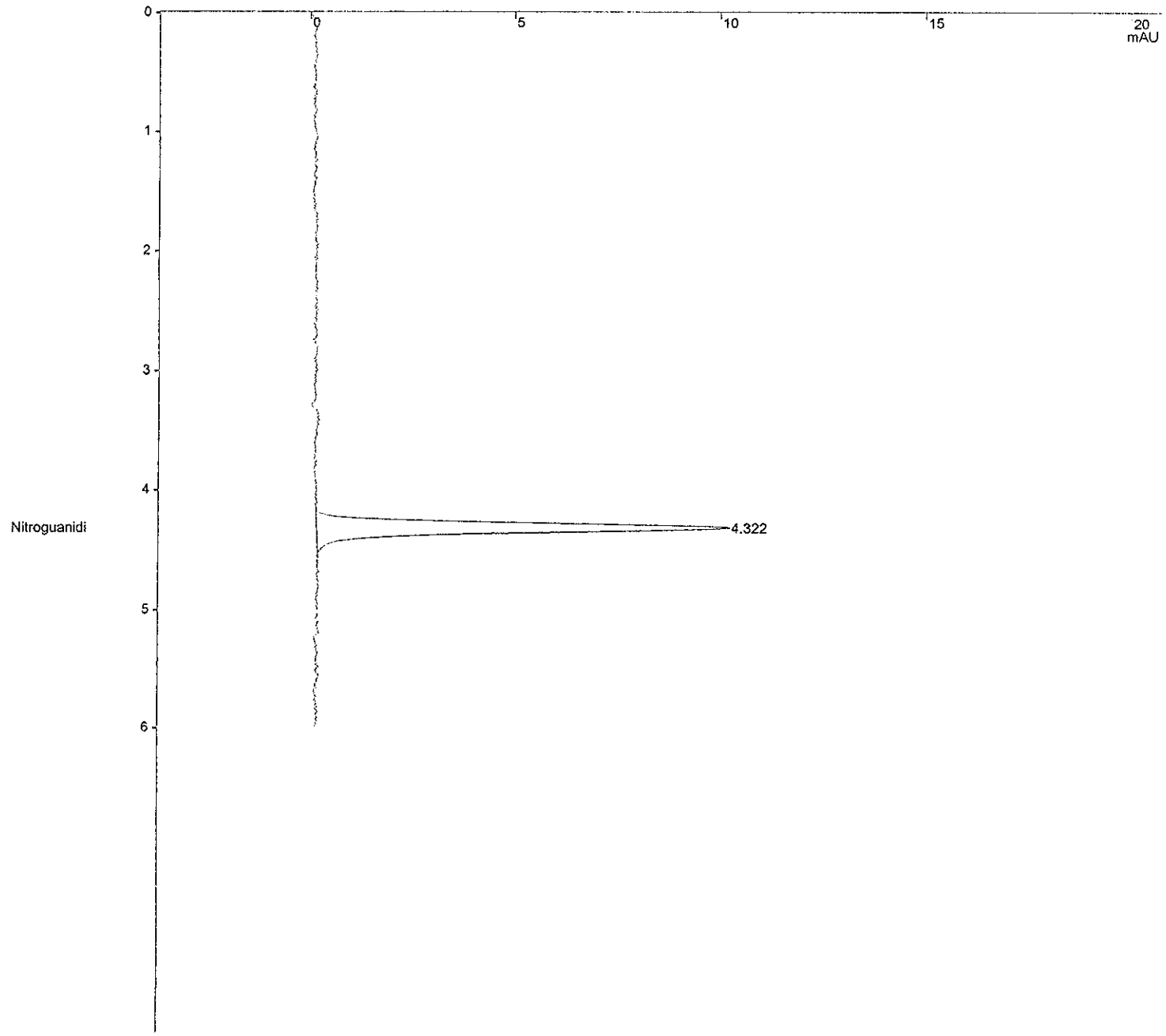
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;34;41-e070427f std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427F STD 5

Injection Date: 10/17/2007 03:34 Calculation Date: 10/17/2007 03:44

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;34;41-e070427f std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427F STD 5

Injection Date: 10/17/2007 03:34 Calculation Date: 10/17/2007 03:44

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	500.0000	460.5206	7.9	4.322	0.039	1323	
	Totals:		460.5206			0.039	1323	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 38 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 12 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 5; 500ng/ml NQ

****

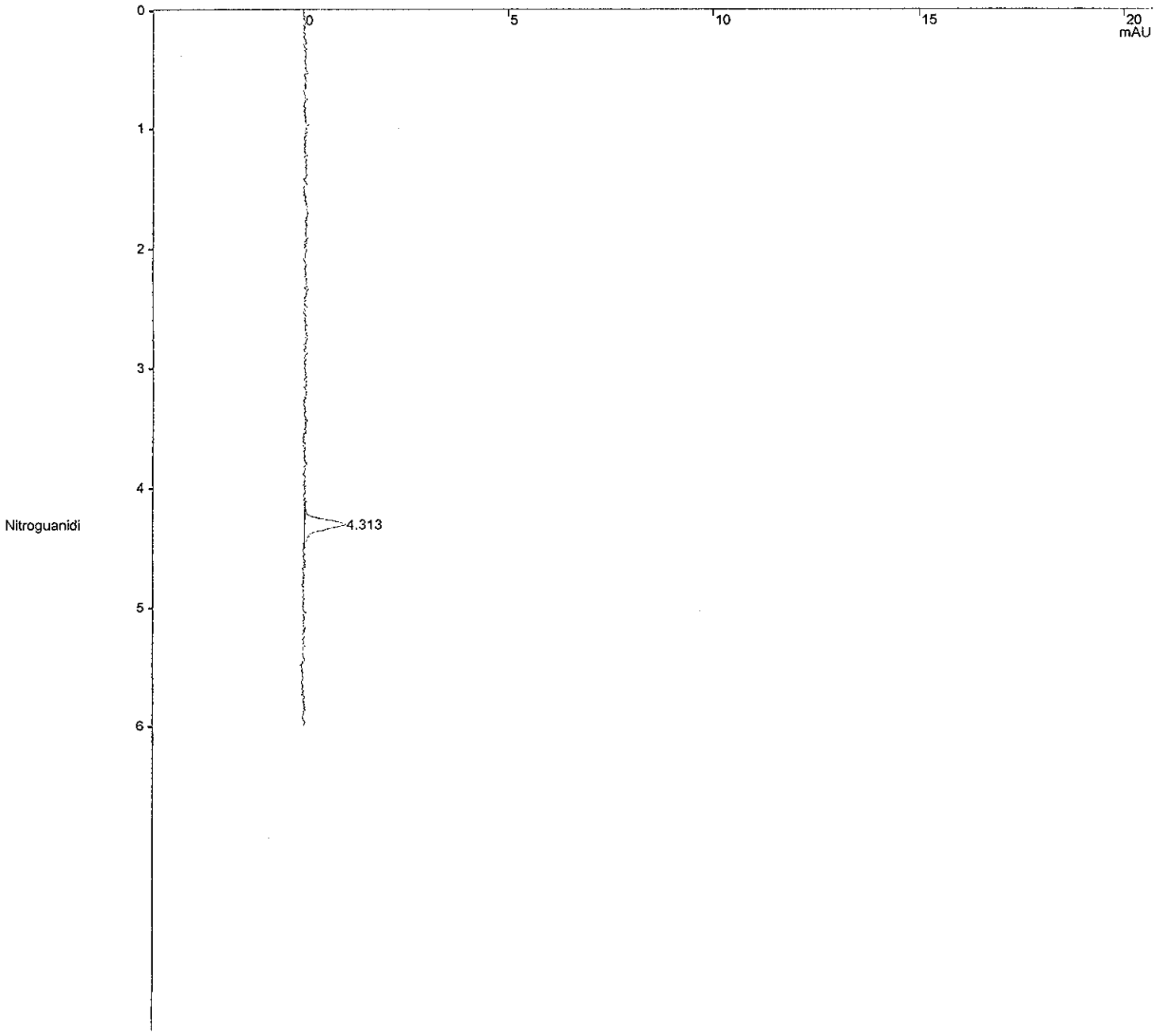
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;55;28-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 03:55 Calculation Date: 10/17/2007 04:05

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;55;28-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 03:55 Calculation Date: 10/17/2007 04:05

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm
Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	45.2447	9.5	4.313	0.030	130	
	Totals:		45.2447			0.030	130	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -7 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;16;10-a7j030104-2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-2

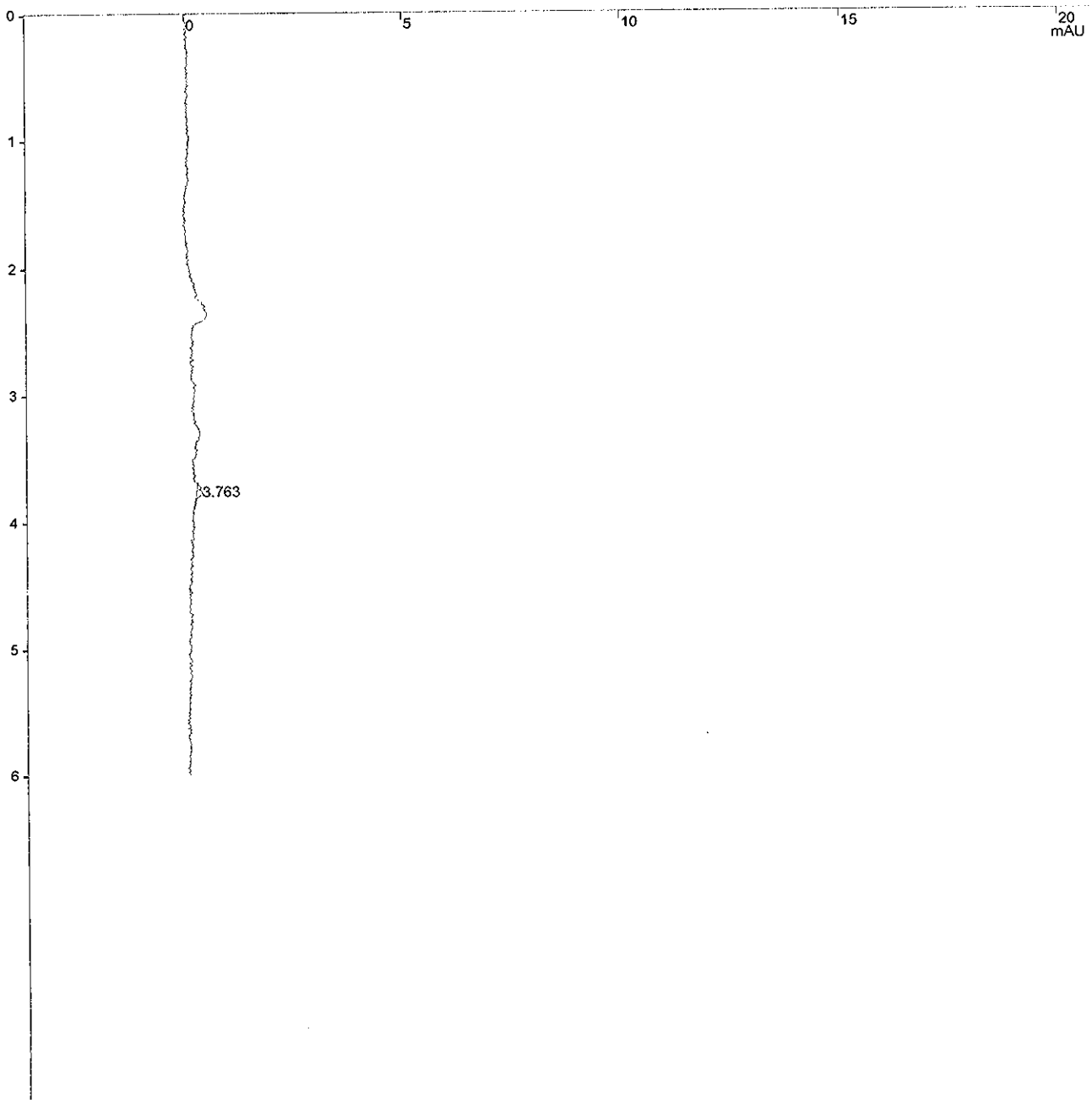
Injection Date: 10/17/2007 04:16 Calculation Date: 10/17/2007 04:26

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;16;10-a7j030104-2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-2

Injection Date: 10/17/2007 04:16 Calculation Date: 10/17/2007 04:26

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.763	0.000	16	BB	4.9	
Totals:		0.0000		0.000	16			

Total Unidentified Counts : 16 counts

Detected Peaks: 2 Rejected Peaks: 1 Identified Peaks: 0

Multiplier: 10 Divisor: 1.96 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 23 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748X1AH 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;36;52-a7j030104-3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-3

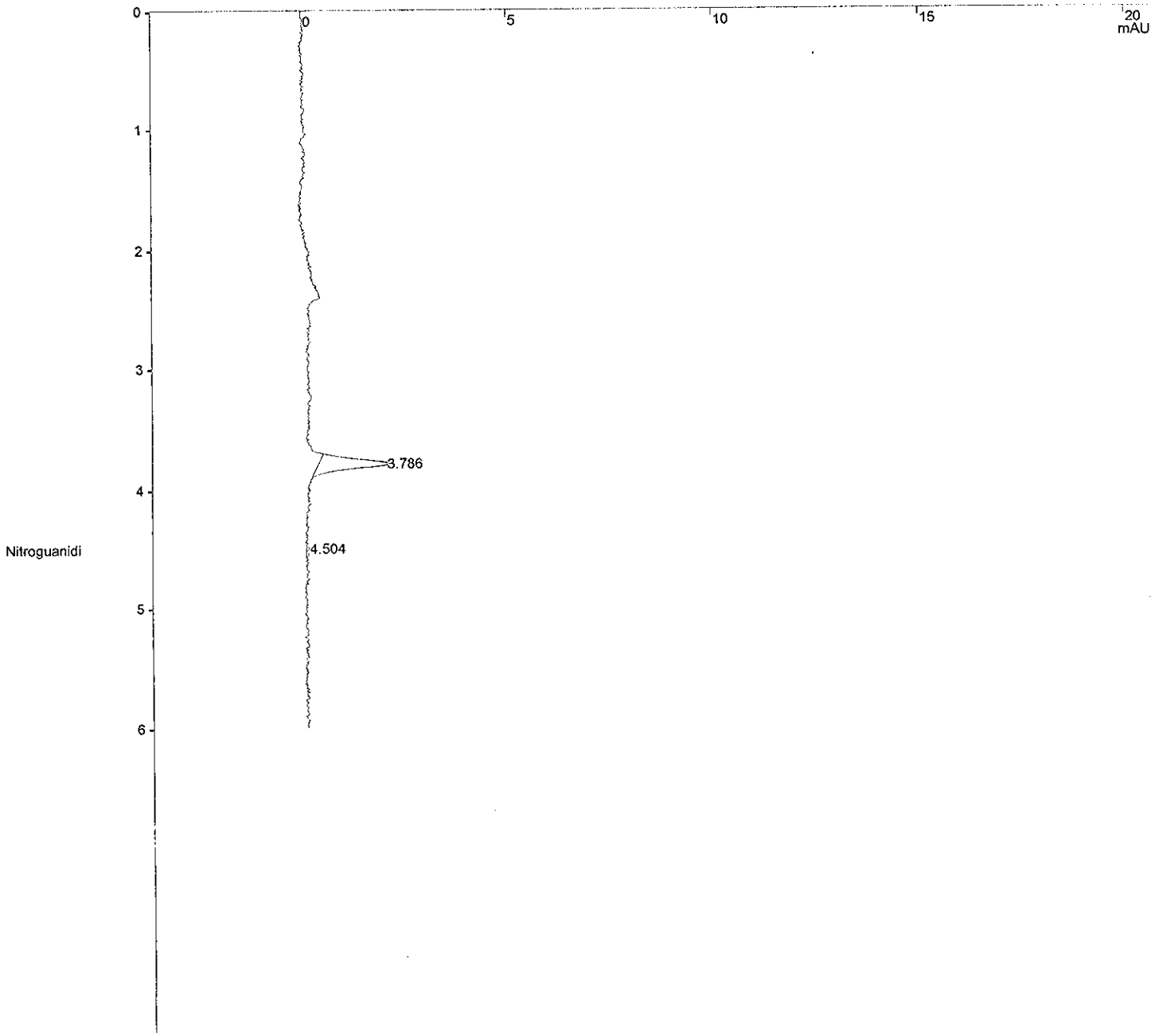
Injection Date: 10/17/2007 04:36 Calculation Date: 10/17/2007 04:46

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;36;52-a7j030104-3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-3

Injection Date: 10/17/2007 04:36 Calculation Date: 10/17/2007 04:46

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.786	0.000	225	BB	4.7	
2	Nitroguanidi	18.0140	4.504	0.221 late	10	BB	1.3	
	Totals:	18.0140		0.221	235			

Total Unidentified Counts : 225 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 145 microAU

Noise (used): 122 microAU - monitored before this run

Vial: 25 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J74811AH 7287049 NQ soil @ 2g/10ml.
****

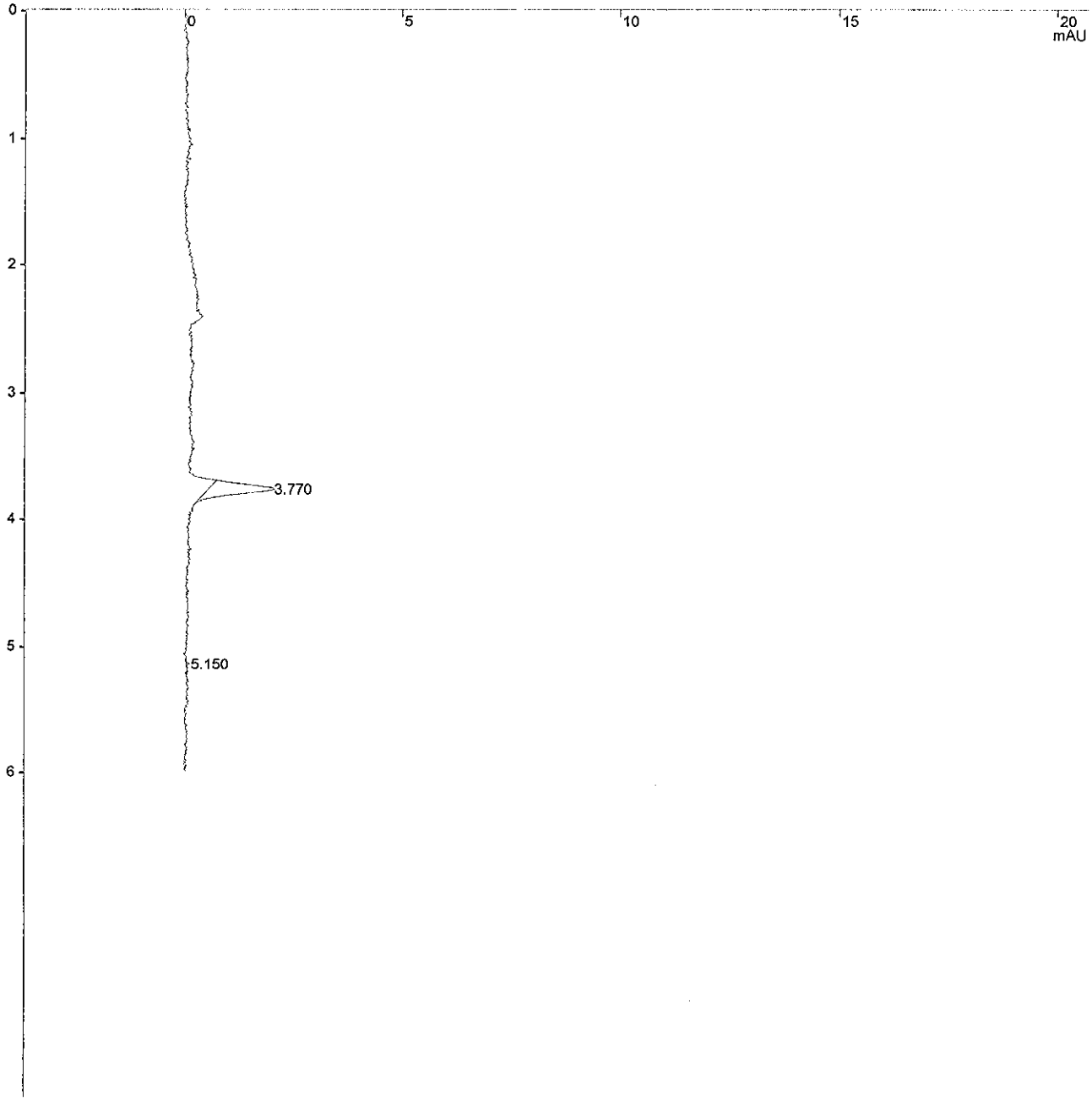
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;57;36-a7j030104-4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-4

Injection Date: 10/17/2007 04:57 Calculation Date: 10/17/2007 05:07

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=04;57;36-a7j030104-4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-4

Injection Date: 10/17/2007 04:57 Calculation Date: 10/17/2007 05:07

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.770	0.000	195	BB	4.3	
2		0.0000	5.150	0.000	11	BB	1.6	
	Totals:	0.0000		0.000	206			

Total Unidentified Counts : 206 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 27 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J74831AH 7287049 NQ soil @ 2g/10ml.
****

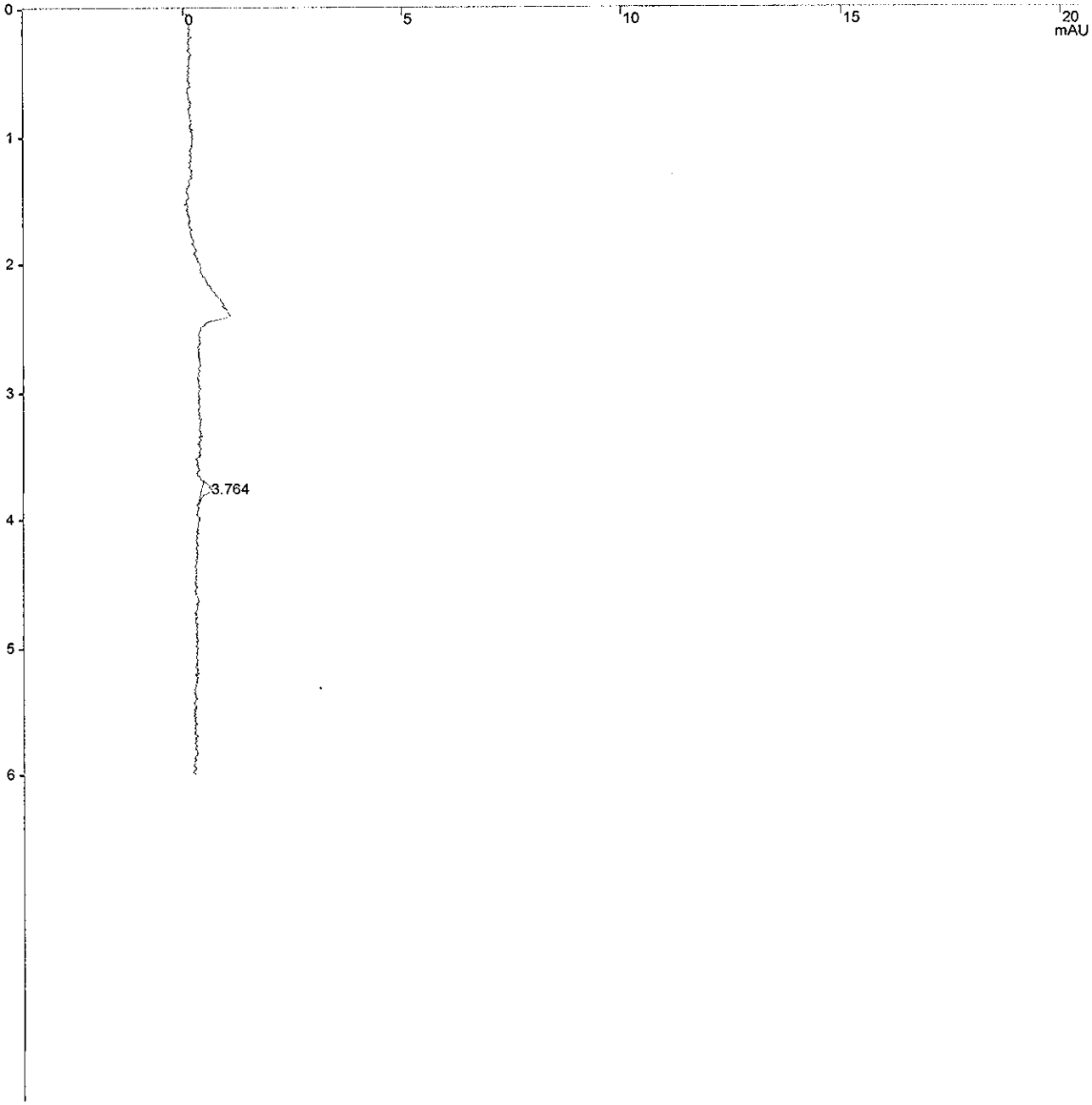
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;18;17-a7j030104-6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-6

Injection Date: 10/17/2007 05:18 Calculation Date: 10/17/2007 05:28

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;18;17-a7j030104-6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-6

Injection Date: 10/17/2007 05:18 Calculation Date: 10/17/2007 05:28

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.764	0.000	28	BB	4.3	
	Totals:	0.0000		0.000	28			

Total Unidentified Counts : 28 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 23 microAU

Noise (used): 144 microAU - monitored before this run

Vial: 29 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J74881AH 7287049 NQ soil @ 2g/10ml.
****

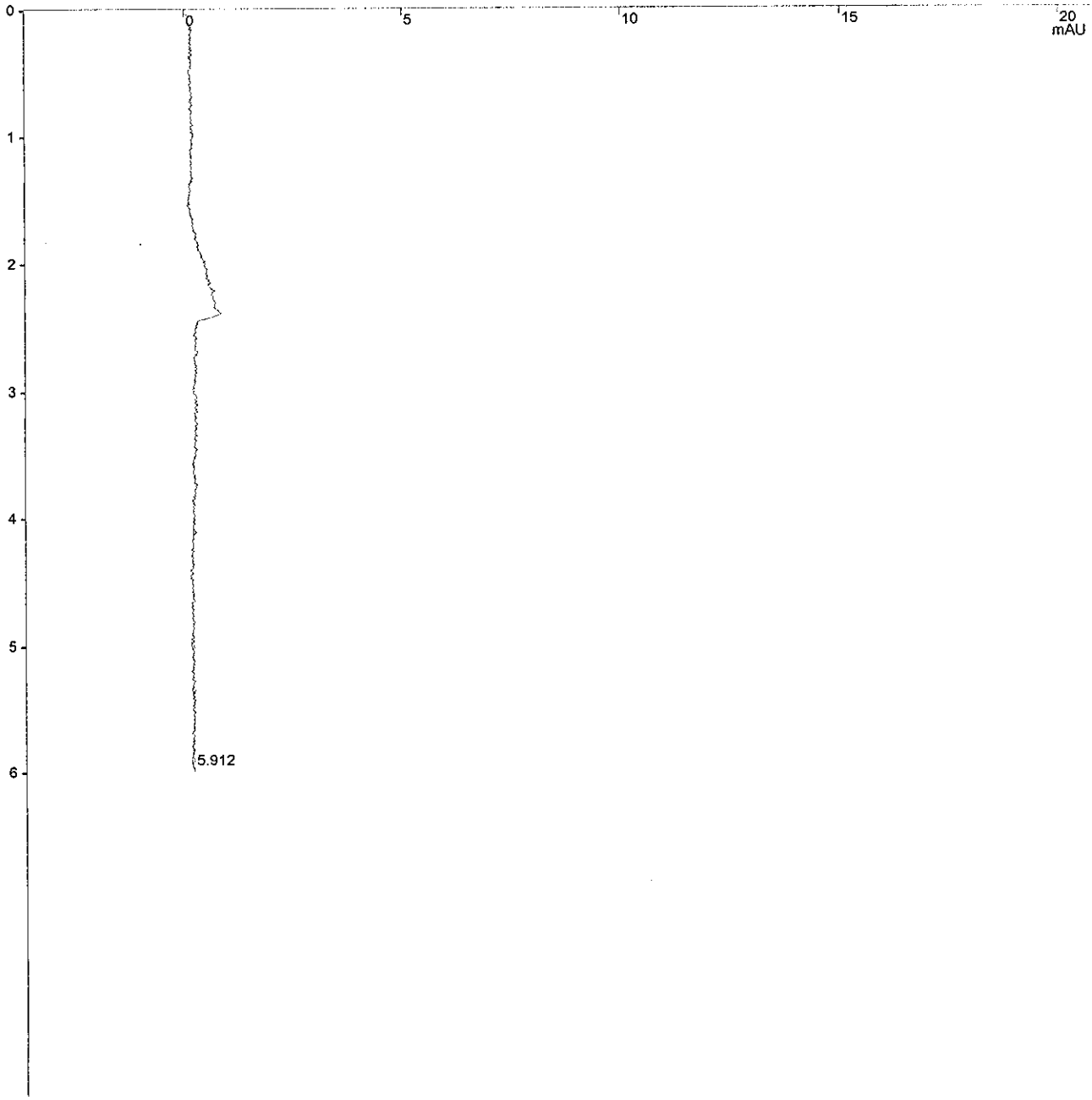
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;38;59-a7j030104-7.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-7

Injection Date: 10/17/2007 05:38 Calculation Date: 10/17/2007 05:49

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;38;59-a7j030104-7.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-7

Injection Date: 10/17/2007 05:38 Calculation Date: 10/17/2007 05:49

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	5.912	0.000	11	BB	1.7	
Totals:		0.0000		0.000	11			

Total Unidentified Counts : 11 counts

Detected Peaks: 4 Rejected Peaks: 3 Identified Peaks: 0

Multiplier: 10 Divisor: 2.03 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 83 microAU - monitored before this run

Vial: 31 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J749C1AH 7287049 NQ soil @ 2g/10ml.
****

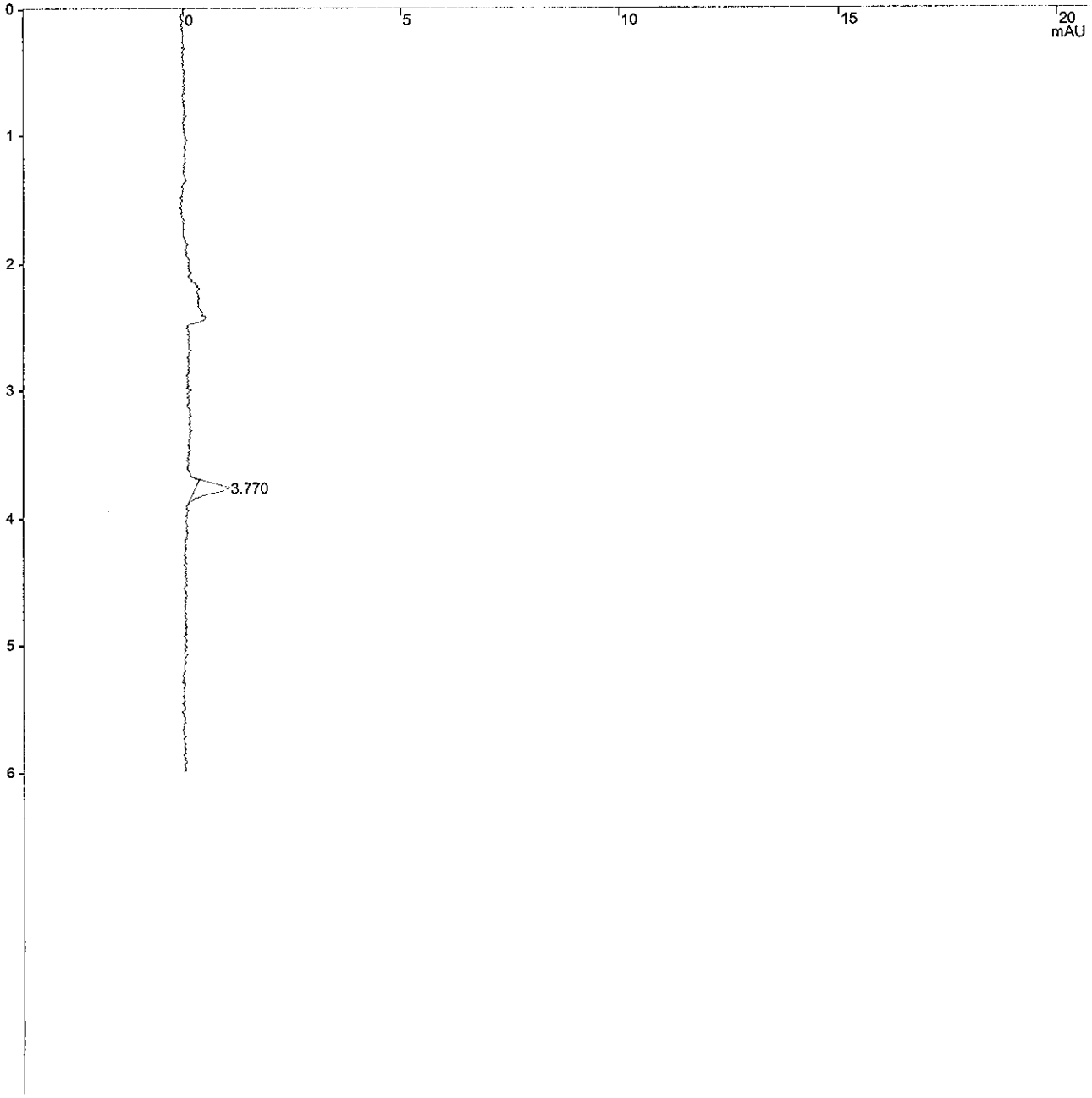
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;59;41-a7j030104-8.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-8

Injection Date: 10/17/2007 05:59 Calculation Date: 10/17/2007 06:09

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=05;59;41-a7j030104-8.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-8

Injection Date: 10/17/2007 05:59 Calculation Date: 10/17/2007 06:09

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.770	0.000	101	BB	4.3	
Totals:		0.0000		0.000	101			

Total Unidentified Counts : 101 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 2.06 Unidentified Peak Factor: 0

Baseline Offset: 31 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 33 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J749D1AH 7287049 NQ soil @ 2g/10ml.
****

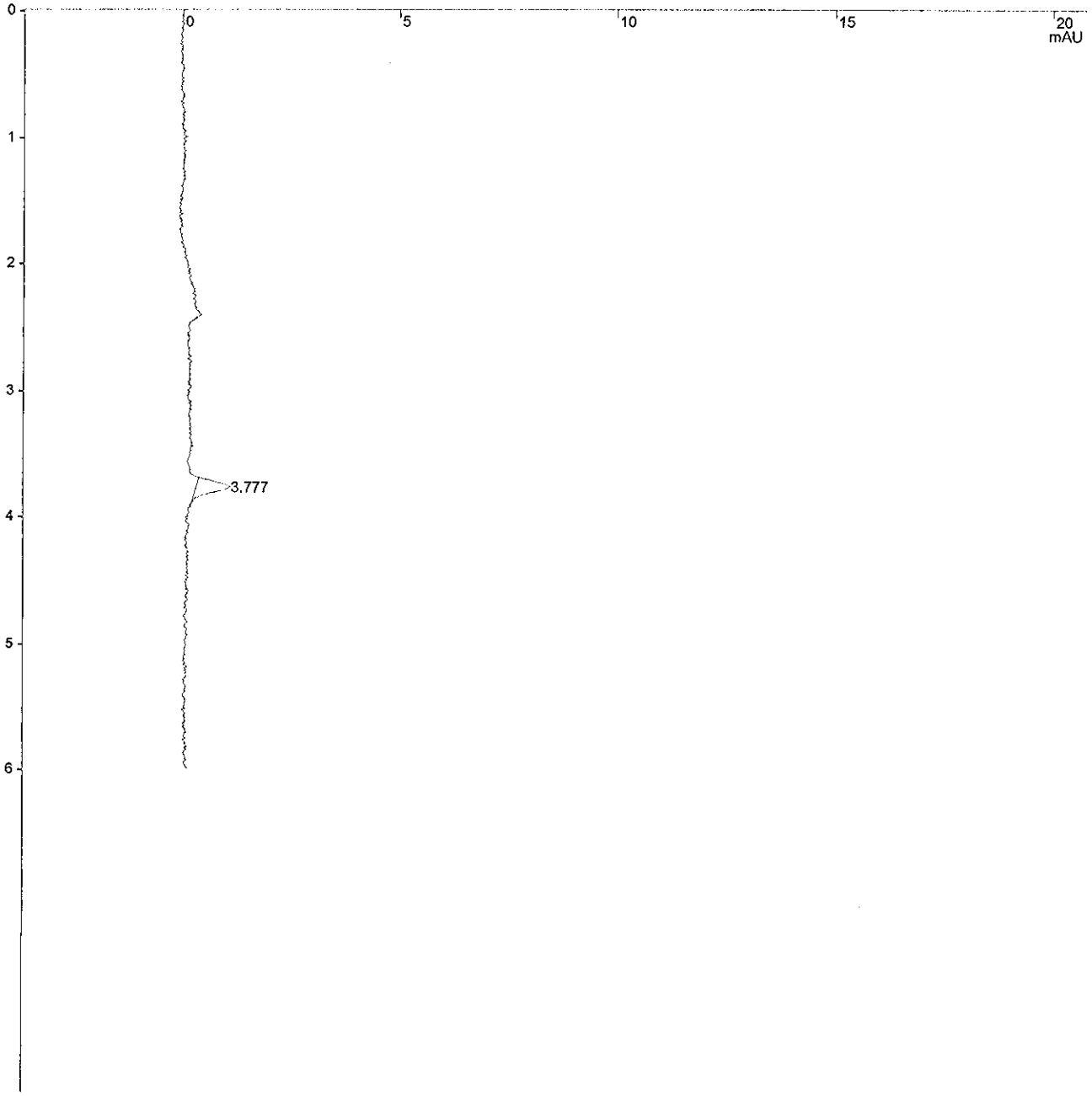
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=06;20;23-a7j030104-9.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-9

Injection Date: 10/17/2007 06:20 Calculation Date: 10/17/2007 06:30

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=06;20;23-a7j030104-9.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-9

Injection Date: 10/17/2007 06:20 Calculation Date: 10/17/2007 06:30

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.777	0.000	100	BB	5.0	
Totals:		0.0000		0.000	100			

Total Unidentified Counts : 100 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.99 Unidentified Peak Factor: 0

Baseline Offset: 84 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 35 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J749E1AH 7287049 NQ soil @ 2g/10ml.
****

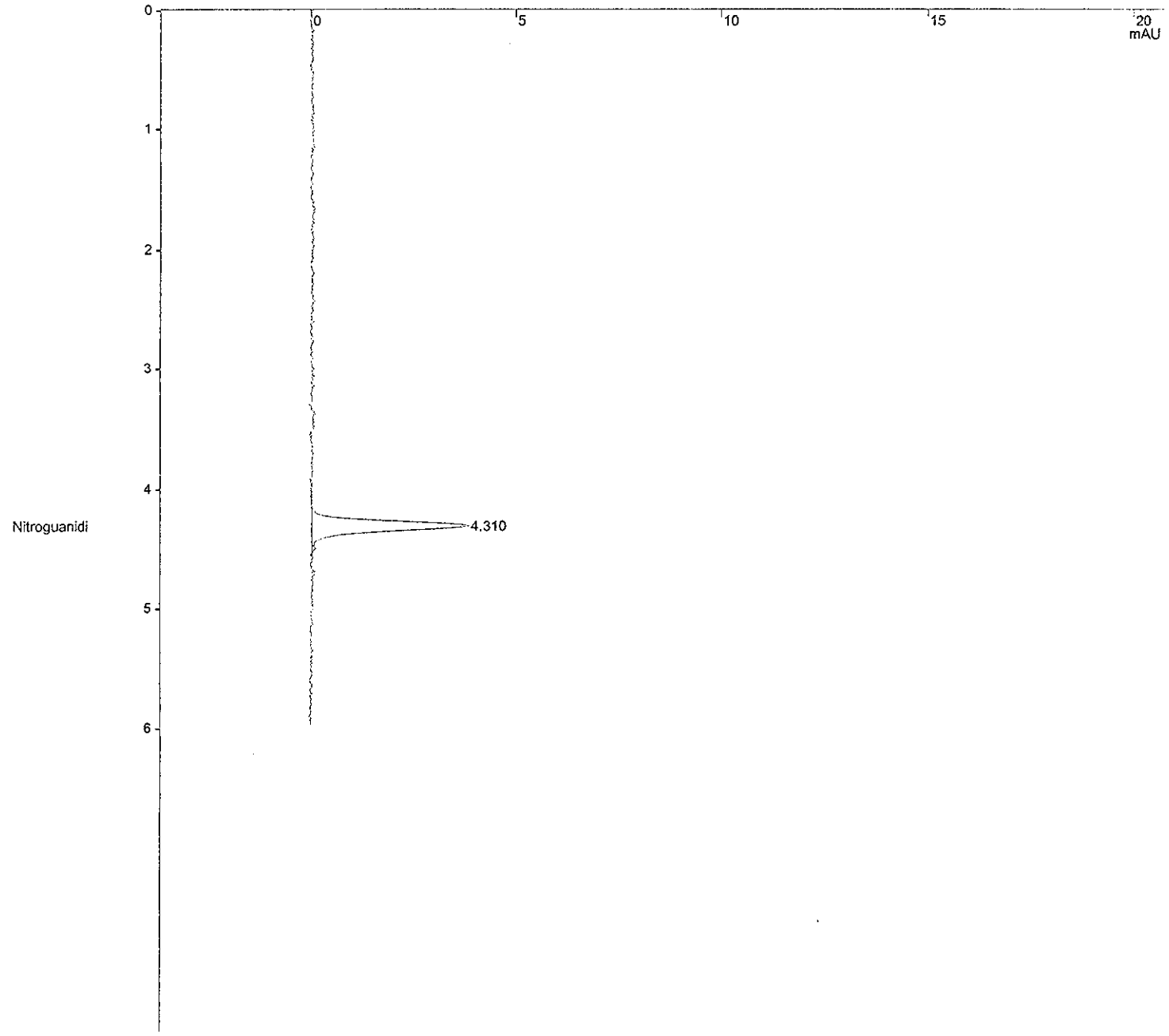
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;43;15-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/17/2007 07:43 Calculation Date: 10/17/2007 07:53

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;43;15-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/17/2007 07:43 Calculation Date: 10/17/2007 07:53

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	174.4529	12.8	4.310	0.027	501	
	Totals:		174.4529			0.027	501	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 46 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 4; 200ng/ml NQ
****

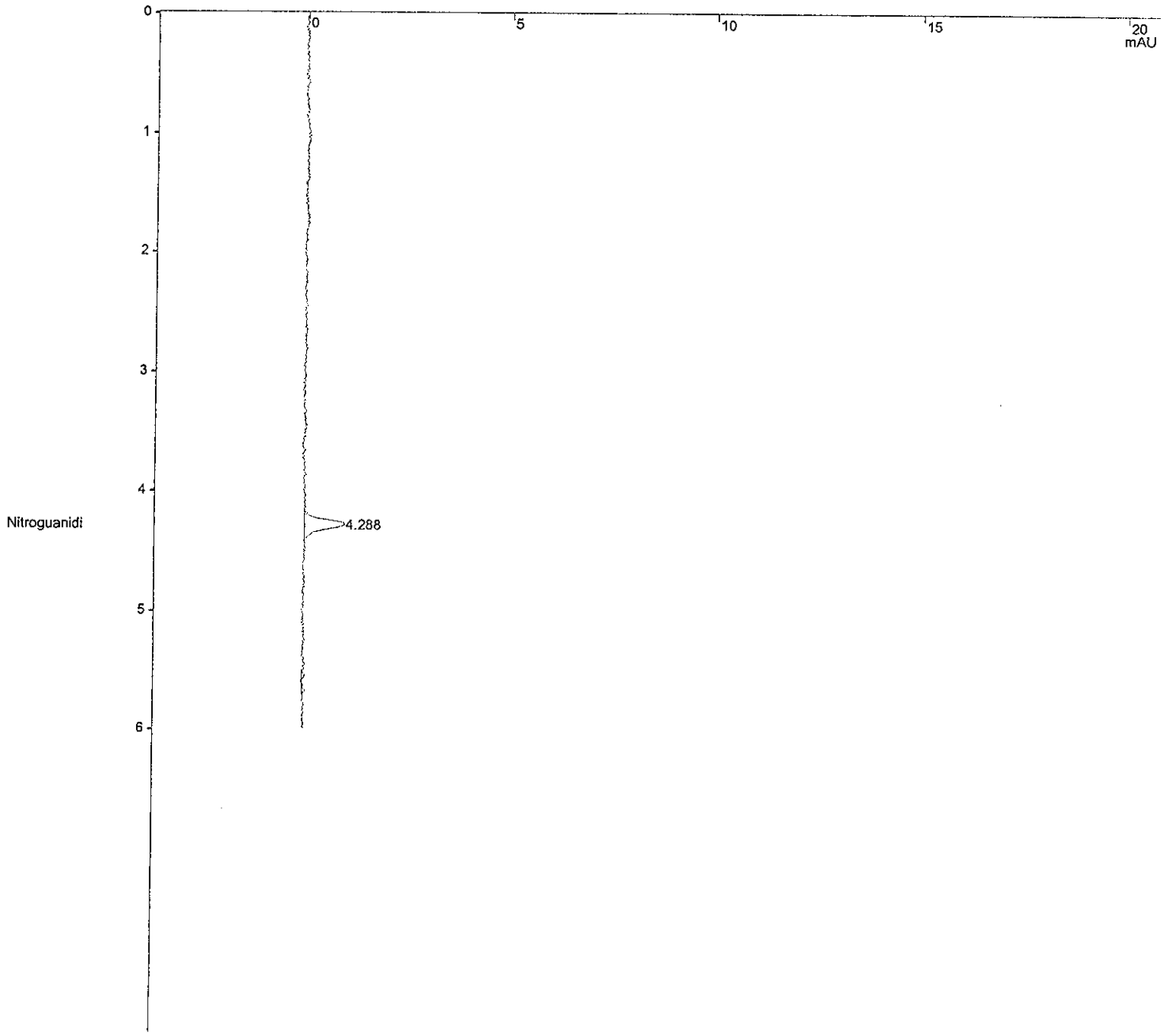
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;04;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 08:04 Calculation Date: 10/17/2007 08:14

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;04;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 08:04 Calculation Date: 10/17/2007 08:14

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm
Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	44.2226	11.6	4.288	0.005	127	
	Totals:		44.2226			0.005	127	

Total Unidentified Counts : 0 counts

Detected Peaks: 3 Rejected Peaks: 2 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 31 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

Initial Calibration

Includes (as applicable):

runlog

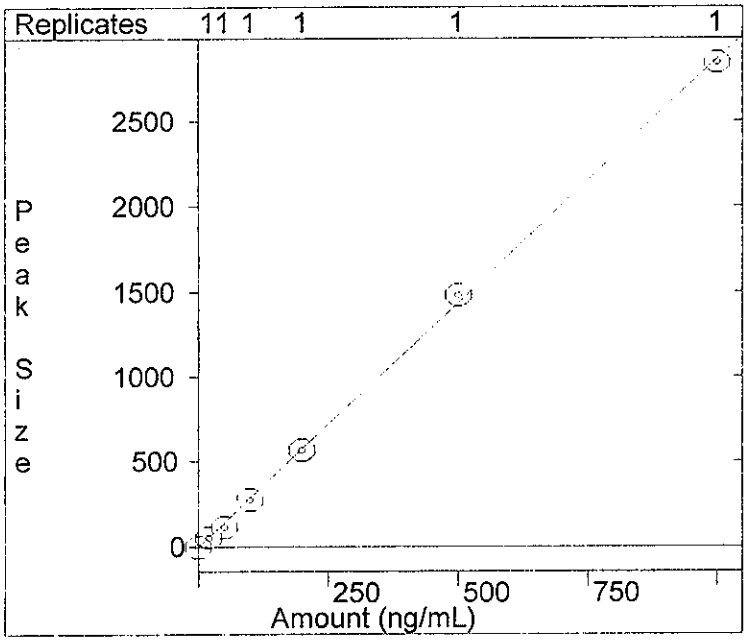
standard raw data

statistical summary

ms tune data

Print Date: 10 Oct 2007 21:21:52
Calibration Curves Report
File: c:\star\methods\ngu_amino_361244-11_10.10.2007.mth
Detector: 9065 Polychrom, Address: 4, Channel ID: 16

Nitroguanidine
External Standard Analysis
Resp. Fact. RSD: 8.297%
Curve Type: Linear
Origin: Force
Coeff. Det.(r^2): 0.999496
y = +2.8718e+000x



ICAL in control

reviewed by KMason

date 10-15-07

Test America North Canton

Title : Calibration Block Report
Method File : c:\star\methods\ngu_amino_361244-11_10.10.2007.mth
Data Method Time : 10/10/2007 21:11

Requested Curve Type : linear
Requested Origin : force
Calibration Type : External Standard Analysis

Method Detector Type : 9065 Polychrom
Method Bus Address : 4
Method Channel : 16

Calibration Dates
Last Injection Date : 10/10/2007 21:01

Last Recalculation Date : 10/10/2007 21:11

**********Star Chromatography Workstation**********Version 5.52**********

Retention Time (min)	Peak Name	Curve\ Origin	X³	X²	X	C	r²	Cal. Range	No. of Points	Edit Codes
4.283	Nitroguanidine	1 F			+2.8718e+000	+0.0000e+000	+9.9950e-001	1-6	6	

Curve Codes	Origin Codes	Edit Codes
1 linear	I include	1 curve
2 quadratic	IG ignore	2 origin
3 cubic	F force	3 coefficient

Ret. Time: 4.283 min.
Peak Name: Nitroguanidine
Peak Measurement: Height
Curve\Origin: 1 F

Level	Amount	Replicate No.	Response	Avg. Response	Std. Dev.
1	20.000000	1	54	54.0	#
2	50.000000	1	116	115.5	#
3	100.000000	1	276	276.3	#
4	200.000000	1	567	566.9	#
5	500.000000	1	1482	1482.2	#
6	1000.000000	1	2853	2852.7	#

= Too few points to calculate.

Peak Name	Level	Rep.	Injection Date Time	Run Files
Nitroguanidine	1	1	10/10/2007 19:18	c:\... \10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
	2	1	10/10/2007 19:39	c:\... \10.2007\nq-10-10-2007=19;39;02-e071004d std 2.run
	3	1	10/10/2007 19:59	c:\... \10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
	4	1	10/10/2007 20:20	c:\... \10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
	5	1	10/10/2007 20:41	c:\... \10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
	6	1	10/10/2007 21:01	c:\... \10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run

****

Varian Star Workstation - RecalcList Fri Oct 12 16:31:30 2007

RecalcList: C:\Star\Sample list\NQ-10.10.2007.RCL

Created: Wed Oct 10 15:49:16 2007
Modified: Thu Oct 11 02:17:37 2007

NQ Analysis 10 Oct 2007

****

Ste-CC-0010

Line	Sample Type	Sample Name	Data F
1	Verification	PRIMER	nq-10-10-2007=15;50;35-primer.
2	Verification	PRIMER	nq-10-10-2007=16;11;20-primer.
3	Verification	PRIMER	nq-10-10-2007=16;32;02-primer.
4	Verification	PRIMER	nq-10-10-2007=16;52;45-primer.
5	Verification	PRIMER	nq-10-10-2007=17;13;28-primer.
6	Verification	PRIMER	nq-10-10-2007=17;34;09-primer.
7	Verification	PRIMER	nq-10-10-2007=17;54;52-primer.
8	Verification	PRIMER	nq-10-10-2007=18;15;34-primer.
9	Verification	PRIMER	nq-10-10-2007=18;36;16-primer.
10	Analysis	Blank	nq-10-10-2007=18;57;02-blank.
11	New Calib Block		
12	Calibration	E071004C STD 1	nq-10-10-2007=19;18;19-e071004c std 1.
13	Calibration	E071004D STD 2	nq-10-10-2007=19;39;02-e071004d std 2.
14	Calibration	E071004E STD 3	nq-10-10-2007=19;59;44-e071004e std 3.
15	Calibration	E071004F STD 4	nq-10-10-2007=20;20;26-e071004f std 4.
16	Calibration	E071004G STD 5	nq-10-10-2007=20;41;08-e071004g std 5.
17	Calibration	E071004H STD 6	nq-10-10-2007=21;01;50-e071004h std 6.
18	Print Calib		
19	Analysis	Blank	nq-10-10-2007=21;22;38-blank.
20	Verification	E070713J ICV Std	nq-10-10-2007=21;43;22-e070713j icv std.
21	Analysis	E071004B 2 X MDL	nq-10-10-2007=22;04;06-e071004b 2 x mdl.
22	Verification	E071004F STD 4	nq-10-10-2007=22;24;51-e071004f std 4.
23	Verification	E070427E STD 2 MRL	nq-10-10-2007=22;45;37-e070427e std 2 mrl.
24	Analysis	G7J080000-454-MB	nq-10-10-2007=23;06;24-g7j080000-454-mb.
25	Analysis	G7J080000-454-LCS	nq-10-10-2007=23;27;04-g7j080000-454-lcs.
26	Analysis	A7I130241-5	nq-10-10-2007=23;47;45-a7i130241-5.
27	Analysis	A7I130241-5MS	nq-10-11-2007=00;08;24-a7i130241-5ms.
28	Analysis	A7I130241-5MSD	nq-10-11-2007=00;29;06-a7i130241-5msd.
29	Analysis	A7I130241-6	nq-10-11-2007=00;49;46-a7i130241-6.
30	Verification	E070427F STD 5	nq-10-11-2007=01;10;28-e070427f std 5.
31	Verification	E070427E STD 2 MRL	nq-10-11-2007=01;31;14-e070427e std 2 mrl.
32	Analysis	END RUN	nq-10-11-2007=02;07;32-end run.

Page 1/

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;43;22-e070713j icv std.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070713J ICV Std

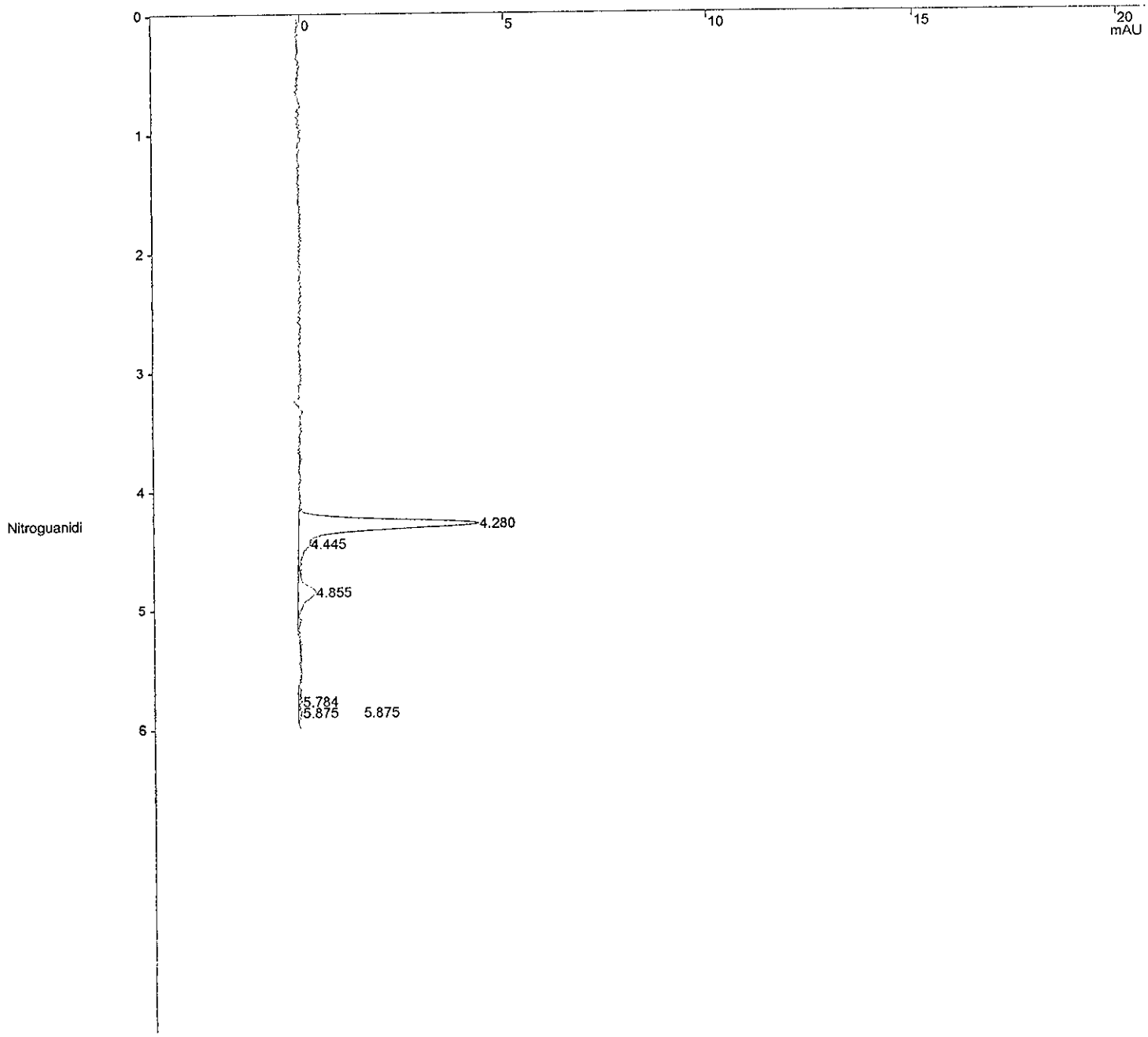
Injection Date: 10/10/2007 21:43 Calculation Date: 10/10/2007 21:53

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;43;22-e070713j icv std.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070713J ICV Std

Injection Date: 10/10/2007 21:43 Calculation Date: 10/10/2007 21:53

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	201.8988	0.9	4.280	-0.003	580	
2		0.0000	0.0000	0.0	4.445	0.000	36	
3		0.0000	0.0000	0.0	4.855	0.000	60	
4		0.0000	0.0000	0.0	5.784	0.000	11	
5		0.0000	0.0000	0.0	5.875	0.000	11	
	Totals:		201.8988			-0.003	698	

ICV passes criteria 15%
10/17/07

Total Unidentified Counts : 118 counts

Detected Peaks: 12 Rejected Peaks: 7 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

✓ ICV 10-15-07

Baseline Offset: 0 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 16 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 200ng/ml ICV std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=18;57;02-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_08.10.2007.mth
Sample ID : Blank

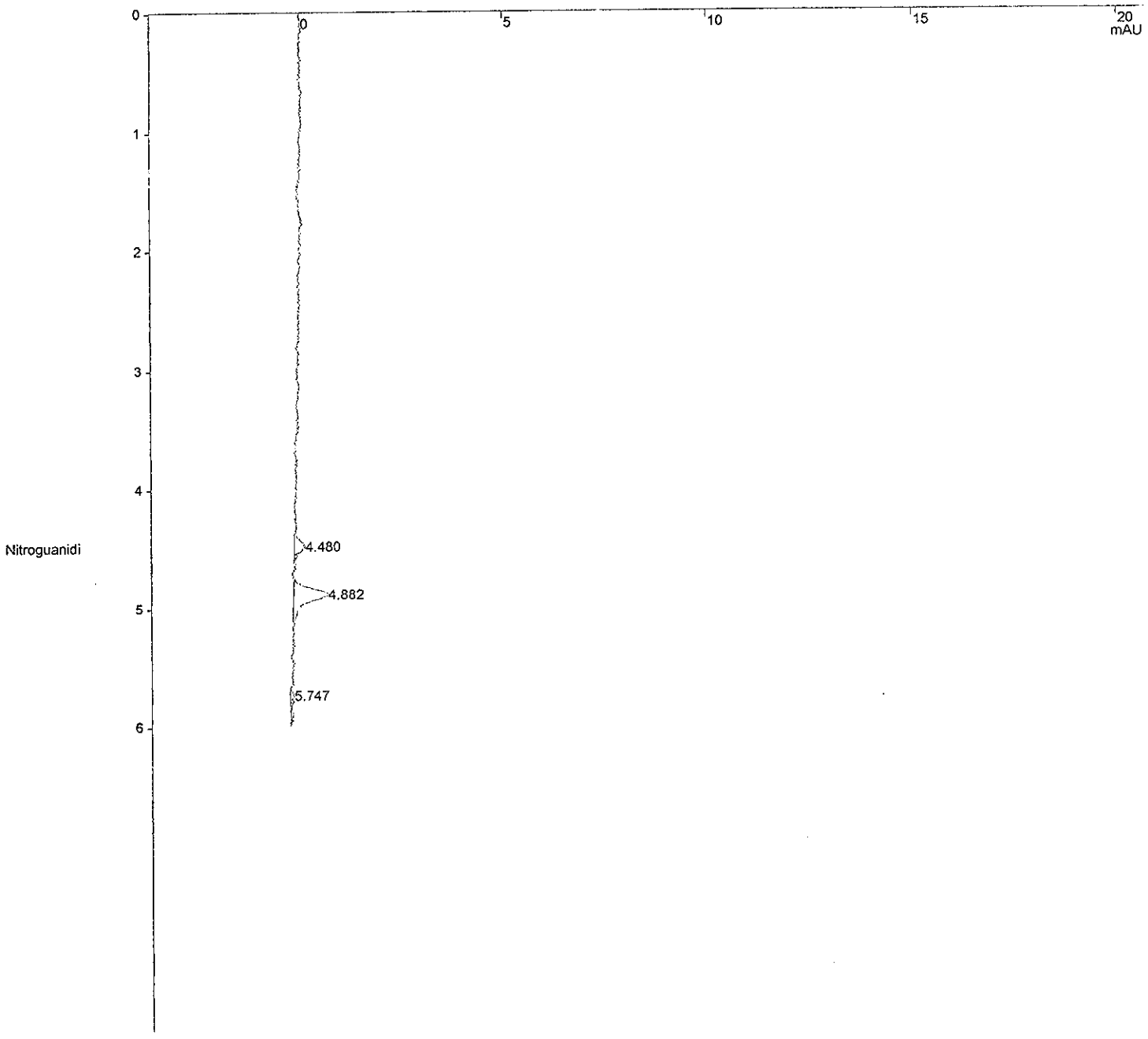
Injection Date: 10/10/2007 18:57 Calculation Date: 10/10/2007 19:07

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=18;57;02-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_08.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 18:57 Calculation Date: 10/10/2007 19:07

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	9.2493	4.480	0.165	35	BB	6.5	
2		0.0000	4.882	0.000	119	BB	6.3	
3		0.0000	5.747	0.000	10	BB	0.0	
	Totals:	9.2493		0.165	164			

Total Unidentified Counts : 129 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 1 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07

Original Notes:

water blank
****

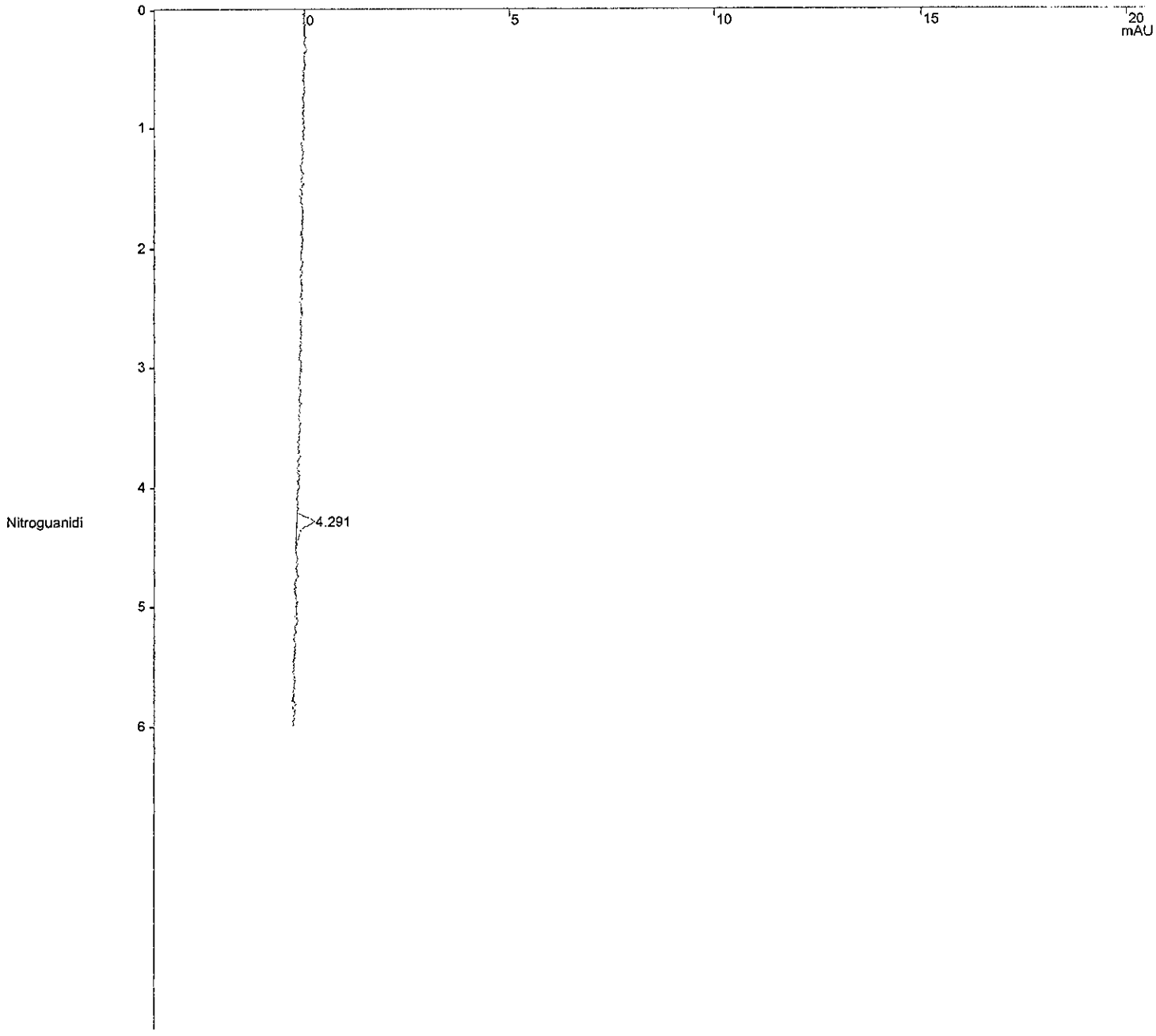
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004C STD 1

Injection Date: 10/10/2007 19:18 Calculation Date: 10/10/2007 19:28

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004C STD 1

Injection Date: 10/10/2007 19:18 Calculation Date: 10/10/2007 19:28

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 1

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.291	-0.024	54	BB	5.2	
	Totals:		-0.024	54			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 160 microAU - monitored before this run

Vial: 4 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 20ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;39;02-e071004d std 2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004D STD 2

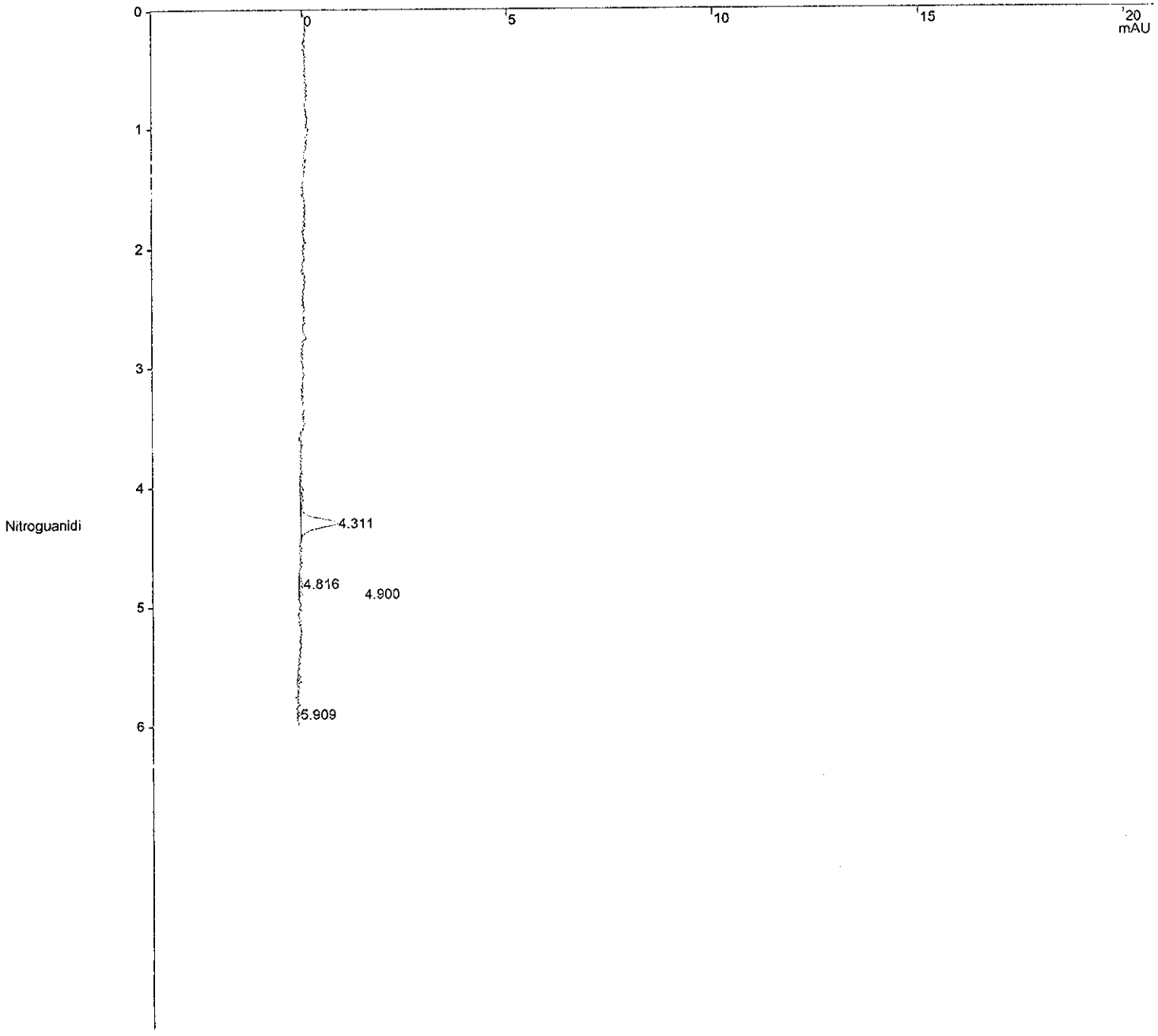
Injection Date: 10/10/2007 19:39 Calculation Date: 10/10/2007 19:49

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;39;02-e071004d std 2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004D STD 2

Injection Date: 10/10/2007 19:39 Calculation Date: 10/10/2007 19:49

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.311	0.021	116	BB	5.3	
2		4.816	0.000	12	BV	6.2	
3		4.900	0.000	12	VB	8.7	
4		5.909	0.000	11	BB	0.8	
	Totals:		0.021	151			

Total Unidentified Counts : 35 counts

Detected Peaks: 5 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -30 microAU

Noise (used): 91 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 50ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004E STD 3

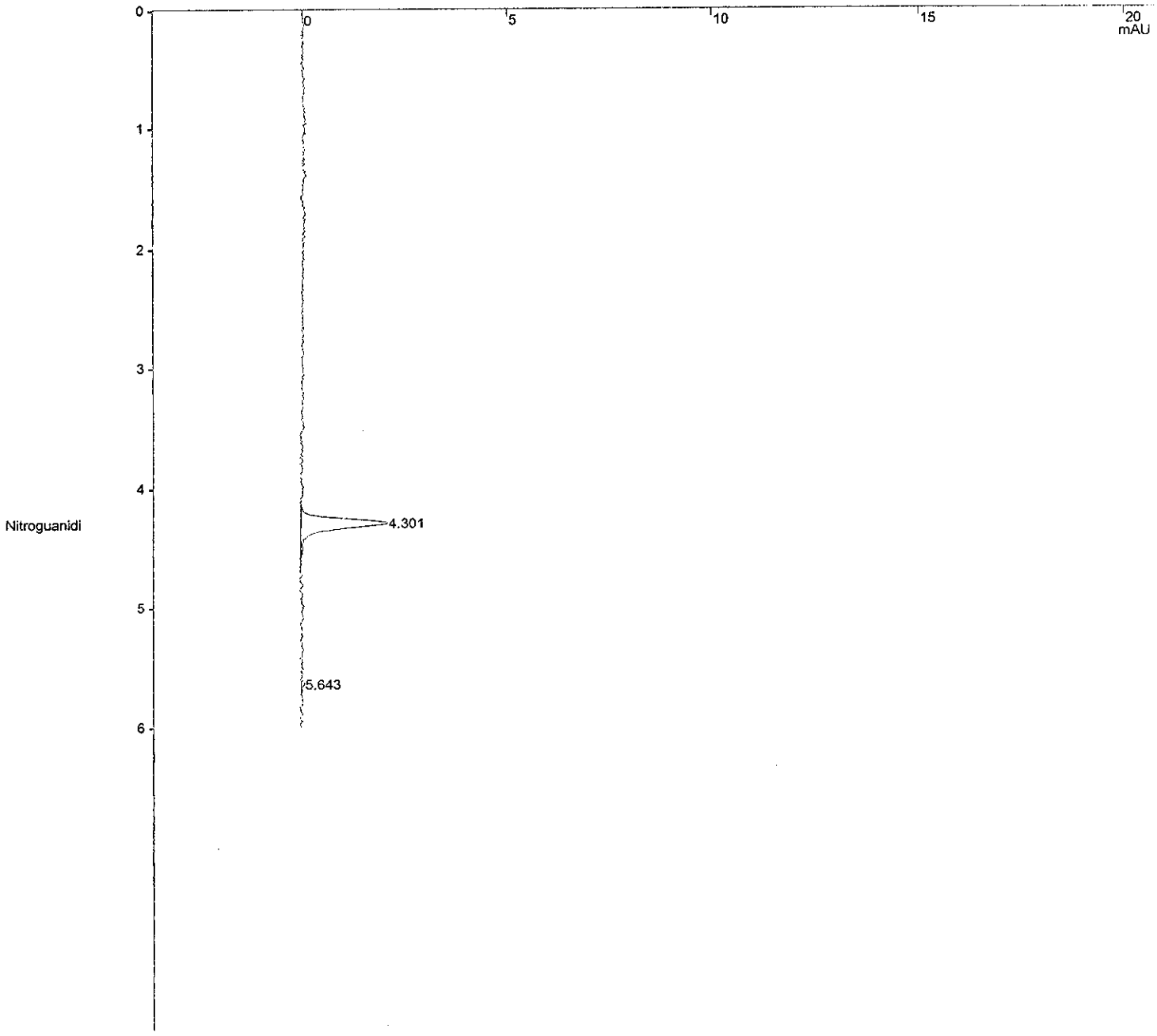
Injection Date: 10/10/2007 19:59 Calculation Date: 10/10/2007 20:09

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004E STD 3

Injection Date: 10/10/2007 19:59 Calculation Date: 10/10/2007 20:09

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 3

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.301	-0.009	276	BB	5.1	
2		5.643	0.000	12	BB	2.2	
	Totals:		-0.009	288			

Total Unidentified Counts : 12 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 8 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 100ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

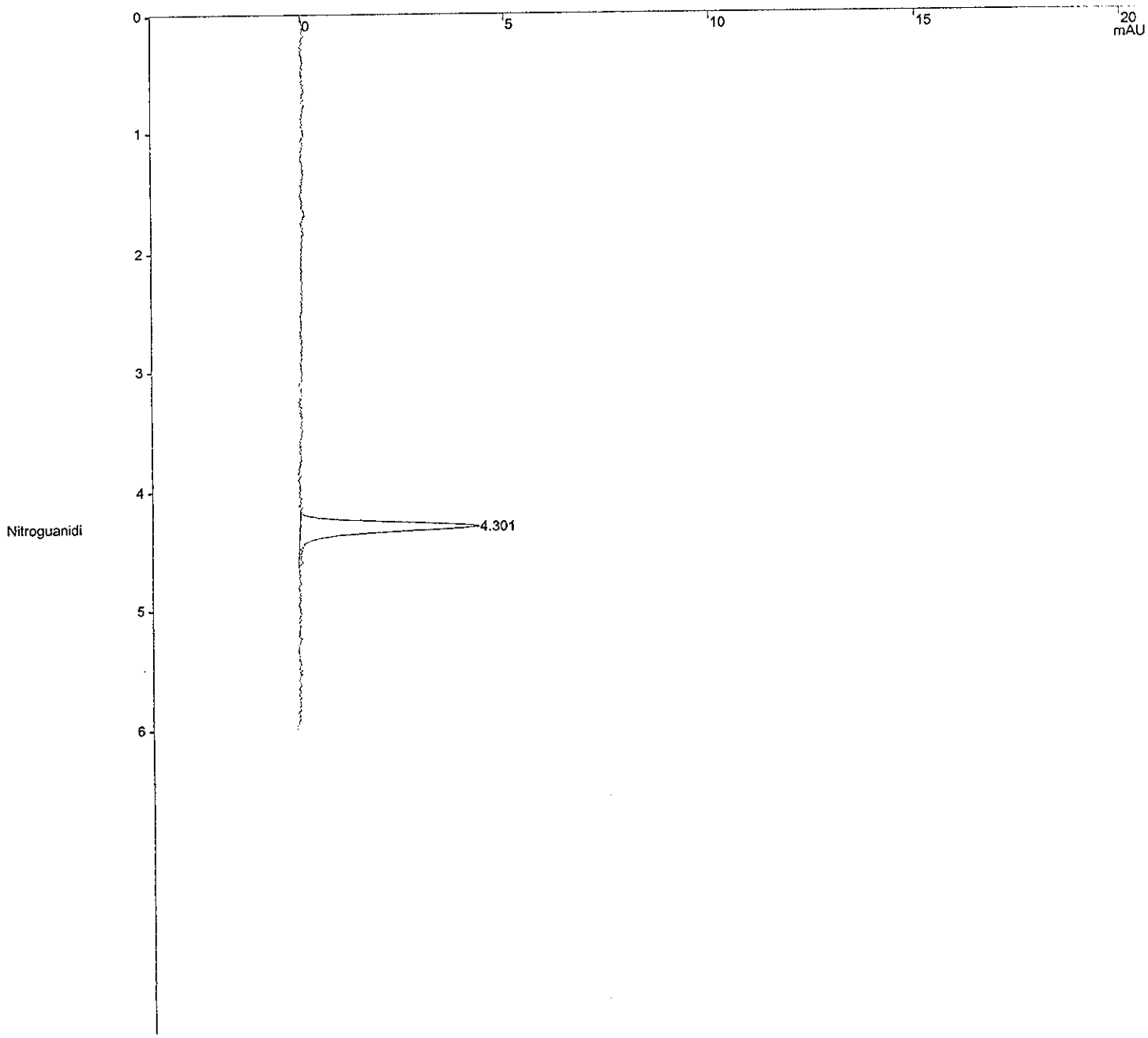
Injection Date: 10/10/2007 20:20 Calculation Date: 10/10/2007 20:30

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/10/2007 20:20 Calculation Date: 10/10/2007 20:30

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.301	0.001	567	BB	5.3	
	Totals:		0.001	567			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 200ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004G STD 5

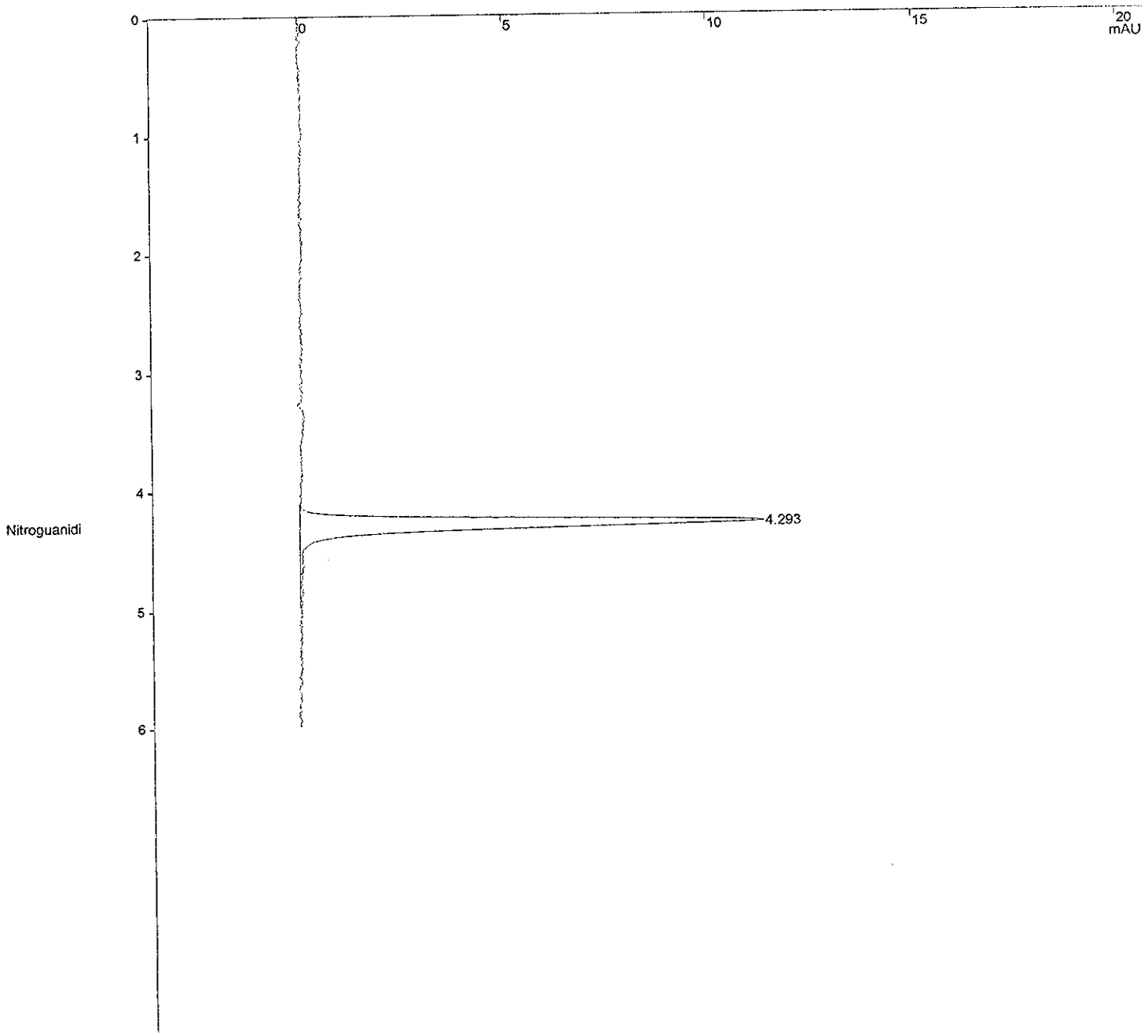
Injection Date: 10/10/2007 20:41 Calculation Date: 10/10/2007 20:51

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004G STD 5

Injection Date: 10/10/2007 20:41 Calculation Date: 10/10/2007 20:51

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 5

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.293	-0.008	1482	BB	5.3	
	Totals:		-0.008	1482			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 144 microAU - monitored before this run

Vial: 12 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 500ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004H STD 6

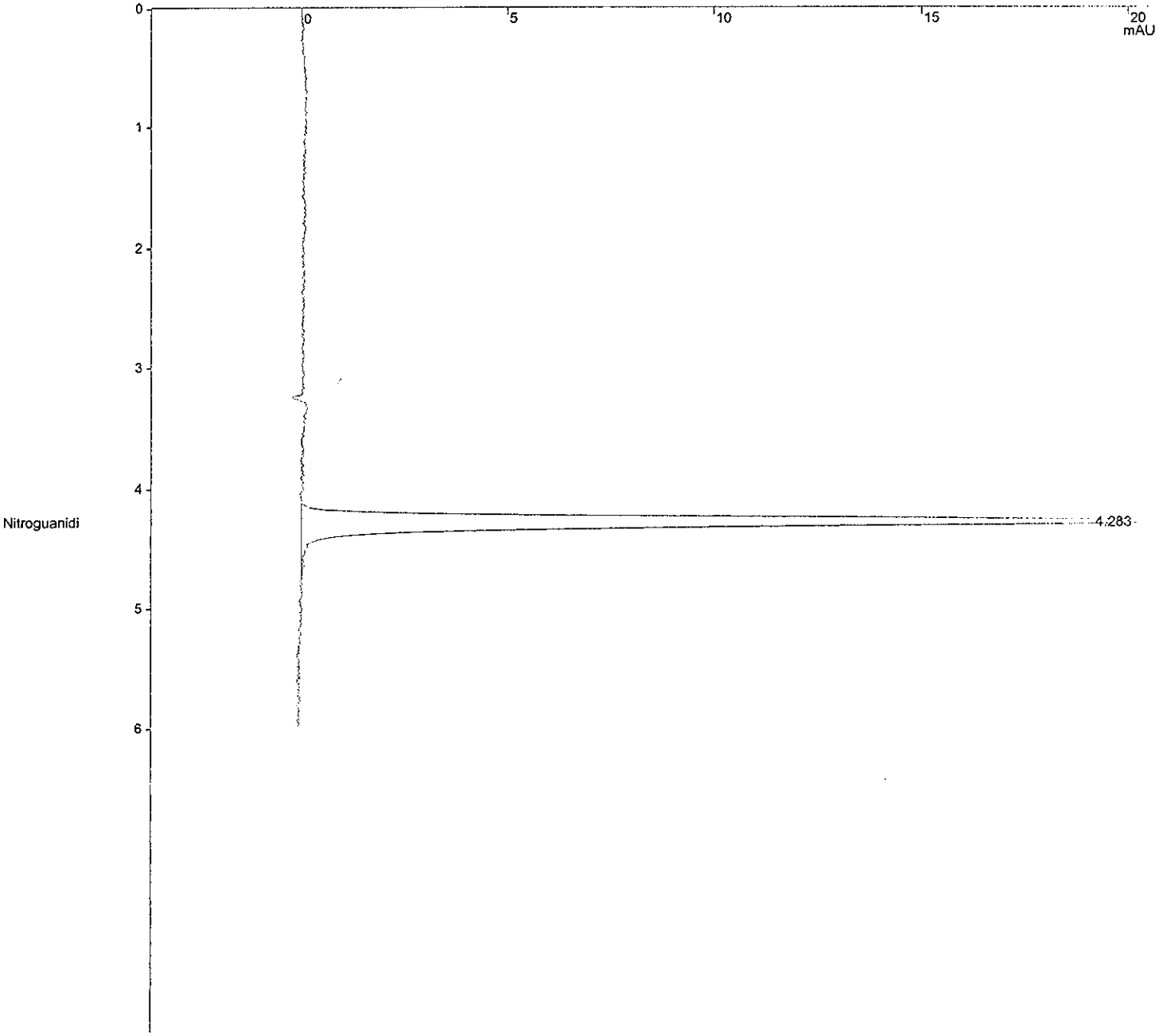
Injection Date: 10/10/2007 21:01 Calculation Date: 10/10/2007 21:11

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004H STD 6

Injection Date: 10/10/2007 21:01 Calculation Date: 10/10/2007 21:11

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 6

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.283	-0.010	2853	BB	5.2	
	Totals:		-0.010	2853			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 152 microAU - monitored before this run

Vial: 14 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 1000ng/ml std
****

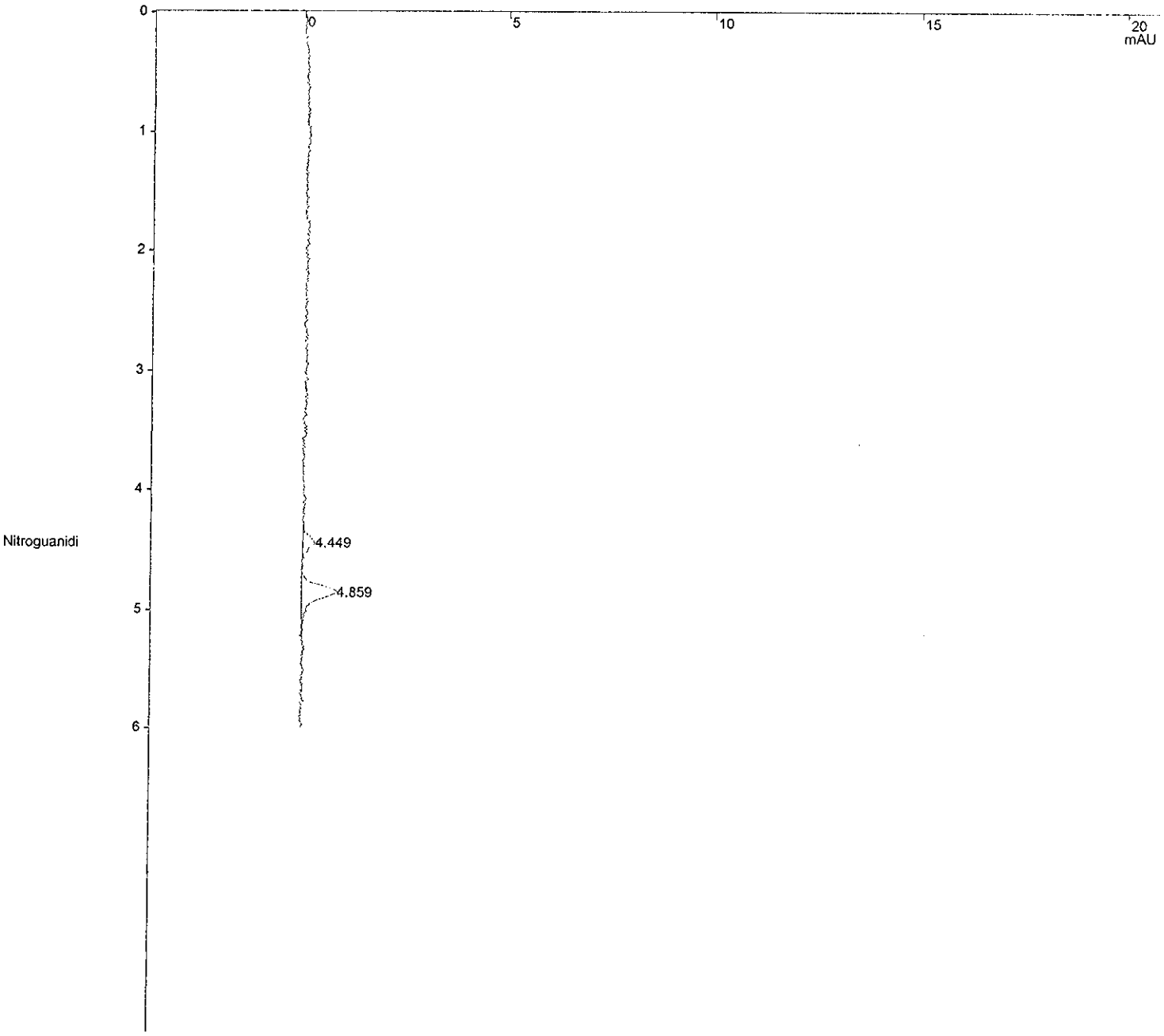
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;22;38-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 21:22 Calculation Date: 10/10/2007 21:32

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;22;38-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 21:22 Calculation Date: 10/10/2007 21:32

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	12.9291	4.449	0.166	37	BB	6.5	
2		0.0000	4.859	0.000	114	BB	7.2	
	Totals:	12.9291		0.166	151			

Total Unidentified Counts : 114 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 46 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 1 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

water blank
****

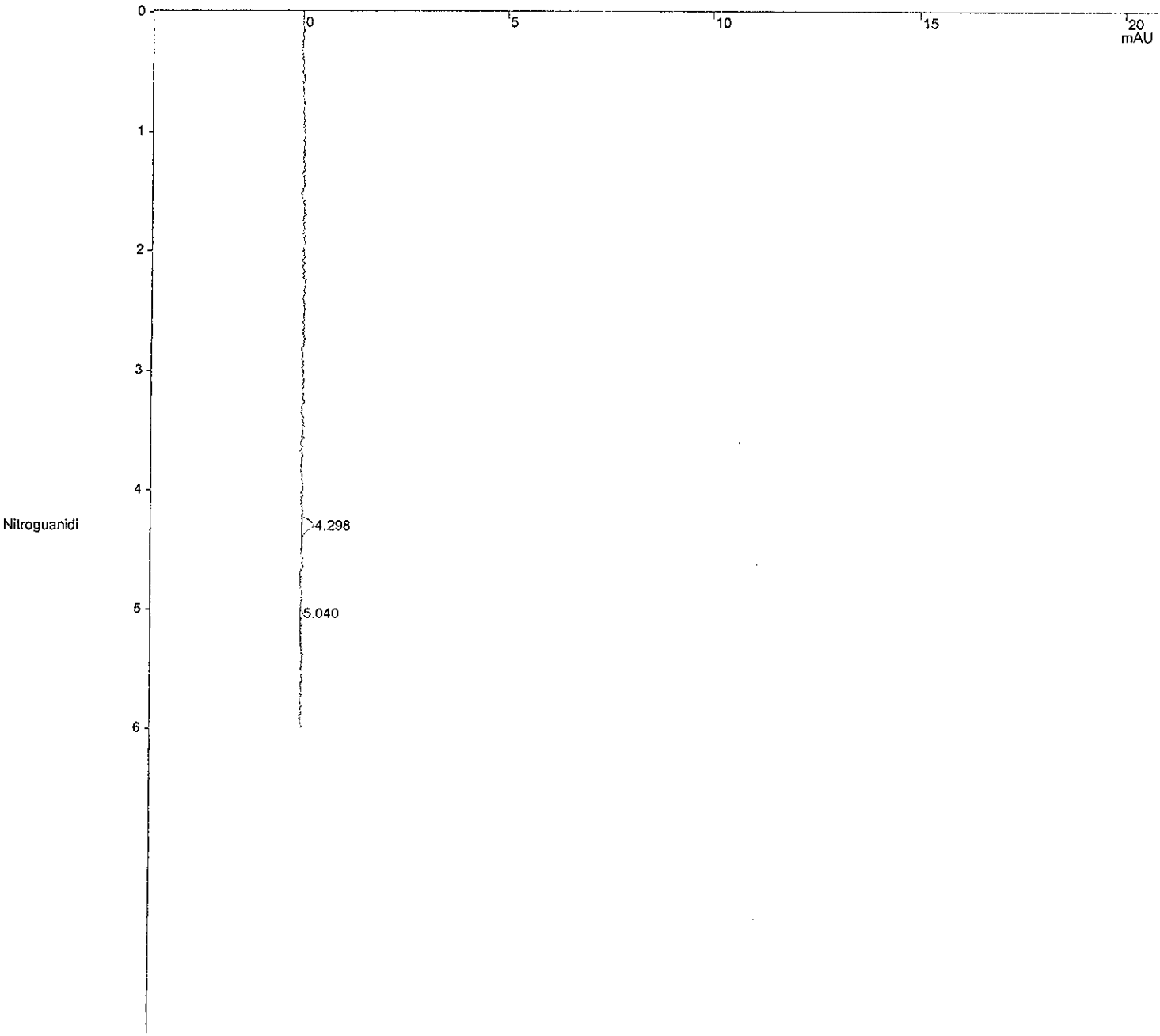
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=22;04;06-e071004b 2 x mdl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004B 2 X MDL

Injection Date: 10/10/2007 22:04 Calculation Date: 10/10/2007 22:14

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=22;04;06-e071004b 2 x mdl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004B 2 X MDL

Injection Date: 10/10/2007 22:04 Calculation Date: 10/10/2007 22:14

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	13.4460	4.298	0.015	39	BB	5.0	
2		0.0000	5.040	0.000	11	BP	1.5	
	Totals:	13.4460		0.015	50			

Total Unidentified Counts : 11 counts

Detected Peaks: 6 Rejected Peaks: 4 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -7 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 18 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 15ng/ml 2 x MDL std
****

Appendix

Includes (as applicable):

retention time windows

MDL summaries

calculation explanation sheets

standard raw data

statistical summary

INSTRUMENT ID: **HPLC - PDA**
Varian ProStar 9012 pump, AI-200 Autosampler, 9065 Polychrom Detector

COLUMN ID: **Phenomenex Luna**
SN: **361244-11**

	DATE	TIME
STANDARD 1:	19-Jul-07	2038
STANDARD 2:	20-Jul-07	1555
STANDARD 3:	21-Jul-07	1743

ANALYTE	RETENTION TIME 1	RETENTION TIME 2	RETENTION TIME 3	STANDARD DEVIATION	+/- 3 STD DEVIATION
Channel 16 = 263nm					
Nitroguanidine	4.033	4.048	4.060	0.014	0.15 *

Entry by Frank Kenney 7/21/07

Note: The retention time window is the retention time +/- 0.15 minute, or 3X the standard deviation, whichever is greater. A * indicates that 3X the standard deviation is less than 0.15 minute, and that 0.15 minute was substituted in the 3X standard deviation column.

Sample Extraction/Preparation Log Copies and Checklists

STL Sacramento

GC/HPLC Data Review Checklist

SEVERN TRENT SERVICES

10/19
10/26

Lot ID: ATS 030104 **Test:** 8021B-S **PM:** MJL

Prep Batch(es) 7287049

A. Calibration/Instrument Run QC	Analyst	Reviewer	N/A
1. ICAL or ICAL Summary and CCV included.			
2. ICAL, CCV Criteria met.			
3. Multiple-eluters (TPH-D, 8081A, 8082) ICAL/CCVs appropriate and within critiera.			—
4. CCVs every 10 samples/12 hours, all samples bracketed front and back.	—		
5. PEM frequency and criteria met.			—
6. Peaks correctly ID'd by data system.	—		
7. Copy of logbook for ICAL included	—		
8. Method Number is identified on data.	—		
B. QA/QC			
1. Method blank, LCS/LCSD and MS/SD frequencies met.	—		
2. LCS/LCSD and MB data is included.	—		
3. LCS/LCSD and MB data are within control limits. If not, NCM is present in Clouseau.	—		
4. MS/MSD data complete.	—		
5. Holding Times were met.	—		
C. Sample Analysis			
1. Logbook copies for all injections made, including ICV standards and ICAL.	—		
2. Logbooks/prep sheets properly filled out.	—		
3. Manual Integrations reviewed and appropriate.	—		
4. All raw data for samples is included (applies to unused data as well)	—		
5. All analytes correctly reported.	—		
6. Correct reporting limits used. (Based on client request, prep factors, and dilutions)	—		
D. Documentation			
1. Are all nonconformances documented appropriately?	—		
2. Quantims entry correct, including dates and times.	—		
3. Appropriate footnotes used.	—		
4. Report sheets included and error-free.	—		

Analyst: _____ Date: 10/17/07

2nd Level Reviewer: _____ Date: 10/29/07

Comments:

q:\forms\qa-507_gc_review.doc

QA-508 GC Review
3/4/02 ERS

TestAmerica North Canton

TestAmerica West Sacramento
ESC-Extraction Master Sheet

Holding Time Due: 10/15/07 / 35d & 3d expired in Transit
Project Due:
BATCH #: 7287049
Initiated By:
Date: 10/15/07
Test #: NG4-S
Extn Comp'd By:
Date: 10/16/07

QC Code	Lab ID	Sample Size / Initial Mass	Final Volume / Final Mass	Difference in Mass
-B	-MB	2.00g	40.00ml	
-C	-LCS	2.00g	40.00ml	
	ATI260304-1	2.04g	40.00ml	
-S	-1MS	1.98g	40.00ml	
-D	-1MSD	2.02g	40.00ml	
	-2	1.97g	40.00ml	
	ATI270359-2	1.96g	40.00ml	
	ATJ030104-1	2.02g	40.00ml	
-S	-1MS	1.97g	40.00ml	
-D	-1MSD	1.96g	40.00ml	
	-2	1.96g	40.00ml	
	-3	2.00g	40.00ml	
	-4	1.98g	40.00ml	
	-6	1.98g	40.00ml	
	-7	2.03g	40.00ml	
	-8	2.06g	40.00ml	
	-9	1.99g	40.00ml	
	ATJ040354-1	1.98g	40.00ml	
	-2	1.98g	40.00ml	
	-3	1.96g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.00g	40.00ml	
	-6	1.95g	40.00ml	
	-7	1.97g	40.00ml	
	-8	1.97g	40.00ml	

SOP No.: SAC-LC0010

EXTRACTION COMMENTS:

Fortified as below/ extracted as per SOP 10/15/07

Extracts filtered/vialed by QP 10/16/07

QC Codes	Standard Information				
	Volume	STD ID	Exp. Date	STD Name/Conc.	(ppm)/ppb
CS,D	40.0µl	E070427B	10/27/07	NG4-500µg/ml	1.0

Spiked By / Date: 10/15/07
Witnessed By / Date: HD-10-15-07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD, FB = Filter Blank

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

LEV 1	LEV 2		LEV 1	LEV 2	
Y		Blank	Y		Weights/Volumes
Y		Check	Y		Spike & Surrogate Worksheet
Y		MS/MSD	Y		Vial contains correct volume
			Y		Labels, greenbars, worksheets
					computer batch: correct & all match
					Anomalies to Extraction Method

	Expanded Deliverable
	COC Completed
Y	Bench Sheet Copied
	Package Submitted to AnalyticalGroup
	Bench Sheet Copied per COC

Extractionist: 002531 Jonathan Reed

Concentrationist: 002263 Quan Phan

Reviewer/Date: REEDJ / 10/16/07

QC BATCH: 7287049

PREP DATE: 10/15/07
COMP DATE: 10/16/07

Organic Compounds by UV/HPLC
SONICATION - Low Level

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/10/07	10/10/07	A7I260304-001 **J7PGG-1-AD**	7287040 D	13	V9	SOLID	**2.04g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	10/10/07	A7I260304-001 **J7PGG-1-AES**	7287040 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/10/07	10/10/07	A7I260304-001 **J7PGG-1-AFD**	7287040 D	13	V9	SOLID	**2.02g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/08/07	10/10/07	A7I260304-002 **J7PGL-1-AD**	7287040 D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/11/07	10/11/07	A7I270359-002 **J7TF7-1-AD**	7287040 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-A6**	7287041 D	13	V9	SOLID	**2.02g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DUS**	7287041 D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

QC BATCH: 7287049

PREP DATE: 10/15/07
COMP DATE: 10/16/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/15/07	10/17/07	A7J030104-001 **J748R-1-DVD**	7287041 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/16/07	10/17/07	A7J030104-002 **J748X-1-AH**	7287041 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-003 **J7481-1-AH**	7287041 D	13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-004 **J7483-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-006 **J7488-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-007 **J749C-1-AH**	7287041 D	13	V9	SOLID	**2.03g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-008 **J749D-1-AH**	7287041 D	13	V9	SOLID	**2.06g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-009 **J749E-1-AH**	7287041 D	13	V9	SOLID	**1.99g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-001 **J7914-1-A6**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-002 **J792M-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

QC BATCH: 7287049

PREP DATE: 10/15/07
COMP DATE: 10/16/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/17/07	10/17/07	A7J040354-003 **J792N-1-AH**	7287041 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-004 **J792R-1-AH**	7287041 D	13	V9	SOLID	**1.99g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-005 **J792W-1-AH**	7287041 D	13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-006 **J7920-1-AH**	7287041 D	13	V9	SOLID	**1.95g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-007 **J7923-1-AH**	7287041 D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-008 **J7927-1-AH**	7287041 D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	0/00/00	G7J140000-049 **J80HJ-1-AAB**		13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	0/00/00	G7J140000-049 **J80HJ-1-ACC**		13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															

FILTERS:MILLIPORE:R7KN80394 1.3G/L CACL2 SOLUTION:RP5-23D

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 25

SOLID, 353.2, Nitrocellulose

Nitrocellulose

STL Sacramento

LEVEL 1&2 REVIEW CHECKLIST
GENERAL CHEMISTRY

LAB NUMBERS: G7J030161, A7J030104, A7J040354, G7J130230

ANALYSIS: Nitrocellulose (Solids) DATE: 10-17-07 ANALYST: JAR

LEVEL 1 RUN REVIEW:	YES	NO	NA
1. Samples are properly preserved and verified			✓
2. Run set-up meets standard criteria (Curve, ICV, ICB, REF...CCV,CCB..)	✓		
3. Calibration criteria met	✓		
4. Calibration verifications and second source reference are in control			
5. Batch QC are in control (Blank, LCS, MSQC, LCS dup when necessary)	✓		
6. Calculations have been checked	✓		
7. QAS +/or QAPP was consulted and followed for client specifics	✓		
8. Standard Tracking # noted on benchsheet +/or runlog			
9. Manual integration performed, documented and approved			✓

LEVEL 1 DATA REVIEW:			
1. Benchsheet complete	✓		
2. QAS +/or QAPP consulted and followed for client specifics for data entry	✓		
3. Data entered properly	✓		
4. Copy of prep sheet and prep checklist attached to run			
5. Analyst observations, HTV's, Anomalies properly documented and attached to run.			✓

Completed By & Date: JAR 10-17-07

LEVEL 2 REVIEW:			
1. Level 1 checklist complete and verified	✓		
2. Deviations, Anomalies, Holding times checked and approved	✓		
3. Reprep/Reanalysis documented and chemist notified			✓
4. Client specific criteria met	✓		
5. Data entry checked and released in Quantims	✓		
6. Indication on benchsheet on review and release (dated & signed)	✓		
7. Manual integration reviewed, approved, and properly documented			✓

Completed By & Date: LH 10/19/07

Comments:

QA-159 NEK 7/00

RQC050 Severn Trent Laboratories, Inc. Run Date: 10/17/07
WET CHEM BATCHSHEET Time: 20:16:50

TestAmerica West Sacramen

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: WA Nitrocellulose as N by 353.2
QC BATCH #: **7288307** INITIALS: DATA ENTRY:
PREP DATE: 10/15/07 12:00 PREP _____ INITIALS _____
COMP DATE: 10/17/07 10:15 ANAL _____ DATE _____
USER: ROGERSJ

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J75V4-1-A5	G-7J030161-001	XX A 76 WA A4	Y-D	_____	AAFBUNDS1S164
J81H8-1-AA	G-7J150000-307-B	XX A 76 WA A4		_____	INTRA-LAB BLANK
J81H8-1-AC	G-7J150000-307-C	XX A 76 WA A4		_____	INTRA-LAB CHECK

Control Limits

(30-122)

reviewed 10/19/07 LH

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch **7288307**

Date 10/17/2007
Time 19:18:22

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**

Work Order	Result	Units	LDL/Dil	Prep. - Anal.	Total Solids	PSRL Flag	R/R	Rounded Result	Output LDL	Dil.
J75V4-1-A5	1.12	mg/kg	5.0	10/15-10/17/07	81.97	N		1.4 F	6.1	1.00
J81H8-1-AA	ND	mg/kg	5.0	10/15-10/17/07	.00			ND	5.0	1.00

Notes:
Results and reporting limits have been adjusted for dry weight.
F Found: Analyte positively identified, concentration is an estimate >MDL and <RL.

Check Standard

Work Order	Exception Code	True Spike	Measured Spike	Percent Recovered	Prep. - Anal.	Control Limits	Dil.
J81H8-1-AC		50.1	44.4	88.62	10/15-10/17/07	(30-122)	1.00

Notes:

PRODUCTION TOTALS

TEST	TOTAL #	SAMPLE #	QC #	MATRIX #	OTHER #	MISC #	HOURS
	0	0	0	0	0	0	.0

RQC050 Severn Trent Laboratories, Inc. Run Date: 10/17/07
WET CHEM BATCHSHEET Time: 20:16:58

TestAmerica West Sacramen

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: WA Nitrocellulose as N by 353.2
QC BATCH #: **7288097** INITIALS: DATA ENTRY:
PREP DATE: 10/15/07 12:00 PREP _____ INITIALS _____
COMP DATE: 10/17/07 10:15 ANAL _____ DATE _____
USER: ROGERSJ

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J748R-1-A5	A-7J030104-001	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748R-1-DX	A-7J030104-001-D	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748R-1-DW	A-7J030104-001-S	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748X-1-AG	A-7J030104-002	XX A 76 WA 01	Y-D		RVAAP-GR8-MC4
J7481-1-AG	A-7J030104-003	XX A 76 WA 01	Y-D		RVAAP-WW4-SS-1
J7483-1-AG	A-7J030104-004	XX A 76 WA 01	Y-D		RVAAP-WW4-SS-2
J7488-1-AG	A-7J030104-006	XX A 76 WA 01	Y-D		RVAAP-GR8-MC5
J749C-1-AG	A-7J030104-007	XX A 76 WA 01	Y-D		RVAAP-GR8-MC3
J749D-1-AG	A-7J030104-008	XX A 76 WA 01	Y-D		RVAAP-GR8-MC2
J749E-1-AG	A-7J030104-009	XX A 76 WA 01	Y-D		RVAAP-GR8-MC1
J7914-1-A5	A-7J040354-001	XX A 76 WA 01	Y-D		RVAAP-RQL-MC1
J792M-1-AG	A-7J040354-002	XX A 76 WA 01	Y-D		RVAAP-RQL-MC2
J792N-1-AG	A-7J040354-003	XX A 76 WA 01	Y-D		RVAAP-RQL-MC3
J792R-1-AG	A-7J040354-004	XX A 76 WA 01	Y-D		RVAAP-RQL-MC4
J792W-1-AG	A-7J040354-005	XX A 76 WA 01	Y-D		RVAAP-LL1-MC1
J7920-1-AG	A-7J040354-006	XX A 76 WA 01	Y-D		RVAAP-LL1-MC2
J7923-1-AG	A-7J040354-007	XX A 76 WA 01	Y-D		RVAAP-FTF-MC1
J7927-1-AG	A-7J040354-008	XX A 76 WA 01	Y-D		RVAAP-FTF-MC2
J80DH-1-AA	G-7J130230-002	XX A 76 WA 01	Y-D		MQJ0438-02

RQC050 Severn Trent Laboratories, Inc. Run Date: 10/17/07
WET CHEM BATCHSHEET Time: 20:16:58

TestAmerica West Sacramen

QC BATCH #: **7288097** INITIALS: DATA ENTRY:
PREP DATE: 10/15/07 12:00 PREP _____ INITIALS _____
COMP DATE: 10/17/07 10:15 ANAL _____ DATE _____
USER: ROGERSJ

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J80NV-1-AA	G-7J150000-097-B	XX A 76 WA 01		_____	INTRA-LAB BLANK
J80NV-1-AC	G-7J150000-097-C	XX A 76 WA 01		_____	INTRA-LAB CHECK

Control Limits

(30-122)

(30-122)

(30-122)

Reviewed 10/19/07 LH

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch 7288097

Date 10/17/2007
Time 19:27:12

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**

Work Order	Result	Units	LDL/Dil	Prep. - Anal.	Total Solids	PSRL Flag	R/R	Rounded Result	Output LDL	Dil.
J748R-1-A5	1.26	mg/kg	5.0	10/15-10/17/07	96.30	N		1.3 B	5.2	1.00
J748X-1-AG	12.8	mg/kg	5	10/15-10/17/07	96.11	N		13.3	5.2	1.00
J7481-1-AG	1.33	mg/kg	5	10/15-10/17/07	94.86	N		1.4 B	5.3	1.00
J7483-1-AG	1.07	mg/kg	5	10/15-10/17/07	95.10	N		1.1 B	5.3	1.00
J7488-1-AG	6.7	mg/kg	5	10/15-10/17/07	95.45	N		7.0	5.2	1.00
J749C-1-AG	5.88	mg/kg	5	10/15-10/17/07	97.58	N		6.0	5.1	1.00
J749D-1-AG	2.31	mg/kg	5	10/15-10/17/07	95.85	N		2.4 B	5.2	1.00
J749E-1-AG	1.92	mg/kg	5	10/15-10/17/07	96.77	N		2.0 B	5.2	1.00
J7914-1-A5	1.04	mg/kg	5.0	10/15-10/17/07	97.98	N		1.1 B	5.1	1.00
J792M-1-AG	1.08	mg/kg	5	10/15-10/17/07	96.16	N		1.1 B	5.2	1.00
J792N-1-AG	1	mg/kg	5	10/15-10/17/07	94.87	N		1.1 B	5.3	1.00
J792R-1-AG	ND	mg/kg	5	10/15-10/17/07	95.51	N		ND	5.2	1.00
J792W-1-AG	2.5	mg/kg	5	10/15-10/17/07	97.20	N		2.6 B	5.1	1.00
J7920-1-AG	3.24	mg/kg	5	10/15-10/17/07	96.43	N		3.4 B	5.2	1.00
J7923-1-AG	1.44	mg/kg	5	10/15-10/17/07	94.64	N		1.5 B	5.3	1.00
J7927-1-AG	1.77	mg/kg	5	10/15-10/17/07	97.12	N		1.8 B	5.1	1.00
J80DH-1-AA	2.35	mg/kg	5.0	10/15-10/17/07	.00	N		ND	5.0	1.00
J80NV-1-AA	ND	mg/kg	5.0	10/15-10/17/07	.00			ND	5.0	1.00

Notes:
Results and reporting limits have been adjusted for dry weight.
B Estimated result. Result is less than RL.

Check Standard

Work Order	Exception Code	True Spike	Measured Spike	Percent Recovered	Prep. - Anal.	Control Limits	Dil.
J80NV-1-AC		50.1	44.4	88.62	10/15-10/17/07	(30-122)	1.00

Notes:

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch **7288097**

Date 10/17/2007
Time 19:27:12

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**
MS - MSD

Work Order	Exception Code	Measured Sample	True Spike	Measured SPIKE	Measured Dup.	Pct. Recovered SPIKE	DUP	RPD	Prep. - Anal.	Dil.
J748R-1-DW		1.26	50.1	34.8	33.2	66.94	64.26	4.70	10/15-10/17/07	1.00

Notes:
Results and reporting limits have been adjusted for dry weight.

PRODUCTION TOTALS

TEST	TOTAL #	SAMPLE #	QC #	MATRIX #	OTHER #	MISC #	HOURS
	0	0	0	0	0	0	.0

Severn Trent
Sacramento Laboratory

NITROCELLULOSE

(SOP # SAC-WC-0050, Rev.0)

ANALYST ROGERS
CHECKED BY LH
BATCH NO. 7288307 7288097

DATE 10/17/07 18:51
DATE 10-19-07

METHOD NO. 353.2
PROJECT NO. See run sequence

FILE 101707A

INST-F54

RL = 5 mg/Kg

	Lab ID	Time	Standard Conc. mg/L	Cup #	Sample Aliquot gram	Sample Aliquot mL	Extract Volume mL	Dilution	Height	$NO_3 + NO_2$ Raw Result	Nitrocellulose mg/L	Nitrocellulose ug/g	Recovery	Check
1	Cal 0	17:13	0	0					71.86922	-0.001319	Slope = 1.6023E+05			
2	Cal 1	17:15	0.05	102					8170.164	0.049221	Intercept = 2.8329E+02			
3	Cal 2	17:17	0.2	103					33166.52	0.205220	Correlation = 0.999993			
4	Cal 3	17:19	0.4	104					64069.89	0.398085				
5	Cal 4	17:21	1	105					160168.6	0.997825	%Nitrocellulose Assay = 0.111			
6	Cal 5	17:23	2	106					320905.8	2.000968				
7	Blank	17:25		0				1	76.78324	-0.001289				
8	ICV/LCS 1PPM NOx	17:27		107				1	162415.7	1.011850			101%	
9	MRL 0.05PPM	17:29		102				1	8987.783	0.054324			109%	
10	NO2 1PPM	17:31		108				1	166470.7	1.037156			104%	
11	NO3 1PPM	17:33		109				1	158746.9	0.988953			99%	
12	blank /ICB	17:35		0				1	31.77727	-0.001570				
13	Baseline	17:37		0				1	0	-0.001768				
14	MB-S 7288307/097	17:39		201	10		40	1	3447.196	0.019746		0.71		< RL
15	LCS-S 7288307/097	17:41	50.1	202	10		40	1	197739.5	1.232301		44.40	88.6%	
16	G7J030161-1	17:43		203	10.02		40	1	5289.002	0.031240		1.12		< RL
17	A7J030104-1	17:45		204	10		40	1	5869.596	0.034863		1.26		< RL
18	A7J030104-1S	17:47	50.1	205	10		40	1	154992.2	0.965520		34.80	66.9%	
19	A7J030104-1D	17:49	49.7	206	10.08		40	1	148892.1	0.927450		33.20	64.3%	
20	A7J030104-2	17:51		207	10.02		40	1	57374.36	0.356299		12.80		
21	A7J030104-3	17:53		208	10.01		40	1	6181.746	0.036812		1.33		< RL
22	A7J030104-4	17:55		209	10		40	1	5020.122	0.029562		1.07		< RL
23	A7J030104-6	17:57		210	10.02		40	1	30123.07	0.186227		6.70		
24	MRL 0.05PPM	17:59	0.05	102				1	8200.748	0.049412			98.8%	
25	CCV Cal 4	18:01	1	105				1	166080.4	1.034720			103.5%	
26	Blank /CCB	18:03		0				1	11.31185	-0.001697				
27	Baseline	18:05		0				1	0	-0.001768				
28	A7J030104-7	18:07		211	10		40	1	26434.39	0.163206		5.88		
29	A7J030104-8	18:09		212	10		40	1	10555.71	0.064109		2.31		
30	A7J030104-9	18:11		213	10		40	1	8803.366	0.053173		1.92		
31	A7J040354-1	18:13		214	10.07		40	1	4961.865	0.029198		1.04		< RL
32	A7J040354-2	18:15		215	10.03		40	1	5100.566	0.030064		1.08		< RL
33	A7J040354-3	18:17		216	10.04		40	1	4741.221	0.027821		1.00		< RL
34	A7J040354-4	18:19		217	10.01		40	1	3545.114	0.020357		0.73		< RL

Color Rgt: 2980-WC-49.5 Exp. 12.3.07
Buffer: 2980-WC-50.2 Exp. 10.9.08

Nitrocellulose = (NO3 + NO2) * Prep Factor / 0.111

Severn Trent
Sacramento Laboratory

NITROCELLULOSE

(SOP # SAC-WC-0050, Rev.0)

ANALYST ROGERS
CHECKED BY LH
BATCH NO. 7288307 7288097

DATE 10/17/07 18:51
DATE 10-19-07

METHOD NO. 353.2
PROJECT NO. See run sequence

FILE 101707A

	Lab ID	Time	Standard Conc. mg/L	Cup.#	Sample Aliquot gram	Sample Aliquot mL	Extract Volume mL	Dilution	Height	$NO_3 + NO_2$ Raw Result	Nitrocellulose			
35	A7J040354-5	18:21		218	10.01		40	1	11432.27	0.069579		2.50		
36	A7J040354-6	18:23		219	10		40	1	14698.68	0.089965		3.24		
37	A7J040354-7	18:25		220	10.04		40	1	6715.538	0.040143		1.44		< RL
38	MRL 0.05PPM	18:27	0.05	102				1	8230.622	0.049598			99.2%	
39	CCV Cal 4	18:29	1	105				1	164668.6	1.025910			102.6%	
40	Blank / CCB	18:31		0				1	15.93921	-0.001669				
41	Baseline	18:33		0				1	0	-0.001768				
42	A7J040354-8	18:35		221	10		40	1	8167.976	0.049207		1.77		< RL
43	G7J130230-2	18:37		222	10.07		40	1	10807.81	0.065682		2.35		
44	MRL 0.05PPM	18:39	0.05	102				1	8313.691	0.050117			100.2%	
45	CCV Cal 4	18:41	1	105				1	163576	1.019091			101.9%	
46	Blank	18:43		0				1	14.24335	-0.001679				
47	Baseline	18:45		0				1	0	-0.001768				

Nitrocellulose = (NO3 + NO2) * Prep Factor / 0.111

Run Results Report
Results: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Results completed: 18:51 October 17, 2007.
Operator: ROGERS

			Nitrate/Nitrite			Nitrite		
Time	Cup	Name	Height	Calc.	Flags	Height	Calc.	Flags
----------	User request: Start Data Collect ----------							
17:09	0	Carryover	31	-0.001577	LO	-89752	-0.268638	LO
17:11	0	Baseline	0	-0.001768	BL	0	0.148945	BL
17:13	0	Cal 0	72	-0.001319	LO	32765	0.301386	
17:15	102	Cal 1	8170	0.049221		-36337	-0.020116	LO
17:17	103	Cal 2	33167	0.205220		-75349	-0.201625	LO
17:19	104	Cal 3	64070	0.398085		15424	0.220709	
17:21	105	Cal 4	160169	0.997825		74378	0.494996	
17:23	106	Cal 5	320906	2.000968	HI	189292	1.029650	
17:25	0	Blank	77	-0.001289	LO	19005	0.237366	
17:27	107	ICV/LCS 1PPM	162416	1.011850		224717	1.194469	HI I
17:29	102	MRL 0.05PPM	8988	0.054324		217328	1.160089	HI I
17:31	108	NO2 1PPM	166471	1.037156		22423	0.253269	I FL
17:33	109	NO3 1PPM	158747	0.988953		254636	1.333670	HI I
17:35	0	blank	32	-0.001570	LO	41440	0.341751	I
17:37	0	Baseline	0	-0.001768	BL	0	0.148945	BL I
17:39	201	MB-S 7288307	3447	0.019746		-8184	0.110868	I
17:41	202	LCS-S 728830	197739	1.232301		51625	0.389137	I
17:43	203	G7J030161-1	5289	0.031240		67850	0.464627	I
17:45	204	A7J030104-1	5870	0.034863		-103950	-0.334692	LO I
17:47	205	A7J030104-1S	154992	0.965520		-158915	-0.590426	LO I
17:49	206	A7J030104-1D	148892	0.927450		694302	3.379266	HI I
17:51	207	A7J030104-2	57374	0.356299		606585	2.971154	HI I
17:53	208	A7J030104-3	6182	0.036812		519366	2.565354	HI I
17:55	209	A7J030104-4	5020	0.029562		433021	2.163627	HI I
17:57	210	A7J030104-6	30123	0.186227		345869	1.758141	HI I
17:59	102	MRL 0.05PPM	8201	0.049412		252522	1.323831	HI I
18:01	105	CCV Cal 4	166080	1.034720		164727	0.915356	F
18:03	0	Blank	11	-0.001697	LO	86515	0.551468	
18:05	0	Baseline	0	-0.001768	BL	0	0.148945	BL
18:07	211	A7J030104-7	26434	0.163206		672	0.152071	I
18:09	212	A7J030104-8	10556	0.064109		190	0.149828	I
18:11	213	A7J030104-9	8803	0.053173		541	0.151463	I
18:13	214	A7J040354-1	4962	0.029198		679	0.152102	I
18:15	215	A7J040354-2	5101	0.030064		264	0.150172	I
18:17	216	A7J040354-3	4741	0.027821		1097	0.154049	I
18:19	217	A7J040354-4	3545	0.020357		547	0.151488	I
18:21	218	A7J040354-5	11432	0.069579		-49	0.148715	I
18:23	219	A7J040354-6	14699	0.089965		736	0.152367	I
18:25	220	A7J040354-7	6716	0.040143		-309	0.147506	I
18:27	102	MRL 0.05PPM	8231	0.049598		281	0.150251	I
18:29	105	CCV Cal 4	164669	1.025910		517	0.151349	F
18:31	0	Blank	16	-0.001669	LO	399	0.150803	
18:33	0	Baseline	0	-0.001768	BL	0	0.148945	BL

MH
10/19/0

Run Results Report
Results: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Results completed: 18:51 October 17, 2007.
Operator: ROGERS

			Nitrate/Nitrite			Nitrite		
Time	Cup	Name	Height	Calc.	Flags	Height	Calc.	Flags
18:35	221	A7J040354-8	8168	0.049207		108	0.149449	I
18:37	222	G7J130230-2	10808	0.065682		130	0.149548	I
18:39	102	MRL 0.05PPM	8314	0.050117		271	0.150207	I
18:41	105	CCV Cal 4	163576	1.019091		445	0.151018	F
18:43	0	Blank	14	-0.001679	LO	-288	0.147604	
18:45	0	Baseline	0	-0.001768	BL	0	0.148945	BL

JH 10/19/07

Peak Table: Nitrate/Nitrite

File name: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Date: October 17, 2007
Operator: ROGERS

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (ppm)	Flags
1	105	Sync	SYNC	1	1	158451	0.987108	
2	0	Carryover	CO	1	1	31	-0.001577	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
4	0	Cal 0	C	1	1	72	-0.001319	LO
5	102	Cal 1	C	1	1	8170	0.049221	
6	103	Cal 2	C	1	1	33167	0.205220	
7	104	Cal 3	C	1	1	64070	0.398085	
8	105	Cal 4	C	1	1	160169	0.997825	
9	106	Cal 5	C	1	1	320906	2.000968	HI
10	0	Blank	BLNK	1	1	77	-0.001289	LO
11	107	ICV/LCS 1PPM NOx	U	1	1	162416	1.011850	
12	102	MRL 0.05PPM	U	1	1	8988	0.054324	
13	108	NO2 1PPM	U	1	1	166471	1.037156	
14	109	NO3 1PPM	U	1	1	158747	0.988953	
15	0	blank	BLNK	1	1	32	-0.001570	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
17	201	MB-S 7288307/097	U	1	1	3447	0.019746	
18	202	LCS-S 7288307/097	U	1	1	197739	1.232301	
19	203	G7J030161-1	U	1	1	5289	0.031240	
20	204	A7J030104-1	U	1	1	5870	0.034863	
21	205	A7J030104-1S	U	1	1	154992	0.965520	
22	206	A7J030104-1D	U	1	1	148892	0.927450	
23	207	A7J030104-2	U	1	1	57374	0.356299	
24	208	A7J030104-3	U	1	1	6182	0.036812	
25	209	A7J030104-4	U	1	1	5020	0.029562	
26	210	A7J030104-6	U	1	1	30123	0.186227	
27	102	MRL 0.05PPM	U	1	1	8201	0.049412	
28	105	CCV Cal 4	CCV	1	1	166080	1.034720	
29	0	Blank	BLNK	1	1	11	-0.001697	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
31	211	A7J030104-7	U	1	1	26434	0.163206	
32	212	A7J030104-8	U	1	1	10556	0.064109	
33	213	A7J030104-9	U	1	1	8803	0.053173	
34	214	A7J040354-1	U	1	1	4962	0.029198	
35	215	A7J040354-2	U	1	1	5101	0.030064	
36	216	A7J040354-3	U	1	1	4741	0.027821	
37	217	A7J040354-4	U	1	1	3545	0.020357	
38	218	A7J040354-5	U	1	1	11432	0.069579	
39	219	A7J040354-6	U	1	1	14699	0.089965	
40	220	A7J040354-7	U	1	1	6716	0.040143	
41	102	MRL 0.05PPM	U	1	1	8231	0.049598	
42	105	CCV Cal 4	CCV	1	1	164669	1.025910	
43	0	Blank	BLNK	1	1	16	-0.001669	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
45	221	A7J040354-8	U	1	1	8168	0.049207	
46	222	G7J130230-2	U	1	1	10808	0.065682	
47	102	MRL 0.05PPM	U	1	1	8314	0.050117	
48	105	CCV Cal 4	CCV	1	1	163576	1.019091	
49	0	Blank	BLNK	1	1	14	-0.001679	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL

Nitrate/Nitrite: Calibration, Peak 4-50

File name: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Date: October 17, 2007
Operator: ROGERS

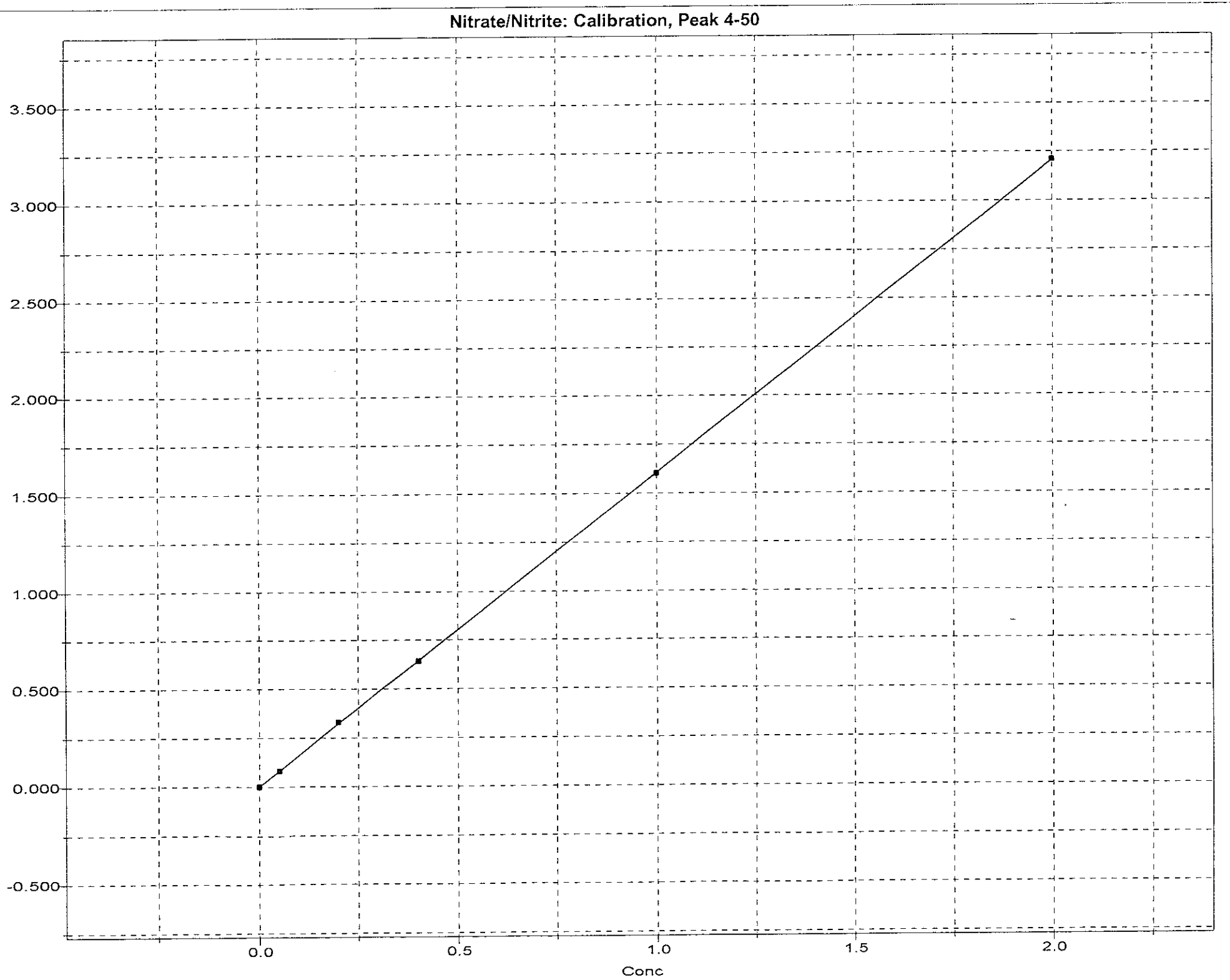
*	Name	Conc	Height
*	Cal 0	0.000000	71.869217
*	Cal 1	0.050000	8170.164062
*	Cal 2	0.200000	33166.515625
*	Cal 3	0.400000	64069.894531
*	Cal 4	1.000000	160168.578125
*	Cal 5	2.000000	320905.812500

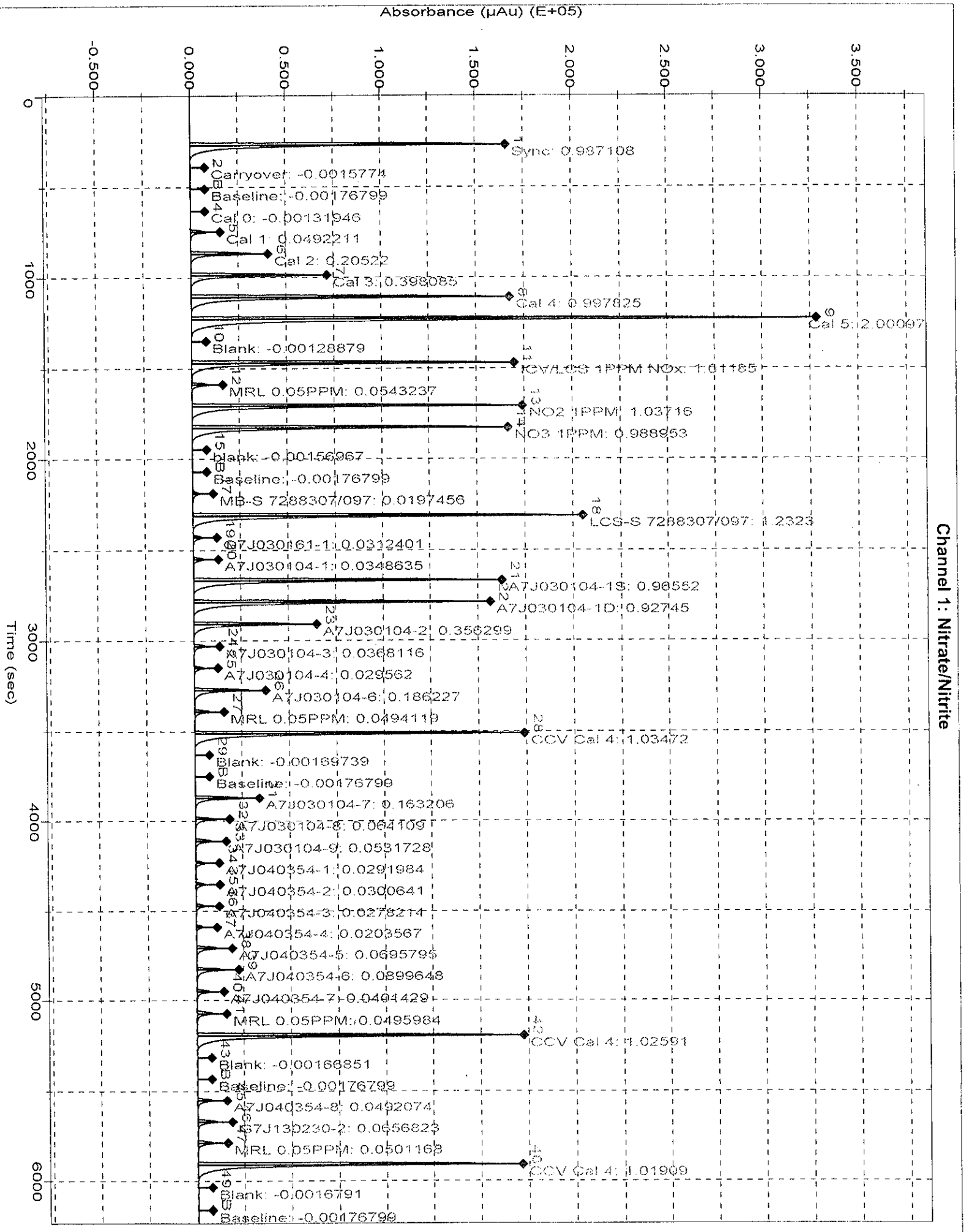
Calib Coef:
y=bx+a
a: (intercept) 2.8329e+02
b: 1.6023e+05

Corr Coef: 0.999993

Carryover: n/a

No Drift Peaks


Nitrate/Nitrite: Calibration, Peak 4-50
Height (E+05)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0.0
0.5
1.0
1.5
2.0
Conc


Absorbance (µAu) (E+05)
-0.500
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
Time (sec)
0
1000
2000
3000
4000
5000
6000
Channel 1: Nitrate/Nitrite
1 Sync: 0.997108
2 CB Carryover: -0.0015774
3 Baseline: -0.00176799
4 Cal 0: -0.00131946
5 Cal 1: 0.0492211
6 Cal 2: 0.20522
7 Cal 3: 0.398085
8 Cal 4: 0.997825
9 Cal 5: 2.00097
10 Blank: -0.00128879
11 ICV/LCS 1PPM NOx: 1.01185
12 MRL 0.05PPM: 0.0543237
13 NO2 1PPM: 1.03716
14 NO3 1PPM: 0.988953
15 Blank: -0.00156967
16 Baseline: -0.00176799
17 MB-S 7288307/097: 0.0197456
18 LCS-S 7288307/097: 1.2323
19 A7J030161-1: 0.0312401
20 A7J030104-1: 0.0348635
21 A7J030104-1S: 0.98552
22 A7J030104-1D: 0.92745
23 A7J030104-2: 0.356299
24 A7J030104-3: 0.0368116
25 A7J030104-4: 0.029562
26 A7J030104-6: 0.186227
27 MRL 0.05PPM: 0.0494119
28 CCV Cal 4: 1.03472
29 BB Blank: -0.00169739
30 Baseline: -0.00176799
31 A7J030104-7: 0.163206
32 A7J030104-8: 0.064109
33 A7J030104-9: 0.0531728
34 A7J040354-1: 0.0291984
35 A7J040354-2: 0.0300641
36 A7J040354-3: 0.0278214
37 A7J040354-4: 0.0203567
38 A7J040354-5: 0.0695795
39 A7J040354-6: 0.0899648
40 A7J040354-7: 0.0494429
41 MRL 0.05PPM: 0.0495984
42 CCV Cal 4: 1.02591
43 BB Blank: -0.00166851
44 Baseline: -0.00176799
45 A7J040354-8: 0.0492074
46 A7J130230-2: 0.0656823
47 MRL 0.05PPM: 0.0501163
48 CCV Cal 4: 1.01909
49 BB Blank: -0.0016791
50 Baseline: -0.00176799

*** Sample Table from Analysis ***

Date: October 17, 2007

Cup	Name	Type	R	Dil	Wt	Vial	Comment
105	Sync	SYNC	1	1	1		
0	Carryover	CO	1	1	1		
0	Baseline	RB	1	1	1		
0	Cal 0	C	1	1	1		
102	Cal 1	C	1	1	1		3125-WC-2-1
103	Cal 2	C	1	1	1		3125-WC-2-2
104	Cal 3	C	1	1	1		3125-WC-2-3
105	Cal 4	C	1	1	1		3125-WC-2-4
106	Cal 5	C	1	1	1		3125-WC-2-5
0	Blank	BLNK	1	1	1		
107	ICV/LCS 1PPM NOx	U	1	1	1		3125-WC-1-4
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
108	NO2 1PPM	U	1	1	1		3125-WC-1-5
109	NO3 1PPM	U	1	1	1		3125-WC-1-6
0	blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
201	MB-S 7288307/097	U	1	1	1		S
202	LCS-S 7288307/097	U	1	1	1		S
203	G7J030161-1	U	1	1	1		S
204	A7J030104-1	U	1	1	1		S
205	A7J030104-1S	U	1	1	1		S
206	A7J030104-1D	U	1	1	1		S
207	A7J030104-2	U	1	1	1		S
208	A7J030104-3	U	1	1	1		S
209	A7J030104-4	U	1	1	1		S
210	A7J030104-6	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
211	A7J030104-7	U	1	1	1		S
212	A7J030104-8	U	1	1	1		S
213	A7J030104-9	U	1	1	1		S
214	A7J040354-1	U	1	1	1		S
215	A7J040354-2	U	1	1	1		S
216	A7J040354-3	U	1	1	1		S
217	A7J040354-4	U	1	1	1		S
218	A7J040354-5	U	1	1	1		S
219	A7J040354-6	U	1	1	1		S
220	A7J040354-7	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
221	A7J040354-8	U	1	1	1		S
222	G7J130230-2	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		

Sample Preparation Logs

Digestions
Distillations
Extractions
Leachates

shared QC w/ batch: 7288097

TestAmerica West Sacramento
Nitrocellulose Extraction Sheet

Holding Time Due: 10-17-07 | Project Due: 10-17-07 | Analysis Date: 10.17.07

BATCH #: 7288307 | Initiated By: [signature] | Date: 10-15-07

MATRIX: SOLID / AQ / OTHER: | Hydrolyzed By: [signature] | Date: 10-17-07

QC Code	Lab ID	Sample Size (g or mL)	Final Volume (mL)	pH Adjusted to 6-8
B	MB	10.01	40 mL	Y / N
C	LCS	10.00	40 mL	Y / N
	G7J030161 - 1	10.02	40 mL	Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N

SOP No.: SAC-WC-0050

EXTRACTION COMMENTS:

Hydrolyzed @ 10:15 QP 10/17/07

QC Codes	Standard Information			
	Volume	STD ID	Conc'n (µg/mL)	Exp. Date
C	1.0 mL	[illegible]	501 µg/mL	3.13.08

Spiked By: [signature] 10-15-07 Witnessed By: [signature] 10/15/07

Signed 10/17/07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD.

TestAmerica North Canton

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:52

LEV 1	LEV 2		LEV 1	LEV 2	
Y		Blank	Y		Weights/Volumes
Y		Check	Y		Spike & Surrogate Worksheet
		MS/MSD	Y		Vial contains correct volume
			Y		Labels, greenbars, worksheets
					computer batch: correct & all match
					Anomalies to Extraction Method

_ Expanded Deliverable
_ COC Completed
Y Bench Sheet Copied
_ Package Submitted to AnalyticalGroup
_ Bench Sheet Copied per COC

Extractionist: 002263 Quan Phan

Concentrationist: 002263 Quan Phan

Reviewer/Date: PHANQ / 10/17/07

QC BATCH: 7288307

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

Nitrocellulose as N by 353.2
EXTRACTION, SOLID/SOLVENT (Manual)

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/23/07	10/17/07	G7J030161-001 7288065 **J75V4-1-A5**	D	76	WA	SOLID	**10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/23/07	0/00/00	G7J150000-307 **J81H8-1-AAB**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/23/07	0/00/00	G7J150000-307 **J81H8-1-ACC**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															

FILTERS:MILLIPORE:R7EN48794 1N NAOH:1706570 2N H2S04:1704866 ACETONE:EO6E52

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 3

short QC w/ batch: 7288307

TestAmerica North Canton

TestAmerica West Sacramento
Nitrocellulose Extraction Sheet

Holding Time Due: 10-17-07 | Project Due: 10-17-07 | Analysis Date: 10-17-07

BATCH #: 7288097 | Initiated By: | Date: 10-15-07

MATRIX: ~~SOLID~~ / AQ / OTHER: | Hydrolyzed By: | Date: 10-17

QC Code	Lab ID	Sample Size (g or mL)	Final Volume (mL)	pH Adjusted to 6-8
B	MB	10.00g	40 mL	Y / N
C	LCS	10.00g	40	Y / N
	A7J030104 - 1	10.00g	40	Y / N
S	- 1MS	10.00g	40	Y / N
D	- 1MSD	10.08g	40	Y / N
	- 2	10.02g	40	Y / N
	- 3	10.01g	40	Y / N
	- 4	10.00g	40	Y / N
	- 6	10.02g	40	Y / N
	- 7	10.09g	40	Y / N
	- 8	10.00g	40	Y / N
	- 9	10.00g	40	Y / N
	A7J040354 - 1	10.03g	40	Y / N
	- 2	10.03g	40	Y / N
	- 3	10.04g	40	Y / N
	- 4	10.01g	40	Y / N
	- 5	10.01g	40	Y / N
	- 6	10.00g	40	Y / N
	- 7	10.04g	40	Y / N
	- 8	10.00g	40	Y / N
	G7J150250 - 2	10.07g	40	Y / N
				Y / N
				Y / N
				Y / N
				Y / N

SOP No.: SAC-WC-0050

EXTRACTION COMMENTS:

Hydrolyzed @ 10:15 on 10-17

QC Codes	Standard Information			
	Volume	STD ID	Conc'n (µg/mL)	Exp. Date
C,S,D	1.0mL	E070917A1	501 µg/mL	3-17-07

Spiked By: 10-15-07 Witnessed By: 10/15/07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD.

650

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

LEV 1	LEV 2		LEV 1	LEV 2	
Y	–	Blank	Y	–	Weights/Volumes
Y	–	Check	Y	–	Spike & Surrogate Worksheet
Y	–	MS/MSD	Y	–	Vial contains correct volume
			Y	–	Labels, greenbars, worksheets
			–	–	computer batch: correct & all match
			–	–	Anomalies to Extraction Method

– Expanded Deliverable
– COC Completed
Y Bench Sheet Copied
– Package Submitted to AnalyticalGroup
– Bench Sheet Copied per COC

Extractionist: 002263 Quan Phan

Concentrationist: 002263 Quan Phan

Reviewer/Date: PHANQ / 10/17/07

****
* *
* QC BATCH: 7288097 *
* *
****

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

Nitrocellulose as N by 353.2
EXTRACTION, SOLID/SOLVENT (Manual)

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/27/07	10/17/07	A7J030104-001 7288065 **J748R-1-A5**	D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-001 7288065 **J748R-1-DWS**	D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															
10/27/07	10/17/07	A7J030104-001 7288065 **J748R-1-DXD**	D	76	WA	SOLID	10.08 **10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															
10/28/07	10/17/07	A7J030104-002 7288065 **J748X-1-AG**	D	76	WA	SOLID	10.02 **10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-003 7288065 **J7481-1-AG**	D	76	WA	SOLID	10.01 **10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-004 7288065 **J7483-1-AG**	D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-006 7288065 **J7488-1-AG**	D	76	WA	SOLID	**10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

QC BATCH: 7288097

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/28/07	10/17/07	A7J030104-007 **J749C-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-008 **J749D-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-009 **J749E-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-001 **J7914-1-A5**	7288065 D	76	WA	SOLID	**10.07g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-002 **J792M-1-AG**	7288065 D	76	WA	SOLID	**10.03g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-003 **J792N-1-AG**	7288065 D	76	WA	SOLID	**10.04g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-004 **J792R-1-AG**	7288065 D	76	WA	SOLID	**10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-005 **J792W-1-AG**	7288065 D	76	WA	SOLID	**10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-006 **J7920-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-007 **J7923-1-AG**	7288065 D	76	WA	SOLID	**10.04g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

QC BATCH: 7288097

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJ1	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/29/07	10/17/07	A7J040354-008 7288065 **J7927-1-AG**	D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
11/05/07	10/23/07	G7J130230-002 7288065 **J80DH-1-AA**	DR	76	WA	SOLID	**10.07g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	0/00/00	G7J150000-097 **J80NV-1-AA**B		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	0/00/00	G7J150000-097 **J80NV-1-AC**C		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															

FILTERS:MILLIPORE:R7EN48794 ACETONE:E06E52 1N NAOH:1706570 2N H2S04:1704866

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 21

TestAmerica Laboratories, Inc.

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

SAMPLE ANALYSIS REQUISTION

Lab Request SR096731

Report Package: **Expanded Deliverables**

Need Analytical Report 2007-10-17

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J030104-1	J748R	RVAAP-LNWBG-SS-1	2007-10-01 15:36	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-1	J748R	RVAAP-LNWBG-SS-1	2007-10-01 15:36	SOLID, 8330, Explosives
A7J030104-1	J748R	RVAAP-LNWBG-SS-1	2007-10-01 15:36	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-2	J748X	RVAAP-GR8-MC4	2007-10-02 15:30	SOLID, 8330, Explosives
A7J030104-2	J748X	RVAAP-GR8-MC4	2007-10-02 15:30	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-2	J748X	RVAAP-GR8-MC4	2007-10-02 15:30	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-3	J7481	RVAAP-WW4-SS-1	2007-10-01 17:52	SOLID, 8330, Explosives
A7J030104-3	J7481	RVAAP-WW4-SS-1	2007-10-01 17:52	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-3	J7481	RVAAP-WW4-SS-1	2007-10-01 17:52	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-4	J7483	RVAAP-WW4-SS-2	2007-10-01 17:52	SOLID, 8330, Explosives
A7J030104-4	J7483	RVAAP-WW4-SS-2	2007-10-01 17:52	SOLID, 8330M, Nitroquanadine Propellant

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TestAmerica North Canton

TestAmerica Laboratories, Inc.

SAMPLE ANALYSIS REQUISTION

Laboratory	**TestAmerica West Sacramento**	Lab Request	SR096731	**Report Package:**	**Expanded Deliverables**
	880 Riverside Parkway			Need Analytical Report	2007-10-17
	West Sacramento, CA 95605				

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J030104-4	J7483	RVAAP-WW4-SS-2	2007-10-01 17:52	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-5	J7484	RVAAP-BDI-SS-1	2007-10-02 8:40	SOLID, 8330, Explosives
A7J030104-6	J7488	RVAAP-GR8-MC5	2007-10-02 15:44	SOLID, 8330, Explosives
A7J030104-6	J7488	RVAAP-GR8-MC5	2007-10-02 15:44	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-6	J7488	RVAAP-GR8-MC5	2007-10-02 15:44	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-7	J749C	RVAAP-GR8-MC3	2007-10-02 15:12	SOLID, 8330, Explosives
A7J030104-7	J749C	RVAAP-GR8-MC3	2007-10-02 15:12	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-7	J749C	RVAAP-GR8-MC3	2007-10-02 15:12	SOLID, 353.2, Nitrocellulose Propellants
A7J030104-8	J749D	RVAAP-GR8-MC2	2007-10-02 16:12	SOLID, 8330, Explosives
A7J030104-8	J749D	RVAAP-GR8-MC2	2007-10-02 16:12	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-8	J749D	RVAAP-GR8-MC2	2007-10-02 16:12	SOLID, 353.2, Nitrocellulose Propellants

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

655

TestAmerica North Canton

TestAmerica Laboratories, Inc.

SAMPLE ANALYSIS REQUISTION

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

Lab Request SR096731

Report Package: **Expanded Deliverables**
Need Analytical Report 2007-10-17

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J030104-9	J749E	RVAAP-GR8-MC1	2007-10-02 16:40	SOLID, 8330, Explosives
A7J030104-9	J749E	RVAAP-GR8-MC1	2007-10-02 16:40	SOLID, 8330M, Nitroquanadine Propellant
A7J030104-9	J749E	RVAAP-GR8-MC1	2007-10-02 16:40	SOLID, 353.2, Nitrocellulose Propellants

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

656

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

LOT RECEIPT CHECKLIST
TestAmerica West Sacramento

CLIENT TA-NCanton PM KD LOG # 48088

LOT# (QUANTIMS ID) A7J030104 QUOTE# NA LOCATION W19A

		Initials	Date
DATE RECEIVED	10-6-07 TIME RECEIVED 920	QA	10-6-07

DELIVERED BY
- ☒ FEDEX
- ☐ CA OVERNIGHT
- ☐ CLIENT
- ☐ AIRBORNE
- ☐ GOLDENSTATE
- ☐ DHL
- ☐ UPS
- ☐ BAX GLOBAL
- ☐ GO-GETTERS
- ☐ TAL COURIER
- ☐ VALLEY LOGISTICS
- ☐ MORGAN HILL COURIER
- ☐ OTHER

CUSTODY SEAL STATUS ☒ INTACT ☐ BROKEN ☐ N/A

CUSTODY SEAL #(S) Seal

SHIPPPING CONTAINER(S) ☒ TAL ☐ CLIENT ☐ N/A

TEMPERTURE RECORD (IN °C) IR 4 ☐ 5 ☒ ☐ OTHER

COC #(S) NA

TEMPERATURE BLANK Observed: ✓ Corrected: —

SAMPLE TEMPERATURE
Observed: ambient Average: — Corrected Average:

COLLECTOR'S NAME: ☐ Verified from COC ☒ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☒ N/A

LABELED BY.....

LABELS CHECKED BY.....

PEER REVIEW _____ ☒ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING
WETCHEM ☒ N/A
VOA-ENCORES ☒ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☒ N/A

☐ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☐ N/A

☒ CLOUSEAU ☒ TEMPERATURE EXCEEDED (2 °C – 6 °C)*1 ☐ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☒ NO COOLING AGENTS USED ☒ PM NOTIFIED

Notes: _____

*1 Acceptable temperature range for State of Wisconsin samples is≤4°C.

LEAVE NO SPACES BLANK. USE "N/A" IF NOT APPLICABLE.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

END OF REPORT

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

RVAAP RAVENNA, OHIO

Lot #: A7J040354

Phil Werner

e2M Engineering-Environmental
2751 Prosperity Avenue
Suite 200
Fairfax, VA 22031

TESTAMERICA LABORATORIES, INC.

Mark J. Loeb
Project Manager

November 8, 2007

CASE NARRATIVE

CASE NARRATIVE

A7J040354

The following report contains the analytical results for sixteen solid samples submitted to TestAmerica North Canton by E2M Engineering-Environmental Mngmt. Inc. from the RVAAP Ravenna, Ohio Site. The samples were received October 03, 2007, according to documented sample acceptance procedures.

The 8330 Explosives, 353.2 Nitrocellulose, and Nitroquanadine analyses were performed at the TestAmerica West Sacramento laboratory. Refer to TestAmerica West Sacramento narrative included in their data package for additional information.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Phil Werner on November 01, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 2.2°C.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

Serial dilution of a sample in this lot indicates that physical and chemical interferences were present. Refer to the sample report pages for the affected analytes flagged with "E".

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "J". Refer to the sample report pages for the affected analyte(s).

Matrix spike recovery and relative percent difference (RPD) data were not calculated for some analytes for RVAAP-RQL-MC1 due to the sample concentration reading greater than four times the spike amount. See the Matrix Spike Report for the affected analytes which will be flagged with "NC, MSB".

The matrix spike/matrix spike duplicate(s) for RVAAP-RQL-MC1 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

GENERAL CHEMISTRY

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A7J040354

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-RQL-MC1 10/03/07 11:46 001				
Mercury	0.035 B	0.10	mg/kg	SW846 7471A
Arsenic	8.7	1.0	mg/kg	SW846 6010B
Lead	23.8	1.0	mg/kg	SW846 6010B
Thallium	0.59 B	2.0	mg/kg	SW846 6010B
Aluminum	2430	20.4	mg/kg	SW846 6010B
Barium	12.9 J	1.0	mg/kg	SW846 6010B
Beryllium	0.12 B	1.0	mg/kg	SW846 6010B
Calcium	94.8 B,E	102	mg/kg	SW846 6010B
Chromium	30.8	2.0	mg/kg	SW846 6010B
Cobalt	1.5 B	2.0	mg/kg	SW846 6010B
Copper	7.1 E	2.0	mg/kg	SW846 6010B
Iron	13100	20.4	mg/kg	SW846 6010B
Magnesium	421	102	mg/kg	SW846 6010B
Manganese	52.5	1.0	mg/kg	SW846 6010B
Nickel	22.1	2.0	mg/kg	SW846 6010B
Potassium	335 B,J	510	mg/kg	SW846 6010B
Vanadium	6.7	2.0	mg/kg	SW846 6010B
Zinc	22.6	4.1	mg/kg	SW846 6010B
Percent Solids	98.0	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.1 B	5.1	mg/kg	MCAWW 353.2
RVAAP-RQL-MC2 10/03/07 10:38 002				
1,3,5-Trinitrobenzene	0.032 J	0.24	mg/kg	SW846 8330
Mercury	0.099 B	0.10	mg/kg	SW846 7471A
Arsenic	10	1.0	mg/kg	SW846 6010B
Lead	27.7	1.0	mg/kg	SW846 6010B
Selenium	0.53 B	1.0	mg/kg	SW846 6010B
Thallium	1.8 B	2.1	mg/kg	SW846 6010B
Aluminum	10900	20.8	mg/kg	SW846 6010B
Barium	81.3 J	1.0	mg/kg	SW846 6010B
Beryllium	0.66 B	1.0	mg/kg	SW846 6010B
Cadmium	0.15 B	1.0	mg/kg	SW846 6010B
Calcium	158	104	mg/kg	SW846 6010B
Chromium	14.8	2.1	mg/kg	SW846 6010B
Cobalt	13.1	2.1	mg/kg	SW846 6010B
Copper	11.5	2.1	mg/kg	SW846 6010B
Iron	17900	20.8	mg/kg	SW846 6010B
Magnesium	1470	104	mg/kg	SW846 6010B
Manganese	1290	1.0	mg/kg	SW846 6010B
Nickel	19.3	2.1	mg/kg	SW846 6010B
Potassium	502 B,J	520	mg/kg	SW846 6010B
Vanadium	20.4	2.1	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

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PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-RQL-MC2 10/03/07 10:38 002				
Zinc	58.0	4.2	mg/kg	SW846 6010B
Percent Solids	96.2	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.1 B	5.2	mg/kg	MCAWW 353.2
RVAAP-RQL-MC3 10/03/07 10:20 003				
1,3,5-Trinitrobenzene	0.025 J	0.25	mg/kg	SW846 8330
Mercury	0.12	0.11	mg/kg	SW846 7471A
Arsenic	9.5	1.1	mg/kg	SW846 6010B
Lead	40.9	1.1	mg/kg	SW846 6010B
Selenium	0.57 B	1.1	mg/kg	SW846 6010B
Thallium	2.4	2.1	mg/kg	SW846 6010B
Aluminum	10700	21.1	mg/kg	SW846 6010B
Barium	88.7 J	1.1	mg/kg	SW846 6010B
Beryllium	0.74 B	1.1	mg/kg	SW846 6010B
Cadmium	0.22 B	1.1	mg/kg	SW846 6010B
Calcium	174	105	mg/kg	SW846 6010B
Chromium	14.6	2.1	mg/kg	SW846 6010B
Cobalt	16.5	2.1	mg/kg	SW846 6010B
Copper	10.9	2.1	mg/kg	SW846 6010B
Iron	16600	21.1	mg/kg	SW846 6010B
Magnesium	1280	105	mg/kg	SW846 6010B
Manganese	1860	1.1	mg/kg	SW846 6010B
Nickel	16.4	2.1	mg/kg	SW846 6010B
Potassium	476 B,J	527	mg/kg	SW846 6010B
Vanadium	19.3	2.1	mg/kg	SW846 6010B
Zinc	60.9	4.2	mg/kg	SW846 6010B
Percent Solids	94.9	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.1 B	5.3	mg/kg	MCAWW 353.2
RVAAP-RQL-MC4 10/03/07 09:54 004				
Mercury	0.095 B	0.10	mg/kg	SW846 7471A
Arsenic	9.8	1.0	mg/kg	SW846 6010B
Lead	29.5	1.0	mg/kg	SW846 6010B
Selenium	0.32 B	1.0	mg/kg	SW846 6010B
Thallium	1.8 B	2.1	mg/kg	SW846 6010B
Aluminum	10600	20.9	mg/kg	SW846 6010B
Barium	71.9 J	1.0	mg/kg	SW846 6010B
Beryllium	0.54 B	1.0	mg/kg	SW846 6010B
Cadmium	0.15 B	1.0	mg/kg	SW846 6010B
Calcium	129	105	mg/kg	SW846 6010B
Chromium	16.9	2.1	mg/kg	SW846 6010B

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EXECUTIVE SUMMARY - Detection Highlights

A7J040354

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-RQL-MC4 10/03/07 09:54 004				
Cobalt	15.4	2.1	mg/kg	SW846 6010B
Copper	11.1	2.1	mg/kg	SW846 6010B
Iron	18100	20.9	mg/kg	SW846 6010B
Magnesium	1260	105	mg/kg	SW846 6010B
Manganese	1400	1.0	mg/kg	SW846 6010B
Nickel	14.9	2.1	mg/kg	SW846 6010B
Potassium	437 B,J	524	mg/kg	SW846 6010B
Vanadium	21.3	2.1	mg/kg	SW846 6010B
Zinc	48.7	4.2	mg/kg	SW846 6010B
Percent Solids	95.5	10.0	%	MCAWW 160.3 MOD
RVAAP-LL1-MC1 10/03/07 13:10 005				
Nitrobenzene	0.050 J	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	0.048 J	0.25	mg/kg	SW846 8330
Mercury	0.054 B	0.10	mg/kg	SW846 7471A
Arsenic	7.0	1.0	mg/kg	SW846 6010B
Lead	85.8	1.0	mg/kg	SW846 6010B
Selenium	0.65 B	1.0	mg/kg	SW846 6010B
Thallium	1.8 B	2.1	mg/kg	SW846 6010B
Aluminum	15000	20.6	mg/kg	SW846 6010B
Barium	149 J	1.0	mg/kg	SW846 6010B
Beryllium	2.7	1.0	mg/kg	SW846 6010B
Cadmium	0.61 B	1.0	mg/kg	SW846 6010B
Calcium	49100	103	mg/kg	SW846 6010B
Chromium	27.4	2.1	mg/kg	SW846 6010B
Cobalt	4.8	2.1	mg/kg	SW846 6010B
Copper	17.2	2.1	mg/kg	SW846 6010B
Iron	16300	20.6	mg/kg	SW846 6010B
Magnesium	10200	103	mg/kg	SW846 6010B
Manganese	1200	1.0	mg/kg	SW846 6010B
Nickel	23.1	2.1	mg/kg	SW846 6010B
Potassium	1100 J	514	mg/kg	SW846 6010B
Sodium	307	103	mg/kg	SW846 6010B
Vanadium	12.4	2.1	mg/kg	SW846 6010B
Zinc	69.6	4.1	mg/kg	SW846 6010B
Percent Solids	97.2	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	2.6 B	5.1	mg/kg	MCAWW 353.2

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J040354

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-LL1-MC2 10/03/07 13:30 006				
Mercury	0.051 B	0.10	mg/kg	SW846 7471A
Arsenic	9.0	1.0	mg/kg	SW846 6010B
Lead	74.8	1.0	mg/kg	SW846 6010B
Thallium	1.5 B	2.1	mg/kg	SW846 6010B
Aluminum	12900	20.7	mg/kg	SW846 6010B
Barium	117 J	1.0	mg/kg	SW846 6010B
Beryllium	1.9	1.0	mg/kg	SW846 6010B
Cadmium	0.68 B	1.0	mg/kg	SW846 6010B
Calcium	33300	104	mg/kg	SW846 6010B
Chromium	25.5	2.1	mg/kg	SW846 6010B
Cobalt	7.0	2.1	mg/kg	SW846 6010B
Copper	22.5	2.1	mg/kg	SW846 6010B
Iron	17000	20.7	mg/kg	SW846 6010B
Magnesium	7130	104	mg/kg	SW846 6010B
Manganese	1110	1.0	mg/kg	SW846 6010B
Nickel	21.5	2.1	mg/kg	SW846 6010B
Potassium	895 J	519	mg/kg	SW846 6010B
Sodium	197	104	mg/kg	SW846 6010B
Vanadium	14.4	2.1	mg/kg	SW846 6010B
Zinc	85.5	4.1	mg/kg	SW846 6010B
Percent Solids	96.4	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	3.4 B	5.2	mg/kg	MCAWW 353.2
RVAAP-FTF-MC1 10/03/07 15:05 007				
Mercury	0.039 B	0.11	mg/kg	SW846 7471A
Arsenic	8.2	1.1	mg/kg	SW846 6010B
Lead	25.0	1.1	mg/kg	SW846 6010B
Thallium	1.4 B	2.1	mg/kg	SW846 6010B
Aluminum	9440	21.1	mg/kg	SW846 6010B
Barium	68.0 J	1.1	mg/kg	SW846 6010B
Beryllium	0.90 B	1.1	mg/kg	SW846 6010B
Cadmium	0.21 B	1.1	mg/kg	SW846 6010B
Calcium	13000	106	mg/kg	SW846 6010B
Chromium	27.7	2.1	mg/kg	SW846 6010B
Cobalt	6.1	2.1	mg/kg	SW846 6010B
Copper	21.4	2.1	mg/kg	SW846 6010B
Iron	17900	21.1	mg/kg	SW846 6010B
Magnesium	3300	106	mg/kg	SW846 6010B
Manganese	651	1.1	mg/kg	SW846 6010B
Nickel	22.6	2.1	mg/kg	SW846 6010B
Potassium	867 J	528	mg/kg	SW846 6010B
Sodium	57.3 B	106	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J040354

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-FTF-MC1 10/03/07 15:05 007				
Vanadium	13.5	2.1	mg/kg	SW846 6010B
Zinc	50.6	4.2	mg/kg	SW846 6010B
Percent Solids	94.6	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.5 B	5.3	mg/kg	MCAWW 353.2
RVAAP-FTF-MC2 10/03/07 15:19 008				
Mercury	0.033 B	0.10	mg/kg	SW846 7471A
Arsenic	8.6	1.0	mg/kg	SW846 6010B
Lead	23.8	1.0	mg/kg	SW846 6010B
Thallium	1.2 B	2.1	mg/kg	SW846 6010B
Aluminum	9290	20.6	mg/kg	SW846 6010B
Barium	68.7 J	1.0	mg/kg	SW846 6010B
Beryllium	0.83 B	1.0	mg/kg	SW846 6010B
Cadmium	0.31 B	1.0	mg/kg	SW846 6010B
Calcium	12200	103	mg/kg	SW846 6010B
Chromium	23.8	2.1	mg/kg	SW846 6010B
Cobalt	6.4	2.1	mg/kg	SW846 6010B
Copper	21.4	2.1	mg/kg	SW846 6010B
Iron	17300	20.6	mg/kg	SW846 6010B
Magnesium	3140	103	mg/kg	SW846 6010B
Manganese	569	1.0	mg/kg	SW846 6010B
Nickel	22.5	2.1	mg/kg	SW846 6010B
Potassium	868 J	515	mg/kg	SW846 6010B
Sodium	36.7 B	103	mg/kg	SW846 6010B
Vanadium	13.7	2.1	mg/kg	SW846 6010B
Zinc	52.0	4.1	mg/kg	SW846 6010B
Percent Solids	97.1	10.0	%	MCAWW 160.3 MOD
Nitrocellulose	1.8 B	5.1	mg/kg	MCAWW 353.2
RVAAP-RQL-MC1(WET TS) 10/03/07 11:46 009				
Percent Solids	82.0	10.0	%	MCAWW 160.3 MOD
RVAAP-RQL-MC2(WET TS) 10/03/07 10:38 010				
Percent Solids	84.4	10.0	%	MCAWW 160.3 MOD
RVAAP-RQL-MC3(WET TS) 10/03/07 10:20 011				
Percent Solids	84.8	10.0	%	MCAWW 160.3 MOD

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

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PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-RQL-MC4(WET TS) 10/03/07 09:54	**012**			
Percent Solids	86.0	10.0	%	MCAWW 160.3 MOD
RVAAP-LL1-MC1(WET TS) 10/03/07 13:10	**013**			
Percent Solids	82.9	10.0	%	MCAWW 160.3 MOD
RVAAP-LL1-MC2(WET TS) 10/03/07 13:30	**014**			
Percent Solids	90.4	10.0	%	MCAWW 160.3 MOD
RVAAP-FTF-MC1(WET TS) 10/03/07 15:05	**015**			
Percent Solids	80.5	10.0	%	MCAWW 160.3 MOD
RVAAP-FTF-MC2(WET TS) 10/03/07 15:19	**016**			
Percent Solids	79.4	10.0	%	MCAWW 160.3 MOD

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A7J040354

PARAMETER	ANALYTICAL METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Nitrocellulose as N, 353.2	MCAWW 353.2
Organics by UV/HPLC	SW846 8330 (Modified)
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

SAMPLE SUMMARY

A7J040354

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J7914	001	RVAAP-RQL-MC1	10/03/07	11:46
J792M	002	RVAAP-RQL-MC2	10/03/07	10:38
J792N	003	RVAAP-RQL-MC3	10/03/07	10:20
J792R	004	RVAAP-RQL-MC4	10/03/07	09:54
J792W	005	RVAAP-LL1-MC1	10/03/07	13:10
J7920	006	RVAAP-LL1-MC2	10/03/07	13:30
J7923	007	RVAAP-FTF-MC1	10/03/07	15:05
J7927	008	RVAAP-FTF-MC2	10/03/07	15:19
J7929	009	RVAAP-RQL-MC1(WET TS)	10/03/07	11:46
J793K	010	RVAAP-RQL-MC2(WET TS)	10/03/07	10:38
J793P	011	RVAAP-RQL-MC3(WET TS)	10/03/07	10:20
J793R	012	RVAAP-RQL-MC4(WET TS)	10/03/07	09:54
J793X	013	RVAAP-LL1-MC1(WET TS)	10/03/07	13:10
J7930	014	RVAAP-LL1-MC2(WET TS)	10/03/07	13:30
J7932	015	RVAAP-FTF-MC1(WET TS)	10/03/07	15:05
J7933	016	RVAAP-FTF-MC2(WET TS)	10/03/07	15:19

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SHIPPING
AND
RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
c2M	Phil Werner	10/3/07	371309
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
2751 Prosperity Ave. Ste. 200	(301) 831-0344		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Fairfax / VA / 22031	Phil Werner		
Project Name and Location (State)	**Carrier/Waybill Number**		
RVAAP Ravenna, Ohio			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: TAL Metals	Explosives	Propellants	Special Instructions/ Conditions of Receipt
RVAAP-RQL-MC1	10/3/07	1146				X							X	X	X	
RVAAP-RQL-MC2	10/3/07	1038				X							X	X	X	
RVAAP-RQL-MC3	10/3/07	1020				X							X	X	X	
RVAAP-RQL-MC4	10/3/07	0954				X							X	X	X	
RVAAP-LL1-MC1	10/3/07	1310				X							X	X	X	
RVAAP-LL1-MC2	10/3/07	1330				X							X	X	X	
RVAAP-FTF-MC1	10/3/07	1505				X							X	X	X	
RVAAP-FTF-MC2	10/3/07	1519				X							X	X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other Normal

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	10/3/07	1540	1. Received By: Rick Robison	10-3-07	1557
2. Relinquished By: Rick Robison	10-3-07	1640	2. Received By	10/03/07	1640
3. Relinquished By			3. Received By		

Comments
FRONT SEAL REMOVED BY COURIER ✓

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica Cooler Receipt Form/Narrative — Lot Number: A7J040354

North Canton Facility

Client: CZM — Project: RVAAP — Quote#:

Cooler Received on: 10/03/07 — Opened on: 10/03/07 — By: (Signature)

Fedx ☐ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☒

Stetson ☐ US Cargo ☐ Other:

TestAmerica Cooler No# 1745 — Foam Box ☐ Client Cooler ☐ Other

1. Were custody seals on the outside of the cooler? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
   If YES, Quantity 2
   Were the custody seals signed and dated? Yes ☒ No ☐ NA ☐
2. Shipper's packing slip attached to this form? Yes ☐ No ☐ NA ☒
3. Did custody papers accompany the samples? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☒ No ☐
5. Packing material used: Bubble Wrap ☐ Foam ☐ None ☒ Other :
6. Cooler temperature upon receipt 2.2 °C (see back of form for multiple coolers/temp)

METHOD: IR ☒ Other ☐

COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☒ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☒ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☒
12. Sufficient quantity received to perform indicated analyses? Yes ☒ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☒ Were VOAs on the COC? Yes ☐ No ☒

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning: _____

1. CHAIN OF CUSTODY

The following discrepancies occurred:

2. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

3. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot* #042607-HNO3 - *Sulfuric Acid Lot* # 092006-*H2SO4; Sodium Hydroxide Lot* # 122805 -*NaOH; Hydrochloric Acid Lot* # 092006-*HCl; Sodium Hydroxide and Zinc Acetate Lot* # 050205-*CH3COO2ZN/NaOH*

Sample(s) _____ were received with bubble > 6 mm in diameter (cc: PM)

4. Other (see below or back)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp °C	Method	Coolant

Discrepancies Cont'd

METALS DATA

FORMS DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-001 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 2.0

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**2430**	**20.4**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AG**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**8.7**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AC**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**23.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AD**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.2	mg/kg	SW846 6010B	10/10-10/11/07	J79141AH
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**12.9 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AJ**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J79141AE
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.12 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AK**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**0.59 B**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AF**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J79141AL
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**94.8 B,E**	**102**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AM**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**30.8**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AN**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**1.5 B**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AP**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**7.1 E**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AQ**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**13100**	**20.4**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AR**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**421**	**102**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AT**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**52.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AU**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**22.1**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AV**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**335 B,J**	**510**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141AW**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J79141AX
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	102	mg/kg	SW846 6010B	10/10-10/11/07	J79141A0
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**6.7**	**2.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141A1**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**22.6**	**4.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79141A2**
		Dilution Factor: 1		Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.035 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J79141A3**
		Dilution Factor: 1		Analysis Time..: 11:25	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

E Matrix interference.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-002 **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
% Moisture.....: 3.8

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**10900**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AQ**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**10**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AL**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**27.7**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AM**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.4	mg/kg	SW846 6010B	10/10-10/11/07	J792M1AR
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**81.3 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AT**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.53 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AN**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.66 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AU**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.8 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AP**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.15 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AV**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**158**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AW**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**14.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AX**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**13.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A0**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**11.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A1**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17900**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A2**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1470**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A3**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1290**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A4**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**19.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A5**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**502 B,J**	**520**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1A6**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J792M1A7
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	104	mg/kg	SW846 6010B	10/10-10/11/07	J792M1AA
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**20.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AC**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**58.0**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792M1AD**
		Dilution Factor: 1		Analysis Time..: 15:10	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.099 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J792M1AE**
		Dilution Factor: 1		Analysis Time..: 11:33	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

TOTAL Metals

Lot-Sample #...: A7J040354-003 **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**10700**	**21.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AQ**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**9.5**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AL**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**40.9**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AM**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.5	mg/kg	SW846 6010B	10/10-10/11/07	J792N1AR
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**88.7 J**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AT**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.57 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AN**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.74 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AU**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**2.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AP**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.22 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AV**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**174**	**105**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AW**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

TOTAL Metals

Lot-Sample #...: A7J040354-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**14.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AX**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**16.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A0**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**10.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A1**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**16600**	**21.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A2**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1280**	**105**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A3**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1860**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A4**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**16.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A5**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**476 B,J**	**527**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1A6**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J792N1A7
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	105	mg/kg	SW846 6010B	10/10-10/11/07	J792N1AA
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

TOTAL Metals

Lot-Sample #...: A7J040354-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**19.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AC**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**60.9**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792N1AD**
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.12**	**0.11**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J792N1AE**
		Dilution Factor: 1		Analysis Time..: 11:34	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

TOTAL Metals

Lot-Sample #...: A7J040354-004 **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
% Moisture.....: 4.5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**10600**	**20.9**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AQ**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**9.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AL**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**29.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AM**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.5	mg/kg	SW846 6010B	10/10-10/11/07	J792R1AR
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**71.9 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AT**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.32 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AN**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.54 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AU**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.8 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AP**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.15 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AV**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**129**	**105**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AW**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

TOTAL Metals

Lot-Sample #...: A7J040354-004 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**16.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AX**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**15.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A0**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**11.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A1**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**18100**	**20.9**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A2**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1260**	**105**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A3**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1400**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A4**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**14.9**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A5**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**437 B,J**	**524**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1A6**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J792R1A7
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	105	mg/kg	SW846 6010B	10/10-10/11/07	J792R1AA
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

TOTAL Metals

Lot-Sample #...: A7J040354-004 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**21.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AC**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**48.7**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792R1AD**
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.095 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J792R1AE**
		Dilution Factor: 1		Analysis Time..: 11:37	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-005 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
% Moisture.....: 2.8

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**15000**	**20.6**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AQ**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**7.0**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AL**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**85.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AM**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.3	mg/kg	SW846 6010B	10/10-10/11/07	J792W1AR
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**149 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AT**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.65 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AN**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**2.7**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AU**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.8 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AP**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.61 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AV**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**49100**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AW**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-005 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**27.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AX**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**4.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A0**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**17.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A1**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**16300**	**20.6**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A2**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**10200**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A3**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1200**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A4**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**23.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A5**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**1100 J**	**514**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1A6**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J792W1A7
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**307**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AA**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-005 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**12.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AC**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**69.6**	**4.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J792W1AD**
		Dilution Factor: 1		Analysis Time..: 15:25	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.054 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J792W1AE**
		Dilution Factor: 1		Analysis Time..: 11:38	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-006 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
% Moisture.....: 3.6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**12900**	**20.7**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AQ**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**9.0**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AL**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**74.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AM**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.4	mg/kg	SW846 6010B	10/10-10/11/07	J79201AR
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**117 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AT**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J79201AN
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**1.9**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AU**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.5 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AP**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.68 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AV**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**33300**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AW**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-006 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**25.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AX**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**7.0**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A0**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**22.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A1**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17000**	**20.7**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A2**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**7130**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A3**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**1110**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A4**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**21.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A5**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**895 J**	**519**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201A6**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J79201A7
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**197**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AA**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-006 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**14.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AC**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**85.5**	**4.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79201AD**
		Dilution Factor: 1		Analysis Time..: 15:45	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.051 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J79201AE**
		Dilution Factor: 1		Analysis Time..: 11:29	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-007 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
% Moisture.....: 5.4

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**9440**	**21.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AQ**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**8.2**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AL**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**25.0**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AM**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.6	mg/kg	SW846 6010B	10/10-10/11/07	J79231AR
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**68.0 J**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AT**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.1	mg/kg	SW846 6010B	10/10-10/11/07	J79231AN
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.90 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AU**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.4 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AP**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.21 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AV**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**13000**	**106**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AW**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-007 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**27.7**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AX**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A0**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**21.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A1**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17900**	**21.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A2**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**3300**	**106**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A3**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**651**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A4**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**22.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A5**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**867 J**	**528**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231A6**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J79231A7
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**57.3 B**	**106**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AA**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

TOTAL Metals

Lot-Sample #...: A7J040354-007 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**13.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AC**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**50.6**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79231AD**
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.039 B**	**0.11**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J79231AE**
		Dilution Factor: 1		Analysis Time..: 11:30	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-008 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 2.9

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**9290**	**20.6**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AQ**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**8.6**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AL**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**23.8**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AM**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.3	mg/kg	SW846 6010B	10/10-10/11/07	J79271AR
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**68.7 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AT**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J79271AN
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.83 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AU**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.2 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AP**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.31 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AV**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**12200**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AW**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-008 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**23.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AX**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A0**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**21.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A1**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17300**	**20.6**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A2**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**3140**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A3**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**569**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A4**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**22.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A5**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**868 J**	**515**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271A6**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J79271A7
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**36.7 B**	**103**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AA**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

TOTAL Metals

Lot-Sample #...: A7J040354-008 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**13.7**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AC**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**52.0**	**4.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J79271AD**
		Dilution Factor: 1		Analysis Time..: 15:55	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.033 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J79271AE**
		Dilution Factor: 1		Analysis Time..: 11:31	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A7J100000-049 **Prep Batch #...:** 7283049						
Aluminum	ND	20.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AF
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Arsenic	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AA
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Antimony	ND	10.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AG
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Lead	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AC
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Barium	**0.072 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8KMT1AH**
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AD
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Beryllium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AJ
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Thallium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AE
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Cadmium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AK
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Calcium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AL
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Chromium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AM
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Cobalt	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AN
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Copper	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AP
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Iron	ND	20.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AQ
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Magnesium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AR
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Manganese	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AT
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Nickel	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AU
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Potassium	**15.7 B**	**500**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8KMT1AV**
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Silver	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AW
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Sodium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AX
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Vanadium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1A0
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Zinc	ND	4.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1A1
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Mercury	ND	0.10	mg/kg	SW846 7471A	10/10-10/12/07	J8KMT1A2
		Dilution Factor: 1				
		Analysis Time..: 11:23	Analyst ID.....: 001086		Instrument ID..: H1	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J100000-049 **Prep Batch #...:** 7283049					
Arsenic	93	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A3
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Aluminum	96	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A7
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Lead	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A4
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Antimony	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A8
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Selenium	91	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A5
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Barium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A9
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Thallium	94	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A6
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Beryllium	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CA
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Cadmium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CC
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Calcium	96	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CD
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CE
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Cobalt	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CF
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Copper	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CG
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Iron	113	(73 - 137)	SW846 6010B	10/10-10/11/07	J8KMT1CH
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Magnesium	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CJ
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Manganese	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CK
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Nickel	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CL
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Potassium	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CM
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Silver	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CN
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Sodium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CP
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Vanadium	98	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CQ
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CR
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Mercury	100	(81 - 116)	SW846 7471A	10/10-10/12/07	J8KMT1CT
		Dilution Factor: 1	Analysis Time..: 11:24	Analyst ID.....: 001086	
		Instrument ID..: H1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J100000-049 **Prep Batch #...:** 7283049							
Arsenic	200	186	mg/kg	93	SW846 6010B	10/10-10/11/07	J8KMT1A3
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Aluminum	200	192	mg/kg	96	SW846 6010B	10/10-10/11/07	J8KMT1A7
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Lead	50.0	47.4	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1A4
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Antimony	50.0	50.5	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1A8
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Selenium	200	183	mg/kg	91	SW846 6010B	10/10-10/11/07	J8KMT1A5
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Barium	200	194	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1A9
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Thallium	200	188	mg/kg	94	SW846 6010B	10/10-10/11/07	J8KMT1A6
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Beryllium	5.0	5.0	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CA
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Cadmium	5.0	4.8	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CC
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Calcium	5000	4780	mg/kg	96	SW846 6010B	10/10-10/11/07	J8KMT1CD
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	20.0	19.4	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CE
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Cobalt	50.0	47.3	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CF
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Copper	25.0	24.9	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CG
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Iron	100	113	mg/kg	113	SW846 6010B	10/10-10/11/07	J8KMT1CH
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Magnesium	5000	4760	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CJ
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Manganese	50.0	50.5	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1CK
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Nickel	50.0	50.3	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1CL
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Potassium	5000	4730	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CM
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Silver	5.0	5.0	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CN
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Sodium	5000	4840	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CP
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Vanadium	50.0	48.9	mg/kg	98	SW846 6010B	10/10-10/11/07	J8KMT1CQ
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	50.0	48.3	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CR
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Mercury	0.83	0.83	mg/kg	100	SW846 7471A	10/10-10/12/07	J8KMT1CT
			Dilution Factor: 1		Analysis Time..: 11:24	Analyst ID.....: 001086	
			Instrument ID..: H1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J040354-001 **Prep Batch #...:** 7283049					
Aluminum	NC,MSB	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CD
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Arsenic	87	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141A8
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Antimony	53 N	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CE
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Lead	87	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141A9
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Barium	92	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CF
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Selenium	85	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CA
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Beryllium	92	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CG
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Thallium	86	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CC
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Cadmium	89	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CH
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			
Calcium	88	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CJ
		Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5	
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	94	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CK
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Cobalt	88	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CL
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Copper	95	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CM
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Iron	NC,MSB	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CN
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Magnesium	91	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CP
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Manganese	89	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CQ
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Nickel	92	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CR
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Potassium	95	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CT
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Silver	94	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CU
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Sodium	91	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CV
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			
Vanadium	96	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CW
		Dilution Factor: 1	Analysis Time..: 14:49		Instrument ID..: I5
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	92	(75 - 125)	SW846 6010B	10/10-10/11/07	J79141CX
	Dilution Factor: 1	Analysis Time..: 14:49	Instrument ID..: I5		
	Analyst ID.....: 001644				
Mercury	91	(11 - 192)	SW846 7471A	10/10-10/12/07	J79141C0
	Dilution Factor: 1	Analysis Time..: 11:25	Instrument ID..: H1		
	Analyst ID.....: 001086				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J040354-001 **Prep Batch #...:** 7283049								
Aluminum	2430	204	4540	mg/kg		SW846 6010B	10/10-10/11/07	J79141CD
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Arsenic	8.7	204	186	mg/kg	87	SW846 6010B	10/10-10/11/07	J79141A8
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Antimony	ND	51.0	26.8 N	mg/kg	53	SW846 6010B	10/10-10/11/07	J79141CE
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Lead	23.8	51.0	68.1	mg/kg	87	SW846 6010B	10/10-10/11/07	J79141A9
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Barium	12.9	204	200	mg/kg	92	SW846 6010B	10/10-10/11/07	J79141CF
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Selenium	ND	204	173	mg/kg	85	SW846 6010B	10/10-10/11/07	J79141CA
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Beryllium	0.12	5.1	4.8	mg/kg	92	SW846 6010B	10/10-10/11/07	J79141CG
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Thallium	0.59	204	176	mg/kg	86	SW846 6010B	10/10-10/11/07	J79141CC
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Cadmium	ND	5.1	4.6	mg/kg	89	SW846 6010B	10/10-10/11/07	J79141CH
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Calcium	94.8	5100	4610	mg/kg	88	SW846 6010B	10/10-10/11/07	J79141CJ
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	30.8	20.4	50.1	mg/kg	94	SW846 6010B	10/10-10/11/07	J79141CK
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Cobalt	1.5	51.0	46.4	mg/kg	88	SW846 6010B	10/10-10/11/07	J79141CL
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Copper	7.1	25.5	31.3	mg/kg	95	SW846 6010B	10/10-10/11/07	J79141CM
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Iron	13100	102	13200	mg/kg		SW846 6010B	10/10-10/11/07	J79141CN
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Magnesium	421	5100	5060	mg/kg	91	SW846 6010B	10/10-10/11/07	J79141CP
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Manganese	52.5	51.0	98.2	mg/kg	89	SW846 6010B	10/10-10/11/07	J79141CQ
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Nickel	22.1	51.0	69.3	mg/kg	92	SW846 6010B	10/10-10/11/07	J79141CR
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Potassium	335	5100	5170	mg/kg	95	SW846 6010B	10/10-10/11/07	J79141CT
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Silver	ND	5.1	4.8	mg/kg	94	SW846 6010B	10/10-10/11/07	J79141CU
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Sodium	ND	5100	4620	mg/kg	91	SW846 6010B	10/10-10/11/07	J79141CV
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Vanadium	6.7	51.0	55.6	mg/kg	96	SW846 6010B	10/10-10/11/07	J79141CW
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J040354 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	22.6	51.0	69.5	mg/kg	92	SW846 6010B	10/10-10/11/07	J79141CX
			Dilution Factor: 1		Analysis Time..: 14:49		Instrument ID..: I5	
			Analyst ID.....: 001644					
Mercury	0.035	0.17	0.19	mg/kg	91	SW846 7471A	10/10-10/12/07	J79141C0
			Dilution Factor: 1		Analysis Time..: 11:25		Instrument ID..: H1	
			Analyst ID.....: 001086					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A7J040354 **Work Order #...:** J7914-SMP J7914-DUP **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 2.0

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Aluminum						SD Lot-Sample #: A7J040354-001		
	2430	2470	mg/kg	1.7	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Arsenic						SD Lot-Sample #: A7J040354-001		
	8.7	9.2	mg/kg	5.4	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Lead						SD Lot-Sample #: A7J040354-001		
	23.8	25.7	mg/kg	7.8	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Antimony						SD Lot-Sample #: A7J040354-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Barium						SD Lot-Sample #: A7J040354-001		
	12.9 J	13.8	mg/kg	6.4	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Selenium						SD Lot-Sample #: A7J040354-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Beryllium						SD Lot-Sample #: A7J040354-001		
	0.12 B	0.12 B	mg/kg	2.2	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Thallium						SD Lot-Sample #: A7J040354-001		
	0.59 B	0.56 B	mg/kg	4.3	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cadmium						SD Lot-Sample #: A7J040354-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						

(Continued on next page)

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J040354-000 **Work Order #...:** J7914-SMP J7914-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Calcium						SD Lot-Sample #: A7J040354-001		
	94.8 B,E	102	mg/kg	7.4	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Chromium						SD Lot-Sample #: A7J040354-001		
	30.8	30.4	mg/kg	1.2	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cobalt						SD Lot-Sample #: A7J040354-001		
	1.5 B	1.5 B	mg/kg	4.5	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Copper						SD Lot-Sample #: A7J040354-001		
	7.1 E	7.4	mg/kg	4.6	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Iron						SD Lot-Sample #: A7J040354-001		
	13100	13000	mg/kg	0.80	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Magnesium						SD Lot-Sample #: A7J040354-001		
	421	426	mg/kg	1.1	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Manganese						SD Lot-Sample #: A7J040354-001		
	52.5	57.9	mg/kg	9.6	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Nickel						SD Lot-Sample #: A7J040354-001		
	22.1	22.3	mg/kg	0.80	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Potassium						SD Lot-Sample #: A7J040354-001		
	335 B,J	369 B	mg/kg	9.8	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J040354-000 **Work Order #...:** J7914-SMP J7914-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Silver						SD Lot-Sample #: A7J040354-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Sodium						SD Lot-Sample #: A7J040354-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Vanadium						SD Lot-Sample #: A7J040354-001		
	6.7	6.8	mg/kg	0.66	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Zinc						SD Lot-Sample #: A7J040354-001		
	22.6	23.3	mg/kg	3.0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 14:49	Analyst ID.....: 001644	
		Instrument ID..: I5						
Mercury						SD Lot-Sample #: A7J040354-001		
	0.035 B	0.035 B	mg/kg	1.8	(0-20)	SW846 7471A	10/10-10/12/07	7283049
		Dilution Factor: 1				Analysis Time..: 11:25	Analyst ID.....: 001086	
		Instrument ID..: H1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

E Matrix interference.

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 10/12/07 11:03 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.41	**96.3**								

5.21.0 *Form 2A Equivalent*

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICV 10/11/07 8:31 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	12500.0	12608.27	**100.9**								
Antimony	206.838	250.0	268.78	**107.5**								
Arsenic	189.042	250.0	251.27	**100.5**								
Barium	493.409	1000.0	1011.25	**101.1**								
Beryllium	313.042	1000.0	1023.20	**102.3**								
Cadmium	226.502	250.0	251.28	**100.5**								
Calcium	317.933	25000.0	25636.00	**102.5**								
Chromium	267.716	1000.0	1005.21	**100.5**								
Cobalt	228.616	1000.0	984.02	**98.4**								
Copper	324.753	1000.0	1035.16	**103.5**								
Iron	271.441	12500.0	12742.35	**101.9**								
Lead	220.353	250.0	249.91	**100.0**								
Magnesium	279.078	25000.0	25252.30	**101.0**								
Manganese	257.61	1000.0	1026.67	**102.7**								
Nickel	231.604	1000.0	1011.24	**101.1**								
Potassium	766.491	25000.0	24202.78	**96.8**								
Selenium	196.026	250.0	245.45	**98.2**								
Silver	328.068	500.0	482.45	**96.5**								
Sodium	330.232	25000.0	25605.54	**102.4**								
Thallium	190.864	500.0	500.10	**100.0**								
Vanadium	292.402	1000.0	1025.81	**102.6**								
Zinc	213.856	1000.0	983.04	**98.3**								

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/07 11:07 AM Found	% Rec	Ck2CCV 10/12/07 11:17 AM Found	% Rec	Ck2CCV 10/12/07 11:21 AM Found	% Rec	Ck2CCV 10/12/07 11:35 AM Found	% Rec	Ck2CCV 10/12/07 11:49 AM Found	% Rec
Mercury	253.7	5.0	5.19	**103.8**	5.27	**105.4**	5.25	**105.1**	5.24	**104.8**	5.24	**104.7**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/07 12:03 PM Found	% Rec	Ck2CCV 10/12/07 12:17 PM Found	% Rec	Ck2CCV 10/12/07 12:31 PM Found	% Rec	Ck2CCV 10/12/07 2:25 PM Found	% Rec	Ck2CCV 10/12/07 2:33 PM Found	% Rec
Mercury	253.7	5.0	5.28	**105.6**	5.27	**105.4**	5.31	**106.1**	5.14	**102.8**	5.14	**102.7**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/07 2:47 PM Found	% Rec	Ck2CCV 10/12/07 3:01 PM Found	% Rec	Ck2CCV 10/12/07 3:15 PM Found	% Rec	Ck2CCV 10/12/07 3:29 PM Found	% Rec	Ck2CCV 10/12/07 3:44 PM Found	% Rec
Mercury	253.7	5.0	5.27	**105.4**	5.28	**105.7**	5.28	**105.5**	5.27	**105.4**	5.30	**106.0**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/07 3:51 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.27	**105.4**								

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/07 10:14 AM Found	% Rec	CCV 10/11/07 1:48 PM Found	% Rec	CCV 10/11/07 3:33 PM Found	% Rec	CCV 10/11/07 4:42 PM Found	% Rec	CCV 10/11/07 5:49 PM Found	% Rec
Aluminum	308.215	25000.0	24920.68	**99.7**	24822.39	**99.3**	24862.44	**99.4**	24821.29	**99.3**	24952.40	**99.8**
Antimony	206.838	500.0	528.34	**105.7**	523.26	**104.7**	525.32	**105.1**	526.08	**105.2**	526.44	**105.3**
Arsenic	189.042	500.0	486.14	**97.2**	478.37	**95.7**	487.49	**97.5**	479.62	**95.9**	483.18	**96.6**
Barium	493.409	2000.0	1980.11	**99.0**	1979.74	**99.0**	1985.17	**99.3**	1991.66	**99.6**	2015.29	**100.8**
Beryllium	313.042	2000.0	1970.92	**98.5**	1957.99	**97.9**	1965.37	**98.3**	1963.39	**98.2**	1971.22	**98.6**
Cadmium	226.502	500.0	488.98	**97.8**	486.45	**97.3**	489.75	**97.9**	487.86	**97.6**	489.09	**97.8**
Calcium	317.933	50000.0	49180.29	**98.4**	48984.94	**98.0**	49220.84	**98.4**	49226.69	**98.5**	49476.36	**99.0**
Chromium	267.716	2000.0	1944.72	**97.2**	1931.57	**96.6**	1942.92	**97.1**	1944.43	**97.2**	1956.48	**97.8**
Cobalt	228.616	2000.0	1913.58	**95.7**	1901.30	**95.1**	1916.33	**95.8**	1914.72	**95.7**	1926.55	**96.3**
Copper	324.753	2000.0	2024.83	**101.2**	2001.55	**100.1**	2013.86	**100.7**	2009.16	**100.5**	2024.84	**101.2**
Iron	271.441	25000.0	24644.73	**98.6**	24309.20	**97.2**	24504.69	**98.0**	24564.42	**98.3**	24756.67	**99.0**
Lead	220.353	500.0	482.39	**96.5**	479.27	**95.9**	478.64	**95.7**	481.68	**96.3**	484.82	**97.0**
Magnesium	279.078	50000.0	49319.36	**98.6**	48979.05	**98.0**	49537.77	**99.1**	49348.15	**98.7**	49599.61	**99.2**
Manganese	257.61	2000.0	1991.59	**99.6**	2030.41	**101.5**	2064.42	**103.2**	2057.61	**102.9**	2057.96	**102.9**
Nickel	231.604	2000.0	2013.87	**100.7**	2011.45	**100.6**	2048.70	**102.4**	2033.05	**101.7**	2031.22	**101.6**
Potassium	766.491	50000.0	48954.36	**97.9**	49226.89	**98.5**	49099.22	**98.2**	49429.96	**98.9**	49676.34	**99.4**
Selenium	196.026	500.0	479.77	**96.0**	473.25	**94.7**	475.26	**95.1**	477.53	**95.5**	478.63	**95.7**
Silver	328.068	1000.0	954.36	**95.4**	945.76	**94.6**	949.48	**94.9**	945.29	**94.5**	947.69	**94.8**
Sodium	330.232	50000.0	48256.94	**96.5**	48330.45	**96.7**	48776.45	**97.6**	48989.28	**98.0**	49292.45	**98.6**
Thallium	190.864	1000.0	978.49	**97.8**	965.23	**96.5**	968.31	**96.8**	967.60	**96.8**	970.93	**97.1**
Vanadium	292.402	2000.0	1979.57	**99.0**	1969.86	**98.5**	1980.08	**99.0**	1987.51	**99.4**	2006.39	**100.3**
Zinc	213.856	2000.0	1893.25	**94.7**	1874.02	**93.7**	1891.21	**94.6**	1884.44	**94.2**	1890.41	**94.5**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/07 6:57 PM Found	% Rec	CCV 10/11/07 8:04 PM Found	% Rec	CCV 10/11/07 9:12 PM Found	% Rec	CCV 10/11/07 10:18 PM Found	% Rec	CCV 10/11/07 11:28 PM Found	% Rec
Aluminum	308.215	25000.0	25044.67	**100.2**	25283.96	**101.1**	25437.55	**101.8**	25505.96	**102.0**	25543.27	**102.2**
Antimony	206.838	500.0	531.64	**106.3**	540.70	**108.1**	530.59	**106.1**	542.22	**108.4**	543.13	**108.6**
Arsenic	189.042	500.0	488.04	**97.6**	495.66	**99.1**	494.14	**98.8**	493.65	**98.7**	495.89	**99.2**
Barium	493.409	2000.0	2028.65	**101.4**	2046.08	**102.3**	2060.12	**103.0**	2061.42	**103.1**	2069.41	**103.5**
Beryllium	313.042	2000.0	1984.37	**99.2**	1999.46	**100.0**	2002.64	**100.1**	2013.01	**100.7**	2015.14	**100.8**
Cadmium	226.502	500.0	491.66	**98.3**	494.58	**98.9**	494.09	**98.8**	495.92	**99.2**	497.07	**99.4**
Calcium	317.933	50000.0	49844.07	**99.7**	50249.46	**100.5**	50363.72	**100.7**	50711.48	**101.4**	50742.27	**101.5**
Chromium	267.716	2000.0	1973.06	**98.7**	1991.67	**99.6**	1997.91	**99.9**	2010.89	**100.5**	2011.34	**100.6**
Cobalt	228.616	2000.0	1941.41	**97.1**	1957.84	**97.9**	1961.78	**98.1**	1973.02	**98.7**	1974.52	**98.7**
Copper	324.753	2000.0	2031.59	**101.6**	2049.98	**102.5**	2059.82	**103.0**	2060.52	**103.0**	2066.64	**103.3**
Iron	271.441	25000.0	25098.01	**100.4**	25469.62	**101.9**	25551.34	**102.2**	25800.47	**103.2**	25762.38	**103.0**
Lead	220.353	500.0	489.10	**97.8**	494.34	**98.9**	493.42	**98.7**	497.93	**99.6**	498.41	**99.7**
Magnesium	279.078	50000.0	49950.73	**99.9**	50334.71	**100.7**	50516.02	**101.0**	50783.98	**101.6**	50778.25	**101.6**
Manganese	257.61	2000.0	2068.68	**103.4**	2073.27	**103.7**	2080.96	**104.0**	2098.56	**104.9**	2113.71	**105.7**
Nickel	231.604	2000.0	2020.81	**101.0**	2015.11	**100.8**	2002.79	**100.1**	1993.27	**99.7**	1994.13	**99.7**
Potassium	766.491	50000.0	49561.18	**99.1**	49935.27	**99.9**	50222.73	**100.4**	50180.49	**100.4**	50187.97	**100.4**
Selenium	196.026	500.0	479.81	**96.0**	489.98	**98.0**	485.51	**97.1**	487.84	**97.6**	490.38	**98.1**
Silver	328.068	1000.0	946.90	**94.7**	952.69	**95.3**	954.93	**95.5**	955.20	**95.5**	957.37	**95.7**
Sodium	330.232	50000.0	49441.68	**98.9**	49939.42	**99.9**	50250.11	**100.5**	50518.02	**101.0**	50455.37	**100.9**
Thallium	190.864	1000.0	976.48	**97.6**	984.98	**98.5**	985.07	**98.5**	990.04	**99.0**	992.48	**99.2**
Vanadium	292.402	2000.0	2026.37	**101.3**	2048.57	**102.4**	2061.65	**103.1**	2074.22	**103.7**	2075.27	**103.8**
Zinc	213.856	2000.0	1894.74	**94.7**	1903.94	**95.2**	1902.66	**95.1**	1903.45	**95.2**	1908.18	**95.4**

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck3CRA\MRL 10/12/07 11:06 AM Found	% Rec	CRA 10/12/07 3:49 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	0.2	0.20	**101.0**	0.23	**115.7**						

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CRI/MRL 10/11/07 8:45 AM Found	% Rec	CRI/MRL 10/11/07 11:20 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	200.0	205.09	**102.5**	186.81	**93.4**						
Antimony	206.838	10.0	8.50	**85.0**	8.21	**82.1**						
Arsenic	189.042	15.0	13.36	**89.1**	14.00	**93.3**						
Barium	493.409	10.0	10.36	**103.6**	10.55	**105.5**						
Beryllium	313.042	5.0	5.27	**105.4**	5.10	**102.0**						
Cadmium	226.502	5.0	5.26	**105.1**	5.24	**104.9**						
Calcium	317.933	5000.0	5167.87	**103.4**	5209.10	**104.2**						
Chromium	267.716	5.0	4.99	**99.8**	5.02	**100.3**						
Cobalt	228.616	5.0	5.18	**103.5**	4.92	**98.3**						
Copper	324.753	15.0	15.22	**101.5**	15.77	**105.2**						
Iron	271.441	300.0	309.82	**103.3**	312.46	**104.2**						
Lead	220.353	10.0	10.46	**104.6**	10.79	**107.9**						
Magnesium	279.078	5000.0	5085.07	**101.7**	5120.92	**102.4**						
Manganese	257.61	15.0	15.96	**106.4**	16.60	**110.7**						
Nickel	231.604	25.0	27.62	**110.5**	26.50	**106.0**						
Potassium	766.491	5000.0	4474.39	**89.5**	4484.94	**89.7**						
Selenium	196.026	20.0	22.73	**113.6**	22.90	**114.5**						
Silver	328.068	5.0	4.85	**97.0**	5.15	**103.0**						
Sodium	330.232	5000.0	5376.67	**107.5**	5470.97	**109.4**						
Thallium	190.864	15.0	13.97	**93.1**	15.73	**104.8**						
Vanadium	292.402	7.0	6.94	**99.1**	7.32	**104.6**						
Zinc	213.856	40.0	46.08	**115.2**	45.67	**114.2**						

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 10/12/07 11:04 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 10/11/07 8:40 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	16.7	U								
Antimony	206.838	100	2.6	U								
Arsenic	189.042	10	1.9	U								
Barium	493.409	10	0.2	U								
Beryllium	313.042	10	0.1	U								
Cadmium	226.502	10	0.2	U								
Calcium	317.933	1000	**-3.8**	**B**								
Chromium	267.716	20	**-0.7**	**B**								
Cobalt	228.616	20	0.6	U								
Copper	324.753	20	**-1.2**	**B**								
Iron	271.441	200	**-7.8**	**B**								
Lead	220.353	10	1.1	U								
Magnesium	279.078	1000	3.2	U								
Manganese	257.61	10	0.1	U								
Nickel	231.604	20	1.7	U								
Potassium	766.491	5000	**136.0**	**B**								
Selenium	196.026	10	2.5	U								
Silver	328.068	20	1.2	U								
Sodium	330.232	1000	**-890.0**	**B**								
Thallium	190.864	20	**2.3**	**B**								
Vanadium	292.402	20	0.4	U								
Zinc	213.856	40	0.5	U								

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/07 11:08 AM Found	Q	Ck1CCB 10/12/07 11:18 AM Found	Q	Ck1CCB 10/12/07 11:22 AM Found	Q	Ck1CCB 10/12/07 11:36 AM Found	Q	Ck1CCB 10/12/07 11:50 AM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/07 12:04 PM Found	Q	Ck1CCB 10/12/07 12:18 PM Found	Q	Ck1CCB 10/12/07 12:32 PM Found	Q	Ck1CCB 10/12/07 2:26 PM Found	Q	Ck1CCB 10/12/07 2:34 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/07 2:48 PM Found	Q	Ck1CCB 10/12/07 3:02 PM Found	Q	Ck1CCB 10/12/07 3:16 PM Found	Q	Ck1CCB 10/12/07 3:31 PM Found	Q	Ck1CCB 10/12/07 3:45 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/07 3:52 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/07 10:22 AM Found	Q	CCB 10/11/07 1:56 PM Found	Q	CCB 10/11/07 3:41 PM Found	Q	CCB 10/11/07 4:50 PM Found	Q	CCB 10/11/07 5:56 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	**0.1**	**B**	**0.1**	**B**	0.1	U	0.1	U	0.1	U
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**-6.8**	**B**	**-6.3**	**B**	**-6.4**	**B**	**-6.0**	**B**	3.4	U
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	**-1.3**	**B**	1.1	U	**-1.9**	**B**	**-2.0**	**B**	1.1	U
Iron	271.441	200	7.6	U	7.6	U	7.6	U	**-10.0**	**B**	**-9.3**	**B**
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	0.1	U	**0.1**	**B**	0.1	U	**0.1**	**B**
Nickel	231.604	20	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**147.0**	**B**	**143.0**	**B**	**144.0**	**B**	**144.0**	**B**	**147.0**	**B**
Selenium	196.026	10	**3.8**	**B**	2.5	U	2.5	U	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-420.0**	**B**	**-730.0**	**B**	**-440.0**	**B**	**-470.0**	**B**	320.0	U
Thallium	190.864	20	2.2	U	2.2	U	2.2	U	2.2	U	**3.0**	**B**
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	**-0.5**	**B**	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/07 7:05 PM Found	Q	CCB 10/11/07 8:11 PM Found	Q	CCB 10/11/07 9:20 PM Found	Q	CCB 10/11/07 10:25 PM Found	Q	CCB 10/11/07 11:35 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	**-2.6**	**B**	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	0.1	U	**-0.1**	**B**	**-0.1**	**B**	**-0.1**	**B**	**-0.2**	**B**
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	3.4	U	3.4	U	**7.2**	**B**	**7.9**	**B**	**8.8**	**B**
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Iron	271.441	200	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	**0.1**	**B**	0.1	U	0.1	U	0.1	U
Nickel	231.604	20	1.7	U	**1.7**	**B**	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**138.0**	**B**	**145.0**	**B**	**144.0**	**B**	**142.0**	**B**	**141.0**	**B**
Selenium	196.026	10	2.5	U	**2.9**	**B**	2.5	U	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-630.0**	**B**	**-580.0**	**B**	**-420.0**	**B**	**-640.0**	**B**	**-430.0**	**B**
Thallium	190.864	20	2.2	U	**3.2**	**B**	2.2	U	2.2	U	**4.5**	**B**
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 10/11/07 10:00 AM Found	Found	Found	Found	Found
Aluminum	308.215		500000	488000				
Antimony	206.838	100		-5				
Arsenic	189.042	10		-1				
Barium	493.409	10		2				
Beryllium	313.042	10		0				
Cadmium	226.502	10		1				
Calcium	317.933		500000	471000				
Chromium	267.716	20		-2				
Cobalt	228.616	20		2				
Copper	324.753	20		1				
Iron	271.441		200000	188000				
Lead	220.353	10		0				
Magnesium	279.078		500000	510000				
Manganese	257.61	10		14				
Nickel	231.604	20		3				
Potassium	766.491	5000		131				
Selenium	196.026	10		-1				
Silver	328.068	20		0				
Sodium	330.232	1000		-840				
Thallium	190.864	20		4				
Vanadium	292.402	20		0				
Zinc	213.856	40		11				

U Result is less than the IDL

B Result is between IDL and RL

Form 4 Equivalent

Test America North Canton

Metals Data Reporting Form

Interference Check Standard AB

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 10/11/07 10:05 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	500000	489125.6	**97.8**								
Antimony	206.838	1000	1088.6	**108.9**								
Arsenic	189.042	1000	1006.6	**100.7**								
Barium	493.409	500	515.6	**103.1**								
Beryllium	313.042	500	496.2	**99.2**								
Cadmium	226.502	1000	944.7	**94.5**								
Calcium	317.933	500000	476214.9	**95.2**								
Chromium	267.716	500	477.0	**95.4**								
Cobalt	228.616	500	471.5	**94.3**								
Copper	324.753	500	527.3	**105.5**								
Iron	271.441	200000	190525.0	**95.3**								
Lead	220.353	1000	945.0	**94.5**								
Magnesium	279.078	500000	518170.8	**103.6**								
Manganese	257.61	500	497.8	**99.6**								
Nickel	231.604	1000	950.8	**95.1**								
Potassium	766.491	10000	9992.1	**99.9**								
Selenium	196.026	1000	944.6	**94.5**								
Silver	328.068	1000	1008.0	**100.8**								
Sodium	330.232	10000	10852.2	**108.5**								
Thallium	190.864	1000	950.2	**95.0**								
Vanadium	292.402	500	495.7	**99.1**								
Zinc	213.856	1000	989.9	**99.0**								

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL

Form 4 Equivalent

Test America North Canton

Metals Data Reporting Form

Post Digest Spike Sample Results

Spike Sample ID: J7914A

Original Sample ID: J7914 **Client ID:** RVAAP-RQL-MC1

Matrix: Soil **Units:** ug/L **Prep Date:** 10/10/07 **Prep Batch:** 7283049

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	PDS Conc	Q	Spike Level	% Rec	OS DF	PDS DF	Instr	OS Anal Date	OS Anal Time	PDS Anal Date	PDS Anal Time
Antimony	206.8	2.6	U	230		200	115.2	1	1	ICPST	10/11/07	14:49	10/11/07	22:47

Comments:

5.21.0

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL
B Result is between IDL and RL

Form 5B Equivalent

Test America North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: J7914L

Original Sample ID: J7914 **Client ID:** RVAAP-RQL-MC1

Matrix: Soil **Units:** ug/L **Prep Date:** 10/10/07 **Prep Batch:** 7283049

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	Serial Dilution Conc	Q	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	23800		23800		0.0	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Antimony	206.838	2.6	U	13.0	U		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Arsenic	189.042	85.6		86.8			1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Barium	493.409	127		131		3.5	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Beryllium	313.042	1.1	B	1.6	B		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Cadmium	226.502	0.16	B	0.75	U		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Calcium	317.933	928	B	696	B E	25.0	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Chromium	267.716	302		304		0.9	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Cobalt	228.616	15.2	B	15.4	B		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Copper	324.753	69.3		60.1	B E	13.2	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Iron	271.441	128000		130000		1.2	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Lead	220.353	233		236		1.6	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Magnesium	279.078	4130		4150	B	0.6	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Manganese	257.61	515		519		0.7	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Nickel	231.604	217		219		1.1	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Potassium	766.491	3280	B	3500	B	6.8	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Selenium	196.026	2.6	B	14.7	B		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Silver	328.068	1.2	U	6.0	U		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Sodium	330.232	320	U	1600	U		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Thallium	190.864	5.8	B	13.9	B		1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Vanadium	292.402	65.7		64.3	B	2.2	1	5	ICPST	10/11/07	14:49	10/11/07	14:54
Zinc	213.856	221		227		2.8	1	5	ICPST	10/11/07	14:49	10/11/07	14:54

Comments:

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 9 Equivalent

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	02/01/07

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Aluminum	308.215	200.0	16.7	06/05/07
Antimony	206.838	100.0	2.6	06/05/07
Arsenic	189.042	10.0	1.9	06/05/07
Barium	493.409	10.0	0.20	06/05/07
Beryllium	313.042	10.0	0.089	06/05/07
Cadmium	226.502	10.0	0.15	06/05/07
Calcium	317.933	1000.0	3.4	06/05/07
Chromium	267.716	20.0	0.60	06/05/07
Cobalt	228.616	20.0	0.63	06/05/07
Copper	324.753	20.0	1.1	06/05/07
Iron	271.441	200.0	7.6	06/05/07
Lead	220.353	10.0	1.1	06/05/07
Magnesium	279.078	1000.0	3.2	06/05/07
Manganese	257.610	10.0	0.053	06/05/07
Nickel	231.604	20.0	1.7	06/05/07
Potassium	766.491	5000.0	16.9	06/05/07
Selenium	196.026	10.0	2.5	06/05/07
Silver	328.068	20.0	1.2	06/05/07
Sodium	330.232	1000.0	320	06/05/07
Thallium	190.864	20.0	2.2	06/05/07
Vanadium	292.402	20.0	0.43	06/05/07
Zinc	213.856	40.0	0.52	06/05/07

Test America North Canton

Metals Data Reporting Form

Inter-Element Correction Factors

Instrument: ICPST **Date of IEC's:** 06/05/07

Interfering Element	Wavelength /Mass	Correction Factor(s)
Aluminum	308.215	Cd(0.000004), Pb(-0.00001333), Sb(-0.00000667), Se(-0.00000667), Tl(-0.00002), Zn(0.000011)
Chromium	267.716	As(-0.00324), Fe(0.001539), Sb(0.01166), Tl(0.000317)
Copper	324.753	Pb(0.00008667), Zn(0.000506)
Iron	271.441	As(0.000006), Cd(0.000082), Mn(0.000006), Mo(-0.00001), Pb(0.00004867), Sb(0.00002267), Se(-0.00018), Tl(-0.00006), V(0.000027), Zn(0.000106)
Manganese	257.61	Ag(0.000126), Al(0.013466), Mg(-0.00193), Pb(0.00005733), Se(0.00056933), Tl(-0.00088)
Molybdenum	202.03	Al(0.014499), As(-0.00131), Cu(0.00048), Fe(0.002719), Pb(-0.00066333), Sb(-0.00739233), V(-0.00073)
Nickel	231.604	Cd(0.000027), Co(0.00022), Pb(0.00018667), Sb(-0.00275333), Zn(0.005936)
Titanium	334.941	Be(-0.00178)
Vanadium	292.402	Al(0.028359), Be(0.000207), Cr(0.000165), Cu(-0.00024), Fe(0.011236), Pb(-0.00014), Sb(-0.00009333), Tl(0.002281)

Test America North Canton

Metals Data Reporting Form

Linear Dynamic Ranges

Instrument: ICPST **Units:** ppb

Element	Wavelength /Mass	Linear Range	Date of Linear Range
Aluminum	308.22	500000	06/05/07
Antimony	206.84	10000	06/05/07
Arsenic	189.04	10000	06/05/07
Barium	493.41	25000	06/05/07
Beryllium	313.04	4000	06/05/07
Cadmium	226.50	2500	06/05/07
Calcium	317.93	600000	06/05/07
Chromium	267.72	50000	06/05/07
Cobalt	228.62	50000	06/05/07
Copper	324.75	50000	06/05/07
Iron	271.44	600000	06/05/07
Lead	220.35	15000	06/05/07
Magnesium	279.08	500000	06/05/07
Manganese	257.61	25000	06/05/07
Nickel	231.60	50000	06/05/07
Potassium	766.49	600000	06/05/07
Selenium	196.03	10000	06/05/07
Silver	328.07	2000	06/05/07
Sodium	330.23	600000	06/05/07
Thallium	190.86	20000	06/05/07
Vanadium	292.40	50000	06/05/07
Zinc	213.86	10000	06/05/07

Batch Number: **7283049**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/10/07
Due Date: 10/17/07

Lot	Work Order			ICP Weight	ICPMS Weight	Hg Weight
A7J100000 Solid	J8KMT	B	Due Date: SDG:	1.00 g		0.60 g
A7J100000 Solid	J8KMT	C	Due Date: SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total	S	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total	X	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792M Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792N Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792R Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792W Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7920 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7923 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7927 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J050117 Solid	J8AT0 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT0 Total	S	Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT0 Total	X	Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT5 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT9 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AVC Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J080104 Solid	J8FKF Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKF Total	S	Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKF Total	X	Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKG Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g

Batch Number: **7283049**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/10/07
Due Date: 10/17/07

Lot	Work Order			ICP Weight	ICPMS Weight	Hg Weight
A7J080104 Solid	J8FKH Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080109 Solid	J8FLN Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FLN Total	S	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FLN Total	X	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FRK Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total	S	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total	X	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FTD Total		Due Date: 10/19/07 SDG:	1.00 g		

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH	X
MS/MSD AND PDS ON BATCH	X
CORRECT SPIKES ADDED	X
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG	X

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICP ELEMENTS WITHIN THE BATCH:

AG AL AS BA BE CA CD CO CR CU FE KX MG MN NA NI PB SB SE TL VX ZN

Matrix Spike Information:
J8AT0 ICP-1

Matrix Spike Information:
J8FR7 ICP-1

Matrix Spike Information:
J7914 ICP-1 ICP-2A Hg Ag

Matrix Spike Information:
J8FKF ICP-1 ICP-2A Hg Ag

Matrix Spike Information:
J8FLN ICP-1

Check Sample Information:
J8KMT ICP-1 ICP-2A Hg Ag

Prep Method(s): SW846 3050B, SW846 7471A

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:       Instrument Upload                                    Run Log - Page  1 :
:       Started Sat Oct 13 06:34:02 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	12-OCT-2007	10:56:34			H1
2	STD2REP1	1	12-OCT-2007	10:57:41			H1
3	STD3REP1	1	12-OCT-2007	10:59:01			H1
4	STD4REP1	1	12-OCT-2007	11:00:11			H1
5	STD5REP1	1	12-OCT-2007	11:01:19			H1
6	STD6REP1	1	12-OCT-2007	11:02:28			H1
7	CK5ICV	1	12-OCT-2007	11:03:44			H1
8	CK4ICB	1	12-OCT-2007	11:04:48			H1
9	CK3CRA\MRL	1	12-OCT-2007	11:06:13			H1
10	CK2CCV	1	12-OCT-2007	11:07:20			H1
11	CK1CCB	1	12-OCT-2007	11:08:27			H1
12	J8KMQB	1	12-OCT-2007	11:09:35			H1
13	J8KMQC	1	12-OCT-2007	11:10:39			H1
14	J8H3L	1	12-OCT-2007	11:11:44			H1
15	J8HTE	1	12-OCT-2007	11:12:59			H1
16	J8HTES	1	12-OCT-2007	11:14:14			H1
17	J8HTED	1	12-OCT-2007	11:15:21			H1
18	J8DG2	5	12-OCT-2007	11:16:36			H1
19	CK2CCV	1	12-OCT-2007	11:17:44			H1
20	CK1CCB	1	12-OCT-2007	11:18:49			H1
21	CK2CCV	1	12-OCT-2007	11:21:25			H1
22	CK1CCB	1	12-OCT-2007	11:22:30			H1
23	J8KMTB	1	12-OCT-2007	11:23:36	7283049	A7J100000	H1
24	J8KMTC	1	12-OCT-2007	11:24:42	7283049	A7J100000	H1
25	J7914	1	12-OCT-2007	11:25:52	7283049	A7J040354	H1
26	J7914X	1	12-OCT-2007	11:26:59	7283049	A7J040354	H1
27	J7914S	1	12-OCT-2007	11:28:04	7283049	A7J040354	H1
28	J7920	1	12-OCT-2007	11:29:14	7283049	A7J040354	H1
29	J7923	1	12-OCT-2007	11:30:20	7283049	A7J040354	H1
30	J7927	1	12-OCT-2007	11:31:36	7283049	A7J040354	H1
31	J792M	1	12-OCT-2007	11:33:14	7283049	A7J040354	H1
32	J792N	1	12-OCT-2007	11:34:29	7283049	A7J040354	H1
33	CK2CCV	1	12-OCT-2007	11:35:33			H1
34	CK1CCB	1	12-OCT-2007	11:36:38			H1
35	J792R	1	12-OCT-2007	11:37:45	7283049	A7J040354	H1
36	J792W	1	12-OCT-2007	11:38:50	7283049	A7J040354	H1
37	J8FKF	1	12-OCT-2007	11:39:59	7283049	A7J080104	H1
38	J8FKFX	1	12-OCT-2007	11:41:06	7283049	A7J080104	H1
39	J8FKFS	1	12-OCT-2007	11:42:11	7283049	A7J080104	H1
40	J8FKG	1	12-OCT-2007	11:43:18	7283049	A7J080104	H1
41	J8FKH	1	12-OCT-2007	11:44:22	7283049	A7J080104	H1
42	J8NFNB	1	12-OCT-2007	11:45:30	7284023	A7J110000	H1
43	J8NFNC	1	12-OCT-2007	11:46:40	7284023	A7J110000	H1
44	J8K02	1	12-OCT-2007	11:48:05	7284023	7J10111	H1

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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	CK2CCV	1	12-OCT-2007	11:49:10			H1
46	CK1CCB	1	12-OCT-2007	11:50:26			H1
47	J8K02S	1	12-OCT-2007	11:51:33	7284023	7J10111	H1
48	J8K02D	1	12-OCT-2007	11:52:59	7284023	7J10111	H1
49	J8K1J	1	12-OCT-2007	11:54:06	7284023	7J10111	H1
50	J8K1K	1	12-OCT-2007	11:55:16	7284023	7J10111	H1
51	J8K1L	1	12-OCT-2007	11:56:25	7284023	7J10111	H1
52	J8K1P	1	12-OCT-2007	11:57:44	7284023	7J10111	H1
53	J8K1Q	1	12-OCT-2007	11:58:52	7284023	7J10111	H1
54	J8NFQB	1	12-OCT-2007	11:59:57	7284024	A7J110000	H1
55	J8NFQC	1	12-OCT-2007	12:01:06	7284024	A7J110000	H1
56	J8L63	1	12-OCT-2007	12:02:12	7284024	A7J100268	H1
57	CK2CCV	1	12-OCT-2007	12:03:27			H1
58	CK1CCB	1	12-OCT-2007	12:04:43			H1
59	J8L7P	1	12-OCT-2007	12:05:48	7284024	A7J100268	H1
60	J8CAC	1	12-OCT-2007	12:07:05	7284024	A7J050163	H1
61	J8CAG	1	12-OCT-2007	12:08:12	7284024	A7J050163	H1
62	J8CAH	1	12-OCT-2007	12:09:17	7284024	A7J050163	H1
63	J8CAL	1	12-OCT-2007	12:10:28	7284024	A7J050163	H1
64	J8CAM	1	12-OCT-2007	12:11:34	7284024	A7J050163	H1
65	J8CAQ	1	12-OCT-2007	12:12:42	7284024	A7J050163	H1
66	J8CAV	1	12-OCT-2007	12:13:49	7284024	A7J050163	H1
67	J8LF3	1	12-OCT-2007	12:15:09	7284024	A7J100170	H1
68	J8LF4	1	12-OCT-2007	12:16:14	7284024	A7J100170	H1
69	CK2CCV	1	12-OCT-2007	12:17:23			H1
70	CK1CCB	1	12-OCT-2007	12:18:27			H1
71	J8LF6	1	12-OCT-2007	12:19:43	7284024	A7J100170	H1
72	J8LF7	1	12-OCT-2007	12:20:49	7284024	A7J100170	H1
73	J8LFR	1	12-OCT-2007	12:21:56	7284024	A7J100170	H1
74	J8LFRS	1	12-OCT-2007	12:23:01	7284024	A7J100170	H1
75	J8LFRD	1	12-OCT-2007	12:24:09	7284024	A7J100170	H1
76	J8LG7	1	12-OCT-2007	12:25:20	7284024	A7J100170	H1
77	J8LG8	1	12-OCT-2007	12:26:27	7284024	A7J100170	H1
78	J8LGG	1	12-OCT-2007	12:27:35	7284024	A7J100170	H1
79	J8LHA	1	12-OCT-2007	12:28:41	7284024	A7J100170	H1
80	J8LHC	1	12-OCT-2007	12:29:57	7284024	A7J100170	H1
81	CK2CCV	1	12-OCT-2007	12:31:14			H1
82	CK1CCB	1	12-OCT-2007	12:32:22			H1
83	CK2CCV	1	12-OCT-2007	14:25:12			H1
84	CK1CCB	1	12-OCT-2007	14:26:21			H1
85	J8CAG	5	12-OCT-2007	14:27:38	7284024	A7J050163	H1
86	J8CAM	5	12-OCT-2007	14:28:42	7284024	A7J050163	H1
87	J8CAQ	5	12-OCT-2007	14:29:46	7284024	A7J050163	H1
88	J8CAV	10	12-OCT-2007	14:30:53	7284024	A7J050163	H1

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: Instrument Upload Run Log - Page 3 :
: Started Sat Oct 13 06:34:02 2007 by LISTM :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J8LF3	1	12-OCT-2007	14:31:57	7284024	A7J100170	H1
90	CK2CCV	1	12-OCT-2007	14:33:22			H1
91	CK1CCB	1	12-OCT-2007	14:34:27			H1
92	J8CAV	50	12-OCT-2007	14:35:36	7284024	A7J050163	H1
93	J8RMQB	1	12-OCT-2007	14:36:45	7285024	A7J120000	H1
94	J8RMQC	1	12-OCT-2007	14:37:50	7285024	A7J120000	H1
95	J8N1K	1	12-OCT-2007	14:39:16	7285024	A7J110140	H1
96	J8N1KS	1	12-OCT-2007	14:40:26	7285024	A7J110140	H1
97	J8N1KD	1	12-OCT-2007	14:41:34	7285024	A7J110140	H1
98	J8N1Q	1	12-OCT-2007	14:42:41	7285024	A7J110140	H1
99	J8N1R	1	12-OCT-2007	14:44:06	7285024	A7J110140	H1
100	J8N1T	1	12-OCT-2007	14:45:10	7285024	A7J110140	H1
101	J8N1W	1	12-OCT-2007	14:46:17	7285024	A7J110140	H1
102	CK2CCV	1	12-OCT-2007	14:47:24			H1
103	CK1CCB	1	12-OCT-2007	14:48:34			H1
104	J8PL3	1	12-OCT-2007	14:49:40	7285024	A7J110194	H1
105	J8PM3	1	12-OCT-2007	14:50:48	7285024	A7J110194	H1
106	J8PM6	1	12-OCT-2007	14:51:53	7285024	A7J110194	H1
107	J8PM8	1	12-OCT-2007	14:52:58	7285024	A7J110194	H1
108	J8PMK	1	12-OCT-2007	14:54:08	7285024	A7J110194	H1
109	J8PMX	1	12-OCT-2007	14:55:14	7285024	A7J110194	H1
110	J8RMTB	1	12-OCT-2007	14:56:20	7285026	A7J120000	H1
111	J8RMTC	1	12-OCT-2007	14:57:27	7285026	A7J120000	H1
112	J8PN0	1	12-OCT-2007	14:58:52	7285026	7J10111	H1
113	J8PN3	1	12-OCT-2007	14:59:56	7285026	7J10111	H1
114	CK2CCV	1	12-OCT-2007	15:01:02			H1
115	CK1CCB	1	12-OCT-2007	15:02:08			H1
116	J8PN6	1	12-OCT-2007	15:03:17	7285026	7J10111	H1
117	J8PN7	1	12-OCT-2007	15:04:31	7285026	7J10111	H1
118	J8PN9	1	12-OCT-2007	15:05:38	7285026	7J10111	H1
119	J8PNM	1	12-OCT-2007	15:06:43	7285026	7J10111	H1
120	J8PNMS	1	12-OCT-2007	15:07:49	7285026	7J10111	H1
121	J8PNMD	1	12-OCT-2007	15:09:01	7285026	7J10111	H1
122	J8PPA	1	12-OCT-2007	15:10:09	7285026	7J10111	H1
123	J8PPD	1	12-OCT-2007	15:11:18	7285026	7J10111	H1
124	J8PQE	1	12-OCT-2007	15:12:24	7285026	7J10111	H1
125	J8PQH	1	12-OCT-2007	15:14:02	7285026	7J10111	H1
126	CK2CCV	1	12-OCT-2007	15:15:08			H1
127	CK1CCB	1	12-OCT-2007	15:16:16			H1
128	J8RMNB	1	12-OCT-2007	15:17:30	7285023	A7J120000	H1
129	J8RMNC	1	12-OCT-2007	15:18:36	7285023	A7J120000	H1
130	J8P77	1	12-OCT-2007	15:19:46	7285023	A7J110256	H1
131	J8P78	1	12-OCT-2007	15:21:03	7285023	A7J110256	H1
132	J8P79	1	12-OCT-2007	15:22:13	7285023	A7J110256	H1

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:       Instrument Upload                                    Run Log - Page  4 :
:       Started Sat Oct 13 06:34:02 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	J8P7H	1	12-OCT-2007	15:23:23	7285023	A7J110256	H1
134	J8P8A	1	12-OCT-2007	15:24:59	7285023	A7J110256	H1
135	J8P8C	1	12-OCT-2007	15:26:15	7285023	A7J110256	H1
136	J8P8D	1	12-OCT-2007	15:27:21	7285023	A7J110256	H1
137	J8P8E	1	12-OCT-2007	15:28:43	7285023	A7J110256	H1
138	CK2CCV	1	12-OCT-2007	15:29:50			H1
139	CK1CCB	1	12-OCT-2007	15:31:07			H1
140	J8P8F	1	12-OCT-2007	15:32:14	7285023	A7J110256	H1
141	J8N2D	1	12-OCT-2007	15:33:31	7285023	A7J110144	H1
142	J8N2DS	1	12-OCT-2007	15:34:39	7285023	A7J110144	H1
143	J8N2DD	1	12-OCT-2007	15:36:20	7285023	A7J110144	H1
144	J8N2N	1	12-OCT-2007	15:37:29	7285023	A7J110144	H1
145	J8N2R	1	12-OCT-2007	15:38:37	7285023	A7J110144	H1
146	J8N37	1	12-OCT-2007	15:39:43	7285023	A7J110144	H1
147	J8N3X	1	12-OCT-2007	15:40:52	7285023	A7J110144	H1
148	J8N4C	1	12-OCT-2007	15:42:21	7285023	A7J110144	H1
149	J8N4E	1	12-OCT-2007	15:43:38	7285023	A7J110144	H1
150	CK2CCV	1	12-OCT-2007	15:44:45			H1
151	CK1CCB	1	12-OCT-2007	15:45:52			H1
152	J8N4G	1	12-OCT-2007	15:47:20	7285023	A7J110144	H1
153	J8N4N	1	12-OCT-2007	15:48:27	7285023	A7J110144	H1
154	CRA	1	12-OCT-2007	15:49:44			H1
155	CK2CCV	1	12-OCT-2007	15:51:00			H1
156	CK1CCB	1	12-OCT-2007	15:52:04			H1
157	CK2CCV	1	12-OCT-2007	15:55:56			H1
158	CK1CCB	1	12-OCT-2007	15:57:01			H1
159	J8P79	2	12-OCT-2007	15:58:15	7285023	A7J110256	H1
160	CK2CCV	1	12-OCT-2007	15:59:25			H1
161	CK1CCB	1	12-OCT-2007	16:00:30			H1

End of Report

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:       Instrument Upload                                    Run Log - Page  1 :
:       Started Fri Oct 12 07:56:12 2007 by WILLIAML                           :
:       Data File: UPL$CAN_DATA_ROOT:<TJA>I51011A.ARC;1                        :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument	
1	STD1	1	11-OCT-2007	07:57:00			I5	
2	CAL1	1	11-OCT-2007	08:03:00			I5	
3	CAL2	1	11-OCT-2007	08:08:00			I5	
4	CAL3	1	11-OCT-2007	08:14:00			I5	
5	SCAL	1	11-OCT-2007	08:20:00			I5	
6	CAL	1	11-OCT-2007	08:24:00			I5	
7	ICV	1	11-OCT-2007	08:31:00			I5	
8	ICB	1	11-OCT-2007	08:40:00			I5	
9	CRI	MRL	11-OCT-2007	08:45:00			I5	
10	ICSA	1	11-OCT-2007	08:52:00			I5	
11	AL	1	11-OCT-2007	09:02:00			I5	
12	FE	1	11-OCT-2007	09:07:00			I5	
13	Z	1	11-OCT-2007	09:12:00			I5	
14	ICSA	1	11-OCT-2007	10:00:00			I5	
15	ICSAB	1	11-OCT-2007	10:05:00			I5	
16	CCV	1	11-OCT-2007	10:14:00			I5	
17	CCB	1	11-OCT-2007	10:22:00			I5	
18	J8FG1B	1	11-OCT-2007	10:38:00			I5	
19	J8AG4B	1	11-OCT-2007	10:44:00	7278028	A7J050000	I5	
20	J8AG4C	1	11-OCT-2007	10:49:00	7278028	A7J050000	I5	
21	J748R	1	11-OCT-2007	10:56:00	7278028	A7J030104	I5	
22	J748RL	1	11-OCT-2007	11:01:00			I5	
23	J748RX	1	11-OCT-2007	11:06:00	7278028	A7J030104	I5	
24	J748RS	1	11-OCT-2007	11:11:00	7278028	A7J030104	I5	- 5b PDS run @ 13:14
25	J748X	1	11-OCT-2007	11:17:00	7278028	A7J030104	I5	
26	J7481	1	11-OCT-2007	11:22:00	7278028	A7J030104	I5	
27	J7483	1	11-OCT-2007	11:27:00	7278028	A7J030104	I5	
28	CCV	1	11-OCT-2007	11:36:00			I5	
29	CCB	1	11-OCT-2007	11:44:00			I5	
30	J7484	1	11-OCT-2007	11:49:00	7278028	A7J030104	I5	
31	J7488	1	11-OCT-2007	11:54:00	7278028	A7J030104	I5	
32	J749C	1	11-OCT-2007	11:59:00	7278028	A7J030104	I5	
33	J749D	1	11-OCT-2007	12:04:00	7278028	A7J030104	I5	
34	J749E	1	11-OCT-2007	12:09:00	7278028	A7J030104	I5	
35	J777D	1	11-OCT-2007	12:14:00	7278028	A7J040113	I5	
36	J777DL	1	11-OCT-2007	12:19:00			I5	
37	J777DX	1	11-OCT-2007	12:24:00	7278028	A7J040113	I5	
38	J777DS	1	11-OCT-2007	12:29:00	7278028	A7J040113	I5	
39	J777P	1	11-OCT-2007	12:36:00	7278028	A7J040113	I5	
40	CCV	1	11-OCT-2007	12:50:00			I5	
41	CCB	1	11-OCT-2007	12:58:00			I5	
42	J778P	1	11-OCT-2007	13:05:00	7278028	A7J040113	I5	
43	J7782	1	11-OCT-2007	13:10:00	7278028	A7J040113	I5	
44	J748RA	1	11-OCT-2007	13:14:00	7278028	A7J030104	I5	- 5b PDS @ 200ppb

---------- (continued) ----------

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	J748X	5	11-OCT-2007	13:20:00	7278028	A7J030104	I5
46	J7488	5	11-OCT-2007	13:25:00	7278028	A7J030104	I5
47	J749C	5	11-OCT-2007	13:30:00	7278028	A7J030104	I5
48	Z	1	11-OCT-2007	13:39:00			I5
49	CCV	1	11-OCT-2007	13:48:00			I5
50	CCB	1	11-OCT-2007	13:56:00			I5
51	J8KMTB	1	11-OCT-2007	14:37:00	7283049	A7J100000	I5
52	J8KMTC	1	11-OCT-2007	14:42:00	7283049	A7J100000	I5
53	J7914	1	11-OCT-2007	14:49:00	7283049	A7J040354	I5
54	J7914L	1	11-OCT-2007	14:54:00			I5
55	J7914X	1	11-OCT-2007	14:59:00	7283049	A7J040354	I5
56	J7914S	1	11-OCT-2007	15:04:00	7283049	A7J040354	I5
57	J792M	1	11-OCT-2007	15:10:00	7283049	A7J040354	I5
58	J792N	1	11-OCT-2007	15:15:00	7283049	A7J040354	I5
59	J792R	1	11-OCT-2007	15:20:00	7283049	A7J040354	I5
60	J792W	1	11-OCT-2007	15:25:00	7283049	A7J040354	I5
61	CCV	1	11-OCT-2007	15:33:00			I5
62	CCB	1	11-OCT-2007	15:41:00			I5
63	J7920	1	11-OCT-2007	15:45:00	7283049	A7J040354	I5
64	J7923	1	11-OCT-2007	15:50:00	7283049	A7J040354	I5
65	J7927	1	11-OCT-2007	15:55:00	7283049	A7J040354	I5
66	J8AT0	1	11-OCT-2007	16:00:00	7283049	A7J050117	I5
67	J8AT0L	1	11-OCT-2007	16:08:00			I5
68	J8AT0X	1	11-OCT-2007	16:13:00	7283049	A7J050117	I5
69	J8AT0S	1	11-OCT-2007	16:17:00	7283049	A7J050117	I5
70	J8AT5	1	11-OCT-2007	16:24:00	7283049	A7J050117	I5
71	J8AT9	1	11-OCT-2007	16:29:00	7283049	A7J050117	I5
72	J8AVC	1	11-OCT-2007	16:34:00	7283049	A7J050117	I5
73	CCV	1	11-OCT-2007	16:42:00			I5
74	CCB	1	11-OCT-2007	16:50:00			I5
75	J8FKF	1	11-OCT-2007	16:54:00	7283049	A7J080104	I5
76	J8FKFL	1	11-OCT-2007	16:59:00			I5
77	J8FKFX	1	11-OCT-2007	17:04:00	7283049	A7J080104	I5
78	J8FKFS	1	11-OCT-2007	17:09:00	7283049	A7J080104	I5
79	J8FKG	1	11-OCT-2007	17:16:00	7283049	A7J080104	I5
80	J8FKH	1	11-OCT-2007	17:21:00	7283049	A7J080104	I5
81	J8FLN	1	11-OCT-2007	17:26:00	7283049	A7J080109	I5
82	J8FLNL	1	11-OCT-2007	17:31:00			I5
83	J8FLNX	1	11-OCT-2007	17:36:00	7283049	A7J080109	I5
84	J8FLNS	1	11-OCT-2007	17:41:00	7283049	A7J080109	I5
85	CCV	1	11-OCT-2007	17:49:00			I5
86	CCB	1	11-OCT-2007	17:56:00			I5
87	J8FRK	1	11-OCT-2007	18:01:00	7283049	A7J080109	I5
88	J8FR7	1	11-OCT-2007	18:06:00	7283049	A7J080109	I5

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J8FR7L	1	11-OCT-2007	18:11:00			I5
90	J8FR7X	1	11-OCT-2007	18:16:00	7283049	A7J080109	I5
91	J8FR7S	1	11-OCT-2007	18:21:00	7283049	A7J080109	I5
92	J8FTD	1	11-OCT-2007	18:26:00	7283049	A7J080109	I5
93	J8KMMB	1	11-OCT-2007	18:33:00	7283043	A7J100000	I5
94	J8KMMC	1	11-OCT-2007	18:37:00	7283043	A7J100000	I5
95	J8G44	1	11-OCT-2007	18:44:00	7283043	A7J090101	I5
96	J8G44L	1	11-OCT-2007	18:49:00			I5
97	CCV	1	11-OCT-2007	18:57:00			I5
98	CCB	1	11-OCT-2007	19:05:00			I5
99	J8G44X	1	11-OCT-2007	19:10:00	7283043	A7J090101	I5
100	J8G44S	1	11-OCT-2007	19:15:00	7283043	A7J090101	I5
101	J8G46	1	11-OCT-2007	19:21:00	7283043	A7J090101	I5
102	J8G5M	1	11-OCT-2007	19:26:00	7283043	A7J090101	I5
103	J8G5R	1	11-OCT-2007	19:31:00	7283043	A7J090101	I5
104	J8G5W	1	11-OCT-2007	19:36:00	7283043	A7J090101	I5
105	J8G51	1	11-OCT-2007	19:41:00	7283043	A7J090101	I5
106	J8G52	1	11-OCT-2007	19:46:00	7283043	A7J090101	I5
107	J8G55	1	11-OCT-2007	19:51:00	7283043	A7J090101	I5
108	J8G57	1	11-OCT-2007	19:56:00	7283043	A7J090101	I5
109	CCV	1	11-OCT-2007	20:04:00			I5
110	CCB	1	11-OCT-2007	20:11:00			I5
111	J8NFGB	1	11-OCT-2007	20:16:00	7284018	A7J110000	I5
112	J8NFGC	1	11-OCT-2007	20:21:00	7284018	A7J110000	I5
113	J8KP1	1	11-OCT-2007	20:28:00	7284018	A7J100103	I5
114	J8KP3	1	11-OCT-2007	20:33:00	7284018	A7J100103	I5
115	J8KP6	1	11-OCT-2007	20:38:00	7284018	A7J100103	I5
116	J8KP6L	1	11-OCT-2007	20:43:00			I5
117	J8KP6X	1	11-OCT-2007	20:48:00	7284018	A7J100103	I5
118	J8KP6S	1	11-OCT-2007	20:53:00	7284018	A7J100103	I5
119	J8KQA	1	11-OCT-2007	20:59:00	7284018	A7J100103	I5
120	J8KQG	1	11-OCT-2007	21:04:00	7284018	A7J100103	I5
121	CCV	1	11-OCT-2007	21:12:00			I5
122	CCB	1	11-OCT-2007	21:20:00			I5
123	J8KQH	1	11-OCT-2007	21:25:00	7284018	A7J100103	I5
124	J8KQK	1	11-OCT-2007	21:30:00	7284018	A7J100103	I5
125	J8KQN	1	11-OCT-2007	21:35:00	7284018	A7J100103	I5
126	J8KQQ	1	11-OCT-2007	21:40:00	7284018	A7J100103	I5
127	J8KQV	1	11-OCT-2007	21:45:00	7284018	A7J100103	I5
128	J8KQ0	1	11-OCT-2007	21:50:00	7284018	A7J100103	I5
129	J8KQ2	1	11-OCT-2007	21:55:00	7284018	A7J100103	I5
130	J8KQ5	1	11-OCT-2007	22:00:00	7284018	A7J100103	I5
131	J8KRD	1	11-OCT-2007	22:05:00	7284018	A7J100103	I5
132	J8KRDL	1	11-OCT-2007	22:09:00			I5

-sb PDS run @ 23:12

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument	
133	CCV	1	11-OCT-2007	22:18:00			I5	
134	CCB	1	11-OCT-2007	22:25:00			I5	
135	J8KRDX	1	11-OCT-2007	22:30:00	7284018	A7J100103	I5	
136	J8KRDS	1	11-OCT-2007	22:35:00	7284018	A7J100103	I5	
137	J8KRG	1	11-OCT-2007	22:42:00	7284018	A7J100103	I5	-
138	J7914A	1	11-OCT-2007	22:47:00	7283049	A7J040354	I5	Sb 200ppb
139	J8FKFA	1	11-OCT-2007	23:07:00	7283049	A7J080104	I5	Rerun
140	J8FR7A	1	11-OCT-2007	23:12:00			I5	Sb200ppb
141	CRI	MRL	11-OCT-2007	23:20:00			I5	
142	CCV	1	11-OCT-2007	23:28:00			I5	
143	CCB	1	11-OCT-2007	23:35:00			I5	
144	CCV	1	12-OCT-2007	00:09:00			I5	
145	CCB	1	12-OCT-2007	00:18:00			I5	
146	J8NFEB	1	12-OCT-2007	00:23:00			I5	
147	J8NFEC	1	12-OCT-2007	00:28:00			I5	
148	J8LFT	1	12-OCT-2007	00:35:00			I5	
149	J8LF5	1	12-OCT-2007	00:40:00			I5	
150	J8K71	1	12-OCT-2007	00:44:00			I5	
151	J8LPT	1	12-OCT-2007	00:49:00			I5	
152	J8LPTL	1	12-OCT-2007	00:54:00			I5	
153	J8LFC	1	12-OCT-2007	00:59:00	7284017	A7J100170	I5	
154	J8LLA	1	12-OCT-2007	01:04:00			I5	
155	J8LN1	1	12-OCT-2007	01:09:00			I5	
156	CCV	1	12-OCT-2007	01:18:00			I5	
157	CCB	1	12-OCT-2007	01:27:00			I5	
158	J8LP0	1	12-OCT-2007	01:32:00			I5	
159	J8LQG	1	12-OCT-2007	01:37:00			I5	
160	J8LR0	1	12-OCT-2007	01:42:00	7284017	A7J100211	I5	
161	J8KW0	1	12-OCT-2007	01:47:00	7284017	7J10109	I5	
162	J8KW0S	1	12-OCT-2007	01:52:00	7284017	7J10109	I5	
163	J8KW0D	1	12-OCT-2007	01:57:00	7284017	7J10109	I5	
164	CRI	MRL	12-OCT-2007	02:06:00			I5	
165	CCV	1	12-OCT-2007	02:14:00			I5	
166	CCB	1	12-OCT-2007	02:24:00			I5	
167	CCV	1	12-OCT-2007	07:41:00			I5	
168	CCB	1	12-OCT-2007	07:49:00			I5	
169	J8NFEC	1	12-OCT-2007	07:54:00			I5	
170	ZZZZZ	1	12-OCT-2007	07:59:00			I5	
171	CCV	1	12-OCT-2007	08:07:00			I5	
172	CCB	1	12-OCT-2007	08:15:00			I5	
173	CCV	1	12-OCT-2007	14:28:00			I5	
174	CCB	1	12-OCT-2007	14:36:00			I5	
175	J8FKFA	1	12-OCT-2007	14:41:00	7283049	A7J080104	I5	Sb 200ppb
176	J8RMGB	1	12-OCT-2007	14:48:00	7285020	A7J120000	I5	

(continued)

INSTRUMENT PRINTOUTS

Test America North Canton Hg Data Review Checklist

Run/Project Information

Run Date: 10-12-07 Analyst: ML Instrument: H1
Prep Batches Run: See Run Log

Circle Methods used: 7470A / 245.1 : CORP-MT-0005 Rev 1 (7471 / 245.1 : CORP-MT-0007 Rev 1)

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions and at SOP specified levels?	✓			✓
2. ICV/CCV analyzed at appropriate frequency and within control limits?	✓			✓
3. ICB/CCB analyzed at appropriate frequency and within +/- RL?	✓			✓
4. CRA run?	✓			✓
B. Sample Results				
1. Were samples with concentrations > high calibration standard diluted and reanalyzed?	✓			✓
2. All reported results bracketed by in control QC?	✓			✓
3. Sample analyses done within holding time?	✓			✓
C. Preparation/ Matrix QC				
1. LCS done per prep batch and within QC limits?	✓			✓
2. Method blank done per prep batch and < RL?	✓			✓
3. MS run at required frequency and within limits?	✓			✓
4. MSD or DU run at required frequency and RPD within SOP limits?	✓			✓
D. Other				
1. Are all nonconformances documented appropriately?	✓			✓
2. Current IDL/MDL data on file?	✓			✓
3. Calculations and Transcription checked for error?	✓			✓
4. All client/project specific requirements met?	✓			✓
5. Date of analysis verified as correct?	✓			✓

Level I Analyst: Michaelyn Lentz Date: 10-12-07 10:56-11:18
Comments: Michaelyn Lentz 10-13-07 11:21-16:00

2nd Level Reviewer: Karen L Counts Date: 10-12-07 10:56-11:18
Karen L Counts 10-13-07 11:21-16:00

Curve Prepared Date: 10-12-07 Time: 8:55

ICV HBS0707501 $SnCl_2$ 7MR687

CAL/CCV HBS0707502 NACL $NH_2OH{\cdot}HCL$ 7MR688

Revised 09/21/2007

*** Standard: 1 Rep: 1 Seq: 0 10:56:34 12 Oct 2007 HG

Hg .0000 ppb 1040

*** Standard: 2 Rep: 1 Seq: 1 10:57:41 12 Oct 2007 HG

Hg .2000 ppb 15444

*** Standard: 3 Rep: 1 Seq: 2 10:59:01 12 Oct 2007 HG

Hg .5000 ppb 33108

*** Standard: 4 Rep: 1 Seq: 3 11:00:11 12 Oct 2007 HG

Hg 1.000 ppb 68182

*** Standard: 5 Rep: 1 Seq: 4 11:01:19 12 Oct 2007 HG

Hg 5.000 ppb 337293

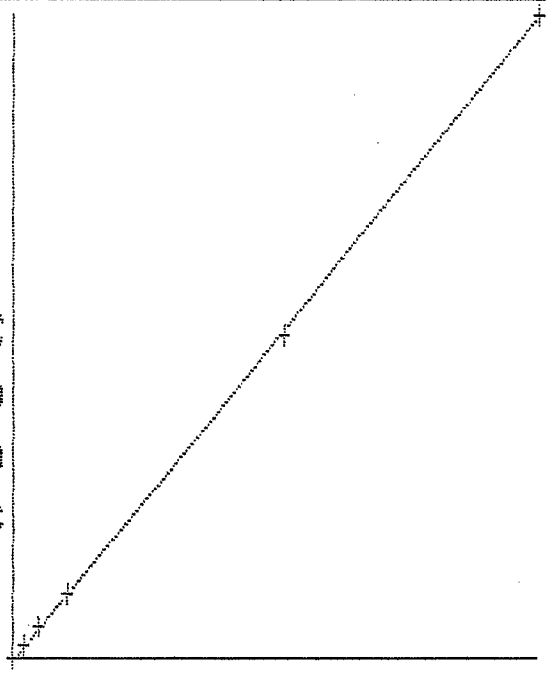
*** Standard: 6 Rep: 1 Seq: 5 11:02:28 12 Oct 2007 HG

Hg 10.00 ppb 655622

```
RunProt: HGPPB      Hg analysis in the ppb range
RunFold: HG110128 Seq: 6    Batch:
                  Prnt: R/T On                    Pump: On
                  Rev: 4.2                        Xmit: Off Gas:    0.70 LPM
State: Idle      Macro SCOTT      66: F3 Print     User: SMI         A/S: On
```

CALIBRATION: Line proto: HGPPB

	Hg Conc.	Calc.	Dev.	Accepted ->linear
S1	.0000	-.0262	-.0262	Quadratic
S2	.2000	.1992	-.0008	Wtdlinear
S3	.5000	.4682	-.0318	C
S4	1.000	1.002	.0024	Accept o
S5	5.000	5.101	.1011	n
S6	10.00	9.949	-.0506	c
A	.00000000	r	.999911	
B	1.52305e-5	C	-3.60629e-2	



	Mean		SD	1040
S1	1040	0		
S2	15444	0	%RSD	15444
S3	33108	0	%RSD	33108
S4	68182	0	%RSD	68182
S5	337293	0	%RSD	337293
S6	655622	0	%RSD	655622

New cal coefficients stored

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 5 Ck5ICV Seq: 6 11:03:44 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 96.28 2.407 2.500 ppb .0000 %

*** Check Standard: 4 Ck4ICB Seq: 7 11:04:48 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg -73380 -.0073 .0000 ppb .0000 %

*** Check Standard: 3 Ck3CRA\MRL Seq: 8 11:06:13 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 101.0 .2020 .2000 ppb .0000 %

*** Check Standard: 2 Ck2CCV Seq: 9 11:07:20 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 103.8 5.190 5.000 ppb .0000 %

*** Check Standard: 1 Ck1CCB Seq: 10 11:08:27 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0214 .2000 ppb .0000 %

*** Sample ID: J8KMQB Seq: 11 11:09:35 12 Oct 2007 HG
7283044
Hg -.0161 ppb .0000 % -.0161

*** Sample ID: J8KMQC Seq: 12 11:10:39 12 Oct 2007 HG
SOLID
Hg 4.905 ppb .0000 % 4.905

*** Sample ID: J8H3L Seq: 13 11:11:44 12 Oct 2007 HG
SOLID
Hg .0981 ppb .0000 % .0981

*** Sample ID: J8HTE Seq: 14 11:12:59 12 Oct 2007 HG
SOLID
Hg .2996 ppb .0000 % .2996

*** Sample ID: J8HTES Seq: 15 11:14:14 12 Oct 2007 HG
SOLID
Hg 1.206 ppb .0000 % 1.206

*** Sample ID: J8HTED Seq: 16 11:15:21 12 Oct 2007 HG
SOLID
Hg 1.129 ppb .0000 % 1.129

*** Sample ID: J8DG2/5 Seq: 17 11:16:36 12 Oct 2007 HG
SOLID
Hg 2.079 ppb .0000 % 2.079

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2CCV Seq: 18 11:17:44 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.272	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 19 11:18:49 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0204	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 20 11:21:25 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.1	5.253	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 21 11:22:30 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0539	.2000	ppb	.0000 %

*** Sample ID: J8KMTB Seq: 22 11:23:36 12 Oct 2007 HG

7283049

Hg	.0223	ppb	.0000 %	.0223

*** Sample ID: J8KMTC Seq: 23 11:24:42 12 Oct 2007 HG

SOLID

Hg	4.979	ppb	.0000 %	4.979

*** Sample ID: J7914 Seq: 24 11:25:52 12 Oct 2007 HG

SOLID

Hg	.2077	ppb	.0000 %	.2077

*** Sample ID: J7914X Seq: 25 11:26:59 12 Oct 2007 HG

SOLID

Hg	.2039	ppb	.0000 %	.2039

*** Sample ID: J7914S Seq: 26 11:28:04 12 Oct 2007 HG

SOLID

Hg	1.120	ppb	.0000 %	1.120

*** Sample ID: J7920 Seq: 27 11:29:14 12 Oct 2007 HG

SOLID

Hg	.2961	ppb	.0000 %	.2961

*** Sample ID: J7923 Seq: 28 11:30:20 12 Oct 2007 HG

SOLID

Hg	.2190	ppb	.0000 %	.2190

*** Sample ID: J7927 Seq: 29 11:31:36 12 Oct 2007 HG

SOLID

Hg	.1927	ppb	.0000 %	.1927

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J792M Seq: 30 11:33:14 12 Oct 2007 HG
SOLID
Hg .5725 ppb .0000 % .5725

*** Sample ID: J792N Seq: 31 11:34:29 12 Oct 2007 HG
SOLID
Hg .6597 ppb .0000 % .6597

*** Check Standard: 2 Ck2CCV Seq: 32 11:35:33 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.8	5.240	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 33 11:36:38 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0388	.2000	ppb	.0000 %

*** Sample ID: J792R Seq: 34 11:37:45 12 Oct 2007 HG
SOLID
Hg .5463 ppb .0000 % .5463

*** Sample ID: J792W Seq: 35 11:38:50 12 Oct 2007 HG
SOLID
Hg .3141 ppb .0000 % .3141

*** Sample ID: J8FKF Seq: 36 11:39:59 12 Oct 2007 HG
SOLID
Hg .4381 ppb .0000 % .4381

*** Sample ID: J8FKFX Seq: 37 11:41:06 12 Oct 2007 HG
SOLID
Hg .4193 ppb .0000 % .4193

*** Sample ID: J8FKFS Seq: 38 11:42:11 12 Oct 2007 HG
SOLID
Hg 1.343 ppb .0000 % 1.343

*** Sample ID: J8FKG Seq: 39 11:43:18 12 Oct 2007 HG
SOLID
Hg .3894 ppb .0000 % .3894

*** Sample ID: J8FKH Seq: 40 11:44:22 12 Oct 2007 HG
SOLID
Hg .6924 ppb .0000 % .6924

*** Sample ID: J8NFNB Seq: 41 11:45:30 12 Oct 2007 HG
7284023
Hg .0159 ppb .0000 % .0159

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8NFNC Seq: 42 11:46:40 12 Oct 2007 HG

SOLID

Hg	4.934	ppb	.0000 %	4.934

*** Sample ID: J8K02 Seq: 43 11:48:05 12 Oct 2007 HG

SOLID

Hg	.2445	ppb	.0000 %	.2445

*** Check Standard: 2 Ck2CCV Seq: 44 11:49:10 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.7	5.235	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 45 11:50:26 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0120	.2000	ppb	.0000 %

*** Sample ID: J8K02S Seq: 46 11:51:33 12 Oct 2007 HG

SOLID

Hg	1.169	ppb	.0000 %	1.169

*** Sample ID: J8K02D Seq: 47 11:52:59 12 Oct 2007 HG

SOLID

Hg	1.149	ppb	.0000 %	1.149

*** Sample ID: J8K1J Seq: 48 11:54:06 12 Oct 2007 HG

SOLID

Hg	.1687	ppb	.0000 %	.1687

*** Sample ID: J8K1K Seq: 49 11:55:16 12 Oct 2007 HG

SOLID

Hg	.0637	ppb	.0000 %	.0637

*** Sample ID: J8K1L Seq: 50 11:56:25 12 Oct 2007 HG

SOLID

Hg	.1582	ppb	.0000 %	.1582

*** Sample ID: J8K1P Seq: 51 11:57:44 12 Oct 2007 HG

SOLID

Hg	.1121	ppb	.0000 %	.1121

*** Sample ID: J8K1Q Seq: 52 11:58:52 12 Oct 2007 HG

SOLID

Hg	.0976	ppb	.0000 %	.0976

*** Sample ID: J8NFQB Seq: 53 11:59:57 12 Oct 2007 HG

7284024

Hg	.0534	ppb	.0000 %	.0534

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8NFQC Seq: 54 12:01:06 12 Oct 2007 HG

SOLID

Hg 4.943 ppb .0000 % 4.943

*** Sample ID: J8L63 Seq: 55 12:02:12 12 Oct 2007 HG

SOLID

Hg 3.980 ppb .0000 % 3.980

*** Check Standard: 2 Ck2CCV Seq: 56 12:03:27 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.6	5.280	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 57 12:04:43 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0280	.2000	ppb	.0000 %

*** Sample ID: J8L7P Seq: 58 12:05:48 12 Oct 2007 HG

SOLID

Hg .6287 ppb .0000 % .6287

*** Sample ID: J8CAC Seq: 59 12:07:05 12 Oct 2007 HG

SOLID

Hg 6.324 ppb .0000 % 6.324

*** Sample ID: J8CAG Seq: 60 12:08:12 12 Oct 2007 HG

SOLID

5X Hg 31.12 ppb .0000 % 31.12

*** Sample ID: J8CAH Seq: 61 12:09:17 12 Oct 2007 HG

SOLID

Hg 6.476 ppb .0000 % 6.476

*** Sample ID: J8CAL Seq: 62 12:10:28 12 Oct 2007 HG

SOLID

Hg .4906 ppb .0000 % .4906

*** Sample ID: J8CAM Seq: 63 12:11:34 12 Oct 2007 HG

SOLID

5X Hg 19.10 ppb .0000 % 19.10

*** Sample ID: J8CAQ Seq: 64 12:12:42 12 Oct 2007 HG

SOLID

5X Hg 27.94 ppb .0000 % 27.94

*** Sample ID: J8CAV Seq: 65 12:13:49 12 Oct 2007 HG

SOLID

10X Hg 81.60 ppb .0000 % 81.60

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8LF3 Seq: 66 12:15:09 12 Oct 2007 HG

SOLID

Hg -.3068 ppb .0000 % -.3068

*** Sample ID: J8LF4 Seq: 67 12:16:14 12 Oct 2007 HG

SOLID

Hg .1146 ppb .0000 % .1146

*** Check Standard: 2 Ck2CCV Seq: 68 12:17:23 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.272	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 69 12:18:27 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0097	.2000	ppb	.0000 %

*** Sample ID: J8LF6 Seq: 70 12:19:43 12 Oct 2007 HG

SOLID

Hg .1260 ppb .0000 % .1260

*** Sample ID: J8LF7 Seq: 71 12:20:49 12 Oct 2007 HG

SOLID

Hg .2335 ppb .0000 % .2335

*** Sample ID: J8LFR Seq: 72 12:21:56 12 Oct 2007 HG

SOLID

Hg .1603 ppb .0000 % .1603

*** Sample ID: J8LFRS Seq: 73 12:23:01 12 Oct 2007 HG

SOLID

Hg 1.103 ppb .0000 % 1.103

*** Sample ID: J8LFRD Seq: 74 12:24:09 12 Oct 2007 HG

SOLID

Hg 1.070 ppb .0000 % 1.070

*** Sample ID: J8LG7 Seq: 75 12:25:20 12 Oct 2007 HG

SOLID

Hg .1209 ppb .0000 % .1209

*** Sample ID: J8LG8 Seq: 76 12:26:27 12 Oct 2007 HG

SOLID

Hg .1102 ppb .0000 % .1102

*** Sample ID: J8LGG Seq: 77 12:27:35 12 Oct 2007 HG

SOLID

Hg .0829 ppb .0000 % .0829

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8LHA Seq: 78 12:28:41 12 Oct 2007 HG

SOLID

Hg .0564 ppb .0000 % .0564

*** Sample ID: J8LHC Seq: 79 12:29:57 12 Oct 2007 HG

SOLID

Hg .1137 ppb .0000 % .1137

*** Check Standard: 2 Ck2CCV Seq: 80 12:31:14 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		106.1	5.306	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 81 12:32:22 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0251	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 82 14:25:12 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.8	5.141	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 83 14:26:21 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0372	.2000	ppb	.0000 %

*** Sample ID: J8CAG/5 Seq: 84 14:27:38 12 Oct 2007 HG

SOLID

Hg 6.876 ppb .0000 % 6.876

*** Sample ID: J8CAM/5 Seq: 85 14:28:42 12 Oct 2007 HG

SOLID

Hg 3.853 ppb .0000 % 3.853

*** Sample ID: J8CAQ/5 Seq: 86 14:29:46 12 Oct 2007 HG

SOLID

Hg 6.084 ppb .0000 % 6.084

*** Sample ID: J8CAV/10 Seq: 87 14:30:53 12 Oct 2007 HG

SOLID

50x Hg 17.23 ppb .0000 % 17.23

*** Sample ID: J8LF3 Seq: 88 14:31:57 12 Oct 2007 HG

SOLID

Hg .0425 ppb .0000 % .0425

*** Check Standard: 2 Ck2CCV Seq: 89 14:33:22 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.7	5.136	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 90 14:34:27 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0240	.2000	ppb	.0000 %

*** Sample ID: J8CAV/50 Seq: 91 14:35:36 12 Oct 2007 HG

SOLID

Hg	4.133	ppb	.0000 %	4.133

*** Sample ID: J8RMQB Seq: 92 14:36:45 12 Oct 2007 HG

7285024

Hg	.0113	ppb	.0000 %	.0113

*** Sample ID: J8RMQC Seq: 93 14:37:50 12 Oct 2007 HG

SOLID

Hg	4.989	ppb	.0000 %	4.989

*** Sample ID: J8N1K Seq: 94 14:39:16 12 Oct 2007 HG

SOLID

Hg	.1222	ppb	.0000 %	.1222

*** Sample ID: J8N1KS Seq: 95 14:40:26 12 Oct 2007 HG

SOLID

Hg	1.157	ppb	.0000 %	1.157

*** Sample ID: J8N1KD Seq: 96 14:41:34 12 Oct 2007 HG

SOLID

Hg	1.143	ppb	.0000 %	1.143

*** Sample ID: J8N1Q Seq: 97 14:42:41 12 Oct 2007 HG

SOLID

Hg	.0411	ppb	.0000 %	.0411

*** Sample ID: J8N1R Seq: 98 14:44:06 12 Oct 2007 HG

SOLID

Hg	.0815	ppb	.0000 %	.0815

*** Sample ID: J8N1T Seq: 99 14:45:10 12 Oct 2007 HG

SOLID

Hg	.1208	ppb	.0000 %	.1208

*** Sample ID: J8N1W Seq: 100 14:46:17 12 Oct 2007 HG

SOLID

Hg	.0806	ppb	.0000 %	.0806

*** Check Standard: 2 Ck2CCV Seq: 101 14:47:24 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.268	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 102 14:48:34 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0043	.2000	ppb	.0000 %

*** Sample ID: J8PL3 Seq: 103 14:49:40 12 Oct 2007 HG

SOLID

Hg	1.314	ppb	.0000 %	1.314

*** Sample ID: J8PM3 Seq: 104 14:50:48 12 Oct 2007 HG

SOLID

Hg	2.956	ppb	.0000 %	2.956

*** Sample ID: J8PM6 Seq: 105 14:51:53 12 Oct 2007 HG

SOLID

Hg	.5501	ppb	.0000 %	.5501

*** Sample ID: J8PM8 Seq: 106 14:52:58 12 Oct 2007 HG

SOLID

Hg	.1544	ppb	.0000 %	.1544

*** Sample ID: J8PMK Seq: 107 14:54:08 12 Oct 2007 HG

SOLID

Hg	.3142	ppb	.0000 %	.3142

*** Sample ID: J8PMX Seq: 108 14:55:14 12 Oct 2007 HG

SOLID

Hg	1.662	ppb	.0000 %	1.662

*** Sample ID: J8RMTB Seq: 109 14:56:20 12 Oct 2007 HG

7285026

Hg	-.0132	ppb	.0000 %	-.0132

*** Sample ID: J8RMTC Seq: 110 14:57:27 12 Oct 2007 HG

SOLID

Hg	4.973	ppb	.0000 %	4.973

*** Sample ID: J8PN0 Seq: 111 14:58:52 12 Oct 2007 HG

SOLID

Hg	.4863	ppb	.0000 %	.4863

*** Sample ID: J8PN3 Seq: 112 14:59:56 12 Oct 2007 HG

SOLID

Hg	.2798	ppb	.0000 %	.2798

*** Check Standard: 2 Ck2CCV Seq: 113 15:01:02 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.7	5.283	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 114 15:02:08 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0096	.2000	ppb	.0000 %

*** Sample ID: J8PN6 Seq: 115 15:03:17 12 Oct 2007 HG

SOLID

Hg	1.490	ppb	.0000 %	1.490	

*** Sample ID: J8PN7 Seq: 116 15:04:31 12 Oct 2007 HG

SOLID

Hg	.1215	ppb	.0000 %	.1215	

*** Sample ID: J8PN9 Seq: 117 15:05:38 12 Oct 2007 HG

SOLID

Hg	.4921	ppb	.0000 %	.4921	

*** Sample ID: J8PNM Seq: 118 15:06:43 12 Oct 2007 HG

SOLID

Hg	.0523	ppb	.0000 %	.0523	

*** Sample ID: J8PNMS Seq: 119 15:07:49 12 Oct 2007 HG

SOLID

Hg	1.133	ppb	.0000 %	1.133	

*** Sample ID: J8PNMD Seq: 120 15:09:01 12 Oct 2007 HG

SOLID

Hg	1.136	ppb	.0000 %	1.136	

*** Sample ID: J8PPA Seq: 121 15:10:09 12 Oct 2007 HG

SOLID

Hg	.1271	ppb	.0000 %	.1271	

*** Sample ID: J8PPD Seq: 122 15:11:18 12 Oct 2007 HG

SOLID

Hg	.4560	ppb	.0000 %	.4560	

*** Sample ID: J8PQE Seq: 123 15:12:24 12 Oct 2007 HG

SOLID

Hg	.2375	ppb	.0000 %	.2375	

*** Sample ID: J8PQH Seq: 124 15:14:02 12 Oct 2007 HG

SOLID

Hg	.2263	ppb	.0000 %	.2263	

*** Check Standard: 2 Ck2CCV Seq: 125 15:15:08 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.5	5.277	5.000	ppb	.0000 %

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 1 Ck1CCB Seq: 126 15:16:16 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0287 .2000 ppb .0000 %

*** Sample ID: J8RMNB Seq: 127 15:17:30 12 Oct 2007 HG
7285023
Hg -.0270 ppb .0000 % -.0270

*** Sample ID: J8RMNC Seq: 128 15:18:36 12 Oct 2007 HG
SOLID
Hg 5.061 ppb .0000 % 5.061

*** Sample ID: J8P77 Seq: 129 15:19:46 12 Oct 2007 HG
SOLID
Hg .6653 ppb .0000 % .6653

*** Sample ID: J8P78 Seq: 130 15:21:03 12 Oct 2007 HG
SOLID
Hg 1.991 ppb .0000 % 1.991

*** Sample ID: J8P79 Seq: 131 15:22:13 12 Oct 2007 HG
SOLID
Hg 13.50 ppb .0000 % 13.50

*** Sample ID: J8P7H Seq: 132 15:23:23 12 Oct 2007 HG
SOLID
Hg .9567 ppb .0000 % .9567

*** Sample ID: J8P8A Seq: 133 15:24:59 12 Oct 2007 HG
SOLID
Hg 2.398 ppb .0000 % 2.398

*** Sample ID: J8P8C Seq: 134 15:26:15 12 Oct 2007 HG
SOLID
Hg .8324 ppb .0000 % .8324

*** Sample ID: J8P8D Seq: 135 15:27:21 12 Oct 2007 HG
SOLID
Hg .9363 ppb .0000 % .9363

*** Sample ID: J8P8E Seq: 136 15:28:43 12 Oct 2007 HG
SOLID
Hg .6248 ppb .0000 % .6248

*** Check Standard: 2 Ck2CCV Seq: 137 15:29:50 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 105.4 5.272 5.000 ppb .0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 138 15:31:07 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0030	.2000	ppb	.0000 %

*** Sample ID: J8P8F Seq: 139 15:32:14 12 Oct 2007 HG

SOLID

Hg	2.265	ppb	.0000 %	2.265

*** Sample ID: J8N2D Seq: 140 15:33:31 12 Oct 2007 HG

SOLID

Hg	.1585	ppb	.0000 %	.1585

*** Sample ID: J8N2DS Seq: 141 15:34:39 12 Oct 2007 HG

SOLID

Hg	1.146	ppb	.0000 %	1.146

*** Sample ID: J8N2DD Seq: 142 15:36:20 12 Oct 2007 HG

SOLID

Hg	1.152	ppb	.0000 %	1.152

*** Sample ID: J8N2N Seq: 143 15:37:29 12 Oct 2007 HG

SOLID

Hg	.2460	ppb	.0000 %	.2460

*** Sample ID: J8N2R Seq: 144 15:38:37 12 Oct 2007 HG

SOLID

Hg	.2285	ppb	.0000 %	.2285

*** Sample ID: J8N37 Seq: 145 15:39:43 12 Oct 2007 HG

SOLID

Hg	.1428	ppb	.0000 %	.1428

*** Sample ID: J8N3X Seq: 146 15:40:52 12 Oct 2007 HG

SOLID

Hg	.1071	ppb	.0000 %	.1071

*** Sample ID: J8N4C Seq: 147 15:42:21 12 Oct 2007 HG

SOLID

Hg	.1920	ppb	.0000 %	.1920

*** Sample ID: J8N4E Seq: 148 15:43:38 12 Oct 2007 HG

SOLID

Hg	.1256	ppb	.0000 %	.1256

*** Check Standard: 2 Ck2CCV Seq: 149 15:44:45 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		106.0	5.300	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 150 15:45:52 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0099	.2000	ppb	.0000 %

*** Sample ID: J8N4G Seq: 151 15:47:20 12 Oct 2007 HG

SOLID

Hg .2526 ppb .0000 % .2526

*** Sample ID: J8N4N Seq: 152 15:48:27 12 Oct 2007 HG

SOLID

Hg .1222 ppb .0000 % .1222

*** Sample ID: CRA Seq: 153 15:49:44 12 Oct 2007 HG

SOLID

Hg .2313 ppb .0000 % .2313

*** Check Standard: 2 Ck2CCV Seq: 154 15:51:00 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.270	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 155 15:52:04 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0034	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 156 15:55:56 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		106.0	5.298	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 157 15:57:01 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0255	.2000	ppb	.0000 %

*** Sample ID: J8P79/2 Seq: 158 15:58:15 12 Oct 2007 HG

SOLID

Hg 6.910 ppb .0000 % 6.910

*** Check Standard: 2 Ck2CCV Seq: 159 15:59:25 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.5	5.224	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 160 16:00:30 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0236	.2000	ppb	.0000 %

SCAL	STD —	ICSA	STD 7H456	CAL1/CRI	STD 7J541
SCAL2	STD —	ICSAB	STD 7J517	CAL2 (2X)- CAL3	STD 7J532
CRI	STD 7J541	ICV	STD 7H417	SCAL (2X)- CAL 2	STD 7J540
		CCV	STD 7J529		

Test America North Canton ICP Data Review Checklist

Run/Project Information:

Run Date: 10.11.07 **Analyst:** LCW **Instrument:** 7 5

Prep Batches Run: SEE RUN LOG

Circle Methods used: (6010B / 200.7:) CORP-MT-0001 Rev 3.2
6010A/200.7: CORP-MT-0001NC, Rev 2

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions (2 exposures/sample) and at SOP specified levels ?	✓			/
2. ICV/CCV analyzed at appropriate frequency and within control limits ? *(ICV (2nd source):* 200.7=95 –105%, 6010B 90-110%) *(CCV: 90 – 110%)*	✓			/
3. ICB/CCB analyzed at appropriate frequency and within +/- RL ?	✓			/
4. High Std. (HCAL) reanalyzed before samples and recovered within QC limits ? (6010A only 95-105%)			✓	
5. CRI run at SOP or project-specific frequency? Recovered within QC limits? (6010A +/- 50%, project specific limits may vary)	✓			/
6. ICSA/ICSAB run at required frequency and within SOP limits ?	✓			/
B. Sample Results				
1. Were samples with concentrations > the linear range for any parameter diluted and reanalyzed ?	✓			/
2. All reported results bracketed by in control QC ?	✓			/
3. Sample analyses done within holding time ?	✓			/
C. Preparation/Matrix QC				
1. LCS done per prep batch and within QC limits ?	✓			/
2. Method blank done per prep batch and < RL ?	✓			/
3. MS/MSD run at required frequency and within limits ?	✓			/
4. MSD or DU run at required frequency and RPD within SOP limits ?	✓			/
5. Serial dilution done per prep batch ?	✓			/
6. Post digest spike analyzed if required?	✓			/
D. ther				
1. Are all nonconformances documented appropriately ?	✓			/
2. Current IDL/MDL/LR/IEC data on file ?	✓			/
3. Calculations checked for error ?	✓			/
4. Transcriptions checked for error ?	✓			/
5. All client/project specific requirements met ?	✓			/
6. Date/time of analysis verified as correct ?	✓			/

Level I Analyst: Lay R. Will Date: 10.12.07 Time: 07:57 – 08:15
Level I Analyst: Karen L. Counts Date: 10-13-07 Time: 14:28 - 18:09
Level I Analyst: Date: Time:
Level I Analyst: Date: Time:

Level II Reviewer: Karen L. Counts Date: 10-12-07 Time: 07:57-08:15
Level II Reviewer: Date: 10.15-07 Time: 14:24-18:09
Level II Reviewer: Date: Time:
Level II Reviewer: Date: Time:

Comments:

n: /metals/icpchk.doc Revision 3.0, 09/21/2007 rkt

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: 01-10836
NCM Initiated By: Dorothy Leeson
Date Opened: 03/05/2004
Date Closed: 03/08/2004

Classification: Anomaly
Status: CLOSED
Production Area: Metals
Tests: None
Lot #'s (Sample #'s): ,
QC Batches: None.,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Dorothy Leeson	03/05/2004	Stock standard solutions used for ICP ICSA solutions commonly have low level contamination for certain elements, especially zinc.

Verified contamination is not corrected by interelement correction factors (IEC's) since instrumental determination of the presence of the analyte is due not to spectral interference but due to actual presence of the element in the solution. Contamination can be verified by performing a wavelength scan of the standard solution. If contamination exists, the peak apex will be directly at the expected wavelength for the element of concern. If the presence of the analyte is due to interference from another analyte which produces a peak near the element of concern, the peak apex of the interfering analyte will not be exactly at the wavelength for the element of concern, and an IEC would be generated.

If contamination for an element such as zinc is suspected, an IEC would be inappropriate, and the concentration during analysis of the daily ICSA solution may exceed SOP criteria. In these cases, this NCM will be referenced and a copy of this NCM will be included with the run.

Zinc contamination in ICSA stock solutions has been verified in this lab at various times with wavelength scans. Similarly, contamination for other elements has been verified when suspected. An example scan is included with the I6 ICP analytical run from 4/3/01.

Corrective Action

Name	Date	Corrective Action
Dorothy Leeson	03/05/2004	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
LAMBERTB		Verified/completed	

Method: ARMY Sample Name: STD1-Blank Operator:
Run Time: 10/11/07 07:57 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	-.00084	.05943	-.00085	.00284	.00077	.00323
SDev	.00134	.00127	.00352	.00004	.00007	0
%RSD	158.785	2.14857	413.743	1.71458	10.2808	.27448

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.01675	-.00802	-.00072	.00158	.00941	.00095
SDev	.00021	.00325	.00065	.00085	.00029	.00033
%RSD	1.29336	40.5956	90.409	54.0562	3.1877	35.2048

Elems	K	Mg	Mn	Mo	Na	Ni
Units	count	count	count	count	count	count
Avge	.01407	.00876	.0023	.00038	.00205	.00069
SDev	.00392	.00076	.00008	.00003	.00202	.00026
%RSD	27.8611	8.78019	3.91091	10.2808	98.8976	37.4628

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	.00177	.00007	-.03031	.00048	.0054	.01122
SDev	.00221	.00011	.00123	.00061	.00013	.00038
%RSD	124.836	141.421	4.08708	126.363	2.52675	3.46336

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	Y_3710
Units	count	count	count	count	count	count
Avge	-.0008	-.02091	.00844	-.00015	-.00511	5
SDev	.00702	.00065	.00445	.0008	.00185	0
%RSD	872.133	3.12912	52.7961	529.451	36.3419	0

Elems	*Y
Units	
Avge	19342.4
SDev	165.745
%RSD	.85689

Method: ARMY Sample Name: CAL1 Operator:
Run Time: 10/11/07 08:03 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	.02103	.09802	.06325	.05536	.01171	.02436
SDev	.002	.00043	.00781	.00004	.00007	0
%RSD	9.55103	.43953	12.3549	.07322	.6157	.0073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.48425	.13818	.00637	.0096	.02095	.03205
SDev	.00036	.00114	.00054	.00014	.00021	.00065
%RSD	.07561	.82614	8.59561	1.51335	1.03768	2.05688

Elems	Mg	Mn	Mo	Ni	Sn	Ti
Units	count	count	count	count	count	count
Avge	.97733	.06294	.00258	.01827	.0831	.01791
SDev	.00014	.00003	.00036	.00007	.00088	0
%RSD	.0151	.05067	14.1349	.40679	1.06137	.0073

Elems	Tl	V	Zn	2203\1	2203\2	1960\1
Units	count	count	count	count	count	count
Avge	.0096	.00859	.09131	.06865	.04717	.01971
SDev	.00189	.0004	.0005	.00393	.00809	.01715
%RSD	19.7757	4.67886	.55231	5.73462	17.1676	86.9955

Elems	1960\2	2068/2	2068/1	*Y
Units	count	count	count	
Avge	.05025	.00449	.01538	19373
SDev	.00522	.00036	.00832	1.41421
%RSD	10.3941	8.13494	54.0945	.00729

Method: ARMY Sample Name: CAL2 Operator:
Run Time: 10/11/07 08:08 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	3.878	2.10004	1.28922	2.15965	8.33636	14.3205
SDev	.01219	.02965	.00992	.00718	.03175	.11205
%RSD	.31445	1.41217	.76971	.33285	.3809	.78247

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	2.5401	3.11833	1.63144	7.83906	.4441	1.35755
SDev	.01728	.01979	.00047	.01838	.00264	.01087
%RSD	.68066	.6349	.02881	.23456	.5961	.8012

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	4.05764	1.73652	2.64513	2.43469	3.6424	2.00127
SDev	.03871	.00335	.02038	.01307	.00868	.03039
%RSD	.95412	.193	.77058	.53687	.23847	1.5189

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	2.63265	.86546	.99692	.16615	1.65398	19410.4
SDev	.00314	.009	.00681	.00143	.00428	236.174
%RSD	.11942	1.03994	.68323	.86594	.25894	1.21673

Method: ARMY Sample Name: CAL3 Operator:
Run Time: 10/11/07 08:14 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	7.75381	4.17655	2.58658	4.29783	16.2606	28.1341
SDev	.00901	.00623	.01265	.00679	.03784	.0493
%RSD	.1163	.14933	.48937	.15799	.23273	.17526

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	5.02068	6.17788	3.2368	15.6878	.88339	2.64888
SDev	.01344	.01596	.00303	.06774	.00246	.00072
%RSD	.26788	.2585	.09384	.43184	.27919	.0272

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	8.02938	3.44263	5.25293	4.84241	7.10918	4.00795
SDev	.01949	.00805	.01074	.01127	.0111	.00655
%RSD	.24273	.23399	.2045	.23281	.15625	.16365

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	5.28424	1.75296	1.96788	.33235	3.34766	19069.7
SDev	.02066	.00186	.0045	.00021	.01796	9.19238
%RSD	.39107	.10621	.22909	.06336	.53663	.0482

Method: ARMY Sample Name: SCAL Operator:
Run Time: 10/11/07 08:20 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	Mg	*Y
Units	count	count	count	count	
Avge	5.07165	4.55586	2.58508	9.68365	19218.1
SDev	.00303	.00101	.00165	.00026	13.7181
%RSD	.05992	.02229	.06383	.0027	.07138

Method: ARMY Sample Name: CAL 2 Operator:
Run Time: 10/11/07 08:24 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	K	Mg	Na
Units	count	count	count	count	count	count
Avge	10.1325	9.02645	5.11707	15.6477	19.5177	.89209
SDev	.02542	.03208	.01773	.02215	.08191	.00026
%RSD	.25087	.35545	.34659	.1416	.41969	.02925

Elems	*Y
Units	
Avge	19106.8
SDev	16.6874
%RSD	.08733

IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	19107	--	--	--	--	--	--
SDev	16.68745	--	--	--	--	--	--
%RSD	.0873377	--	--	--	--	--	--
#1	19119	--	--	--	--	--	--
#2	19095	--	--	--	--	--	--

Method: ARMY Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag	328.068	Multiple	Standards	247.410	.205564	10/11/07 08:14:34
Al	308.215	Multiple	Standards	5046.90	-299.903	10/11/07 08:24:34
As	189.042	Multiple	Standards	234.078	.198838	10/11/07 08:14:34
B	249.678	Multiple	Standards	3855.03	-10.9845	10/11/07 08:14:34
Ba	493.409	Multiple	Standards	923.719	-.717713	10/11/07 08:14:34
Be	313.042	Multiple	Standards	238.726	-.772681	10/11/07 08:14:34
Ca	317.933	Multiple	Standards	10934.6	-184.209	10/11/07 08:24:34
Cd	226.502	Multiple	Standards	34.9262	.279474	10/11/07 08:14:34
Co	228.616	Multiple	Standards	761.074	.544835	10/11/07 08:14:34
Cr	267.716	Multiple	Standards	637.577	-1.00881	10/11/07 08:14:34
Cu	324.753	Multiple	Standards	1256.63	-11.8209	10/11/07 08:14:34
Fe	271.441	Multiple	Standards	9699.32	-9.30579	10/11/07 08:24:34
K	766.491	CAL 2	STD1-Blank	1.48930	-.011437	10/11/07 08:24:34
Mg	279.078	Multiple	Standards	5151.92	-45.0625	10/11/07 08:24:34
Mn	257.610	Multiple	Standards	252.490	-.583856	10/11/07 08:14:34
Mo	202.030	Multiple	Standards	4531.83	-1.75741	10/11/07 08:14:34
Na	330.232	CAL 2	STD1-Blank	1.13257	-.001163	10/11/07 08:24:34
Ni	231.604	Multiple	Standards	1468.28	-1.03433	10/11/07 08:14:34
Se	196.026	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Pb	220.353	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sb	206.838	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sn	189.989	Multiple	Standards	1235.99	-2.19801	10/11/07 08:14:34
Ti	334.941	Multiple	Standards	2862.21	-.233580	10/11/07 08:14:34
Tl	190.864	Multiple	Standards	376.738	11.4209	10/11/07 08:14:34
V	292.402	Multiple	Standards	836.210	-.406296	10/11/07 08:14:34
Zn	213.856	Multiple	Standards	525.699	-2.88841	10/11/07 08:14:34
2203\1	220.351	Multiple	Standards	220.278	-2.49602	10/11/07 08:14:34
2203\2	220.352	Multiple	Standards	194.594	.162622	10/11/07 08:14:34
1960\1	196.021	Multiple	Standards	538.730	11.2495	10/11/07 08:14:34
1960\2	196.022	Multiple	Standards	498.003	-4.21471	10/11/07 08:14:34
2068/2	206.832	Multiple	Standards	2622.87	.375756	10/11/07 08:14:34
2068/1	206.831	Multiple	Standards	358.343	1.85655	10/11/07 08:14:34
Y_3710	371.030	NONE	STD1-Blank	1.00000	.000000	*NOT STANDARDIZED

Method: ARMY

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ag	328.068	STD1-Blank	.000000	-.004063	.004063
		CAL1	5.00000	5.40971	-.409714
		CAL2	1000.00	959.663	40.3374
		CAL3	2000.00	1918.58	81.4214

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Al	308.215	STD1-Blank	.000000	.057045	-.057045
		CAL1	200.000	194.810	5.19040
		SCAL	25000.0	25296.2	-296.229
		CAL 2	50000.0	50837.6	-837.625

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
As	189.042	STD1-Blank	.000000	-.000336	.000336
		CAL1	15.0000	15.0062	-.006248
		CAL2	500.000	491.774	8.22632
		CAL3	1000.00	977.840	22.1605

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
B	249.678	STD1-Blank	.000000	-.023507	.023507
		CAL1	200.000	202.432	-2.43208
		CAL2	5000.00	4959.01	40.9937
		CAL3	10000.0	9960.38	39.6172

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ba	493.409	STD1-Blank	.000000	-.001055	.001055
		CAL1	10.0000	10.1058	-.105811
		CAL2	2000.00	1994.20	5.79993
		CAL3	4000.00	3969.28	30.7246

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Be	313.042	STD1-Blank	.000000	-.001310	.001310
		CAL1	5.00000	5.04359	-.043585
		CAL2	2000.00	1989.33	10.6671
		CAL3	4000.00	3881.06	118.936

CorCoef: 0.99992

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ca	317.933	STD1-Blank	.000000	-1.03557	1.03557
		CAL1	5000.00	5110.94	-110.943
		SCAL	50000.0	49632.3	367.688
		CAL 2	100000.	98516.5	1483.48

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cd	226.502	STD1-Blank	.000000	-.000822	.000822
		CAL1	5.00000	5.10565	-.105647
		CAL2	500.000	500.439	-.439392
		CAL3	1000.00	982.897	17.1031

CorCoef: 0.99996

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Co	228.616	STD1-Blank	.000000	-.003904	.003904
		CAL1	5.00000	5.39659	-.396586
		CAL2	2000.00	1933.75	66.2462
		CAL3	4000.00	3821.66	178.342

CorCoef: 0.99998

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cr	267.716	STD1-Blank	.000000	-.001112	.001112
		CAL1	5.00000	5.11256	-.112559
		CAL2	2000.00	1987.17	12.8296
		CAL3	4000.00	3937.87	62.1321

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cu	324.753	STD1-Blank	.000000	.004859	-.004859
		CAL1	15.0000	14.5143	.485667
		CAL2	2000.00	2038.31	-38.3070
		CAL3	4000.00	4055.65	-55.6538

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Fe	271.441	STD1-Blank	.000000	-.014877	.014877
		CAL1	300.000	301.605	-1.60550
		SCAL	25000.0	25064.3	-64.3027
		CAL 2	50000.0	49622.8	377.180

CorCoef: 0.99999

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
K	766.491	STD1-Blank	.009531	.014079	-.004548
		CAL 2	23.2926	15.6477	7.64493

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mg	279.078	STD1-Blank	.000000	.101435	-.101435
		CAL1	5000.00	4990.11	9.88721
		SCAL	50000.0	49844.4	155.641
		CAL 2	100000.	100508.	-508.438

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mn	257.610	STD1-Blank	.000000	-.003064	.003064
		CAL1	15.0000	15.3100	-.309978
		CAL2	2000.00	1978.70	21.3013
		CAL3	4000.00	3960.43	39.5684

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mo	202.030	STD1-Blank	.000000	.000579	-.000579
		CAL1	10.0000	9.93879	.061211
		CAL2	2000.00	2010.84	-10.8359
		CAL3	4000.00	4001.62	-1.61963

CorCoef: 1.00000

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
Na	330.232	STD1-Blank	.001159	.002051	-.000892
		CAL 2	1.00920	.892091	.117105

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ni	231.604	STD1-Blank	.000000	-.007897	.007897

		CAL1	25.0000	25.7953	-.795326
		CAL2	2000.00	1992.24	7.76245
		CAL3	4000.00	3888.27	111.727
CorCoef:	0.99992				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Se	196.026	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Pb	220.353	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sb	206.838	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sn	189.989	STD1-Blank	.000000	-.005168	.005168
		CAL1	100.000	100.519	-.519455
		CAL2	5000.00	5013.01	-13.0068
		CAL3	10000.0	9922.04	77.9590
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Ti	334.941	STD1-Blank	.000000	-.010263	.010263
		CAL1	50.0000	51.0329	-1.03295
		CAL2	5000.00	4970.06	29.9429
		CAL3	10000.0	9853.30	146.703
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Tl	190.864	STD1-Blank	.000000	-.000557	.000557
		CAL1	15.0000	15.0380	-.037983
		CAL2	1000.00	1007.94	-7.94379
		CAL3	2000.00	1990.40	9.59656
CorCoef:	0.99998				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
V	292.402	STD1-Blank	.000000	.002196	-.002196
		CAL1	7.00000	6.78047	.219533
		CAL2	2000.00	2035.51	-35.5114
		CAL3	4000.00	4048.87	-48.8694
CorCoef:	1.00000				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Zn	213.856	STD1-Blank	.000000	-.048554	.048554
		CAL1	40.0000	45.1145	-5.11455
		CAL2	2000.00	1911.92	88.0815
		CAL3	4000.00	3734.40	265.600
CorCoef:	0.99993				
			Known	Measured	Residual

Element	Wavelength	Standard	Concentration	Concentration	Concentration
2203\1	220.351	STD1-Blank	.000000	-.024388	.024388
		CAL1	10.0000	12.6265	-2.62652
		CAL2	500.000	438.341	61.6589
		CAL3	1000.00	880.367	119.633

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2203\2	220.352	STD1-Blank	.000000	.005858	-.005858
		CAL1	10.0000	9.34330	.656696
		CAL2	500.000	512.460	-12.4600
		CAL3	1000.00	1028.44	-28.4418

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\1	196.021	STD1-Blank	.000000	-.018295	.018295
		CAL1	20.0000	21.8719	-1.87191
		CAL2	500.000	477.503	22.4971
		CAL3	1000.00	955.624	44.3758

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\2	196.022	STD1-Blank	.000000	-.008489	.008489
		CAL1	20.0000	20.8102	-.810184
		CAL2	500.000	492.259	7.74115
		CAL3	1000.00	975.798	24.2018

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/2	206.832	STD1-Blank	.000000	-.022027	.022027
		CAL1	10.0000	12.1545	-2.15453
		CAL2	500.000	436.183	63.8168
		CAL3	1000.00	872.111	127.889

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/1	206.831	STD1-Blank	.000000	.025305	-.025305
		CAL1	10.0000	7.36856	2.63144
		CAL2	500.000	594.550	-94.5496
		CAL3	1000.00	1201.47	-201.467

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Y_3710	371.030	STD1-Blank	.000000	.000000	.000000
		NONE	.000000	.000000	.000000

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31:14
Comment:
Mode: CONC Corr. Factor: 1

*VOID 200.7

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.	25640.
SDev	.6	23.	1.36	2.	1.	1.	27.
%RSD	.1154	.1838	.54130	.2064	.1414	.0693	.1049

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.
SDev	.5567	23.17	1.3601	2.1	1.43	.7096
%RSD	.1154	.1838	.5413	.2064	.1414	.0693

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	25640.	251.3	984.0	1005.	1035.	12740.
SDev	26.89	.2562	.7156	1.294	1.996	18.64
%RSD	.1049	.102	.0727	.1287	.1928	.1463

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24200.	25250.	1027.	1015.	25610.	1011.
SDev	9.951	37.71	.6332	.6302	216.9	.4566
%RSD	.0411	.1493	.0617	.0621	.847	.0451

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	245.45	249.91	Q268.78	1020.	1015.	500.10
SDev	.00787	1.7341	1.4707	.9233	1.905	2.0773
%RSD	.0032	.69388	.54716	.0905	.1878	.41537

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1026.	983.0	222.47	263.61	240.50	247.92
SDev	1.108	.5696	.80286	2.199	.1515	.08743
%RSD	.108	.0579	.36089	.83418	.06299	.03526

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	231.71	287.29	5.0000	19294.2
SDev	1.2432	1.5842	0	5.65685
%RSD	.53653	.55144	0	.02931

Method: ARMY Sample Name: ICB Operator:
Run Time: 10/11/07 08:40 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3752	-9.689	-.50303	11.27	.0203	-.0098
SDev	1.074	5.834	.50837	.2989	.0331	.0014
%RSD	286.2	60.22	101.06	2.651	162.6	14.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.834	.0541	-.4757	-.6970	-1.165	-7.805
SDev	1.45	.0535	.8329	.999	.5123	2.117
%RSD	37.82	98.82	175.1	143.3	43.99	27.12

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	136.4	-.5769	.0279	-.0053	-893.1	.4791
SDev	16.1	2.477	.0179	.1666	434.4	.8551
%RSD	11.81	429.3	64.12	3134	48.64	178.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.50209	.75790	.02820	-.1909	-.0859	2.3307
SDev	.68654	1.0851	2.3218	.1368	.4174	2.6159
%RSD	136.73	143.17	8231.5	71.63	486.1	112.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0829	-.1797	-1.0595	1.6652	-.15295	.82913
SDev	.2129	.0839	2.452	2.8509	3.7994	2.9262
%RSD	256.9	46.69	231.43	171.2	2484	352.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7347	-.82374	5.0000	19398.8
SDev	1.5158	4.2377	0	15.5563
%RSD	87.383	514.45	0	.08019

Method: ARMY Sample Name: CRI/MRL Operator:
Run Time: 10/11/07 08:45 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.852	205.1	13.363	211.8	10.36	5.271
SDev	.0544	9.635	.58714	5.628	.263	.1158
%RSD	1.122	4.698	4.3938	2.656	2.54	2.197

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5168.	5.256	5.177	4.992	15.22	309.8
SDev	125.7	.1608	.1988	.552	.2908	7.406
%RSD	2.431	3.06	3.84	11.06	1.91	2.39

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4474.	5085.	15.96	10.65	5377.	27.62
SDev	108.8	123.4	.347	.3854	243.4	.234
%RSD	2.431	2.426	2.175	3.62	4.527	.8471

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.726	10.461	8.4972	104.1	51.31	13.968
SDev	1.0844	.18504	.82032	2.737	1.224	.61448
%RSD	4.7718	1.769	9.654	2.629	2.385	4.3991

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.935	46.08	12.568	9.4089	21.965	23.106
SDev	.0247	1.347	.38328	.08607	7.3742	5.3074
%RSD	.3563	2.925	3.0497	.91486	33.573	22.97

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	11.828	6.8344	5.0000	19190.3
SDev	1.9392	.26174	0	337.856
%RSD	16.395	3.8298	0	1.76055

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 08:52 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.198	489000.	-.41827	-1.178	1.910	.0485
SDev	.3721	223.3	.99852	1.629	.0683	.0009
%RSD	31.05	.0457	238.72	138.2	3.579	1.768

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	474900.	.8735	2.834	-.3119	1.894	191100.
SDev	1672	.2557	.5861	1.282	.8093	640.8
%RSD	.352	29.27	20.68	411	42.73	.3353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.6	515900.	13.62	-.0952	-407.7	4.026
SDev	18.94	2151	.0561	2.11	620.7	.1076
%RSD	12.83	.4169	.4122	2217	152.2	2.673

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.03995	Q-8.0739	-6.6988	-.2032	-8.298	6.3611
SDev	3.6436	.44097	3.8496	.0502	.1203	.99661
%RSD	9118.2	5.4618	57.467	24.69	1.449	15.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5730	10.51	-33.377	4.5589	19.054	-9.4529
SDev	.3992	.1327	3.9042	2.6103	9.7443	.59778
%RSD	69.66	1.263	11.697	57.257	51.14	6.3239

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5336	-10.809	5.0000	18278.7
SDev	1.6414	4.952	0	21.6372
%RSD	107.03	45.814	0	.11837

Method: ARMY Sample Name: AL 500PPM Operator: LRW
Run Time: 10/11/07 09:02 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3370	494800.	1.8761	392.5	.8295	.0658
SDev	.149	218.4	3.2232	3.413	.1061	.0368
%RSD	44.21	.0441	171.81	.8695	12.79	56

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	78.33	-.2294	.3422	-.0934	.6402	52.84
SDev	41.03	.0108	.0002	.1449	.441	5.542
%RSD	52.38	4.727	.07	155.1	68.88	10.49

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.9	25.77	1.510	1.375	316.4	1.425
SDev	3.958	21.2	.0405	.3368	131.1	.0522
%RSD	2.694	82.28	2.684	24.49	41.45	3.66

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.7245	-13.481	-5.0130	1.976	.3752	5.2360
SDev	4.2489	.38838	2.4762	1.074	.0008	1.4196
%RSD	89.932	2.881	49.395	54.36	.2013	27.113

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0062	-1.203	-18.787	-10.832	19.159	-2.4818
SDev	.5031	.6235	.01337	.58897	5.6863	3.5312
%RSD	8091	51.83	.07121	5.4375	29.68	142.29

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3727	-8.2010	5.0000	18806.9
SDev	3.1504	2.1395	0	23.3345
%RSD	229.5	26.089	0	.12407

Method: ARMY Sample Name: FE 200PPM Operator: LRW
Run Time: 10/11/07 09:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8379	-44.35	-1.7102	37.69	1.333	.0651
SDev	.2616	1.562	.89152	1.247	.0009	.0352
%RSD	31.22	3.522	52.13	3.308	.064	54.07

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-84.83	-.1954	.3088	-.5315	.9961	203300.
SDev	.0414	.0733	.111	.2559	.5915	325.1
%RSD	.0488	37.54	35.96	48.15	59.38	.1599

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	148.2	-18.32	-.4086	-.8942	-660.6	.9748
SDev	.5256	2.811	.0579	.6582	24.76	1.018
%RSD	.3546	15.34	14.16	73.61	3.748	104.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.4463	-1.0853	-1.4177	-.1558	-.2336	2.6641
SDev	.23763	.57475	.67743	1.443	0	4.6504
%RSD	6.8955	52.96	47.783	926.4	0	174.56

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3814	-3.095	1.5407	-2.3963	-.97846	-4.6784
SDev	.0188	.0464	.28402	1.0035	1.2686	.98963
%RSD	4.937	1.5	18.434	41.877	129.65	21.153

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.36235	-2.3064	5.0000	19364.3
SDev	.6423	.69497	0	8.06129
%RSD	177.26	30.132	0	.04162

Method: ARMY Sample Name: ZZZZZ Operator: LRW
Run Time: 10/11/07 09:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7100	-227.9	.11627	-5.598	-.0761	-.5403
SDev	.3201	3.235	1.5007	.2852	.0572	.0093
%RSD	45.08	1.419	1290.6	5.096	75.2	1.714

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-110.1	.0106	-.0325	-.8069	-8.705	14.64
SDev	.8876	.2018	.362	.4992	.0941	3.467
%RSD	.8059	1905	1114	61.86	1.08	23.68

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	128.0	4.314	.0236	-.7954	-227.3	.9762
SDev	12	.6559	.0493	.3462	441.2	.1053
%RSD	9.376	15.21	209.1	43.52	194.2	10.79

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6720	-.30963	1.0449	-1.841	-.5162	2.8936
SDev	.01834	.19242	1.3677	.9703	.0794	1.629
%RSD	1.0973	62.145	130.89	52.7	15.38	56.296

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3174	-1.292	.12491	-.52658	4.3830	.31852
SDev	.6196	.0372	1.2736	.92434	1.7254	.88889
%RSD	195.2	2.876	1019.6	175.54	39.364	279.06

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.8870	.62450	5.0000	35860.2
SDev	.39172	1.8549	0	2911.02
%RSD	20.759	297.03	0	8.11768

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 10:00 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2171	488200.	-1.3931	-7.493	1.868	.1367
SDev	.5953	1160	1.216	.7491	.0724	.0085
%RSD	274.2	.2376	87.285	9.998	3.873	6.248

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	471100.	.5489	1.881	-1.464	.8036	188300.
SDev	758.6	.2114	.709	1.089	.2943	473.6
%RSD	.161	38.51	37.69	74.38	36.62	.2515

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131.0	510200.	13.52	-.9938	-840.1	3.117
SDev	19.9	748.2	.0326	3.337	672.2	1.54
%RSD	15.19	.1466	.241	335.8	80.02	49.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.3749	.35802	-4.9930	.5841	-8.168	4.4089
SDev	2.0961	.69052	4.592	1.632	.3313	.26469
%RSD	152.45	192.87	91.968	279.4	4.056	6.0037

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1165	10.73	-32.240	16.632	12.815	-8.4595
SDev	.4384	.0835	2.1502	.0382	1.1855	3.7344
%RSD	376.2	.7788	6.6694	.2297	9.2503	44.144

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.5744	-6.2006	5.0000	18216.4
SDev	.04531	6.8619	0	4.52437
%RSD	1.7603	110.67	0	.02483

Method: ARMY Sample Name: ICSAB Operator:
Run Time: 10/11/07 10:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1008.	489100.	1006.6	1011.	515.6	496.2
SDev	1.895	583.3	1.8181	6.39	.8239	.4616
%RSD	.188	.1192	.18061	.6323	.1598	.093

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476200.	944.7	471.5	477.0	527.3	190500.
SDev	424	.9001	1.604	1.239	1.033	228.5
%RSD	.089	.0953	.3402	.2598	.196	.1199

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9992.	518200.	497.8	991.4	10850.	950.8
SDev	12.27	423.5	1.042	2.059	70.28	.4636
%RSD	.1228	.0817	.2092	.2077	.6476	.0488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.60	945.05	1088.6	990.7	975.2	950.15
SDev	.34133	1.0583	.38997	.2789	2.034	.37789
%RSD	.03613	.11198	.03582	.0282	.2086	.03977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	495.7	989.9	820.59	1007.2	936.49	948.65
SDev	.7687	2.048	3.4503	.1359	3.0305	1.0012
%RSD	.1551	.2069	.42045	.01349	.32359	.10553

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	920.74	1172.4	5.0000	18203.1
SDev	5.3564	3.2588	0	15.1324
%RSD	.58174	.27796	0	.08313

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 10:14 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.4	24920.	486.14	4797.	1980.	1971.
SDev	2.77	74.88	.5325	4.06	6.552	6.561
%RSD	.2903	.3005	.10953	.0846	.3309	.3329

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49180.	489.0	1914.	1945.	2025.	24640.
SDev	138.8	1.693	7.479	5.733	6.6	66.81
%RSD	.2822	.3463	.3908	.2948	.3259	.2711

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48950.	49320.	1992.	1972.	48260.	2014.
SDev	100.6	191.8	4.809	7.72	197.6	8.727
%RSD	.2056	.3888	.2415	.3915	.4094	.4334

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.77	482.39	528.34	4959.	4853.	978.49
SDev	1.7051	.78543	2.7937	16.44	12.92	2.0695
%RSD	.35539	.16282	.52876	.3316	.2661	.2115

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1893.	432.13	507.48	472.95	483.18
SDev	4.932	7.649	1.074	1.7138	2.6383	3.8735
%RSD	.2491	.404	.24853	.33769	.55783	.80167

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	451.21	566.85	5.0000	19311.9
SDev	.38911	4.3827	0	2.40305
%RSD	.08623	.77316	0	.01244

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 10:22 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1929	-1.101	-1.6741	9.933	-.0321	.1003
SDev	.4836	.9583	.81646	.8344	.0333	.0093
%RSD	250.7	87.06	48.771	8.4	103.9	9.279

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.773	.0362	-.0787	.1988	-1.335	-4.583
SDev	.7672	.0275	.0551	.1383	.3623	4.565
%RSD	11.33	76.09	70.02	69.57	27.13	99.61

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.3	.9574	-.0216	-1.062	-421.3	.8071
SDev	3.248	3.177	.0092	.3279	56.91	.3718
%RSD	2.205	331.8	42.54	30.89	13.51	46.06

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.7738	.56876	-1.5376	.8074	-.4533	1.5471
SDev	.42618	.37287	1.0495	1.656	.3108	1.2829
%RSD	11.293	65.559	68.255	205.1	68.55	82.924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2571	.0815	1.7838	-.03786	3.5138	3.9035
SDev	.0299	.1309	.47061	.32407	1.3837	.05187
%RSD	11.64	160.5	26.382	855.91	39.38	1.3289

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.7752	-3.6909	5.0000	19535.3
SDev	.38288	1.7647	0	2.68755
%RSD	13.797	47.812	0	.01375

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 13:48 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.8	24820.	478.37	4755.	1980.	1958.
SDev	1.479	43.07	2.0668	13.58	2.351	5.294
%RSD	.1564	.1735	.43204	.2855	.1188	.2704

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48980.	486.4	1901.	1932.	2002.	24310.
SDev	150.9	.6487	4.812	5.336	1.938	86.62
%RSD	.308	.1333	.2531	.2762	.0968	.3563

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	48980.	2030.	1959.	48330.	2011.
SDev	124.8	85.39	4.888	4.327	118.7	2.905
%RSD	.2534	.1743	.2407	.2209	.2456	.1444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	473.25	479.27	523.26	4901.	4819.	965.23
SDev	3.3762	1.7394	1.1978	7.392	14.25	.17069
%RSD	.71339	.36293	.22891	.1508	.2957	.01768

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1970.	1874.	429.70	504.02	463.03	478.36
SDev	5.777	2.019	1.7705	1.7239	3.0335	3.5472
%RSD	.2933	.1077	.41204	.34202	.65514	.74154

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	444.69	562.48	5.0000	19340.2
SDev	.59202	1.5003	0	34.506
%RSD	.13313	.26673	0	.17841

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 13:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0084	-6.955	.04391	11.15	.0907	.0937
SDev	.1704	1.588	.08341	1.62	.0028	.0225
%RSD	2020	22.83	189.96	14.54	3.095	24.06

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.326	.1081	.0354	-.2045	-.9518	.9350
SDev	.6177	.0116	.1645	.0724	.4045	2.51
%RSD	9.765	10.72	464.1	35.39	42.5	268.4

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.9	1.887	.0206	-.3605	-730.6	1.498
SDev	2.66	3.164	.0297	1.645	189	.1516
%RSD	1.861	167.6	143.9	456.3	25.87	10.12

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.16400	.42941	-1.2057	.1543	-.0120	1.6316
SDev	3.456	.64134	.9621	1.162	.3133	3.0104
%RSD	2107.2	149.35	79.796	753.1	2608	184.5

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0887	-.0821	-.07737	.68243	-.68967	.59020
SDev	.1527	.0867	.34644	1.1345	7.6895	1.3424
%RSD	172	105.6	447.75	166.24	1115	227.44

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0620	-2.8371	5.0000	19424.9
SDev	.84061	1.0228	0	67.4569
%RSD	40.767	36.05	0	.34727

Method: ARMY Sample Name: J8KMTB Operator: LRW
Run Time: 10/11/07 14:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3809	-61.51	-1.0167	-5.583	.7178	.0845
SDev	.8553	3.405	.7797	.4033	.0297	.0236
%RSD	224.5	5.537	76.686	7.223	4.141	27.97

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81.28	.0347	.1947	.5012	-1.063	9.724
SDev	.2641	.0565	.6041	.5705	.2076	1.697
%RSD	.3249	162.9	310.2	113.8	19.53	17.45

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	156.7	32.38	.4775	-1.180	-429.7	1.472
SDev	8.507	1.293	.0117	.1647	209.4	.0467
%RSD	5.429	3.994	2.458	13.96	48.73	3.172

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8553	.32929	-1.0818	H31.05	-.2336	3.2829
SDev	3.1651	.45278	2.6508	1.699	0	1.012
%RSD	170.6	137.5	245.03	5.471	0	30.827

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1521	3.116	3.0153	-1.0117	4.9455	.31250
SDev	.2402	.1552	1.1271	.11611	2.0151	3.7393
%RSD	158	4.979	37.38	11.477	40.746	1196.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.2263	-3.7319	5.0000	19625.6
SDev	2.0611	5.0033	0	48.6481
%RSD	48.769	134.07	0	.24788

Method: ARMY Sample Name: J8KMTC Operator: LRW
Run Time: 10/11/07 14:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50.18	1923.	1857.3	897.5	1939.	49.76
SDev	.0514	.9924	1.0137	1.442	1.85	.0396
%RSD	.1024	.0516	.05458	.1607	.0954	.0796

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47780.	48.29	473.4	193.8	249.4	1132.
SDev	24.91	.0132	.2649	.1379	.2371	6.07
%RSD	.0521	.0273	.056	.0711	.0951	.5364

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47300.	47570.	504.9	955.3	48420.	503.1
SDev	102.7	26.02	.101	2.151	370.9	.0715
%RSD	.2171	.0547	.02	.2252	.7661	.0142

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1826.7	474.07	504.85	1913.	943.7	1882.9
SDev	3.8887	.42675	1.8029	2.12	1.164	.20698
%RSD	.21288	.09001	.3571	.1108	.1234	.01099

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	488.6	482.7	427.81	497.17	1773.3	1853.3
SDev	.2042	.8986	.66211	.97037	.80706	6.233
%RSD	.0418	.1862	.15476	.19518	.04551	.33631

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	426.58	543.93	5.0000	19320.7
SDev	1.0131	2.1971	0	23.3345
%RSD	.23749	.40393	0	.12077

Method: ARMY Sample Name: J7914 Operator: LRW
Run Time: 10/11/07 14:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2592	23810.	85.649	7.329	126.7	1.148
SDev	.3349	.9364	1.7772	.5956	.1124	.0044
%RSD	129.2	.0039	2.075	8.128	.0887	.3828

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	928.4	.1614	15.15	301.9	69.25	128200.
SDev	1.539	.0087	.0904	1.057	.4222	338
%RSD	.1658	5.399	.5965	.3502	.6096	.2637

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3279.	4127.	514.9	10.63	-512.9	216.7
SDev	3.343	6.299	.7418	.1315	274.3	1.253
%RSD	.1019	.1527	.1441	1.237	53.48	.5785

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6469	232.80	1.5756	15.63	256.4	5.7660
SDev	2.7032	1.8312	3.1515	.5293	.3187	2.2746
%RSD	102.13	.7866	200.03	3.385	.1243	39.448

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	65.75	221.3	208.52	244.92	7.3541	.29680
SDev	.1604	.0463	1.3824	2.0552	8.4026	.14228
%RSD	.244	.0209	.66297	.83915	114.26	47.939

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0207	1.3534	5.0000	19788.5
SDev	1.9656	5.7063	0	48.2241
%RSD	97.275	421.64	0	.24369

Method: ARMY Sample Name: J7914L Operator: LRW
Run Time: 10/11/07 14:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0022	4763.	17.365	-3.079	26.23	.3194
SDev	.1254	7.61	.69634	.2862	.0896	.0003
%RSD	5580	.1598	4.01	9.295	.3418	.1084

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	139.3	.0242	3.071	60.90	12.02	25930.
SDev	.2721	.0841	.1126	.1445	.1121	47.14
%RSD	.1954	348	3.667	.2373	.9323	.1818

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	700.2	829.9	103.7	2.102	-645.3	43.79
SDev	5.619	1.109	.0784	1.804	195.9	.6543
%RSD	.8025	.1337	.0756	85.79	30.36	1.494

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9321	47.292	-1.8785	4.202	51.20	2.7808
SDev	1.8777	.52838	.36604	.0842	.268	1.372
%RSD	64.038	1.1173	19.486	2.005	.5235	49.337

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12.86	45.49	44.651	48.611	4.0161	2.3909
SDev	.1001	.4424	.7144	1.1488	4.0964	.76995
%RSD	.7785	.9725	1.6	2.3634	102	32.203

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0585	-3.8441	5.0000	19505.2
SDev	2.0234	1.559	0	16.4057
%RSD	98.291	40.555	0	.0841

Method: ARMY Sample Name: J7914X Operator: LRW
Run Time: 10/11/07 14:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1694	24230.	90.411	5.225	135.1	1.174
SDev	.2186	17.77	.06981	.287	.0855	.0144
%RSD	129	.0734	.07722	5.493	.0633	1.226

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	999.5	.1756	14.48	298.3	72.51	127100.
SDev	.1305	.027	.066	.5764	.1486	251.8
%RSD	.0131	15.37	.4557	.1933	.205	.1981

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3616.	4173.	566.9	10.74	-686.2	218.4
SDev	9.686	4.95	.6184	.4689	95.75	.347
%RSD	.2678	.1186	.1091	4.365	13.95	.1589

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8254	251.63	-1.1843	8.537	215.2	5.5208
SDev	1.7135	.70352	2.2266	.7531	.6941	.62518
%RSD	60.645	.27958	188.01	8.822	.3226	11.324

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	66.19	228.1	223.12	265.86	8.6487	-.08186
SDev	.4979	.1672	.81102	.64985	.93932	2.1
%RSD	.7522	.0733	.36348	.24443	10.861	2565

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.81588	-1.3682	5.0000	19977.1
SDev	.20232	3.2372	0	17.3945
%RSD	24.799	236.6	0	.08707

Method: ARMY Sample Name: J7914S Operator: LRW
Run Time: 10/11/07 15:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.86	44450.	1819.2	837.7	1962.	47.39
SDev	.3149	10.74	2.0795	1.961	2.162	.0323
%RSD	.6721	.0242	.11431	.2341	.1102	.0682

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45140.	44.74	454.9	490.6	307.0	129400.
SDev	90.97	.0985	.0969	1.032	.7223	232.7
%RSD	.2015	.2203	.0213	.2104	.2353	.1798

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50660.	49610.	962.0	880.1	45290.	678.7
SDev	16.18	109.9	.6889	.8917	141.1	.2388
%RSD	.0319	.2216	.0716	.1013	.3114	.0352

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1693.5	667.01	263.02	1670.	1099.	1723.2
SDev	5.4964	1.7863	20.689	.9985	1.118	9.6322
%RSD	.32455	.26781	7.866	.0598	.1017	.55896

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	545.2	681.4	598.90	701.01	1660.4	1710.1
SDev	.5056	.3381	.71306	3.0342	2.4839	7.0003
%RSD	.0927	.0496	.11906	.43282	.1496	.40935

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	235.76	276.63	5.0000	19565.3
SDev	1.2392	30.399	0	42.0024
%RSD	.52564	10.989	0	.21467

Method: ARMY Sample Name: J792M Operator: LRW
Run Time: 10/11/07 15:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8101	104600.	95.862	5.665	781.8	6.310
SDev	.1866	133.1	.94543	1.092	.8987	.0222
%RSD	23.04	.1273	.98624	19.27	.1149	.3518

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1520.	1.395	125.6	142.5	110.7	171800.
SDev	1.451	.1053	.1402	.6169	.7894	163.3
%RSD	.0955	7.554	.1117	.4328	.7129	.095

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4826.	14170.	12410.	11.62	-617.6	185.5
SDev	23.07	16	9.786	1.577	93.26	.3246
%RSD	.478	.113	.0789	13.57	15.1	.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.0701	266.24	-6.9176	20.62	617.8	17.776
SDev	1.0061	.74515	.50499	2.032	.9179	3.1127
%RSD	19.843	.27988	7.3001	9.855	.1486	17.511

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	196.6	557.4	232.74	282.96	11.264	1.9775
SDev	.4214	.1319	1.5409	.34785	1.1337	.94234
%RSD	.2144	.0237	.66209	.12293	10.064	47.654

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.67159	-10.707	5.0000	20608.5
SDev	1.2992	1.4057	0	41.4362
%RSD	193.45	13.13	0	.20106

Method: ARMY Sample Name: J792N Operator: LRW
Run Time: 10/11/07 15:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6984	101100.	90.332	-.1242	841.3	7.018
SDev	.3069	195.9	2.1583	4.605	.7322	.0069
%RSD	43.94	.1937	2.3893	3707	.087	.0987

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1653.	2.131	156.6	138.8	103.2	157400.
SDev	.939	.0124	.0859	.7409	.0426	71.3
%RSD	.0568	.5846	.0548	.5339	.0412	.0453

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4519.	12170.	17620.	13.67	-338.7	156.0
SDev	2.405	23.3	17.45	.1382	199.7	.1243
%RSD	.0532	.1915	.0991	1.011	58.98	.0797

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.4167	388.14	-3.8531	6.046	478.8	23.054
SDev	.50884	.24494	8.4543	4.596	.2479	4.3453
%RSD	9.3939	.0631	219.41	76.01	.0518	18.848

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.8	578.2	352.57	405.89	21.797	-2.7612
SDev	1.8	1.148	12.097	5.672	12.323	5.3892
%RSD	.9848	.1986	3.431	1.3974	56.533	195.17

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	6.1572	-8.8508	5.0000	20770.5
SDev	6.248	9.5557	0	23.0514
%RSD	101.48	107.97	0	.11098

Method: ARMY Sample Name: J792R Operator: LRW
Run Time: 10/11/07 15:20 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5845	101600.	93.172	1.676	687.0	5.169
SDev	.5865	298.5	1.7051	.5869	1.508	.0008
%RSD	100.3	.2937	1.83	35.03	.2195	.0148

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	1.387	147.1	161.1	105.7	172400.
SDev	6.281	.0024	.6481	.9117	.1893	766.1
%RSD	.5097	.173	.4406	.5658	.1791	.4443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4170.	12020.	13360.	12.43	-638.1	141.9
SDev	13.49	59.58	49.54	.2387	218.5	.4014
%RSD	.3236	.4955	.3707	1.921	34.25	.2829

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0988	282.16	-6.8775	9.015	483.7	17.308
SDev	2.1473	.39515	2.6873	1.081	1.637	.31171
%RSD	69.294	.14004	39.074	11.99	.3384	1.8009

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	203.1	465.5	245.03	300.69	9.8235	-.25846
SDev	.8314	.874	1.5004	.15666	.76445	2.8377
%RSD	.4093	.1877	.61233	.0521	7.7819	1097.9

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.48387	-10.553	5.0000	20551.2
SDev	2.1517	2.9548	0	123.886
%RSD	444.68	28	0	.60281

Method: ARMY Sample Name: J792W Operator: LRW
Run Time: 10/11/07 15:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9490	145900.	67.700	163.2	1449.	26.55
SDev	.3314	337.6	1.1654	.407	2.762	.0478
%RSD	34.93	.2313	1.7215	.2495	.1906	.1801

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476900.	5.951	46.72	266.3	166.8	158200.
SDev	1660	.0076	.083	.1455	.0364	453.8
%RSD	.348	.1284	.1776	.0546	.0218	.2868

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10650.	98950.	11640.	11.63	2984.	224.2
SDev	27.79	320.6	27.21	.2575	39.52	.8033
%RSD	.2609	.324	.2338	2.214	1.324	.3583

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.2723	834.28	-5.8807	5.119	2236.	17.747
SDev	.71503	2.4621	.86713	.7344	1.955	1.5604
%RSD	11.4	.29511	14.746	14.35	.0875	8.7924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	120.1	676.8	733.49	884.60	20.013	-.58756
SDev	.1641	.7596	3.4948	1.9464	6.1213	1.9841
%RSD	.1366	.1122	.47646	.22003	30.588	337.67

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.09474	-8.7693	5.0000	21872.2
SDev	.38273	1.4911	0	74.104
%RSD	403.96	17.004	0	.3388

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 15:33 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	949.5	24860.	487.49	4772.	1985.	1965.
SDev	2.355	4.422	3.6644	2.723	4.05	7.497
%RSD	.2481	.0178	.75168	.0571	.204	.3814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49220.	489.7	1916.	1943.	2014.	24500.
SDev	244.6	3.481	9.712	8.623	1.491	144.4
%RSD	.497	.7109	.5068	.4438	.0741	.5892

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49100.	49540.	2064.	1973.	48780.	2049.
SDev	.6436	333.2	3.852	8.265	598.4	22.45
%RSD	.0013	.6726	.1866	.419	1.227	1.096

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	475.26	478.64	525.32	4944.	4834.	968.31
SDev	.30601	.79702	5.3954	35.12	3.887	7.6283
%RSD	.06438	.16651	1.0271	.7104	.0804	.78779

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1891.	431.29	502.28	468.54	478.62
SDev	4.635	5.869	.02388	1.183	.49858	.70771
%RSD	.2341	.3104	.00553	.23552	.10641	.14786

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	449.16	563.35	5.0000	19498.3
SDev	.55877	7.8102	0	17.3945
%RSD	.1244	1.3864	0	.08921

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 15:41 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0344	-11.39	-.71842	10.90	-.0058	.0729
SDev	.4941	2.972	.81132	1.025	.0014	.0162
%RSD	1435	26.08	112.93	9.395	24.88	22.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.382	.0763	-.1393	-.0256	-1.942	-7.305
SDev	.7552	.0085	.4685	.3727	.254	6.349
%RSD	11.83	11.17	336.4	1454	13.08	86.92

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.2	2.721	.0584	-.7098	-442.4	1.004
SDev	7.235	1.406	.0079	.1625	74.55	1.178
%RSD	5.018	51.69	13.57	22.89	16.85	117.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.98458	-.34146	-1.1766	2.025	-.4545	-.33941
SDev	2.2661	1.1691	2.0727	.4855	.3124	.48351
%RSD	230.15	342.39	176.15	23.98	68.74	142.46

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1088	-.0832	.84641	-.93450	-2.3036	2.6262
SDev	.1815	.0745	1.789	2.646	2.1604	2.3188
%RSD	166.9	89.58	211.36	283.14	93.779	88.295

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3353	-3.4292	5.0000	19461.7
SDev	4.1926	5.2006	0	39.174
%RSD	125.7	151.66	0	.20128

Method: ARMY Sample Name: J7920 Operator: LRW
Run Time: 10/11/07 15:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9874	124400.	86.646	95.66	1133.	18.22
SDev	.2916	295.3	.64087	1.628	1.276	.0205
%RSD	29.53	.2373	.73964	1.702	.1126	.1127

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	320800.	6.513	67.11	245.5	217.2	164000.
SDev	278.8	.0257	.0891	.1113	.3658	92.44
%RSD	.0869	.394	.1327	.0453	.1684	.0564

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8626.	68800.	10700.	8.162	1899.	207.8
SDev	6.157	90.07	6.002	.7735	108.1	.7743
%RSD	.0714	.1309	.0561	9.477	5.694	.3726

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6593	721.22	-9.0513	13.17	1221.	14.536
SDev	.66303	.37413	8.4829	1.105	.7829	1.0847
%RSD	24.933	.05187	93.72	8.388	.0641	7.462

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.6	824.8	635.32	764.11	8.7208	-.36690
SDev	.0809	2.036	2.6508	1.8843	1.2573	1.6217
%RSD	.0584	.2468	.41724	.2466	14.417	442

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1575	-14.148	5.0000	21075.2
SDev	1.6164	13.525	0	36.2047
%RSD	139.65	95.596	0	.17178

Method: ARMY Sample Name: J7923 Operator: LRW
Run Time: 10/11/07 15:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7099	89340.	77.391	29.58	643.3	8.507
SDev	.2785	33.87	1.2775	.3997	.1044	.0023
%RSD	39.23	.0379	1.6507	1.351	.0162	.027

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	123000.	1.949	57.35	262.1	202.8	169900.
SDev	154.2	.032	.3634	.3344	.7825	262.2
%RSD	.1254	1.642	.6336	.1276	.3859	.1543

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8209.	31200.	6156.	24.78	542.6	214.0
SDev	8.323	41.46	8.035	.3924	278.2	1.037
%RSD	.1014	.1329	.1305	1.584	51.27	.4844

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.36826	236.20	-3.6289	4.005	516.4	12.819
SDev	1.521	.34116	1.4444	.2769	.0736	2.5335
%RSD	413.01	.14443	39.803	6.915	.0143	19.764

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	127.5	479.3	206.81	250.88	10.937	-4.9080
SDev	.159	.2729	3.2156	1.0939	1.5714	1.4958
%RSD	.1247	.0569	1.5549	.43602	14.368	30.476

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.88847	-5.8842	5.0000	20621.2
SDev	.83154	2.5807	0	65.6187
%RSD	93.593	43.858	0	.3182

Method: ARMY Sample Name: J7927 Operator: LRW
Run Time: 10/11/07 15:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6299	90250.	83.531	30.68	667.2	8.083
SDev	.1252	80.35	1.8788	.1857	.2479	.0256
%RSD	19.87	.089	2.2492	.6054	.0372	.3167

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118200.	2.974	61.94	230.7	207.4	167600.
SDev	157.3	.1236	.1201	.705	.4101	294
%RSD	.1331	4.158	.1939	.3055	.1977	.1755

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8433.	30500.	5531.	11.13	356.6	218.1
SDev	.0269	38.66	5.092	.4384	108.2	1.345
%RSD	.0003	.1268	.0921	3.939	30.34	.6166

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2412	231.24	-4.9460	2.908	612.8	11.238
SDev	3.6705	.30885	.2046	.4292	.4397	.7114
%RSD	295.72	.13356	4.1367	14.76	.0718	6.3306

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	133.2	504.9	201.79	245.94	7.3108	-1.7890
SDev	.3862	.7196	1.6222	1.2729	3.3742	3.8184
%RSD	.2899	.1425	.80391	.51757	46.154	213.43

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.0053	-6.4142	5.0000	20817.3
SDev	2.0357	1.3231	0	38.0429
%RSD	101.52	20.627	0	.18274

Method: ARMY Sample Name: J8AT0 Operator: LRW
Run Time: 10/11/07 16:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5325	59980.	82.739	48.36	930.2	6.368
SDev	.0322	223.4	.14203	.0823	2.975	.0539
%RSD	6.051	.3725	.17166	.1702	.3199	.8471

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	159600.	11.59	37.14	252.2	249.4	107300.
SDev	364.8	.1562	.3203	1.037	.9713	239.3
%RSD	.2285	1.348	.8626	.4111	.3895	.2231

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5029.	29160.	7169.	5.788	364.5	153.0
SDev	15.3	56.2	17.14	.4876	38.66	.8231
%RSD	.3043	.1928	.2392	8.424	10.61	.5381

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8595	1565.6	-3.3675	4.983	981.8	12.071
SDev	3.3345	3.5608	1.0186	.3605	2.712	.3276
%RSD	116.61	.22744	30.247	7.234	.2762	2.7139

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76.35	1124.	1399.0	1648.7	9.7484	-.57974
SDev	.6098	5.435	3.1779	3.7519	.52196	5.2599
%RSD	.7986	.4836	.22714	.22756	5.3544	907.27

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.59128	-5.3440	5.0000	20656.1
SDev	.08155	1.4864	0	63.2156
%RSD	13.793	27.815	0	.30603

Method: ARMY Sample Name: J8AT0L Operator: LRW
Run Time: 10/11/07 16:08 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0612	12430.	16.920	6.152	193.6	1.387
SDev	.2843	17.92	.7921	.1445	.2343	.0009
%RSD	464.5	.1441	4.6815	2.349	.121	.0616

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33910.	2.454	7.748	53.57	50.14	22890.
SDev	25.36	.0179	.3528	.0193	.5179	12.94
%RSD	.0748	.731	4.553	.036	1.033	.0565

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	984.9	6105.	1540.	.7739	-345.3	32.72
SDev	1.469	3.828	.3738	.6521	121	.4628
%RSD	.1492	.0627	.0243	84.26	35.03	1.415

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3241	334.24	-3.0032	2.982	206.5	2.6512
SDev	.30579	1.8871	4.2992	.579	.0728	.99916
%RSD	13.158	.56457	143.15	19.42	.0352	37.688

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15.91	238.9	299.81	351.43	5.5819	.69758
SDev	.4445	.0115	.12999	2.7643	1.5475	1.2311
%RSD	2.793	.0048	.04335	.78657	27.723	176.47

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4729	-5.2379	5.0000	19684.3
SDev	1.3286	5.7822	0	6.93019
%RSD	90.204	110.39	0	.0352

Method: ARMY Sample Name: J8AT0X Operator: LRW
Run Time: 10/11/07 16:13 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.036	90020.	100.76	65.66	1292.	9.681
SDev	.5105	405.5	.36231	.3084	6.202	.0702
%RSD	49.3	.4504	.35956	.4698	.4799	.7249

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	269200.	18.75	57.46	461.6	385.2	175700.
SDev	902.3	.0589	.3051	1.851	2.026	644
%RSD	.3352	.3141	.5309	.4011	.5259	.3666

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7166.	43360.	10920.	10.56	950.1	260.9
SDev	16.19	151.8	38.2	.0036	205.4	.574
%RSD	.2259	.35	.3498	.0339	21.62	.22

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.79047	3499.7	-4.8087	15.37	1164.	16.084
SDev	.42226	4.8286	.15455	.4722	4.178	4.2795
%RSD	53.419	.13797	3.214	3.071	.359	26.606

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118.7	1806.	3129.0	3684.7	5.3887	-3.8754
SDev	.4441	8.583	1.6191	8.0477	5.8049	3.5312
%RSD	.374	.4753	.05174	.2184	107.72	91.118

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.70722	-7.5626	5.0000	21453.2
SDev	4.1187	2.288	0	20.3638
%RSD	582.37	30.254	0	.09492

Method: ARMY Sample Name: J8AT0S Operator: LRW
Run Time: 10/11/07 16:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.75	61880.	1294.1	663.9	2020.	38.27
SDev	.0902	111	1.3141	2.084	2.951	.0571
%RSD	.2756	.1795	.10154	.314	.1461	.1493

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	173900.	41.14	340.8	360.0	406.7	83160.
SDev	69.63	.0082	.3815	.0601	.7896	13.31
%RSD	.04	.0199	.112	.0167	.1941	.016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38430.	57260.	6179.	616.4	33690.	466.5
SDev	63.21	2.458	2.422	1.677	70.79	.6179
%RSD	.1645	.0043	.0392	.2721	.2101	.1325

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1214.9	1512.4	171.28	1182.	1729.	1242.5
SDev	.10651	3.0758	.40189	.5237	1.419	1.0752
%RSD	.00876	.20337	.23464	.0443	.0821	.08653

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	398.3	1198.	1353.3	1591.8	1192.8	1226.0
SDev	.0411	1.887	2.4454	5.8322	7.3871	3.5283
%RSD	.0103	.1575	.18068	.36638	.61928	.28779

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	147.65	183.07	5.0000	20237.1
SDev	1.4573	1.3301	0	2.12132
%RSD	.98695	.72653	0	.01048

Method: ARMY Sample Name: J8AT5 Operator: LRW
Run Time: 10/11/07 16:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1146	49660.	68.349	11.02	860.1	3.868
SDev	.2592	106.7	.15173	.0143	1.418	.0077
%RSD	226.2	.2149	.222	.13	.1649	.2002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44140.	28.64	58.19	334.7	237.9	134700.
SDev	155.8	.0096	.0497	1.324	.4883	484.5
%RSD	.3529	.0335	.0855	.3957	.2052	.3596

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3825.	13800.	3893.	12.24	-57.85	204.4
SDev	11.33	40.97	8.816	.0843	284.2	.0048
%RSD	.2963	.2969	.2264	.6884	491.3	.0024

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.00761	4932.0	-1.6340	24.39	490.1	2.6042
SDev	1.6228	19.784	.28154	2.23	2.083	7.6977
%RSD	21319	.40113	17.231	9.141	.425	295.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89.79	2363.	4421.9	5186.6	8.3456	-4.1551
SDev	.0034	2.972	19.229	20.061	1.8545	3.3589
%RSD	.0038	.1258	.43484	.38678	22.221	80.837

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46758	-2.6832	5.0000	20238.3
SDev	3.404	2.1216	0	110.733
%RSD	728	79.07	0	.54714

Method: ARMY Sample Name: J8AT9 Operator: LRW
Run Time: 10/11/07 16:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8001	44760.	47.737	42.86	525.0	6.519
SDev	.0526	4.4	.11043	.4938	.5012	.0202
%RSD	6.575	.0098	.23134	1.152	.0955	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	165800.	2.645	27.70	295.0	85.18	94770.
SDev	399.1	.1105	.1767	.312	.0852	221.3
%RSD	.2407	4.178	.6378	.1058	.1001	.2335

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3395.	25030.	13090.	1.502	468.4	103.8
SDev	5.837	71.11	28.79	.1462	1.731	.7313
%RSD	.172	.2841	.2198	9.738	.3696	.7044

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3573	197.61	-6.0027	3.505	1020.	16.358
SDev	.95395	1.4906	1.38	1.086	1.713	.33448
%RSD	70.281	.75431	22.989	30.99	.168	2.0447

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98.72	348.1	172.05	210.37	7.2676	-1.5934
SDev	.1969	.7792	.53277	1.9688	.19054	1.5253
%RSD	.1994	.2239	.30967	.93586	2.6218	95.731

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.03396	-8.9825	5.0000	20583.3
SDev	.6365	2.3867	0	64.3467
%RSD	1874.3	26.57	0	.31261

Method: ARMY Sample Name: J8AVC Operator: LRW
Run Time: 10/11/07 16:34 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3072	100300.	89.926	36.25	737.3	8.557
SDev	.3288	185.5	.38224	.8783	1.373	.0011
%RSD	107	.185	.42507	2.423	.1863	.0125

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	164100.	1.624	62.68	179.3	94.60	154700.
SDev	225.4	.0527	.0556	.6281	.2977	188.7
%RSD	.1373	3.243	.0887	.3503	.3146	.122

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5572.	34100.	6763.	6.717	616.3	154.7
SDev	15.42	26.64	4.188	.9553	119.2	1.025
%RSD	.2768	.0781	.0619	14.22	19.34	.6629

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.84553	158.97	-4.4071	3.532	533.5	13.472
SDev	.71287	.14653	.60153	1.473	.9894	1.8141
%RSD	84.31	.09217	13.649	41.7	.1855	13.466

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.6	405.5	136.11	170.39	8.3292	-2.8907
SDev	.0564	.1151	.51412	.47636	.15989	1.1486
%RSD	.0385	.0284	.37772	.27957	1.9197	39.735

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.2506	-5.9831	5.0000	20280.4
SDev	.85884	1.3306	0	26.87
%RSD	68.677	22.24	0	.13249

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 16:42 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.3	24820.	479.62	4808.	1992.	1963.
SDev	.8058	18.23	.60369	33.1	1.924	1.612
%RSD	.0852	.0734	.12587	.6885	.0966	.0821

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	487.9	1915.	1944.	2009.	24560.
SDev	81.11	.6098	1.869	2.412	.1529	72.4
%RSD	.1648	.125	.0976	.124	.0076	.2948

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49430.	49350.	2058.	1973.	48990.	2033.
SDev	45.19	77.24	2.211	4.332	211.5	7.091
%RSD	.0914	.1565	.1074	.2196	.4318	.3488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	477.53	481.68	526.08	4919.	4849.	967.60
SDev	1.1845	.73865	1.8865	3.475	10.36	.7213
%RSD	.24804	.15334	.35858	.0706	.2136	.07454

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1988.	1884.	435.20	504.89	469.69	481.45
SDev	2.343	.1735	.69648	1.4552	.83576	1.3586
%RSD	.1179	.0092	.16003	.28821	.17793	.28218

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	446.21	565.96	5.0000	19209.9
SDev	1.1327	3.3938	0	8.05991
%RSD	.25385	.59964	0	.04195

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 16:50 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1422	-8.778	.50619	11.08	-.0300	.0296
SDev	.0536	3.964	.78909	1.169	.0364	.0053
%RSD	37.72	45.16	155.89	10.55	121.2	17.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.973	.0135	.2123	-.0921	-2.047	-10.29
SDev	1.132	.0109	.1396	.05	.087	3.517
%RSD	18.95	80.71	65.77	54.27	4.249	34.19

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.7	.5676	-.0004	-.3656	-465.9	.5122
SDev	3.437	2.62	.0207	1.968	26.47	.5927
%RSD	2.391	461.5	4677	538.4	5.681	115.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8474	.42735	-2.1869	-.2953	-.3068	-.21571
SDev	1.5066	.75789	.16658	.4408	.1036	1.5668
%RSD	81.55	177.34	7.6172	149.3	33.76	726.31

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4697	-.0150	3.3901	-1.0518	3.3485	1.0980
SDev	.4535	.0112	.33134	1.3017	1.8902	1.3151
%RSD	96.55	74.89	9.7738	123.76	56.449	119.77

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7866	-4.1707	5.0000	19478.6
SDev	.45292	.47587	0	80.327
%RSD	25.351	11.41	0	.41238

Method: ARMY Sample Name: J8FKF Operator: LRW
Run Time: 10/11/07 16:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7190	114200.	78.823	7.734	598.3	5.176
SDev	.2606	107.2	.6412	.3897	.6912	.0071
%RSD	36.24	.0939	.81347	5.039	.1155	.1379

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12720.	2.127	75.28	161.7	68.11	185200.
SDev	6.316	.1113	.043	.4442	.0304	51.51
%RSD	.0496	5.233	.0571	.2748	.0447	.0278

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4975.	16580.	6636.	16.01	-592.2	111.9
SDev	10.98	1.967	5.612	.4942	309.2	1.295
%RSD	.2207	.0119	.0846	3.087	52.22	1.157

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.5502	216.29	-3.8267	4.943	485.6	9.2490
SDev	1.4104	.39158	.27529	.7902	3.375	1.6614
%RSD	18.68	.18105	7.1941	15.99	.6951	17.963

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223.5	486.1	185.41	231.70	14.067	4.2970
SDev	.3311	1.371	.70333	.23595	2.186	3.2059
%RSD	.1481	.282	.37933	.10183	15.541	74.609

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35010	-5.5623	5.0000	20079.3
SDev	.83926	.00627	0	18.8088
%RSD	239.72	.11272	0	.09367

Method: ARMY Sample Name: J8FKFL Operator: LRW
Run Time: 10/11/07 16:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.348	23420.	15.309	.4616	121.6	1.095
SDev	.9197	43.1	.85745	.1664	.2634	.0224
%RSD	68.24	.184	5.6011	36.06	.2166	2.043

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2562.	.5253	16.51	33.77	12.71	38310.
SDev	7.386	.0767	.7527	.601	.3462	79.98
%RSD	.2883	14.6	4.559	1.78	2.723	.2088

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	987.8	3410.	1386.	2.997	-180.7	24.23
SDev	12.38	12.61	4.189	.9858	240.3	.7811
%RSD	1.253	.3698	.3022	32.89	133	3.224

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6516	44.091	-2.9305	2.161	98.04	6.1855
SDev	.64962	.93706	1.5883	1.01	.4778	4.8717
%RSD	24.499	2.1253	54.2	46.73	.4874	78.76

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45.58	100.2	42.618	44.827	8.1886	-.11269
SDev	.0318	.1939	3.5881	3.1963	.93136	.50897
%RSD	.0698	.1935	8.4194	7.1302	11.374	451.65

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6400	-6.2108	5.0000	19703.2
SDev	.9053	1.9293	0	48.3664
%RSD	24.871	31.064	0	.24547

Method: ARMY Sample Name: J8FKFX Operator: LRW
Run Time: 10/11/07 17:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3782	107900.	78.900	5.688	565.5	4.982
SDev	.5397	1312	2.5593	2.352	6.308	.0651
%RSD	142.7	1.216	3.2438	41.35	1.116	1.306

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11760.	1.729	71.82	149.7	64.10	187200.
SDev	154.9	.0413	.8475	2.194	.9778	2411
%RSD	1.318	2.391	1.18	1.466	1.525	1.288

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4678.	15560.	6735.	15.54	-552.4	103.3
SDev	45.92	217.7	85.05	1.31	304.5	1.472
%RSD	.9816	1.399	1.263	8.43	55.13	1.425

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6786	202.67	-3.7183	4.221	453.5	11.290
SDev	2.8017	2.1555	2.1406	.549	5.658	1.3641
%RSD	59.883	1.0635	57.57	13.01	1.248	12.082

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	217.4	451.1	174.63	216.68	10.254	1.8950
SDev	2.977	4.467	2.0807	2.1929	1.1869	4.793
%RSD	1.369	.9901	1.1915	1.0121	11.575	252.93

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.92428	-5.1132	5.0000	20132.4
SDev	.93735	2.7413	0	224.294
%RSD	101.41	53.613	0	1.11409

Method: ARMY Sample Name: J8FKFS Operator: LRW
Run Time: 10/11/07 17:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.76	151100.	1818.8	766.0	2494.	51.88
SDev	.037	40.4	.03513	2.277	1.707	.088
%RSD	.0827	.0267	.00193	.2973	.0684	.1697

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57380.	46.60	516.2	369.1	313.2	194700.
SDev	115.4	.0038	.5129	1.134	.0603	371.3
%RSD	.201	.0081	.0993	.3071	.0192	.1906

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52440.	64740.	7229.	888.2	46090.	587.1
SDev	61.1	158.9	10.45	5.393	144.5	1.881
%RSD	.1165	.2454	.1445	.6072	.3134	.3204

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1703.5	648.62	167.82	1542.	1621.	1728.8
SDev	5.7989	2.0548	3.362	.3921	1.463	6.1293
%RSD	.34041	.31679	2.0034	.0254	.0903	.35453

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	744.2	1001.	575.88	684.94	1674.1	1718.2
SDev	.9986	1.388	2.0756	2.0444	2.8926	10.138
%RSD	.1342	.1387	.36041	.29848	.17278	.59004

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	146.10	178.66	5.0000	19581.7
SDev	2.8163	3.6344	0	53.8824
%RSD	1.9277	2.0342	0	.27516

Method: ARMY Sample Name: J8FKG Operator: LRW
Run Time: 10/11/07 17:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3267	104800.	72.010	7.171	539.1	4.619
SDev	.2497	289.7	.5889	1.964	.4186	.0088
%RSD	76.44	.2763	.81781	27.38	.0777	.1904

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11500.	1.663	62.89	146.7	60.60	167100.
SDev	53.36	.0367	.4949	.179	.0752	703.7
%RSD	.4641	2.204	.7869	.122	.1241	.4212

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4665.	15300.	5526.	13.47	-787.7	103.5
SDev	3.707	86.27	19.87	1.007	222.6	.378
%RSD	.0795	.5637	.3597	7.477	28.26	.3651

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.6676	184.11	-4.0424	7.443	475.5	13.479
SDev	1.1528	2.0137	.3235	.5267	1.072	1.6975
%RSD	31.433	1.0938	8.0027	7.077	.2254	12.594

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	205.8	449.0	159.11	196.59	6.5704	2.2185
SDev	1.266	1.712	2.1089	1.9662	4.3092	3.8798
%RSD	.6154	.3813	1.3254	1.0002	65.585	174.89

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.02582	-6.0735	5.0000	20060.7
SDev	2.478	1.7222	0	82.4484
%RSD	9597	28.355	0	.41099

Method: ARMY Sample Name: J8FKH Operator: LRW
Run Time: 10/11/07 17:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1816	127800.	64.334	12.56	2961.	8.312
SDev	.0226	206.6	.80669	.6778	4.743	.016
%RSD	12.46	.1616	1.2539	5.397	.1602	.1926

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	64010.	11.32	36.20	144.1	373.8	86670.
SDev	76.26	.1168	.2099	.2362	.0695	93.69
%RSD	.1191	1.031	.58	.1639	.0186	.1081

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7654.	18940.	1711.	10.12	4421.	183.1
SDev	10.59	21.11	3.217	.975	2.19	.3851
%RSD	.1384	.1115	.188	9.636	.0495	.2103

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.8996	371.35	2.9799	39.76	222.2	11.060
SDev	1.7821	.71513	2.2263	2.001	1.68	2.0861
%RSD	18.001	.19257	74.711	5.031	.7563	18.861

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	180.8	931.3	325.84	394.06	17.997	5.8571
SDev	.1599	.3139	1.682	1.9119	.63551	2.3545
%RSD	.0884	.0337	.51619	.48517	3.5313	40.199

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.9727	1.9850	5.0000	22431.6
SDev	1.5708	2.5535	0	48.9326
%RSD	31.588	128.64	0	.21814

Method: ARMY Sample Name: J8FLN Operator: LRW
Run Time: 10/11/07 17:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6205	101900.	108.76	7.885	578.6	5.017
SDev	.1021	252.9	.02397	.9697	1.145	.0014
%RSD	16.46	.2482	.02204	12.3	.1979	.0283

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	19160.	1.339	76.35	189.5	151.1	213800.
SDev	40.66	.0319	.1257	.2985	.0024	445.2
%RSD	.2123	2.384	.1647	.1575	.0016	.2082

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7110.	21810.	2915.	8.547	-550.6	199.5
SDev	7.482	59.65	6.836	.013	171.2	.3795
%RSD	.1052	.2735	.2346	.1526	31.1	.1903

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.09272	174.52	-2.3032	3.219	376.1	11.016
SDev	.01733	1.076	.47106	.3289	.8696	1.4876
%RSD	18.694	.61656	20.453	10.22	.2312	13.504

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	171.2	537.6	149.10	187.22	1.9862	-.85260
SDev	.7026	.5471	2.3706	.42976	4.2538	2.0977
%RSD	.4103	.1018	1.59	.22955	214.17	246.04

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.58024	-3.1633	5.0000	20533.5
SDev	1.0499	.18209	0	43.9815
%RSD	180.93	5.7565	0	.21419

Method: ARMY Sample Name: J8FLNL Operator: LRW
Run Time: 10/11/07 17:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1541	21210.	22.194	-3.444	119.9	1.027
SDev	.3273	50.19	2.638	.6555	.3621	.0011
%RSD	212.4	.2367	11.886	19.03	.3021	.1073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3965.	.3081	15.79	39.83	29.63	45280.
SDev	12.6	.0221	.1026	.4534	.2041	112.8
%RSD	.3177	7.182	.6497	1.138	.6889	.2491

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1358.	4549.	613.7	1.690	-579.1	42.06
SDev	15.91	16.35	1.986	.3416	114.9	.1569
%RSD	1.171	.3595	.3236	20.21	19.85	.373

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.45799	36.455	-2.2547	-.0633	78.02	5.6718
SDev	.84091	.53227	.01386	.3448	.7972	5.316
%RSD	183.61	1.4601	.61491	544.9	1.022	93.727

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	35.45	112.5	32.987	38.186	5.2836	-1.9512
SDev	.1806	.2809	.77665	.41026	3.4863	.4798
%RSD	.5096	.2498	2.3544	1.0744	65.984	24.59

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3573	-4.0580	5.0000	19677.8
SDev	.83703	.3971	0	97.0145
%RSD	61.669	9.7857	0	.49301

Method: ARMY Sample Name: J8FLNX Operator: LRW
Run Time: 10/11/07 17:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4967	107000.	111.76	9.407	624.2	5.310
SDev	.2571	184	.3833	1.209	1.093	.0305
%RSD	51.76	.1719	.34296	12.85	.175	.5752

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20360.	1.514	78.93	212.9	154.2	219600.
SDev	43.8	.1348	.2592	1.057	.6246	594.2
%RSD	.2151	8.903	.3284	.4966	.4051	.2705

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7888.	22650.	3361.	7.950	-407.9	212.6
SDev	7.22	55.81	8.355	1.239	108.2	.4734
%RSD	.0915	.2464	.2486	15.59	26.52	.2227

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.5878	175.23	-2.5734	3.948	447.1	9.1500
SDev	1.182	.61262	.21436	.5074	1.465	.14962
%RSD	74.445	.34961	8.33	12.85	.3276	1.6352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.1	556.0	149.95	187.85	6.9207	-5.8357
SDev	.4474	.2029	.67195	.58299	8.5666	2.5047
%RSD	.2456	.0365	.44812	.31035	123.78	42.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.6217	-3.0486	5.0000	20512.9
SDev	1.2219	.28865	0	12.8688
%RSD	75.348	9.4684	0	.06273

Method: ARMY Sample Name: J8FLNS Operator: LRW
Run Time: 10/11/07 17:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42.60	140100.	1747.1	761.0	2362.	48.75
SDev	.2822	226.1	.28001	2.725	3.63	.0456
%RSD	.6624	.1614	.01602	.3581	.1537	.0935

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	60860.	43.32	494.5	406.3	378.4	223400.
SDev	20.14	.0681	.1259	.1144	.5512	120.6
%RSD	.0331	.1572	.0255	.0282	.1457	.054

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54340.	67220.	3537.	815.7	43760.	647.5
SDev	72.93	44.09	3.26	3.718	40.44	.0866
%RSD	.1342	.0656	.0922	.4559	.0924	.0134

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1590.6	607.24	149.51	1452.	1210.	1620.3
SDev	1.5523	.42433	1.9587	1.389	1.493	3.4661
%RSD	.09759	.06987	1.3101	.0957	.1234	.21391

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	664.6	975.3	538.80	641.42	1572.4	1599.7
SDev	1.45	.61	2.3132	1.791	5.2462	.29192
%RSD	.2181	.0625	.42931	.27923	.33364	.01824

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	127.55	160.47	5.0000	20069
SDev	1.8823	3.8763	0	42.1433
%RSD	1.4758	2.4156	0	.20999

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 17:49 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	947.7	24950.	483.18	4903.	2015.	1971.
SDev	1.59	18.81	.01834	25.36	.8329	1.488
%RSD	.1677	.0754	.00379	.5171	.0413	.0755

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49480.	489.1	1927.	1956.	2025.	24760.
SDev	65.79	.0071	1.259	1.77	2.193	58.71
%RSD	.133	.0014	.0654	.0905	.1083	.2372

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49680.	49600.	2058.	1991.	49290.	2031.
SDev	50.76	43.82	2.151	2.952	217.8	7.369
%RSD	.1022	.0883	.1045	.1483	.4418	.3628

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	478.63	484.82	526.44	4929.	4898.	970.93
SDev	3.2791	.61336	2.6436	.956	8.435	1.5972
%RSD	.6851	.12651	.50217	.0194	.1722	.1645

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2006.	1890.	437.84	508.27	474.55	480.66
SDev	1.576	.2691	1.5722	.13463	3.1929	3.3221
%RSD	.0785	.0142	.35907	.02648	.67282	.69115

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	450.01	564.60	5.0000	19183.8
SDev	2.0368	4.9803	0	41.2953
%RSD	.4526	.8821	0	.21526

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 17:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1989	-8.682	-1.1010	11.89	-.0533	-.0064
SDev	.2247	1.816	.70991	.9259	.0016	.0068
%RSD	113	20.92	64.48	7.786	2.973	106.4

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.303	.0205	.0954	.1053	-1.071	-9.299
SDev	1.226	.0621	.4135	.2343	.2934	.709
%RSD	37.11	303.4	433.5	222.5	27.39	7.624

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.0	.3292	.0648	-.3620	-280.7	1.117
SDev	10.03	4.197	.0168	1.314	9.754	.6986
%RSD	6.825	1275	25.93	362.9	3.475	62.57

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1650	.27897	-1.5997	1.550	-.2336	3.0214
SDev	2.3513	.24318	1.7487	.907	0	.82878
%RSD	108.61	87.17	109.32	58.52	0	27.431

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4279	.0372	1.3418	-.25165	2.6837	1.9060
SDev	.0922	.0162	.9436	.83569	1.6434	4.3456
%RSD	21.54	43.6	70.322	332.08	61.235	228

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0525	-3.4231	5.0000	19463
SDev	1.4468	3.3441	0	46.3859
%RSD	70.487	97.692	0	.23832

Method: ARMY Sample Name: J8FRK Operator: LRW
Run Time: 10/11/07 18:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6082	101500.	114.95	12.39	587.2	5.163
SDev	.069	81.25	.21698	1.841	.7581	.0043
%RSD	11.35	.0801	.18876	14.86	.1291	.0834

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21440.	2.721	76.66	172.1	151.8	222400.
SDev	5.556	.036	.0815	.079	.0017	3.447
%RSD	.0259	1.324	.1064	.0459	.0011	.0016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7073.	22090.	3471.	9.886	-554.5	197.1
SDev	12.38	8.168	1.497	.4601	210.4	.4663
%RSD	.1751	.037	.0431	4.654	37.95	.2366

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.67878	171.71	-.78393	3.304	423.6	12.589
SDev	1.2537	1.0547	1.6866	2.485	.7334	1.0704
%RSD	184.7	.61419	215.14	75.21	.1731	8.5024

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	178.7	567.0	146.25	184.43	2.8822	-2.4566
SDev	.091	1.017	.02354	1.5929	2.4822	.64042
%RSD	.0509	.1794	.01609	.86372	86.119	26.069

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35112	-1.0000	5.0000	20446.3
SDev	1.1747	1.9422	0	21.9203
%RSD	334.54	194.21	0	.1072

Method: ARMY Sample Name: J8FR7 Operator: LRW
Run Time: 10/11/07 18:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4481	101000.	115.43	13.01	975.9	8.064
SDev	.1985	90.03	1.3164	1.306	1.386	.0314
%RSD	44.29	.0891	1.1405	10.03	.1421	.3898

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53620.	2.097	102.7	160.2	139.0	228000.
SDev	24.59	.1618	.2394	.1048	.2443	198.9
%RSD	.0459	7.716	.2331	.0654	.1758	.0872

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6335.	20360.	12230.	9.074	102.9	172.3
SDev	3.998	32.35	1.164	.1482	173.8	1.103
%RSD	.0631	.1589	.0095	1.633	168.9	.6402

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.04428	180.50	-5.2760	7.009	408.7	16.188
SDev	2.8267	.19795	.99688	1.102	.2749	3.6183
%RSD	6382.6	.10967	18.895	15.72	.0673	22.351

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	193.9	586.2	157.40	192.03	7.7949	-3.8252
SDev	.4072	.958	4.5863	2.5865	3.9663	2.2578
%RSD	.21	.1634	2.9137	1.347	50.883	59.023

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4301	-8.6240	5.0000	20402.7
SDev	2.3846	2.6851	0	25.8798
%RSD	166.74	31.135	0	.12684

Method: ARMY Sample Name: J8FR7L Operator: LRW
Run Time: 10/11/07 18:11 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3535	21290.	23.807	.3917	205.7	1.681
SDev	.2562	45.44	2.6511	1.7	.3317	.0257
%RSD	72.46	.2134	11.136	434.1	.1612	1.532

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11370.	.4018	21.67	34.11	28.04	48920.
SDev	43.06	.1006	.0133	.8926	.5348	145.5
%RSD	.3786	25.03	.0613	2.617	1.907	.2974

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	4302.	2685.	.1155	-481.2	37.13
SDev	14.58	20.09	9.462	.3319	397.9	.2998
%RSD	1.183	.4671	.3524	287.4	82.69	.8074

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3981	38.794	-2.4467	1.824	86.98	4.3004
SDev	3.0688	.69316	.0992	1.232	.6922	2.6863
%RSD	127.97	1.7868	4.0547	67.54	.7959	62.467

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	41.27	123.9	33.228	41.573	1.8737	2.6599
SDev	.2248	.3549	.07653	1.0774	4.8764	2.1664
%RSD	.5447	.2863	.23031	2.5917	260.25	81.445

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3263	-4.3305	5.0000	19659.1
SDev	.94359	.32235	0	63.2156
%RSD	71.143	7.4439	0	.32155

Method: ARMY Sample Name: J8FR7X Operator: LRW
Run Time: 10/11/07 18:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4374	97400.	113.60	12.08	810.9	7.527
SDev	.1892	72.32	1.6966	1.554	1.234	.0226
%RSD	43.25	.0742	1.4935	12.86	.1522	.3002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50260.	1.788	86.10	151.8	117.1	214000.
SDev	53.29	.1112	.2405	.9099	.0226	299.2
%RSD	.106	6.221	.2794	.5994	.0193	.1398

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6236.	18850.	9792.	6.495	-125.2	157.2
SDev	14.36	10.67	13.65	.1735	412	.7735
%RSD	.2303	.0566	.1394	2.672	329.2	.4921

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3603	171.75	-5.6997	5.409	399.1	14.569
SDev	1.6901	.92478	3.0781	.2834	1.173	1.1897
%RSD	71.606	.53844	54.005	5.239	.2939	8.1657

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	185.2	521.5	147.52	183.85	9.8090	-1.3585
SDev	.0343	.2093	.82915	1.8004	.31138	2.3784
%RSD	.0185	.0401	.56205	.97931	3.1745	175.08

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.5111	-7.7908	5.0000	20390
SDev	2.4572	3.3881	0	44.6886
%RSD	162.6	43.489	0	.21916

Method: ARMY Sample Name: J8FR7S Operator: LRW
Run Time: 10/11/07 18:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.18	150300.	1898.1	851.6	2836.	55.72
SDev	.1075	291.5	4.6792	.8067	4.611	.0886
%RSD	.2329	.1939	.24652	.0947	.1626	.159

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	96730.	47.15	555.2	385.7	373.3	225000.
SDev	119.7	.1575	1.314	.8576	.307	319.3
%RSD	.1237	.334	.2367	.2223	.0822	.1419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57300.	70020.	11580.	893.7	48120.	651.1
SDev	5.519	117.2	14.52	1.255	157.7	1.887
%RSD	.0096	.1674	.1254	.1404	.3278	.2897

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1728.8	623.42	167.61	1578.	1468.	1775.5
SDev	7.2585	.35463	.64838	1.149	2.277	7.2427
%RSD	.41986	.05688	.38683	.0728	.1551	.40791

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	730.1	1095.	553.35	658.40	1718.6	1733.9
SDev	1.081	3.329	.31958	.69118	2.6944	12.228
%RSD	.1481	.304	.05775	.10497	.15677	.70521

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	145.94	178.44	5.0000	19963.2
SDev	.13893	1.0415	0	18.6679
%RSD	.0952	.58366	0	.09351

Method: ARMY Sample Name: J8FTD Operator: LRW
Run Time: 10/11/07 18:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3513	102800.	116.56	17.04	819.0	7.759
SDev	.2255	27.1	1.8284	1.127	.518	.0053
%RSD	64.18	.0264	1.5686	6.614	.0632	.0679

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47770.	1.653	92.56	160.1	113.6	232700.
SDev	11.32	.1009	.1646	.3158	.1468	28.96
%RSD	.0237	6.105	.1778	.1973	.1292	.0124

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6688.	19280.	10260.	8.889	-5.088	154.4
SDev	1.243	20.65	6.556	.1346	163.8	.9612
%RSD	.0186	.1071	.0639	1.514	3220	.6225

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.2648	167.44	-5.2276	5.787	467.2	17.544
SDev	2.3545	.58431	.9765	1.69	.5472	.48345
%RSD	72.118	.34895	18.68	29.21	.1171	2.7556

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	207.1	538.7	144.74	178.78	8.8838	.45954
SDev	.1014	.5321	1.9171	.08106	.86682	3.0973
%RSD	.049	.0988	1.3245	.04534	9.7573	673.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46194	-8.0681	5.0000	20427
SDev	1.1114	2.0189	0	54.0232
%RSD	240.58	25.023	0	.26446

Method: ARMY Sample Name: J8KMMB Operator: LRW
Run Time: 10/11/07 18:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4586	-54.99	.29489	-2.899	.2041	-.0338
SDev	.0167	1.232	1.6981	.5202	.1045	.0046
%RSD	3.648	2.24	575.82	17.94	51.22	13.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-66.17	.1062	.2527	.3115	-.5050	3.098
SDev	.242	.0195	.0263	.3398	.0387	1.342
%RSD	.3657	18.39	10.41	109.1	7.664	43.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.8	1.468	.2947	-1.292	-635.1	.8048
SDev	10.15	3.385	.0772	.6579	291.5	.5757
%RSD	7.06	230.6	26.18	50.92	45.89	71.54

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.27823	-.43427	-.87323	3.123	-.0132	1.7330
SDev	1.2478	.14906	.15649	4.138	.3117	.52098
%RSD	448.48	34.325	17.922	132.5	2361	30.063

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2120	.3349	.37484	-.83822	-.81518	-.01016
SDev	.4504	.0186	.43173	.43902	3.9975	.12492
%RSD	212.5	5.557	115.18	52.375	490.38	1228.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2369	-2.4260	5.0000	19545.9
SDev	1.9195	.72367	0	90.935
%RSD	85.811	29.83	0	.46523

Method: ARMY Sample Name: J8KMMC Operator: LRW
Run Time: 10/11/07 18:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.10	2107.	2076.6	1072.	2131.	53.92
SDev	.0401	1.007	6.8404	6.382	1.28	.0591
%RSD	.0728	.0478	.3294	.5952	.0601	.1096

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51830.	52.42	515.7	210.3	273.2	1131.
SDev	78.17	.0663	.5527	.6056	.1681	7.04
%RSD	.1508	.1264	.1072	.2879	.0615	.6223

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51880.	52460.	555.4	1055.	53800.	535.0
SDev	12.54	68.95	.3825	4.292	92.12	2.787
%RSD	.0242	.1314	.0689	.4069	.1712	.5208

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2087.3	516.81	558.27	2057.	1039.	2072.0
SDev	2.2972	.24587	1.9821	2.026	1.847	12.641
%RSD	.11005	.04757	.35504	.0985	.1778	.61007

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	539.5	519.4	466.71	541.82	2061.3	2100.3
SDev	.9547	1.119	2.6409	.94982	.22252	3.3332
%RSD	.177	.2154	.56584	.1753	.01079	.1587

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	469.17	602.75	5.0000	19433.8
SDev	.81621	2.5642	0	36.4864
%RSD	.17396	.42541	0	.18774

Method: ARMY Sample Name: J8G44 Operator: LRW
Run Time: 10/11/07 18:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1492	1012.	.35576	53.72	18.29	.2406
SDev	.116	3.874	1.0286	1.304	.1239	.0099
%RSD	77.73	.3827	289.12	2.428	.6773	4.111

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18780.	.8811	13.60	-.3280	4.575	39.79
SDev	4.484	.0162	.0655	.3202	.5182	.4138
%RSD	.0239	1.841	.4813	97.62	11.33	1.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2337.	5070.	765.3	-1.412	18490.	43.59
SDev	2.624	.9516	.2689	.4885	19.48	.1016
%RSD	.1123	.0188	.0351	34.61	.1054	.2331

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3110	1.0816	-3.0602	1.606	-.3792	5.1254
SDev	.04331	.64083	3.5909	1.472	.0002	3.4057
%RSD	3.3036	59.247	117.34	91.62	.0489	66.449

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1107	43.96	.49079	1.3766	3.0801	.42774
SDev	.0601	.0792	.69531	.61363	.24199	.18575
%RSD	54.33	.1801	141.67	44.576	7.8567	43.425

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.50975	-4.3336	5.0000	19660.5
SDev	.27814	5.2448	0	25.0318
%RSD	54.565	121.03	0	.12732

Method: ARMY Sample Name: J8G44L Operator: LRW
Run Time: 10/11/07 18:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1820	179.4	-1.2719	7.424	3.693	-.0255
SDev	.0716	2.429	.51369	.2962	.0632	.0004
%RSD	39.31	1.354	40.387	3.99	1.71	1.551

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3697.	.1827	2.790	-.2885	.3416	-1.828
SDev	7.28	.0349	.2466	.1395	.1262	7.748
%RSD	.1969	19.08	8.841	48.34	36.93	423.8

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	521.2	999.7	152.3	-.5939	3641.	8.917
SDev	7.667	4.479	.2221	.3302	140.1	.311
%RSD	1.471	.448	.1459	55.6	3.848	3.488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6133	.36517	-2.1867	.4361	-.3071	1.3949
SDev	4.9133	.66001	3.0733	1.034	.104	2.4114
%RSD	304.54	180.74	140.55	237.2	33.86	172.87

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1704	56.07	2.0590	-.48049	1.6241	1.6079
SDev	.3949	.1106	1.4291	1.703	3.4697	5.6339
%RSD	231.8	.1973	69.404	354.43	213.64	350.38

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.63973	-3.5978	5.0000	19476.2
SDev	.38423	4.7995	0	17.2537
%RSD	60.061	133.4	0	.08858

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 18:57 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	946.9	25040.	488.04	5025.	2029.	1984.
SDev	.1224	13.43	1.2198	32.02	.7783	.6487
%RSD	.0129	.0536	.24994	.6372	.0384	.0327

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49840.	491.7	1941.	1973.	2032.	25100.
SDev	22.7	.4986	1.172	.2126	.8983	14.52
%RSD	.0455	.1014	.0604	.0108	.0442	.0579

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49560.	49950.	2069.	2003.	49440.	2021.
SDev	16.91	23.67	1.019	.3075	156.8	7.198
%RSD	.0341	.0474	.0493	.0154	.3172	.3562

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.81	489.10	531.64	4960.	4951.	976.48
SDev	4.5339	2.0807	.49002	1.012	7.212	1.1223
%RSD	.94495	.42542	.09217	.0204	.1457	.11493

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2026.	1895.	441.57	512.83	475.72	481.85
SDev	2.133	1.353	.00041	3.1197	7.5146	3.0459
%RSD	.1053	.0714	.00009	.60834	1.5796	.63211

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	448.93	572.94	5.0000	19251.4
SDev	.71558	1.0919	0	14.1421
%RSD	.15939	.19058	0	.07346

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 19:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2001	-10.67	-1.2367	12.41	-.0081	-.0583
SDev	.2873	1.509	.96001	2.127	.001	.007
%RSD	143.6	14.14	77.625	17.14	12.29	12.05

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.650	-.0017	-.2154	-.1273	-1.073	-6.324
SDev	.2565	.1008	.084	.0911	.561	.0073
%RSD	15.55	5960	38.99	71.56	52.29	.115

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.3	1.375	.0175	-.2488	-628.3	.5831
SDev	3.04	.8115	.01	.1662	57.46	1.119
%RSD	2.198	59.02	57.17	66.82	9.144	191.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2070	.15436	-2.6331	1.125	-.4532	-2.0833
SDev	1.9093	.61518	.22654	.4075	.3106	2.9287
%RSD	158.19	398.53	8.6038	36.21	68.54	140.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0211	-.1041	1.1143	-.32486	.57331	1.5233
SDev	.3021	.1363	1.2965	.27502	2.7553	1.4869
%RSD	1432	130.9	116.36	84.659	480.6	97.606

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1110	-4.5023	5.0000	19526.2
SDev	2.1803	1.4282	0	27.4349
%RSD	196.25	31.721	0	.1405

Method: ARMY Sample Name: J8G44X Operator: LRW
Run Time: 10/11/07 19:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1019	1334.	-1.1282	82.19	19.74	.2096
SDev	.2865	4.946	.83914	.5922	.0286	.0073
%RSD	281.1	.3708	74.381	.7205	.1451	3.491

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20580.	.9911	14.65	-.1610	4.571	42.55
SDev	15.03	.0221	.1087	.1829	.0603	1.152
%RSD	.073	2.231	.7421	113.6	1.319	2.708

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2511.	5471.	822.4	-.7140	19920.	46.36
SDev	18.75	5.734	.674	.162	133.5	1.044
%RSD	.7468	.1048	.082	22.68	.6702	2.253

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8537	.43207	-2.6227	-.2690	-.4535	3.1035
SDev	1.9907	.65674	2.1362	.7636	.311	4.3095
%RSD	107.39	152	81.447	283.9	68.58	138.86

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2798	46.68	.41116	.44251	4.6147	.47531
SDev	.1814	.2364	1.5711	1.769	7.9782	.99851
%RSD	64.83	.5064	382.11	399.76	172.89	210.07

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.69932	-4.2813	5.0000	19549.4
SDev	1.6127	2.3975	0	36.4878
%RSD	230.61	55.999	0	.18664

Method: ARMY Sample Name: J8G44S Operator: LRW
Run Time: 10/11/07 19:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.22	3270.	2134.5	1162.	2197.	55.12
SDev	.4125	4.246	4.0022	.1158	5.663	.1192
%RSD	.7469	.1298	.1875	.01	.2578	.2162

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	71970.	53.58	537.7	212.5	282.2	1201.
SDev	169.7	.0163	.8022	.1923	.4112	2.75
%RSD	.2358	.0303	.1492	.0905	.1457	.229

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55880.	58660.	1347.	1065.	73150.	584.2
SDev	141.2	110	3.574	2.472	39.76	1.774
%RSD	.2527	.1876	.2653	.2321	.0544	.3037

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2126.4	522.84	574.20	2103.	1056.	2084.0
SDev	1.4727	.41725	.15316	.4513	2.99	4.2406
%RSD	.06926	.0798	.02667	.0215	.283	.20348

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	547.1	570.7	470.38	549.03	2100.9	2139.1
SDev	1.428	1.181	.57761	.33719	1.6445	3.0292
%RSD	.2609	.2069	.12279	.06141	.07827	.14161

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	482.30	620.08	5.0000	19442.9
SDev	3.4039	1.929	0	12.0208
%RSD	.70575	.31109	0	.06182

Method: ARMY Sample Name: J8G46 Operator: LRW
Run Time: 10/11/07 19:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1769	24.40	1.8431	81.96	16.26	-.0531
SDev	.0363	1.298	1.9695	1.51	.0209	.0009
%RSD	20.51	5.321	106.86	1.842	.1285	1.632

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47380.	.1095	1.927	-.0620	.5945	47.80
SDev	49.82	.0226	.3047	.4627	.3788	.6359
%RSD	.1052	20.63	15.81	746	63.71	1.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3344.	8982.	120.2	-1.176	4610.	6.782
SDev	5.584	11.48	.1121	.8209	165.3	.2222
%RSD	.167	.1278	.0932	69.77	3.585	3.276

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.92150	-.96808	-.42251	-.6796	-.8196	2.6099
SDev	2.4986	.71304	.02063	.0019	.0007	2.7248
%RSD	271.15	73.656	4.8842	.275	.088	104.41

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2586	4.668	-.16965	-1.3667	5.5916	-1.4100
SDev	.0916	.103	2.171	.01485	2.5865	2.4548
%RSD	35.43	2.207	1279.7	1.0866	46.257	174.09

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.9079	-2.0852	5.0000	19535.8
SDev	.93913	.43792	0	24.0416
%RSD	32.296	21.001	0	.12306

Method: ARMY Sample Name: J8G5M Operator: LRW
Run Time: 10/11/07 19:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1016	-41.59	-1.5843	51.28	5.387	-.0675
SDev	.6246	3.208	1.0371	.6227	.0929	.0163
%RSD	614.9	7.714	65.459	1.214	1.724	24.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	23450.	.1115	.8350	-.6506	-.2783	12.23
SDev	11.82	.0322	.3025	.5526	.985	3.126
%RSD	.0504	28.83	36.22	84.95	353.9	25.57

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	747.5	8961.	135.5	-.3687	4820.	5.934
SDev	8.453	21.45	.2782	1.637	226.9	.0978
%RSD	1.131	.2393	.2053	443.9	4.706	1.648

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.49950	-.16941	-3.7959	-.0214	-.8178	.97636
SDev	2.3306	.00773	.14152	.9391	.0007	.43654
%RSD	466.58	4.5676	3.7284	4389	.0835	44.711

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1084	3.085	.98390	-.74520	6.4188	-2.4557
SDev	.3605	.1054	1.7602	.89036	1.9969	4.491
%RSD	332.6	3.417	178.9	119.48	31.109	182.88

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.71192	-6.0464	5.0000	19595.8
SDev	1.0594	.7411	0	22.9105
%RSD	148.81	12.257	0	.11691

Method: ARMY Sample Name: J8G5R Operator: LRW
Run Time: 10/11/07 19:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0573	-63.59	-.05465	89.48	19.37	-.0842
SDev	.3702	1.685	.65261	.7869	.0841	0
%RSD	646.1	2.65	1194.2	.8795	.434	.0254

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55360.	.0873	5.041	-.3500	.2852	19.76
SDev	106.2	.051	.1353	.2334	.1474	2.814
%RSD	.1918	58.38	2.685	66.69	51.68	14.24

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2082.	37790.	921.7	-.8206	8426.	23.35
SDev	1.185	69.43	2.449	.6628	137.2	.2883
%RSD	.0569	.1837	.2657	80.78	1.628	1.235

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7169	-.58721	-1.0575	.0992	-1.195	3.4278
SDev	.52207	1.0519	.45736	2.797	.3144	.9162
%RSD	19.215	179.13	43.251	2819	26.32	26.729

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4721	3.814	-1.3114	-.22565	6.3318	.91219
SDev	.1532	.081	.28392	1.4353	2.4346	1.9982
%RSD	32.45	2.123	21.65	636.05	38.45	219.05

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0598	-2.6137	5.0000	19359.5
SDev	1.0451	1.2075	0	15.9803
%RSD	50.74	46.198	0	.08254

Method: ARMY Sample Name: J8G5W Operator: LRW
Run Time: 10/11/07 19:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0942	-66.01	16.791	28.25	26.99	-.0315
SDev	.7022	.5849	1.019	1.611	.1177	.0595
%RSD	745.8	.886	6.0683	5.7	.4362	188.9

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37450.	.2537	2.950	-.0908	.7110	5450.
SDev	119.1	.1284	.3641	.2335	1.348	31.72
%RSD	.318	50.62	12.34	257.2	189.6	.582

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	821.9	16860.	1591.	-.7704	5130.	7.004
SDev	3.198	81.4	3.938	.6603	143.7	.5726
%RSD	.3891	.4827	.2474	85.71	2.801	8.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.15070	-.86543	-2.0685	.0266	-.7487	3.6070
SDev	3.175	1.0375	8.015	.7229	.105	2.3637
%RSD	2106.8	119.88	387.48	2720	14.02	65.532

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3372	4.143	-.51125	-1.0423	3.3766	-1.9117
SDev	.3631	.3991	4.0673	3.586	5.8041	1.8624
%RSD	107.7	9.635	795.55	344.06	171.89	97.422

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.96027	-3.5808	5.0000	19451.9
SDev	1.8972	11.07	0	35.2145
%RSD	197.57	309.14	0	.18103

Method: ARMY Sample Name: J8G51 Operator: LRW
Run Time: 10/11/07 19:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3402	-2.156	.37228	74.10	6.726	-.0997
SDev	.2675	.1167	2.222	.2632	.0259	.0146
%RSD	78.62	5.415	596.86	.3552	.3856	14.66

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38840.	.1226	.2907	-.3219	.3377	19.32
SDev	99.87	.0659	.1372	.1827	.3615	1.155
%RSD	.2571	53.75	47.21	56.77	107	5.976

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1922.	4256.	1.878	-.3610	2318.	2.093
SDev	3.676	9.189	.0647	.3338	4.732	.0424
%RSD	.1912	.2159	3.447	92.46	.2042	2.025

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.4019	-.09770	-.49003	-.2629	-.5270	2.8606
SDev	2.9197	.31094	.03601	.1413	.2067	1.3921
%RSD	85.826	318.25	7.349	53.75	39.23	48.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1710	2.196	-.97449	.34003	7.3050	1.4533
SDev	.0314	.1731	.98852	.02734	5.5783	1.5925
%RSD	18.36	7.881	101.44	8.0409	76.362	109.57

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.91225	-1.1901	5.0000	19483.4
SDev	.38931	.14037	0	67.8822
%RSD	42.677	11.795	0	.34841

Method: ARMY Sample Name: J8G52 Operator: LRW
Run Time: 10/11/07 19:46 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7500	129.8	-.96608	14.53	.2501	-.0715
SDev	.6733	11.9	.5532	1.607	.103	.0069
%RSD	89.77	9.171	57.263	11.06	41.17	9.637

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.9	-.0491	-.3116	-1.402	.0596	-.6072
SDev	3.406	.0794	.5524	1.43	.0561	12.29
%RSD	2.469	161.8	177.3	102	94.16	2024

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	114.0	4.045	.3195	-1.757	-1722.	.0531
SDev	29.9	5.17	.112	.3276	855.5	.3682
%RSD	26.22	127.8	35.07	18.65	49.68	693.8

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.64422	.42837	-13.939	.1400	-.1606	-1.9720
SDev	.64253	.19028	21.66	.7214	.1032	8.5775
%RSD	99.736	44.421	155.39	515.4	64.26	434.96

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0007	.2931	-4.0678	2.6731	-2.8107	2.3691
SDev	.6356	.0466	5.2669	2.3442	6.8734	4.3949
%RSD	92020	15.91	129.48	87.698	244.54	185.51

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.1130	-20.342	5.0000	19569.2
SDev	2.4492	33.696	0	57.1334
%RSD	220.06	165.65	0	.29195

Method: ARMY Sample Name: J8G55 Operator: LRW
Run Time: 10/11/07 19:51 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2157	-57.48	23.104	25.87	94.48	-.0970
SDev	.1265	2.684	2.1173	1.112	.2408	.0181
%RSD	58.67	4.669	9.1646	4.299	.2549	18.62

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	95320.	.1240	.2102	-.1355	.0311	1253.
SDev	123.1	.0734	.1947	.1634	.143	.5549
%RSD	.1291	59.18	92.62	120.6	459.4	.0443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1425.	34010.	223.8	1.417	14190.	1.432
SDev	9.161	53.61	.4962	.8268	84.22	.5893
%RSD	.6427	.1576	.2217	58.35	.5935	41.15

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9677	-.50539	-2.2250	-.6011	-1.713	5.7732
SDev	1.848	1.191	2.7983	.6317	.2086	2.3428
%RSD	62.27	235.65	125.77	105.1	12.18	40.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4170	1.264	-1.0163	-.25030	4.0468	2.4290
SDev	.0911	.1205	.87065	1.3509	7.0121	.73017
%RSD	21.85	9.528	85.667	539.68	173.27	30.061

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1784	-4.4234	5.0000	19348.7
SDev	1.4507	4.9195	0	7.77817
%RSD	66.593	111.22	0	.04019

Method: ARMY Sample Name: J8G57 Operator: LRW
Run Time: 10/11/07 19:56 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3768	-44.30	-.21237	26.02	4.346	-.0732
SDev	.3502	4.139	.41837	1.758	.0918	.033
%RSD	92.94	9.342	197	6.754	2.111	45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18040.	.0800	.0153	-.0728	-.1443	-6.053
SDev	13.39	.0536	.0819	.6283	.3905	.3581
%RSD	.0742	66.98	535.5	863.2	270.6	5.917

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1060.	7215.	25.05	-1.291	14230.	3.162
SDev	8.625	8.137	.0918	.3291	129.5	1.023
%RSD	.8133	.1128	.3663	25.49	.9099	32.36

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6181	-.13856	-1.0805	-.1633	-.6017	3.4210
SDev	.08752	.50061	2.0547	1.526	.3119	2.1952
%RSD	5.4092	361.28	190.17	934.3	51.84	64.167

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2779	6.769	.17272	-.29397	4.3915	.23354
SDev	.0609	.1225	1.4613	1.4801	4.1106	2.1834
%RSD	21.9	1.81	846.03	503.47	93.604	934.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8555	-3.0455	5.0000	19425.7
SDev	.48415	2.8388	0	34.9314
%RSD	16.955	93.212	0	.17982

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 20:04 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	952.7	25280.	495.66	5121.	2046.	1999.
SDev	3.181	48.31	2.9237	2.894	5.666	6.195
%RSD	.3339	.1911	.58986	.0565	.2769	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50250.	494.6	1958.	1992.	2050.	25470.
SDev	168.8	1.888	6.493	5.929	6.024	53.58
%RSD	.3359	.3818	.3316	.2977	.2939	.2104

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49940.	50330.	2073.	2025.	49940.	2015.
SDev	128	206.7	6.039	12.79	83.61	12.9
%RSD	.2564	.4107	.2913	.6317	.1674	.6403

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	489.98	494.34	540.70	4982.	5012.	984.98
SDev	2.2066	2.413	4.0178	15.44	11.8	3.9463
%RSD	.45034	.48812	.74308	.3099	.2354	.40065

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2049.	1904.	448.56	517.20	486.75	491.59
SDev	4.61	8.202	6.2159	.5144	6.8076	.09052
%RSD	.225	.4308	1.3857	.09946	1.3986	.01841

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.53	583.22	5.0000	19166.6
SDev	6.2802	2.8884	0	81.4595
%RSD	1.3786	.49524	0	.425

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 20:11 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2184	-12.54	-.70115	13.45	.0470	-.1120
SDev	0	1.701	.62959	1.549	.0001	.0267
%RSD	.0025	13.56	89.794	11.51	.1907	23.86

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.358	.1255	.1507	-.1017	-.0850	-1.278
SDev	.0217	.044	.2227	.35	.3235	.7105
%RSD	1.601	35.07	147.8	344.2	380.8	55.58

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.8	2.251	.0563	-.3506	-578.6	1.738
SDev	1.773	3.199	.0555	.663	370.3	.2683
%RSD	1.225	142.1	98.61	189.1	64	15.43

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9317	-.27074	-1.1915	2.310	-.0115	3.2042
SDev	1.6485	.00172	.7663	.7693	.3141	2.4108
%RSD	56.23	.63667	64.314	33.29	2740	75.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2857	.0391	1.7450	-1.2771	2.8730	2.9611
SDev	.122	.0786	.73243	.36308	1.0437	1.9505
%RSD	42.68	200.9	41.974	28.431	36.327	65.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9326	-2.7512	5.0000	19327.6
SDev	1.8102	.24514	0	2.26357
%RSD	93.667	8.9105	0	.01171

Method: ARMY Sample Name: J8NFGB Operator: LRW
Run Time: 10/11/07 20:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4712	-75.36	-.52205	-2.021	.7929	-.0899
SDev	.4831	15.64	.37425	2.639	.0654	.0006
%RSD	102.5	20.75	71.689	130.5	8.246	.7032

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	189.6	-.0751	.6227	-1.466	.3169	-7.071
SDev	2.03	.2891	.6051	1.843	.7158	19.96
%RSD	1.071	385.1	97.17	125.8	225.9	282.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	111.0	44.06	.7065	-.9468	-1813.	.8792
SDev	35.3	6.063	.1264	.1643	1147	.1609
%RSD	31.82	13.76	17.9	17.35	63.24	18.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0569	-1.3759	-3.0193	-1.536	-.3068	4.2770
SDev	1.6672	.6303	2.6486	2.456	.1035	3.8446
%RSD	157.73	45.811	87.722	159.9	33.74	89.892

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7705	4.294	4.7956	-4.4570	12.871	-4.8414
SDev	.9365	.2767	6.3936	4.137	1.168	3.0826
%RSD	121.5	6.444	133.32	92.821	9.0744	63.673

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.6011	-6.8237	5.0000	19567.2
SDev	2.7747	2.5856	0	17.8199
%RSD	60.305	37.892	0	.09107

Method: ARMY Sample Name: J8NFGC Operator: LRW
Run Time: 10/11/07 20:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51.58	1981.	1946.9	1034.	2009.	50.39
SDev	.0053	5.884	.66153	.9817	3.094	.0501
%RSD	.0103	.2971	.03397	.0949	.154	.0995

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48640.	48.83	484.5	197.3	257.3	1070.
SDev	48.03	.0994	.5146	.278	.4339	9.609
%RSD	.0988	.2036	.1062	.1409	.1686	.8977

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49170.	48870.	516.5	986.0	50820.	492.5
SDev	123.4	67.79	.5712	.3874	55.28	.7671
%RSD	.2509	.1387	.1106	.0393	.1088	.1557

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1961.2	485.15	525.13	1919.	985.3	1940.7
SDev	1.1982	.51263	.99717	.2526	.739	10.402
%RSD	.06109	.10566	.18989	.0132	.075	.53598

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	509.8	489.0	436.56	509.41	1941.4	1971.0
SDev	1.108	.3507	2.2794	1.9065	5.3906	4.4877
%RSD	.2172	.0717	.52212	.37426	.27766	.22768

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	440.03	567.61	5.0000	19302.2
SDev	6.4579	4.7191	0	18.3848
%RSD	1.4676	.83139	0	.09524

Method: ARMY Sample Name: J8KP1 Operator: LRW
Run Time: 10/11/07 20:28 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4501	812.7	2.3633	40.51	31.77	-.0764
SDev	.6681	7.537	.75417	2.08	.4074	.0289
%RSD	148.5	.9274	31.912	5.135	1.282	37.85

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	88110.	.3676	1.055	1.721	1.562	1240.
SDev	318.3	.1752	.445	.7033	1.266	21.09
%RSD	.3612	47.66	42.19	40.87	81.06	1.702

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1638.	29060.	191.2	1.294	9957.	3.661
SDev	28.09	123.2	.5732	.3373	235.3	.5456
%RSD	1.715	.4239	.2998	26.08	2.363	14.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6327	.11692	-8.6684	2.011	7.443	1.6588
SDev	2.4228	.22944	12.991	1.902	.8517	6.9291
%RSD	148.4	196.23	149.87	94.59	11.44	417.73

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.309	21.67	.15666	.09709	4.2161	.34286
SDev	.9488	.0092	2.8669	1.0873	5.1218	1.0754
%RSD	72.47	.0425	1830	1119.9	121.48	313.64

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6796	-13.835	5.0000	19391.2
SDev	1.3392	20.146	0	42.1433
%RSD	79.731	145.62	0	.21733

Method: ARMY Sample Name: J8KP3 Operator: LRW
Run Time: 10/11/07 20:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0605	1306.	1.2729	39.66	34.11	-.0371
SDev	.5326	4.547	.04469	.0727	.0131	.009
%RSD	879.8	.3481	3.511	.1833	.0383	24.2

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89130.	.2454	.9370	1.508	2.223	1977.
SDev	5.817	.0067	.3894	.113	.3025	2.643
%RSD	.0065	2.727	41.55	7.489	13.61	.1337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1752.	29450.	190.4	-.3336	9802.	4.157
SDev	2.095	2.382	.0631	.6635	13.11	.2749
%RSD	.1195	.0081	.0331	198.9	.1338	6.613

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.22032	.36094	-1.7794	1.376	15.43	1.0110
SDev	2.181	.92628	.01567	1.9	.3968	3.3144
%RSD	989.92	256.63	.88064	138	2.572	327.84

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.958	22.10	-.24782	.66487	-.26686	-.19709
SDev	.0572	.071	.18697	1.4821	7.6335	.54109
%RSD	2.923	.3214	75.447	222.91	2860.5	274.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.60091	-2.3678	5.0000	19373
SDev	.87126	.41148	0	26.0221
%RSD	144.99	17.378	0	.13432

Method: ARMY Sample Name: J8KP6 Operator: LRW
Run Time: 10/11/07 20:38 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.240	-65.04	61.224	2076.	173.5	.8458
SDev	3.485	17.5	3.6269	11.81	.4848	.0614
%RSD	155.6	26.91	5.9241	.569	.2794	7.256

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	84850.	.7112	5.275	.6366	2.386	142300.
SDev	607.7	.526	2.249	2.653	2.658	728.9
%RSD	.7162	73.96	42.64	416.7	111.4	.5123

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6988.	36690.	1283.	1.069	19720.	17.57
SDev	53.69	345.4	4.068	3.316	1115	3.804
%RSD	.7683	.9414	.3169	310.2	5.655	21.65

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31725	-.98560	-3.6101	2.364	-1.046	8.5187
SDev	.55062	.94941	2.3243	6.091	.5225	7.0014
%RSD	173.56	96.328	64.383	257.7	49.94	82.189

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.271	.1919	-.03211	-1.4616	1.1571	-1.0533
SDev	2.15	.4349	2.8122	2.8274	2.1471	1.8974
%RSD	169.2	226.6	8757.3	193.44	185.55	180.14

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0121	-6.4170	5.0000	19371.2
SDev	1.1407	4.0542	0	1.41421
%RSD	56.689	63.179	0	.0073

Method: ARMY Sample Name: J8KP6L Operator: LRW
Run Time: 10/11/07 20:43 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3973	-58.30	9.7712	406.6	34.07	.0557
SDev	.3897	1.64	.85511	1.453	.1175	.0157
%RSD	98.08	2.812	8.7514	.3574	.345	28.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	16860.	.1355	.8004	-.3143	.3679	28460.
SDev	10.33	.016	.1944	.0451	.5234	12.54
%RSD	.0613	11.82	24.29	14.35	142.3	.0441

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1286.	7176.	256.2	-1.119	3769.	3.686
SDev	.0138	12.13	.2351	.8321	14.85	1.496
%RSD	.0011	.169	.0917	74.35	.3941	40.6

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.7043	-.72739	-1.5748	-.4367	-.7533	-1.3942
SDev	.23836	.29114	.06924	1.401	.1063	3.2279
%RSD	13.986	40.026	4.397	320.8	14.11	231.52

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2531	.0834	.54299	-1.3616	-2.1507	-1.4814
SDev	.2479	.0998	.24738	.31299	1.7948	1.2534
%RSD	97.94	119.6	45.56	22.987	83.453	84.612

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7690	-3.2442	5.0000	19279
SDev	.46276	.12722	0	47.517
%RSD	26.16	3.9215	0	.24647

Method: ARMY Sample Name: J8KP6X Operator: LRW
Run Time: 10/11/07 20:48 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3967	-75.66	62.272	2142.	179.9	.8260
SDev	.1625	2.355	.05333	4.322	.3388	.0256
%RSD	40.97	3.113	.08565	.2018	.1883	3.095

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	87430.	.4919	3.893	-1.356	1.069	146600.
SDev	262.2	.1352	.1649	.1633	.1742	391
%RSD	.2999	27.49	4.236	12.04	16.29	.2667

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7200.	37700.	1327.	-.5261	19680.	16.46
SDev	18.88	118.1	2.825	.6681	24.4	.4434
%RSD	.2622	.3131	.2128	127	.124	2.693

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.62380	-1.1637	-2.0123	-1.493	-1.642	7.6356
SDev	2.6643	.08085	1.1913	.4533	.3156	1.4298
%RSD	427.11	6.9482	59.199	30.35	19.22	18.726

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0618	-.4278	-1.9581	-.76710	7.0626	-4.4612
SDev	.1707	.1211	.53372	.14523	1.627	4.8068
%RSD	276.1	28.3	27.257	18.933	23.037	107.75

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.17216	-2.9310	5.0000	19302.8
SDev	2.5059	.53495	0	14.4253
%RSD	1455.5	18.252	0	.07473

Method: ARMY Sample Name: J8KP6S Operator: LRW
Run Time: 10/11/07 20:53 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.99	2028.	2090.8	3141.	2262.	52.66
SDev	.3259	1.005	8.1954	13.68	4.352	.1401
%RSD	.6036	.0496	.39197	.4354	.1924	.2661

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131800.	50.19	504.7	201.5	271.9	139300.
SDev	443.4	.0774	.6696	.196	.4712	474.2
%RSD	.3364	.1542	.1327	.0973	.1733	.3405

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	58990.	86780.	1784.	1018.	70460.	516.2
SDev	69.39	323.5	5.554	2.714	233.4	.8613
%RSD	.1176	.3728	.3113	.2666	.3313	.1669

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2023.0	496.04	546.55	1991.	1015.	1988.6
SDev	1.6874	1.9275	4.7415	12.34	2.852	12.6
%RSD	.08341	.38856	.86753	.6198	.2809	.63362

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	525.7	498.6	446.87	520.59	2017.7	2025.6
SDev	.3705	1.377	1.7425	3.7597	.87551	2.967
%RSD	.0705	.2761	.38994	.72219	.04339	.14647

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	459.21	590.15	5.0000	19187.8
SDev	1.3864	6.4165	0	11.8799
%RSD	.3019	1.0873	0	.06191

Method: ARMY Sample Name: J8KQA Operator: LRW
Run Time: 10/11/07 20:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7594	-60.25	33.066	82.69	76.14	-.0983
SDev	.2726	1.725	2.524	2.712	.0695	.0156
%RSD	35.89	2.864	7.6331	3.28	.0912	15.87

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	117100.	.1269	.8197	.6048	-.3338	1213.
SDev	221.7	.0504	.055	.0423	.1209	2.835
%RSD	.1893	39.69	6.709	6.993	36.23	.2337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3360.	47150.	69.43	2.119	17810.	1.090
SDev	.6684	110.8	.1955	1.5	101.3	.5418
%RSD	.0199	.235	.2815	70.78	.5689	49.71

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2625	-.12325	-3.9229	-.4424	-2.155	1.7466
SDev	2.6097	.33038	4.3803	.0497	.005	.82299
%RSD	206.71	268.04	111.66	11.24	.2325	47.119

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5887	1.309	.47556	-.42222	6.5919	-1.3982
SDev	.3962	.0659	2.4291	.71738	4.218	1.8067
%RSD	67.31	5.035	510.78	169.91	63.988	129.21

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0623	-7.4102	5.0000	19361.3
SDev	.22076	6.6773	0	50.4877
%RSD	7.2092	90.11	0	.26076

Method: ARMY Sample Name: J8KQG Operator: LRW
Run Time: 10/11/07 21:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1417	-62.34	36.799	233.5	10.52	-.1343
SDev	.1006	1.696	.38332	.7407	.153	.0076
%RSD	71.02	2.72	1.0417	.3172	1.454	5.692

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223700.	.1554	2.903	-.1378	-.3006	4344.
SDev	446.9	.0489	.2301	.2355	.0652	10.09
%RSD	.1998	31.49	7.923	170.9	21.7	.2323

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4508.	120400.	228.2	3.407	100400.	4.521
SDev	3.965	223.9	.3056	1.187	27.84	.3365
%RSD	.088	.186	.1339	34.84	.0277	7.444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1469	-1.0766	-3.1082	-2.686	-4.369	3.2029
SDev	2.5783	.58149	1.8708	.6896	.0995	.22532
%RSD	120.1	54.01	60.187	25.68	2.277	7.0352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9806	.8533	-.66490	-1.2822	4.9922	.72638
SDev	.0936	.1623	.45479	1.0989	3.4719	2.1322
%RSD	9.543	19.02	68.399	85.7	69.546	293.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0118	-6.1637	5.0000	19031.5
SDev	1.5347	2.0385	0	31.5367
%RSD	50.955	33.074	0	.1657

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 21:12 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.9	25440.	494.14	5211.	2060.	2003.
SDev	.4283	15.32	1.7294	31.61	2.63	3.847
%RSD	.0449	.0602	.34998	.6065	.1277	.1921

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50360.	494.1	1962.	1998.	2060.	25550.
SDev	127.8	.1606	4.382	4.118	.3064	74.86
%RSD	.2538	.0325	.2234	.2061	.0149	.293

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50220.	50520.	2081.	2030.	50250.	2003.
SDev	19.11	111.3	5.476	3.543	139	5.146
%RSD	.0381	.2203	.2631	.1745	.2767	.2569

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	485.51	493.42	530.59	4983.	5046.	985.07
SDev	1.4371	.47057	11.021	14.98	14.74	3.8837
%RSD	.296	.09537	2.0772	.3006	.2921	.39426

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2062.	1903.	444.01	518.08	484.37	486.08
SDev	5.553	.1281	.00157	.70628	1.4904	2.8987
%RSD	.2693	.0067	.00035	.13632	.30769	.59634

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	453.74	568.96	5.0000	19169.5
SDev	.70244	16.875	0	50.7708
%RSD	.15481	2.9659	0	.26485

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 21:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4344	-8.203	-1.8389	17.65	.0419	-.1104
SDev	.1616	.9979	1.9203	2.41	.0664	.0008
%RSD	37.21	12.17	104.43	13.66	158.5	.757

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.161	.1256	-.1206	-.2059	-.0979	-2.326
SDev	.2096	.0997	.2774	.024	.2399	1.403
%RSD	2.927	79.35	229.9	11.64	245.1	60.32

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.9	2.867	.0326	.1060	-425.0	1.494
SDev	2.464	.4215	.0098	.0018	64.88	.4828
%RSD	1.712	14.7	30.03	1.712	15.27	32.31

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7989	.33980	-2.0318	2.535	-.1600	1.2169
SDev	1.4276	.22163	1.3489	.4895	.1041	1.6603
%RSD	79.36	65.225	66.387	19.31	65.07	136.44

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0623	.1971	1.8224	-.40038	3.7181	.84077
SDev	.0004	.2868	.10076	.28198	1.5589	1.3621
%RSD	.6035	145.5	5.5293	70.429	41.926	162

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8055	-4.4468	5.0000	19455.7
SDev	1.3324	1.3571	0	19.0919
%RSD	47.492	30.519	0	.09813

Method: ARMY Sample Name: J8KQH Operator: LRW
Run Time: 10/11/07 21:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2889	-68.28	-.05744	3.831	.2290	-.1246
SDev	.0009	3.878	.91138	1.371	.0653	.001
%RSD	.2973	5.679	1586.7	35.79	28.52	.7722

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-72.42	.0335	-.0017	-.2737	.5434	7.595
SDev	2.176	.0131	.4973	.068	.2518	2.782
%RSD	3.004	38.91	28890	24.85	46.34	36.62

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.4	2.328	.2248	-.9444	-754.9	.4702
SDev	5.664	.2691	.0077	.1656	89.97	.3166
%RSD	4.123	11.56	3.437	17.54	11.92	67.33

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.03418	-.27187	-4.7333	.3675	-.1603	2.5385
SDev	1.6057	.57709	1.7543	.318	.1036	1.4078
%RSD	4696.5	212.27	37.062	86.53	64.61	55.457

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0859	-.1572	-.36232	-.22671	3.2270	-1.6624
SDev	.0901	.0882	.36095	.685	.85341	1.9813
%RSD	105	56.11	99.622	302.15	26.446	119.18

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.09683	-7.1447	5.0000	19514
SDev	1.1432	2.0593	0	33.9411
%RSD	1180.6	28.823	0	.17393

Method: ARMY Sample Name: J8KQK Operator: LRW
Run Time: 10/11/07 21:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2211	22100.	34.318	118.4	212.3	1.484
SDev	.8069	379.7	.19419	.6447	1.464	.0281
%RSD	365	1.718	.56585	.5447	.6896	1.891

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76710.	.2687	17.38	36.66	21.21	31600.
SDev	100.8	.0573	.4849	.4597	.3426	12.65
%RSD	.1314	21.34	2.79	1.254	1.615	.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7946.	31860.	465.6	.9963	13350.	37.78
SDev	136.3	15.85	.4664	.494	82.54	.6123
%RSD	1.715	.0498	.1002	49.58	.6184	1.621

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.77083	11.968	-.71395	-1.533	262.0	1.6819
SDev	3.3586	.29363	4.3972	.2234	26.26	1.6509
%RSD	435.7	2.4536	615.9	14.57	10.02	98.162

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37.73	63.55	9.6769	13.112	6.0643	-1.8719
SDev	.9426	.2485	.11825	.38119	4.8374	2.6203
%RSD	2.498	.391	1.2221	2.9073	79.768	139.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.93391	-1.5367	5.0000	19521.4
SDev	.7737	6.2062	0	13.0097
%RSD	82.845	403.88	0	.06664

Method: ARMY Sample Name: J8KQN Operator: LRW
Run Time: 10/11/07 21:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4414	-45.02	-1.2580	36.25	15.29	-.1221
SDev	.5405	1.964	1.616	.5487	.0966	.0177
%RSD	122.5	4.363	128.46	1.513	.6318	14.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34430.	.2205	1.632	.2551	.2462	5106.
SDev	13.31	.1415	.2212	.2086	.2254	1.804
%RSD	.0386	64.19	13.56	81.8	91.54	.0353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1236.	15620.	1461.	-1.240	10180.	46.89
SDev	.6046	3.281	.3754	.0001	117.2	.7355
%RSD	.0489	.021	.0257	.0087	1.151	1.568

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.44455	-.56045	-3.0482	-.8617	-.5283	4.0513
SDev	1.7165	.01873	.65825	.3596	.2085	.35975
%RSD	386.12	3.3435	21.595	41.74	39.46	8.8799

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3277	106.5	1.5906	-1.6344	5.9359	-2.2970
SDev	.4263	.3867	.86336	.40294	.43316	2.3572
%RSD	130.1	.3632	54.279	24.654	7.2974	102.62

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6669	-6.4007	5.0000	19422.3
SDev	1.9066	1.9387	0	5.23286
%RSD	51.993	30.289	0	.02694

Method: ARMY Sample Name: J8KQQ Operator: LRW
Run Time: 10/11/07 21:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6042	-50.42	10.821	31.70	125.9	-.1343
SDev	.1901	1.382	.68111	.4695	.0731	.0167
%RSD	31.46	2.741	6.2942	1.481	.058	12.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98900.	.0853	.1711	-.1368	-.0147	5565.
SDev	159	.1126	.0273	.3016	.3537	9.374
%RSD	.1608	132.1	15.96	220.5	2398	.1684

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1540.	24270.	636.5	.6375	10510.	2.149
SDev	7.543	32.44	1.057	.3282	10.64	.2179
%RSD	.4898	.1337	.1661	51.47	.1013	10.14

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.07078	-.80939	-.92676	-.0922	-1.416	1.9376
SDev	.52065	.10711	2.8763	.3633	.0013	1.509
%RSD	735.59	13.234	310.36	394	.0927	77.879

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1438	1.817	-.46194	-.98285	.81889	-.51494
SDev	.0305	.1689	1.635	.6557	.53898	1.0497
%RSD	21.21	9.295	353.95	66.715	65.818	203.84

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4866	-3.1301	5.0000	19371
SDev	.09402	4.3592	0	21.4963
%RSD	2.6968	139.27	0	.11097

Method: ARMY Sample Name: J8KQV Operator: LRW
Run Time: 10/11/07 21:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1664	-58.78	-1.9304	58.84	19.13	-.1184
SDev	.2455	.2435	.31201	1.064	.0544	.0081
%RSD	147.5	.4142	16.163	1.808	.2842	6.872

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	298200.	.1331	.2670	.2505	.4587	-.7305
SDev	270.9	.0227	.2235	.0456	.7516	4.984
%RSD	.0908	17.04	83.7	18.2	163.9	682.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4109.	14840.	56.08	-.5797	1959.	4.766
SDev	.8	5.093	.0119	.0012	81.65	.006
%RSD	.0195	.0343	.0213	.2005	4.168	.1252

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.40112	-.59353	-2.7548	-2.808	-5.440	3.1189
SDev	3.6884	.05995	.72793	.2265	.0054	.11533
%RSD	919.51	10.101	26.425	8.066	.0985	3.6977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5805	1.934	.91413	-1.3462	6.0482	-2.4182
SDev	.1844	.0529	1.1948	.50661	6.7856	2.1421
%RSD	31.76	2.734	130.7	37.632	112.19	88.583

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4323	-5.8437	5.0000	19239.8
SDev	.48585	.84879	0	19.799
%RSD	14.155	14.525	0	.1029

Method: ARMY Sample Name: J8KQ0 Operator: LRW
Run Time: 10/11/07 21:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3714	-97.67	36.024	146.9	62.47	-.1416
SDev	.0812	3.848	1.6548	1.559	.0069	.0086
%RSD	21.86	3.94	4.5935	1.061	.011	6.089

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33930.	.1780	5.437	-.4511	.2331	17380.
SDev	37.13	.0214	.1113	.1854	.1358	17.42
%RSD	.1094	12.04	2.048	41.11	58.25	.1002

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5123.	51980.	2401.	-.6513	2480.	5.951
SDev	14.4	66.2	1.336	.0003	342.5	.373
%RSD	.2811	.1274	.0557	.0424	13.81	6.268

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.87744	-.70310	-3.0527	-1.658	-.8224	4.2593
SDev	.77501	.35285	1.3183	2.023	.0001	2.3419
%RSD	88.327	50.186	43.186	122	.0078	54.984

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.192	-.4319	-.47056	-.81919	-.12001	-1.2556
SDev	.0299	.001	.55911	.24988	1.9604	2.1407
%RSD	2.51	.2217	118.82	30.503	1633.5	170.49

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7840	-5.4674	5.0000	19442.7
SDev	.0939	1.9296	0	2.12132
%RSD	5.2639	35.293	0	.01091

Method: ARMY Sample Name: J8KQ2 Operator: LRW
Run Time: 10/11/07 21:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3534	-92.31	34.486	144.0	62.01	-.1236
SDev	.2981	1.446	1.3695	.0885	.0104	.0154
%RSD	84.35	1.567	3.9712	.0615	.0168	12.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34010.	.1656	5.356	.0238	.1608	16900.
SDev	10.75	.1213	.2361	.0726	.375	9.911
%RSD	.0316	73.29	4.407	304.7	233.2	.0586

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5110.	51000.	2406.	.1601	2558.	6.513
SDev	2.59	8.565	.1548	.829	163.2	.404
%RSD	.0507	.0168	.0064	518	6.379	6.203

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8058	-.44646	-1.2140	1.836	-.8221	4.9212
SDev	4.0415	.36401	.54359	.392	.0018	1.7375
%RSD	223.81	81.534	44.777	21.35	.2181	35.308

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9201	-.2255	1.1827	-1.2598	5.2629	.07981
SDev	.1521	.0995	1.6709	1.3799	3.5211	4.3013
%RSD	16.53	44.11	141.28	109.54	66.904	5388.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4039	-2.5210	5.0000	19453.7
SDev	.11132	.87056	0	59.2547
%RSD	7.9294	34.532	0	.30459

Method: ARMY Sample Name: J8KQ5 Operator: LRW
Run Time: 10/11/07 22:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1777	-79.45	51.431	1113.	55.74	-.1335
SDev	.0905	1.946	1.2018	2.414	.2075	.0166
%RSD	50.92	2.45	2.3368	.2169	.3724	12.43

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140100.	.2155	6.874	-.2321	.2950	19360.
SDev	110.9	.0787	.0768	.3497	.1057	10.7
%RSD	.0791	36.51	1.117	150.6	35.83	.0553

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8755.	105600.	2729.	.0806	10420.	12.32
SDev	30.57	167.2	1.174	.002	33.04	.9299
%RSD	.3492	.1583	.043	2.421	.3171	7.546

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.0417	-1.2652	-3.1818	.4936	-2.533	3.2563
SDev	1.4492	1.0531	.60047	1.181	.1023	2.4832
%RSD	139.12	83.236	18.872	239.2	4.04	76.259

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.073	9.615	-.24271	-1.7756	.95466	-2.0383
SDev	.0311	.2602	.15743	1.5002	1.8672	1.2405
%RSD	2.899	2.706	64.864	84.49	195.59	60.858

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4613	-5.4998	5.0000	19291.1
SDev	2.7934	.49432	0	21.6372
%RSD	191.16	8.9881	0	.11216

Method: ARMY Sample Name: J8KRD Operator: LRW
Run Time: 10/11/07 22:05 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2129	-64.80	40.523	88.56	72.37	-.1238
SDev	.0218	.378	.8461	2.281	.9062	.0143
%RSD	10.25	.5834	2.088	2.575	1.252	11.54

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81460.	.0648	.1490	-.0813	.0287	796.5
SDev	840	.0378	.0593	.0389	.2418	15.54
%RSD	1.031	58.28	39.8	47.81	841.5	1.952

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3230.	65350.	56.13	.8376	25500.	.6051
SDev	16.49	771.5	.6595	.6433	196.2	.1476
%RSD	.5104	1.181	1.175	76.8	.7692	24.39

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.0236	.00414	-.72275	-.6951	-1.423	3.8994
SDev	4.4097	.20851	.39702	1.395	.0103	1.4223
%RSD	217.91	5036	54.932	200.6	.7259	36.475

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.054	.5472	.26061	-.12390	6.5214	-.22193
SDev	.5773	.1248	.15511	.39004	8.0757	2.5795
%RSD	54.76	22.8	59.517	314.8	123.83	1162.3

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.97022	-1.5680	5.0000	19248.4
SDev	.10041	.64537	0	167.159
%RSD	10.349	41.159	0	.86843

Method: ARMY Sample Name: J8KRDL Operator: LRW
Run Time: 10/11/07 22:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1273	-61.45	8.3429	15.95	14.10	-.1493
SDev	.2898	1.398	.30022	.2717	.0619	.0082
%RSD	227.7	2.274	3.5985	1.703	.4386	5.507

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15990.	.0335	.2293	-.1673	.1131	154.8
SDev	.9301	.0724	.1116	.2104	.0415	7.741
%RSD	.0058	216	48.65	125.8	36.67	4.999

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	659.2	12540.	11.08	1.059	5028.	1.853
SDev	.7981	12.99	.0046	.001	133	.1086
%RSD	.1211	.1036	.0413	.0958	2.645	5.859

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7935	.28577	-1.5323	1.352	-.3076	2.0803
SDev	.07418	.87553	1.5956	2.215	.1047	2.9749
%RSD	2.6558	306.37	104.13	163.9	34.04	143.01

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0635	.0233	1.3673	-.25415	5.2568	1.5637
SDev	.4281	.1526	1.4441	.59165	9.4214	4.5924
%RSD	674.2	655.2	105.62	232.79	179.23	293.68

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.3554	-3.4732	5.0000	19321.5
SDev	1.4387	1.674	0	7.49505
%RSD	61.08	48.198	0	.03879

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 22:18 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	955.2	25510.	493.65	5278.	2061.	2013.
SDev	.9866	8.902	.71854	26.65	1.509	2.284
%RSD	.1033	.0349	.14555	.505	.0732	.1135

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50710.	495.9	1973.	2011.	2061.	25800.
SDev	105.6	.1143	3.33	2.16	.7163	64.58
%RSD	.2083	.023	.1688	.1074	.0348	.2503

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50180.	50780.	2099.	2043.	50520.	1993.
SDev	.6712	171.9	3.03	5.848	71.51	.2101
%RSD	.0013	.3386	.1444	.2862	.1415	.0105

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	487.84	497.93	542.22	5006.	5083.	990.04
SDev	.71036	.20657	1.2319	2.767	8.142	7.8609
%RSD	.14561	.04148	.22719	.0553	.1602	.794

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2074.	1903.	449.48	522.12	486.99	488.26
SDev	2.729	.1163	.7431	.06128	1.142	1.6351
%RSD	.1316	.0061	.16532	.01173	.2345	.33489

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.92	585.30	5.0000	19177.8
SDev	2.2693	2.98	0	20.3652
%RSD	.49774	.50913	0	.10619

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 22:25 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1293	-11.18	-1.2269	14.47	.0416	-.1353
SDev	.0181	1.271	.16021	2.068	.001	.0008
%RSD	13.98	11.37	13.059	14.3	2.36	.6233

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.924	.0907	.1145	-.2389	-.3289	-7.316
SDev	.2485	.0558	.0004	.2095	.259	3.52
%RSD	3.136	61.54	.3327	87.68	78.75	48.11

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.0	2.581	.0064	-.0113	-644.9	1.115
SDev	1.181	1.436	.0267	.1624	244.7	.7973
%RSD	.8315	55.62	417.1	1433	37.95	71.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.29993	-.19987	-1.3517	.5628	-.2336	1.3932
SDev	1.0974	.91233	1.645	2.376	0	.56055
%RSD	365.89	456.45	121.7	422.2	0	40.234

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1738	-.0311	1.9480	-1.2722	.66120	.11957
SDev	.0904	.1438	1.0313	1.8827	.65979	1.3159
%RSD	52.01	462.5	52.942	147.99	99.786	1100.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6595	-2.8550	5.0000	19463.8
SDev	1.4266	3.1785	0	25.1727
%RSD	85.964	111.33	0	.12933

Method: ARMY Sample Name: J8KRDX Operator: LRW
Run Time: 10/11/07 22:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3512	-67.51	48.570	105.2	83.27	-.1378
SDev	.4897	.0049	2.6261	.224	.0259	.0259
%RSD	139.4	.0072	5.4068	.2128	.0311	18.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	93670.	.1709	.8995	.5285	.2642	926.1
SDev	46.3	.0861	.2785	.0222	.1297	5.019
%RSD	.0494	50.37	30.96	4.2	49.12	.5419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3708.	75100.	64.06	2.951	29500.	1.592
SDev	2.633	42.31	.0368	.0033	34.38	1.129
%RSD	.071	.0563	.0574	.1116	.1165	70.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31312	-.38922	-.63054	-.2748	-1.495	4.2160
SDev	1.0535	1.2639	1.2557	1.723	.1058	1.3717
%RSD	336.43	324.72	199.14	627.1	7.079	32.536

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2772	.2485	.08404	-.62549	4.2792	-2.6058
SDev	.521	.1831	.52241	1.6341	4.2611	.54797
%RSD	187.9	73.68	621.6	261.24	99.578	21.029

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.37703	-1.1336	5.0000	19286.3
SDev	.96202	2.3628	0	13.7181
%RSD	255.16	208.44	0	.07112

Method: ARMY Sample Name: J8KRDS Operator: LRW
Run Time: 10/11/07 22:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56.73	2166.	2186.2	1238.	2282.	54.63
SDev	.6484	9.599	2.0423	2.888	3.447	.0441
%RSD	1.143	.4432	.09341	.2332	.151	.0807

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138600.	52.60	522.7	213.7	280.8	2031.
SDev	182.9	.0645	.7101	.1853	.9395	7.261
%RSD	.132	.1226	.1358	.0867	.3346	.3574

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57760.	124100.	623.8	1075.	81350.	525.8
SDev	153	112.9	.9428	2.59	125.7	2.969
%RSD	.2649	.0909	.1511	.2409	.1546	.5647

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2131.6	523.23	580.72	2090.	1072.	2096.6
SDev	6.3419	.58488	1.151	2.771	.4816	3.5514
%RSD	.29752	.11178	.1982	.1326	.0449	.16939

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	553.4	526.4	470.64	549.48	2122.4	2136.1
SDev	.4712	2.128	.25646	1.0049	1.1366	8.9405
%RSD	.0852	.4043	.05449	.18288	.05355	.41854

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	486.59	627.71	5.0000	19182.3
SDev	.83791	2.144	0	31.2536
%RSD	.1722	.34155	0	.16292

Method: ARMY Sample Name: J8KRG Operator: LRW
Run Time: 10/11/07 22:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5917	-67.69	24.645	38.40	79.40	-.1440
SDev	.1612	1.133	1.7465	.864	.0489	.0027
%RSD	27.24	1.674	7.0868	2.25	.0616	1.884

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146800.	.1871	.7425	-.0315	.2928	4386.
SDev	271.6	.0369	.0563	.1141	.361	4.588
%RSD	.1851	19.7	7.588	362.4	123.3	.1046

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2147.	80540.	206.3	.9961	26850.	.8748
SDev	7.612	174.2	.3368	.8412	96.16	.9772
%RSD	.3545	.2163	.1633	84.45	.3581	111.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.49570	.04820	-1.1884	-.2390	-2.315	3.5872
SDev	1.0688	1.6882	1.1148	.0392	.4141	1.9954
%RSD	215.62	3502	93.812	16.42	17.89	55.627

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5438	2.818	-1.2504	.69651	1.9767	-1.7300
SDev	.0926	.2188	2.2148	1.4252	3.7711	.28027
%RSD	17.03	7.766	177.14	204.62	190.78	16.201

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3524	-3.4554	5.0000	19243.1
SDev	1.1335	1.1055	0	60.6689
%RSD	33.812	31.994	0	.31527

Method: ARMY Sample Name: J7914A Sb 200ppb Operator: LRW
Run Time: 10/11/07 22:47 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2870	24170.	86.957	12.46	130.6	.9224
SDev	.3363	82.16	.98196	.8486	.3758	.02
%RSD	117.2	.3399	1.1293	6.812	.2877	2.168

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	982.1	.7195	15.37	307.0	71.99	132600.
SDev	.581	.0638	.1487	1.06	.4308	410
%RSD	.0592	8.861	.9676	.3453	.5985	.3091

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3302.	4195.	525.7	11.17	-574.7	211.1
SDev	17.43	11.53	1.393	.501	72.84	1.126
%RSD	.5278	.2747	.265	4.487	12.67	.5336

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7809	238.01	230.43	16.15	266.9	5.8413
SDev	2.0903	.70532	1.009	.547	1.046	2.0234
%RSD	75.166	.29633	.43789	3.386	.392	34.639

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	67.20	223.7	210.74	251.63	1.3228	3.5089
SDev	.0796	.6622	1.8528	.13244	3.9657	1.154
%RSD	.1184	.296	.87916	.05263	299.8	32.888

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	192.61	249.31	5.0000	19734.8
SDev	.22619	1.3999	0	16.6874
%RSD	.11743	.56149	0	.08455

Method: ARMY Sample Name: J8FKFA SB 200PPB Operator: LRW
Run Time: 10/11/07 23:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3792	115200.	79.218	6.217	608.7	5.024
SDev	.0905	174.2	1.3066	1.156	.4527	.0006
%RSD	23.88	.1512	1.6493	18.59	.0744	.012

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12910.	2.762	76.48	164.8	69.87	190700.
SDev	25.22	.0024	.3308	.9659	.1196	500.2
%RSD	.1954	.0874	.4325	.5861	.1711	.2622

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4967.	16780.	6676.	17.76	-200.5	108.3
SDev	4.3	41.74	6.841	.0915	257.8	.226
%RSD	.0866	.2487	.1025	.5152	128.6	.2086

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.6826	217.37	255.30	6.348	499.5	10.353
SDev	1.7592	.01253	.76561	2.773	.208	1.9589
%RSD	22.899	.00576	.29988	43.68	.0416	18.92

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	228.8	483.6	188.13	231.97	12.926	5.0649
SDev	.7515	.2718	.62989	.29567	.82265	2.2268
%RSD	.3284	.0562	.33482	.12746	6.3644	43.966

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	213.93	275.96	5.0000	19947.8
SDev	2.2884	2.2904	0	72.6911
%RSD	1.0697	.82996	0	.3644

Method: ARMY Sample Name: J8FR7A SB 200PPB Operator: LRW
Run Time: 10/11/07 23:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3911	102600.	117.70	11.20	994.2	8.029
SDev	.1059	565.4	3.7087	.4271	6.635	.053
%RSD	27.08	.5509	3.151	3.813	.6674	.6606

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54410.	3.065	104.1	163.3	141.5	234400.
SDev	316.8	.1167	.7219	1.23	.5804	1509
%RSD	.5823	3.807	.6932	.7536	.4101	.6438

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6388.	20580.	12420.	8.278	275.2	167.6
SDev	24.91	108.4	58.71	.2106	148.6	1.239
%RSD	.39	.5267	.4725	2.544	53.98	.7393

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6105	182.50	245.25	5.374	425.8	16.148
SDev	.78413	.22395	.73208	.9401	2.895	1.1569
%RSD	17.007	.12271	.2985	17.49	.6798	7.1641

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	198.5	583.8	156.07	195.69	8.3541	2.7415
SDev	1.145	4.348	1.0979	.88392	4.5076	1.0748
%RSD	.5768	.7448	.70349	.45169	53.957	39.205

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	206.13	264.78	5.0000	20329.6
SDev	2.0011	.09853	0	100.126
%RSD	.97081	.03721	0	.49251

Method: ARMY Sample Name: CRI/MRL Operator: LRW
Run Time: 10/11/07 23:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.148	186.8	13.998	218.8	10.55	5.101
SDev	.1633	2.488	.30527	.0736	.0109	.0034
%RSD	3.172	1.332	2.1809	.0336	.1033	.0666

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5209.	5.244	4.917	5.017	15.77	312.5
SDev	5.785	.1048	.2041	.487	.1188	1.976
%RSD	.1111	1.999	4.151	9.705	.7534	.6325

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4485.	5121.	16.60	9.767	5471.	26.50
SDev	2.279	1.103	.0239	1.107	36.25	.962
%RSD	.0508	.0215	.1442	11.33	.6626	3.63

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.905	10.788	8.2090	104.0	52.48	15.727
SDev	2.5104	.10473	1.0091	.778	.104	.13999
%RSD	10.96	.97082	12.293	.7483	.1981	.8902

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.325	45.67	11.172	10.597	21.103	23.804
SDev	.0296	.0528	1.4443	.87811	.64566	4.086
%RSD	.4047	.1156	12.928	8.2866	3.0596	17.165

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	9.8866	7.3715	5.0000	19466.5
SDev	.58775	1.8063	0	76.7915
%RSD	5.945	24.504	0	.39448

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 23:28 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	957.4	25540.	495.89	5286.	2069.	2015.
SDev	.5924	4.558	1.8039	3.661	2.138	3.655
%RSD	.0619	.0178	.36377	.0693	.1033	.1814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50740.	497.1	1975.	2011.	2067.	25760.
SDev	54.26	.5255	4.173	1.441	2.031	38.5
%RSD	.1069	.1057	.2114	.0717	.0983	.1494

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50190.	50780.	2114.	2042.	50460.	1994.
SDev	35.69	27.65	3.356	.3198	302.8	2.513
%RSD	.0711	.0545	.1588	.0157	.6001	.126

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	490.38	498.41	543.13	5009.	5091.	992.48
SDev	.67331	.10215	1.5249	1.343	9.526	6.5383
%RSD	.1373	.02049	.28075	.0268	.1871	.65878

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2075.	1908.	449.20	522.97	490.71	490.22
SDev	3.561	.6724	.43913	.37237	1.4994	1.758
%RSD	.1716	.0352	.09775	.0712	.30556	.35862

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.73	586.77	5.0000	19246.5
SDev	1.4199	2.9951	0	20.5061
%RSD	.31156	.51043	0	.10654

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 23:35 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4559	-15.34	.93137	14.79	.0691	-.1633
SDev	.6782	1.641	.74355	2.775	.1042	.0063
%RSD	148.8	10.7	79.833	18.77	150.8	3.863

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8.802	.1397	.1331	-.0705	.5022	-1.038
SDev	.7635	.1475	.4147	.2597	.1404	5.341
%RSD	8.675	105.6	311.6	368.4	27.96	514.6

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140.8	.0076	.0287	.2310	-434.2	.4078
SDev	9.081	.0096	.0392	.1733	116.9	1.185
%RSD	6.447	127.2	136.7	75.01	26.93	290.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7390	-.18396	1.3169	.7382	-.2336	4.4521
SDev	.46288	.92575	.33184	.9138	0	1.3338
%RSD	26.618	503.22	25.199	123.8	0	29.958

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1766	.2710	1.2728	-.91127	2.9059	1.1564
SDev	.0328	.4461	1.213	1.9935	.77987	.30462
%RSD	18.58	164.6	95.301	218.76	26.837	26.343

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9369	1.0073	5.0000	19375.4
SDev	.10148	.54818	0	76.6493
%RSD	5.2396	54.419	0	.3956

MISCELLANEOUS DATA

Metals Internal Chain of Custody

Date Prepared: 10/10/07 **Prep Analyst:** Michaelyn List

Laboratory Sample ID			Lab ID	Method	Analysis Date	Analyst	Instrument
A7J040354	1		J7914	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	1	S	J7914	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	1	X	J7914	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	1		J7914	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	1	S	J7914	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	1	X	J7914	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	2		J792M	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	2		J792M	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	3		J792N	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	3		J792N	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	4		J792R	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	4		J792R	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	5		J792W	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	5		J792W	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	6		J7920	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	6		J7920	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	7		J7923	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	7		J7923	SW846 7471A	10/12/07	Michaelyn List	H1
A7J040354	8		J7927	SW846 6010B	10/11/07	Larry Williams	I5
A7J040354	8		J7927	SW846 7471A	10/12/07	Michaelyn List	H1

U - Unfiltered F - Filtered T - TCLP L - SPLP East

METALS PREPARATION SUMMARY

Preparation Type	Matrix	Amount of Standard added to LCS & MS/MSD		Initial Sample Vol/Wt	Final Sample Volume
		Amount	Standard name		
ICP	water	1 mL 1 mL 1.0 mL	Ag ICP-1 ICP-2A	50 mL	50 mL
ICPMS	water	0.5ml 0.5ml	ICPMS-1 ICPMS-2	50 mL	50 mL
Hg - CVAA	water	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL
Hg - CVAF (low level)	water	0.2 mL (LCS/MS/MSD)	HG ICAL	40 ml	40 ml
ICP	solid	2 mL 2 mL 2 mL	Ag ICP-1 ICP-2A	1.00 +/- .02g	100 mL
ICPMS	solid	1ml 1ml	ICPMS-1 ICPMS-2	1.00 +/- .02g	100ml
Hg - CVAA	solid	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	0.60 +/- .01g	100 mL
ICP	TCLP	1 mL (LCS) 1 mL(LCS)	Ag ICP-1	50 mL	50 mL
ICP	TCLP	0.5 mL(MS/MSD)	TCLP Spike I RCRA	50 mL	50 mL
ICP	TCLP	1 mL(MS/MSD)	TCLP Spike II Non-RCRA	50 mL	50 mL
Hg - CVAA	TCLP	5 mL (LCS) 5 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL

Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.0002 ppm		0.2 mL	HG-2	0.1 ppm
0.0005 ppm		0.5 mL	HG-2	0.1 ppm
0.001 ppm		1 mL	HG-2	0.1 ppm
0.005 ppm		5 mL	HG-2	0.1 ppm
0.010 ppm		10 mL	HG-2	0.1 ppm
ICV Preparation				
0.0025 ppm		2.5 mL	HG-1	0.1 ppm
CCV Preparation:				
0.005 ppm		5 mL	HG-2	0.1 ppm

Low Level Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.5 ppt		20 ul	HG ICAL	1.0 ppb
1.0 ppt		40 ul	HG ICAL	1.0 ppb
2 ppt		80 ul	HG ICAL	1.0 ppb
5 ppt		200 ul	HG ICAL	1.0 ppb
10 ppt		400 ul	HG ICAL	1.0 ppb
25 ppt		1000 ul	HG ICAL	1.0 ppb
ICV Preparation				
5 ppt		200 ul	HG ICV	1.0 ppb
CCV Preparation:				
5 ppt		200 ul	HG ICAL	1.0 ppb

SPIKING STANDARD DEFINITIONS

Elements	Ag	ICP-1	ICP-2A	ICPMS-1	ICPMS-2	HG-1	HG-2	HG ICAL	HG ICV	TCLP Spike I	TCLP Spike II
Ag	2.5 ppm			10ppm						100 ppm	
Al		100 ppm			100ppm						100 ppm
As		100 ppm		10ppm						500 ppm	
Ba		100 ppm		10ppm						5000 ppm	
Be		2.5 ppm		10ppm							2.5 ppm
Cd		2.5 ppm		10ppm						100 ppm	
Ca			2500 ppm		100ppm						
Co		25 ppm		10ppm							25 ppm
Cr		10 ppm		10ppm						500 ppm	
Cu		12.5 ppm		10ppm							12.5 ppm
Fe		50 ppm			100ppm						50 ppm
Hg						0.1 ppm	0.1 ppm	1.0 ppb	1.0 ppb		
K			2500 ppm		100ppm						
Mg			2500 ppm		100ppm						
Mn		25 ppm		10ppm							25 ppm
Na			2500 ppm		100ppm						
Ni		25 ppm		10ppm							25 ppm
Pb		25 ppm		10ppm						500 ppm	
Sb		25 ppm		10ppm							25 ppm
Se		100 ppm		10ppm						100 ppm	
Tl		100 ppm		10ppm							100 ppm
V		25 ppm		10ppm							25 ppm
Zn		25 ppm		10ppm							25 ppm
B		50 ppm		10ppm							50 ppm
Sr		50 ppm		10ppm							
Mo		50 ppm		10ppm							50 ppm
W		50 ppm		10ppm							
Sn		100 ppm		10ppm							100 ppm
Zr		50 ppm		10ppm							
Ti		50 ppm		10ppm							

TestAmerica North Canton
Revised 4/5/02
N:\Metals\Preplog.xls

DATE: 10-10-07

METALS PREPARATION REAGENTS/STANDARDS

Reagents and Standards listed on this form are used for the entire day's prep batches unless otherwise noted on the individual prep log.

REAGENT NAME	REAGENT NUMBER
1:1 HNO_3 (nitric acid)	7MR685
1:1 HCl (hydrochloric acid)	7MR674
HNO_3 (nitric acid)	7MR675
HCl (hydrochloric acid)	7MR650
$KMnO_4$ (potassium permanganate)	7MR673
$K_2S_2O_8$ (potassium persulfate)	7MR660
H_2O_2 (hydrogen peroxide)	7MR624
H_2SO_4 (sulfuric acid)	7MR651
HCl/HNO_3 (aqua regia)	7MR686

STANDARD NAME	STANDARD/LOT NUMBER
ICP-1	7J545
ICP-2A	7J546
RCRA	US F000785
non-RCRA	HPS 0712210
Ag	7J544
Hg	7J548
ICPMS-1	HPS 0712908-A HPS 0712909-B
ICPMS-2	HPS 634703

Waters

Hg time in the water bath 10:25

Hg time out of the water bath 12:25

Solids

Hg time in the water bath 12:45

Hg time out of the water bath ~~1:45~~ 1:15

MC 10-10-07

Times listed are for the waters and solids for that day unless otherwise noted.

Daily Batch Level II Michaela List

STL North Canton
Revision Date: 08/09/07
n:\metals\reagent1.doc

Hg Standard Curve Preparation Summary

Date: 10-10-07

Time In: 12:30 > water

Time Out: 2:30

Standard Concentrations	Standard Numbers
S0	
0.2 ppb	
CRA - 0.2 ppb	
0.5 ppb	
1.0 ppb	STD 7J54A
5.0 ppb	
10.0 ppb	
CCV - 5.0 ppb	
CCB	
ICV - 2.5 ppb	STD 7J54B
ICB	

GENERAL CHEMISTRY DATA

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SAMPLE DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

General Chemistry

Lot-Sample #...: A7J040354-001 **Work Order #...:** J7914 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 2.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**98.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

General Chemistry

Lot-Sample #...: A7J040354-002 **Work Order #...:** J792M **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
% Moisture.....: 3.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

General Chemistry

Lot-Sample #...: A7J040354-003 **Work Order #...:** J792N **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**94.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

General Chemistry

Lot-Sample #...: A7J040354-004 **Work Order #...:** J792R **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
% Moisture.....: 4.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	ND	5.2	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids	**95.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

General Chemistry

Lot-Sample #...: A7J040354-005 **Work Order #...:** J792W **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
% Moisture.....: 2.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.6 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**97.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

General Chemistry

Lot-Sample #...: A7J040354-006 **Work Order #...:** J7920 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
% Moisture.....: 3.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**3.4 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

General Chemistry

Lot-Sample #...: A7J040354-007 **Work Order #...:** J7923 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
% Moisture.....: 5.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.5 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**94.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

General Chemistry

Lot-Sample #...: A7J040354-008 **Work Order #...:** J7927 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 2.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.8 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**97.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-009 **Work Order #...:** J7929 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**82.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-010 **Work Order #...:** J793K **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-011 **Work Order #...:** J793P **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-012 **Work Order #...:** J793R **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
% Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**86.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-013 **Work Order #...:** J793X **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**82.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-014 **Work Order #...:** J7930 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
% Moisture.....: 9.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**90.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-015 **Work Order #...:** J7932 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**80.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-016 **Work Order #...:** J7933 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**79.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AA		MB Lot-Sample #:	G7J150000-097	
	ND	5.0	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids		Work Order #: J8VEW1AA		MB Lot-Sample #:	A7J120000-440	
	ND	10.0	%	MCAWW 160.3 MOD	10/12-10/13/07	7285440
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC	LCS Lot-Sample#: G7J150000-097		
	89	(30 - 122)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	Work Order #: J80NV1AC				LCS Lot-Sample#: G7J150000-097		
	50.1	44.4	mg/kg	89	MCAWW 353.2	10/15-10/17/07	7288097
	Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						% Moisture.....: 3.7	
Nitrocellulose		WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001	
	67	(30 - 122)			MCAWW 353.2	10/15-10/17/07	7288097
	64	(30 - 122)	4.7	(0-45)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
							% Moisture.....: 3.7		
Nitrocellulose			WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001		
	1.3	52.0	36.1	mg/kg	67		MCAWW 353.2	10/15-10/17/07	7288097
	1.3	51.6	34.5	mg/kg	64	4.7	MCAWW 353.2	10/15-10/17/07	7288097
			Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Work Order #...:** J793P-SMP **Matrix.....:** SO
J793P-DUP
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J040354-011		
	84.8	83.3	%	1.8	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285440

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Work Order #...:** J7933-SMP **Matrix.....:** SO
J7933-DUP
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J040354-016		
	79.4	77.8	%	2.1	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285440

Dilution Factor: 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SUPPORTIVE RAW DATA

			TestAmerica, North Canton			
		Percent Total Solid/Percent Moisture Logsheet				
Analysis	TS			Batch	7285440	
Prep Date	10/12/2007	Time In	14:50	Analyst	JB	
Anal date	10/13/2007	Time Out	9:35	RL	10	
Sample	Tare	Wet	Dry	Result TS	Result MS	comments
ID	wt	wt	wt	%	%	
BLK-E	4.5334	4.4649	4.4517	2.28	ND	
J75NJ	4.5334	9.2037	7.6602	66.951	33.049	
J75NM	4.5334	11.0636	10.2604	87.700	12.300	
J75NT	4.5334	12.7195	11.7378	88.008	11.992	
J76MM	4.5334	8.9271	8.8364	97.936	2.064	
J7914	4.5334	11.3774	11.2397	97.988	2.012	
J792M	4.5334	12.2592	11.9627	96.162	3.838	
J792N	4.5334	12.4940	12.0862	94.877	5.123	
J792R	4.5334	13.9870	13.5628	95.513	4.487	
J792W	4.5334	11.8737	11.6684	97.203	2.797	
J7920	4.5334	11.8416	11.5807	96.430	3.570	
J7923	4.5334	11.0718	10.7218	94.647	5.353	
J7927	4.5334	15.0507	14.7488	97.129	2.871	
J7929	4.5334	14.5203	12.7263	82.036	17.964	
J793K	4.5334	14.3662	12.8368	84.446	15.554	
J793P	4.5334	12.0506	10.9099	84.825	15.175	
J793P-X	4.5334	9.4261	8.6087	83.293	16.707	
J793R	4.5334	14.7373	13.3043	85.956	14.044	
J793X	4.5334	14.3687	12.6865	82.896	17.104	
J7930	4.5334	15.0081	13.9997	90.373	9.627	
J7932	4.5334	18.0333	15.3968	80.470	19.530	
J7933	4.5334	11.7807	10.2902	79.434	20.566	
J7933-X	4.5334	7.9785	7.2129	77.777	22.223	

TestAmerica North Canton

Sample Control Chain of Custody for General Chemistry

Lot Number	Sample	Suffix	Lab ID	Test	Prep Date	Prepared by	Analysis Date	Analyzed by
A7J040354	1		J79141AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	2		J792M1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	3		J792N1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	4		J792R1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	5		J792W1AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	6		J79201AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	7		J79231AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	8		J79271AK	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	9		J79291AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	10		J793K1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	11		J793P1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	11	X	J793P1AC	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	12		J793R1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	13		J793X1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	14		J79301AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	15		J79321AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	16		J79331AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns
A7J040354	16	X	J79331AC	Solids, Percent (as TS - 160.3 MOD) - Solids	10/12/07	Jill Burns	10/13/07	Jill Burns

TESTAMERICA WEST SACRAMENTO DATA

Case Narrative

TestAmerica West Sacramento Project Number A7J040354

General Comments
The samples were received at ambient temperature.

The samples were dried & chopped prior to this laboratory's receipt of the samples.

There were no other anomalies associated with this project.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

HPLC

Lot-Sample #...: A7J040354-001 **Work Order #...:** J79141A4 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 1.01
% Moisture.....: 2.0 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	90	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

HPLC

Lot-Sample #...: A7J040354-001 **Work Order #...:** J79141A6 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 2.0 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1

General Chemistry

Lot-Sample #...: A7J040354-001 **Work Order #...:** J7914 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 2.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**98.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

HPLC

Lot-Sample #...: A7J040354-002 **Work Order #...:** J792M1AF **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.97
% Moisture.....: 3.8 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.032 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

HPLC

Lot-Sample #...: A7J040354-002 **Work Order #...:** J792M1AH **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 3.8 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2

General Chemistry

Lot-Sample #...: A7J040354-002 **Work Order #...:** J792M **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
% Moisture.....: 3.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

HPLC

Lot-Sample #...: A7J040354-003 **Work Order #...:** J792N1AF **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 1
% Moisture.....: 5.1 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	**0.025 J**	**0.25**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

HPLC

Lot-Sample #...: A7J040354-003 **Work Order #...:** J792N1AH **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 5.1 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3

General Chemistry

Lot-Sample #...: A7J040354-003 **Work Order #...:** J792N **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 5.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.1 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**94.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

HPLC

Lot-Sample #...: A7J040354-004 **Work Order #...:** J792R1AF **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 1
% Moisture.....: 4.5 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

HPLC

Lot-Sample #...: A7J040354-004 **Work Order #...:** J792R1AH **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 4.5 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4

General Chemistry

Lot-Sample #...: A7J040354-004 **Work Order #...:** J792R **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
% Moisture.....: 4.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	ND	5.2	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids	**95.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

HPLC

Lot-Sample #...: A7J040354-005 **Work Order #...:** J792W1AF **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.99
% Moisture.....: 2.8 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	**0.050 J**	**0.25**	**mg/kg**
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	**0.048 J**	**0.25**	**mg/kg**
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

HPLC

Lot-Sample #...: A7J040354-005 **Work Order #...:** J792W1AH **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 2.8 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1

General Chemistry

Lot-Sample #...: A7J040354-005 **Work Order #...:** J792W **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
% Moisture.....: 2.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**2.6 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
		Dilution Factor: 1				
Percent Solids	**97.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

HPLC

Lot-Sample #...: A7J040354-006 **Work Order #...:** J79201AF **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.98
% Moisture.....: 3.6 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	ND	0.24	mg/kg
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.49	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

HPLC

Lot-Sample #...: A7J040354-006 **Work Order #...:** J79201AH **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 3.6 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2

General Chemistry

Lot-Sample #...: A7J040354-006 **Work Order #...:** J7920 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
% Moisture.....: 3.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**3.4 B**	**5.2**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**96.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

HPLC

Lot-Sample #...: A7J040354-007 **Work Order #...:** J79231AF **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.98
% Moisture.....: 5.4 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	ND	0.24	mg/kg
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.49	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

HPLC

Lot-Sample #...: A7J040354-007 **Work Order #...:** J79231AH **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 5.4 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1

General Chemistry

Lot-Sample #...: A7J040354-007 **Work Order #...:** J7923 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
% Moisture.....: 5.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.5 B**	**5.3**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**94.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

HPLC

Lot-Sample #...: A7J040354-008 **Work Order #...:** J79271AF **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 1
% Moisture.....: 2.9 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

HPLC

Lot-Sample #...: A7J040354-008 **Work Order #...:** J79271AH **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1
% Moisture.....: 2.9 **Method.....:** SW846 8330 (Modif

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Nitroguanidine	ND	0.25	mg/kg

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2

General Chemistry

Lot-Sample #...: A7J040354-008 **Work Order #...:** J7927 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 2.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	**1.8 B**	**5.1**	**mg/kg**	**MCAWW 353.2**	**10/15-10/17/07**	**7288097**
	Dilution Factor: 1					
Percent Solids	**97.1**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-009 **Work Order #...:** J7929 **Matrix.....:** SO
Date Sampled...: 10/03/07 11:46 **Date Received..:** 10/03/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**82.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-010 **Work Order #...:** J793K **Matrix.....:** SO
Date Sampled...: 10/03/07 10:38 **Date Received..:** 10/03/07
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC3(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-011 **Work Order #...:** J793P **Matrix.....:** SO
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**84.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-RQL-MC4(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-012 **Work Order #...:** J793R **Matrix.....:** SO
Date Sampled...: 10/03/07 09:54 **Date Received..:** 10/03/07
% Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**86.0**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-013 **Work Order #...:** J793X **Matrix.....:** SO
Date Sampled...: 10/03/07 13:10 **Date Received..:** 10/03/07
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**82.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-LL1-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-014 **Work Order #...:** J7930 **Matrix.....:** SO
Date Sampled...: 10/03/07 13:30 **Date Received..:** 10/03/07
% Moisture.....: 9.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**90.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC1(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-015 **Work Order #...:** J7932 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:05 **Date Received..:** 10/03/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**80.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-FTF-MC2(WET TS)

General Chemistry

Lot-Sample #...: A7J040354-016 **Work Order #...:** J7933 **Matrix.....:** SO
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**79.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/12-10/13/07**	**7285440**

Dilution Factor: 1

METHOD BLANK REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J8W2J1AA **Matrix.....:** SOLID
MB Lot-Sample #: G7J120000-667
Prep Date.....: 10/14/07
Analysis Date..: 10/26/07 **Prep Batch #...:** 7285667
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg	SW846 8330
1,3-Dinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
2,6-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
HMX	ND	0.25	mg/kg	SW846 8330
Nitrobenzene	ND	0.25	mg/kg	SW846 8330
2-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
3-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
4-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
RDX	ND	0.25	mg/kg	SW846 8330
Tetryl	ND	0.25	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	ND	0.25	mg/kg	SW846 8330
Nitroglycerin	ND	0.50	mg/kg	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J80HJ1AA **Matrix.....:** SOLID
MB Lot-Sample #: G7J140000-049
Prep Date.....: 10/15/07
Analysis Date..: 10/16/07 **Prep Batch #...:** 7287049
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Nitroguanidine	ND	0.25	mg/kg	SW846 8330 (Modif

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AA		MB Lot-Sample #:	G7J150000-097	
	ND	5.0	mg/kg	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1				
Percent Solids		Work Order #: J8VEW1AA		MB Lot-Sample #:	A7J120000-440	
	ND	10.0	%	MCAWW 160.3 MOD	10/12-10/13/07	7285440
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
1,3-Dinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
2,6-Dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
HMX	**99**	**(60 - 120)**	**SW846 8330**
Nitrobenzene	**99**	**(60 - 120)**	**SW846 8330**
2-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
3-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Nitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
RDX	**103**	**(60 - 120)**	**SW846 8330**
Tetryl	**82**	**(60 - 120)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4,6-Trinitrotoluene	**95**	**(60 - 120)**	**SW846 8330**
Nitroglycerin	**97**	**(60 - 120)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2-Amino-4,6-dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
1,3-Dinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4-Dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
2,6-Dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
HMX	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
Nitrobenzene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
2-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
3-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Nitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
RDX	**1.0**	**1.0**	**mg/kg**	**103**	**SW846 8330**
Tetryl	**1.0**	**0.82**	**mg/kg**	**82**	**SW846 8330**
1,3,5-Trinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4,6-Trinitrotoluene	**1.0**	**0.95**	**mg/kg**	**95**	**SW846 8330**
Nitroglycerin	**5.0**	**4.9**	**mg/kg**	**97**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J80HJ1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J140000-049
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Nitroguanidine	**87**	**(79 - 117)**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J80HJ1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J140000-049
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Nitroguanidine	**1.0**	**0.87**	**mg/kg**	**87**	**SW846 8330 (Modi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose		Work Order #: J80NV1AC	LCS Lot-Sample#: G7J150000-097		
	89	(30 - 122)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrocellulose	Work Order #: J80NV1AC				LCS Lot-Sample#: G7J150000-097		
	50.1	44.4	mg/kg	89	MCAWW 353.2	10/15-10/17/07	7288097
	Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**6.5**	**(0-50)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**89**	**(50 - 140)**			**SW846 8330**
	84	**(50 - 140)**	**10**	**(0-50)**	**SW846 8330**
1,3-Dinitrobenzene	**99**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**5.5**	**(0-50)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**4.3**	**(0-50)**	**SW846 8330**
2,6-Dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.5**	**(0-50)**	**SW846 8330**
HMX	**97**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**4.4**	**(0-50)**	**SW846 8330**
Nitrobenzene	**101**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**7.8**	**(0-50)**	**SW846 8330**
2-Nitrotoluene	**97**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**3.3**	**(0-50)**	**SW846 8330**
3-Nitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**3.4**	**(0-50)**	**SW846 8330**
4-Nitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.2**	**(0-50)**	**SW846 8330**
RDX	**100**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**5.4**	**(0-50)**	**SW846 8330**
Tetryl	**81**	**(50 - 140)**			**SW846 8330**
	75	**(50 - 140)**	**12**	**(0-50)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(50 - 140)**			**SW846 8330**
	101	**(50 - 140)**	**3.1**	**(0-50)**	**SW846 8330**
2,4,6-Trinitrotoluene	**94**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**5.2**	**(0-50)**	**SW846 8330**
Nitroglycerin	**97**	**(50 - 140)**			**SW846 8330**
	96	**(50 - 140)**	**4.7**	**(0-500)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

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MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2-Amino-4,6-dinitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**6.5**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**ND**	**1.0**	**0.90**	**mg/kg**	**89**		**SW846 8330**
	ND	**0.96**	**0.81**	**mg/kg**	**84**	**10**	**SW846 8330**
1,3-Dinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**99**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**5.5**	**SW846 8330**
2,4-Dinitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**4.3**	**SW846 8330**
2,6-Dinitrotoluene	**0.032**	**1.0**	**1.0**	**mg/kg**	**96**		**SW846 8330**
	0.032	**0.96**	**0.96**	**mg/kg**	**97**	**3.5**	**SW846 8330**
HMX	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**4.4**	**SW846 8330**
Nitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**101**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**7.8**	**SW846 8330**
2-Nitrotoluene	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**3.3**	**SW846 8330**
3-Nitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**3.4**	**SW846 8330**
4-Nitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**3.2**	**SW846 8330**
RDX	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**5.4**	**SW846 8330**
Tetryl	**ND**	**1.0**	**0.81**	**mg/kg**	**81**		**SW846 8330**
	ND	**0.96**	**0.72**	**mg/kg**	**75**	**12**	**SW846 8330**
1,3,5-Trinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.97**	**mg/kg**	**101**	**3.1**	**SW846 8330**
2,4,6-Trinitrotoluene	**ND**	**1.0**	**0.95**	**mg/kg**	**94**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**5.2**	**SW846 8330**
Nitroglycerin	**ND**	**5.0**	**4.8**	**mg/kg**	**97**		**SW846 8330**
	ND	**4.8**	**4.6**	**mg/kg**	**96**	**4.7**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DU-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DV-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Nitroguanidine	**81**	**(79 - 117)**			**SW846 8330 (Modified**
	84	**(79 - 117)**	**4.2**	**(0-20)**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J040354 **Work Order #...:** J748R1DU-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DV-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/15/07 **Analysis Date..:** 10/16/07
Prep Batch #...: 7287049
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Nitroguanidine	**ND**	**1.0**	**0.81**	**mg/kg**	**81**		**SW846 8330 (Modified**
	ND	**1.0**	**0.84**	**mg/kg**	**84**	**4.2**	**SW846 8330 (Modified**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						% Moisture.....: 3.7	
Nitrocellulose		WO#: J748R1DW-MS/J748R1DX-MSD				MS Lot-Sample #: A7J030104-001	
	67	(30 - 122)			MCAWW 353.2	10/15-10/17/07	7288097
	64	(30 - 122)	4.7	(0-45)	MCAWW 353.2	10/15-10/17/07	7288097
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A7J040354 **Matrix.....:** SOLID
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
							% Moisture.....: 3.7		
Nitrocellulose		WO#: J748R1DW-MS/J748R1DX-MSD					MS Lot-Sample #: A7J030104-001		
	1.3	52.0	36.1	mg/kg	67		MCAWW 353.2	10/15-10/17/07	7288097
	1.3	51.6	34.5	mg/kg	64	4.7	MCAWW 353.2	10/15-10/17/07	7288097
			Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Work Order #...:** J793P-SMP **Matrix.....:** SO
J793P-DUP
Date Sampled...: 10/03/07 10:20 **Date Received..:** 10/03/07
% Moisture.....: 15

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J040354-011		
	84.8	83.3	%	1.8	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285440

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J040354 **Work Order #...:** J7933-SMP **Matrix.....:** SO
J7933-DUP
Date Sampled...: 10/03/07 15:19 **Date Received..:** 10/03/07
% Moisture.....: 21

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J040354-016		
	79.4	77.8	%	2.1	(0-20)	MCAWW 160.3 MOD	10/12-10/13/07	7285440

Dilution Factor: 1

SOLID, 8330, Explosives

Raw Data Package

Run/Batch Data

Includes (as applicable):

runlogs

continuing calibration standards

interference/performance check standards

continuing calibration blanks

method blanks

lcs

ms/sd

sample raw data

ms tune data

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 45
Book# 3099

GC/LC SEMI-VOLATILES

Standard ID's

Curve: 10202007.B

Inst ID : LC10.J
Batch ID : 10252007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
25-OCT-2007	17:04	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
25-OCT-2007	17:57	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
25-OCT-2007	18:50	KenneyF	STD_5 E070821L 100/200/100/100	A-000003.	0 g	0 mL	1	
25-OCT-2007	19:43	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000004.	0 g	0 mL	1	
25-OCT-2007	20:36	KenneyF	J87W81AAB 7290638 MB	A-000005.	1000 mL	20 mL	1	
25-OCT-2007	21:29	KenneyF	J87W81ACC 7290638 LCS	A-000006.	1000 mL	20 mL	1	
25-OCT-2007	22:22	KenneyF	J86KW1AA 7290638 G7J170250-1	A-000007.	927 mL	20 mL	1	
25-OCT-2007	23:15	KenneyF	J8RHF1AP 7290551 A7J110400-1	A-000008.	911 mL	20 mL	1	
26-OCT-2007	00:08	KenneyF	J8RHF1AQS 7290551 A7J110400-1M	A-000009.	879 mL	20 mL	1	
26-OCT-2007	01:01	KenneyF	J8RHF1ARD 7290551 A7J110400-1M	A-000010.	857 mL	20 mL	1	
26-OCT-2007	01:54	KenneyF	J8RHR1AG 7290551 A7J110400-3	A-000011.	878 mL	20 mL	1	
26-OCT-2007	02:47	KenneyF	J8RHV1AG 7290551 A7J110400-5	A-000012.	885 mL	20 mL	1	
26-OCT-2007	03:40	KenneyF	STD_6 E070821P 200/500/200/200	A-000013.	0 g	0 mL	1	
26-OCT-2007	04:33	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000014.	0 g	0 mL	1	
26-OCT-2007	05:26	KenneyF	J8RH01AG 7290551 A7J110400-8	A-000015.	945 mL	20 mL	1	
26-OCT-2007	06:19	KenneyF	J8RH21AG 7290551 A7J110400-10	A-000016.	1013 mL	20 mL	1	
26-OCT-2007	07:12	KenneyF	J8RH41AG 7290551 A7J110400-12	A-000017.	1021 mL	20 mL	1	
26-OCT-2007	08:05	KenneyF	J8RH61AG 7290551 A7J110400-14	A-000018.	1002 mL	20 mL	1	
26-OCT-2007	08:58	KenneyF	J8RJA1AG 7290551 A7J110400-18	A-000019.	988 mL	20 mL	1	
26-OCT-2007	09:51	KenneyF	J8RJE1AF 7290551 A7J110400-20	A-000020.	868 mL	20 mL	1	
26-OCT-2007	10:44	KenneyF	J8RJF1AG 7290551 A7J110400-21	A-000021.	991 mL	20 mL	1	
26-OCT-2007	11:37	KenneyF	J8RJH1AG 7290551 A7J110400-23	A-000022.	1000 mL	20 mL	1	
26-OCT-2007	12:30	KenneyF	J8RJK1AG 7290551 A7J110400-25	A-000023.	904 mL	20 mL	1	
26-OCT-2007	13:23	KenneyF	STD_5 E070821L 100/200/100/100	A-000024.	0 g	0 mL	1	
26-OCT-2007	14:16	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000025.	0 g	0 mL	1	
26-OCT-2007	16:09	KenneyF	J8W2J1AAB 7285667 MB	A-000026.	2 g	40 mL	1	
26-OCT-2007	17:02	KenneyF	J8W2J1ACC 7285667 LCS	A-000027.	2 g	40 mL	1	
26-OCT-2007	17:55	KenneyF	J748R1A4 7285667 A7J030104-1	A-000028.	2.05 g	40 mL	1	
26-OCT-2007	18:47	KenneyF	J748R1DRS 7285667 A7J030104-1M	A-000029.	1.99 g	40 mL	1	
26-OCT-2007	19:40	KenneyF	J748R1DTD 7285667 A7J030104-1M	A-000030.	2.08 g	40 mL	1	
26-OCT-2007	20:33	KenneyF	J748X1AF 7285667 A7J030104-2	A-000031.	2.03 g	40 mL	1	
26-OCT-2007	21:26	KenneyF	J74811AF 7285667 A7J030104-3	A-000032.	2.06 g	40 mL	1	
26-OCT-2007	22:19	KenneyF	J74831AF 7285667 A7J030104-4	A-000033.	1.99 g	40 mL	1	
26-OCT-2007	23:12	KenneyF	STD_5 E070821M 100/200/100/100	A-000034.	0 g	0 mL	1	
27-OCT-2007	00:05	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
27-OCT-2007	00:58	KenneyF	J74841A4 7285667 A7J030104-5	A-000036.	2.06 g	40 mL	1	
27-OCT-2007	01:52	KenneyF	J74881AF 7285667 A7J030104-6	A-000037.	2.02 g	40 mL	1	
27-OCT-2007	02:45	KenneyF	J749C1AF 7285667 A7J030104-7	A-000038.	2.05 g	40 mL	1	
27-OCT-2007	03:38	KenneyF	J749D1AF 7285667 A7J030104-8	A-000039.	2.02 g	40 mL	1	
27-OCT-2007	04:31	KenneyF	J749E1AF 7285667 A7J030104-9	A-000040.	1.95 g	40 mL	1	
27-OCT-2007	05:24	KenneyF	J79141A4 7285667 A7J040354-1	A-000041.	1.97 g	40 mL	1	
27-OCT-2007	06:17	KenneyF	J792M1AF 7285667 A7J040354-2	A-000042.	2.05 g	40 mL	1	
27-OCT-2007	07:10	KenneyF	J792N1AF 7285667 A7J040354-3	A-000043.	1.99 g	40 mL	1	
27-OCT-2007	08:04	KenneyF	STD_5 E070821M 100/200/100/100	A-000044.	0 g	0 mL	1	
27-OCT-2007	08:57	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000045.	0 g	0 mL	1	
27-OCT-2007	09:50	KenneyF	J792R1AF 7285667 A7J040354-4	A-000046.	1.99 g	40 mL	1	
27-OCT-2007	10:43	KenneyF	J792W1AF 7285667 A7J040354-5	A-000047.	2.02 g	40 mL	1	
27-OCT-2007	11:36	KenneyF	J79201AF 7285667 A7J040354-6	A-000048.	2.04 g	40 mL	1	
27-OCT-2007	12:29	KenneyF	J79231AF 7285667 A7J040354-7	A-000049.	2.04 g	40 mL	1	

27-OCT-2007	13:22	KenneyF	J79271AF 7285667 A7J040354-8	A-000050.	1.99 g	40 mL	1	
27-OCT-2007	14:15	KenneyF	J8FKF1A4 7285667 A7J080104-1	A-000051.	2.02 g	40 mL	1	
27-OCT-2007	15:08	KenneyF	J8FKG1AF 7285667 A7J080104-2	A-000052.	2.08 g	40 mL	1	
27-OCT-2007	16:01	KenneyF	J8FKH1AF 7285667 A7J080104-3	A-000053.	2.04 g	40 mL	1	
27-OCT-2007	16:55	KenneyF	STD_5 E070821M 100/200/100/100	A-000054.	0 g	0 mL	1	
27-OCT-2007	17:48	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000055.	0 g	0 mL	1	

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TestAmerica West Sacramento

A-000024.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/26/2007 13:23 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000024.D **Vial Num:** 2
Instrument ID: LC10

Sample : **STD_5 E070821L 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**
Samp. Info: STD_5 E070821L 100/200/100/100ng/mL;2
Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.72	4931	99.4800<	100	-1%	Acceptable		18.72	9660	101.3000	100	1%	Acceptable		(±15)	
HMX	5.27	13428	102.5000<	100	3%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
RDX	7.95	8501	106.9000<	100	7%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Picric ACID	9.31	17406	210.9000	200	5%	Acceptable		9.31	25651	211.2000<	200	6%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.49	15274	102.6000<	100	3%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.70	14530	101.7000<	100	2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
TETRYL	14.84	8829	97.3700<	100	-3%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.72	6136	94.4900<	100	-6%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.20	9056	101.5000<	100	2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.19	6618	101.0000<	100	1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.36	7545	100.9000<	100	1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.21	5235	99.7200<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.99	8594	100.6000<	100	1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.92	3347	92.1500<	100	-8%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.87	4131	94.1000<	100	-6%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.07	3962	93.4800<	100	-7%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**100**	**-100%**	**Fails**		16.35	7718	102.9000<	100	3%	Acceptable		(±15)	45
PETN				**100**	**-100%**	**Fails**		31.97	4247	106.0000<	100	6%	Acceptable		(±15)	45
3,5-Dinitroaniline				**100**	**-100%**	**Fails**					**100**	**-100%**	**Fails**		(±15)	

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.272	82943	13428	0.162	9.75		4	HMX
6.279	883	70	0.079	0.05			
7.952	92895	8501	0.092	6.17		5	RDX
9.309	248154	17406	0.070	12.72		6	Picric ACID
10.486	203880	15274	0.075	11.09		7	1,3,5-Trinitrobenze
13.089	137	26	0.190	0.01			
13.696	251460	14530	0.058	10.55		8	1,3-Dinitrobenzene
14.839	156264	8829	0.057	6.41		9	TETRYL
15.719	121784	6136	0.050	4.45		10	Nitrobenzene
17.202	180602	9056	0.050	6.57		11	2,4,6-Trinitrotolue
18.192	137225	6618	0.048	4.80		12	4-AM-2,6-DNT
18.716	104151	4931	0.047	3.58	$	13	3,4-Dinitrotoluene
19.356	182751	7545	0.041	5.48		14	2-AM-4,6-DNT
21.212	122954	5235	0.043	3.80		15	2,6-Dinitrotoluene
21.992	223568	8594	0.038	6.24		16	2,4-Dinitrotoluene
25.922	100151	3347	0.033	2.43		17	2-Nitrotoluene
27.869	131723	4131	0.031	3.00		18	4-Nitrotoluene
30.072	136177	3962	0.029	2.87		19	3-Nitrotoluene
31.876	1010	47	0.047	0.03			
	2478711	137666		100.000			

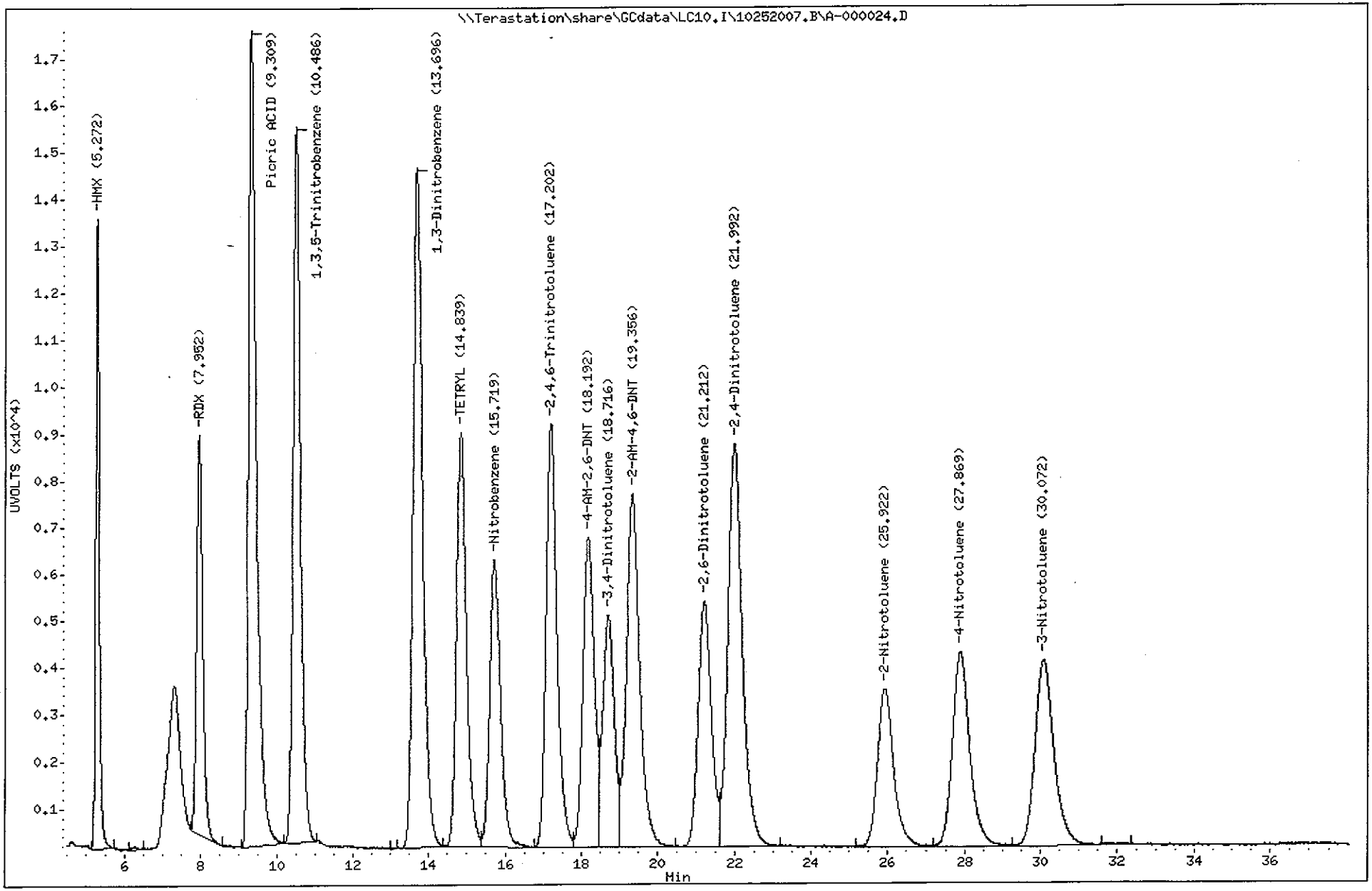
Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL:2

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.309	364884	25651	0.070	17.36		6 Picric ACID
10.496	3240	241	0.074	0.16		
13.696	134890	7690	0.057	5.17		
14.842	203974	11556	0.057	7.77		
15.719	248630	12982	0.052	8.73		
16.346	146551	7718	0.053	5.19		1 Nitroglycerin
17.199	180831	9278	0.051	6.24		
18.192	213223	10540	0.049	7.09		
18.719	206341	9660	0.047	6.49	$	13 3,4-Dinitrotoluene
19.349	203849	8350	0.041	5.61		
21.212	234151	9725	0.042	6.54		
21.992	206273	7318	0.035	4.92		
25.919	236160	7948	0.034	5.34		
27.859	232126	7253	0.031	4.87		
30.072	277878	7775	0.028	5.23		
31.966	181790	4247	0.023	2.85		2 PETN
33.916	3851	196	0.051	0.13		
34.822	1692	87	0.051	0.05		
35.676	1031	68	0.066	0.04		
36.216	410	57	0.139	0.03		
36.572	742	56	0.075	0.03		
37.322	1661	128	0.077	0.08		
37.656	2439	125	0.051	0.08		
	3286616	148649		100.000		

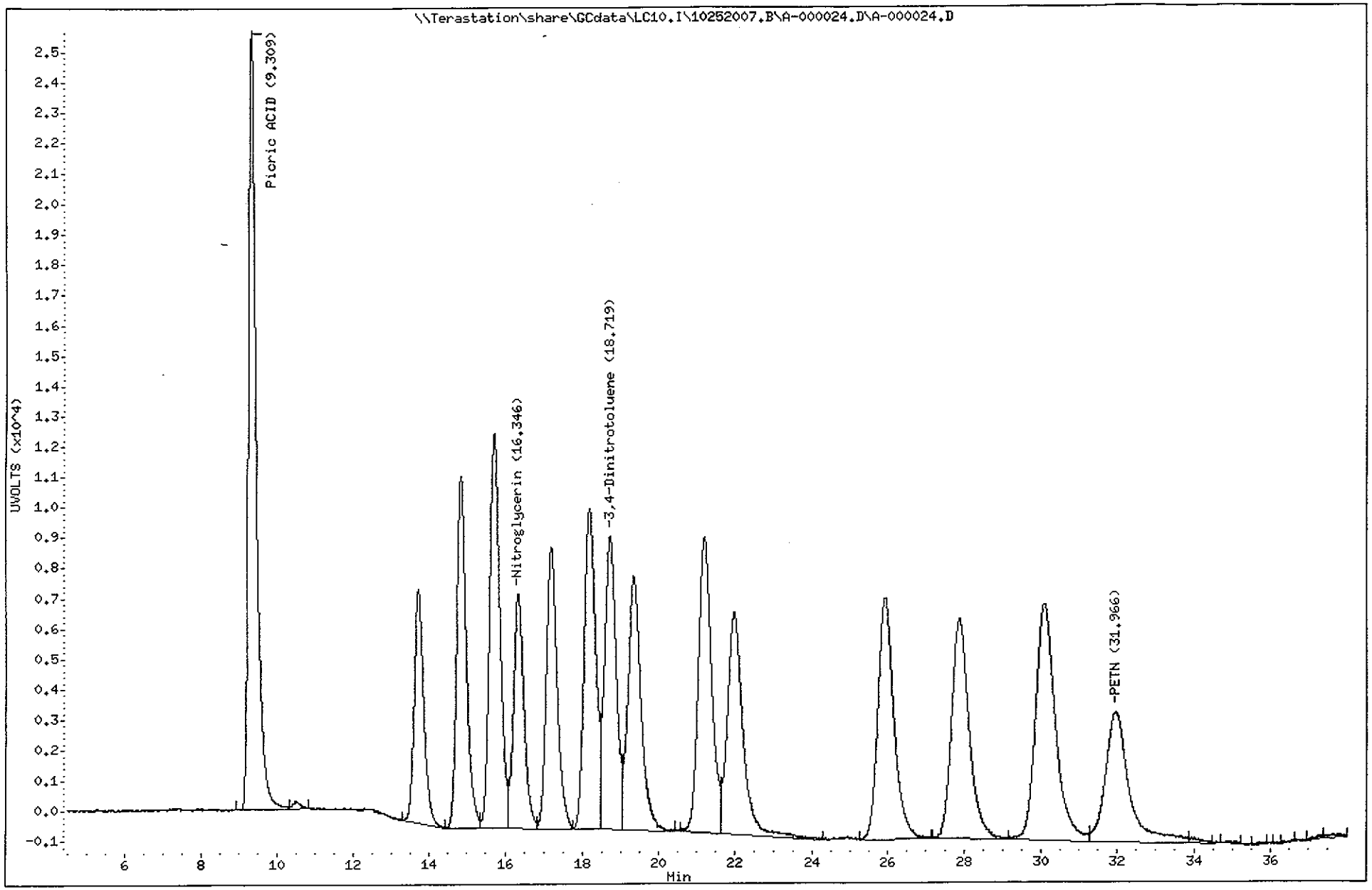
Total unknown % height = 68.11

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL;2

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000025.D

Chromatography Summary

Injection Date: 10/26/2007 14:16 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000025.D **Vial Num:** 5

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.70**	**944**	**19.0400<**	20 5	**281%**	**Fails**	-5%	**18.72**	**1736**	**18.2100**	**5**	**264%**	**Fails**		(±15)	
HMX	5.27	645	4.9220<	5	-2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
RDX	7.94	373	4.6920<	5	-6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4275**	**51.7900**	50 10	**418%**	**Fails**	+4%	**9.33**	**6293**	**51.8000<**	**10**	**418%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.49	738	4.9560<	5	-1%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	760	5.3200<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
TETRYL	14.83	445	4.9080<	5	-2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.70	345	5.3130<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.18	464	5.2010<	5	4%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.17	341	5.2040<	5	4%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.35	394	5.2710<	5	5%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.18	296	5.6380<	5	13%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.97	432	5.0590<	5	1%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	**25.94**	**219**	**6.0290<**	**5**	**21%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.83	248	5.6500<	5	13%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.06	237	5.5920<	5	12%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.34**	**1581**	**21.0800<**	20 **5**	**322%**	**Fails**	+5%	(±15)	45
PETN				**5**	**-100%**	**Fails**		**31.85**	**782**	**19.5300<**	20 **5**	**291%**	**Fails**	-2%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

JLK 10/26/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.275	3723	645	0.173	5.69		4 HMX
7.945	3419	373	0.109	3.29		5 RDX
9.331	61101	4275	0.070	37.83		6 Picric ACID
10.488	9067	738	0.081	6.51		7 1,3,5-Trinitrobenze
12.791	466	28	0.060	0.24		
13.695	13518	760	0.056	6.70		8 1,3-Dinitrobenzene
14.828	7795	445	0.057	3.92		9 TETRYL
15.705	7067	345	0.049	3.04		10 Nitrobenzene
17.178	9382	464	0.049	4.09		11 2,4,6-Trinitrotolue
18.175	6502	341	0.052	3.00		12 4-AM-2,6-DNT
18.698	20139	944	0.047	8.33	$	13 3,4-Dinitrotoluene
19.351	9578	394	0.041	3.47		14 2-AM-4,6-DNT
21.178	6553	296	0.045	2.61		15 2,6-Dinitrotoluene
21.971	10983	432	0.039	3.81		16 2,4-Dinitrotoluene
24.058	318	34	0.107	0.30		
24.588	398	40	0.101	0.35		
25.945	7367	219	0.030	1.93		17 2-Nitrotoluene
27.828	7856	248	0.032	2.18		18 4-Nitrotoluene
29.405	317	31	0.098	0.27		
30.058	8599	237	0.028	2.09		19 3-Nitrotoluene
33.725	511	40	0.078	0.35		
	194658	11329		100.000		

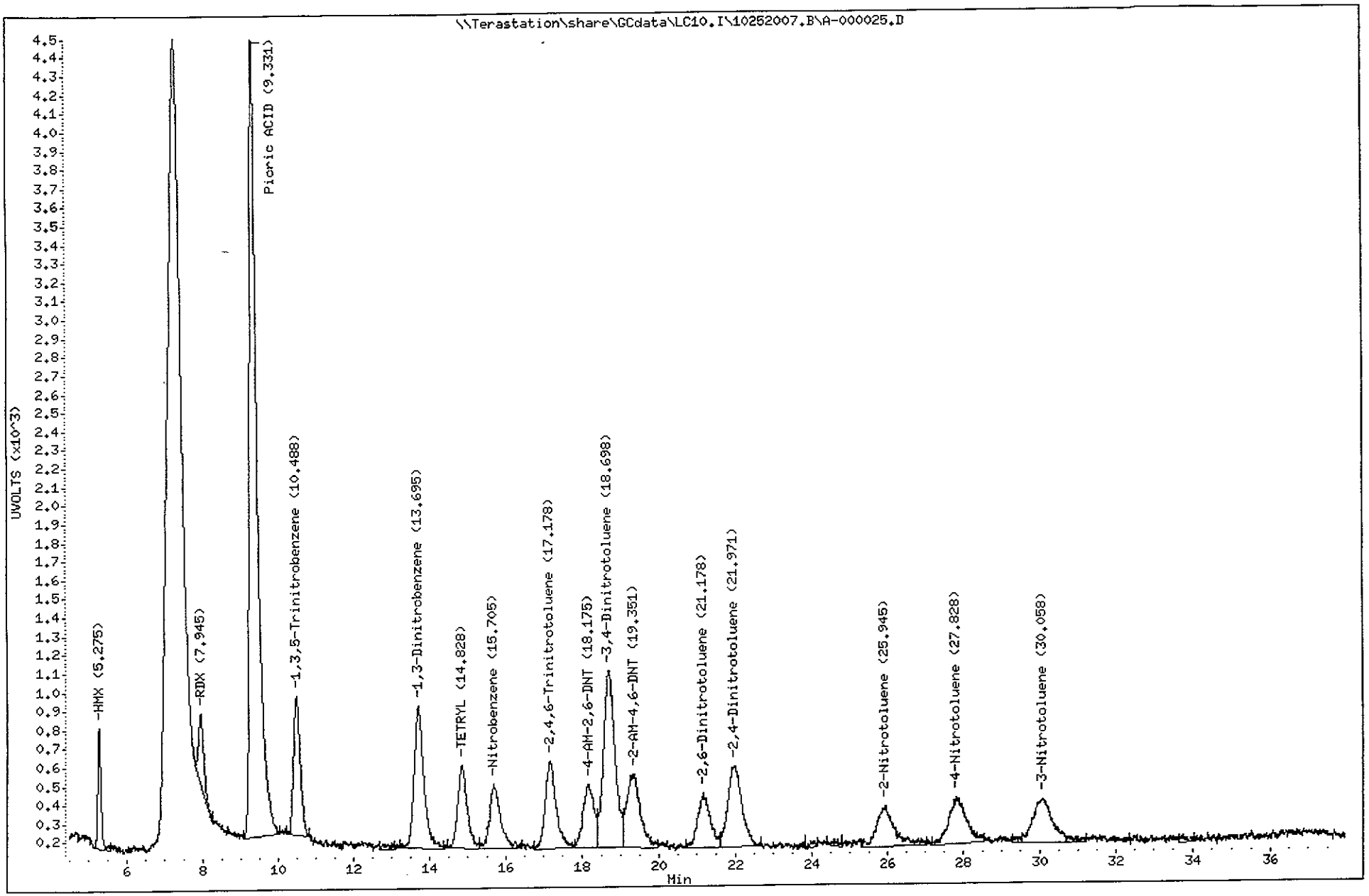
Total unknown % height = 1.510

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

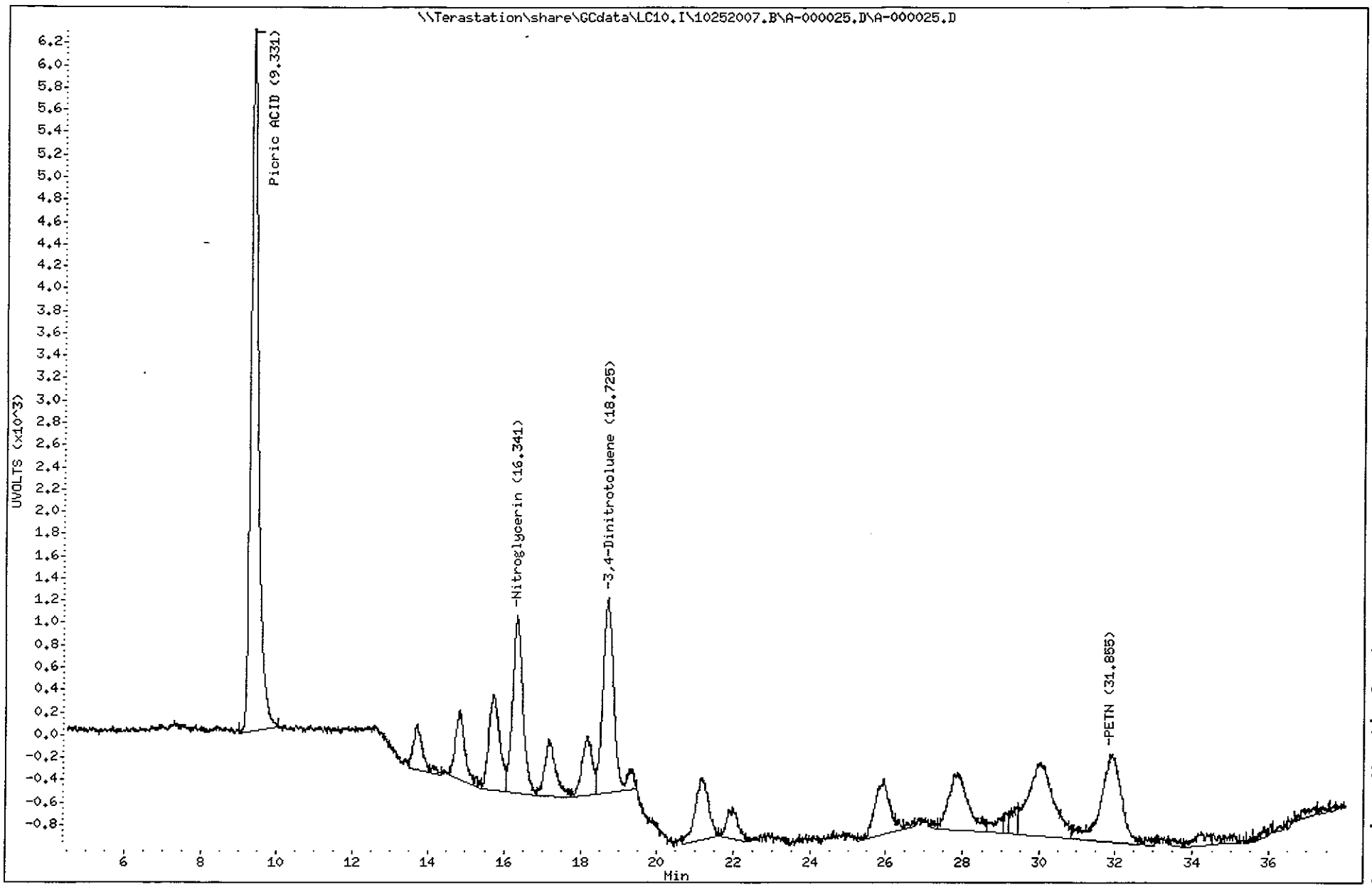
Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.331	88427	6293	0.071	36.49	6 Picric ACID
13.691	6784	398	0.059	2.29	
14.825	11141	615	0.055	3.55	
15.721	16934	846	0.050	4.88	
16.341	29375	1581	0.054	9.12	1 Nitroglycerin
17.175	9955	499	0.050	2.88	
18.175	9562	518	0.054	2.99	
18.725	35862	1736	0.048	10.02	$ 13 3,4-Dinitrotoluene
21.178	13152	553	0.042	3.19	
21.975	5692	281	0.049	1.62	
25.948	13369	490	0.037	2.82	
26.718	565	55	0.097	0.31	
27.228	457	67	0.147	0.38	
27.855	17368	505	0.029	2.91	
28.958	2689	136	0.051	0.78	
29.088	1329	187	0.141	1.07	
29.358	3159	249	0.079	1.43	
30.015	30470	660	0.022	3.81	
31.855	30418	782	0.026	4.51	2 PETN
33.515	919	62	0.067	0.35	
34.201	2774	121	0.044	0.69	
34.678	985	78	0.079	0.45	
35.048	1096	94	0.086	0.54	
35.495	255	59	0.231	0.34	
35.858	924	94	0.102	0.54	
36.015	351	98	0.280	0.56	
36.288	409	52	0.127	0.30	
36.651	429	33	0.077	0.19	
37.011	1624	70	0.043	0.40	
37.401	581	57	0.098	0.32	
37.691	189	48	0.254	0.27	
	337244	17317		100.000	

Total unknown % height = 39.86

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



TestAmerica North Canton

Chromatography Summary

Injection Date: 10/26/2007 16:09 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000026.D **Vial Num:** 30

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1AAB 7285667 MB**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J8W2J1AAB 7285667 MB;0

Misc. Info: ; ; ;2;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	Conc (ug/Kg)	Flag	RT	Diff	Response	Conc (ug/Kg)	Flag	MDL	RL	Flag
3,4-Dinitrotoluene	**18.73**	**0.028**	**4613**	**1861.0000<**		**18.72**	**-0.002**	**9166**	**1923.0000**		**0.0000**	**0.00**	
HMX											30.0000	250.00	
RDX											40.0000	250.00	
Picric ACID											250.0000	1000.00	
1,3,5-Trinitrobenzene											20.0000	250.00	
1,3-Dinitrobenzene											50.0000	250.00	
TETRYL											50.0000	250.00	
Nitrobenzene											50.0000	250.00	
2,4,6-Trinitrotoluene											20.0000	250.00	
4-AM-2,6-DNT											20.0000	250.00	
2-AM-4,6-DNT											100.0000	250.00	
2,6-Dinitrotoluene											30.0000	250.00	
2,4-Dinitrotoluene											20.0000	250.00	
2-Nitrotoluene											80.0000	250.00	
4-Nitrotoluene											80.0000	250.00	
3-Nitrotoluene											70.0000	250.00	
Nitroglycerin											130.0000	500.00	
PETN											160.0000	500.00	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**2000.0000**	**1861.0000**	**93**	**2000.0000**	**1923.0000**	**96**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

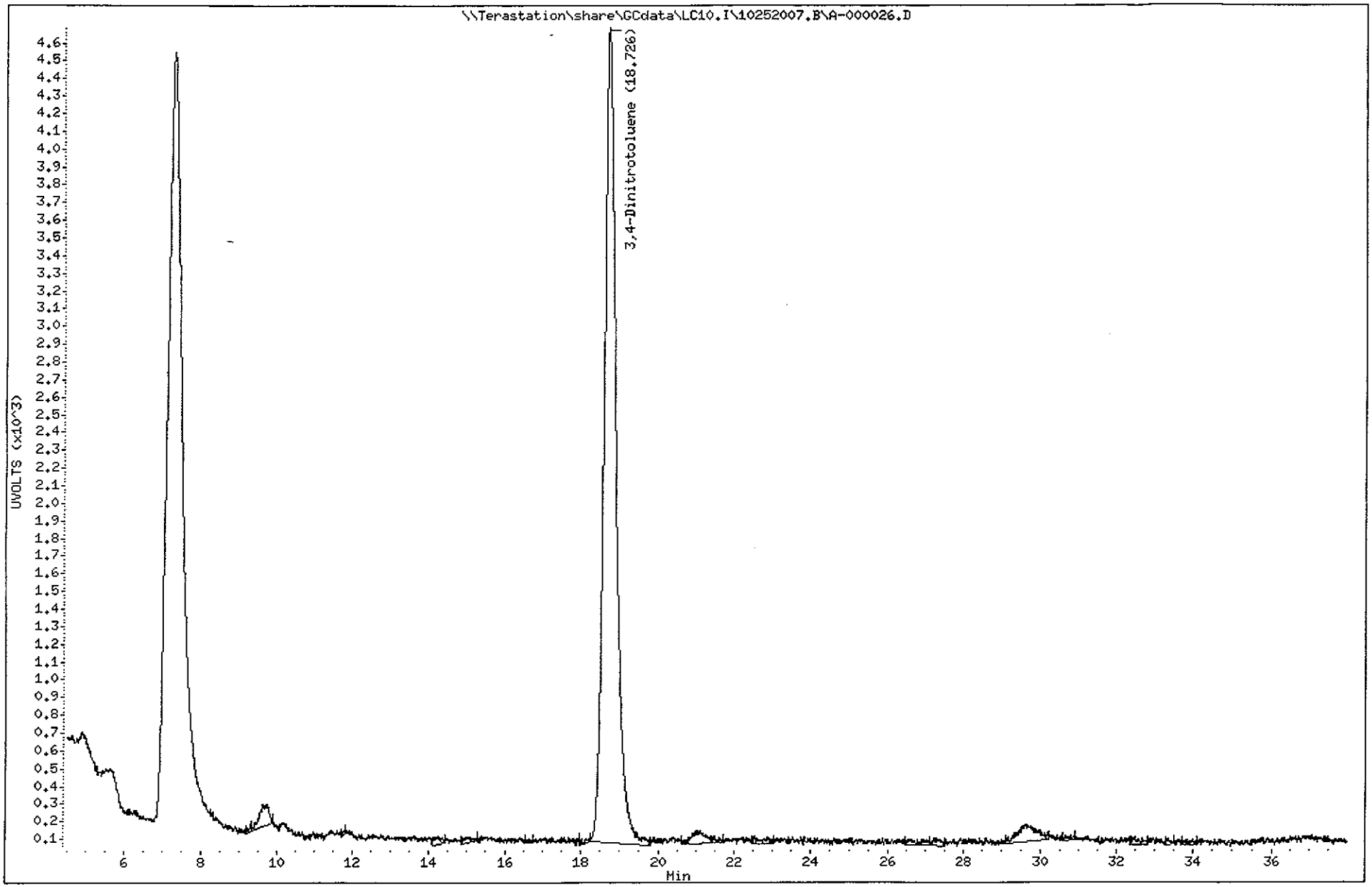
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.293	177	42	0.237	0.78	
9.616	2159	126	0.058	2.34	
11.790	86	24	0.280	0.44	
14.240	568	44	0.077	0.81	
15.083	489	31	0.063	0.57	
16.656	173	27	0.156	0.50	
18.230	268	21	0.078	0.39	
18.726	99580	4613	0.046	86.04	$ 13 3,4-Dinitrotoluene
21.116	1994	71	0.036	1.32	
22.540	693	44	0.063	0.81	
26.563	824	36	0.044	0.67	
27.236	564	42	0.074	0.78	
29.620	3333	97	0.029	1.80	
30.630	323	29	0.090	0.54	
32.486	599	47	0.079	0.87	
33.333	245	36	0.147	0.67	
33.986	433	36	0.083	0.67	
	112508	5366		100.000	

Total unknown % height = 13.96

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D
Date : 26-OCT-2007 16:09
Client ID:
Sample Info: J8W2J1AAB 7285667 MB:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

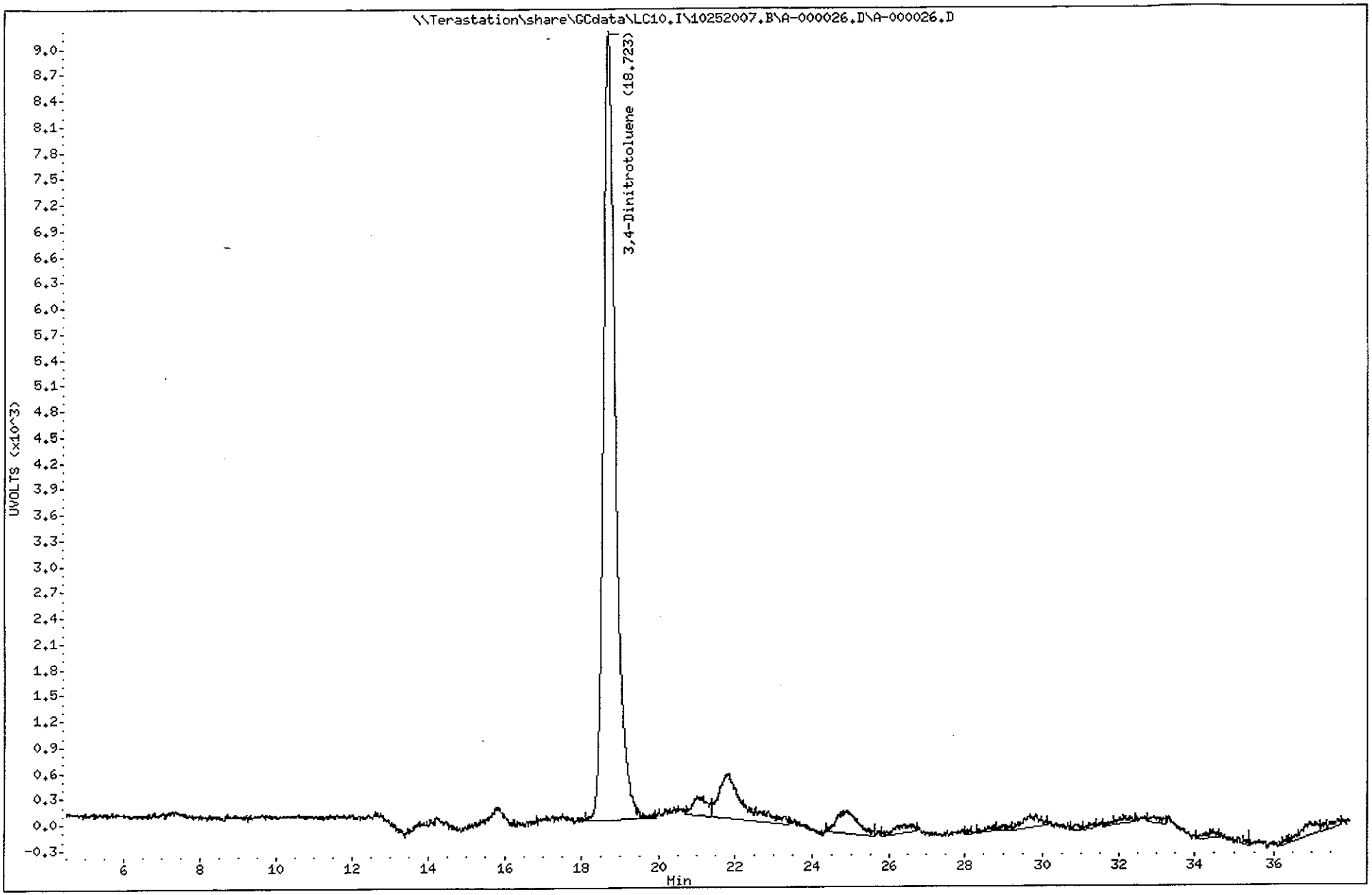
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.723	199424	9166	0.046	79.51	$ 13 3,4-Dinitrotoluene
21.016	5871	222	0.038	1.92	
21.806	22459	514	0.023	4.45	
24.906	9689	269	0.028	2.33	
26.416	3135	100	0.032	0.86	
28.133	306	57	0.187	0.49	
28.606	1086	73	0.067	0.63	
29.016	1000	73	0.073	0.63	
29.673	4189	155	0.037	1.34	
30.846	726	65	0.090	0.56	
31.210	701	66	0.094	0.57	
31.793	406	46	0.113	0.39	
32.106	1372	82	0.060	0.71	
32.926	1413	80	0.057	0.69	
34.286	1553	74	0.048	0.64	
35.340	321	77	0.240	0.66	
36.326	476	96	0.202	0.83	
36.936	4604	155	0.034	1.34	
37.323	718	87	0.121	0.75	
37.680	1224	81	0.066	0.70	
	260672	11538		100.000	

Total unknown % height = 20.49

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026.D
Date : 26-OCT-2007 16:09
Client ID:
Sample Info: J8W2J1AAB 7285667 MB:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000027.D

Chromatography Summary

Injection Date: 10/26/2007 17:02 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000027.D **Vial Num:** 31

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1ACC 7285667 LCS**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J8W2J1ACC 7285667 LCS;3

Misc. Info: LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**Conc (ug/Kg)**	**Spike Level**	**%R**	**Result**	**Flag**	**RT**	**Response**	**Conc (ug/Kg)**	**Spike Level**	**%R**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.74	4626	1866.0000<	2000	93%	Acceptable		18.74	9105	1910.0000	2000	96%	Acceptable		(84-127)	
HMX	5.28	6486	989.9000<	1000	99%	Acceptable					1000	0%	Fails		(87-117)	45
RDX	7.96	4089	1029.0000<	1000	103%	Acceptable					1000	0%	Fails		(85-115)	45
Picric ACID				5000	0%	Fails					5000	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7447	1000.0000<	1000	100%	Acceptable					1000	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	7116	996.2000<	1000	100%	Acceptable					1000	0%	Fails		(85-115)	45
TETRYL	14.86	3732	823.2000<	1000	82%	Acceptable					1000	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3204	986.8000<	1000	99%	Acceptable					1000	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4216	945.1000<	1000	95%	Acceptable					1000	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	3206	978.6000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3694	988.4000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2601	990.9000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.02	4199	983.5000<	1000	98%	Acceptable					1000	0%	Fails		(81-115)	45
2-Nitrotoluene	25.99	1791	986.2000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
4-Nitrotoluene	27.91	2152	980.5000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2104	992.9000<	1000	99%	Acceptable					1000	0%	Fails		(88-118)	45
Nitroglycerin				5000	0%	Fails		16.37	18270	4871.0000<	5000	97%	Acceptable		(50-112)	45
PETN				5000	0%	Fails		32.01	9410	4699.0000<	5000	94%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000	1866.0000	93	2000.0000	1910.0000	96	(84-127)

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

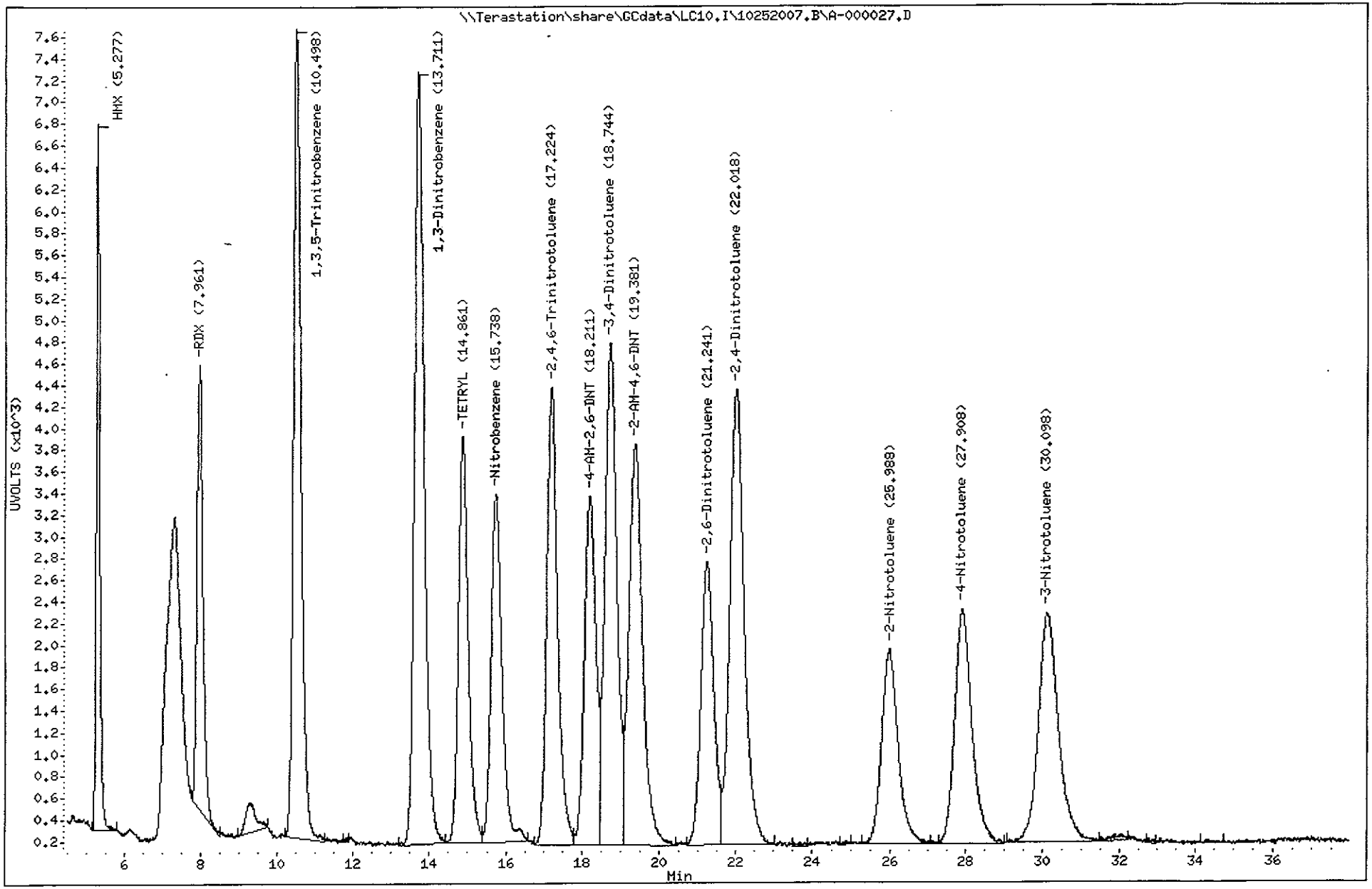
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.277	40050	6486	0.162	10.60		4 HMX
7.961	44308	4089	0.092	6.68		5 RDX
9.254	5180	268	0.052	0.43		
10.498	101339	7447	0.073	12.28		7 1,3,5-Trinitrobenze
11.808	198	37	0.187	0.06		
13.711	124530	7116	0.057	11.63		8 1,3-Dinitrobenzene
14.861	66187	3732	0.056	6.10		9 TETRYL
15.738	63956	3204	0.050	5.23		10 Nitrobenzene
17.224	84496	4216	0.050	6.89		11 2,4,6-Trinitrotolue
18.211	65195	3206	0.049	5.24		12 4-AM-2,6-DNT
18.744	99141	4626	0.047	7.56	$	13 3,4-Dinitrotoluene
19.381	91570	3694	0.040	6.03		14 2-AM-4,6-DNT
21.241	61419	2601	0.042	4.25		15 2,6-Dinitrotoluene
22.018	109972	4199	0.038	6.86		16 2,4-Dinitrotoluene
23.724	466	41	0.088	0.06		
24.874	316	35	0.111	0.05		
25.988	53070	1791	0.034	2.92		17 2-Nitrotoluene
27.908	68135	2152	0.032	3.51		18 4-Nitrotoluene
30.098	74888	2104	0.028	3.43		19 3-Nitrotoluene
31.868	1099	54	0.049	0.08		
32.754	279	43	0.154	0.07		
34.331	377	29	0.077	0.04		
	1156171	61170		100.000		

Total unknown % height = 0.7900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.254	8975	431	0.048	0.48	
10.501	1435	109	0.076	0.12	
13.708	65223	3740	0.057	4.22	
14.858	87192	4873	0.056	5.50	
15.738	138464	7166	0.052	8.10	
16.374	346324	18270	0.053	20.77	1 Nitroglycerin
17.218	85875	4337	0.051	4.90	
18.214	101710	5123	0.050	5.79	
18.741	196686	9105	0.046	10.29	$ 13 3,4-Dinitrotoluene
19.371	105694	4166	0.039	4.70	
21.238	118122	4805	0.041	5.43	
22.018	107726	3763	0.035	4.25	
25.301	191	71	0.372	0.08	
25.971	136859	4322	0.032	4.88	
27.231	3673	233	0.063	0.26	
27.924	143196	3948	0.028	4.46	
30.111	154237	4175	0.027	4.71	
32.008	354605	9410	0.027	10.63	2 PETN
33.928	439	71	0.162	0.08	
35.404	1865	104	0.056	0.11	
36.424	233	35	0.150	0.03	
36.618	295	69	0.234	0.07	
36.974	837	52	0.062	0.05	
37.484	1288	81	0.063	0.09	

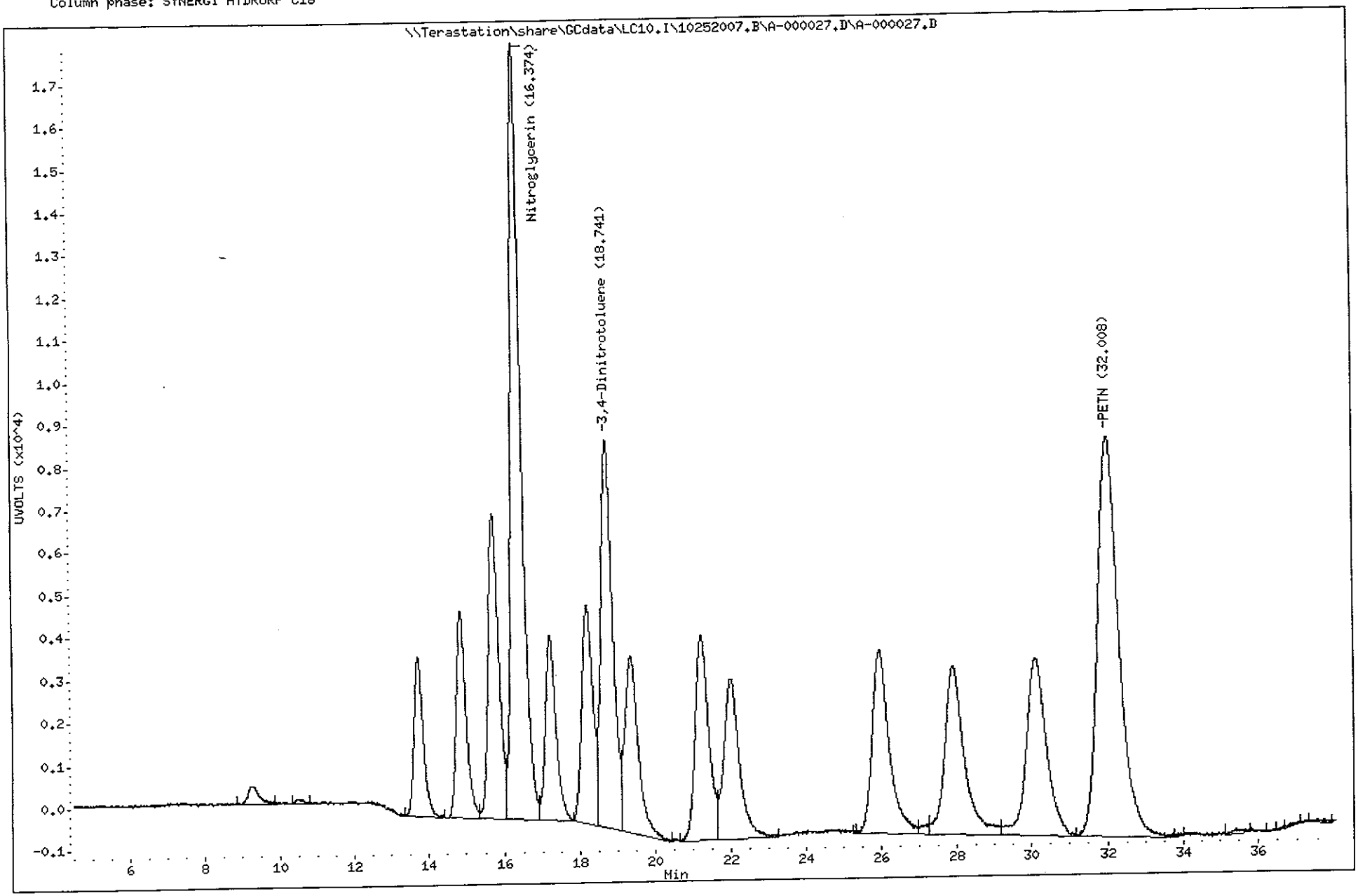
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	2161143	88459		100.000	

Total unknown % height = 58.31

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000028.D

Chromatography Summary

Injection Date: 10/26/2007 17:55 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000028.D **Vial Num:** 32

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1A4 7285667 A7J030104-1**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J748R1A4 7285667 A7J030104-1;0

Misc. Info: ; ; ;2.05;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.75**	**0.049**	**4600**	**1811.0000<**		**18.75**	**0.026**	**9084**	**1859.0000**		**0.0000**	**0.00**	
HMX											29.2683	243.90	
RDX											39.0244	243.90	
Picric ACID											243.9024	975.61	
1,3,5-Trinitrobenzene											19.5122	243.90	
1,3-Dinitrobenzene											48.7805	243.90	
TETRYL											48.7805	243.90	
Nitrobenzene											48.7805	243.90	
2,4,6-Trinitrotoluene											19.5122	243.90	
4-AM-2,6-DNT											19.5122	243.90	
2-AM-4,6-DNT											97.5610	243.90	
2,6-Dinitrotoluene	21.13	-0.044	87	32.3400<							29.2683	243.90	45
2,4-Dinitrotoluene											19.5122	243.90	
2-Nitrotoluene											78.0488	243.90	
4-Nitrotoluene											78.0488	243.90	
3-Nitrotoluene											68.2927	243.90	
Nitroglycerin											126.8293	487.80	
PETN											156.0976	487.80	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1951.2195**	**1811.0000**	**93**	**1951.2195**	**1859.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/26/2007 6:47 PM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

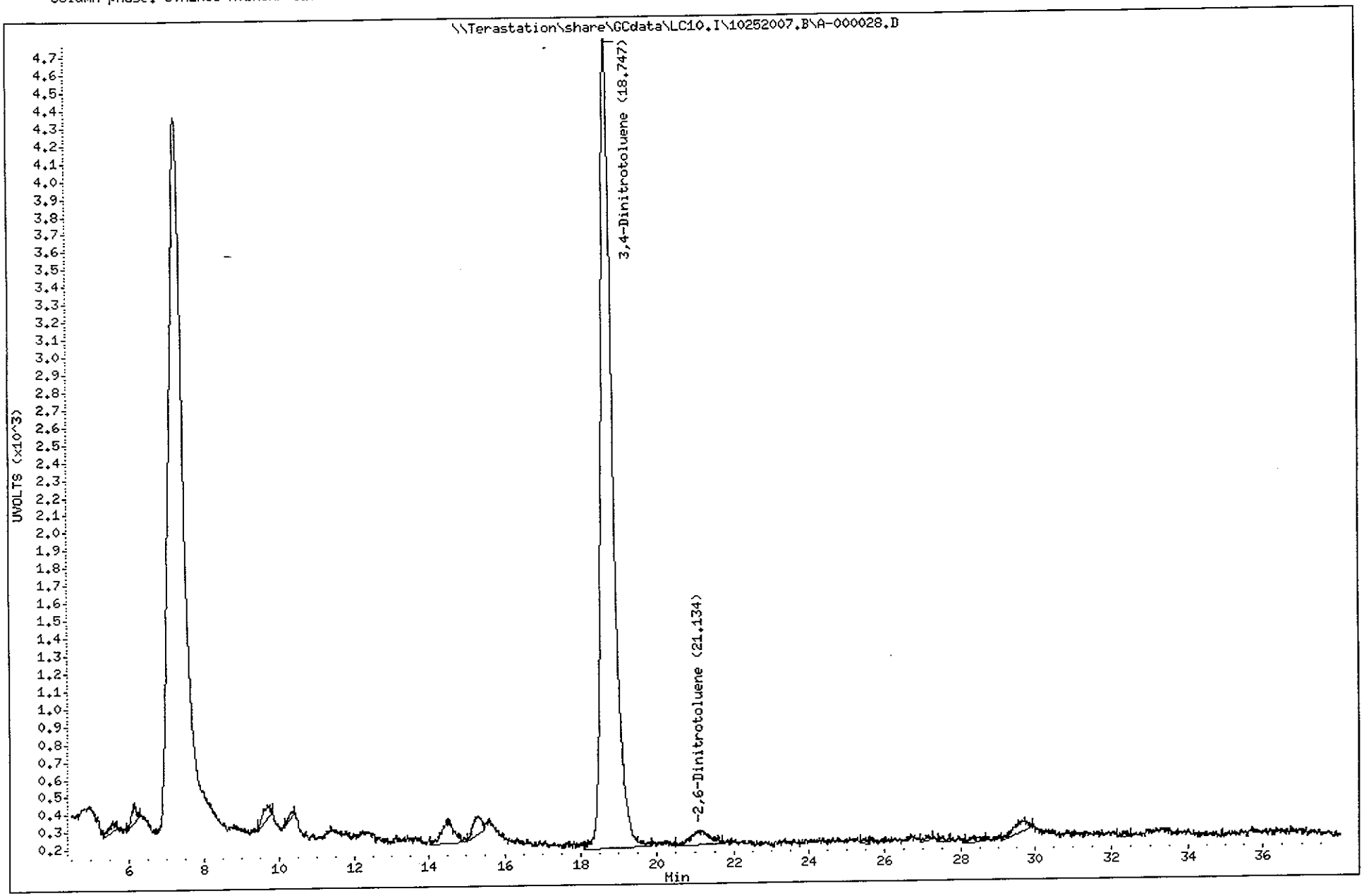
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.500	636	42	0.066	0.77	
6.140	1005	112	0.111	2.06	
9.654	1090	66	0.061	1.21	
10.317	308	36	0.117	0.66	
14.500	3035	139	0.046	2.55	
15.290	1697	106	0.062	1.95	
18.747	100098	4600	0.046	84.74	$ 13 3,4-Dinitrotoluene
21.134	2810	87	0.031	1.60	15 2,6-Dinitrotoluene
25.497	265	36	0.136	0.66	
27.080	297	33	0.111	0.60	
27.494	325	32	0.098	0.58	
28.337	504	36	0.071	0.66	
29.540	1648	71	0.043	1.30	
32.370	318	36	0.113	0.66	
	114037	5432		100.000	

Total unknown % height = 13.66

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
14.484	31196	1249	0.040	8.51	
15.684	25937	744	0.029	5.07	
18.750	192104	9084	0.047	62.06	$ 13 3,4-Dinitrotoluene
21.920	7208	261	0.036	1.77	
24.987	1307	112	0.086	0.76	
25.287	2106	128	0.061	0.87	
26.167	28902	738	0.026	5.03	
27.504	957	52	0.054	0.35	
28.277	610	66	0.108	0.44	
28.824	438	50	0.114	0.34	
29.257	449	56	0.125	0.38	
29.484	1845	85	0.046	0.57	
30.744	266	60	0.226	0.40	
31.267	2079	115	0.055	0.78	
31.457	2640	140	0.053	0.95	
32.597	220	44	0.200	0.29	
32.930	1309	124	0.095	0.84	
33.437	5459	167	0.031	1.13	
33.884	4595	179	0.039	1.22	
34.400	1861	115	0.062	0.78	
34.800	463	73	0.158	0.49	
35.107	1746	101	0.058	0.68	
35.737	1335	92	0.069	0.62	
36.074	1516	124	0.082	0.84	

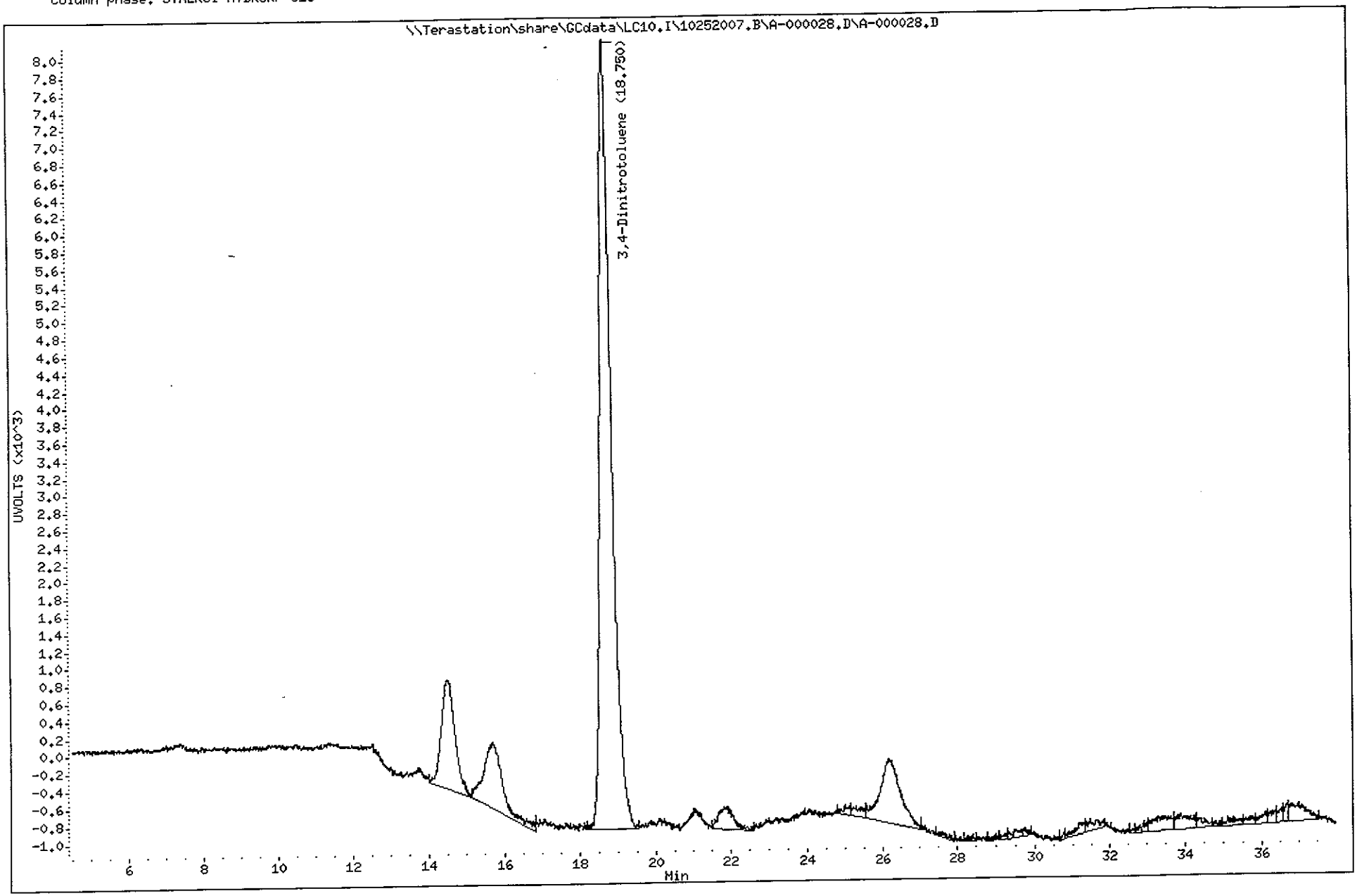
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
36.343	1533	129	0.084	0.87	
36.517	1418	158	0.111	1.07	
36.674	1304	204	0.156	1.39	
36.983	6207	221	0.036	1.50	
	327008	14671		100.000	

Total unknown % height = 37.94

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000029.D

Chromatography Summary

Injection Date: 10/26/2007 18:47 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000029.D **Vial Num:** 33

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1DRS 7285667 A7J030104-1MS**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DRS 7285667 A7J030104-1MS;3

Misc. Info: MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.70	4578	1856.0000<	2010.050251	92%	Acceptable		18.70	9043	1906.0000	2010.050251	95%	Acceptable		(84-127)	
HMX	5.27	6324	970.0000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(87-117)	45
RDX	7.94	3969	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(85-115)	45
Picric ACID				5025.125628	0%	Fails					5025.125628	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.47	7439	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.68	7073	995.1000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(85-115)	45
TETRYL	14.82	3674	814.4000<	1005.025126	81%	Acceptable					1005.025126	0%	Fails		(75-109)	45
Nitrobenzene	15.70	3286	1017.0000<	1005.025126	101%	Acceptable					1005.025126	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.17	4207	947.8000<	1005.025126	94%	Acceptable					1005.025126	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.17	2925	897.3000<	1005.025126	89%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.32	3579	962.5000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.18	2609	998.9000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	21.97	4182	984.4000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(81-115)	45
2-Nitrotoluene	25.91	1754	970.7000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(84-114)	45
4-Nitrotoluene	27.83	2104	963.4000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
3-Nitrotoluene	30.04	2074	983.6000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(88-118)	45
Nitroglycerin				5025.125628	0%	Fails		16.33	18098	4850.0000<	5025.125628	97%	Acceptable		(50-112)	45
PETN				5025.125628	0%	Fails		31.92	9466	4751.0000<	5025.125628	95%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2010.0503	1856.0000	92	2010.0503	1906.0000	95	(84-127)

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:43 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

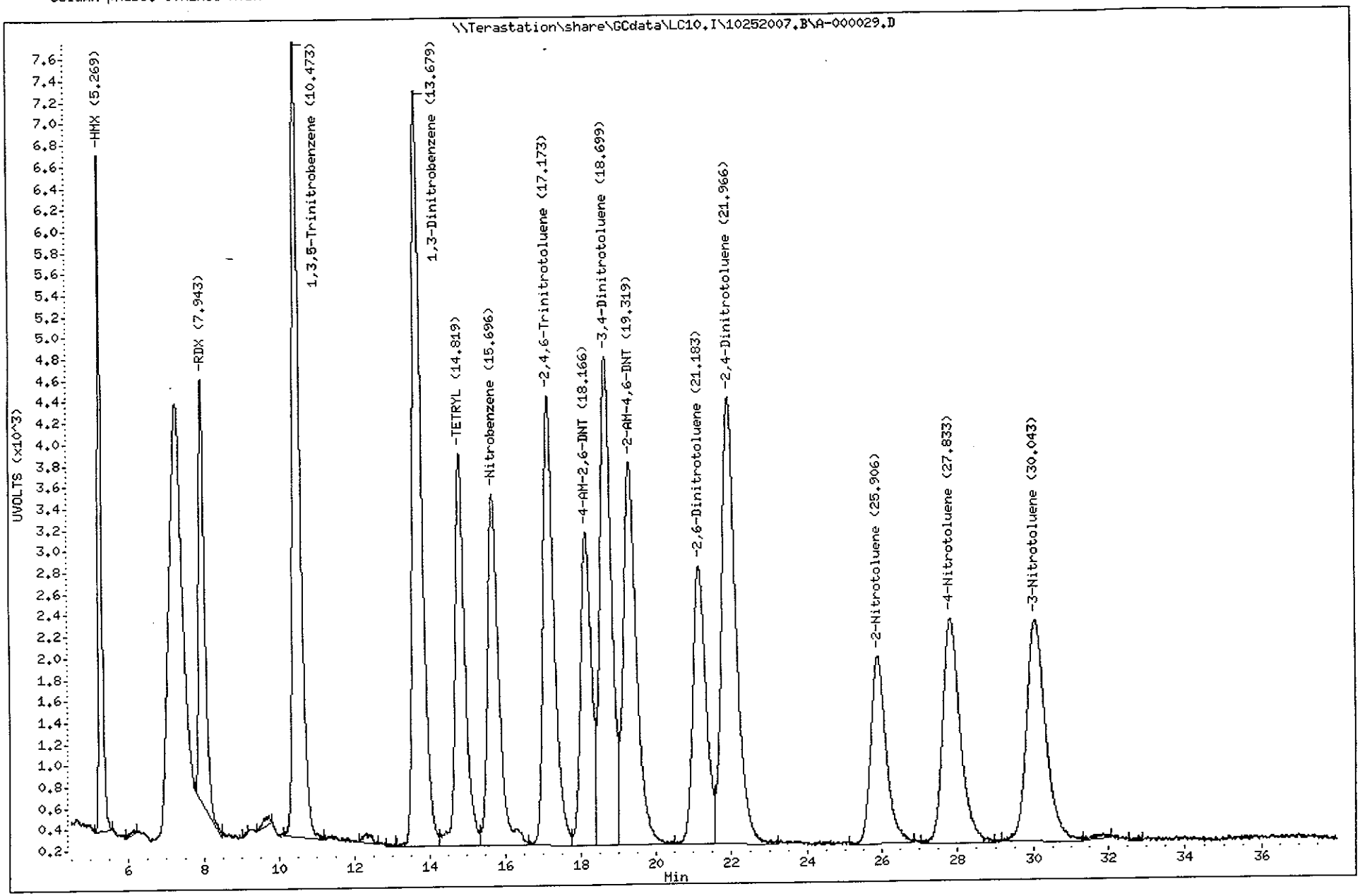
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.269	37852	6324	0.167	10.52		4 HMX
6.133	293	38	0.130	0.06		
7.943	42661	3969	0.093	6.60		5 RDX
9.079	111	30	0.271	0.04		
9.619	1063	74	0.070	0.12		
10.473	100518	7439	0.074	12.49		7 1,3,5-Trinitrobenze
12.296	1404	87	0.062	0.14		
13.063	208	22	0.106	0.03		
13.679	121511	7073	0.058	11.76		8 1,3-Dinitrobenzene
14.819	67443	3674	0.054	6.11		9 TETRYL
15.696	67697	3286	0.049	5.46		10 Nitrobenzene
17.173	83569	4207	0.050	7.00		11 2,4,6-Trinitrotolue
18.166	58584	2925	0.050	4.86		12 4-AM-2,6-DNT
18.699	95916	4578	0.048	7.61	$	13 3,4-Dinitrotoluene
19.319	87258	3579	0.041	5.95		14 2-AM-4,6-DNT
21.183	62413	2609	0.042	4.34		15 2,6-Dinitrotoluene
21.966	108090	4182	0.039	6.95		16 2,4-Dinitrotoluene
25.906	51540	1754	0.034	2.91		17 2-Nitrotoluene
27.833	66859	2104	0.031	3.50		18 4-Nitrotoluene
30.043	72210	2074	0.029	3.45		19 3-Nitrotoluene
31.686	1122	44	0.039	0.07		
32.639	280	23	0.082	0.03		
	1128600	60095		100.000		

Total unknown % height = 0.4900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

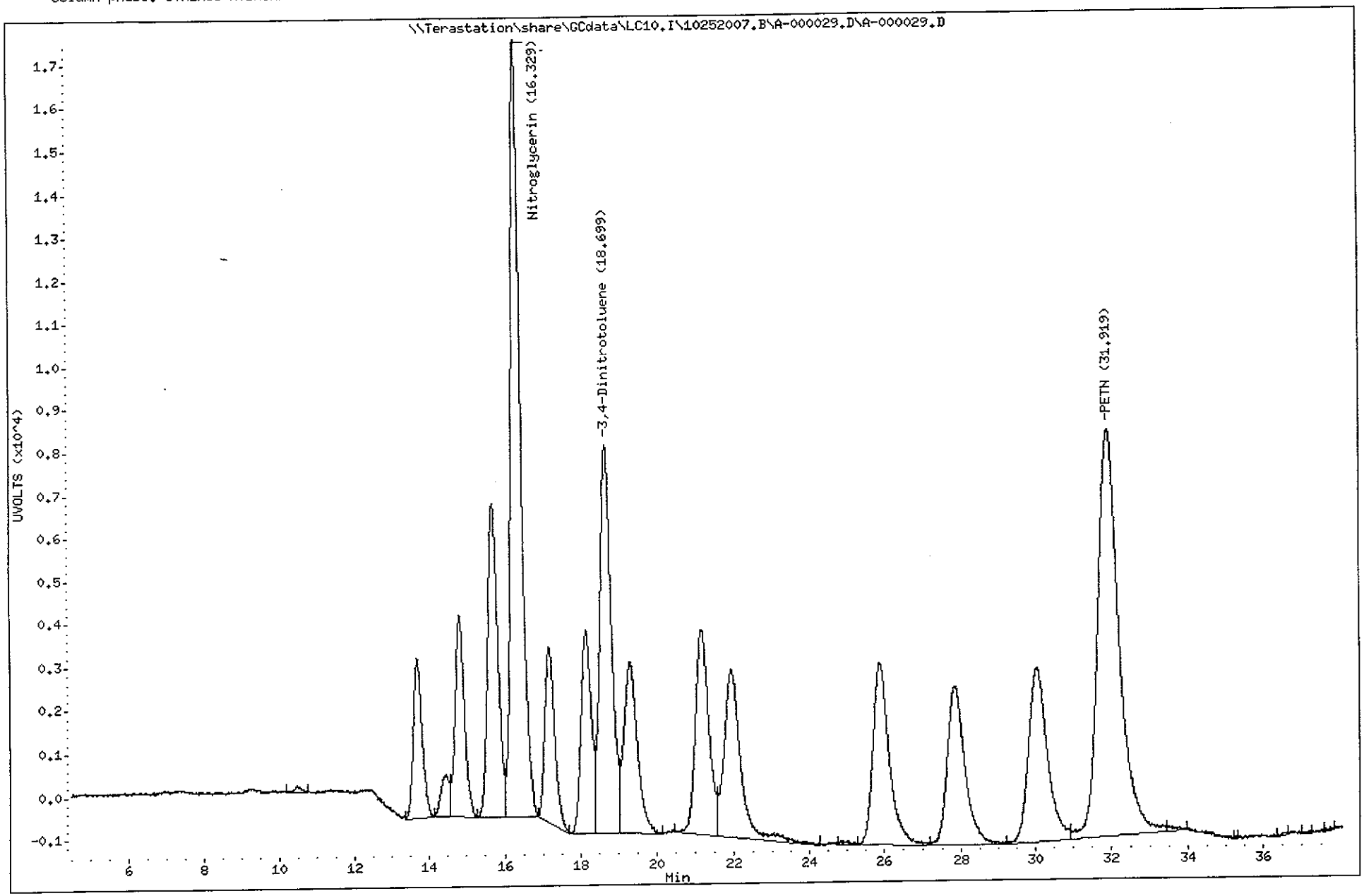
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
10.449	1961	146	0.074	0.16	
13.679	59811	3688	0.062	4.22	
14.439	15968	973	0.061	1.11	
14.819	80072	4675	0.058	5.35	
15.693	136926	7286	0.053	8.34	
16.329	329536	18098	0.055	20.82	1 Nitroglycerin
17.173	74028	4072	0.055	4.66	
18.169	91363	4716	0.052	5.40	
18.699	192279	9043	0.047	10.36	$ 13 3,4-Dinitrotoluene
19.316	94991	3973	0.042	4.55	
21.173	115832	4769	0.041	5.46	
21.943	117221	3903	0.033	4.47	
24.833	1663	106	0.064	0.12	
25.886	128176	4226	0.033	4.84	
27.826	120307	3687	0.031	4.22	
30.039	141034	4044	0.029	4.63	
31.919	361530	9466	0.026	10.84	2 PETN
33.556	2522	135	0.054	0.15	
35.259	300	82	0.274	0.09	
36.566	615	58	0.094	0.06	
37.176	449	63	0.140	0.07	
37.713	517	72	0.139	0.08	
	2067100	87281		100.000	

Total unknown % height = 57.98

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



A-000030.D

Chromatography Summary

Injection Date: 10/26/2007 19:40 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000030.D **Vial Num:** 34

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1DTD 7285667 A7J030104-1MSD**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DTD 7285667 A7J030104-1MSD;3

Misc. Info: MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.75	4543	1762.0000<	1923.076923	92%	Acceptable		18.75	9105	1836.0000	1923.076923	95%	Acceptable		(84-127)	
HMX	5.28	6323	927.9000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(87-117)	45
RDX	7.96	3930	950.7000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(85-115)	45
Picric ACID				4807.692308	0%	Fails					4807.692308	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7534	973.1000<	961.538462	101%	Acceptable					961.538462	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	6997	941.8000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
TETRYL	14.85	3416	724.5000<	961.538462	75%	Acceptable					961.538462	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3178	941.1000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4172	899.3000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	2755	808.6000<	961.538462	84%	Acceptable					961.538462	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3504	901.5000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2632	964.1000<	961.538462	100%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.03	4185	942.5000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(81-115)	45
2-Nitrotoluene	25.95	1774	939.2000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(84-114)	45
4-Nitrotoluene	27.92	2129	932.7000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2095	950.6000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(88-118)	45
Nitroglycerin				4807.692308	0%	Fails		16.37	18039	4625.0000<	4807.692308	96%	Acceptable		(50-112)	45
PETN				4807.692308	0%	Fails		31.99	9739	4677.0000<	4807.692308	97%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	1923.0769	1762.0000	92	1923.0769	1836.0000	96	(84-127)

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:43 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

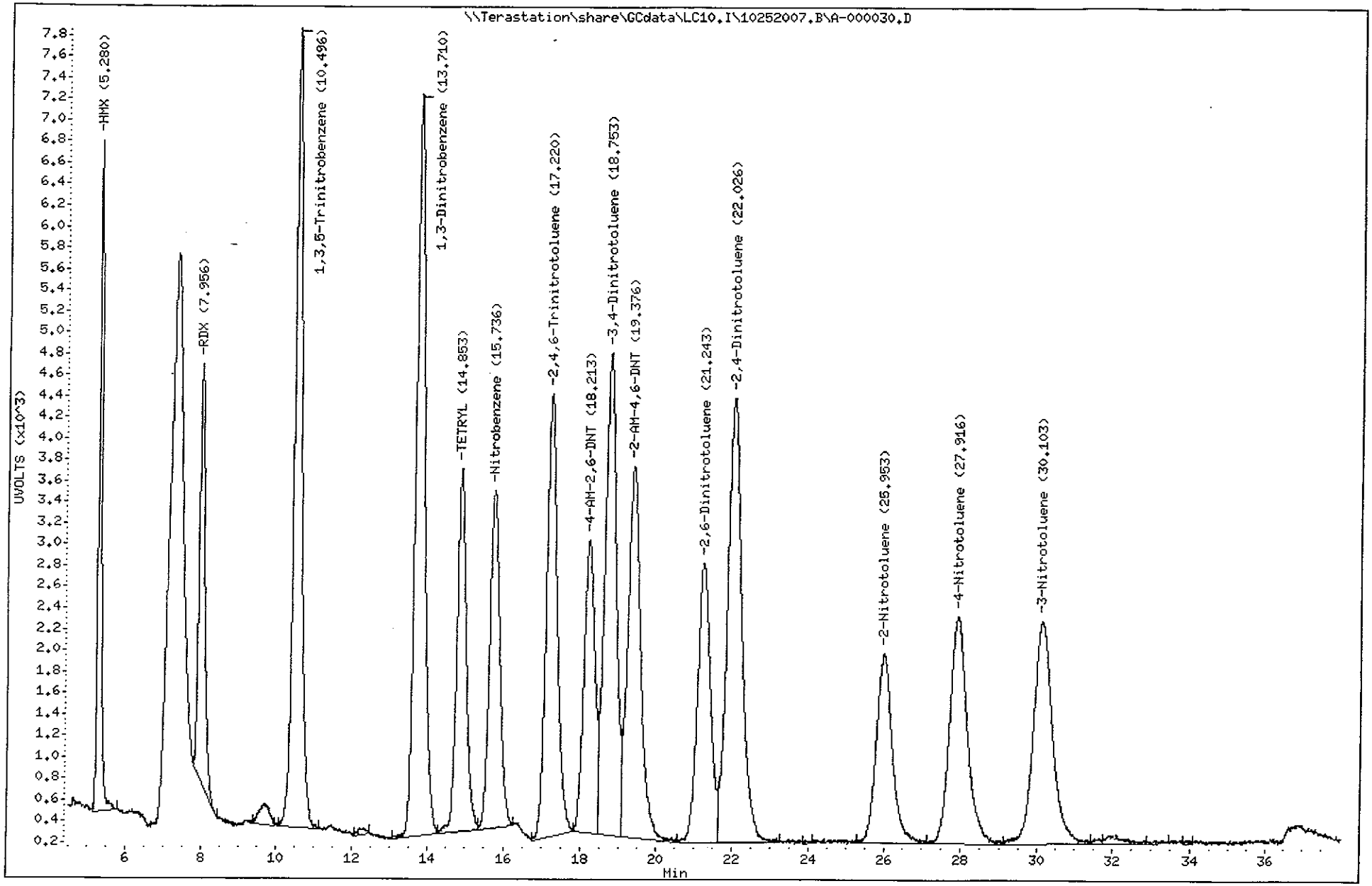
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.280	39367	6323	0.161	10.59		4 HMX
7.956	42212	3930	0.093	6.58		5 RDX
9.696	3717	198	0.053	0.33		
10.496	105058	7534	0.072	12.73		7 1,3,5-Trinitrobenze
12.193	808	64	0.079	0.10		
13.710	120005	6997	0.058	11.72		8 1,3-Dinitrobenzene
14.853	59126	3416	0.058	5.72		9 TETRYL
15.736	59585	3178	0.053	5.32		10 Nitrobenzene
17.220	81451	4172	0.051	6.99		11 2,4,6-Trinitrotolue
18.213	54416	2755	0.051	4.61		12 4-AM-2,6-DNT
18.753	95475	4543	0.048	7.61	$	13 3,4-Dinitrotoluene
19.376	84938	3504	0.041	5.87		14 2-AM-4,6-DNT
21.243	63638	2632	0.041	4.41		15 2,6-Dinitrotoluene
22.026	108729	4185	0.038	7.01		16 2,4-Dinitrotoluene
23.926	268	32	0.120	0.05		
25.953	52797	1774	0.034	2.97		17 2-Nitrotoluene
27.916	68188	2129	0.031	3.56		18 4-Nitrotoluene
30.103	74838	2095	0.028	3.51		19 3-Nitrotoluene
31.663	602	48	0.080	0.08		
31.916	2723	81	0.030	0.13		
33.106	570	34	0.060	0.05		
33.876	329	37	0.112	0.06		
	1118840	59661		100.000		

Total unknown % height = 0.8000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

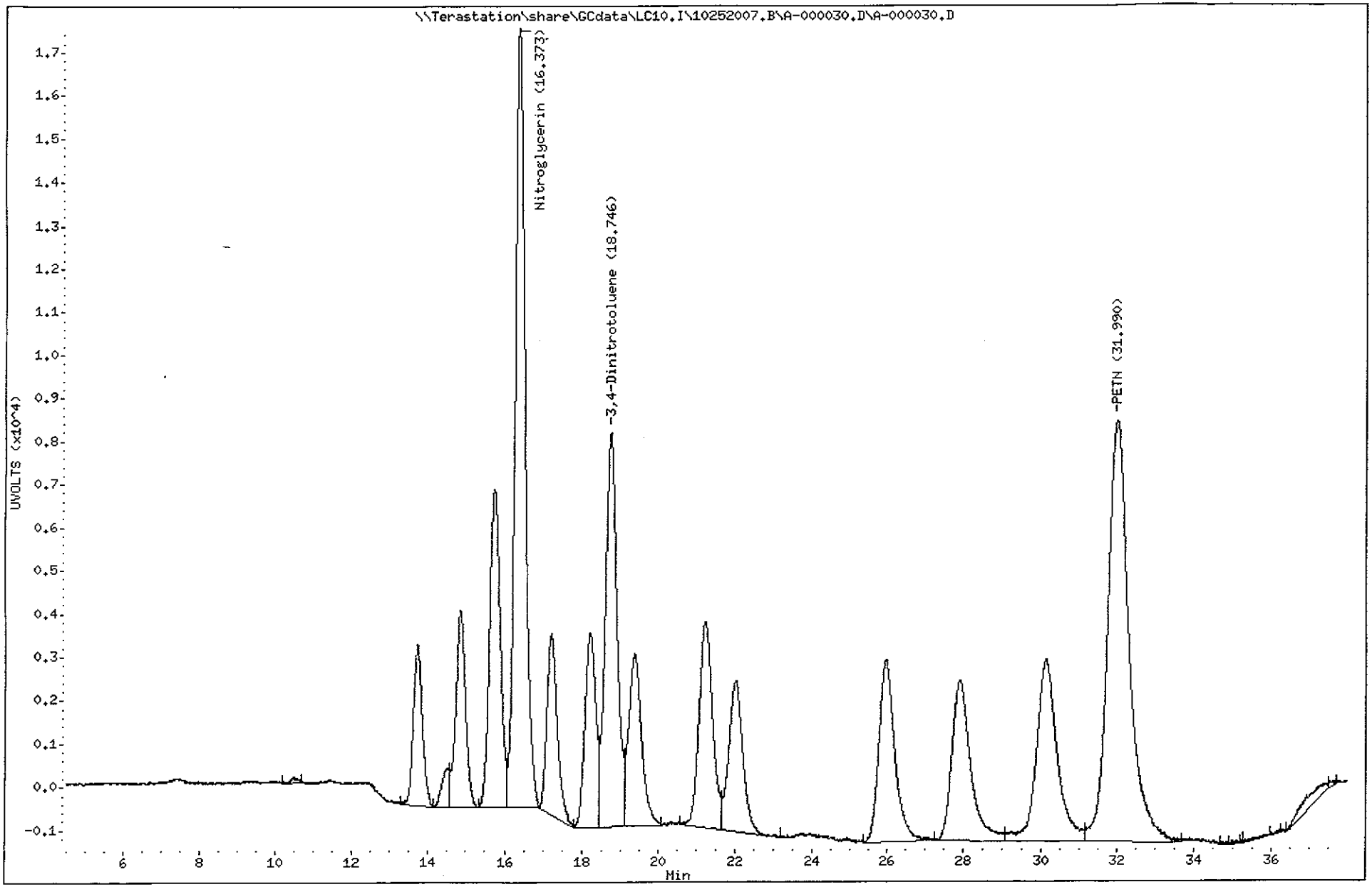
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
10.473	1852	148	0.080	0.17	
13.716	60996	3710	0.061	4.26	
14.503	12963	911	0.070	1.04	
14.846	81259	4555	0.056	5.23	
15.733	140121	7367	0.053	8.46	
16.373	330442	18039	0.055	20.83	1 Nitroglycerin
17.223	77921	4173	0.054	4.79	
18.213	86538	4483	0.052	5.15	
18.746	196179	9105	0.046	10.46	$ 13 3,4-Dinitrotoluene
19.380	95533	3974	0.042	4.56	
21.233	114202	4746	0.042	5.45	
22.003	90032	3473	0.039	3.99	
25.983	127119	4211	0.033	4.83	
27.916	123901	3716	0.030	4.27	
30.113	159111	4197	0.026	4.82	
31.990	384345	9739	0.025	11.19	2 PETN
34.846	416	56	0.134	0.06	
35.110	585	55	0.094	0.06	
35.946	1434	28	0.020	0.03	
36.193	624	75	0.120	0.08	
37.470	14090	130	0.009	0.14	
37.586	1081	115	0.106	0.13	
	2100746	87006		100.000	

Total unknown % height = 57.52

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000034.D

Chromatography Summary

Injection Date: 10/26/2007 23:12 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000034.D **Vial Num:** 6

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.71	4774	96.3100<	100	-4%	Acceptable		18.72	9534	100.0000	100	0%	Acceptable		(±15)	
HMX	5.27	13088	99.8800<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
RDX	7.95	8099	101.9000<	100	2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Picric ACID	9.31	17021	206.2000	200	3%	Acceptable		9.31	25092	206.6000<	200	3%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.48	14839	99.6600<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	14145	99.0100<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
TETRYL	14.84	8681	95.7400<	100	-4%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.71	6385	98.3200<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.20	8848	99.1700<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.19	6480	98.8900<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.35	7352	98.3600<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.20	5143	97.9600<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.99	8436	98.7900<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.92	3556	97.9000<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.87	4282	97.5400<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.07	4161	98.1800<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**100**	**-100%**	**Fails**		16.36	7769	103.6000<	100	4%	Acceptable		(±15)	45
PETN				**100**	**-100%**	**Fails**		31.98	3861	96.4100<	100	-4%	Acceptable		(±15)	45
3,5-Dinitroaniline				**100**	**-100%**	**Fails**					**100**	**-100%**	**Fails**		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:45 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.271	81883	13088	0.160	9.66		4	HMX
6.277	470	43	0.091	0.03			
7.947	89353	8099	0.091	5.97		5	RDX
9.307	240755	17021	0.071	12.66		6	Picric ACID
10.481	201533	14839	0.074	10.95		7	1,3,5-Trinitrobenze
13.691	248300	14145	0.057	10.44		8	1,3-Dinitrobenzene
14.837	154043	8681	0.056	6.40		9	TETRYL
15.714	128252	6385	0.050	4.71		10	Nitrobenzene
17.204	176782	8848	0.050	6.53		11	2,4,6-Trinitrotolue
18.187	134093	6480	0.048	4.78		12	4-AM-2,6-DNT
18.711	101881	4774	0.047	3.52	$	13	3,4-Dinitrotoluene
19.354	178248	7352	0.041	5.42		14	2-AM-4,6-DNT
20.617	197	28	0.142	0.02			
21.201	120566	5143	0.043	3.79		15	2,6-Dinitrotoluene
21.987	220929	8436	0.038	6.22		16	2,4-Dinitrotoluene
24.827	473	32	0.068	0.02			
25.924	105377	3556	0.034	2.62		17	2-Nitrotoluene
27.867	136211	4282	0.031	3.16		18	4-Nitrotoluene
30.067	142366	4161	0.029	3.07		19	3-Nitrotoluene
34.967	685	52	0.076	0.03			
	2462396	135445		100.000			

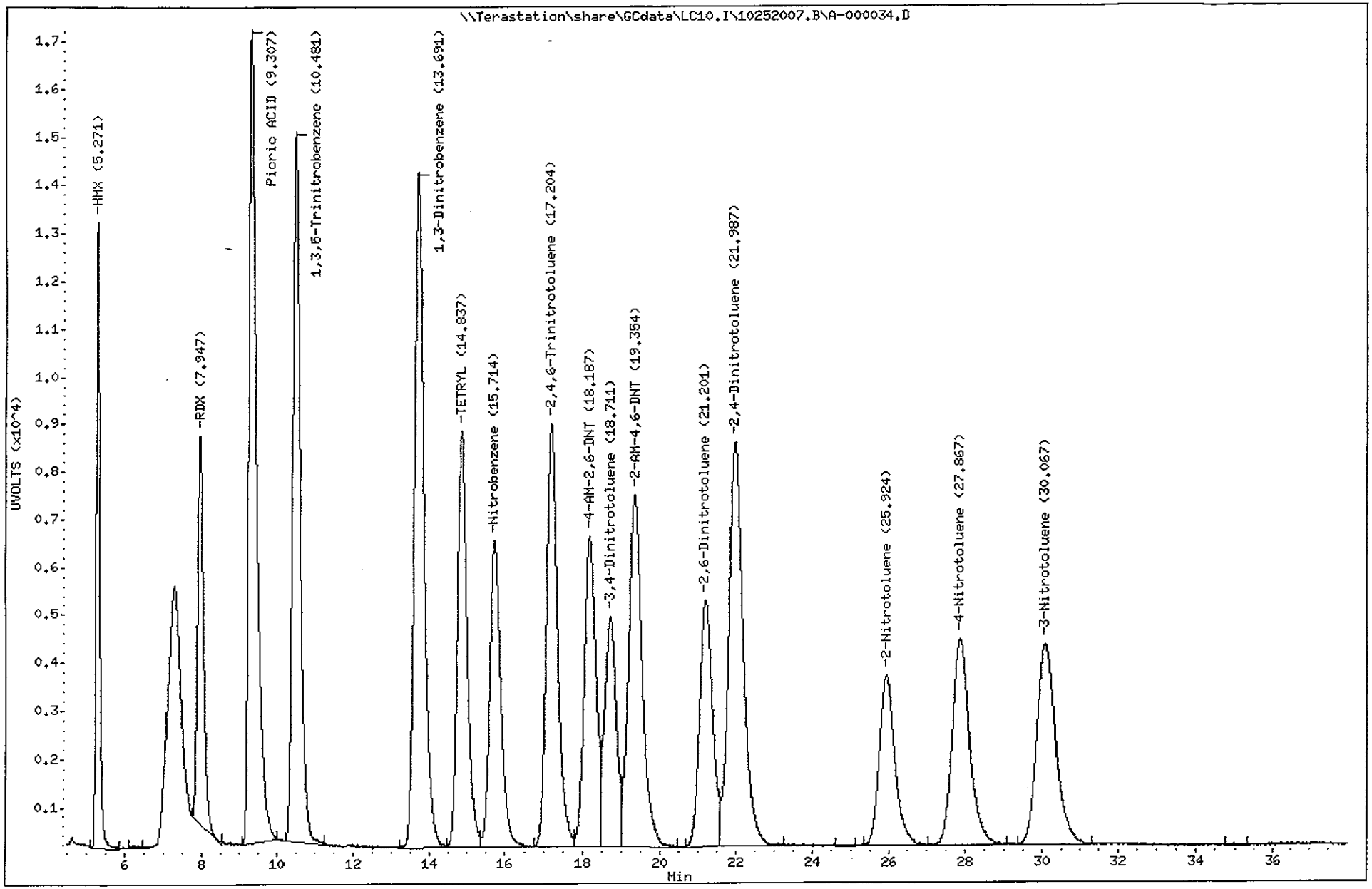
Total unknown % height = 0.1000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Date : 26-OCT-2007 23:12
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.307	356809	25092	0.070	16.91	6 Picric ACID
10.484	3368	246	0.073	0.16	
13.691	135654	7548	0.056	5.04	
14.841	204837	11374	0.056	7.60	
15.714	271549	13794	0.051	9.22	
16.357	152251	7769	0.051	5.19	1 Nitroglycerin
17.204	190106	9277	0.049	6.20	
18.187	220659	10587	0.048	7.08	
18.724	205087	9534	0.046	6.37	$ 13 3,4-Dinitrotoluene
19.351	207290	8242	0.040	5.51	
21.217	224660	9449	0.042	6.31	
21.984	180691	6952	0.038	4.64	
25.144	524	71	0.135	0.04	
25.924	255692	8499	0.033	5.68	
27.847	264369	7731	0.029	5.17	
29.231	8166	375	0.046	0.25	
30.064	306654	8314	0.027	5.56	
31.981	147097	3861	0.026	2.58	2 PETN
33.444	565	81	0.143	0.05	
33.817	1293	116	0.090	0.07	
34.331	4822	144	0.030	0.09	
35.011	964	89	0.092	0.05	
35.777	1274	34	0.027	0.02	
36.144	437	66	0.151	0.04	
36.531	2252	109	0.048	0.07	
37.194	553	47	0.085	0.03	
37.564	340	55	0.162	0.03	
37.824	534	70	0.131	0.04	
	3348495	149526		100.000	

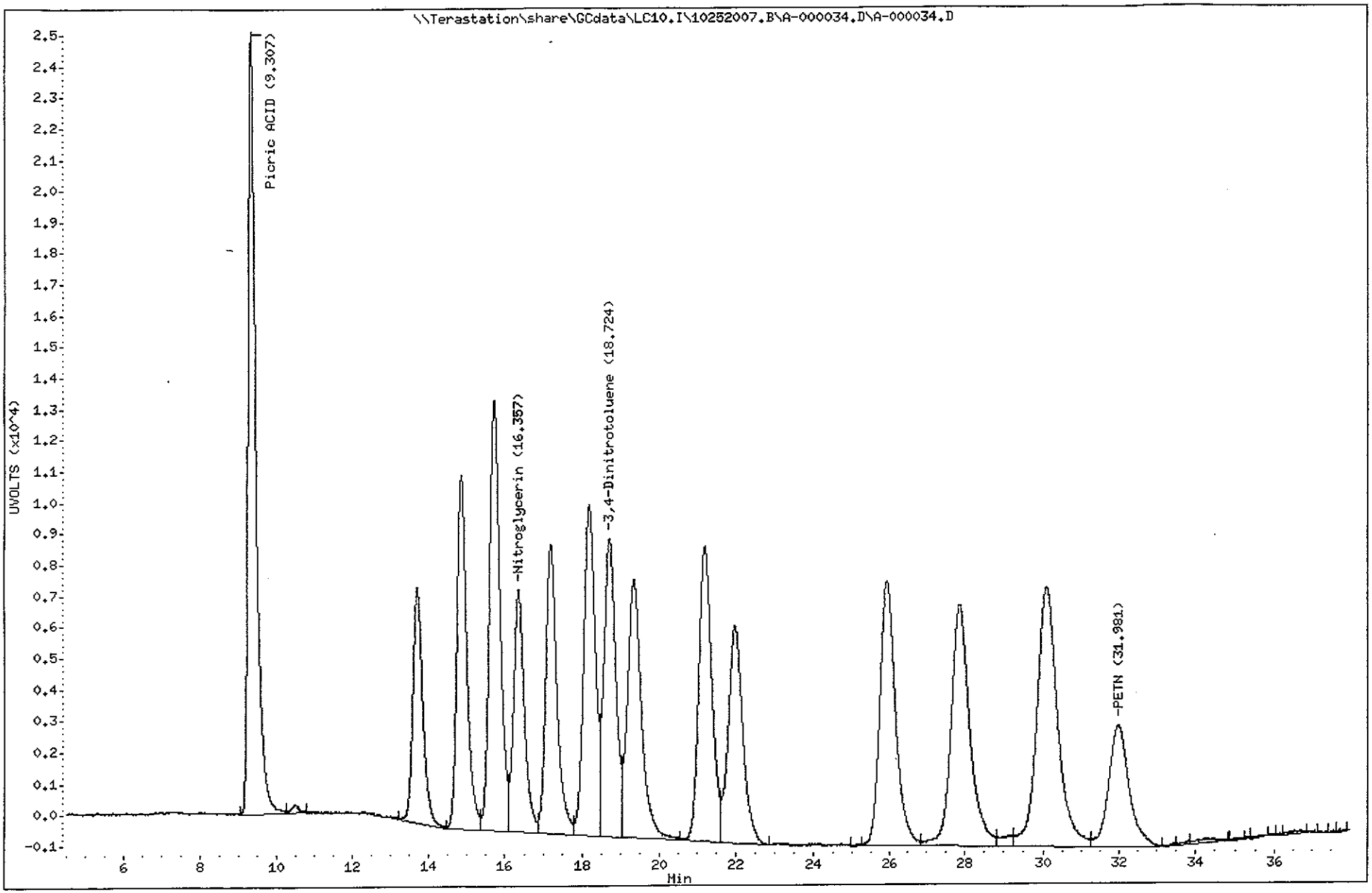
Total unknown % height = 68.95

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034.D
Date : 26-OCT-2007 23:12
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000035.D

Chromatography Summary

Injection Date: 10/27/2007 0:05 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000035.D **Vial Num:** 5

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	**18.71**	**960**	**19.3700<**	~~20~~ 5	**287%**	**Fails**	-30	**18.69**	**1809**	**18.9700**	**5**	**279%**	**Fails**		(±15)	
HMX	5.27	668	5.0980<	5	2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
RDX	7.93	366	4.6040<	5	-8%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4284**	**51.9000**	~~50~~ 10	**419%**	**Fails**	+40%	**9.33**	**6310**	**51.9400<**	**10**	**419%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.47	743	4.9900<	5	0%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	735	5.1450<	5	3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
TETRYL	14.81	446	4.9190<	5	-2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.70	339	5.2200<	5	4%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.18	478	5.3580<	5	7%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.17	347	5.2960<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.32	400	5.3510<	5	7%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.18	283	5.3900<	5	8%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.95	440	5.1530<	5	3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.93	192	5.2860<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.85	239	5.4440<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.03	206	4.8600<	5	-3%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.31**	**1517**	**20.2200<**	20 **5**	**304%**	**Fails**	+10%	(±15)	45
PETN				**5**	**-100%**	**Fails**		**31.93**	**828**	**20.6800<**	20 **5**	**314%**	**Fails**	+30%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

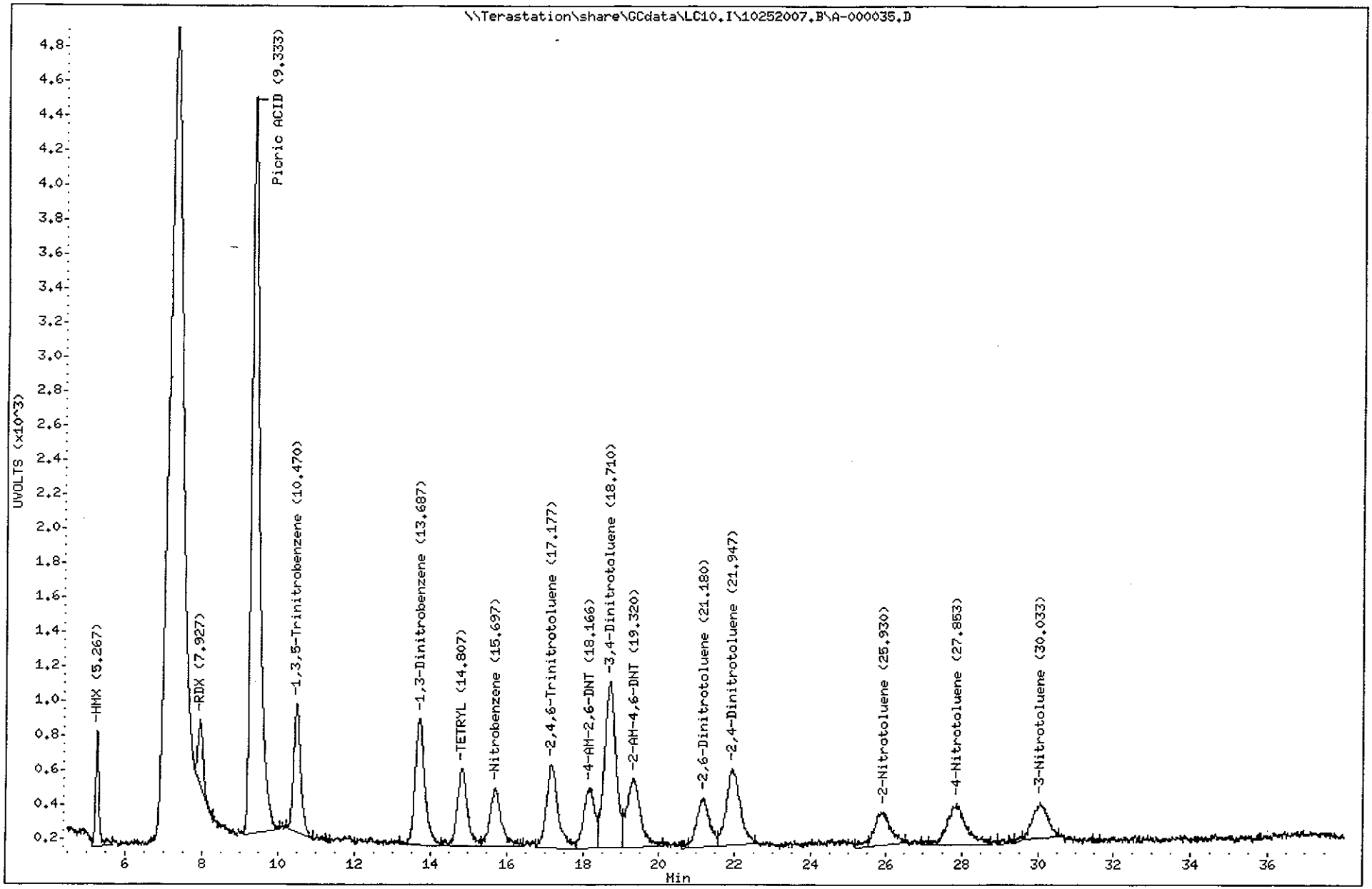
Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.267	4219	668	0.158	5.88		4	HMX
7.927	3479	366	0.105	3.22		5	RDX
9.333	61272	4284	0.070	37.88		6	Picric ACID
10.470	9790	743	0.076	6.54		7	1,3,5-Trinitrobenze
11.257	124	34	0.274	0.29			
13.687	13389	735	0.055	6.47		8	1,3-Dinitrobenzene
14.807	8483	446	0.053	3.93		9	TETRYL
15.697	7215	339	0.047	2.98		10	Nitrobenzene
17.177	10094	478	0.047	4.21		11	2,4,6-Trinitrotolue
18.166	6956	347	0.050	3.05		12	4-AM-2,6-DNT
18.710	20419	960	0.047	8.45	$	13	3,4-Dinitrotoluene
19.320	10101	400	0.040	3.52		14	2-AM-4,6-DNT
20.673	226	46	0.204	0.40			
21.180	6721	283	0.042	2.49		15	2,6-Dinitrotoluene
21.947	11060	440	0.040	3.87		16	2,4-Dinitrotoluene
25.277	504	39	0.077	0.34			
25.930	5499	192	0.035	1.69		17	2-Nitrotoluene
27.053	135	26	0.192	0.22			
27.853	8502	239	0.028	2.10		18	4-Nitrotoluene
29.097	297	31	0.104	0.27			
29.530	162	19	0.117	0.16			
30.033	5612	206	0.037	1.81		19	3-Nitrotoluene
31.597	130	27	0.208	0.23			
	194389	11348		100.000			

Total unknown % height = 1.910

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D
Date : 27-OCT-2007 00:05
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

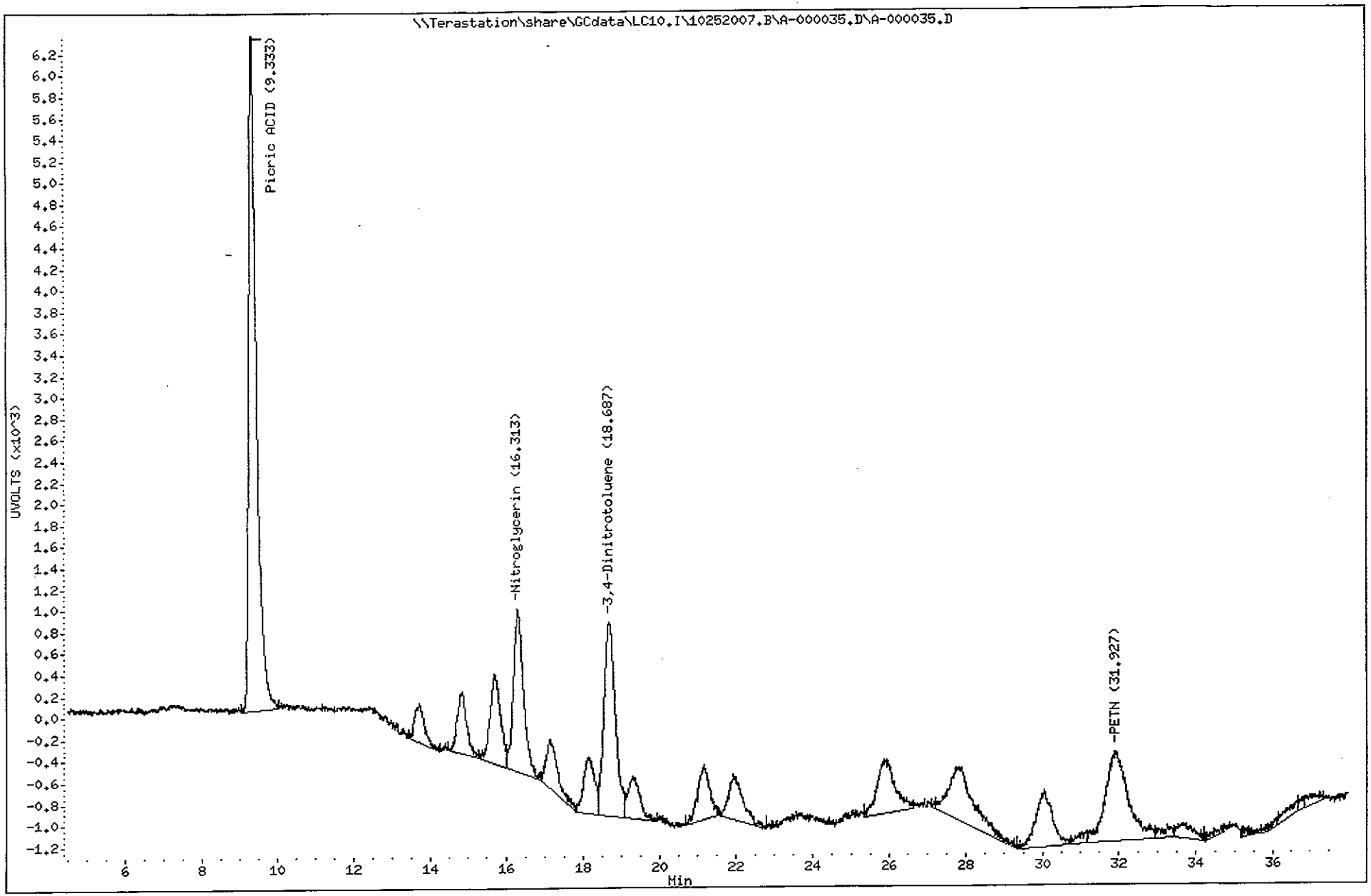
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.333	89466	6310	0.071	36.85		6 Picric ACID
13.700	6397	360	0.056	2.09		
14.843	10172	586	0.058	3.41		
15.707	16386	844	0.052	4.91		
16.313	28380	1517	0.053	8.83		1 Nitroglycerin
17.143	9725	454	0.047	2.64		
18.157	10530	529	0.050	3.07		
18.687	37270	1809	0.049	10.52	$	13 3,4-Dinitrotoluene
19.297	8761	394	0.045	2.29		
21.183	10998	511	0.046	2.97		
21.940	11015	423	0.038	2.46		
25.863	16562	500	0.030	2.91		
27.177	168	65	0.386	0.37		
27.820	22897	497	0.022	2.89		
30.040	16153	537	0.033	3.12		
31.023	1855	112	0.060	0.65		
31.927	33277	828	0.025	4.81		2 PETN
33.236	1980	116	0.059	0.67		
33.730	4062	142	0.035	0.82		
34.440	420	49	0.117	0.28		
34.663	606	71	0.117	0.41		
35.187	569	94	0.165	0.54		
35.640	501	47	0.094	0.27		
35.790	393	71	0.181	0.41		
36.627	3243	101	0.031	0.58		
36.823	806	106	0.131	0.61		
36.993	1911	107	0.056	0.62		
	344503	17180		100.000		

Total unknown % height = 38.99

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035.D
Date : 27-OCT-2007 00:05
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000041.D

Chromatography Summary

Injection Date: 10/27/2007 5:24 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000041.D **Vial Num:** 43

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J79141A4 7285667 A7J040354-1**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J79141A4 7285667 A7J040354-1;0

Misc. Info: ; ; ;1.97;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.72**	**0.012**	**4460**	**1827.0000<**		**18.73**	**0.033**	**9674**	**2060.0000**		**0.0000**	**0.00**	
HMX											30.4569	253.81	
RDX											40.6091	253.81	
Picric ACID											253.8071	1015.23	
1,3,5-Trinitrobenzene											20.3046	253.81	
1,3-Dinitrobenzene											50.7614	253.81	
TETRYL											50.7614	253.81	
Nitrobenzene											50.7614	253.81	
2,4,6-Trinitrotoluene											20.3046	253.81	
4-AM-2,6-DNT											20.3046	253.81	
2-AM-4,6-DNT											101.5228	253.81	
2,6-Dinitrotoluene											30.4569	253.81	
2,4-Dinitrotoluene											20.3046	253.81	
2-Nitrotoluene											81.2183	253.81	
4-Nitrotoluene											81.2183	253.81	
3-Nitrotoluene											71.0660	253.81	
Nitroglycerin											131.9797	507.61	
PETN											162.4365	507.61	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2030.4569**	**1827.0000**	**90**	**2030.4569**	**2060.0000**	**101**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000041.D
Lab Smp Id: J79141A4 7285667 A7
Inj Date : 27-OCT-2007 05:24
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79141A4 7285667 A7J040354-1;0
Misc Info : ; ; ;1.97;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 43
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

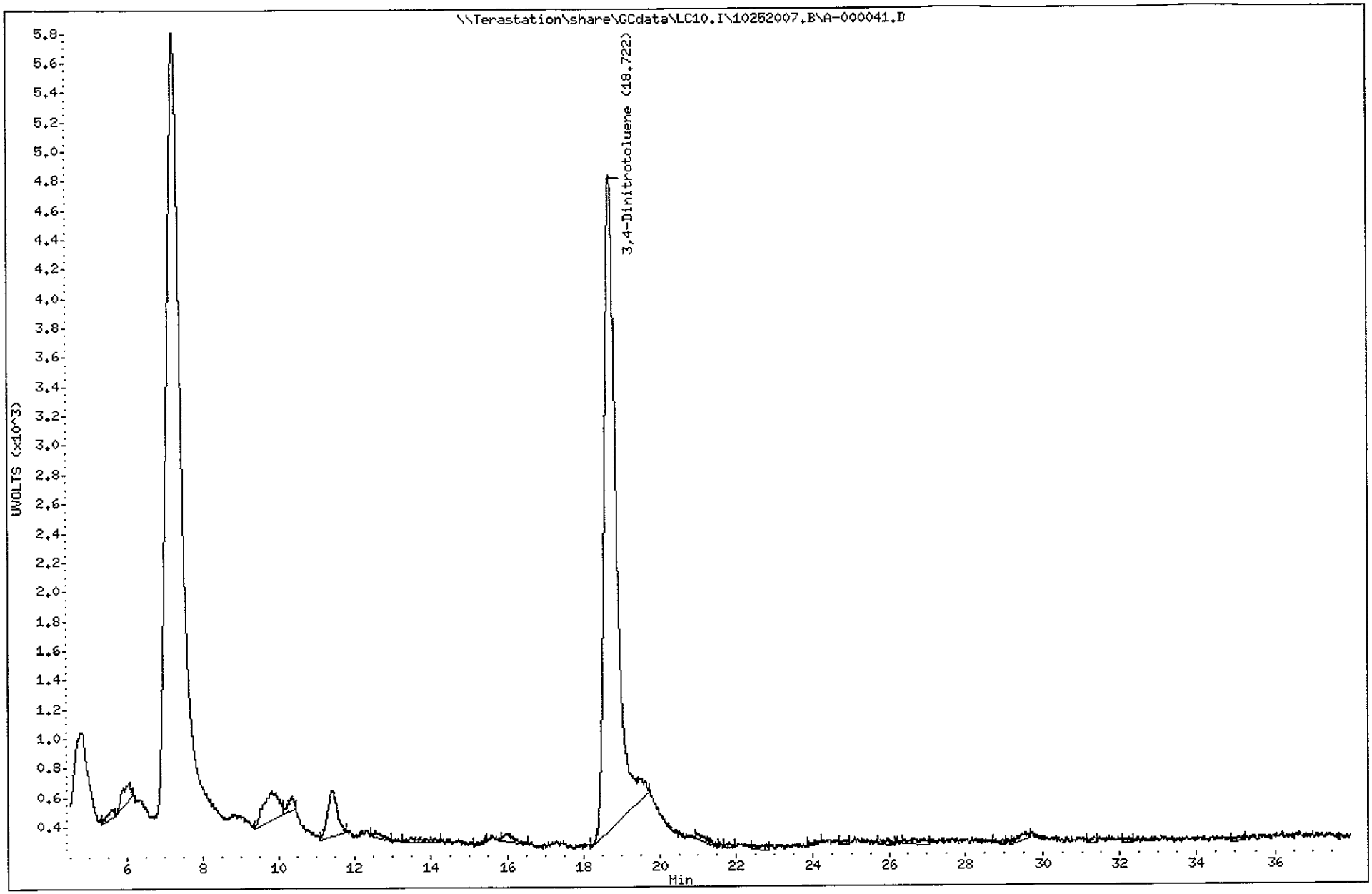
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.970	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.582	742	65	0.088	1.11	
5.886	2018	131	0.065	2.24	
9.812	5603	204	0.036	3.49	
10.296	1097	74	0.067	1.26	
11.409	5472	308	0.056	5.27	
12.539	660	47	0.071	0.80	
13.442	1216	41	0.034	0.70	
15.389	307	24	0.078	0.41	
16.022	1153	60	0.052	1.02	
18.722	98454	4460	0.045	76.48	$ 13 3,4-Dinitrotoluene
20.966	885	39	0.044	0.66	
21.816	251	36	0.143	0.61	
22.479	637	34	0.053	0.58	
24.059	387	36	0.093	0.61	
24.816	236	31	0.131	0.53	
25.752	558	33	0.059	0.56	
26.679	1049	44	0.042	0.75	
28.776	308	31	0.101	0.53	
29.522	926	42	0.045	0.71	
31.299	324	37	0.114	0.63	
32.239	335	33	0.099	0.56	
35.049	388	29	0.075	0.49	
	123008	5839		100.000	

Total unknown % height = 23.52

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000041.D
Date : 27-OCT-2007 05:24
Client ID:
Sample Info: J79141A4 7285667 A7J040354-1;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000041.D\A-000041
Lab Smp Id: J79141A4 7285667 A7
Inj Date : 27-OCT-2007 05:24
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79141A4 7285667 A7J040354-1;0
Misc Info : ; ; ;1.97;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 43
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.970	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

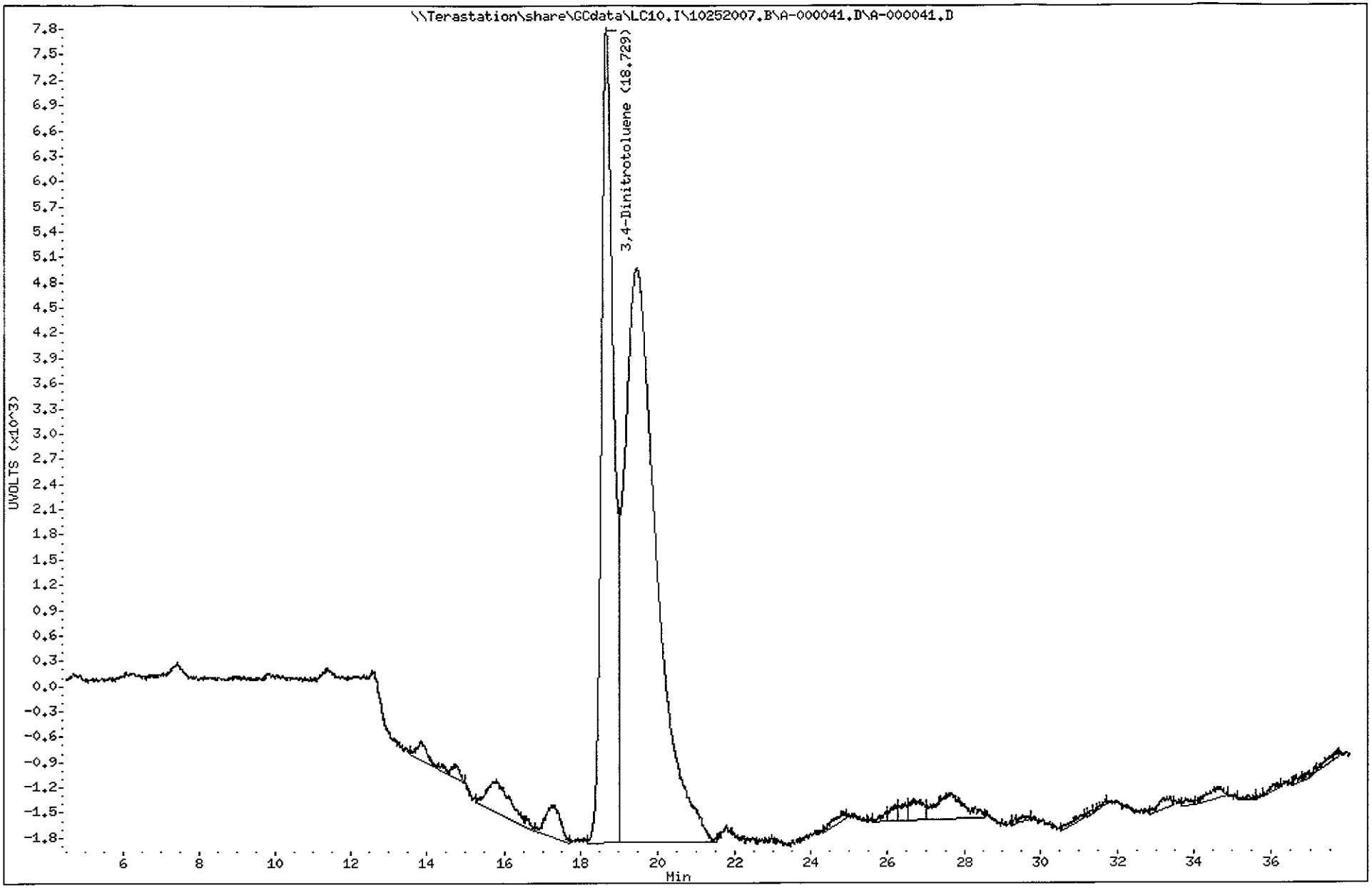
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
13.859	7489	228	0.030	1.14	
15.799	16860	395	0.023	1.98	
17.269	10626	390	0.037	1.95	
18.729	221204	9674	0.044	48.72	$ 13 3,4-Dinitrotoluene
19.509	381512	6826	0.018	34.27	
24.809	2388	121	0.051	0.60	
25.912	1225	83	0.068	0.41	
26.206	2402	192	0.080	0.96	
26.472	2599	212	0.082	1.06	
26.686	5935	254	0.043	1.27	
27.569	15582	309	0.020	1.55	
29.332	224	65	0.290	0.32	
29.546	840	66	0.079	0.33	
31.019	1341	65	0.048	0.32	
31.336	375	53	0.141	0.26	
31.669	689	59	0.086	0.29	
33.166	2627	131	0.050	0.65	
33.782	843	82	0.097	0.41	
34.526	3667	139	0.038	0.69	
35.392	580	53	0.091	0.26	
35.709	249	53	0.213	0.26	
36.122	1307	93	0.071	0.46	
36.626	784	115	0.147	0.57	
36.932	526	78	0.148	0.39	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
37.079	325	81	0.249	0.40	
37.656	1810	97	0.054	0.48	
	684009	19914		100.000	

Total unknown % height = 51.28

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000041.D\A-000041.D
Date : 27-OCT-2007 05:24
Client ID:
Sample Info: J79141A4 7285667 A7J040354-1;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000042.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 6:17 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000042.D **Vial Num:** 44
Instrument ID: LC10

Sample : **J792M1AF 7285667 A7J040354-2**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J792M1AF 7285667 A7J040354-2;0
Misc. Info: ; ; ;2.05;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.70**	**-0.009**	**4575**	**1801.0000<**		**18.70**	**0.001**	**9101**	**1862.0000**		**0.0000**	**0.00**	
HMX											29.2683	243.90	
RDX											39.0244	243.90	
Picric ACID											243.9024	975.61	
1,3,5-Trinitrobenzene	10.32	-0.146	243	31.8400<							19.5122	243.90	45
1,3-Dinitrobenzene											48.7805	243.90	
TETRYL											48.7805	243.90	
Nitrobenzene											48.7805	243.90	
2,4,6-Trinitrotoluene											19.5122	243.90	
4-AM-2,6-DNT											19.5122	243.90	
2-AM-4,6-DNT											97.5610	243.90	
2,6-Dinitrotoluene											29.2683	243.90	
2,4-Dinitrotoluene											19.5122	243.90	
2-Nitrotoluene											78.0488	243.90	
4-Nitrotoluene											78.0488	243.90	
3-Nitrotoluene											68.2927	243.90	
Nitroglycerin											126.8293	487.80	
PETN											156.0976	487.80	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1951.2195**	**1801.0000**	**92**	**1951.2195**	**1862.0000**	**95**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:48 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000042.D
Lab Smp Id: J792M1AF 7285667 A7
Inj Date : 27-OCT-2007 06:17
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792M1AF 7285667 A7J040354-2;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 44
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

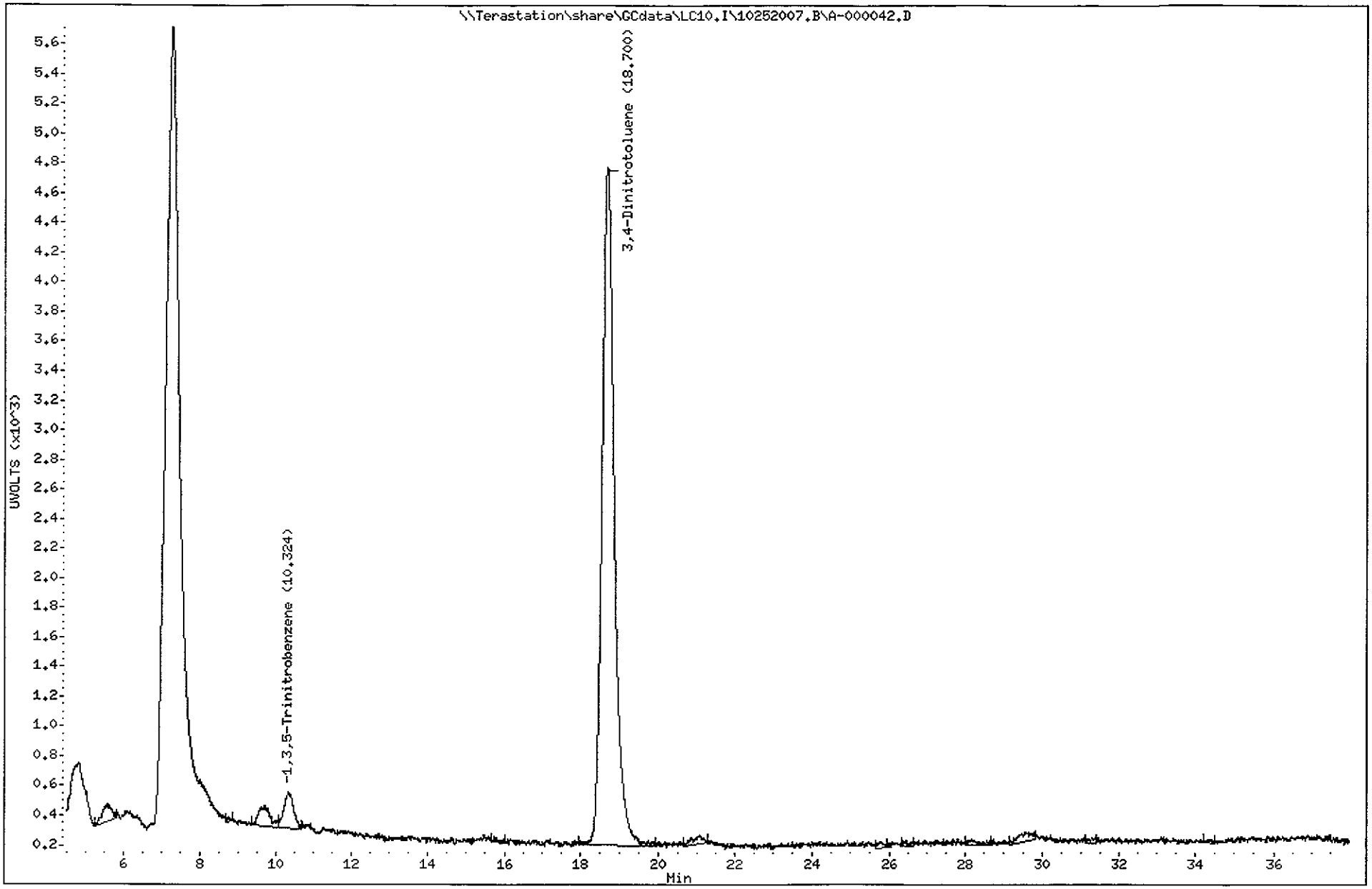
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.520	1934	108	0.056	1.99		
8.737	166	34	0.205	0.62		
9.710	2922	140	0.048	2.57		
10.324	4204	243	0.058	4.47		7 1,3,5-Trinitrobenze
15.734	271	36	0.133	0.66		
18.700	99303	4575	0.046	84.37	$	13 3,4-Dinitrotoluene
20.850	1114	47	0.042	0.86		
25.767	447	47	0.105	0.86		
26.447	364	39	0.107	0.71		
28.177	747	39	0.052	0.71		
29.537	1462	54	0.037	0.99		
31.340	347	37	0.107	0.68		
34.374	252	28	0.111	0.51		
	113531	5427		100.000		

Total unknown % height = 11.16

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000042.D
Date : 27-OCT-2007 06:17
Client ID:
Sample Info: J792M1AF 7285667 A7J040354-2;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000042.D\A-000042
Lab Smp Id: J792M1AF 7285667 A7
Inj Date : 27-OCT-2007 06:17
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792M1AF 7285667 A7J040354-2;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 44
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

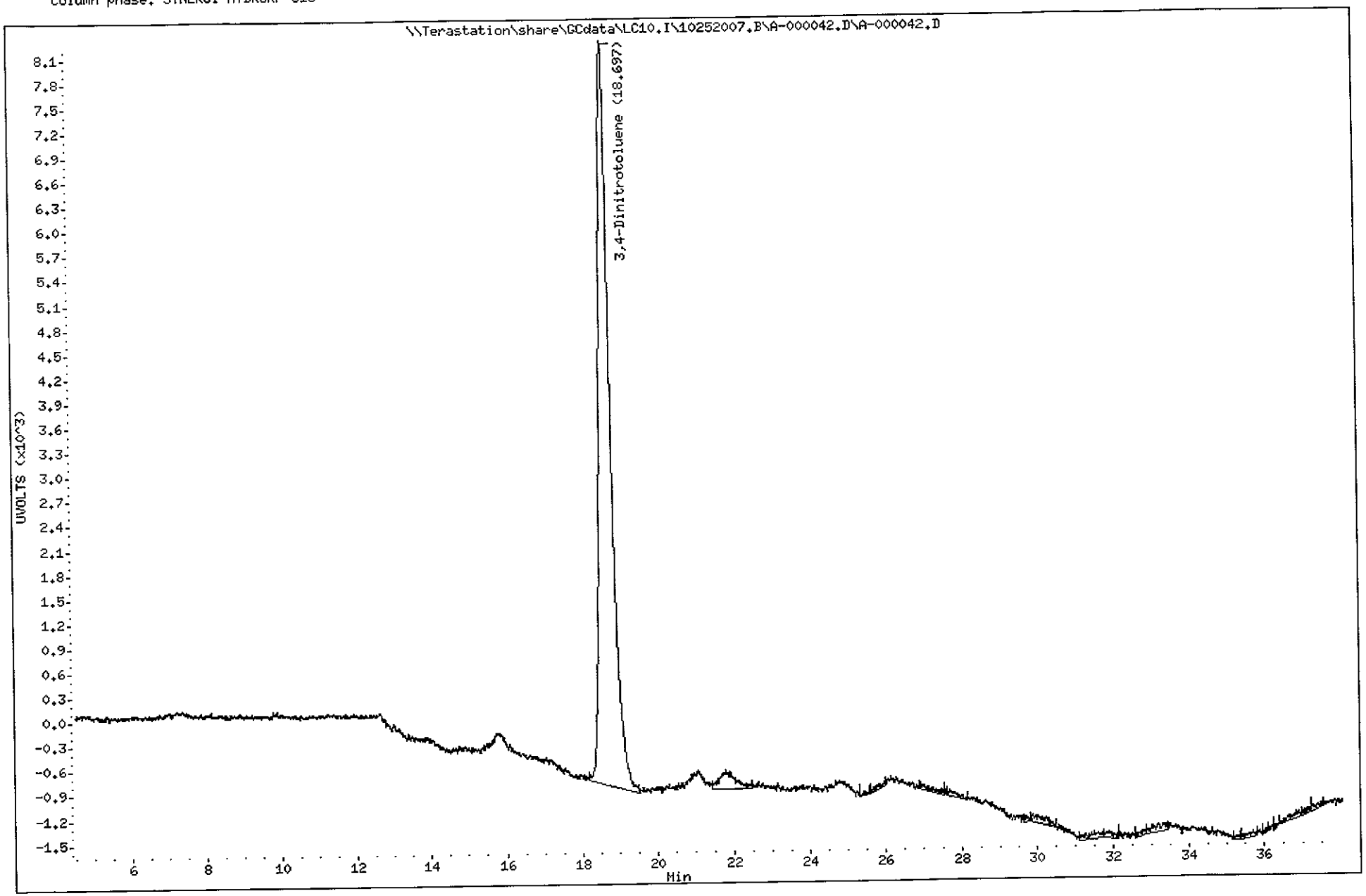
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.697	195090	9101	0.047	87.00	$ 13 3,4-Dinitrotoluene
21.800	6178	221	0.036	2.11	
25.454	312	58	0.186	0.55	
25.970	806	43	0.053	0.41	
26.937	1475	92	0.062	0.87	
27.684	1114	64	0.057	0.61	
29.710	422	79	0.187	0.75	
29.897	2187	80	0.037	0.76	
31.494	1995	87	0.044	0.83	
31.877	992	76	0.077	0.72	
32.747	624	54	0.087	0.51	
33.010	2103	104	0.049	0.99	
35.274	381	55	0.144	0.52	
35.707	875	74	0.085	0.70	
36.080	301	42	0.140	0.40	
36.327	248	37	0.149	0.35	
36.877	1502	92	0.061	0.87	
37.177	547	45	0.082	0.42	
37.467	698	66	0.095	0.63	
	217851	10470		100.000	

Total unknown % height = 13.00

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000042.D\A-000042.D
Date : 27-OCT-2007 06:17
Client ID:
Sample Info: J792M1AF 7285667 A7J040354-2;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000043.D

Chromatography Summary

Injection Date: 10/27/2007 7:10 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000043.D **Vial Num:** 45

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J792N1AF 7285667 A7J040354-3**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J792N1AF 7285667 A7J040354-3;0

Misc. Info: ; ; ;1.99;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.72**	**0.006**	**4563**	**1850.0000<**		**18.72**	**0.024**	**9022**	**1902.0000**		**0.0000**	**0.00**	
HMX											30.1508	251.26	
RDX											40.2010	251.26	
Picric ACID											251.2563	1005.03	
1,3,5-Trinitrobenzene	10.33	-0.144	183	24.7000<							20.1005	251.26	45
1,3-Dinitrobenzene											50.2513	251.26	
TETRYL											50.2513	251.26	
Nitrobenzene											50.2513	251.26	
2,4,6-Trinitrotoluene											20.1005	251.26	
4-AM-2,6-DNT											20.1005	251.26	
2-AM-4,6-DNT											100.5025	251.26	
2,6-Dinitrotoluene											30.1508	251.26	
2,4-Dinitrotoluene											20.1005	251.26	
2-Nitrotoluene											80.4020	251.26	
4-Nitrotoluene											80.4020	251.26	
3-Nitrotoluene											70.3518	251.26	
Nitroglycerin											130.6533	502.51	
PETN											160.8040	502.51	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2010.0503**	**1850.0000**	**92**	**2010.0503**	**1902.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:48 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000043.D
Lab Smp Id: J792N1AF 7285667 A7
Inj Date : 27-OCT-2007 07:10 Inst ID: LC10.i
Operator : KenneyF
Smp Info : J792N1AF 7285667 A7J040354-3;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 45
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

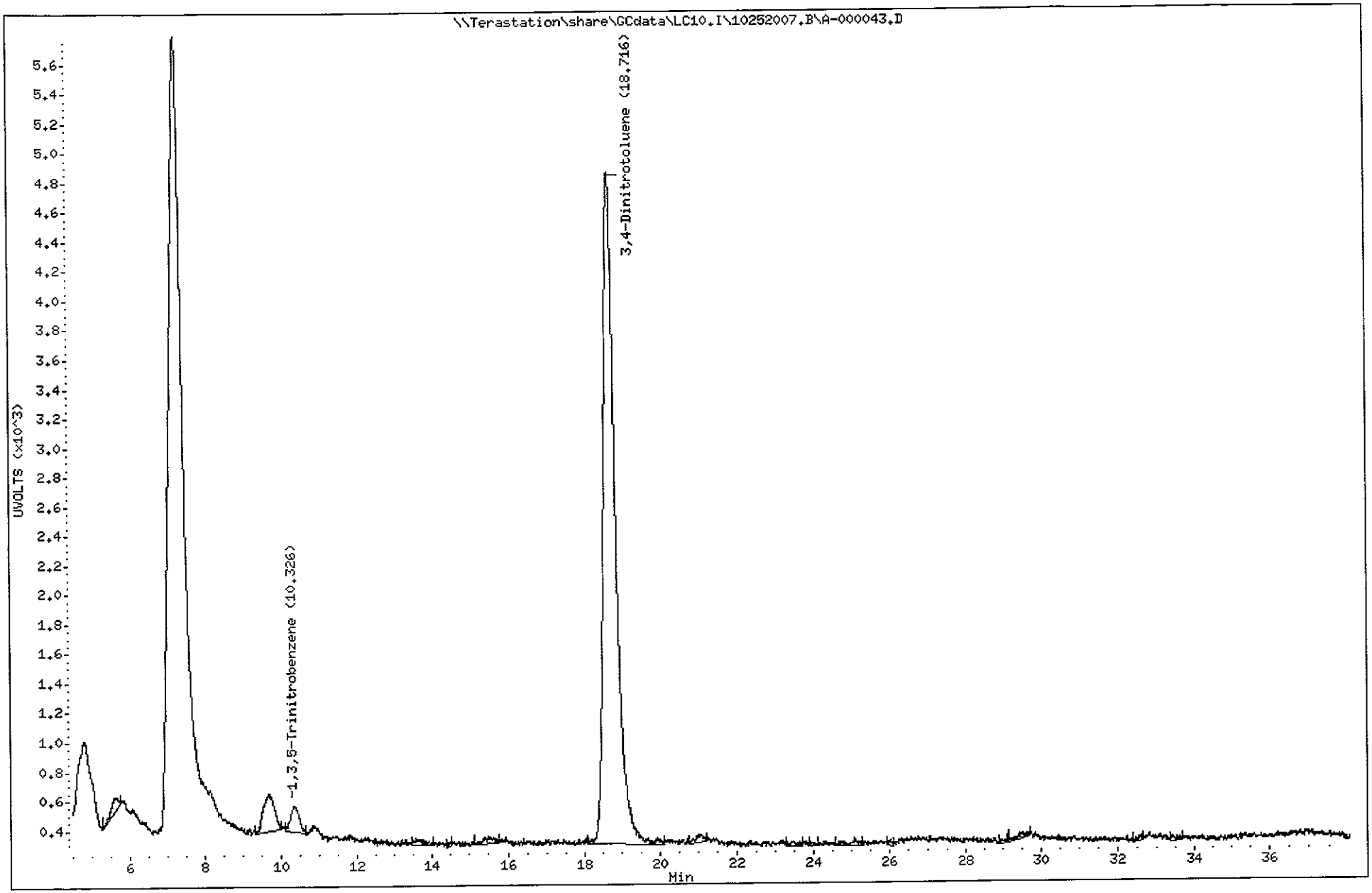
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.670	1219	64	0.053	1.16	
9.690	4978	253	0.051	4.59	
10.326	2868	183	0.064	3.32	7 1,3,5-Trinitrobenze
13.566	854	48	0.056	0.87	
14.470	150	31	0.207	0.56	
15.406	788	41	0.052	0.74	
18.716	99840	4563	0.046	82.86	$ 13 3,4-Dinitrotoluene
21.056	709	53	0.075	0.96	
23.473	518	36	0.070	0.65	
23.940	197	29	0.147	0.52	
24.763	803	31	0.039	0.56	
26.036	215	37	0.172	0.67	
29.100	243	30	0.123	0.54	
29.506	631	40	0.063	0.72	
32.593	234	37	0.158	0.67	
33.400	355	34	0.096	0.61	
	114601	5510		100.000	

Total unknown % height = 13.82

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000043.D
Date : 27-OCT-2007 07:10
Client ID:
Sample Info: J792N1AF 7285667 A7J040354-3;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000043.D\A-000043
Lab Smp Id: J792N1AF 7285667 A7
Inj Date : 27-OCT-2007 07:10
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792N1AF 7285667 A7J040354-3;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 45
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.720	192374	9022	0.047	80.18	$ 13 3,4-Dinitrotoluene
21.856	10696	322	0.030	2.85	
25.106	790	93	0.118	0.82	
25.250	1086	83	0.076	0.73	
26.076	346	72	0.208	0.63	
26.796	8073	176	0.022	1.56	
27.793	2181	112	0.051	0.99	
28.120	197	47	0.239	0.41	
28.560	271	55	0.203	0.48	
28.963	1296	89	0.069	0.78	
29.386	3314	126	0.038	1.11	
30.600	1336	62	0.046	0.55	
32.256	1394	73	0.052	0.64	
32.793	1281	75	0.059	0.66	
32.916	1611	92	0.057	0.81	
33.716	210	64	0.304	0.56	
34.090	551	45	0.082	0.39	
34.416	939	61	0.065	0.54	
34.726	2839	119	0.042	1.05	
35.580	258	52	0.202	0.46	
35.873	2338	137	0.059	1.21	
36.776	1192	66	0.055	0.58	
37.080	522	60	0.115	0.53	
37.466	778	87	0.112	0.77	

Data File: A-000043.D
Report Date: 27-Oct-2007 07:59

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
37.820	1233	81	0.066	0.71	
	237106	11271		100.000	

Total unknown % height = 19.82

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000043.B\A-000043.D

Date : 27-OCT-2007 07:10

Client ID:

Instrument: LC10.i

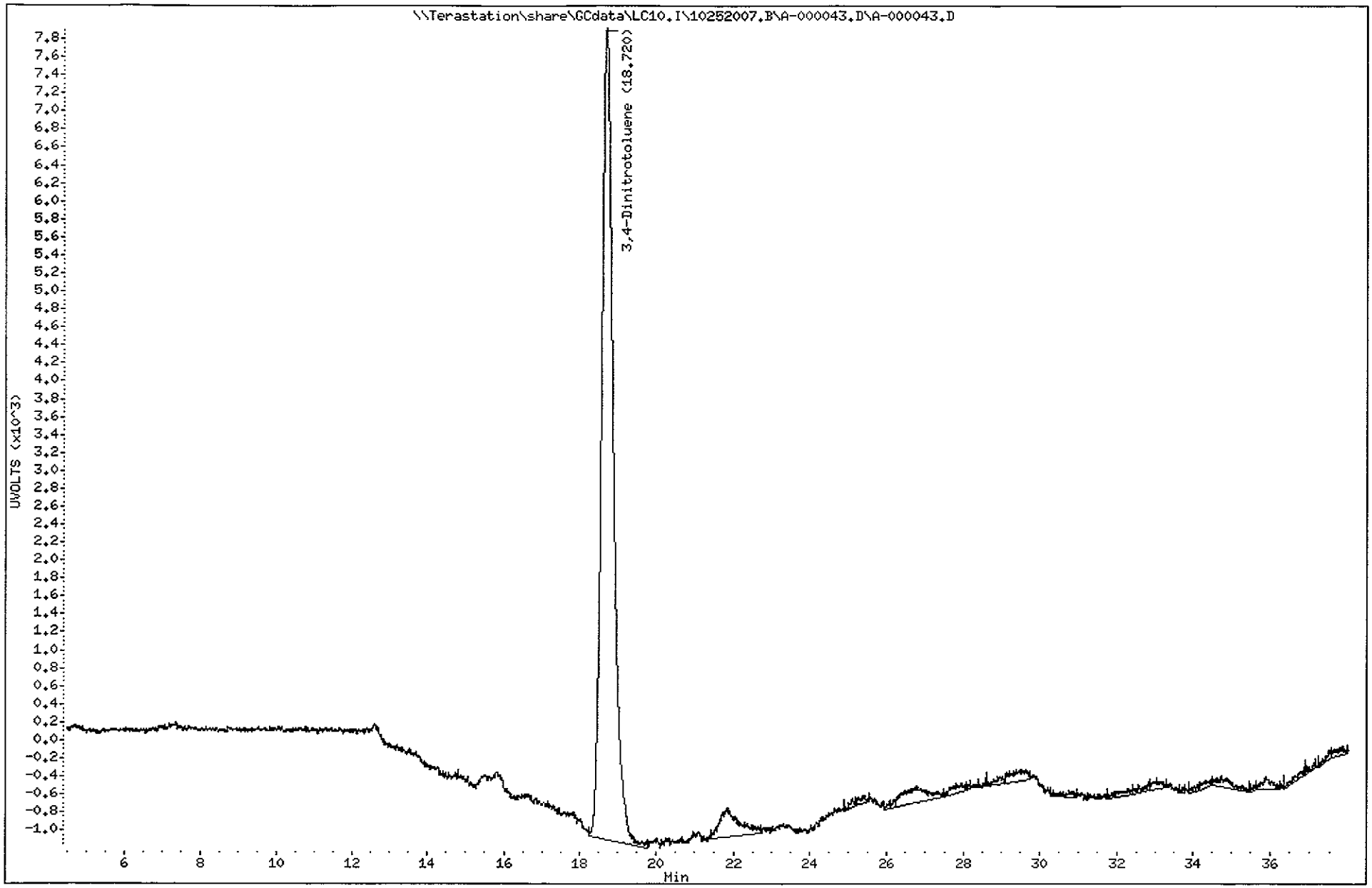
Sample Info: J792N1AF 7285667 A7J040354-3;0

Volume Injected (uL): 500.0

Operator: KenneyF

Column phase: SYNERGI HYDRORP C18

Column diameter: 4.60



TestAmerica West Sacramento

A-000044.D

Chromatography Summary

Injection Date: 10/27/2007 8:04 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000044.D **Vial Num:** 6

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.68	4811	97.0600<	100	-3%	Acceptable		18.68	9312	97.6700	100	-2%	Acceptable		(±15)	
HMX	5.27	13109	100.0000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.94	8195	103.1000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.30	17078	206.9000	200	3%	Acceptable		9.30	25153	207.0000<	200	4%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.47	14926	100.2000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.67	14216	99.5000<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.82	8708	96.0400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.69	6285	96.7800<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.17	8904	99.8000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.15	6537	99.7600<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.30	7405	99.0700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.16	5175	98.5700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.94	8489	99.4100<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.86	3487	96.0000<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.79	4222	96.1800<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.01	4066	95.9400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.32	7628	101.7000<	100	2%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.88	4066	101.5000<	100	2%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 08:52 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.265	81313	13109	0.161	9.66		4	HMX
6.219	480	39	0.081	0.02			
7.935	90605	8195	0.090	6.04		5	RDX
9.295	243490	17078	0.070	12.68		6	Picric ACID
10.469	203591	14926	0.073	11.00		7	1,3,5-Trinitrobenze
13.672	249006	14216	0.057	10.47		8	1,3-Dinitrobenzene
14.815	154270	8708	0.056	6.41		9	TETRYL
15.685	125279	6285	0.050	4.63		10	Nitrobenzene
17.169	177738	8904	0.050	6.56		11	2,4,6-Trinitrotolue
18.149	135374	6537	0.048	4.81		12	4-AM-2,6-DNT
18.682	100892	4811	0.048	3.54	$	13	3,4-Dinitrotoluene
19.302	180044	7405	0.041	5.45		14	2-AM-4,6-DNT
21.162	121144	5175	0.043	3.81		15	2,6-Dinitrotoluene
21.935	221681	8489	0.038	6.25		16	2,4-Dinitrotoluene
25.855	103452	3487	0.034	2.57		17	2-Nitrotoluene
27.789	134855	4222	0.031	3.11		18	4-Nitrotoluene
30.005	138871	4066	0.029	2.99		19	3-Nitrotoluene
	2462085	135652		100.000			

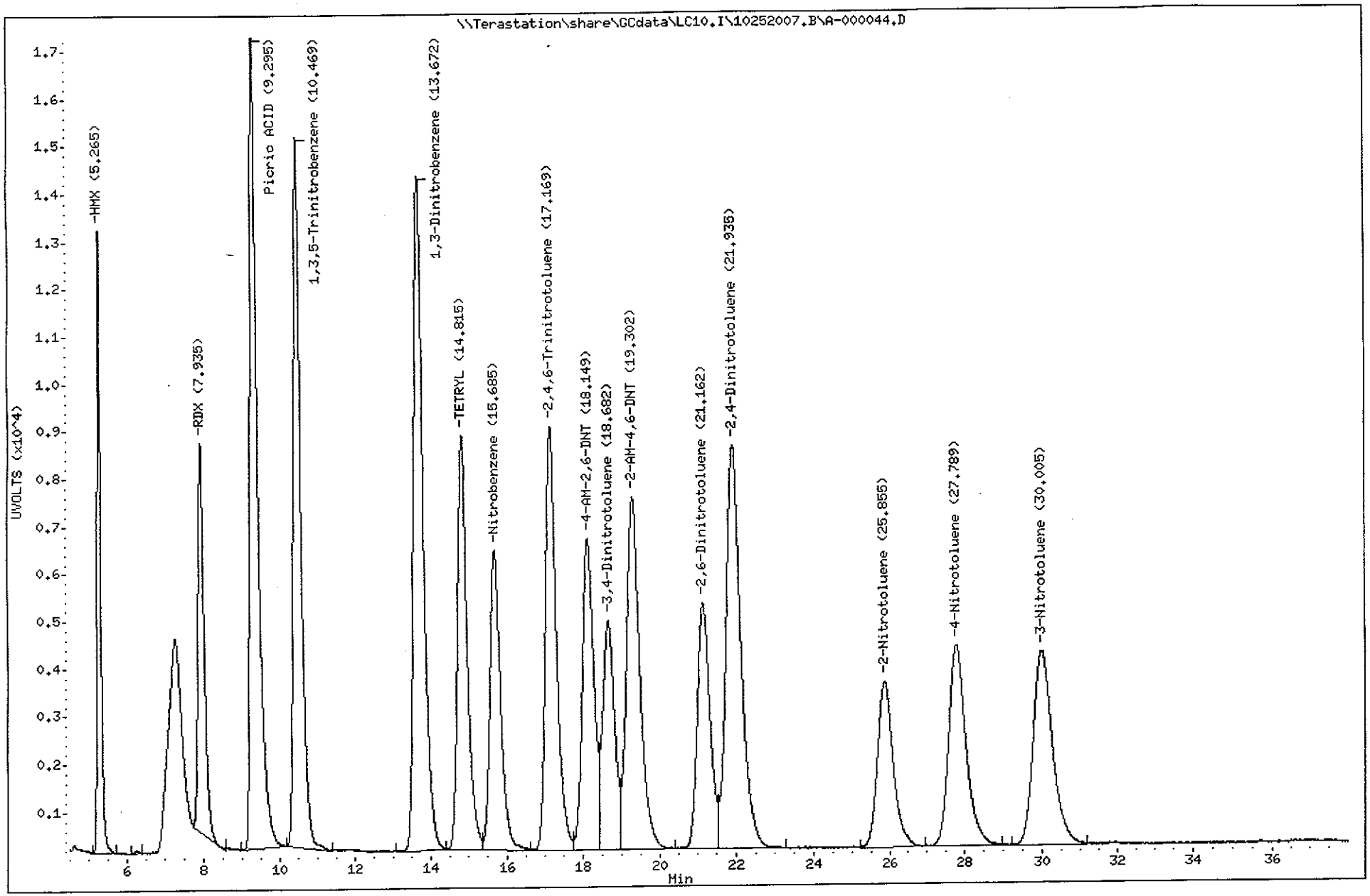
Total unknown % height = 0.02000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Date : 27-OCT-2007 08:04
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 08:52 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.295	359763	25153	0.070	17.13	6 Picric ACID
10.435	3718	239	0.064	0.16	
13.669	131197	7480	0.057	5.05	
14.819	199955	11366	0.057	7.68	
15.689	257393	13326	0.052	9.01	
16.319	144450	7628	0.053	5.15	1 Nitroglycerin
17.172	176840	9124	0.052	6.17	
18.149	209025	10395	0.050	7.03	
18.679	196447	9312	0.047	6.29	$ 13 3,4-Dinitrotoluene
19.302	197674	8117	0.041	5.49	
21.159	224613	9485	0.042	6.41	
21.929	185414	7078	0.038	4.78	
25.079	1082	85	0.079	0.05	
25.859	255275	8366	0.033	5.65	
27.782	265474	7602	0.029	5.14	
29.202	2522	318	0.126	0.21	
29.989	304755	8221	0.027	5.56	
31.882	153801	4066	0.026	2.75	2 PETN
33.915	790	79	0.100	0.05	
34.399	773	89	0.115	0.06	
35.009	222	50	0.226	0.03	
35.399	1022	67	0.066	0.04	
35.995	261	39	0.149	0.02	
36.355	650	55	0.085	0.03	
36.815	392	51	0.130	0.03	
37.242	480	52	0.108	0.03	
	3273988	147843		100.000	

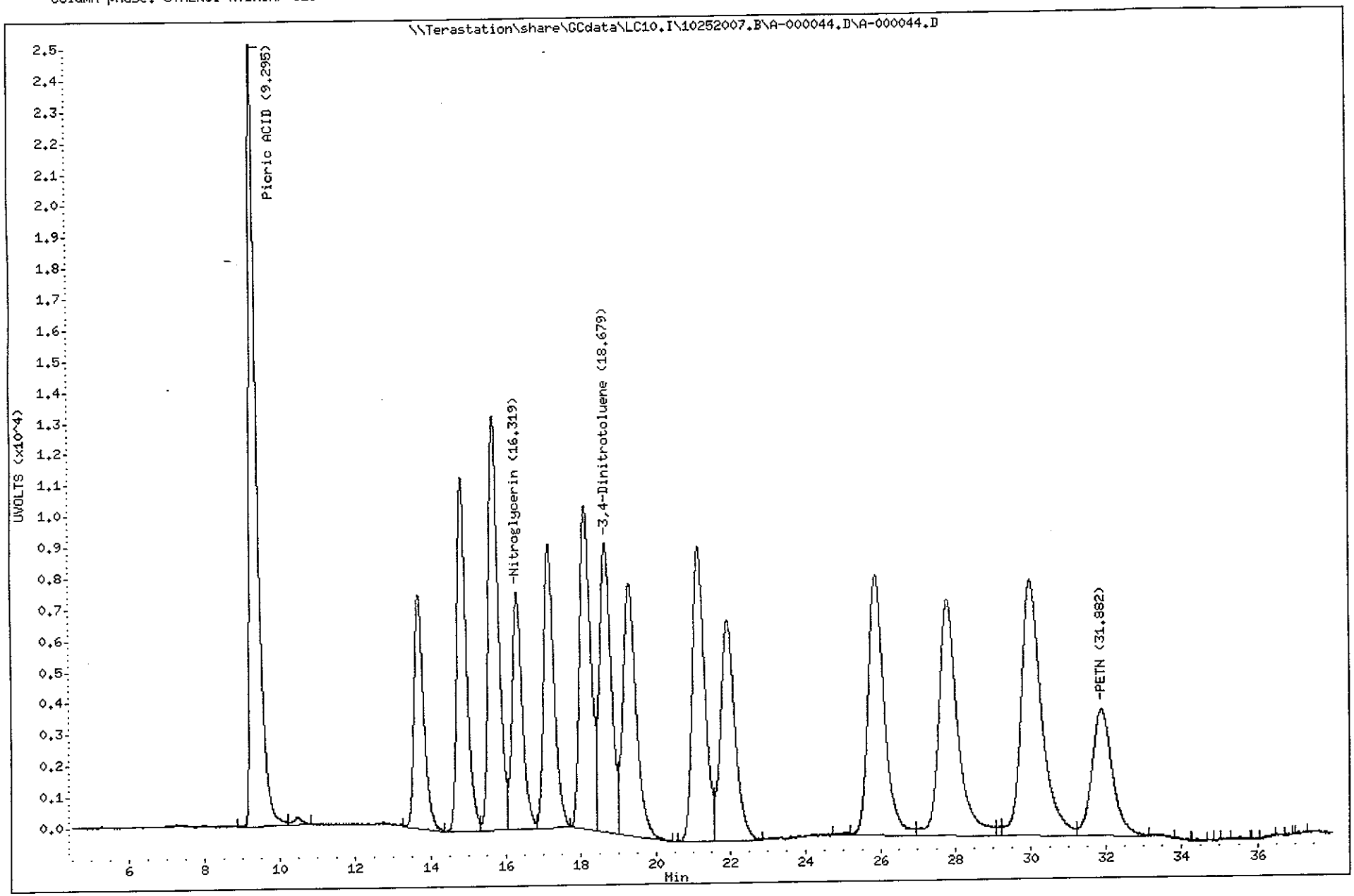
Total unknown % height = 68.68

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044.D
Date : 27-OCT-2007 08:04
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000045.D

Chromatography Summary

Injection Date: 10/27/2007 8:57 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000045.D **Vial Num:** 7

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	**18.70**	**954**	**19.2500<**	20 5	**285%**	**Fails**	-40%	18.70	**1857**	**19.4800**	**5**	**290%**	**Fails**		(±15)	
HMX	5.27	653	4.9830<	5	0%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
RDX	7.93	349	4.3900<	5	-12%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4234**	**51.2900**	50 10	**413%**	**Fails**	+30%	9.33	**6265**	**51.5700<**	**10**	**416%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.47	763	5.1240<	5	2%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.66	749	5.2430<	5	5%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
TETRYL	14.80	460	5.0730<	5	1%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.68	353	5.4360<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.14	475	5.3240<	5	6%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.12	358	5.4640<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.32	408	5.4580<	5	9%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.15	288	5.4860<	5	10%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.93	469	5.4920<	5	10%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	**25.88**	**211**	**5.8090<**	**5**	**16%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.79	247	5.6270<	5	13%	Acceptable					**5**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	**29.97**	**58**	**1.3680<**	**5**	**-73%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		16.32	**1539**	**20.5200<**	20 **5**	**310%**	**Fails**	+30%	(±15)	45
PETN				**5**	**-100%**	**Fails**		31.89	**897**	**22.4000<**	20 **5**	**348%**	**Fails**	+120%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					**5**	**-100%**	**Fails**		(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

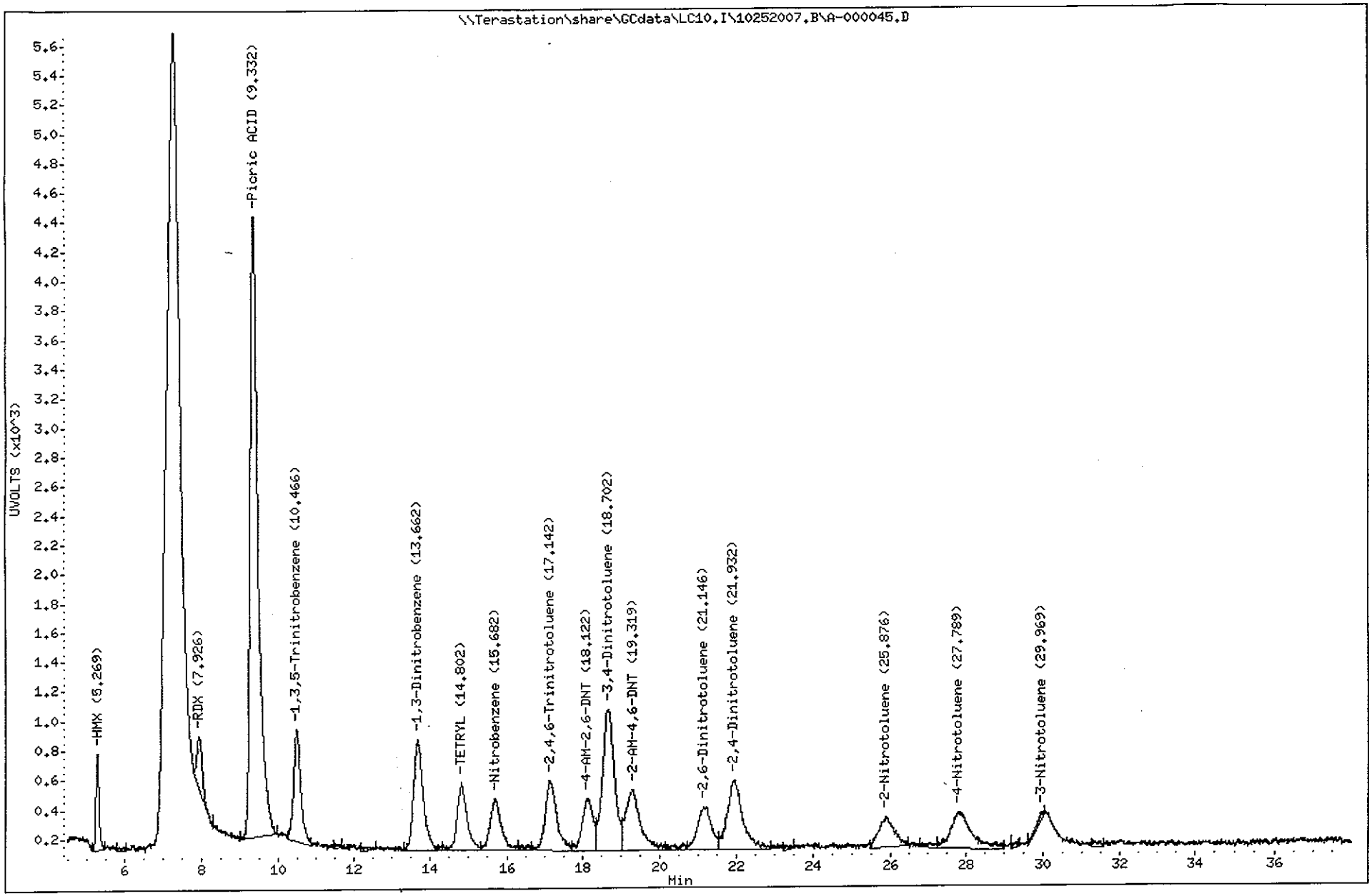
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.269	3813	653	0.171	5.75		4 HMX
5.842	222	27	0.122	0.23		
7.926	3427	349	0.102	3.07		5 RDX
9.332	60399	4234	0.070	37.42		6 Picric ACID
10.466	10152	763	0.075	6.72		7 1,3,5-Trinitrobenze
11.492	207	33	0.160	0.29		
12.219	377	31	0.082	0.27		
13.662	13283	749	0.056	6.60		8 1,3-Dinitrobenzene
14.802	8356	460	0.055	4.05		9 TETRYL
15.682	7318	353	0.048	3.11		10 Nitrobenzene
16.542	529	40	0.076	0.35		
17.142	9963	475	0.048	4.18		11 2,4,6-Trinitrotolue
18.122	7030	358	0.051	3.15		12 4-AM-2,6-DNT
18.702	20732	954	0.046	8.40	$	13 3,4-Dinitrotoluene
19.319	10873	408	0.038	3.59		14 2-AM-4,6-DNT
20.402	725	39	0.054	0.34		
21.146	7419	288	0.039	2.53		15 2,6-Dinitrotoluene
21.932	13309	469	0.035	4.13		16 2,4-Dinitrotoluene
23.392	340	31	0.091	0.27		
25.876	5808	211	0.036	1.85		17 2-Nitrotoluene
27.026	564	36	0.064	0.31		
27.789	9273	247	0.027	2.17		18 4-Nitrotoluene
29.356	330	45	0.136	0.39		
29.969	728	58	0.080	0.51		19 3-Nitrotoluene
31.362	459	37	0.081	0.32		
	195635	11348		100.000		

Total unknown % height = 2.770

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000045.D
Report Date: 27-Oct-2007 09:45

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57 Inst ID: LC10.i
Operator : KenneyF
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

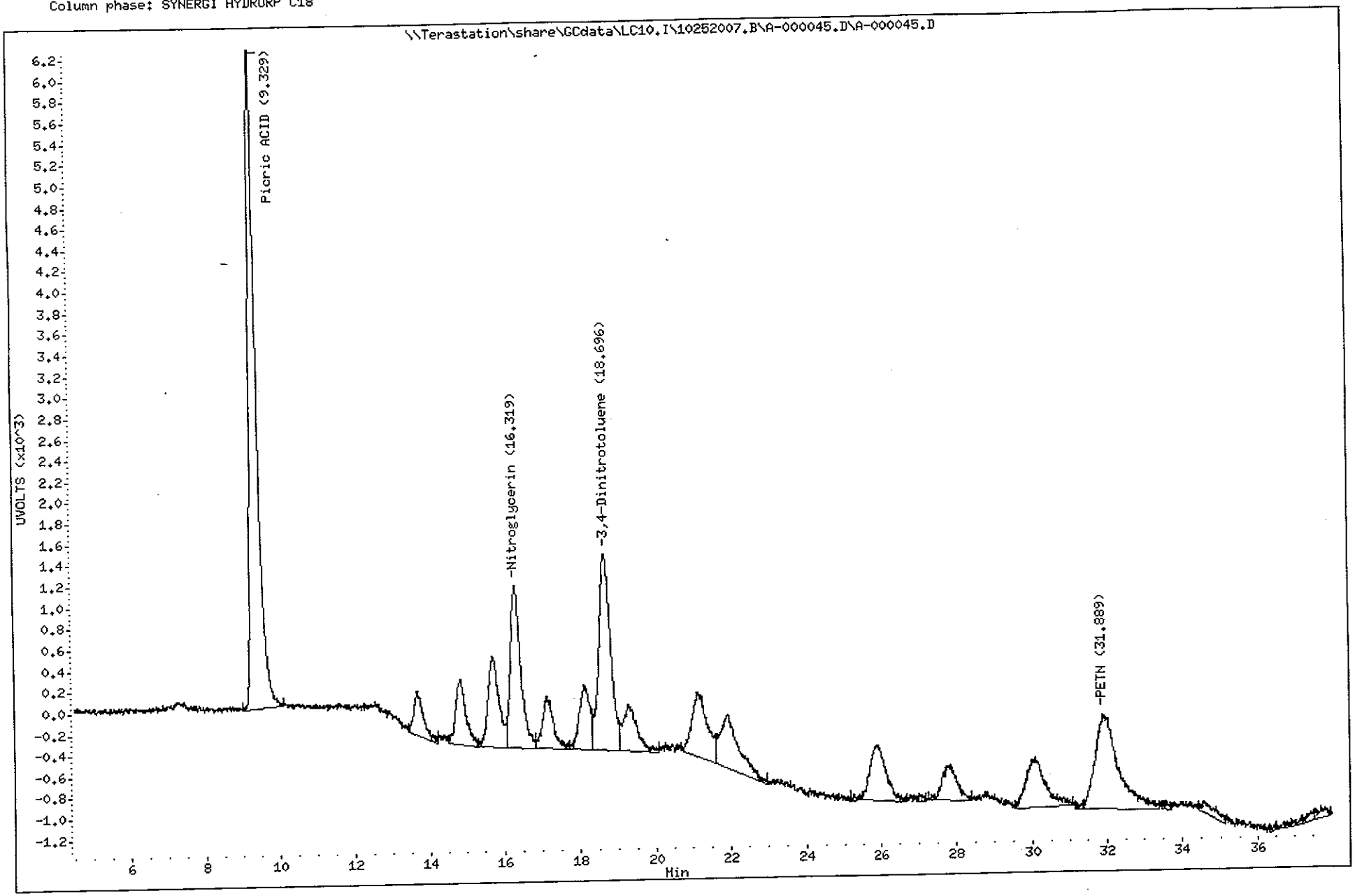
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.329	88602	6265	0.071	36.61	6 Picric ACID
13.656	7273	419	0.058	2.44	
14.826	11908	617	0.052	3.59	
15.702	18013	869	0.048	5.06	
16.319	29066	1539	0.053	8.96	1 Nitroglycerin
17.142	9628	495	0.051	2.88	
18.119	11296	602	0.053	3.50	
18.696	40081	1857	0.046	10.81	$ 13 3,4-Dinitrotoluene
19.282	10914	441	0.040	2.56	
21.132	17708	608	0.034	3.54	
21.949	17658	518	0.029	3.01	
25.412	406	46	0.113	0.26	
25.906	15992	521	0.033	3.03	
27.026	407	68	0.167	0.39	
27.869	9431	341	0.036	1.98	
30.059	16375	478	0.029	2.78	
31.889	38362	897	0.023	5.22	2 PETN
33.506	587	85	0.145	0.49	
34.542	2604	98	0.038	0.57	
36.456	358	50	0.140	0.29	
36.686	674	71	0.105	0.41	
37.176	706	78	0.111	0.45	
37.402	1118	87	0.078	0.50	
37.699	1478	116	0.079	0.67	
	350644	17166		100.000	

Total unknown % height = 38.40

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000046.D

Chromatography Summary

Injection Date: 10/27/2007 9:50 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000046.D **Vial Num:** 46

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J792R1AF 7285667 A7J040354-4**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J792R1AF 7285667 A7J040354-4;0

Misc. Info: ; ; ;1.99;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.70**	**0.001**	**4587**	**1860.0000<**		**18.70**	**0.001**	**9103**	**1919.0000**		**0.0000**	**0.00**	
HMX											30.1508	251.26	
RDX											40.2010	251.26	
Picric ACID											251.2563	1005.03	
1,3,5-Trinitrobenzene											20.1005	251.26	
1,3-Dinitrobenzene											50.2513	251.26	
TETRYL											50.2513	251.26	
Nitrobenzene											50.2513	251.26	
2,4,6-Trinitrotoluene											20.1005	251.26	
4-AM-2,6-DNT											20.1005	251.26	
2-AM-4,6-DNT											100.5025	251.26	
2,6-Dinitrotoluene											30.1508	251.26	
2,4-Dinitrotoluene											20.1005	251.26	
2-Nitrotoluene											80.4020	251.26	
4-Nitrotoluene											80.4020	251.26	
3-Nitrotoluene											70.3518	251.26	
Nitroglycerin											130.6533	502.51	
PETN											160.8040	502.51	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2010.0503**	**1860.0000**	**93**	**2010.0503**	**1919.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000046.D
Lab Smp Id: J792R1AF 7285667 A7
Inj Date : 27-OCT-2007 09:50
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792R1AF 7285667 A7J040354-4;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 46
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

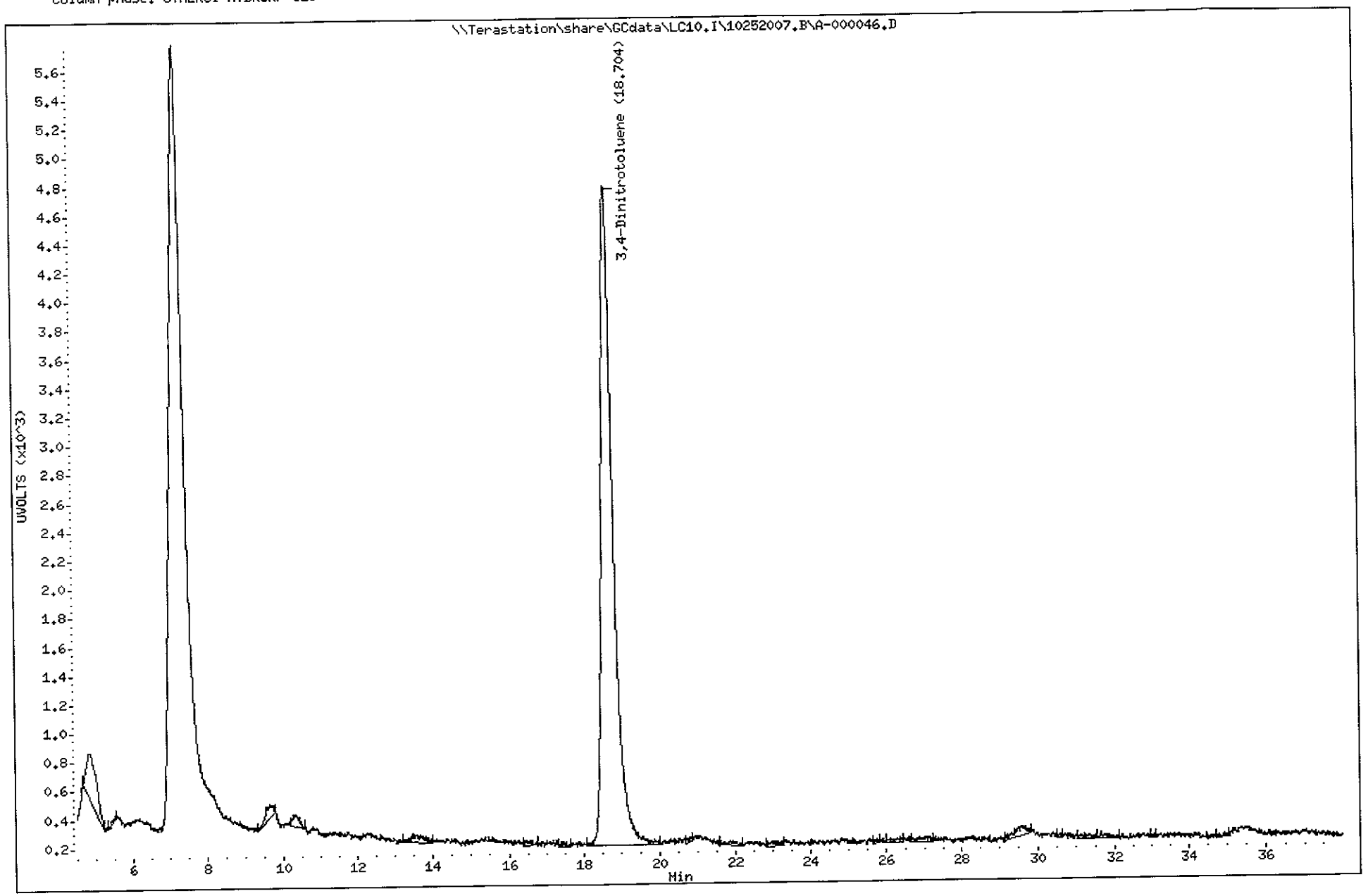
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
4.824	6173	314	0.051	5.50	
5.517	241	24	0.100	0.42	
9.547	1298	101	0.078	1.77	
10.310	1070	86	0.080	1.50	
13.467	1384	62	0.045	1.08	
16.457	461	42	0.091	0.73	
17.464	313	37	0.118	0.64	
18.704	100497	4587	0.046	80.51	$ 13 3,4-Dinitrotoluene
20.814	208	34	0.163	0.59	
21.864	660	38	0.058	0.66	
23.154	577	32	0.055	0.56	
25.760	189	31	0.164	0.54	
26.367	485	37	0.076	0.64	
26.860	725	34	0.047	0.59	
29.557	1598	68	0.043	1.19	
30.577	104	29	0.279	0.50	
31.114	599	35	0.058	0.61	
31.634	613	48	0.078	0.84	
33.057	131	34	0.259	0.59	
34.930	256	31	0.121	0.54	
	117583	5704		100.000	

Total unknown % height = 19.49

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000046.D
Date : 27-OCT-2007 09:50
Client ID:
Sample Info: J792R1AF 7285667 A7J040354-4:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000046.D\A-000046
Lab Smp Id: J792R1AF 7285667 A7
Inj Date : 27-OCT-2007 09:50
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792R1AF 7285667 A7J040354-4;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 46
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.814	4547	230	0.051	2.00	
18.697	194005	9103	0.047	79.66	$ 13 3,4-Dinitrotoluene
21.747	7940	281	0.035	2.45	
25.970	2843	119	0.042	1.03	
26.600	1751	66	0.038	0.57	
27.290	879	83	0.094	0.72	
27.627	1085	70	0.065	0.61	
28.537	628	67	0.107	0.58	
28.787	1870	104	0.056	0.90	
29.200	276	69	0.250	0.60	
29.667	4502	179	0.040	1.56	
30.320	1294	62	0.048	0.54	
30.650	179	47	0.263	0.41	
31.130	1244	90	0.072	0.78	
32.047	228	71	0.312	0.62	
32.257	329	64	0.194	0.55	
32.490	1855	98	0.053	0.85	
33.140	1259	83	0.066	0.72	
34.130	840	85	0.101	0.74	
34.930	654	95	0.145	0.82	
35.194	1703	72	0.042	0.62	
35.810	550	64	0.116	0.55	
37.064	322	65	0.202	0.56	
37.207	334	71	0.213	0.62	

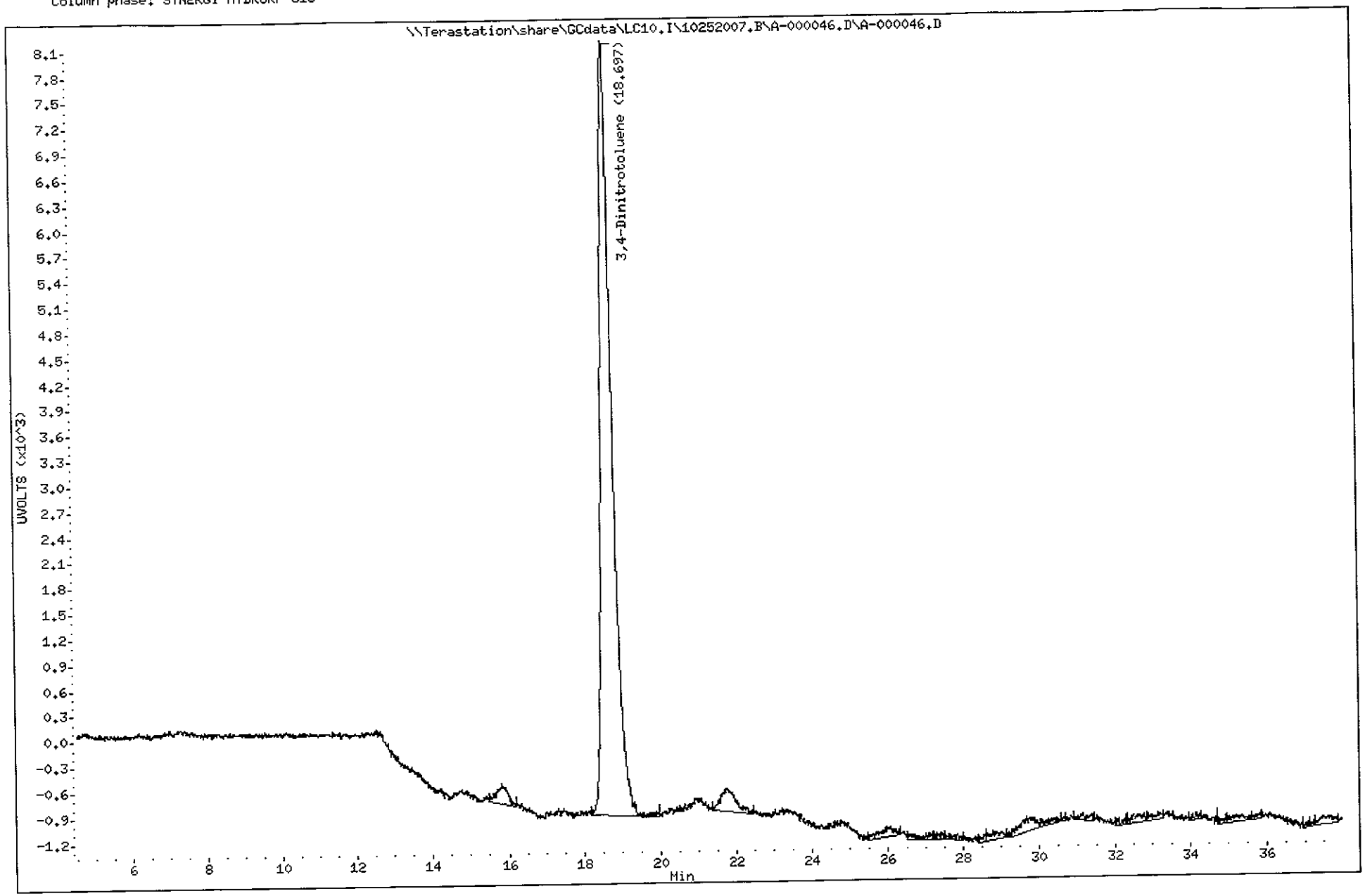
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
37.487	2630	108	0.041	0.94	
	233745	11446		100.000	

Total unknown % height = 20.34

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000046.D\A-000046.D
Date : 27-OCT-2007 09:50
Client ID:
Sample Info: J792R1AF 7285667 A7J040354-4;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000047.D

Chromatography Summary

Injection Date: 10/27/2007 10:43 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000047.D **Vial Num:** 47

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J792W1AF 7285667 A7J040354-5**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J792W1AF 7285667 A7J040354-5;0

Misc. Info: ; ; ;2.02;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.69**	**-0.012**	**4617**	**1844.0000<**		**18.69**	**-0.006**	**9025**	**1874.0000**		**0.0000**	**0.00**	
HMX											29.7030	247.52	
RDX											39.6040	247.52	
Picric ACID											247.5248	990.10	
1,3,5-Trinitrobenzene											19.8020	247.52	
1,3-Dinitrobenzene											49.5050	247.52	
TETRYL											49.5050	247.52	
Nitrobenzene	15.66	-0.026	164	50.0100<							49.5050	247.52	45
2,4,6-Trinitrotoluene	17.26	0.118	217	48.1600<							19.8020	247.52	45
4-AM-2,6-DNT											19.8020	247.52	
2-AM-4,6-DNT											99.0099	247.52	
2,6-Dinitrotoluene											29.7030	247.52	
2,4-Dinitrotoluene											19.8020	247.52	
2-Nitrotoluene											79.2079	247.52	
4-Nitrotoluene											79.2079	247.52	
3-Nitrotoluene											69.3069	247.52	
Nitroglycerin											128.7129	495.05	
PETN											158.4158	495.05	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1980.1980**	**1844.0000**	**93**	**1980.1980**	**1874.0000**	**95**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000047.D
Lab Smp Id: J792W1AF 7285667 A7
Inj Date : 27-OCT-2007 10:43
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792W1AF 7285667 A7J040354-5;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 10:49 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 47
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

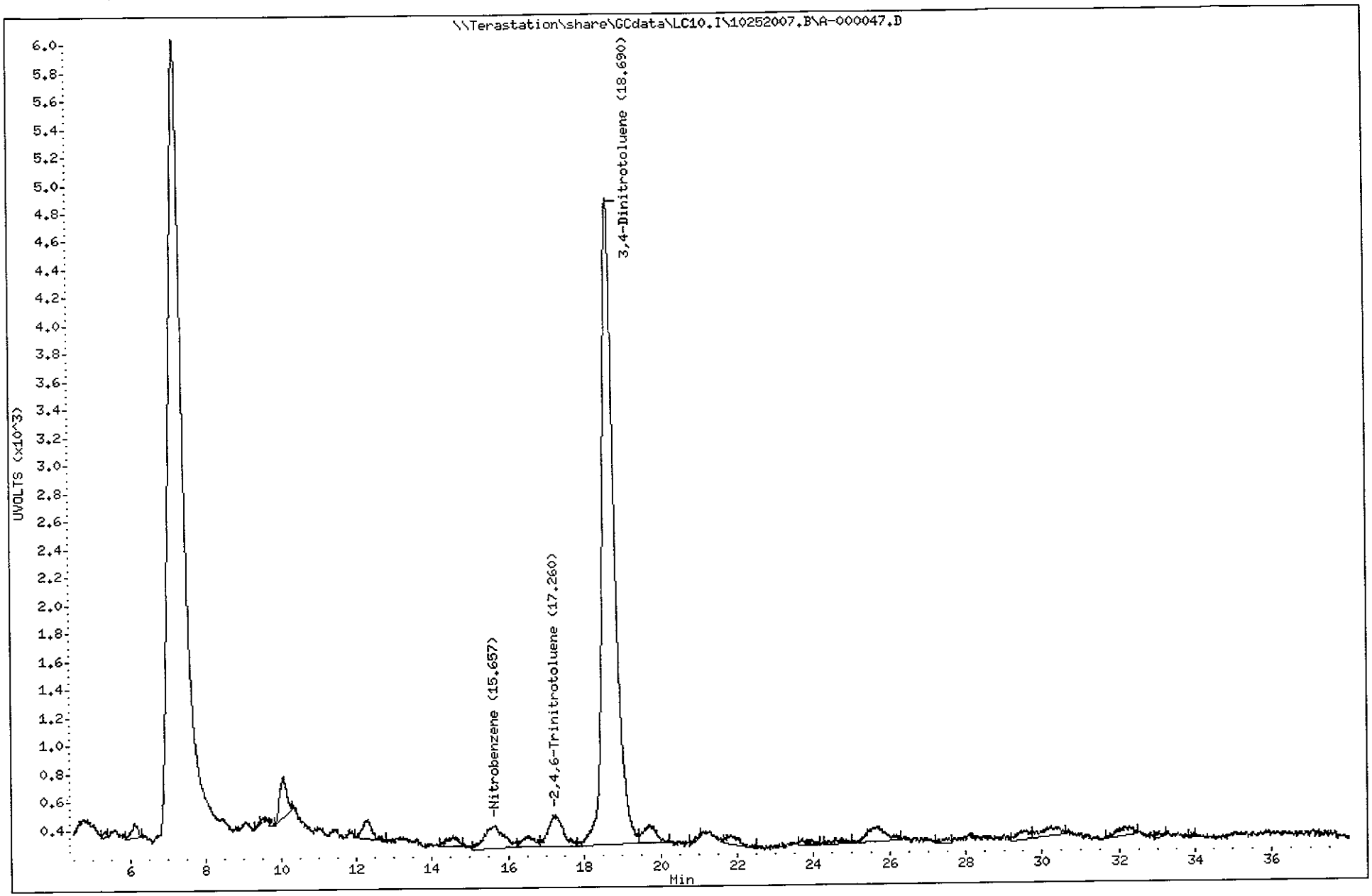
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.317	286	47	0.165	0.72		
6.093	1088	98	0.090	1.50		
9.383	90	23	0.255	0.35		
9.727	188	46	0.244	0.70		
10.053	3654	288	0.079	4.42		
12.297	2509	138	0.055	2.11		
14.463	1453	61	0.042	0.93		
15.657	5578	164	0.029	2.51		10 Nitrobenzene
16.547	1613	80	0.050	1.22		
17.260	5886	217	0.037	3.33		11 2,4,6-Trinitrotolue
18.690	103653	4617	0.045	71.02	$	13 3,4-Dinitrotoluene
19.707	3123	132	0.042	2.02		
20.997	231	17	0.074	0.26		
21.750	1632	66	0.040	1.01		
23.707	864	50	0.058	0.76		
24.597	748	43	0.057	0.66		
25.707	3741	109	0.029	1.67		
27.463	470	38	0.081	0.58		
29.597	1367	64	0.047	0.98		
30.230	2045	68	0.033	1.04		
32.113	1758	70	0.040	1.07		
33.030	419	42	0.100	0.64		
33.897	167	33	0.198	0.50		
	142562	6511		100.000		

Total unknown % height = 23.14

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000047.D
Date : 27-OCT-2007 10:43
Client ID:
Sample Info: J792W1AF 7285667 A7J040354-5:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000047.D\A-000047
Lab Smp Id: J792W1AF 7285667 A7
Inj Date : 27-OCT-2007 10:43
Operator : KenneyF Inst ID: LC10.i
Smp Info : J792W1AF 7285667 A7J040354-5;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 47
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

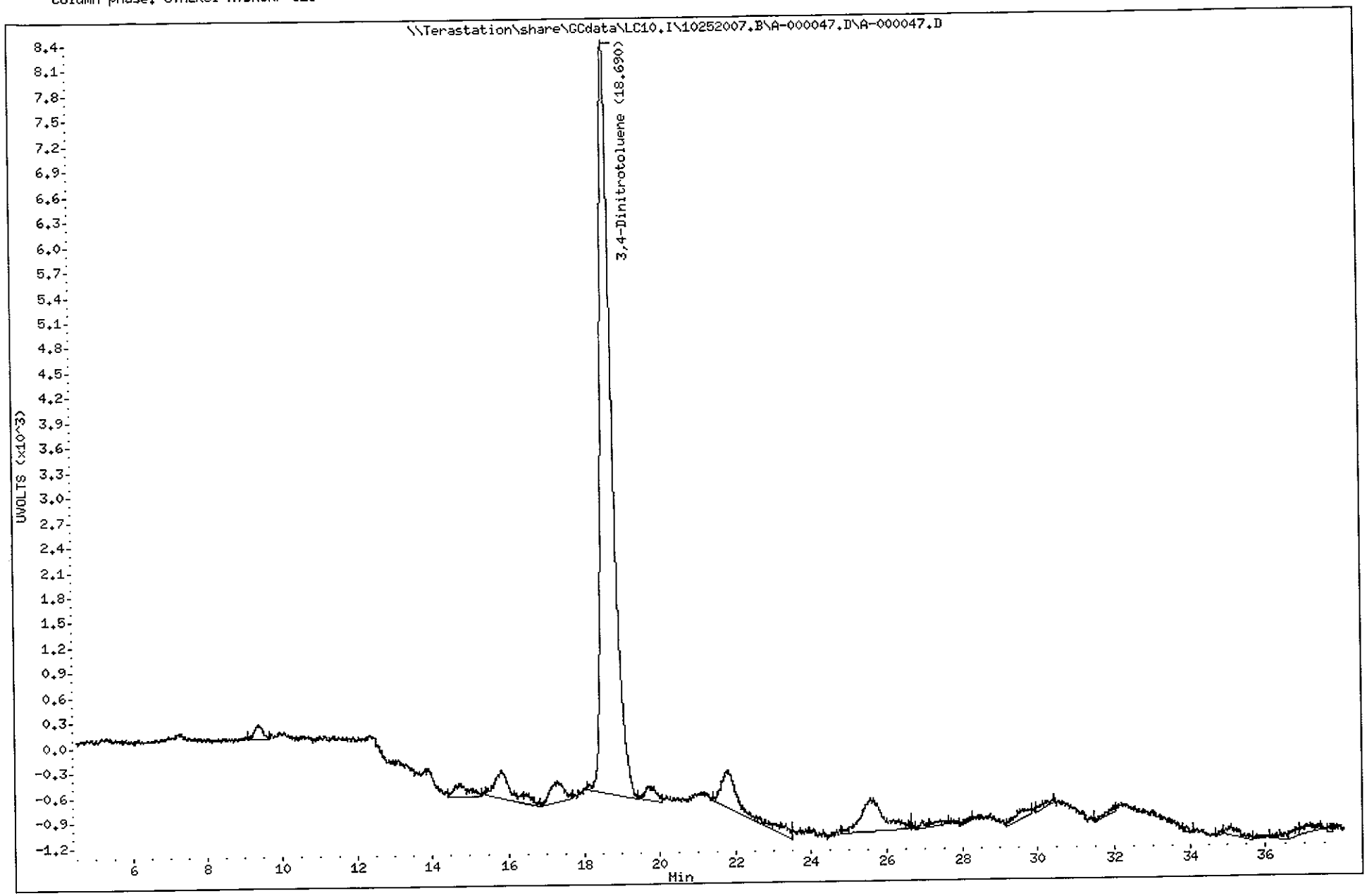
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.380	2692	186	0.069	1.53	
14.760	4051	165	0.041	1.36	
15.843	10564	332	0.031	2.74	
17.317	6192	247	0.040	2.03	
18.690	195268	9025	0.046	74.63	$ 13 3,4-Dinitrotoluene
19.740	3647	175	0.048	1.44	
21.813	16686	453	0.027	3.74	
25.577	15752	392	0.025	3.23	
26.640	186	89	0.478	0.73	
26.927	776	87	0.112	0.71	
27.283	1085	59	0.054	0.48	
28.213	749	52	0.069	0.42	
29.677	2788	94	0.034	0.77	
30.370	1237	38	0.031	0.31	
31.977	1088	74	0.068	0.61	
33.873	582	73	0.125	0.60	
34.850	368	52	0.141	0.42	
35.083	2618	133	0.051	1.09	
36.350	1144	98	0.086	0.80	
36.743	1290	85	0.066	0.70	
37.140	2499	109	0.044	0.89	
37.640	412	94	0.228	0.77	
	271675	12112		100.000	

Total unknown % height = 25.37

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000047.D\A-000047.D
Date : 27-OCT-2007 10:43
Client ID:
Sample Info: J792W1AF 7285667 A7J040354-5:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000048.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 11:36 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000048.D **Vial Num:** 48
Instrument ID: LC10

Sample : **J79201AF 7285667 A7J040354-6**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J79201AF 7285667 A7J040354-6;0
Misc. Info: ; ; ;2.04;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.68**	**-0.020**	**4602**	**1820.0000<**		**18.69**	**-0.017**	**9076**	**1866.0000**		**0.0000**	**0.00**	
HMX											29.4118	245.10	
RDX											39.2157	245.10	
Picric ACID											245.0980	980.39	
1,3,5-Trinitrobenzene											19.6078	245.10	
1,3-Dinitrobenzene											49.0196	245.10	
TETRYL											49.0196	245.10	
Nitrobenzene											49.0196	245.10	
2,4,6-Trinitrotoluene											19.6078	245.10	
4-AM-2,6-DNT											19.6078	245.10	
2-AM-4,6-DNT											98.0392	245.10	
2,6-Dinitrotoluene											29.4118	245.10	
2,4-Dinitrotoluene											19.6078	245.10	
2-Nitrotoluene											78.4314	245.10	
4-Nitrotoluene											78.4314	245.10	
3-Nitrotoluene											68.6275	245.10	
Nitroglycerin											127.4510	490.20	
PETN											156.8627	490.20	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1960.7843**	**1820.0000**	**93**	**1960.7843**	**1866.0000**	**95**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000048.D
Lab Smp Id: J79201AF 7285667 A7
Inj Date : 27-OCT-2007 11:36
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79201AF 7285667 A7J040354-6;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 10:49 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 48
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

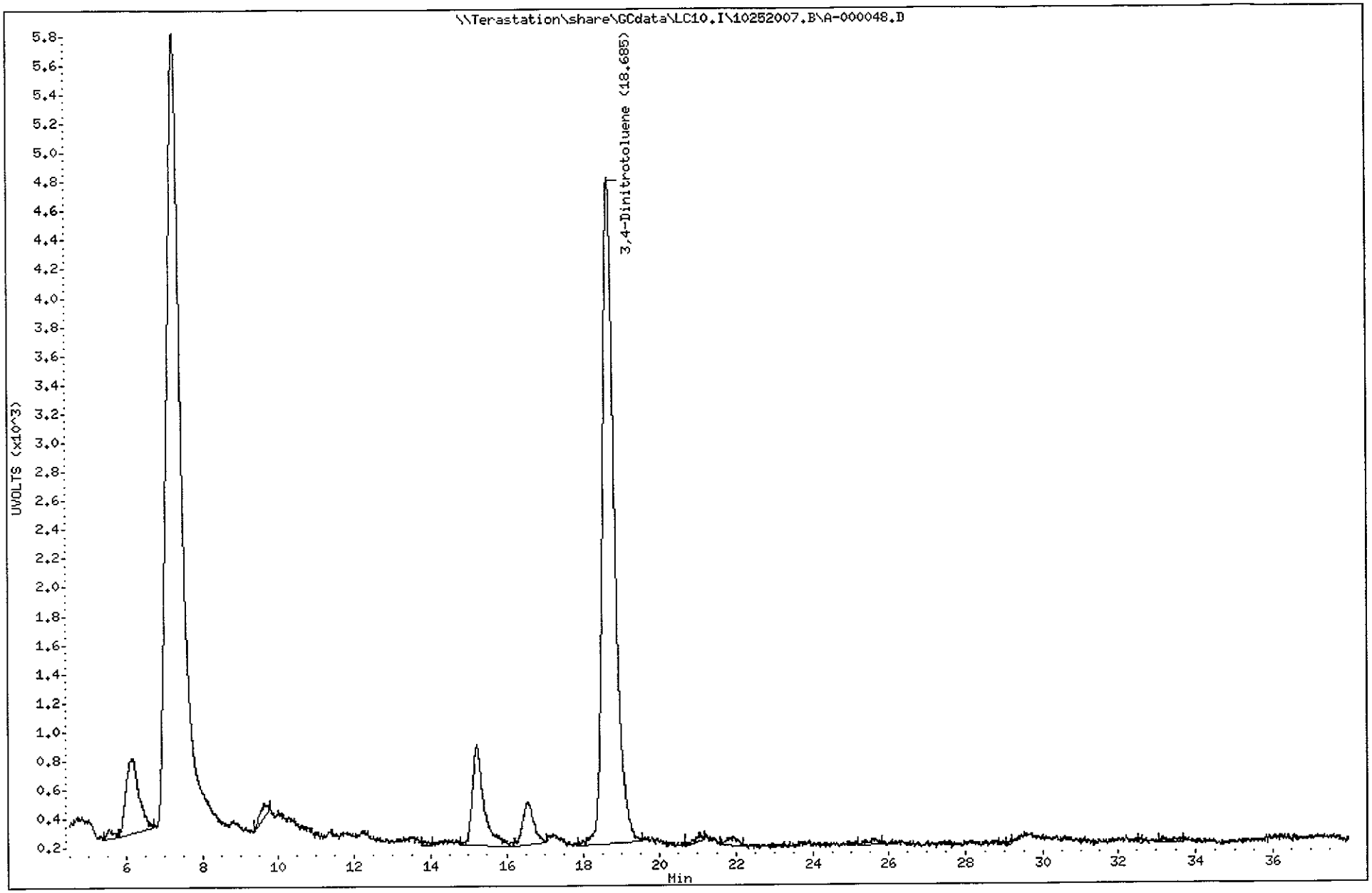
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.532	806	71	0.088	1.08	
6.145	12333	520	0.042	7.95	
9.605	1234	81	0.066	1.23	
13.822	282	32	0.113	0.48	
15.242	14660	694	0.047	10.62	
16.582	5904	291	0.049	4.45	
18.685	100074	4602	0.046	70.52	$ 13 3,4-Dinitrotoluene
20.978	667	32	0.048	0.48	
21.922	1146	60	0.052	0.91	
25.378	797	41	0.051	0.62	
29.138	137	37	0.270	0.56	
32.581	128	38	0.296	0.58	
33.165	579	34	0.059	0.52	
	138750	6533		100.000	

Total unknown % height = 29.48

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000048.D
Date : 27-OCT-2007 11:36
Client ID:
Sample Info: J79201AF 7285667 A7J040354-6:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000048.D\A-000048
Lab Smp Id: J79201AF 7285667 A7
Inj Date : 27-OCT-2007 11:36
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79201AF 7285667 A7J040354-6;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 48
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

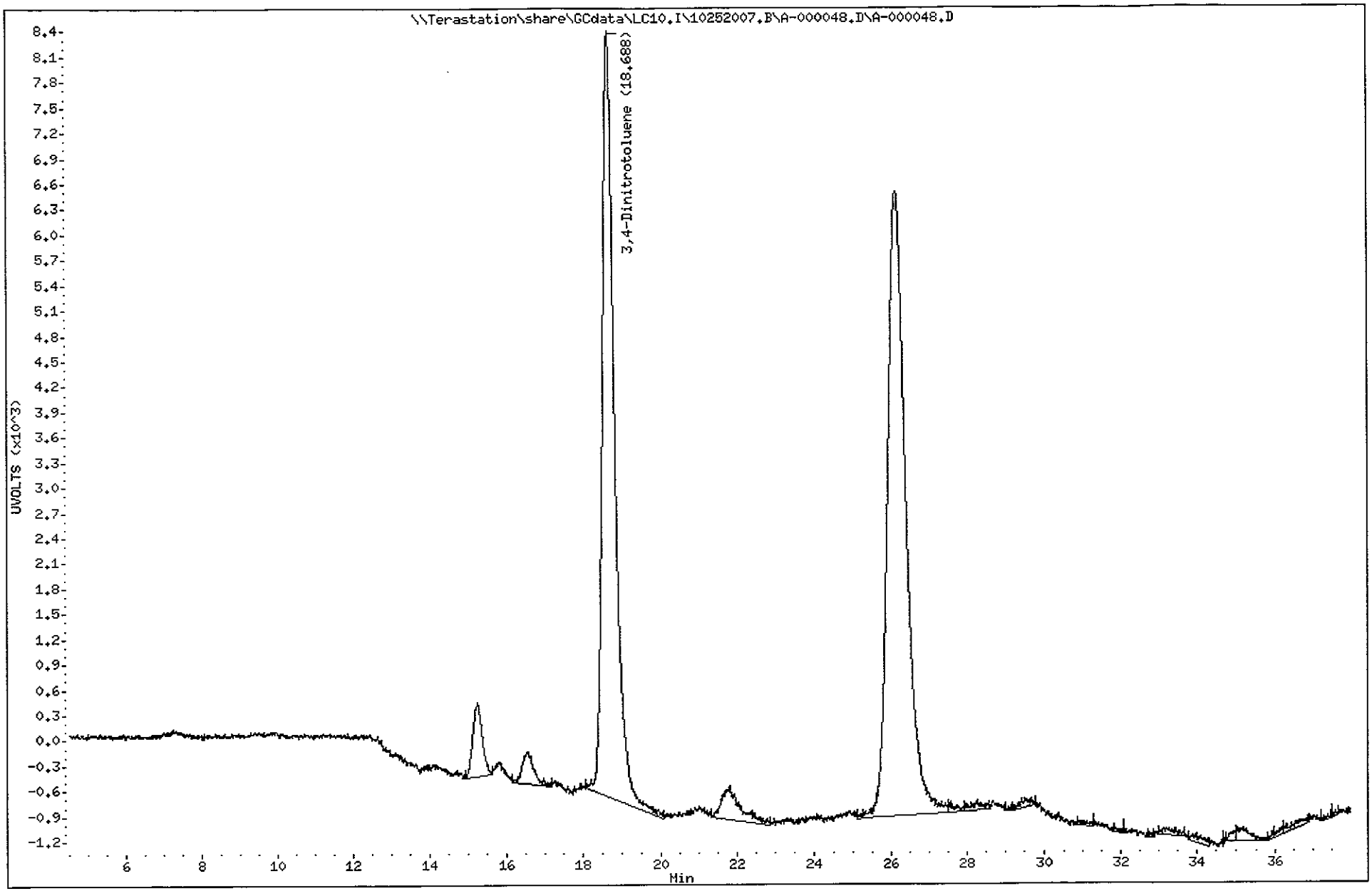
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.225	15088	868	0.058	4.41	
16.545	7831	376	0.048	1.91	
18.688	198051	9076	0.046	46.25	$ 13 3,4-Dinitrotoluene
21.815	13456	402	0.030	2.04	
25.205	239	51	0.214	0.25	
26.138	249790	7410	0.030	37.68	
27.558	1487	127	0.085	0.64	
28.268	2446	123	0.050	0.62	
29.138	278	62	0.223	0.31	
29.422	1995	121	0.061	0.61	
31.012	892	65	0.073	0.33	
31.848	485	59	0.122	0.30	
32.838	322	67	0.208	0.34	
33.275	2024	82	0.041	0.41	
33.975	1603	104	0.065	0.52	
34.718	151	27	0.179	0.13	
34.842	1015	93	0.092	0.47	
35.165	3514	156	0.044	0.79	
35.892	535	98	0.183	0.49	
36.155	781	90	0.115	0.45	
36.838	2050	77	0.038	0.39	
37.378	444	61	0.137	0.31	
37.592	325	69	0.212	0.35	
	504802	19664		100.000	

Total unknown % height = 53.75

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000048.D\A-000048.D
Date : 27-OCT-2007 11:36
Client ID:
Sample Info: J79201AF 7285667 A7J040354-6;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000049.D

Chromatography Summary

Injection Date: 10/27/2007 12:29 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000049.D **Vial Num:** 49

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J79231AF 7285667 A7J040354-7**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J79231AF 7285667 A7J040354-7;0

Misc. Info: ; ; ;2.04;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.72**	**0.018**	**4568**	**1807.0000<**		**18.72**	**0.018**	**9019**	**1855.0000**		**0.0000**	**0.00**	
HMX											29.4118	245.10	
RDX											39.2157	245.10	
Picric ACID											245.0980	980.39	
1,3,5-Trinitrobenzene											19.6078	245.10	
1,3-Dinitrobenzene											49.0196	245.10	
TETRYL											49.0196	245.10	
Nitrobenzene											49.0196	245.10	
2,4,6-Trinitrotoluene											19.6078	245.10	
4-AM-2,6-DNT											19.6078	245.10	
2-AM-4,6-DNT											98.0392	245.10	
2,6-Dinitrotoluene											29.4118	245.10	
2,4-Dinitrotoluene											19.6078	245.10	
2-Nitrotoluene											78.4314	245.10	
4-Nitrotoluene											78.4314	245.10	
3-Nitrotoluene											68.6275	245.10	
Nitroglycerin											127.4510	490.20	
PETN											156.8627	490.20	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1960.7843**	**1807.0000**	**92**	**1960.7843**	**1855.0000**	**95**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000049.D
Lab Smp Id: J79231AF 7285667 A7
Inj Date : 27-OCT-2007 12:29
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79231AF 7285667 A7J040354-7;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 49
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

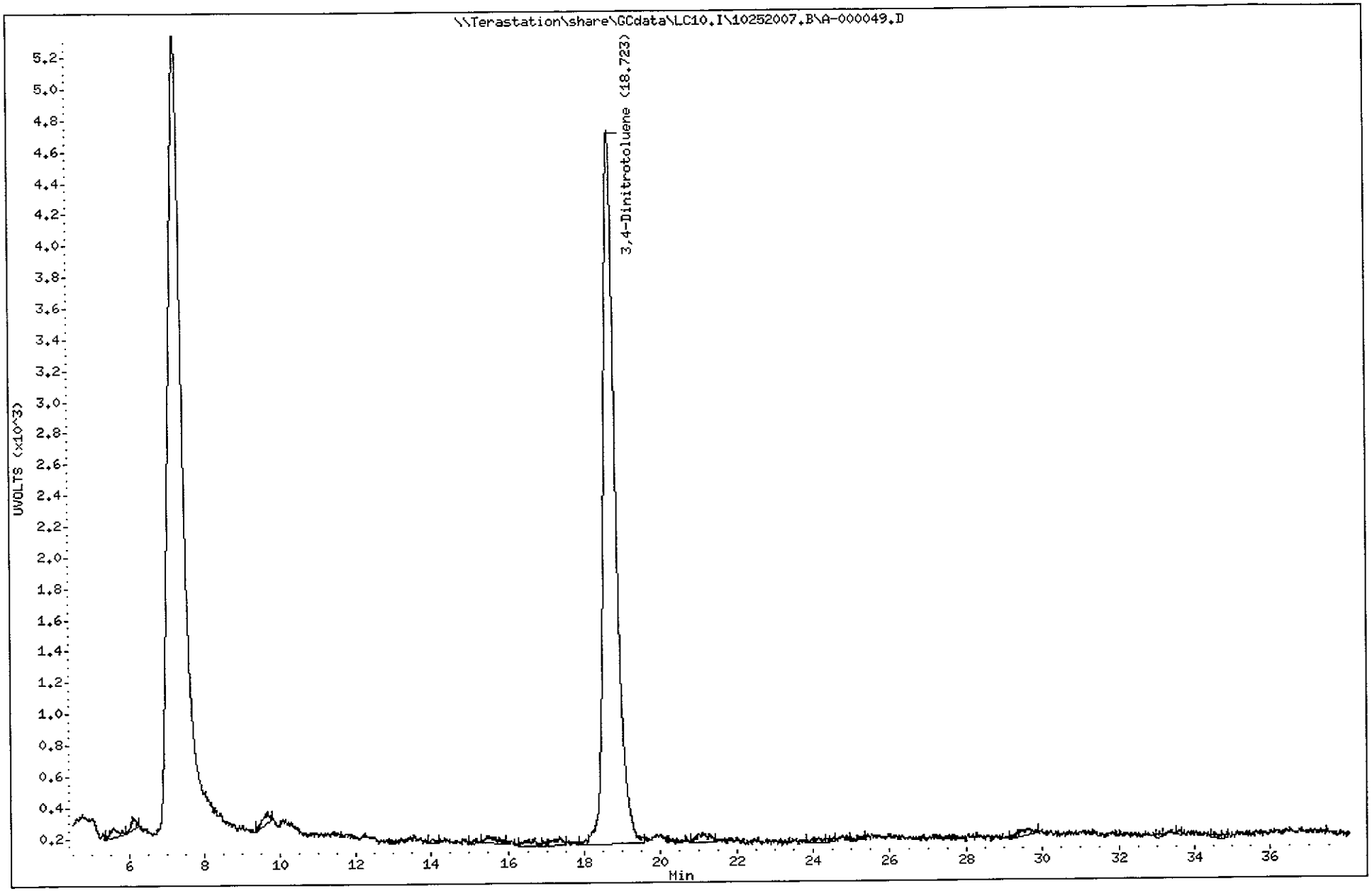
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.566	971	69	0.071	1.28	
6.079	712	93	0.131	1.73	
9.593	904	67	0.074	1.24	
14.043	272	31	0.114	0.57	
15.176	271	37	0.137	0.68	
15.509	1115	54	0.048	1.00	
16.516	836	46	0.055	0.85	
17.209	997	41	0.041	0.76	
18.723	100238	4568	0.046	85.21	$ 13 3,4-Dinitrotoluene
21.099	1368	60	0.044	1.11	
24.026	556	39	0.070	0.72	
24.439	303	36	0.119	0.67	
25.163	337	30	0.089	0.55	
29.443	1037	46	0.044	0.85	
33.053	195	41	0.210	0.76	
33.573	210	39	0.185	0.72	
34.506	278	34	0.122	0.63	
34.843	188	36	0.192	0.67	
	110789	5367		100.000	

Total unknown % height = 14.79

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000049.D
Date : 27-OCT-2007 12:29
Client ID:
Sample Info: J79231AF 7285667 A7J040354-7;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000049.D\A-000049
Lab Smp Id: J79231AF 7285667 A7
Inj Date : 27-OCT-2007 12:29
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79231AF 7285667 A7J040354-7;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 49
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

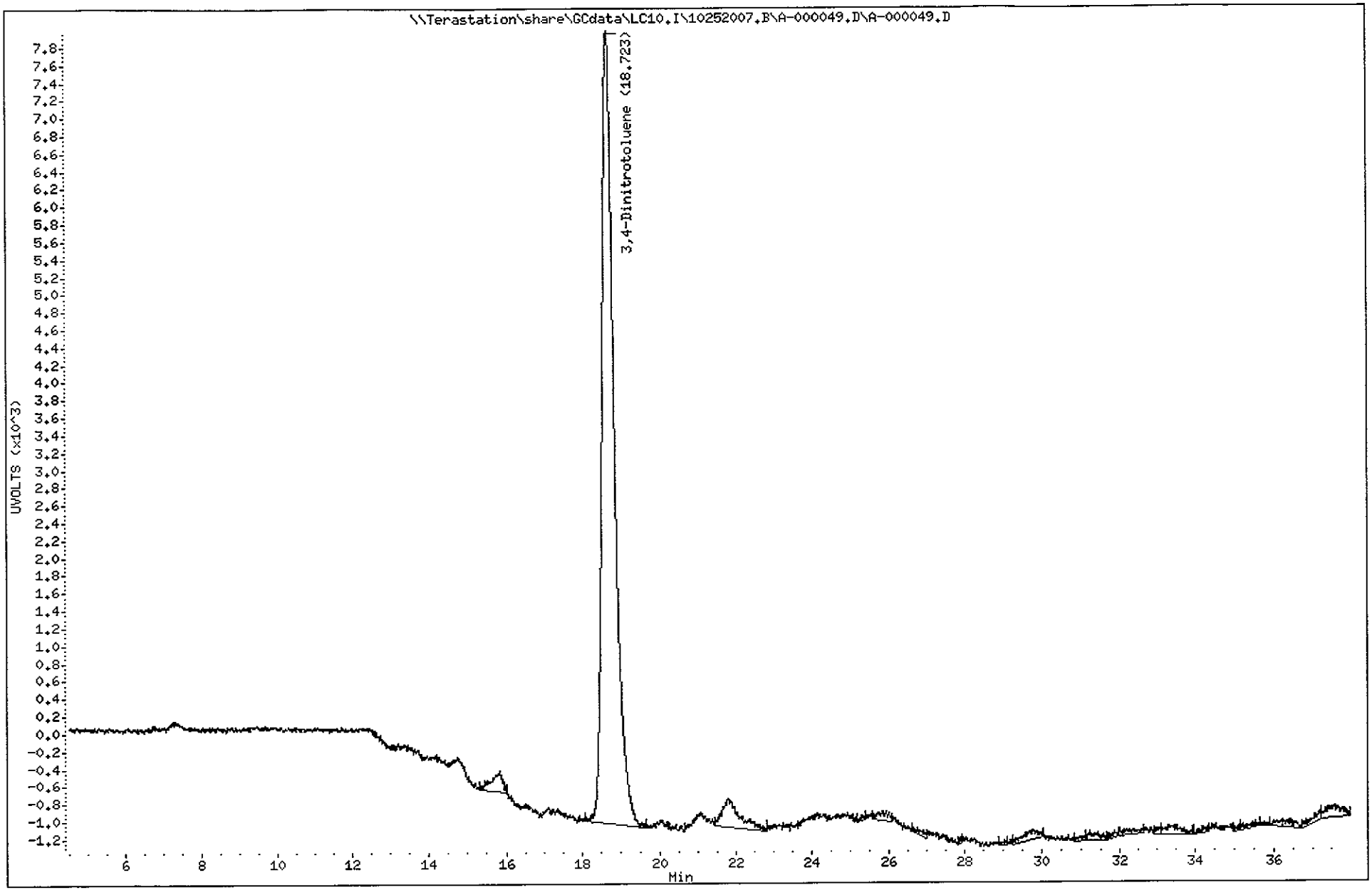
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.519	4650	113	0.024	1.03	
18.723	195405	9019	0.046	82.70	$ 13 3,4-Dinitrotoluene
21.786	10398	323	0.031	2.95	
25.316	420	70	0.167	0.64	
25.839	1769	100	0.057	0.91	
26.639	1006	64	0.064	0.58	
27.896	213	59	0.276	0.54	
29.039	412	59	0.143	0.54	
29.689	2969	104	0.035	0.95	
31.059	712	54	0.076	0.49	
31.423	1892	101	0.053	0.92	
31.846	764	75	0.098	0.68	
32.176	1839	74	0.040	0.67	
33.016	612	82	0.134	0.75	
33.323	3097	107	0.035	0.98	
34.306	776	65	0.084	0.59	
35.089	343	64	0.187	0.58	
35.446	1228	73	0.059	0.66	
36.049	2449	64	0.026	0.58	
37.169	1655	107	0.065	0.98	
37.566	4154	140	0.034	1.28	
	236763	10917		100.000	

Total unknown % height = 17.30

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000049.D\A-000049.D
Date : 27-OCT-2007 12:29
Client ID:
Sample Info: J79231AF 7285667 A7J040354-7:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



A-000050.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 13:22 **Operator:** KenneyF
DataFile: LC10.B\10252007.B\A-000050.D **Vial Num:** 50
Instrument ID: LC10

Sample : **J79271AF 7285667 A7J040354-8**

Method File: LC10.B\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J79271AF 7285667 A7J040354-8;0
Misc. Info: ; ; ;1.99;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.70**	**-0.001**	**4612**	**1870.0000<**		**18.70**	**-0.008**	**9186**	**1937.0000**		**0.0000**	**0.00**	
HMX											30.1508	251.26	
RDX											40.2010	251.26	
Picric ACID											251.2563	1005.03	
1,3,5-Trinitrobenzene											20.1005	251.26	
1,3-Dinitrobenzene											50.2513	251.26	
TETRYL											50.2513	251.26	
Nitrobenzene											50.2513	251.26	
2,4,6-Trinitrotoluene											20.1005	251.26	
4-AM-2,6-DNT											20.1005	251.26	
2-AM-4,6-DNT											100.5025	251.26	
2,6-Dinitrotoluene											30.1508	251.26	
2,4-Dinitrotoluene											20.1005	251.26	
2-Nitrotoluene											80.4020	251.26	
4-Nitrotoluene											80.4020	251.26	
3-Nitrotoluene											70.3518	251.26	
Nitroglycerin											130.6533	502.51	
PETN											160.8040	502.51	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2010.0503**	**1870.0000**	**93**	**2010.0503**	**1937.0000**	**96**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/27/2007 2:36 PM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000050.D
Lab Smp Id: J79271AF 7285667 A7
Inj Date : 27-OCT-2007 13:22
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79271AF 7285667 A7J040354-8;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 50
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

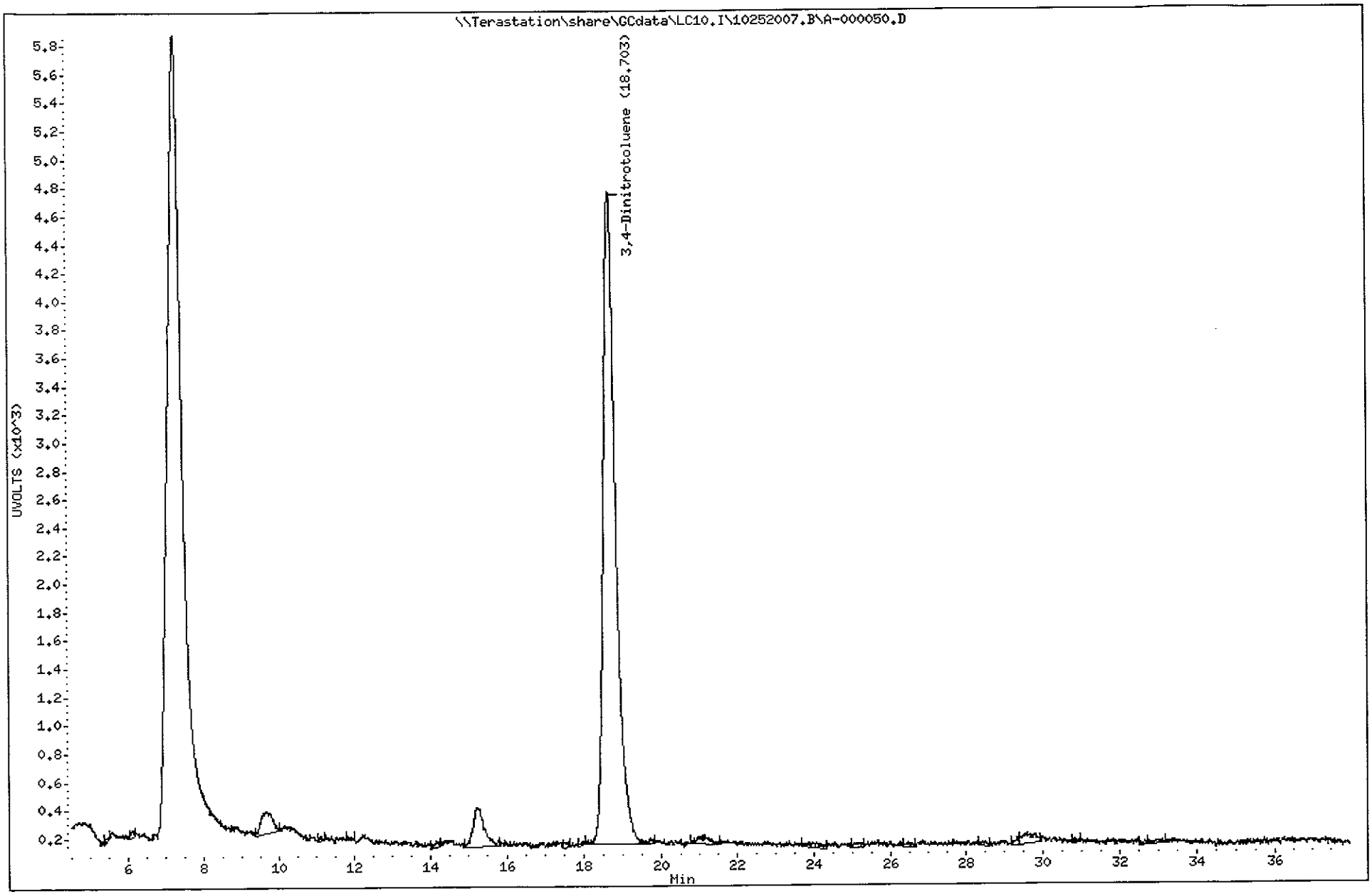
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.467	134	22	0.164	0.38	
6.120	267	51	0.191	0.89	
9.637	3370	159	0.047	2.77	
11.117	141	33	0.235	0.57	
11.813	175	28	0.160	0.48	
14.120	312	49	0.157	0.85	
15.203	5944	281	0.047	4.90	
17.613	340	41	0.121	0.71	
17.993	204	33	0.161	0.57	
18.703	99969	4612	0.046	80.61	$ 13 3,4-Dinitrotoluene
21.093	1426	57	0.040	0.99	
23.860	789	35	0.044	0.61	
25.053	382	30	0.079	0.52	
26.470	335	35	0.104	0.61	
28.430	318	39	0.123	0.68	
29.340	370	53	0.143	0.92	
29.590	1579	74	0.047	1.29	
30.827	226	34	0.150	0.59	
32.630	190	34	0.179	0.59	
33.017	444	27	0.061	0.47	
	116913	5727		100.000	

Total unknown % height = 19.39

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000050.D
Date : 27-OCT-2007 13:22
Client ID:
Sample Info: J79271AF 7285667 A7J040354-8;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000050.D\A-000050
Lab Smp Id: J79271AF 7285667 A7
Inj Date : 27-OCT-2007 13:22
Operator : KenneyF Inst ID: LC10.i
Smp Info : J79271AF 7285667 A7J040354-8;0
Misc Info : ; ; ;1.99;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 50
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

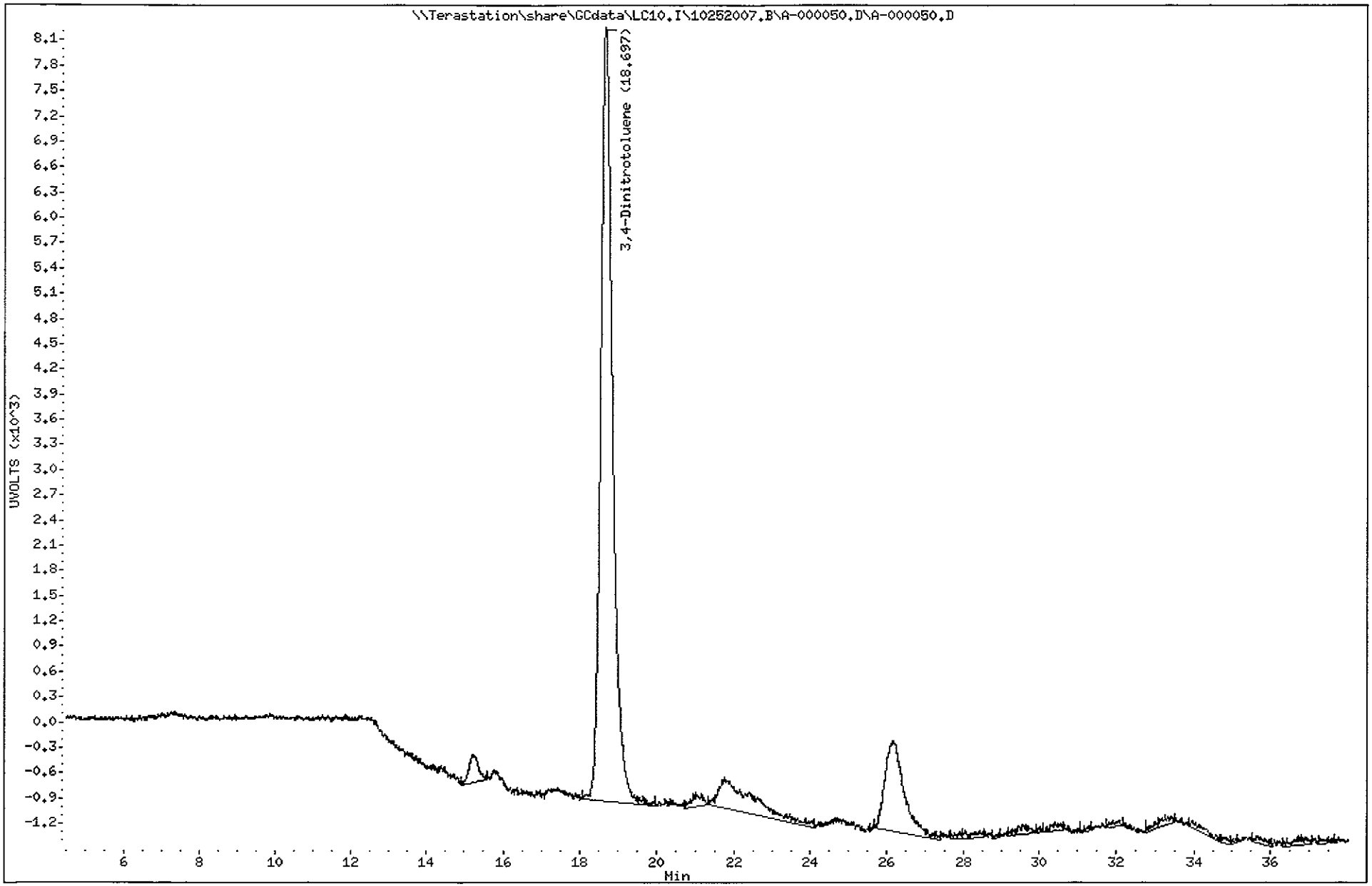
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.217	5700	331	0.058	2.66	
18.697	199524	9186	0.046	74.12	$ 13 3,4-Dinitrotoluene
21.020	3092	172	0.056	1.38	
21.763	23175	370	0.016	2.98	
25.663	201	55	0.274	0.44	
26.163	37494	1066	0.028	8.59	
27.890	728	71	0.098	0.57	
28.323	1527	67	0.044	0.54	
28.937	355	57	0.160	0.45	
29.537	2562	111	0.043	0.89	
30.023	394	77	0.195	0.62	
30.287	1580	77	0.049	0.62	
31.300	502	57	0.113	0.45	
31.823	945	65	0.069	0.52	
32.973	826	81	0.098	0.65	
33.170	1592	88	0.055	0.70	
33.943	2413	80	0.033	0.64	
34.760	778	67	0.086	0.54	
35.113	359	54	0.150	0.43	
35.643	1401	80	0.057	0.64	
36.760	2458	134	0.055	1.08	
37.267	925	61	0.066	0.49	
	288530	12407		100.000	

Total unknown % height = 25.88

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000050.D\A-000050.D
Date : 27-OCT-2007 13:22
Client ID:
Sample Info: J79271AF 7285667 A7J040354-8:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000054.D

Chromatography Summary

Injection Date: 10/27/2007 16:55 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000054.D **Vial Num:** 8

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.74	4775	96.3300<	100	-4%	Acceptable		18.74	9264	97.1700	100	-3%	Acceptable		(±15)	
HMX	5.27	13159	100.4000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.95	8116	102.1000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.32	17024	206.2000	200	3%	Acceptable		9.32	25089	206.5000<	200	3%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.49	14834	99.6300<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.70	14119	98.8300<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.86	8712	96.0800<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.73	6384	98.3100<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.22	8836	99.0400<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.22	6442	98.3100<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.38	7333	98.1100<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.24	5141	97.9200<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	22.02	8413	98.5200<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.97	3539	97.4300<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.89	4266	97.1800<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.11	4150	97.9200<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.37	7569	100.9000<	100	1%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.98	4100	102.4000<	100	2%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/30/2007 10:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 16:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 17:43 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 8 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.275	81976	13159	0.161	9.72		4	HMX
6.248	610	44	0.072	0.03			
7.951	89742	8116	0.090	5.99		5	RDX
9.321	242496	17024	0.070	12.68		6	Picric ACID
10.491	200180	14834	0.074	10.95		7	1,3,5-Trinitrobenze
13.705	248325	14119	0.057	10.43		8	1,3-Dinitrobenzene
14.858	154881	8712	0.056	6.43		9	TETRYL
15.731	128642	6384	0.050	4.71		10	Nitrobenzene
17.218	177347	8836	0.050	6.52		11	2,4,6-Trinitrotolue
18.218	134355	6442	0.048	4.75		12	4-AM-2,6-DNT
18.741	100956	4775	0.047	3.52	$	13	3,4-Dinitrotoluene
19.378	180117	7333	0.041	5.41		14	2-AM-4,6-DNT
21.238	121416	5141	0.042	3.79		15	2,6-Dinitrotoluene
22.018	221118	8413	0.038	6.21		16	2,4-Dinitrotoluene
25.968	105842	3539	0.033	2.61		17	2-Nitrotoluene
27.891	137091	4266	0.031	3.15		18	4-Nitrotoluene
30.108	143880	4150	0.029	3.06		19	3-Nitrotoluene
33.915	253	32	0.127	0.02			
34.428	280	39	0.139	0.02			
	2469507	135358		100.000			

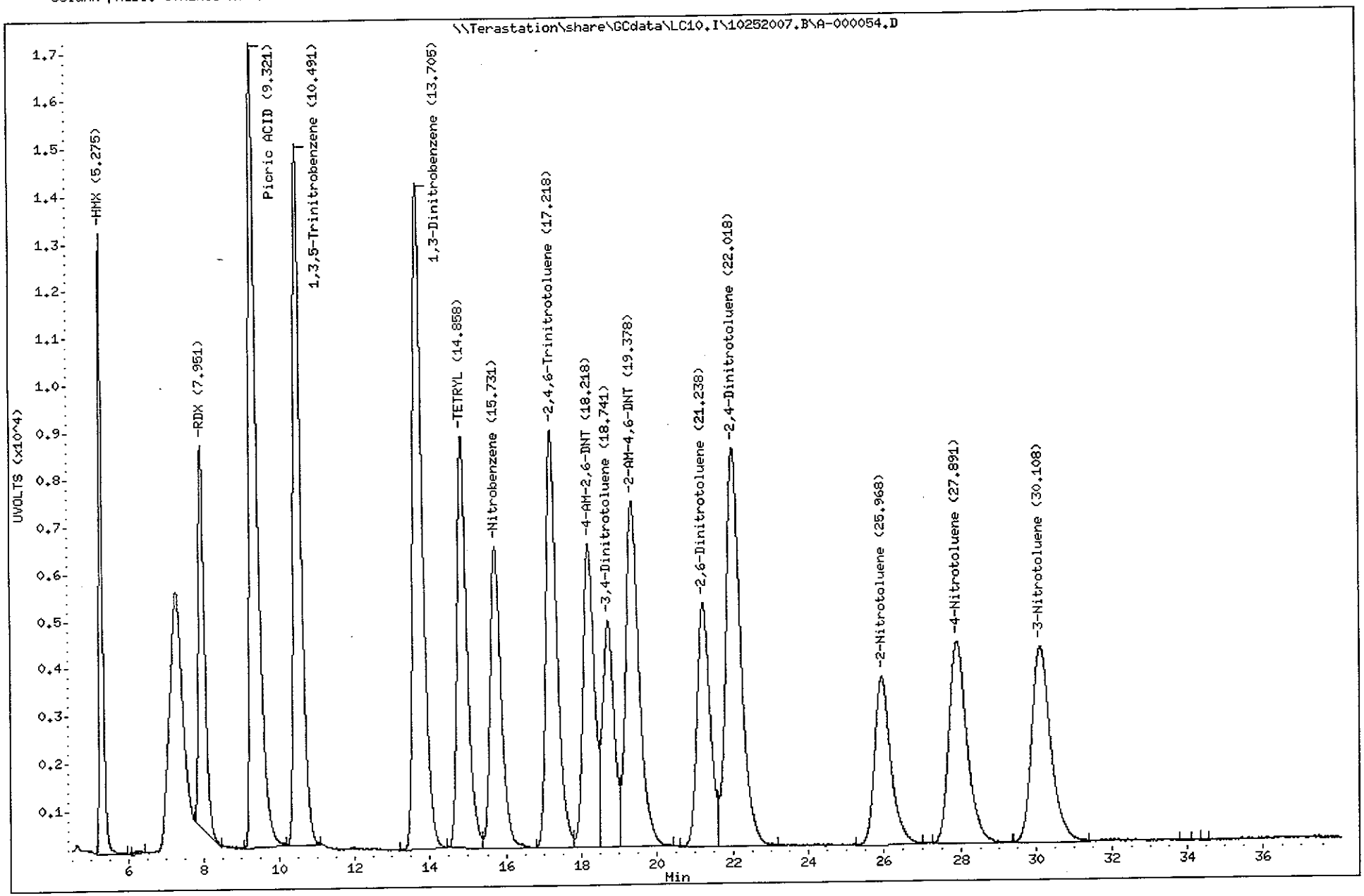
Total unknown % height = 0.07000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D
Date : 27-OCT-2007 16:55
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D\A-000054
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 16:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 17:43 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 8 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.325	359704	25089	0.070	17.21		6 Picric ACID
10.495	4079	252	0.062	0.17		
13.705	132920	7500	0.056	5.10		
14.858	198845	11264	0.057	7.66		
15.731	264193	13565	0.051	9.22		
16.368	143156	7569	0.053	5.14		1 Nitroglycerin
17.218	174917	8933	0.051	6.07		
18.225	208795	10241	0.049	6.96		
18.745	198322	9264	0.047	6.30	$	13 3,4-Dinitrotoluene
19.371	194494	8065	0.041	5.48		
21.238	224155	9366	0.042	6.37		
22.015	185078	6938	0.037	4.71		
25.191	1237	81	0.065	0.05		
25.971	254910	8493	0.033	5.77		
27.895	244082	7489	0.031	5.09		
30.115	300802	8194	0.027	5.57		
31.985	162714	4100	0.025	2.78		2 PETN
33.365	1095	79	0.072	0.05		
34.258	761	56	0.074	0.03		
34.851	291	53	0.182	0.03		
35.191	190	85	0.447	0.05		
35.625	3212	101	0.031	0.06		
36.381	714	70	0.098	0.04		
36.738	459	40	0.087	0.02		
37.238	670	71	0.106	0.04		
37.558	287	49	0.171	0.03		
	3260082	147007		100.000		

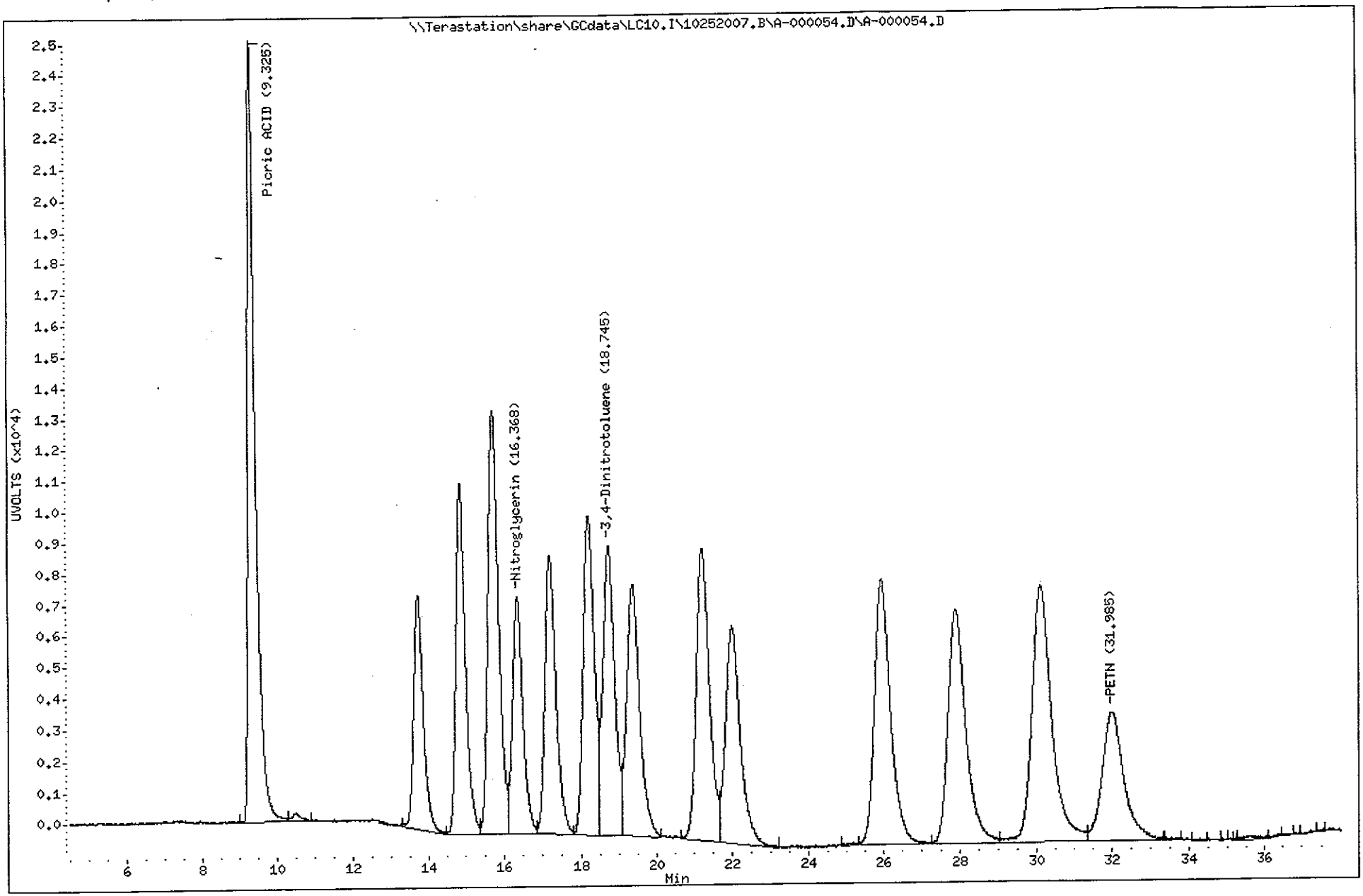
Total unknown % height = 68.57

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D\A-000054.D
Date : 27-OCT-2007 16:55
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000055.D

Chromatography Summary

Injection Date: 10/27/2007 17:48 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000055.D **Vial Num:** 7

Method 8330 Target Analyte Results

Instrument ID: LC10

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.76**	**955**	**19.2700<**	20 5	**285%**	**Fails**	-40%	**18.76**	**1683**	**17.6500**	**5**	**253%**	**Fails**		(±15)	
HMX	5.28	647	4.9370<	5	-1%	Acceptable					5	-100%	Fails		(±15)	45
RDX	7.96	370	4.6540<	5	-7%	Acceptable					5	-100%	Fails		(±15)	45
Picric ACID	**9.36**	**4260**	**51.6100**	10	**416%**	**Fails**	+30%	**9.37**	**6273**	**51.6400<**	**10**	**416%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.49	751	5.0440<	5	1%	Acceptable					5	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.71	731	5.1170<	5	2%	Acceptable					5	-100%	Fails		(±15)	45
TETRYL	14.85	453	4.9960<	5	0%	Acceptable					5	-100%	Fails		(±15)	45
Nitrobenzene	15.73	342	5.2660<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.22	472	5.2900<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.24	340	5.1890<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.37	391	5.2310<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	**21.23**	**302**	**5.7520<**	**5**	**15%**	**Fails**					5	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	22.03	457	5.3520<	5	7%	Acceptable					5	-100%	Fails		(±15)	45
2-Nitrotoluene	25.98	188	5.1760<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
4-Nitrotoluene	**27.88**	**254**	**5.7860<**	**5**	**16%**	**Fails**					5	-100%	Fails		(±15)	45
3-Nitrotoluene	30.09	228	5.3800<	5	8%	Acceptable					5	-100%	Fails	+20%	(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		**16.38**	**1529**	**20.3800<**	20 **5**	**308%**	**Fails**		(±15)	45
PETN				**5**	**-100%**	**Fails**		**32.02**	**770**	**19.2300<**	20 **5**	**285%**	**Fails**	-40%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**					5	-100%	Fails		(±15)	

10/30/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/30/2007 10:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 17:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 18:36 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

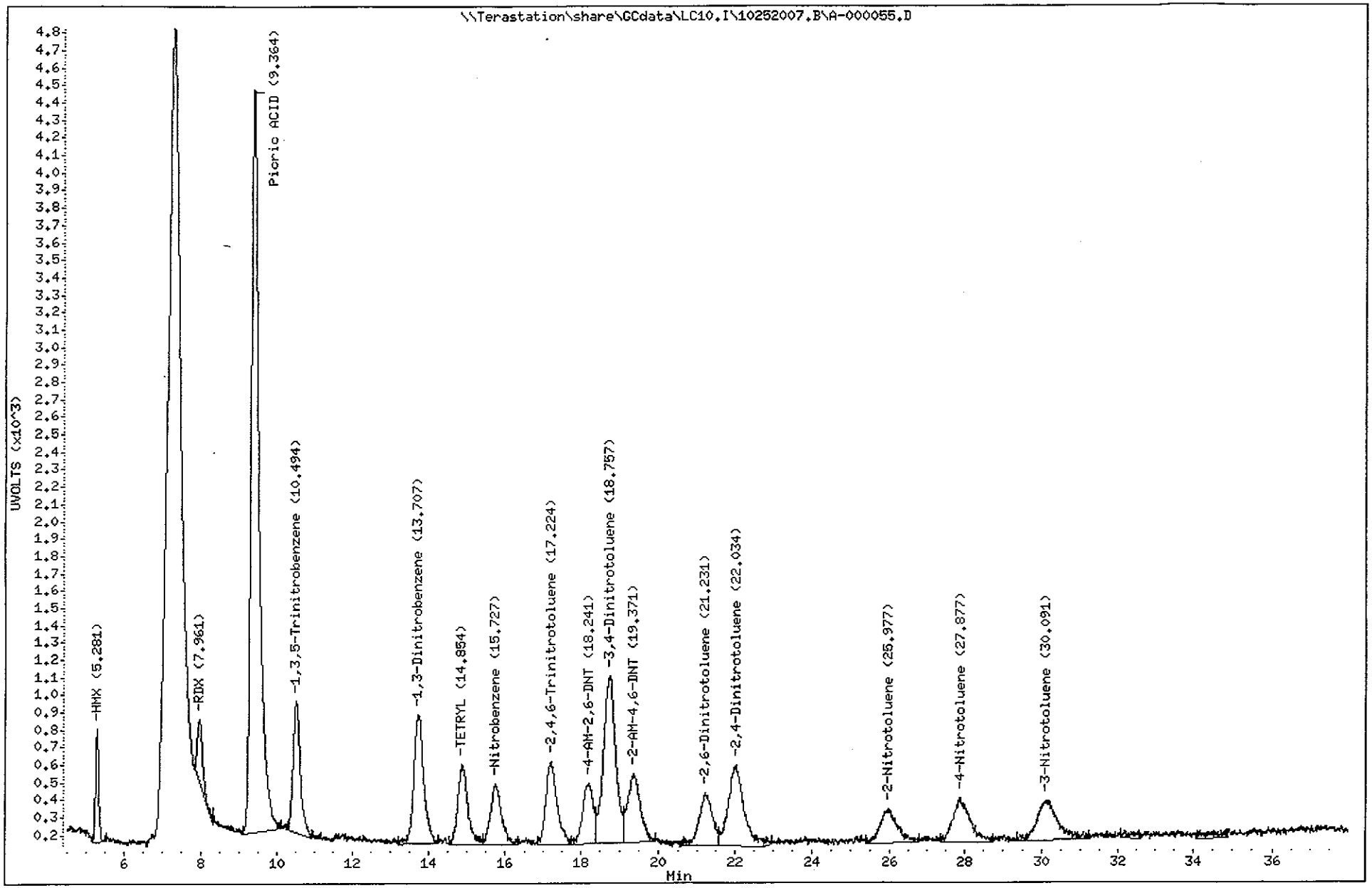
	RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
	5.281	3769	647	0.172	5.72	4	HMX
	7.961	3538	370	0.105	3.27	5	RDX
	9.364	62256	4260	0.068	37.81	6	Picric ACID
	10.494	10090	751	0.074	6.64	7	1,3,5-Trinitrobenze
	13.301	207	32	0.154	0.28		
	13.707	12955	731	0.056	6.47	8	1,3-Dinitrobenzene
	14.854	8352	453	0.054	4.00	9	TETRYL
	15.727	6832	342	0.050	3.02	10	Nitrobenzene
	17.224	9625	472	0.049	4.17	11	2,4,6-Trinitrotolue
	18.241	6629	340	0.051	3.00	12	4-AM-2,6-DNT
	18.757	20434	955	0.047	8.45	$ 13	3,4-Dinitrotoluene
	19.371	9055	391	0.043	3.46	14	2-AM-4,6-DNT
	21.231	7102	302	0.043	2.67	15	2,6-Dinitrotoluene
	22.034	12737	457	0.036	4.04	16	2,4-Dinitrotoluene
	22.844	263	44	0.168	0.38		
	25.977	5899	188	0.032	1.66	17	2-Nitrotoluene
	27.877	8058	254	0.032	2.24	18	4-Nitrotoluene
	30.091	8623	228	0.026	2.01	19	3-Nitrotoluene
	32.177	669	40	0.060	0.35		
	34.537	1257	41	0.033	0.36		
		198352	11298		100.000		

Total unknown % height = 1.370

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D
Date : 27-OCT-2007 17:48
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D\A-000055
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 17:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 18:36 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.367	88668	6273	0.071	38.13	6 Picric ACID
13.701	8199	445	0.054	2.69	
14.851	12293	625	0.051	3.78	
15.774	17632	843	0.048	5.10	
16.381	28196	1529	0.054	9.26	1 Nitroglycerin
17.204	11081	534	0.048	3.23	
18.201	8438	482	0.057	2.91	
18.757	31796	1683	0.053	10.19	$ 13 3,4-Dinitrotoluene
21.204	11277	500	0.044	3.02	
22.071	9013	352	0.039	2.13	
25.164	406	82	0.202	0.49	
25.481	703	68	0.097	0.41	
25.987	14889	488	0.033	2.95	
26.984	264	68	0.258	0.41	
27.421	2291	147	0.064	0.89	
27.831	16298	502	0.031	3.04	
28.917	2396	106	0.044	0.64	
30.024	848	81	0.095	0.49	
31.401	241	63	0.262	0.38	
32.021	24904	770	0.031	4.66	2 PETN
33.254	424	68	0.160	0.41	
33.594	1218	106	0.087	0.64	
33.851	334	74	0.222	0.44	
34.007	415	77	0.185	0.46	
34.534	283	64	0.226	0.38	
35.147	313	46	0.147	0.27	
36.151	478	84	0.176	0.50	
36.781	3402	134	0.039	0.81	
37.234	5536	149	0.027	0.90	
37.801	214	66	0.308	0.39	
	302450	16509		100.000	

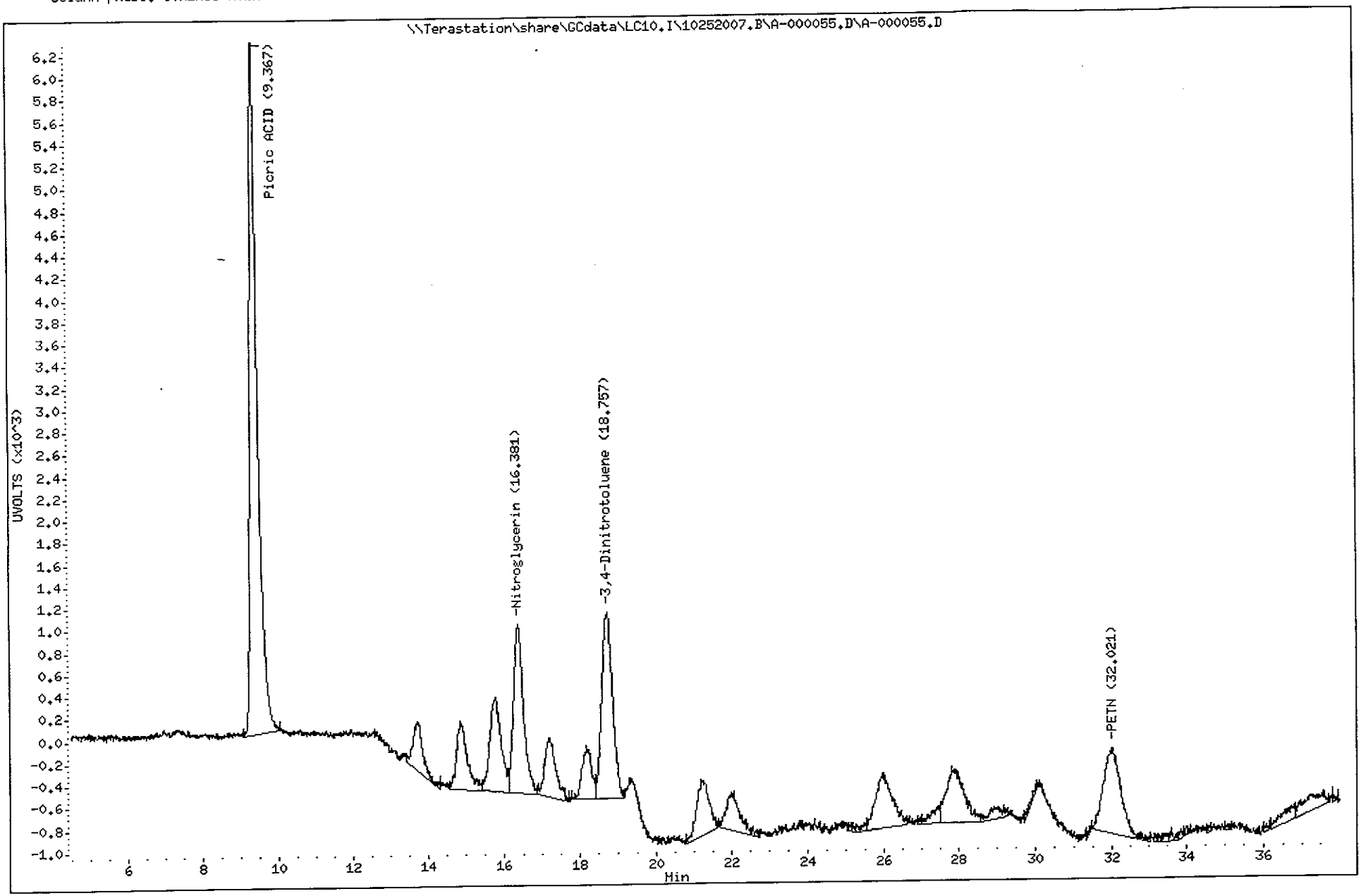
Total unknown % height = 37.76

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D\A-000055.D
Date : 27-OCT-2007 17:48
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC9.I\10262007.B\C-000028.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 18:29
Operator : KenneyF Inst ID: LC9.i
Smp Info : MRL_1 E070926A 5/50/20/20;2
Misc Info : ;1; ; ; ;3;EXPW.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC9.I\10262007.b\8330CNAB.m
Meth Date : 27-Oct-2007 19:28 tap Quant Type: AREA%
Cal Date : 10-OCT-2007 19:41 Cal File: C-000009.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: EXPW.sub
Target Version: 4.14
Processing Host: SACP307WW

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
16.132	29687	205	0.007	4.09	10 Nitrobenzene
18.197	64834	436	0.007	8.70	8 1,3-Dinitrobenzene
19.896	54131	338	0.006	6.75	7 1,3,5-Trinitrobenze
22.114	36647	254	0.007	5.07	
22.629	19843	175	0.009	3.49	
23.650	29443	208	0.007	4.15	
25.019	59503	447	0.008	8.92	
25.860	37170	273	0.007	5.45	
27.371	45738	390	0.009	7.79	12 4-AM-2,6-DNT
27.874	42342	330	0.008	6.59	
29.820	101247	866	0.009	17.37	
30.950	41428	313	0.008	6.25	
32.637	34247	288	0.008	5.75	
39.099	33215	444	0.013	8.86	
47.972	10937	39	0.004	0.77	
	640415	5006		100.000	

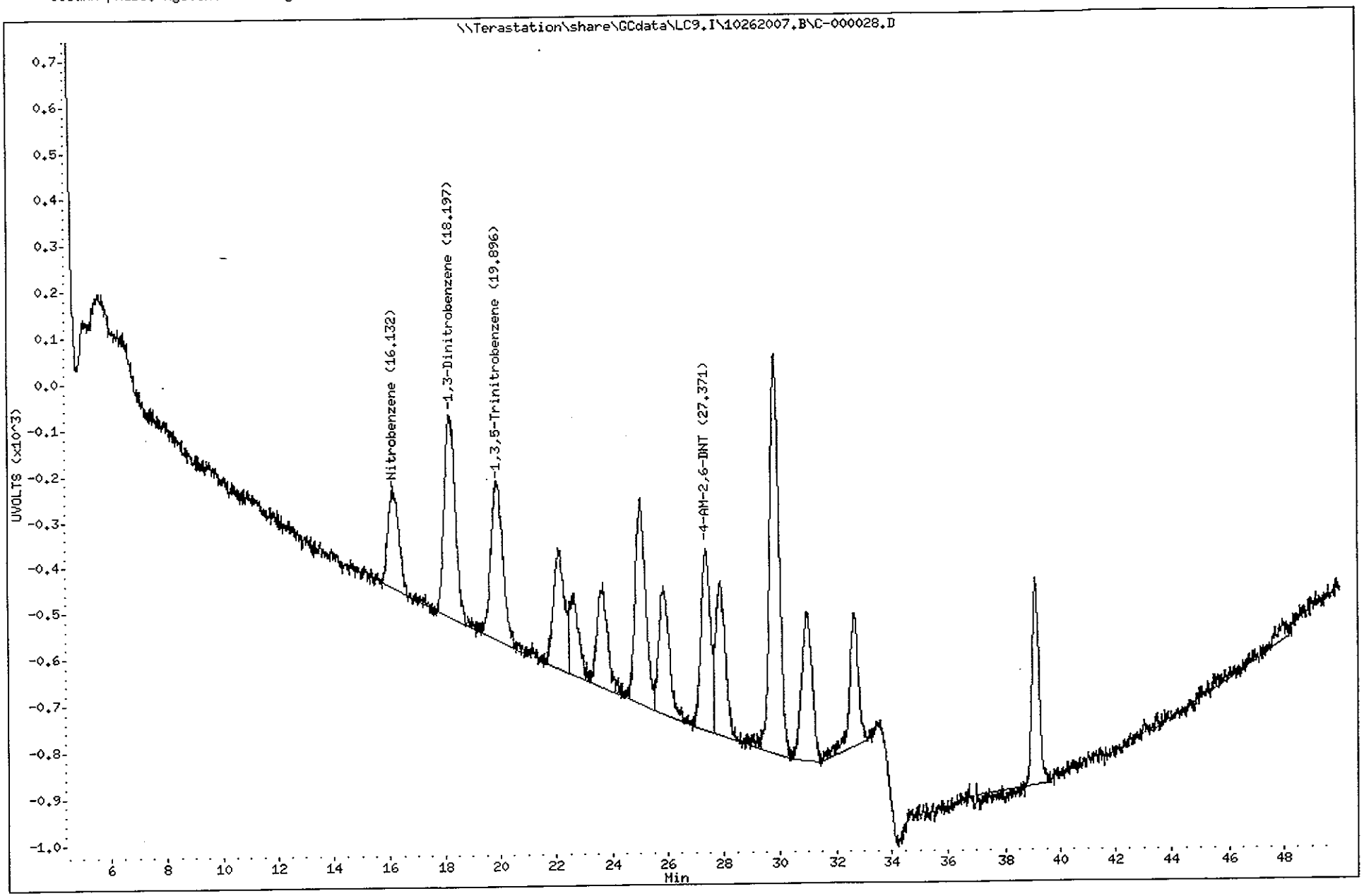
Total unknown % height = 72.67

Data File: \\Terastation\share\GCdata\LC9.I\10262007.B\C-000028.D
Date : 27-OCT-2007 18:29
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20:2

Instrument: LC9.i

Operator: KenneyF
Column diameter: 4.60

Column phase: Agilent ZorbaxCyano



Initial Calibration

Includes (as applicable):

runlog

standard raw data

statistical summary

ms tune data

Report Date : 23-Oct-2007 11:03

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d

Compound	5.000 Level 1 / 500.000 Level 7	10.000 Level 2 / 1000.000 Level 8	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
1 Nitroglycerin	+++++ / +++++	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++
2 PETN	+++++ / +++++	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++
3 3,5-Dinitroaniline	102 / 96.51400	103 / 97.04200	104	100	94.22000	95.69500	99	3.684
4 HMX	131 / 132	132 / 131	129	132	132	131	131	0.627
5 RDX	74.60000 / 83.96600	74.10000 / 83.71100	75.25000	80.50000	81.80000	82.05000	79.49712	5.245
6 Picric ACID	+++++ / 79.62500	+++++ / 72.23700	86.90000	85.54000	86.58500	84.38800	82.54583	6.905
7 1,3,5-Trinitrobenzene	149 / 150	150 / 150	147	149	149	149	149	0.574
8 1,3-Dinitrobenzene	147 / 143	145 / 143	141	141	142	142	143	1.343

JAK 10/23/07

ICAL passes criteria ± 20%
No Manual Integrations

reviewed by KMasch
date 10-23-07

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
9 TETRYL	91.20000	93.90000	91.75000	89.26000	89.88000	89.73000		
	89.97400	89.70500					90.67488	1.708
10 Nitrobenzene	67.20000	66.90000	65.10000	62.68000	64.39000	64.30000		
	64.54000	64.39400					64.93800	2.273
11 2,4,6-Trinitrotoluene	93.60000	91.00000	89.55000	88.42000	87.84000	87.84500		
	87.73400	87.74900					89.21725	2.369
12 4-AM-2,6-DNT	69.60000	67.40000	65.35000	64.42000	64.45000	64.27000		
	64.35600	64.35500					65.52512	2.988
14 2-AM-4,6-DNT	79.80000	77.10000	73.95000	73.60000	73.47000	73.46000		
	73.34400	73.24000					74.74550	3.220
15 2,6-Dinitrotoluene	57.20000	54.30000	52.15000	51.00000	51.54000	51.35000		
	51.20400	51.24700					52.49888	4.148
16 2,4-Dinitrotoluene	89.80000	87.20000	84.60000	83.80000	84.47000	84.35500		
	84.39000	84.52100					85.39200	2.406
17 2-Nitrotoluene	39.20000	38.40000	35.95000	35.52000	35.52000	35.48000		
	35.24000	35.26400					36.32175	4.294
18 4-Nitrotoluene	50.00000	45.00000	42.65000	42.52000	42.86000	42.84000		
	42.66800	42.64300					43.89763	5.915
19 3-Nitrotoluene	45.60000	44.80000	41.45000	41.36000	41.55000	41.58500		
	41.43800	41.27300					42.38200	4.141
$ 13 3,4-Dinitrotoluene	+++++	51.70000	49.90000	48.92000	47.23000	48.13500		
	50.22333	50.87000					49.56833	3.160

Report Date: 23-Oct-2007 11:03

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d\A-00
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d\A-00
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d\A-00
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d\A-00
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d\A-00
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d\A-00
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d\A-00
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d\A-00

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
1 Nitroglycerin	+++++	+++++	76.05000	73.76000	76.17000	73.20500		
	74.38600	76.48400					75.00917	1.867
2 PETN	+++++	+++++	44.40000	38.02000	41.10000	39.51500		
	38.49600	38.75300					40.04733	5.965
3 3,5-Dinitroaniline	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
4 HMX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
5 RDX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
6 Picric ACID	+++++	+++++	128	126	128	124		
	117	106					121	6.966
7 1,3,5-Trinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
8 1,3-Dinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
9 TETRYL	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
10 Nitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
11 2,4,6-Trinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
12 4-AM-2,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
14 2-AM-4,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
15 2,6-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
16 2,4-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
17 2-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
18 4-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
19 3-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
$ 13 3,4-Dinitrotoluene	+++++	97.90000	94.10000	94.22000	91.61000	93.67500		
	96.60667	99					95.34024	2.811

Report Date: 23-Oct-2007 12:10

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 43
Book# 3029

GC/LC SEMI-VOLATILES

Standard ID's

CCV#1 10292007.B

Inst ID : LC10.I
Batch ID : 10202007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
20-OCT-2007	14:09	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
20-OCT-2007	15:02	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
20-OCT-2007	15:55	KenneyF	Blank	A-000003.	0 g	0 mL	1	
20-OCT-2007	16:48	KenneyF	STD_1 E070927A 5.0/0/0/0ng/mL	A-000004.	0 g	0 mL	1	
20-OCT-2007	17:41	KenneyF	STD_2 E070927B 10/20/10/10ng/m	A-000005.	0 g	0 mL	1	
20-OCT-2007	18:34	KenneyF	STD_3 E070927C 20/50/20/20ng/m	A-000006.	0 g	0 mL	1	
20-OCT-2007	19:27	KenneyF	STD_4 E070927D 50/100/50/50ng/	A-000007.	0 g	0 mL	1	
20-OCT-2007	20:20	KenneyF	STD_5 E071007D 100/200/100/100	A-000008.	0 g	0 mL	1	
20-OCT-2007	21:13	KenneyF	STD_6 E071007E 200/500/200/200	A-000009.	0 g	0 mL	1	
20-OCT-2007	22:06	KenneyF	STD_7 E071007F 500/1000/500/30	A-000010.	0 g	0 mL	1	
20-OCT-2007	22:59	KenneyF	STD_8 E071007G 1000/2000/1000/	A-000011.	0 g	0 mL	1	
20-OCT-2007	23:52	KenneyF	Blank	A-000012.	0 g	0 mL	1	
21-OCT-2007	00:45	KenneyF	ICV_6 E071007C 200/500/200/500	A-000013.	0 g	0 mL	1	
21-OCT-2007	01:38	KenneyF	STD_5 E071007D 100/200/100/100	A-000014.	0 g	0 mL	1	
21-OCT-2007	02:31	KenneyF	8330-H2O-MDL-MB	A-000015.	1000 mL	20 mL	1	
21-OCT-2007	03:24	KenneyF	8330-H2O-MDL-1	A-000016.	1000 mL	20 mL	1	
21-OCT-2007	04:18	KenneyF	8330-H2O-MDL-2	A-000017.	1000 mL	20 mL	1	
21-OCT-2007	05:11	KenneyF	8330-H2O-MDL-3	A-000018.	1000 mL	20 mL	1	
21-OCT-2007	06:04	KenneyF	8330-H2O-MDL-4	A-000019.	1000 mL	20 mL	1	
21-OCT-2007	06:57	KenneyF	8330-H2O-MDL-5	A-000020.	1000 mL	20 mL	1	
21-OCT-2007	07:50	KenneyF	8330-H2O-MDL-6	A-000021.	1000 mL	20 mL	1	
21-OCT-2007	08:43	KenneyF	8330-H2O-MDL-7	A-000022.	1000 mL	20 mL	1	
21-OCT-2007	09:36	KenneyF	8330-H2O-MDL-CHECK	A-000023.	1000 mL	20 mL	1	
21-OCT-2007	10:29	KenneyF	STD_5 E071007D 100/200/100/100	A-000024.	0 g	0 mL	1	
21-OCT-2007	11:22	KenneyF	8330-SOIL-MDL-MB	A-000025.	2 g	40 mL	1	
21-OCT-2007	12:15	KenneyF	8330-SOIL-MDL-1	A-000026.	2 g	40 mL	1	
21-OCT-2007	13:08	KenneyF	8330-SOIL-MDL-2	A-000027.	2 g	40 mL	1	
21-OCT-2007	14:01	KenneyF	8330-SOIL-MDL-3	A-000028.	2 g	40 mL	1	
21-OCT-2007	14:54	KenneyF	8330-SOIL-MDL-4	A-000029.	2 g	40 mL	1	
21-OCT-2007	15:47	KenneyF	8330-SOIL-MDL-5	A-000030.	2 g	40 mL	1	
21-OCT-2007	16:40	KenneyF	8330-SOIL-MDL-6	A-000031.	2 g	40 mL	1	
21-OCT-2007	17:33	KenneyF	8330-SOIL-MDL-7	A-000032.	2 g	40 mL	1	
21-OCT-2007	18:26	KenneyF	8330-SOIL-MDL-CHECK	A-000033.	2 g	40 mL	1	
21-OCT-2007	19:19	KenneyF	STD_5 E071007D 100/200/100/100	A-000034.	0 g	0 mL	1	
21-OCT-2007	20:12	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
21-OCT-2007	21:05	KenneyF	J8AT51AD 7285666 A7J050117 50X	A-000036.	2 g	40 mL	50	
21-OCT-2007	21:58	KenneyF	J7E161AA 7275532 G7I210330-9 R	A-000037.	2.03 g	40 mL	1	
21-OCT-2007	22:51	KenneyF	J7E2A1AA 7275532 G7I210330-10	A-000038.	2 g	40 mL	1	
21-OCT-2007	23:44	KenneyF	J7E271AA 7275532 G7I210330-21	A-000039.	2 g	40 mL	1	
22-OCT-2007	00:37	KenneyF	STD_5 E070821L 100/200/100/100	A-000040.	0 g	0 mL	1	
22-OCT-2007	01:30	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000041.	0 g	0 mL	1	

A-000013.D

Chromatography Summary

Injection Date: 10/21/2007 0:45 **Operator:** KenneyF
DataFile: LC10.I\10202007.B\A-000013.D **Vial Num:** 20
Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **ICV_6 E071007C 200/500/200/500ng/ml**

Method File: LC10.I\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**
Samp. Info: ICV_6 E071007C 200/500/200/500ng/ml;2
Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.83	9566	193.0000<	200	-4%	Acceptable		18.83	18642	195.5000	200	-2%	Acceptable		(±15)	
HMX	5.28	28071	214.2000<	200	7%	Acceptable					200	-100%	Fails		(±15)	45
RDX	7.98	17241	216.9000<	200	8%	Acceptable					200	-100%	Fails		(±15)	45
Picric ACID	9.31	41167	498.7000	500	0%	Acceptable		9.31	60647	510.5000<	500	2%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.54	30578	205.4000<	200	3%	Acceptable					200	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.76	29042	203.3000<	200	2%	Acceptable					200	-100%	Fails		(±15)	45
TETRYL	14.92	17697	195.2000<	200	-2%	Acceptable	✓				200	-100%	Fails		(±15)	45
Nitrobenzene	15.79	12874	198.2000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.30	17619	197.5000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.29	12738	194.4000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.45	14705	196.7000<	200	-2%	Acceptable					200	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.34	10415	198.4000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	22.11	16602	194.4000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
2-Nitrotoluene	26.08	7065	194.5000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
4-Nitrotoluene	28.04	8476	193.1000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
3-Nitrotoluene	30.27	8300	195.8000<	200	-2%	Acceptable					200	-100%	Fails		(±15)	45
Nitroglycerin				200	-100%	Fails		16.45	15681	209.0000<	200	5%	Acceptable		(±15)	45
PETN				200	-100%	Fails		32.21	8123	202.8000<	200	1%	Acceptable		(±15)	45
3,5-Dinitroaniline	14.54	19614	198.0000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45

ICV passes criteria ±15%

10/23/07

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

✓ ILM 10-23-07

Printed: 10/23/2007 11:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45 Inst ID: LC10.i
Operator : KenneyF
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

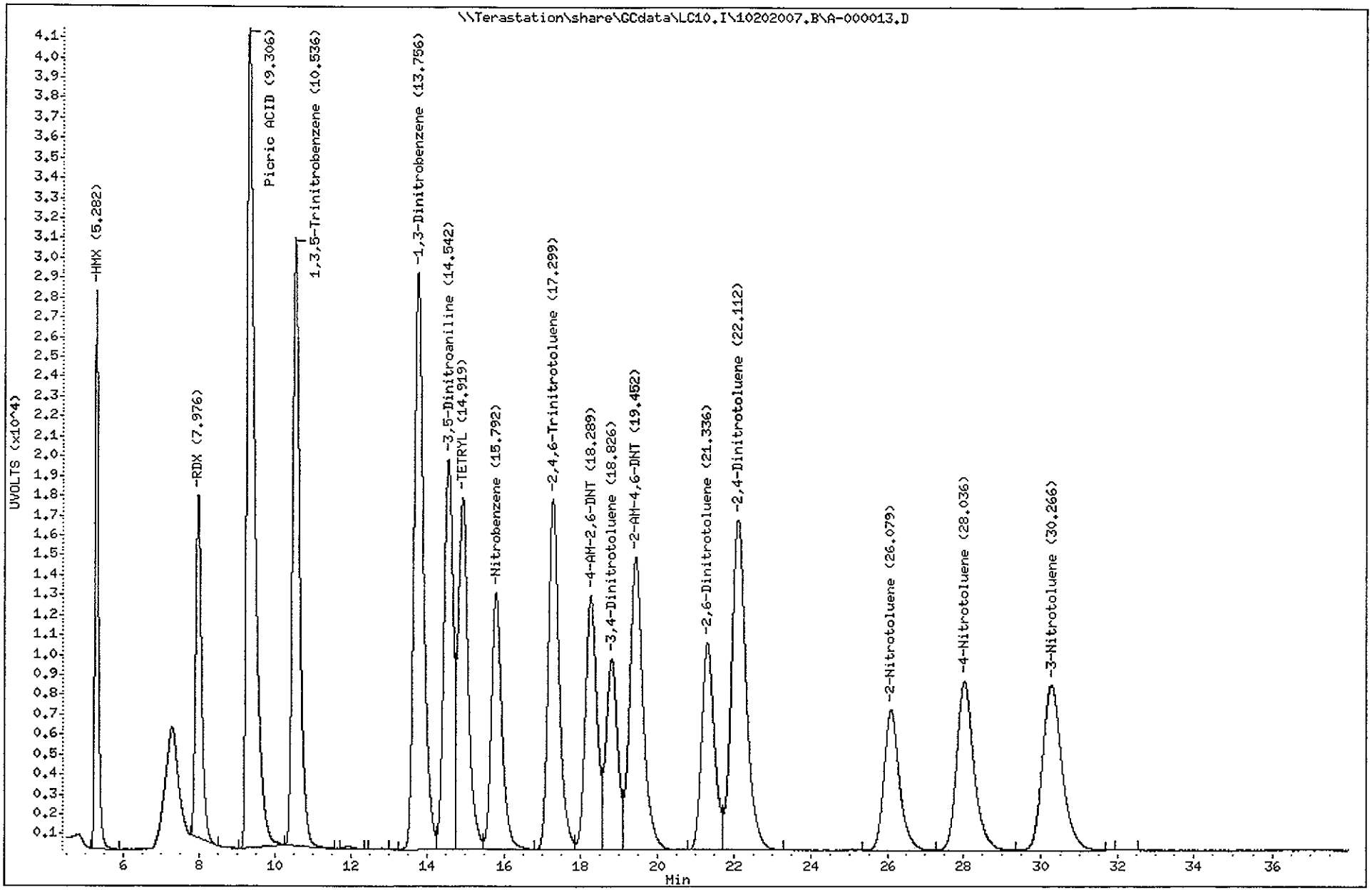
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.282	171401	28071	0.164	9.29		4 HMX
7.976	185452	17241	0.093	5.70		5 RDX
9.306	589232	41167	0.070	13.75		6 Picric ACID
10.536	408314	30578	0.075	10.12		7 1,3,5-Trinitrobenze
11.912	2043	128	0.063	0.04		
12.666	848	47	0.055	0.01		
13.756	497411	29042	0.058	9.61		8 1,3-Dinitrobenzene
14.542	325796	19614	0.060	6.49		3 3,5-Dinitroaniline
14.919	326376	17697	0.054	5.86		9 TETRYL
15.792	253065	12874	0.051	4.26		10 Nitrobenzene
17.299	349591	17619	0.050	5.83		11 2,4,6-Trinitrotolue
18.289	261026	12738	0.049	4.21		12 4-AM-2,6-DNT
18.826	200938	9566	0.048	3.16	$	13 3,4-Dinitrotoluene
19.452	353275	14705	0.042	4.86		14 2-AM-4,6-DNT
21.336	242901	10415	0.043	3.44		15 2,6-Dinitrotoluene
22.112	427638	16602	0.039	5.49		16 2,4-Dinitrotoluene
26.079	207484	7065	0.034	2.33		17 2-Nitrotoluene
28.036	267174	8476	0.032	2.80		18 4-Nitrotoluene
30.266	283743	8300	0.029	2.74		19 3-Nitrotoluene
32.199	799	44	0.055	0.01		
	5354507	301989		100.000		

Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.306	875369	60647	0.069	19.11	6 Picric ACID
10.539	8528	536	0.063	0.16	
13.756	250568	15065	0.060	4.71	
14.542	251461	15839	0.063	4.96	
14.922	391688	21923	0.056	6.86	
15.792	499029	26746	0.054	8.37	
16.449	284217	15681	0.055	4.91	1 Nitroglycerin
17.299	338122	17755	0.053	5.56	
18.286	413216	20407	0.049	6.39	
18.829	390451	18642	0.048	5.83	$ 13 3,4-Dinitrotoluene
19.449	390149	16155	0.041	5.06	
21.336	451228	19071	0.042	5.97	
22.112	366490	13802	0.038	4.32	
25.262	3273	176	0.054	0.05	
26.082	508527	16945	0.033	5.30	
27.299	1179	194	0.165	0.06	
28.032	483515	15023	0.031	4.70	
30.249	541720	16038	0.030	5.02	
32.212	300262	8123	0.027	2.54	2 PETN
34.192	1413	64	0.045	0.02	
35.156	678	80	0.118	0.02	
35.599	1357	74	0.055	0.02	
35.879	442	52	0.118	0.01	
36.956	810	44	0.054	0.01	
37.215	520	57	0.110	0.01	
37.452	1429	100	0.070	0.03	
	6755641	319239		100.000	

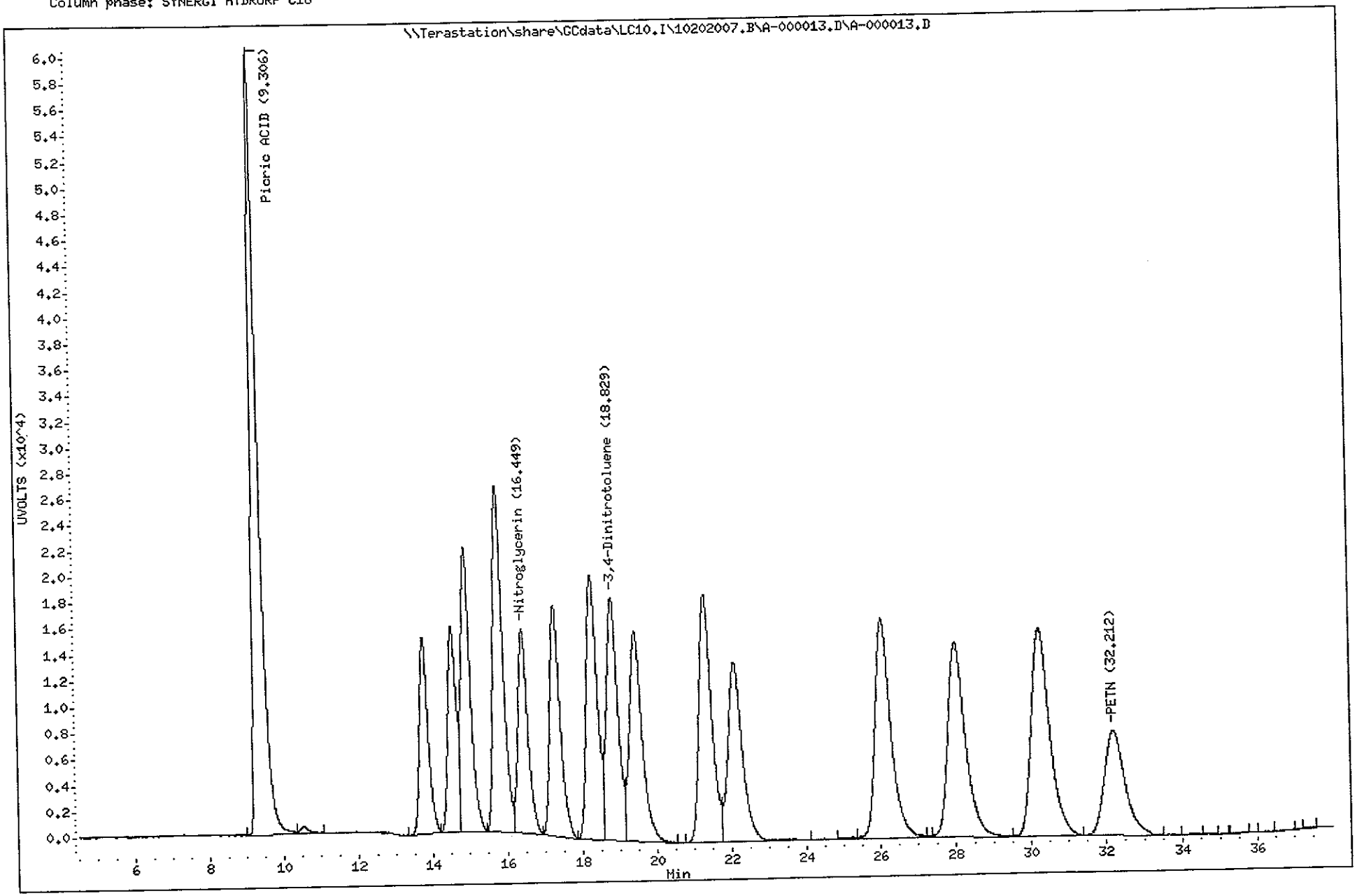
Total unknown % height = 67.61

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000003.D

Chromatography Summary

Injection Date: 10/20/2007 15:55 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000003.D **Vial Num:** 11

Instrument ID: LC10

Method 8330 Target Analyte Results

Method File: LC10.I\10202007.B\8330AB.M

Sample : **Blank**

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: Blank;0

Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	PPB	Flag	RT	Diff	Response	PPB	Flag	MDL	RL	Flag
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	45
4-AM-2,6-DNT	18.40	0.132		40	0.6104<						0.0000	0.00	
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN											0.0000	0.00	
3,5-Dinitroaniline													

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000		0	2000.0000		0	:0--1.#QNAI

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 15:53 kenneyf Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

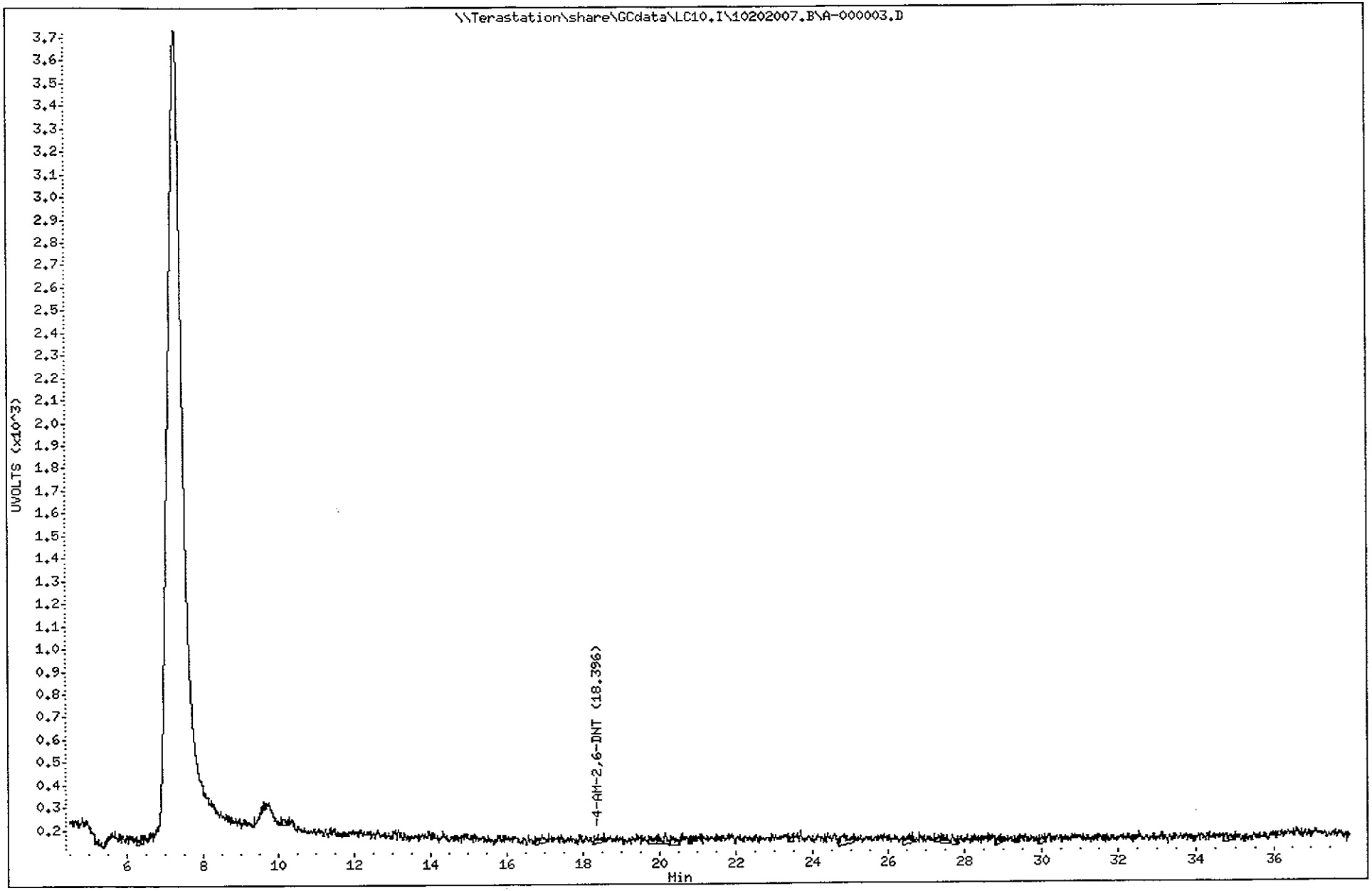
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
6.396	218	38	0.174	7.43	
9.566	204	31	0.152	6.06	
10.162	208	27	0.130	5.28	
16.862	376	30	0.080	5.87	
18.396	268	40	0.149	7.82	12 4-AM-2,6-DNT
19.799	237	27	0.114	5.28	
20.152	777	51	0.066	10.03	
23.479	118	30	0.254	5.87	
24.842	604	44	0.073	8.61	
26.642	514	43	0.084	8.41	
27.392	643	40	0.062	7.82	
28.876	174	39	0.224	7.63	
29.992	147	34	0.231	6.65	
34.769	356	37	0.104	7.24	
	4845	511		100.000	

Total unknown % height = 92.18

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank;0

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000003.D
Report Date: 20-Oct-2007 16:44

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 15:51 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.892	6885	257	0.037	11.19	
24.529	756	38	0.050	1.63	
25.752	971	70	0.072	3.01	
26.582	1061	63	0.059	2.71	
27.326	483	61	0.126	2.62	
28.356	1332	86	0.065	3.70	
29.109	551	50	0.091	2.15	
29.696	318	56	0.176	2.41	
30.029	1432	89	0.062	3.83	
30.662	908	55	0.061	2.37	
31.006	652	85	0.130	3.66	
31.406	2226	98	0.044	4.22	
31.872	993	102	0.103	4.39	
32.552	459	73	0.159	3.14	
33.509	666	75	0.113	3.23	
33.886	2619	115	0.044	4.95	
34.866	1166	90	0.077	3.87	
35.349	1569	85	0.054	3.66	
35.959	976	96	0.098	4.13	
36.162	1107	116	0.105	5.00	
36.526	3579	162	0.045	6.98	
36.842	1474	171	0.116	7.37	
37.246	4847	227	0.047	9.78	
	37030	2320		100.000	

Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank:0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000004.D

Chromatography Summary

Injection Date: 10/20/2007 16:48 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000004.D **Vial Num:** 12

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_1 E070927A 5.0/0/0/0ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 16:48

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Misc. Info: ;1; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene			5		0			5		0
HMX	5.28	657	5		131.4			5		0
RDX	7.96	373	5		74.6			5		0
Picric ACID	9.36	22	10		2.2			10		0
1,3,5-Trinitrobenzene	10.51	744	5		148.8			5		0
1,3-Dinitrobenzene	13.74	734	5		146.8			5		0
TETRYL	14.89	456	5		91.2			5		0
Nitrobenzene	15.77	336	5		67.2			5		0
2,4,6-Trinitrotoluene	17.27	468	5		93.6			5		0
4-AM-2,6-DNT	18.31	348	5		69.6			5		0
2-AM-4,6-DNT	19.46	399	5		79.8			5		0
2,6-Dinitrotoluene	21.34	286	5		57.2			5		0
2,4-Dinitrotoluene	22.14	449	5		89.8			5		0
2-Nitrotoluene	26.07	196	5		39.2			5		0
4-Nitrotoluene	28.00	250	5		50			5		0
3-Nitrotoluene	30.28	228	5		45.6			5		0
Nitroglycerin			5		0			5		0
PETN			5		0	32.15	53	5		10.6
3,5-Dinitroaniline	14.56	511	5		102.2			5		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 17:36 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.277	3840	657	0.171	9.80	4 HMX
7.957	3706	373	0.101	5.56	5 RDX
9.361	54	22	0.407	0.32	6 Picric ACID
10.511	10375	744	0.072	11.22	7 1,3,5-Trinitrobenze
13.737	12995	734	0.056	10.95	8 1,3-Dinitrobenzene
14.564	8731	511	0.059	7.62	3 3,5-Dinitroaniline
14.887	8211	456	0.056	6.80	9 TETRYL
15.774	6171	336	0.054	5.01	10 Nitrobenzene
17.267	9681	468	0.048	6.98	11 2,4,6-Trinitrotolue
18.311	7897	348	0.044	5.19	12 4-AM-2,6-DNT
19.457	9921	399	0.040	5.95	14 2-AM-4,6-DNT
21.344	6691	286	0.043	4.26	15 2,6-Dinitrotoluene
22.144	12238	449	0.037	6.70	16 2,4-Dinitrotoluene
25.231	354	39	0.110	0.58	
26.067	6537	196	0.030	2.92	17 2-Nitrotoluene
28.004	7702	250	0.032	3.73	18 4-Nitrotoluene
29.774	177	39	0.221	0.58	
30.277	7902	228	0.029	3.40	19 3-Nitrotoluene
32.151	153	36	0.235	0.53	
32.887	903	39	0.043	0.58	
33.557	723	46	0.064	0.68	
34.801	798	43	0.054	0.64	
	125760	6699		100.000	

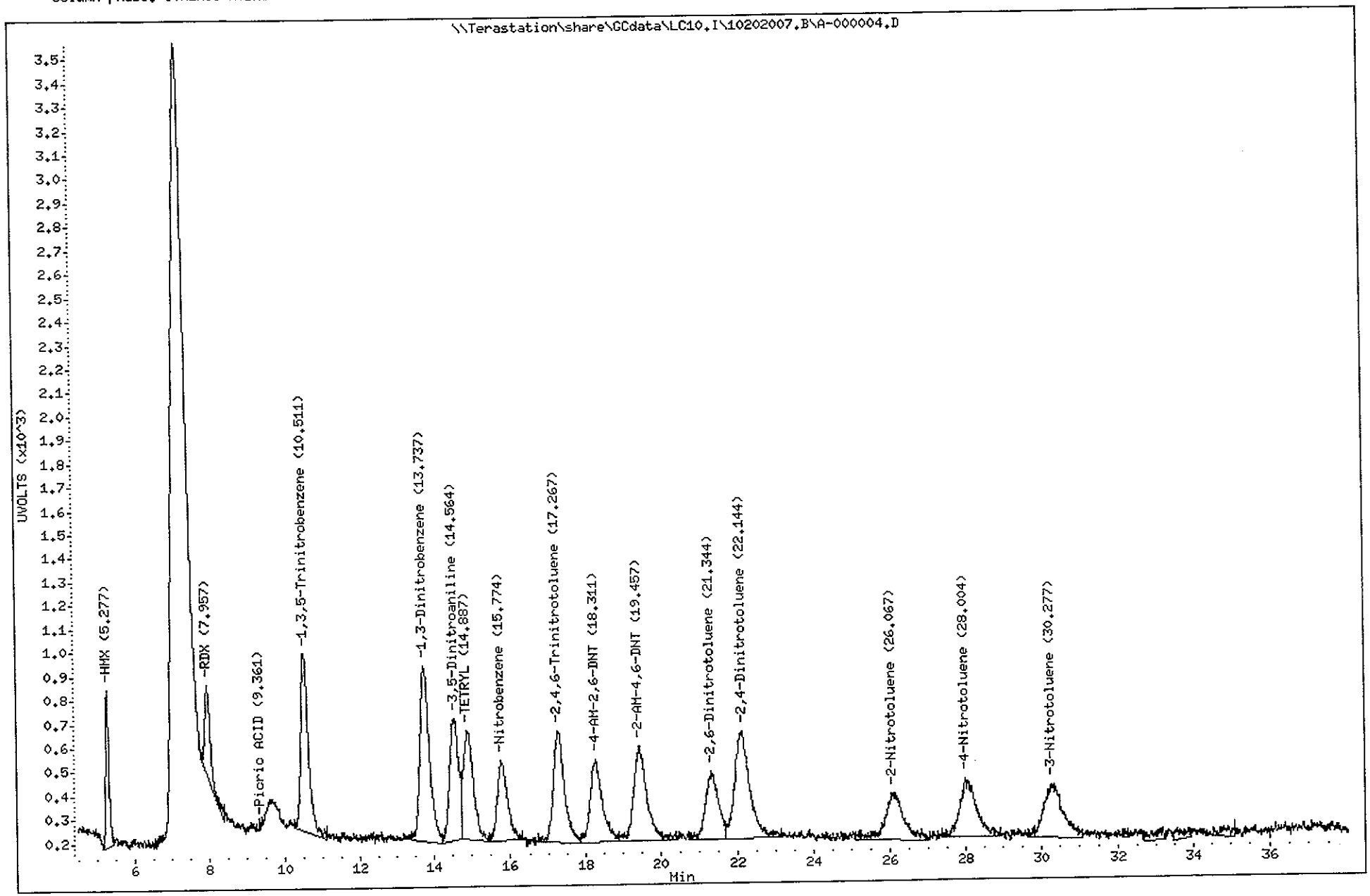
Total unknown % height = 3.590

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 17:37 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

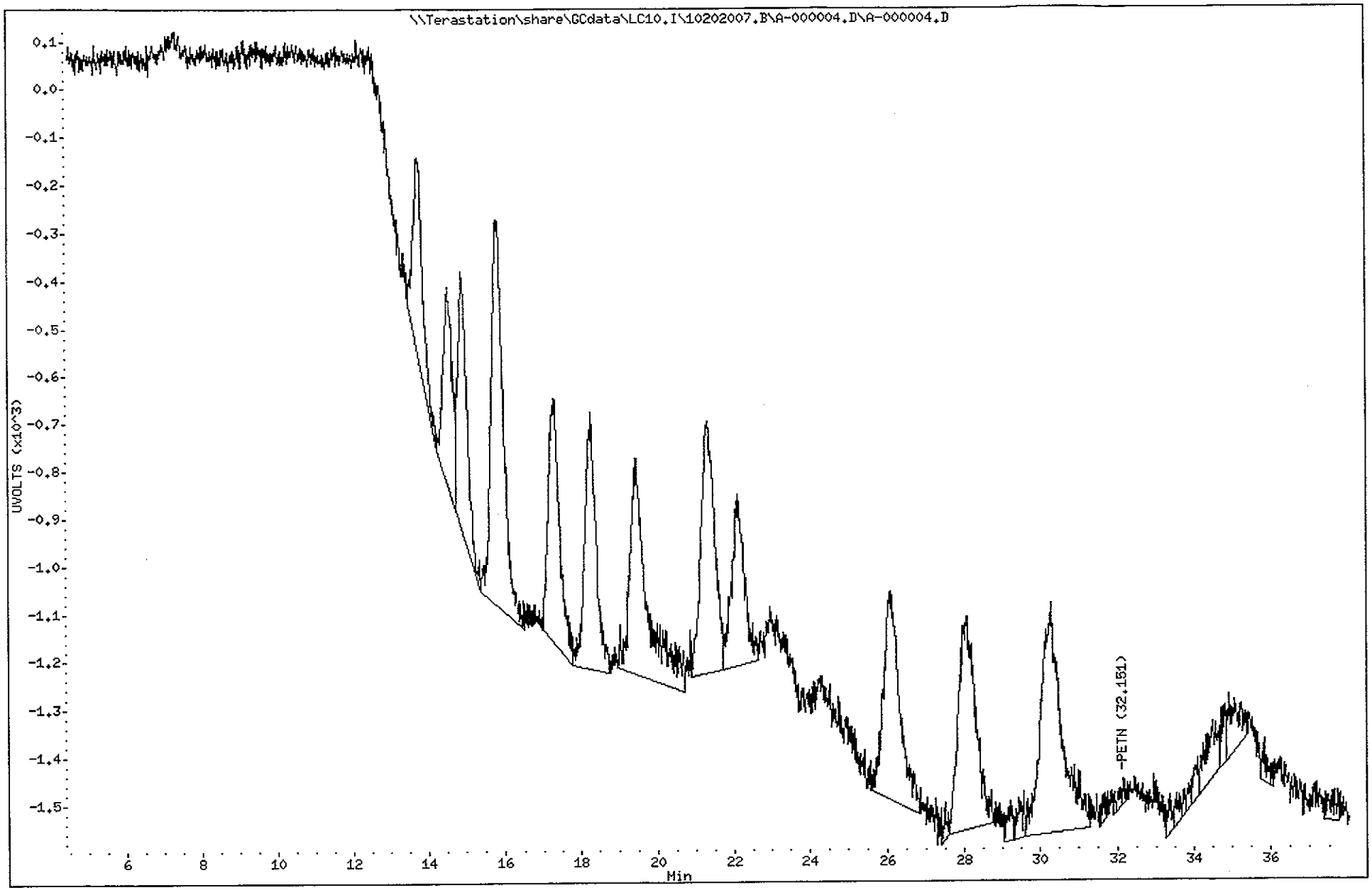
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
13.724	7411	408	0.055	5.82	
14.517	6980	419	0.060	5.98	
14.891	9147	545	0.060	7.78	
15.797	17953	808	0.045	11.67	
17.314	10811	515	0.048	7.35	
18.311	11134	539	0.048	7.69	
19.461	14207	452	0.032	6.45	
21.327	12918	530	0.041	7.57	
22.107	8295	358	0.043	5.11	
26.097	12999	440	0.034	6.28	
27.494	463	76	0.164	1.08	
28.091	14088	445	0.032	6.35	
29.214	756	83	0.110	1.18	
29.437	945	83	0.088	1.18	
30.321	17876	482	0.027	6.88	
31.671	344	53	0.154	0.75	
32.151	488	53	0.109	0.75	2 PETN
33.361	525	81	0.154	1.15	
33.814	1006	47	0.047	0.67	
34.097	707	83	0.117	1.18	
34.487	2600	120	0.046	1.71	
34.811	969	123	0.127	1.75	
35.057	2345	109	0.046	1.55	
35.834	733	90	0.123	1.28	
37.391	875	59	0.067	0.84	
	156573	7001		100.000	

Total unknown % height = 99.25

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000005.D

Chromatography Summary

Injection Date: 10/20/2007 17:41 **Operator:** KenneyF

DataFile: LC10.B\10202007.B\A-000005.D **Vial Num:** 13

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_2 E070927B 10/20/10/10ng/mL**

Method File: LC10.B\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 17:41

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub SpikeList:

Samp. Info: STD_2 E070927B 10/20/10/10ng/mL;1

Misc. Info: ;2; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	517	10		51.7	18.85	979	10		97.9
HMX	5.29	1315	10		131.5			10		0
RDX	7.98	741	10		74.1			10		0
Picric ACID	9.42	1664	20		83.2	9.42	2466	20		123.3
1,3,5-Trinitrobenzene	10.55	1496	10		149.6			10		0
1,3-Dinitrobenzene	13.79	1445	10		144.5			10		0
TETRYL	14.96	939	10		93.9			10		0
Nitrobenzene	15.80	669	10		66.9			10		0
2,4,6-Trinitrotoluene	17.32	910	10		91			10		0
4-AM-2,6-DNT	18.35	674	10		67.4			10		0
2-AM-4,6-DNT	19.51	771	10		77.1			10		0
2,6-Dinitrotoluene	21.35	543	10		54.3			10		0
2,4-Dinitrotoluene	22.15	872	10		87.2			10		0
2-Nitrotoluene	26.13	384	10		38.4			10		0
4-Nitrotoluene	28.08	450	10		45			10		0
3-Nitrotoluene	30.30	448	10		44.8			10		0
Nitroglycerin			10		0	16.47	775	10		77.5
PETN			10		0	32.21	396	10		39.6
3,5-Dinitroaniline	14.57	1032	10		103.2			10		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 18:29 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.291	8148	1315	0.161	8.76		4 HMX
7.981	7337	741	0.101	4.93		5 RDX
9.424	24887	1664	0.067	11.20		6 Picric ACID
10.551	20340	1496	0.074	9.96		7 1,3,5-Trinitrobenze
12.247	378	37	0.098	0.24		
13.021	479	34	0.071	0.22		
13.787	26093	1445	0.055	9.62		8 1,3-Dinitrobenzene
14.574	17279	1032	0.060	6.87		3 3,5-Dinitroaniline
14.957	18302	939	0.051	6.25		9 TETRYL
15.804	14899	669	0.045	4.45		10 Nitrobenzene
17.317	19161	910	0.047	6.06		11 2,4,6-Trinitrotolue
18.351	14095	674	0.048	4.49		12 4-AM-2,6-DNT
18.871	11527	517	0.045	3.44	$	13 3,4-Dinitrotoluene
19.514	18977	771	0.041	5.13		14 2-AM-4,6-DNT
21.351	13185	543	0.041	3.61		15 2,6-Dinitrotoluene
22.154	23851	872	0.037	5.80		16 2,4-Dinitrotoluene
24.737	323	30	0.093	0.19		
26.131	11530	384	0.033	2.55		17 2-Nitrotoluene
28.081	14722	450	0.031	2.99		18 4-Nitrotoluene
30.304	15967	448	0.028	2.98		19 3-Nitrotoluene
33.200	684	40	0.058	0.26		
	282164	15011		100.000		

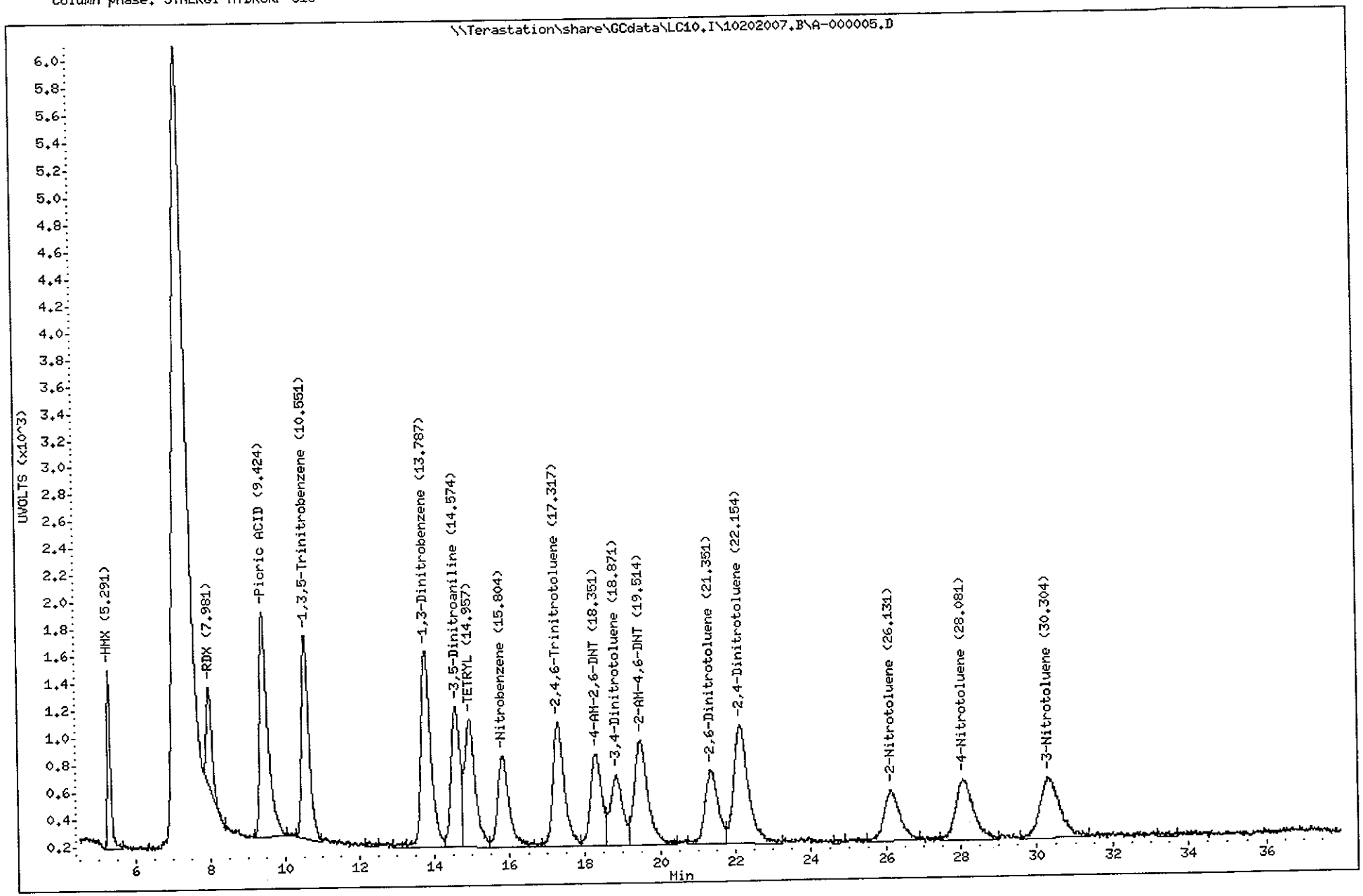
Total unknown % height = 0.9100

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 18:30 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.421	35582	2466	0.069	14.66	6 Picric ACID
13.791	13782	774	0.056	4.55	
14.574	14339	864	0.060	5.08	
14.967	21298	1161	0.055	6.82	
15.824	28665	1460	0.051	8.58	
16.471	14085	775	0.055	4.55	1 Nitroglycerin
17.347	17948	899	0.050	5.28	
18.337	21358	1040	0.049	6.11	
18.851	21837	979	0.045	5.75	$ 13 3,4-Dinitrotoluene
19.514	21993	851	0.039	5.00	
21.381	27121	1047	0.039	6.15	
22.140	25925	821	0.032	4.82	
25.531	764	38	0.050	0.22	
26.137	30757	948	0.031	5.57	
27.474	1172	99	0.084	0.58	
28.081	28945	831	0.029	4.88	
29.497	796	48	0.060	0.28	
30.351	36511	929	0.025	5.46	
31.671	345	64	0.186	0.37	
32.211	13411	396	0.030	2.32	2 PETN
33.291	409	68	0.166	0.39	
35.381	1725	64	0.037	0.37	
36.020	341	86	0.252	0.50	
36.317	431	28	0.065	0.16	
36.511	267	54	0.202	0.31	
36.881	1003	72	0.072	0.42	
37.174	2566	140	0.055	0.82	
	383379	17002		100.000	

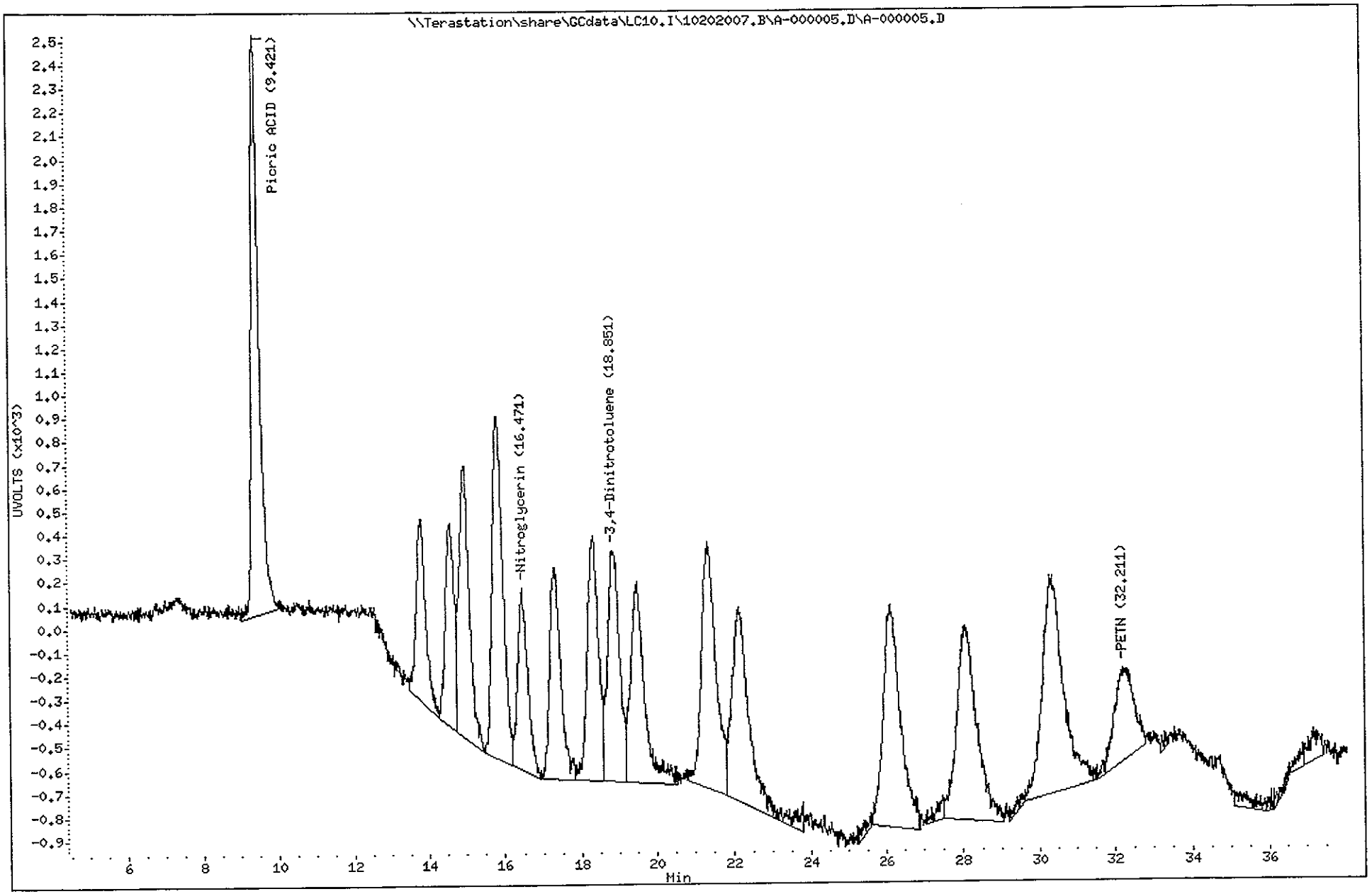
Total unknown % height = 72.72

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000006.D

Chromatography Summary

Injection Date: 10/20/2007 18:34 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000006.D **Vial Num:** 14

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_3 E070927C 20/50/20/20ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 18:34

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_3 E070927C 20/50/20/20ng/mL;1

Misc. Info: ;3; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	998	20		49.9	18.87	1882	20		94.1
HMX	5.29	2584	20		129.2			20		0
RDX	7.98	1505	20		75.25			20		0
Picric ACID	9.40	4345	50		86.9	9.41	6397	50		127.94
1,3,5-Trinitrobenzene	10.55	2940	20		147			20		0
1,3-Dinitrobenzene	13.79	2829	20		141.45			20		0
TETRYL	14.96	1835	20		91.75			20		0
Nitrobenzene	15.82	1302	20		65.1			20		0
2,4,6-Trinitrotoluene	17.32	1791	20		89.55			20		0
4-AM-2,6-DNT	18.34	1307	20		65.35			20		0
2-AM-4,6-DNT	19.48	1479	20		73.95			20		0
2,6-Dinitrotoluene	21.39	1043	20		52.15			20		0
2,4-Dinitrotoluene	22.15	1692	20		84.6			20		0
2-Nitrotoluene	26.15	719	20		35.95			20		0
4-Nitrotoluene	28.11	853	20		42.65			20		0
3-Nitrotoluene	30.31	829	20		41.45			20		0
Nitroglycerin			20		0	16.47	1521	20		76.05
PETN			20		0	32.29	888	20		44.4
3,5-Dinitroaniline	14.58	2071	20		103.55			20		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 19:23 tap
Cal Date : 28-SEP-2007 21:51
Als bottle: 14
Dil Factor: 1.00000
Integrator: Falcon+
Target Version: 4.14
Processing Host: SACP307HPLC

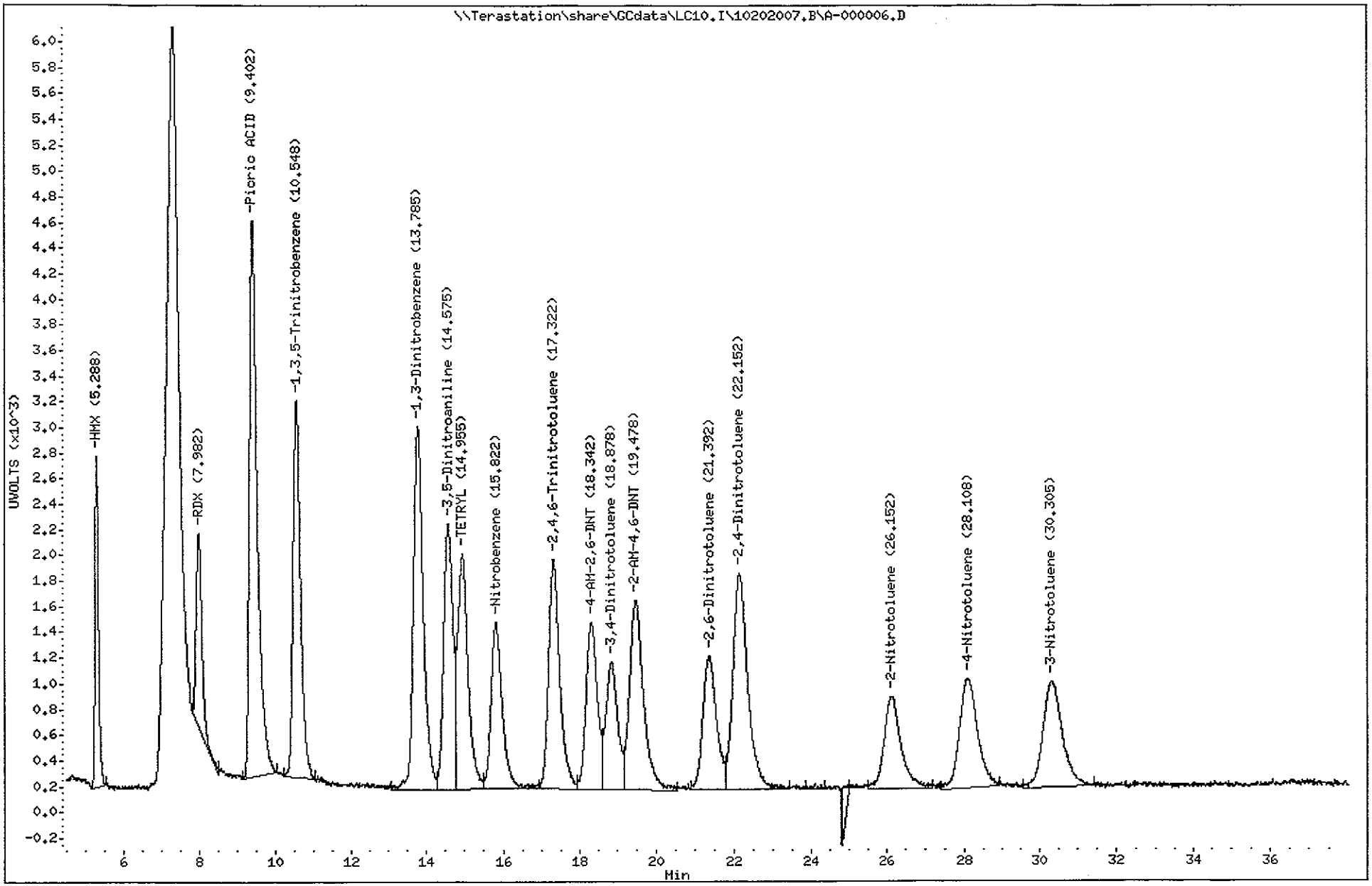
Inst ID: LC10.i
Quant Type: AREA%
Cal File: A-000008.d
Calibration Sample, Level: 3
Compound Sublist: EXPSDNA.sub

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.288	15506	2584	0.167	8.53		4 HMX
7.982	15805	1505	0.095	4.97		5 RDX
9.402	61763	4345	0.070	14.48		6 Picric ACID
10.548	39417	2940	0.075	9.71		7 1,3,5-Trinitrobenze
13.785	51005	2829	0.055	9.34		8 1,3-Dinitrobenzene
14.575	34921	2071	0.059	6.84		3 3,5-Dinitroaniline
14.955	34678	1835	0.053	6.06		9 TETRYL
15.822	26759	1302	0.049	4.30		10 Nitrobenzene
17.322	35948	1791	0.050	5.91		11 2,4,6-Trinitrotolue
18.342	27623	1307	0.047	4.31		12 4-AM-2,6-DNT
18.878	21365	998	0.047	3.29	$	13 3,4-Dinitrotoluene
19.478	37009	1479	0.040	4.88		14 2-AM-4,6-DNT
21.392	25042	1043	0.042	3.44		15 2,6-Dinitrotoluene
22.152	45221	1692	0.037	5.59		16 2,4-Dinitrotoluene
24.102	541	45	0.083	0.14		
24.978	2374	93	0.039	0.30		
26.152	22587	719	0.032	2.37		17 2-Nitrotoluene
28.108	27852	853	0.031	2.81		18 4-Nitrotoluene
30.305	29152	829	0.028	2.73		19 3-Nitrotoluene
	554567	30260		100.000		

Total unknown % height = 0.4400

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 19:23 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 14 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

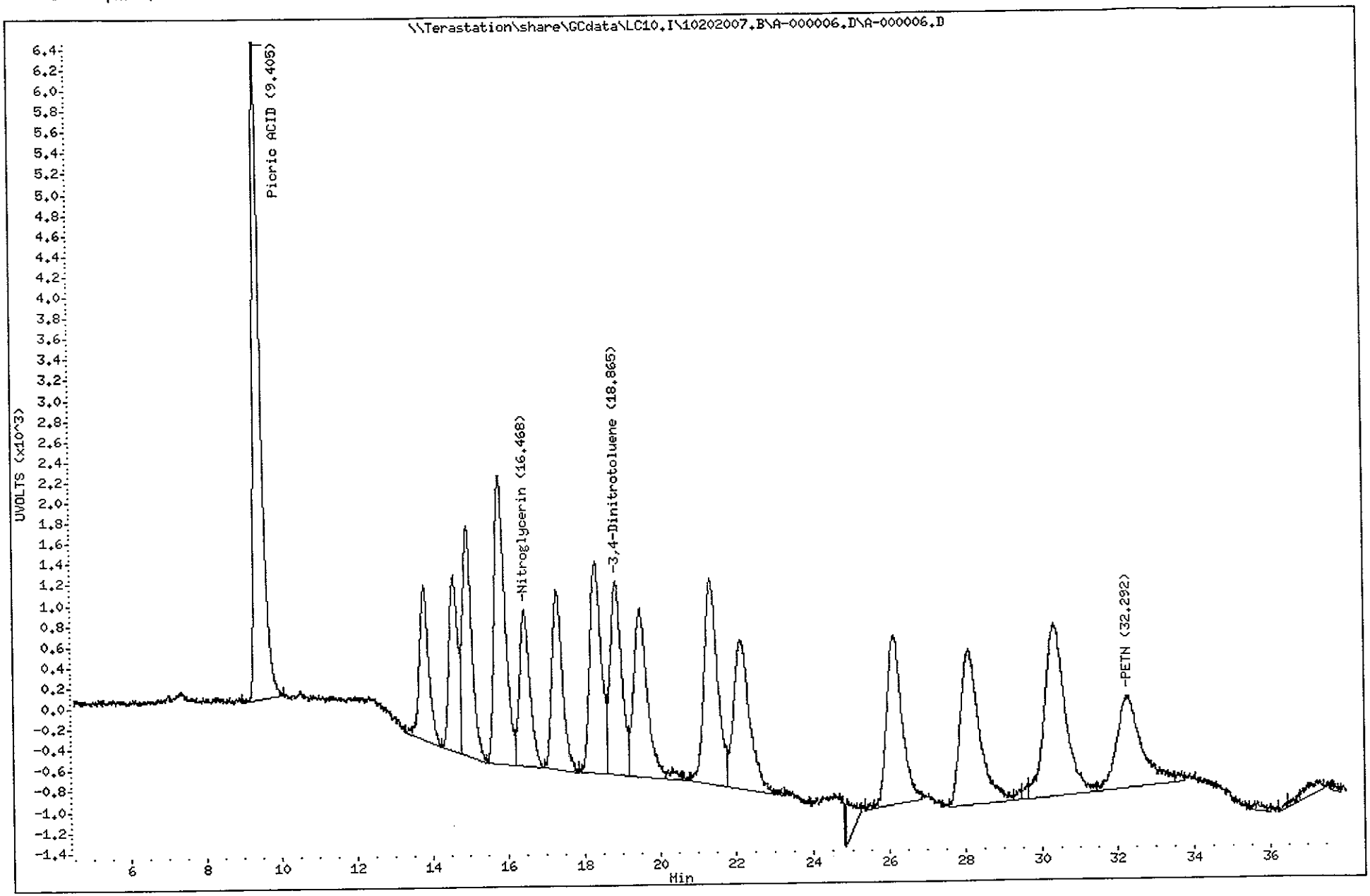
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.405	90361	6397	0.071	18.98	6 Picric ACID
13.785	26195	1501	0.057	4.42	
14.578	27652	1705	0.062	5.02	
14.948	40367	2243	0.056	6.61	
15.822	55667	2805	0.050	8.26	
16.468	28565	1521	0.053	4.48	1 Nitroglycerin
17.318	32499	1732	0.053	5.10	
18.345	43232	2059	0.048	6.07	
18.865	39547	1882	0.048	5.54	$ 13 3,4-Dinitrotoluene
19.505	42176	1637	0.039	4.82	
21.365	49944	2003	0.040	5.90	
22.158	41886	1454	0.035	4.28	
24.865	5112	411	0.080	1.21	
25.465	480	66	0.138	0.19	
26.152	47203	1647	0.035	4.85	
28.112	51464	1525	0.030	4.49	
29.402	800	99	0.124	0.29	
29.605	1192	136	0.114	0.40	
30.322	62540	1673	0.027	4.93	
32.292	39523	888	0.022	2.61	2 PETN
33.578	921	88	0.096	0.25	
35.552	1493	86	0.058	0.25	
36.398	332	58	0.174	0.17	
36.735	788	79	0.100	0.23	
36.998	3128	133	0.043	0.39	
37.638	586	91	0.155	0.26	
	733654	33919		100.000	

Total unknown % height = 68.39

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000007.D

Chromatography Summary

Injection Date: 10/20/2007 19:27 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000007.D **Vial Num:** 15

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_4 E070927D 50/100/50/50ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 19:27

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_4 E070927D 50/100/50/50ng/mL;1

Misc. Info: ;4; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	2446	50		48.92	18.88	4711	50		94.22
HMX	5.29	6576	50		131.52			50		0
RDX	7.99	4025	50		80.5			50		0
Picric ACID	9.39	8554	100		85.54	9.39	12576	100		125.76
1,3,5-Trinitrobenzene	10.55	7440	50		148.8			50		0
1,3-Dinitrobenzene	13.78	7048	50		140.96			50		0
TETRYL	14.96	4463	50		89.26			50		0
Nitrobenzene	15.82	3134	50		62.68			50		0
2,4,6-Trinitrotoluene	17.33	4421	50		88.42			50		0
4-AM-2,6-DNT	18.34	3221	50		64.42			50		0
2-AM-4,6-DNT	19.51	3680	50		73.6			50		0
2,6-Dinitrotoluene	21.39	2550	50		51			50		0
2,4-Dinitrotoluene	22.17	4190	50		83.8			50		0
2-Nitrotoluene	26.15	1776	50		35.52			50		0
4-Nitrotoluene	28.09	2126	50		42.52			50		0
3-Nitrotoluene	30.35	2068	50		41.36			50		0
Nitroglycerin			50		0	16.48	3688	50		73.76
PETN			50		0	32.30	1901	50		38.02
3,5-Dinitroaniline	14.58	4996	50		99.92			50		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.290	41171	6576	0.160	9.03		4 HMX
7.990	43387	4025	0.093	5.53		5 RDX
9.393	123968	8554	0.069	11.86		6 Picric ACID
10.553	100035	7440	0.074	10.22		7 1,3,5-Trinitrobenze
12.773	265	32	0.121	0.04		
13.780	123152	7048	0.057	9.68		8 1,3-Dinitrobenzene
14.580	84004	4996	0.059	6.86		3 3,5-Dinitroaniline
14.960	81009	4463	0.055	6.13		9 TETRYL
15.820	60573	3134	0.052	4.30		10 Nitrobenzene
17.333	88986	4421	0.050	6.07		11 2,4,6-Trinitrotolue
18.343	67148	3221	0.048	4.42		12 4-AM-2,6-DNT
18.877	52424	2446	0.047	3.36	$	13 3,4-Dinitrotoluene
19.507	90136	3680	0.041	5.05		14 2-AM-4,6-DNT
21.387	61040	2550	0.042	3.50		15 2,6-Dinitrotoluene
22.167	109998	4190	0.038	5.75		16 2,4-Dinitrotoluene
26.147	53033	1776	0.033	2.44		17 2-Nitrotoluene
28.093	69593	2126	0.031	2.92		18 4-Nitrotoluene
30.350	72866	2068	0.028	2.84		19 3-Nitrotoluene
	1322790	72746		100.000		

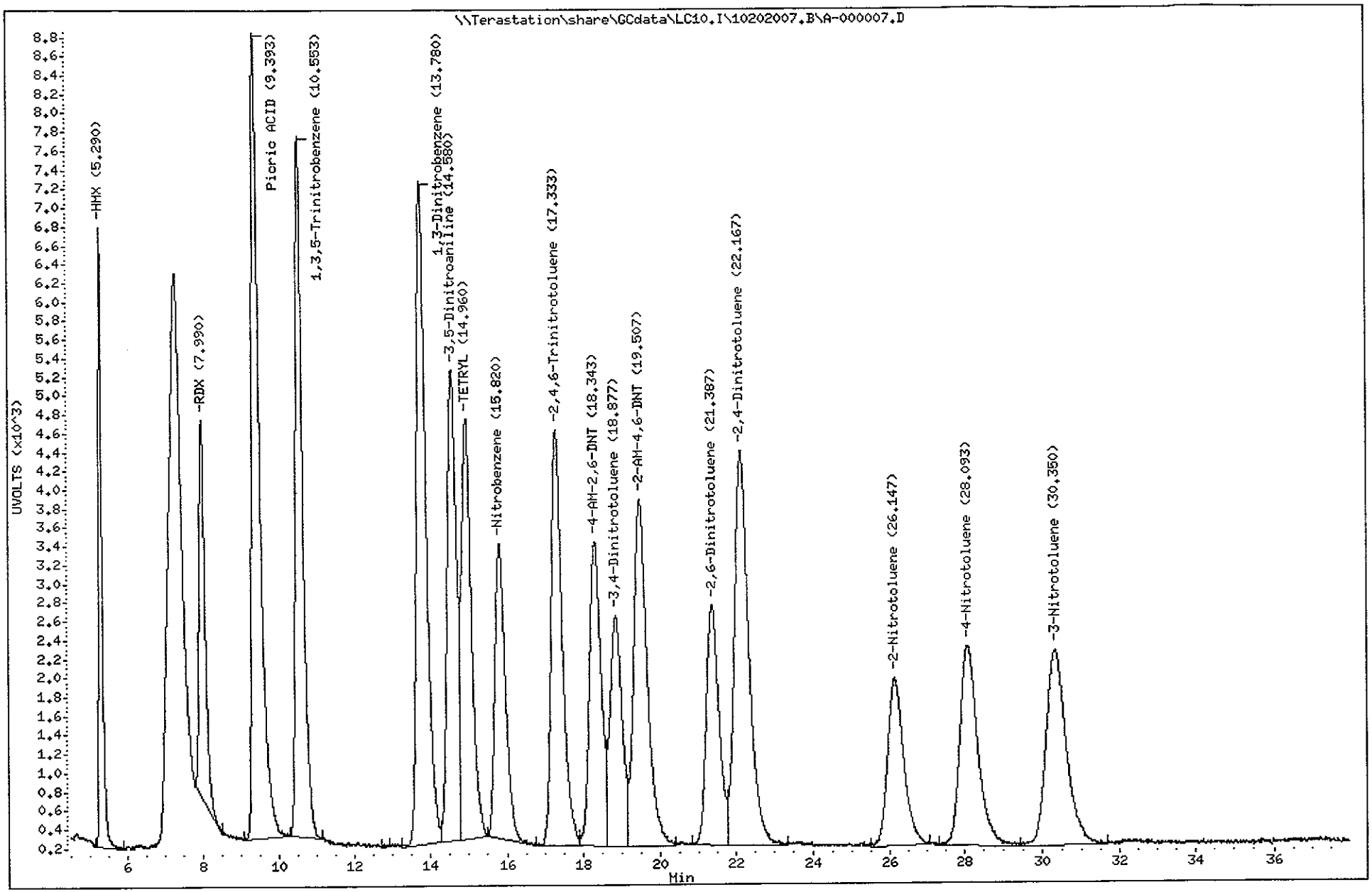
Total unknown % height = 0.04000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000007.D
Report Date: 20-Oct-2007 20:16

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.393	179377	12576	0.070	16.30	6 Picric ACID
13.773	61726	3644	0.059	4.69	
14.580	68535	4110	0.060	5.29	
14.957	100107	5661	0.057	7.29	
15.823	129545	6781	0.052	8.73	
16.483	68273	3688	0.054	4.75	1 Nitroglycerin
17.333	84929	4447	0.052	5.72	
18.340	105334	5158	0.049	6.64	
18.877	101259	4711	0.047	6.06	$ 13 3,4-Dinitrotoluene
19.510	97523	4074	0.042	5.24	
21.370	117085	4776	0.041	6.15	
22.173	97888	3504	0.036	4.51	
25.300	1564	123	0.079	0.15	
26.143	135781	4319	0.032	5.56	
27.467	523	65	0.124	0.08	
28.100	116919	3682	0.031	4.74	
30.330	139582	4015	0.029	5.17	
32.297	69868	1901	0.027	2.44	2 PETN
34.787	454	67	0.148	0.08	
35.443	394	62	0.157	0.07	
35.947	1240	66	0.053	0.08	
37.183	1474	97	0.066	0.12	
37.380	1904	114	0.060	0.14	
	1681285	77641		100.000	

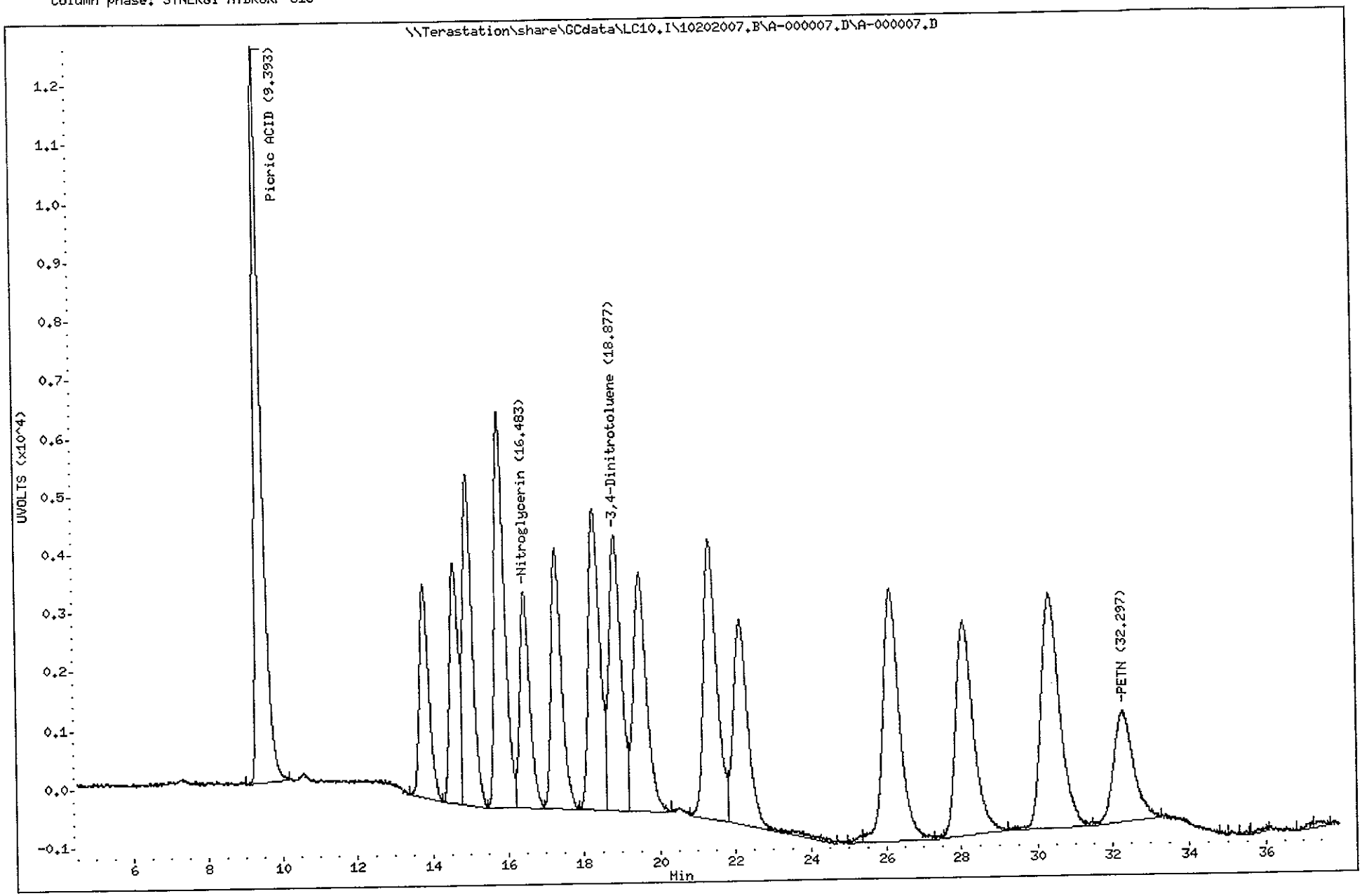
Total unknown % height = 70.45

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000008.D

Chromatography Summary

Injection Date: 10/20/2007 20:20 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000008.D **Vial Num:** 16

Instrument ID: LC10

Method 8330 Target Analyte Results

Method File: LC10.I\10202007.B\8330AB.M

Sample : **STD_5 E071007D 100/200/100/100ng/mL**

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 20:20

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_5 E071007D 100/200/100/100ng/mL;1

Misc. Info: ;5; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	4723	100		47.23	18.87	9161	100		91.61
HMX	5.28	13153	100		131.53			100		0
RDX	7.98	8180	100		81.8			100		0
Picric ACID	9.37	17317	200		86.585	9.37	25508	200		127.54
1,3,5-Trinitrobenzene	10.55	14896	100		148.96			100		0
1,3-Dinitrobenzene	13.78	14209	100		142.09			100		0
TETRYL	14.95	8988	100		89.88			100		0
Nitrobenzene	15.82	6439	100		64.39			100		0
2,4,6-Trinitrotoluene	17.33	8784	100		87.84			100		0
4-AM-2,6-DNT	18.33	6445	100		64.45			100		0
2-AM-4,6-DNT	19.50	7347	100		73.47			100		0
2,6-Dinitrotoluene	21.37	5154	100		51.54			100		0
2,4-Dinitrotoluene	22.15	8447	100		84.47			100		0
2-Nitrotoluene	26.11	3552	100		35.52			100		0
4-Nitrotoluene	28.07	4286	100		42.86			100		0
3-Nitrotoluene	30.29	4155	100		41.55			100		0
Nitroglycerin			100		0	16.48	7617	100		76.17
PETN			100		0	32.23	4110	100		41.1
3,5-Dinitroaniline	14.58	9422	100		94.22			100		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.285	81462	13153	0.161	9.02		4	HMX
6.228	587	61	0.104	0.04			
7.981	90345	8180	0.091	5.61		5	RDX
9.368	250164	17317	0.069	11.99		6	Picric ACID
10.548	200917	14896	0.074	10.22		7	1,3,5-Trinitrobenze
13.231	127	27	0.213	0.01			
13.781	249537	14209	0.057	9.75		8	1,3-Dinitrobenzene
14.578	159490	9422	0.059	6.46		3	3,5-Dinitroaniline
14.951	166633	8988	0.054	6.17		9	TETRYL
15.818	130004	6439	0.050	4.42		10	Nitrobenzene
17.328	177433	8784	0.050	6.03		11	2,4,6-Trinitrotolue
18.328	134667	6445	0.048	4.42		12	4-AM-2,6-DNT
18.868	100998	4723	0.047	3.24	$	13	3,4-Dinitrotoluene
19.501	181043	7347	0.041	5.04		14	2-AM-4,6-DNT
21.371	122716	5154	0.042	3.53		15	2,6-Dinitrotoluene
22.155	222535	8447	0.038	5.79		16	2,4-Dinitrotoluene
26.115	106988	3552	0.033	2.43		17	2-Nitrotoluene
28.075	137833	4286	0.031	2.94		18	4-Nitrotoluene
30.288	144554	4155	0.029	2.85		19	3-Nitrotoluene
32.075	482	39	0.081	0.02			
33.138	1107	36	0.033	0.02			
	2659621	145660		100.000			

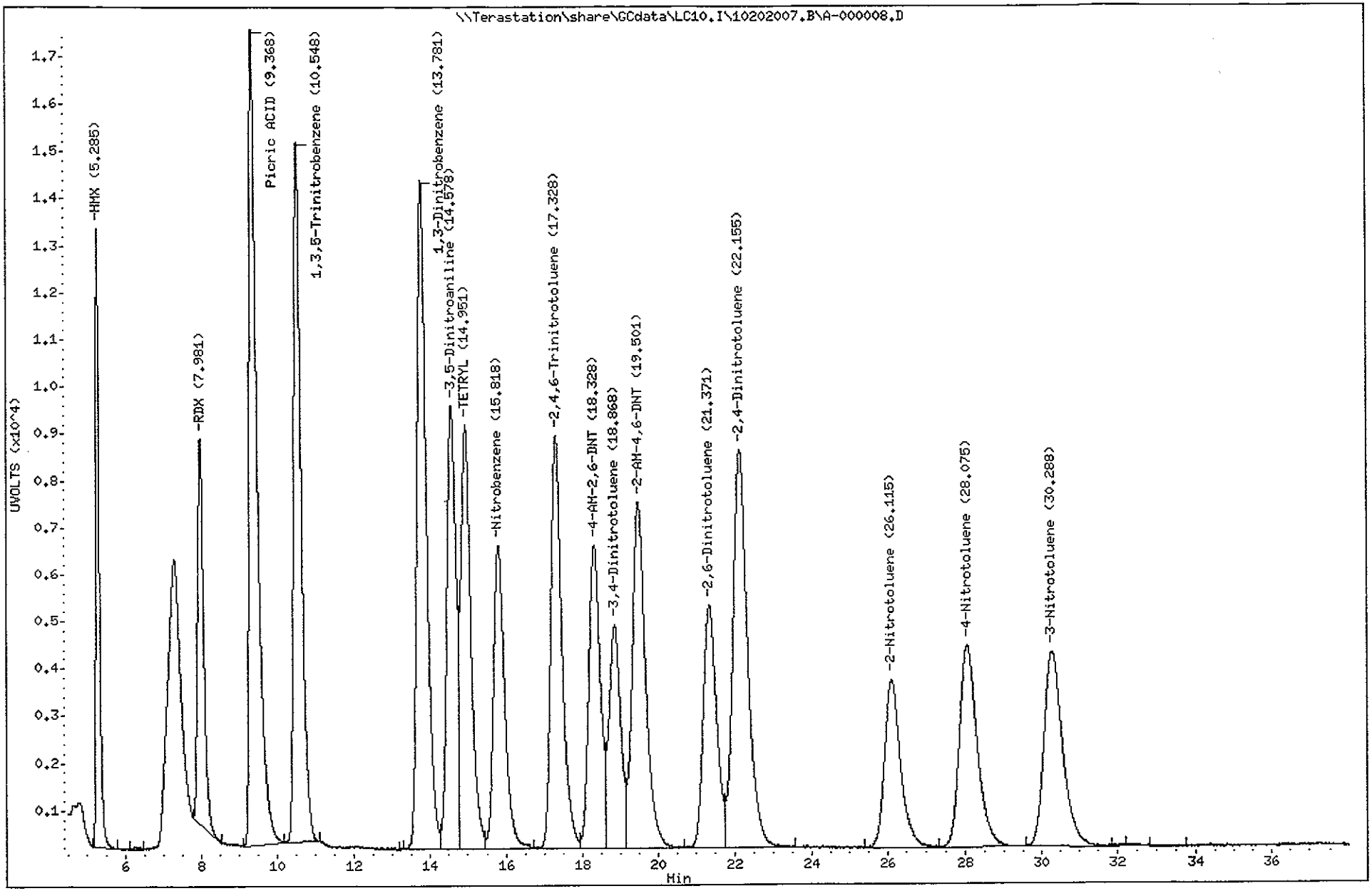
Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.368	368386	25508	0.069	16.62		6 Picric ACID
10.505	4399	262	0.060	0.16		
13.778	124635	7299	0.059	4.72		
14.578	121667	7687	0.063	4.97		
14.955	203655	11124	0.055	7.20		
15.818	258138	13514	0.052	8.75		
16.478	140715	7617	0.054	4.93		1 Nitroglycerin
17.325	170577	8804	0.052	5.70		
18.328	208877	10306	0.049	6.67		
18.875	197871	9161	0.046	5.93	$	13 3,4-Dinitrotoluene
19.498	199092	8078	0.041	5.23		
21.375	230580	9499	0.041	6.15		
22.148	188673	7034	0.037	4.55		
26.118	254477	8504	0.033	5.50		
28.051	236370	7411	0.031	4.79		
29.461	339	57	0.168	0.03		
30.288	283465	8129	0.029	5.26		
32.235	158155	4110	0.026	2.66		2 PETN
35.515	288	65	0.225	0.04		
35.958	1016	67	0.066	0.04		
36.725	274	76	0.278	0.04		
36.868	175	69	0.395	0.04		
37.301	263	42	0.159	0.02		
	3352087	154423		100.000		

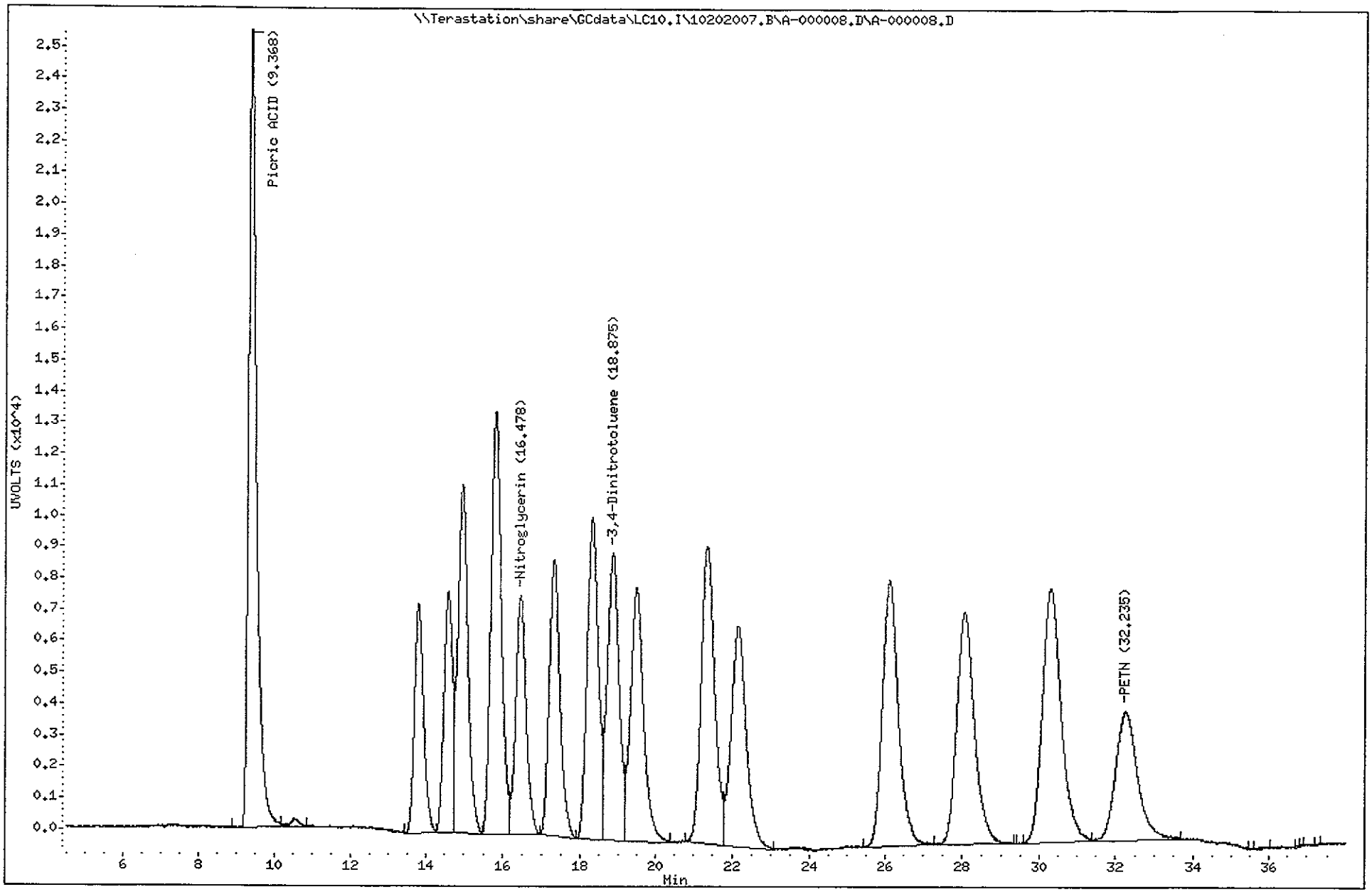
Total unknown % height = 69.86

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL:1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Chromatography Summary

Injection Date: 10/20/2007 21:13 **Operator:** KenneyF

DataFile: LC10.B\10202007.B\A-000009.D **Vial Num:** 17

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_6 E071007E 200/500/200/200ng/mL**

Method File: LC10.B\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 21:13

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_6 E071007E 200/500/200/200ng/mL;1

Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.85	9627	200		48.135	18.86	18735	200		93.675
HMX	5.29	26225	200		131.125			200		0
RDX	7.99	16410	200		82.05			200		0
Picric ACID	9.33	42194	500		84.388	9.33	62164	500		124.328
1,3,5-Trinitrobenzene	10.55	29758	200		148.79			200		0
1,3-Dinitrobenzene	13.77	28344	200		141.72			200		0
TETRYL	14.94	17946	200		89.73			200		0
Nitrobenzene	15.81	12860	200		64.3			200		0
2,4,6-Trinitrotoluene	17.32	17569	200		87.845			200		0
4-AM-2,6-DNT	18.32	12854	200		64.27			200		0
2-AM-4,6-DNT	19.49	14692	200		73.46			200		0
2,6-Dinitrotoluene	21.36	10270	200		51.35			200		0
2,4-Dinitrotoluene	22.14	16871	200		84.355			200		0
2-Nitrotoluene	26.11	7096	200		35.48			200		0
4-Nitrotoluene	28.05	8568	200		42.84			200		0
3-Nitrotoluene	30.28	8317	200		41.585			200		0
Nitroglycerin			200		0	16.47	14641	200		73.205
PETN			200		0	32.22	7903	200		39.515
3,5-Dinitroaniline	14.57	19139	200		95.695			200		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:48 AM

Test America West Sacramento

Method 8330

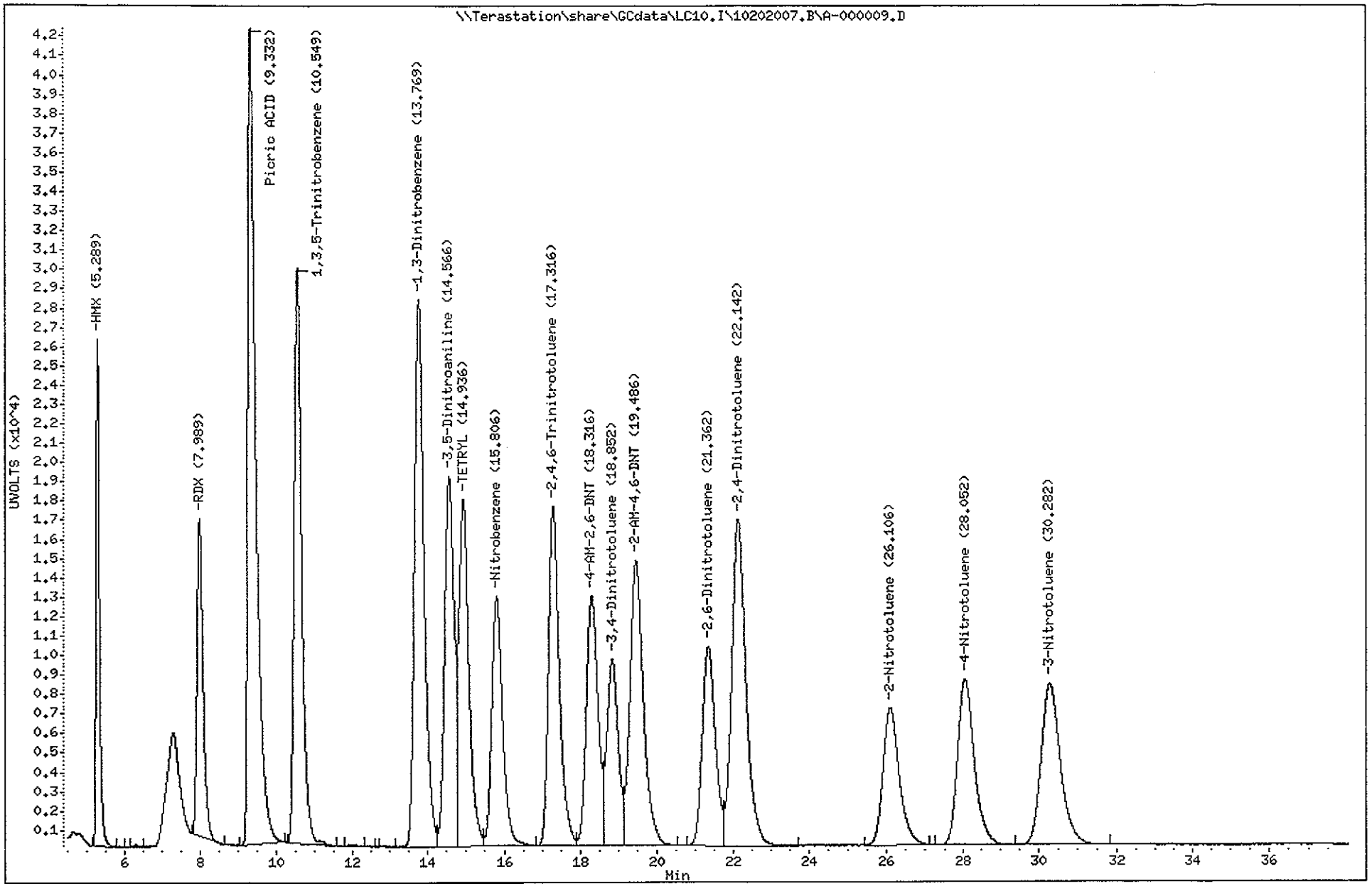
Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.289	163008	26225	0.161	8.77		4 HMX
6.059	129	24	0.186	0.00		
6.279	1078	108	0.100	0.03		
7.989	183479	16410	0.089	5.48		5 RDX
9.332	615660	42194	0.069	14.21		6 Picric ACID
10.549	406166	29758	0.073	9.95		7 1,3,5-Trinitrobenze
11.966	1271	84	0.066	0.02		
12.686	80	23	0.287	0.00		
13.769	497180	28344	0.057	9.48		8 1,3-Dinitrobenzene
14.566	324925	19139	0.059	6.40		3 3,5-Dinitroaniline
14.936	333352	17946	0.054	6.00		9 TETRYL
15.806	258417	12860	0.050	4.30		10 Nitrobenzene
17.316	351675	17569	0.050	5.87		11 2,4,6-Trinitrotolue
18.316	268224	12854	0.048	4.29		12 4-AM-2,6-DNT
18.852	204311	9627	0.047	3.21	$	13 3,4-Dinitrotoluene
19.486	358173	14692	0.041	4.91		14 2-AM-4,6-DNT
21.362	242697	10270	0.042	3.43		15 2,6-Dinitrotoluene
22.142	441736	16871	0.038	5.64		16 2,4-Dinitrotoluene
26.106	210604	7096	0.034	2.37		17 2-Nitrotoluene
28.052	272856	8568	0.031	2.86		18 4-Nitrotoluene
30.282	285300	8317	0.029	2.78		19 3-Nitrotoluene
	5420322	298979		100.000		

Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.289	883	102	0.116	0.03	
9.332	912724	62164	0.068	19.54	6 Picric ACID
10.546	7894	491	0.062	0.15	
13.769	251003	14729	0.059	4.60	
14.566	246725	15439	0.063	4.82	
14.942	403012	22223	0.055	6.94	
15.806	511259	26779	0.052	8.36	
16.466	268657	14641	0.054	4.57	1 Nitroglycerin
17.316	341261	17686	0.052	5.52	
18.316	421866	20584	0.049	6.43	
18.856	400001	18735	0.047	5.85	$ 13 3,4-Dinitrotoluene
19.482	393088	16204	0.041	5.06	
21.366	459888	18984	0.041	5.93	
22.142	384904	14200	0.037	4.43	
26.109	505043	16985	0.034	5.30	
28.049	481217	14978	0.031	4.68	
29.582	1125	115	0.102	0.03	
30.282	560830	16235	0.029	5.07	
32.219	324053	7903	0.024	2.46	2 PETN
34.269	8333	285	0.034	0.08	
34.829	8854	237	0.027	0.07	
36.056	857	66	0.077	0.02	
36.572	403	67	0.166	0.02	
36.902	727	83	0.114	0.02	
37.566	2545	80	0.031	0.02	
	6897152	319995		100.000	

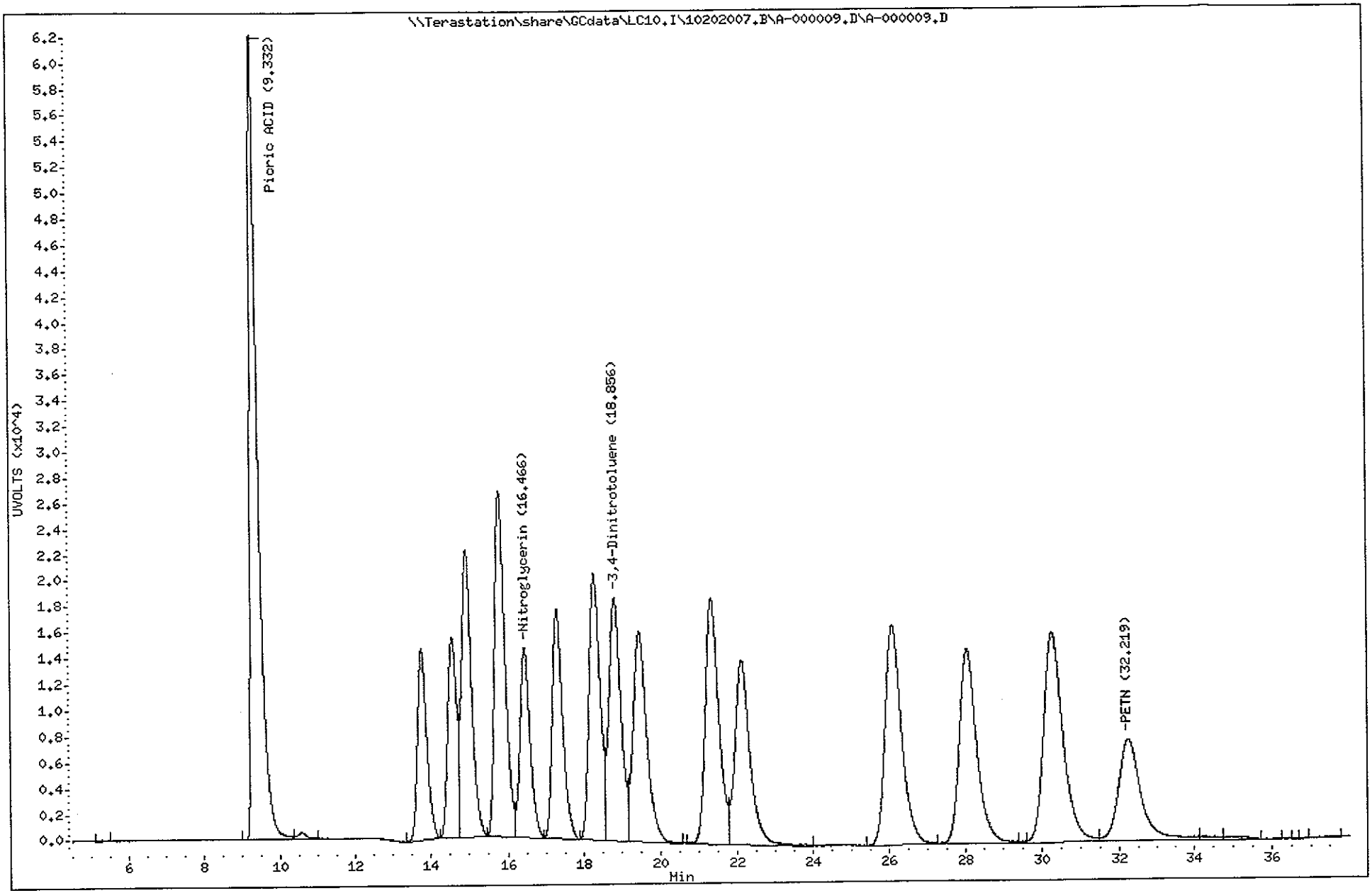
Total unknown % height = 67.58

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000010.D

Chromatography Summary

Injection Date: 10/20/2007 22:06 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000010.D **Vial Num:** 18

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_7 E071007F 500/1000/500/300ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:06

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Misc. Info: ;7; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.82	15067	300		50.22333333	18.82	28982	300		96.60666667
HMX	5.28	65773	500		131.546			500		0
RDX	7.97	41983	500		83.966			500		0
Picric ACID	9.26	79625	1000		79.625	9.26	117141	1000		117.141
1,3,5-Trinitrobenzene	10.53	74825	500		149.65			500		0
1,3-Dinitrobenzene	13.75	71394	500		142.788			500		0
TETRYL	14.91	44987	500		89.974			500		0
Nitrobenzene	15.78	32270	500		64.54			500		0
2,4,6-Trinitrotoluene	17.29	43867	500		87.734			500		0
4-AM-2,6-DNT	18.29	32178	500		64.356			500		0
2-AM-4,6-DNT	19.45	36672	500		73.344			500		0
2,6-Dinitrotoluene	21.32	25602	500		51.204			500		0
2,4-Dinitrotoluene	22.10	42195	500		84.39			500		0
2-Nitrotoluene	26.06	17620	500		35.24			500		0
4-Nitrotoluene	28.00	21334	500		42.668			500		0
3-Nitrotoluene	30.22	20719	500		41.438			500		0
Nitroglycerin			500		0	16.44	37193	500		74.386
PETN			500		0	32.16	19248	500		38.496
3,5-Dinitroaniline	14.55	48257	500		96.514			500		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

	RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
	5.281	410325	65773	0.160	9.19		4	HMX
	6.281	2950	254	0.086	0.03			
	7.974	465148	41983	0.090	5.87		5	RDX
	9.264	1228542	79625	0.065	11.24		6	Picric ACID
	10.531	1002306	74825	0.075	10.46		7	1,3,5-Trinitrobenze
	11.941	3703	200	0.054	0.02			
	13.751	1240420	71394	0.058	9.98		8	1,3-Dinitrobenzene
	14.547	809193	48257	0.060	6.74		3	3,5-Dinitroaniline
	14.914	834916	44987	0.054	6.29		9	TETRYL
	15.784	643162	32270	0.050	4.51		10	Nitrobenzene
	17.287	879213	43867	0.050	6.13		11	2,4,6-Trinitrotolue
	18.291	677729	32178	0.047	4.50		12	4-AM-2,6-DNT
	18.817	316217	15067	0.048	2.10	$	13	3,4-Dinitrotoluene
	19.454	884689	36672	0.041	5.12		14	2-AM-4,6-DNT
	21.324	603867	25602	0.042	3.58		15	2,6-Dinitrotoluene
	22.101	1104143	42195	0.038	5.90		16	2,4-Dinitrotoluene
	25.331	420	31	0.074	0.00			
	26.057	521699	17620	0.034	2.46		17	2-Nitrotoluene
	28.001	677190	21334	0.032	2.98		18	4-Nitrotoluene
	30.221	707457	20719	0.029	2.89		19	3-Nitrotoluene
	32.101	2194	82	0.037	0.01			
	34.354	295	41	0.139	0.00			
		13015777	714976		100.000			

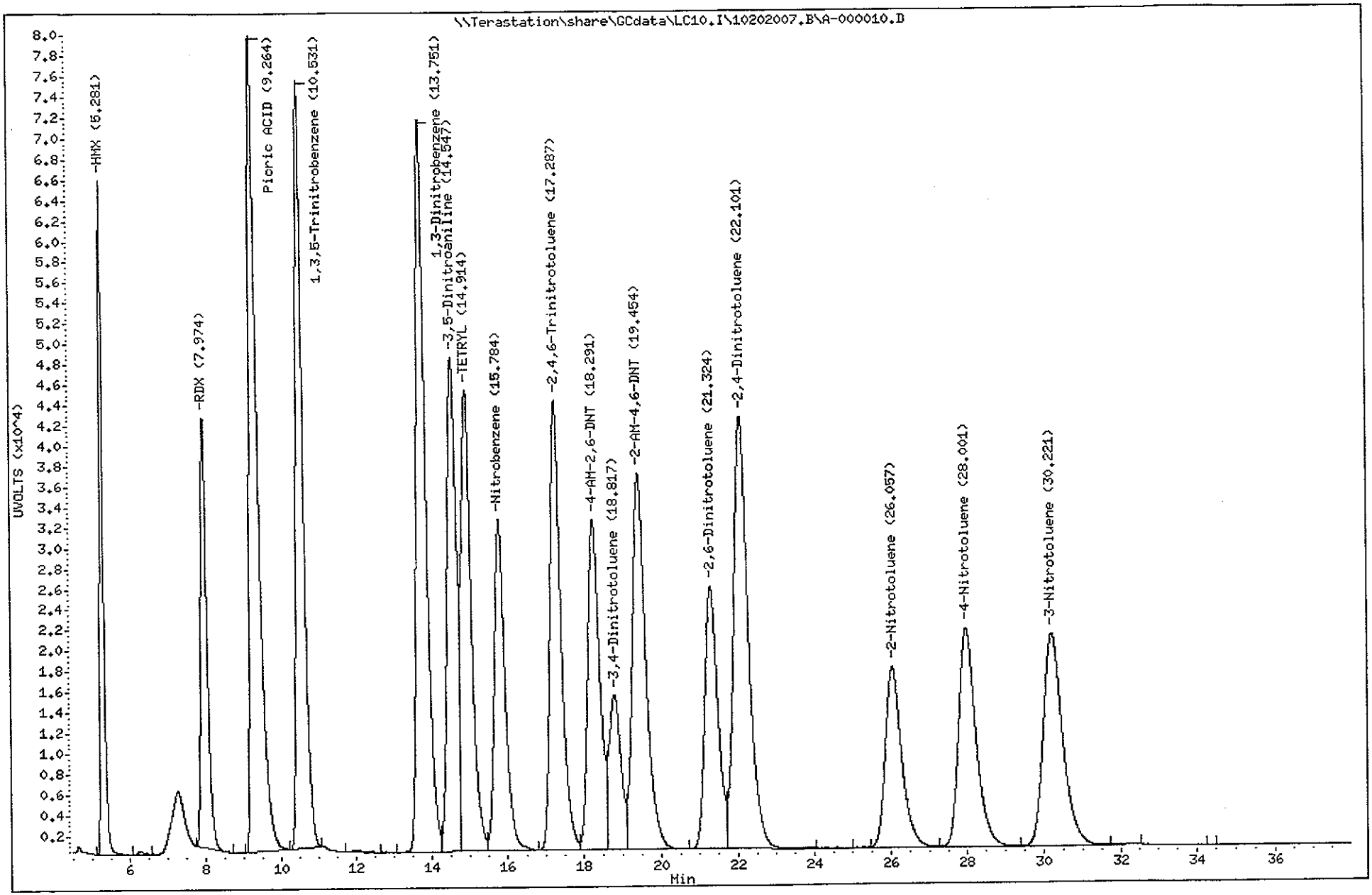
Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

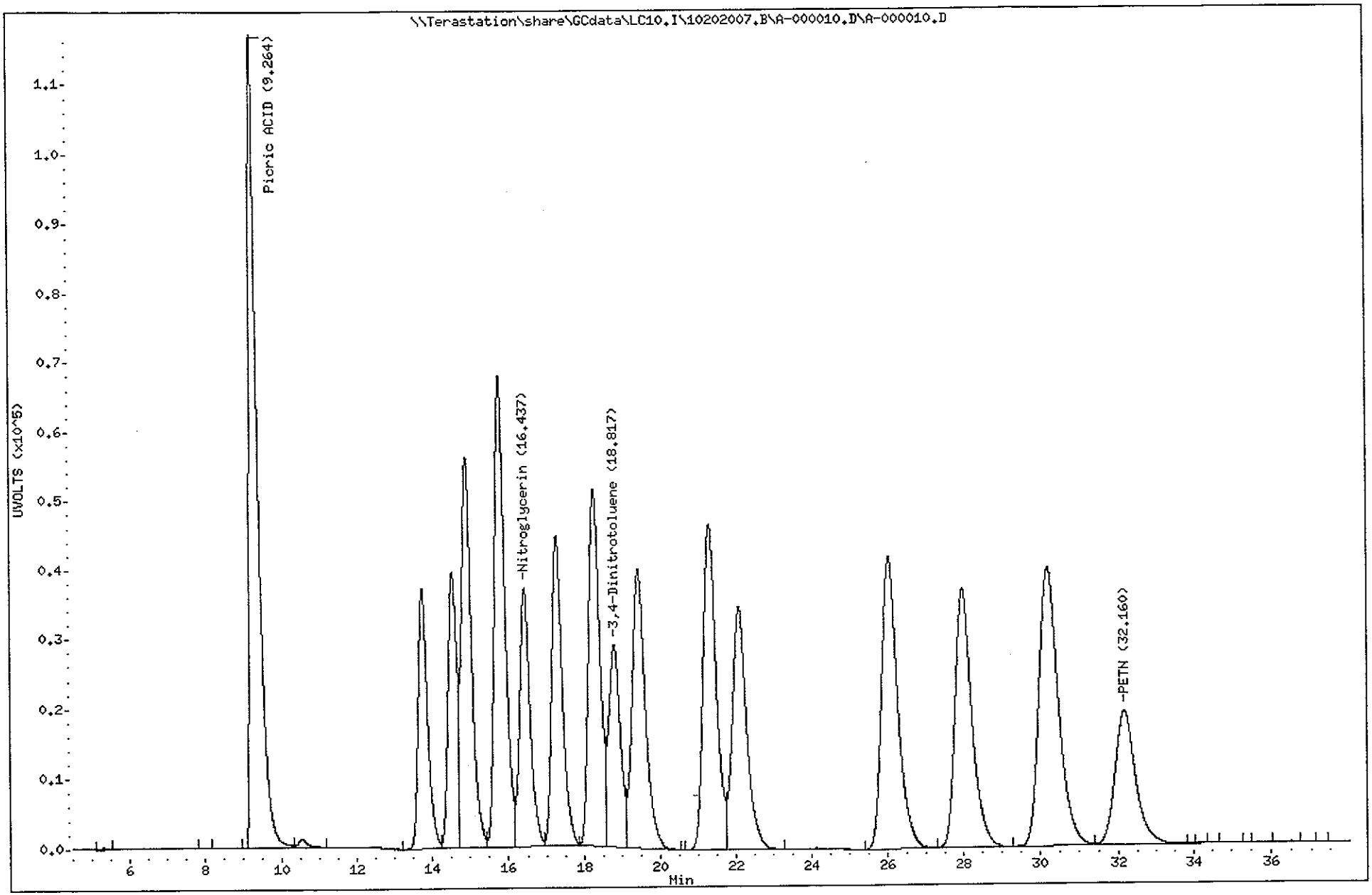
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.294	1833	199	0.109	0.02	
7.964	1343	136	0.101	0.01	
9.264	1821347	117141	0.064	15.88	6 Picric ACID
10.527	20260	1218	0.060	0.16	
13.751	644528	37394	0.058	5.02	
14.547	635653	39676	0.062	5.33	
14.917	1043481	56362	0.054	7.58	
15.784	1306817	67971	0.052	9.14	
16.437	701571	37193	0.053	5.00	1 Nitroglycerin
17.287	869130	44560	0.051	5.99	
18.291	1061954	51459	0.048	6.92	
18.817	610675	28982	0.047	3.89	$ 13 3,4-Dinitrotoluene
19.454	965244	40106	0.042	5.39	
21.321	1122816	46976	0.042	6.31	
22.101	921502	34951	0.038	4.70	
26.057	1240736	42066	0.034	5.65	
28.001	1176921	37224	0.032	5.00	
30.224	1370990	40129	0.029	5.39	
32.160	722564	19248	0.027	2.58	2 PETN
33.964	301	50	0.166	0.00	
34.297	642	62	0.097	0.00	
34.621	1117	115	0.103	0.01	
35.054	2033	81	0.040	0.01	
35.717	1545	69	0.045	0.00	
36.467	1989	80	0.040	0.01	
37.124	905	78	0.086	0.01	
	16247898	743526		100.000	

Total unknown % height = 72.65

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000011.D

Chromatography Summary

Injection Date: 10/20/2007 22:59 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000011.D **Vial Num:** 19

Instrument ID: LC10

Method 8330 Target Analyte Results

Method File: LC10.I\10202007.B\8330AB.M

Sample : STD_8 E071007G 1000/2000/1000/500ng/mL

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Misc. Info: ;8; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.80	25435	500	O	50.87	18.80	49635	500	O	99.27
HMX	5.28	130528	1000		130.528			1000		0
RDX	7.96	83711	1000	O	83.711			1000		0
Picric ACID	9.17	144474	2000		72.237	9.17	212345	2000		106.1725
1,3,5-Trinitrobenzene	10.52	149546	1000	O	149.546			1000		0
1,3-Dinitrobenzene	13.73	142622	1000		142.622			1000		0
TETRYL	14.90	89705	1000		89.705			1000		0
Nitrobenzene	15.77	64394	1000		64.394			1000		0
2,4,6-Trinitrotoluene	17.27	87749	1000		87.749			1000		0
4-AM-2,6-DNT	18.26	64355	1000		64.355			1000		0
2-AM-4,6-DNT	19.43	73240	1000		73.24			1000		0
2,6-Dinitrotoluene	21.31	51247	1000		51.247			1000		0
2,4-Dinitrotoluene	22.08	84521	1000		84.521			1000		0
2-Nitrotoluene	26.05	35264	1000		35.264			1000		0
4-Nitrotoluene	27.99	42643	1000		42.643			1000		0
3-Nitrotoluene	30.23	41273	1000		41.273			1000		0
Nitroglycerin			1000		0	16.42	76484	1000	O	76.484
PETN			1000		0	32.18	38753	1000		38.753
3,5-Dinitroaniline	14.52	97042	1000		97.042			1000		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

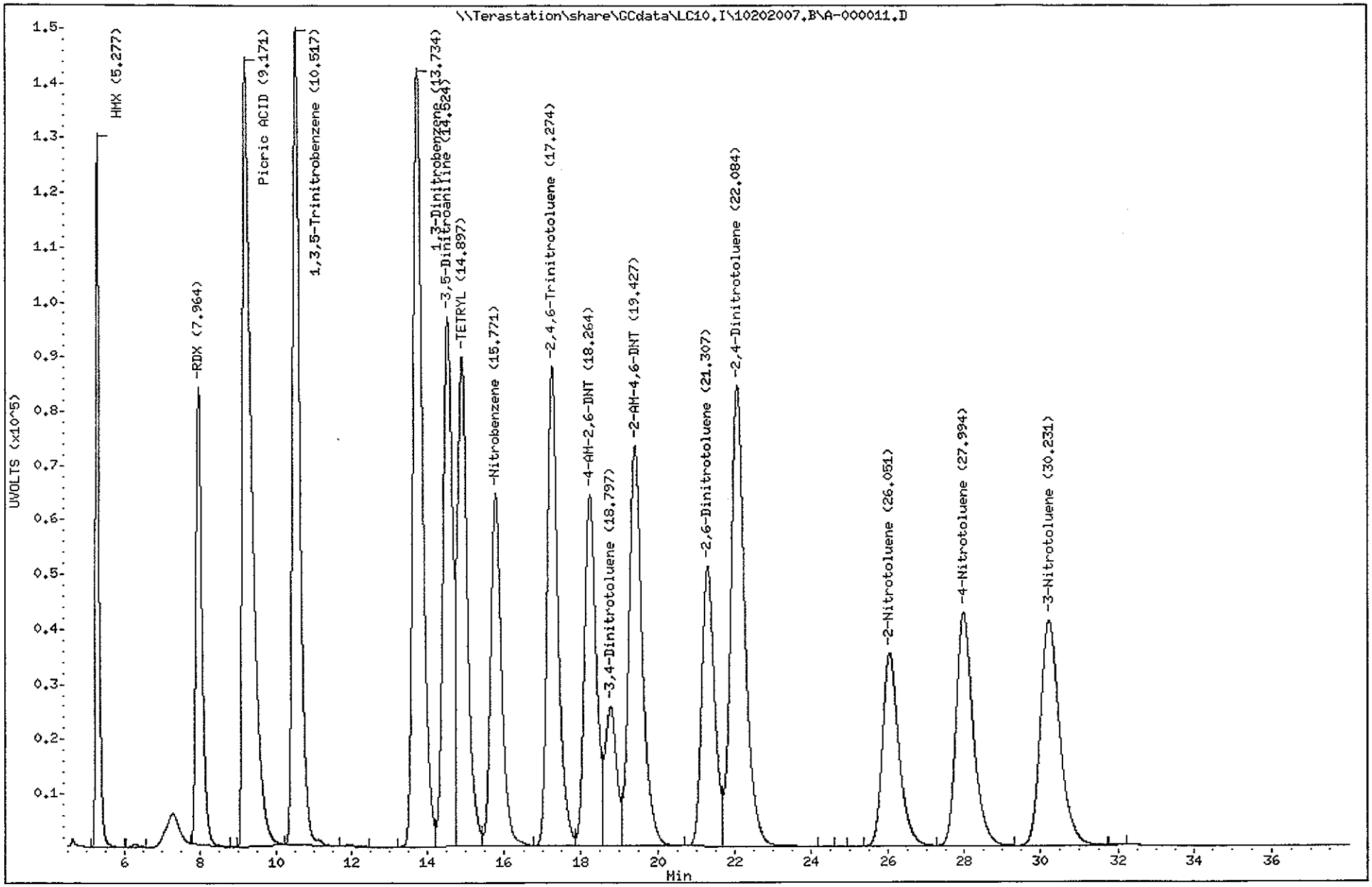
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.277	813735	130528	0.160	9.26		4 HMX
6.264	5963	553	0.093	0.03		
7.964	932373	83711	0.090	5.94		5 RDX
9.171	2457170	144474	0.059	10.25		6 Picric ACID
10.517	2031609	149546	0.074	10.74		7 1,3,5-Trinitrobenze
11.957	5975	351	0.059	0.02		
13.734	2469243	142622	0.058	10.12		8 1,3-Dinitrobenzene
14.524	1628874	97042	0.060	6.88		3 3,5-Dinitroaniline
14.897	1658970	89705	0.054	6.36		9 TETRYL
15.771	1279506	64394	0.050	4.57		10 Nitrobenzene
17.274	1747288	87749	0.050	6.22		11 2,4,6-Trinitrotolue
18.264	1360417	64355	0.047	4.56		12 4-AM-2,6-DNT
18.797	520428	25435	0.049	1.80	$	13 3,4-Dinitrotoluene
19.427	1758508	73240	0.042	5.19		14 2-AM-4,6-DNT
21.307	1202009	51247	0.043	3.63		15 2,6-Dinitrotoluene
22.084	2196247	84521	0.038	5.99		16 2,4-Dinitrotoluene
24.707	378	32	0.085	0.00		
26.051	1040936	35264	0.034	2.50		17 2-Nitrotoluene
27.994	1349165	42643	0.032	3.02		18 4-Nitrotoluene
30.231	1408843	41273	0.029	2.92		19 3-Nitrotoluene
32.090	558	49	0.088	0.00		
	25868196	1408734		100.000		

Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

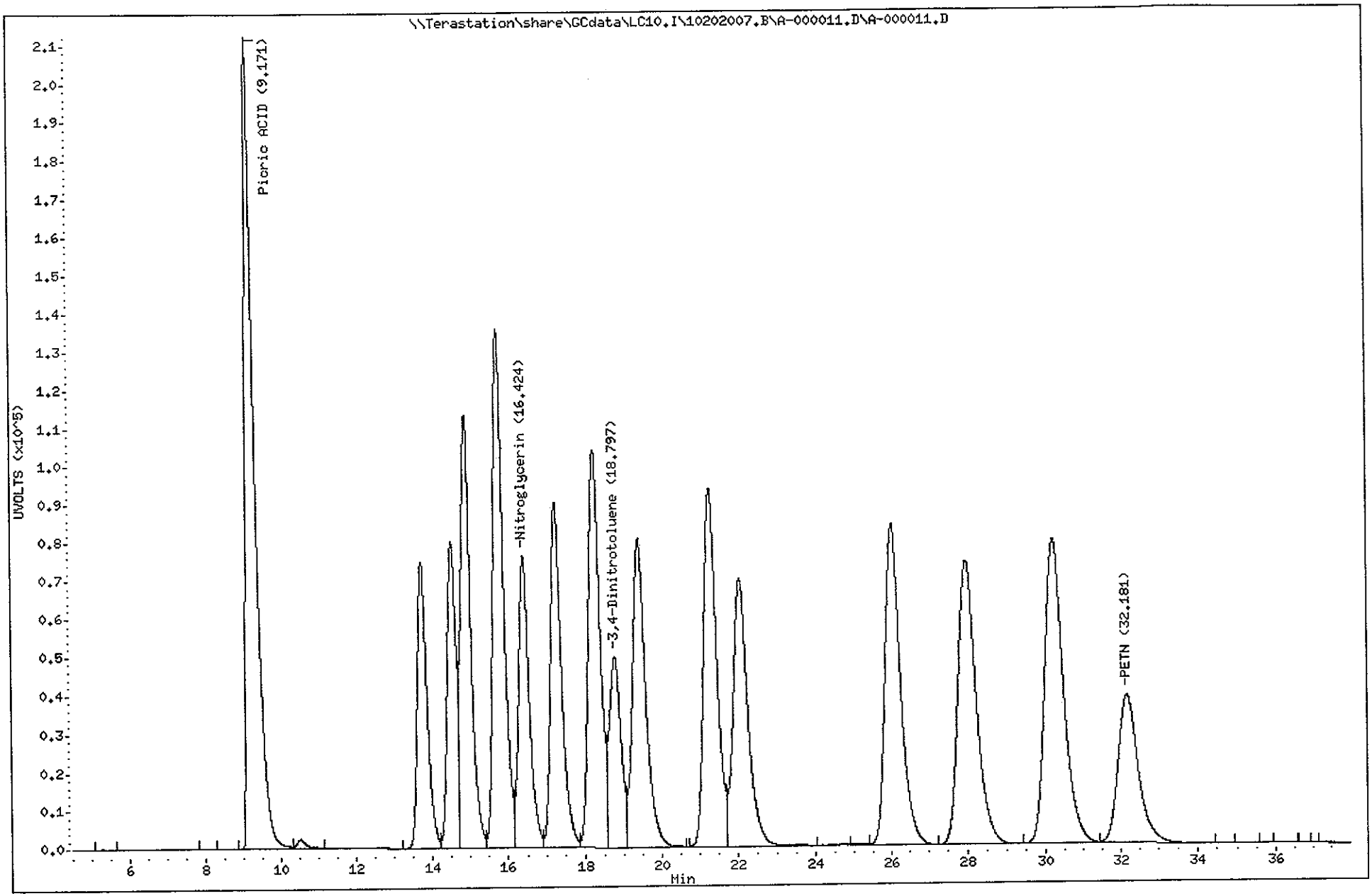
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.267	2842	303	0.107	0.02	
7.957	1951	177	0.091	0.01	
9.171	3634124	212345	0.058	14.62	6 Picric ACID
10.517	35777	2280	0.064	0.15	
13.734	1303508	75093	0.058	5.13	
14.524	1298822	80294	0.062	5.48	
14.901	2108795	113352	0.054	7.74	
15.771	2630858	135938	0.052	9.29	
16.424	1468801	76484	0.052	5.22	1 Nitroglycerin
17.274	1810190	90599	0.050	6.19	
18.264	2181688	104340	0.048	7.13	
18.797	1048205	49635	0.047	3.39	$ 13 3,4-Dinitrotoluene
19.427	1951260	80724	0.041	5.51	
21.304	2230581	93908	0.042	6.41	
22.084	1849536	70033	0.038	4.78	
25.171	3681	185	0.050	0.01	
26.051	2480593	84166	0.034	5.75	
27.994	2348458	74345	0.032	5.08	
30.231	2716024	79877	0.029	5.45	
32.181	1439721	38753	0.027	2.64	2 PETN
35.214	1442	82	0.057	0.00	
36.137	1778	80	0.045	0.00	
36.721	888	66	0.074	0.00	
37.051	405	60	0.148	0.00	
	32549929	1463119		100.000	

Total unknown % height = 74.13

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000012.D

Chromatography Summary

Injection Date: 10/20/2007 23:52 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000012.D **Vial Num:** 11

Method 8330 Target Analyte Results

Instrument ID: LC10

Sample : **Blank**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: Blank;0

Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	PPB	Flag	RT	Diff	Response	PPB	Flag	MDL	RL	Flag
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	
4-AM-2,6-DNT											0.0000	0.00	
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN						**32.31**	**0.132**	**82**	**2.0480<**		**0.0000**	**0.00**	45
3,5-Dinitroaniline											0.0000	0.00	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**2000.0000**		**0**	**2000.0000**		**0**	**0--1.#QNAI**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 11:12 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.639	1558	92	0.059	28.70	
10.136	172	31	0.180	9.65	
17.519	400	36	0.090	11.21	
20.953	596	34	0.057	10.59	
21.879	145	29	0.200	9.03	
27.176	553	37	0.067	11.52	
30.679	868	32	0.037	9.96	
32.629	605	30	0.050	9.34	
	4896	321		100.000	

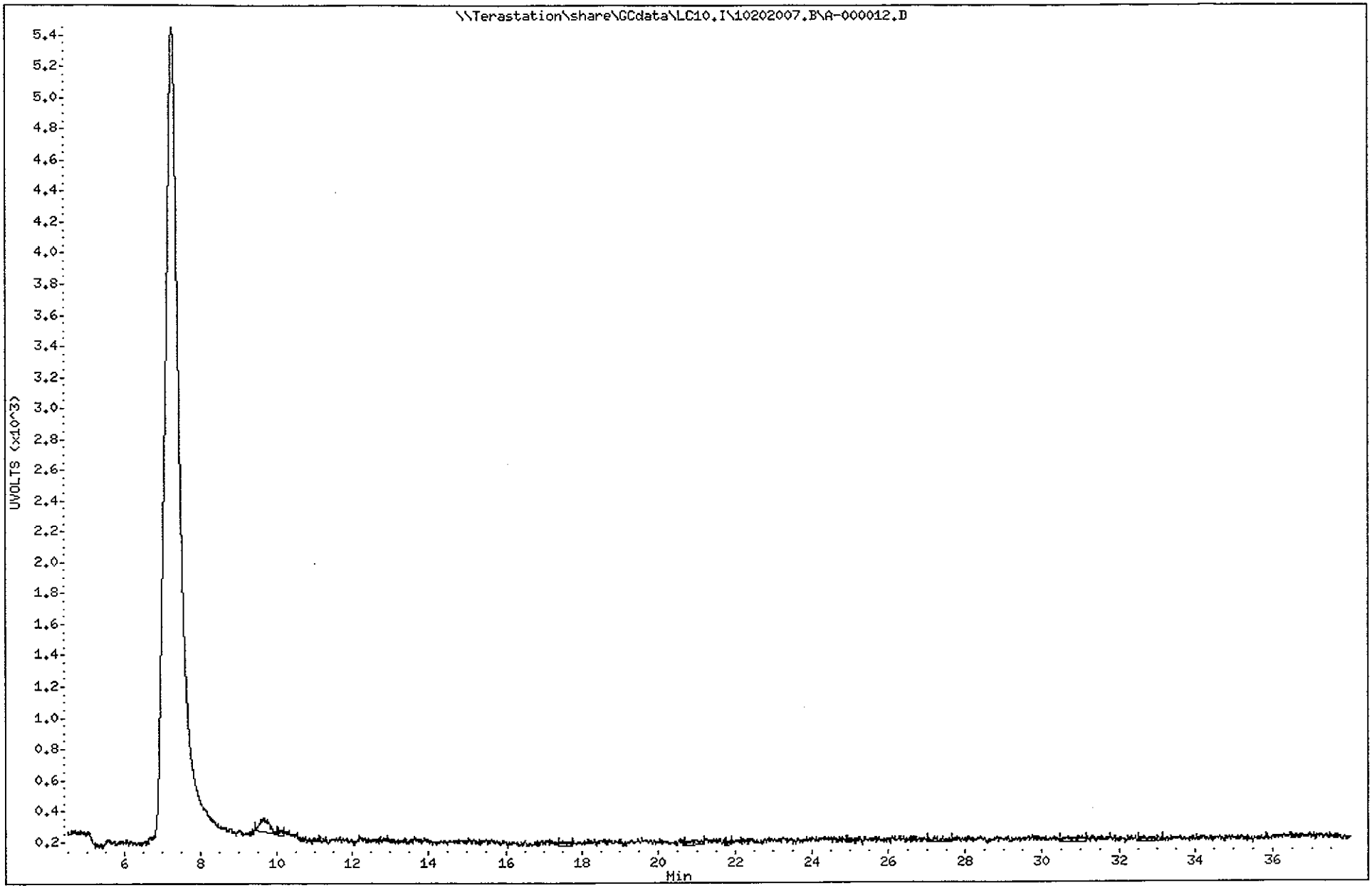
Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

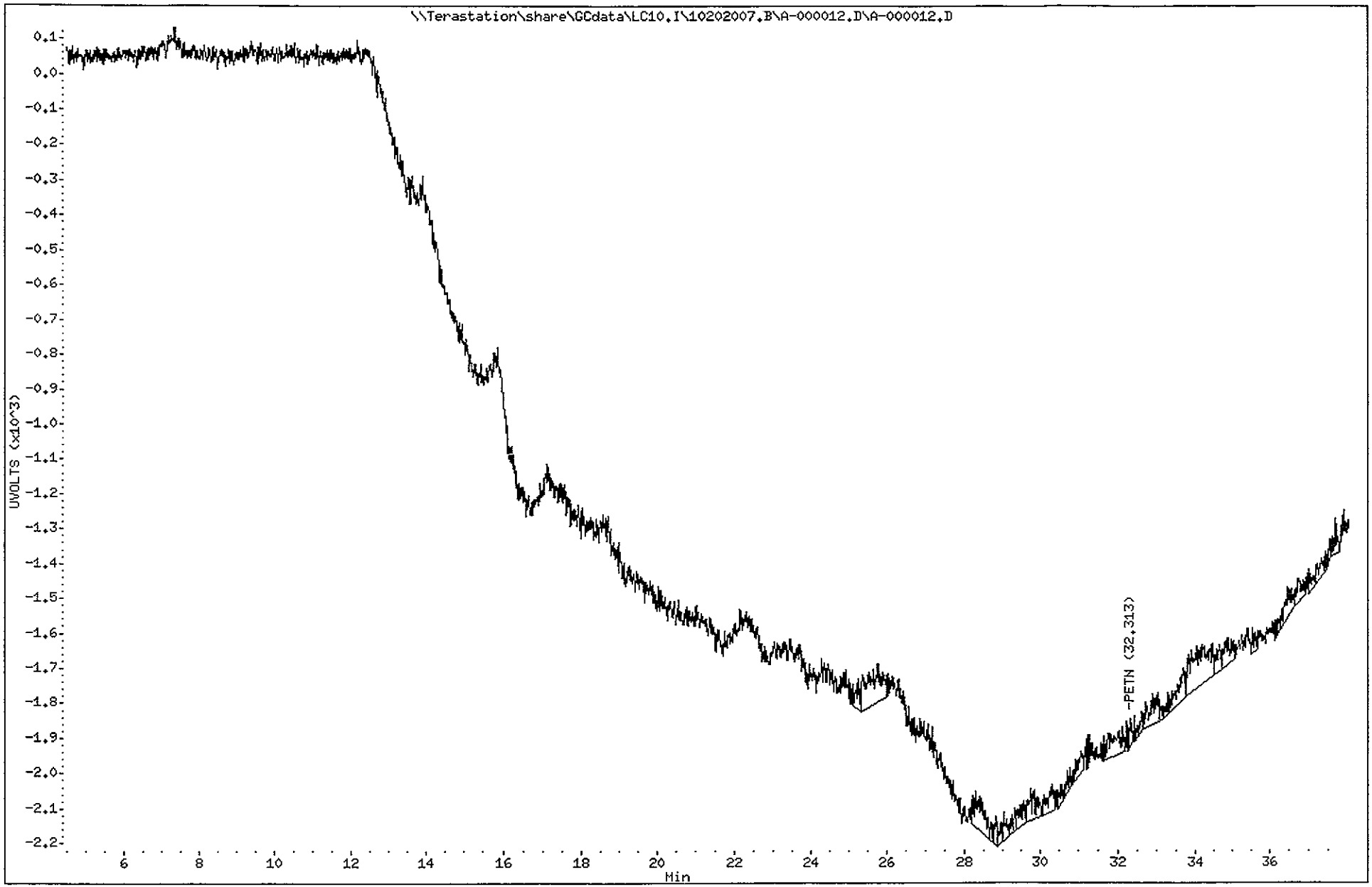
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
25.249	707	88	0.125	4.66	
25.549	2835	98	0.035	5.19	
28.276	2226	100	0.045	5.30	
29.033	721	79	0.110	4.18	
29.456	967	60	0.062	3.18	
29.753	1179	90	0.076	4.77	
30.313	806	73	0.091	3.87	
30.789	619	52	0.084	2.75	
31.066	634	60	0.095	3.18	
31.259	219	84	0.384	4.45	
31.763	1484	71	0.048	3.76	
32.313	407	82	0.202	4.34	2 PETN
32.616	354	56	0.158	2.96	
32.892	1438	90	0.063	4.77	
33.666	1560	94	0.060	4.98	
34.179	3836	113	0.029	6.11	
34.623	610	78	0.128	4.13	
34.956	1048	65	0.062	3.44	
35.519	370	71	0.192	3.76	
36.256	262	37	0.141	1.96	
36.453	951	86	0.090	4.55	
36.743	591	62	0.105	3.28	
37.396	844	45	0.053	2.38	
37.536	225	55	0.244	2.91	
37.672	437	97	0.222	5.14	
	25329	1886		100.000	

Total unknown % height = 95.66

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Sample Extraction/Preparation Log Copies and Checklists

STL Sacramento

GC/HPLC Data Review Checklist

SEVERN TRENT SERVICES

10/26

Lot ID: A7J040354 **Test:** 8330-S **PM:** LJL

Prep Batch(es) 7285667

A. Calibration/Instrument Run QC	Analyst	Reviewer	N/A
1. ICAL or ICAL Summary and CCV included.	—	/	
2. ICAL, CCV Criteria met.	—	/	
3. Multiple-eluters (TPH-D, 8081A, 8082) ICAL/CCVs appropriate and within critiera.			—
4. CCVs every 10 samples/12 hours, all samples bracketed front and back.	—	/	
5. PEM frequency and criteria met.		/	—
6. Peaks correctly ID'd by data system.	—	/	
7. Copy of logbook for ICAL included	—	/	
8. Method Number is identified on data.	—	/	
B. QA/QC		/	
1. Method blank, LCS/LCSD and MS/SD frequencies met.	—	/	
2. LCS/LCSD and MB data is included.	—	/	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present in Clouseau.	—	/	
4. MS/MSD data complete.	—	/	
5. Holding Times were met.	—	/	
C. Sample Analysis		/	
1. Logbook copies for all injections made, including ICV standards and ICAL.	—	/	
2. Logbooks/prep sheets properly filled out.	—	/	
3. Manual Integrations reviewed and appropriate.	—	/	
4. All raw data for samples is included (applies to unused data as well)	—	/	
5. All analytes correctly reported.	—	/	
6. Correct reporting limits used. (Based on client request, prep factors, and dilutions)	—	/	
D. Documentation		/	—
1. Are all nonconformances documented appropriately?		/	
2. Quantims entry correct, including dates and times.	—	/	
3. Appropriate footnotes used.	—	/	
4. Report sheets included and error-free.	—	/	

Analyst: [signature] Date: 10/30/07

2nd Level Reviewer: [signature] Date: 11/1/07

Comments:

q:\forms\qa-507_gc_review.doc

QA-508 GC Review
3/4/02 ERS

TestAmerica North Canton

TestAmerica West Sacramento
ESC-Extraction Master Sheet

Holding Time Due: 10/15/07 Project Due: _____

BATCH #: 7285667 Initiated By: _____ Date: 10/14/07

Test #: 8330-S Extn Comp'd By: _____ Date: 10/26/07

QC Code	Lab ID	Sample Size / Initial Mass	Final Volume / Final Mass	Difference in Mass
-B	-MB	2.00g	40.00ml	
-C	-LCS	2.00g	40.00ml	
	ATJ030104-1	2.05g	40.00ml	
-S	-1MS	1.99g	40.00ml	
-D	-1MSD	2.08g	40.00ml	
	-2	2.03	40.00ml	
	-3	2.06g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.06g	40.00ml	
	-6	2.02g	40.00ml	
	-7	2.05g	40.00ml	
	-8	2.02g	40.00ml	
	-9	1.95g	40.00ml	
	ATJ040354-1	1.97g	40.00ml	
	-2	2.05g	40.00ml	
	-3	1.99g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.02g	40.00ml	
	-6	2.04g	40.00ml	
	-7	2.04g	40.00ml	
	-8	1.99g	40.00ml	
	ATJ080104-1	2.02g	40.00ml	
	-2	2.08g	40.00ml	
	-3	2.04g	40.00ml	

SOP No.: SAC-LC-0009

EXTRACTION COMMENTS:

Samples Sieved/weighed out 10/14/07 JS

Fort. Hood as below/extracted as per SOP 10/14/07

Extracts filtered/diluted/filtered and Vialed for Analysis 10/26/07 JS

QC Codes	Standard Information				
	Volume	STD ID	Exp. Date	STD Name/Conc.	(ppm)/ppb
All	80.0µl	E071007B	4/07/08	3,4-DNT 50.0µg/ml	2.0
C,S,D	40.0µl	E070821A	2/4/08	8330 mix 50.0µg/ml	1.0
C,S,D	200µl	E071007A	4/07/08	NG/PETN 50.0µg/ml	5.0

Spiked By / Date: JS 10/14/07 Witnessed By / Date: 10-14-07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD, FB = Filter Blank

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

LEV 1	LEV 2		LEV 1	LEV 2	
Y	_	Blank	Y	_	Weights/Volumes
Y	_	Check	Y	_	Spike & Surrogate Worksheet
Y	_	MS/MSD	Y	_	Vial contains correct volume
			Y	_	Labels, greenbars, worksheets computer batch: correct & all match
			_	_	Anomalies to Extraction Method

_ Expanded Deliverable
_ COC Completed
Y Bench Sheet Copied
_ Package Submitted to AnalyticalGroup
_ Bench Sheet Copied per COC

Extractionist: 002531 Jonathan Reed

Concentrationist: 002531 Jonathan Reed

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

Reviewer/Date: REEDJ / 10/26/07

Nitroaromatics & Nitramines: Explosives (8330)
SONICATION - Low Level

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/15/07	10/17/07	A7J030104-001 **J748R-1-A4**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DRS**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DTD**	7285372 D	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-002 **J748X-1-AF**	7285372 D	13	A0	SOLID	**2.03g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-003 **J7481-1-AF**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-004 **J7483-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-005 **J7484-1-A4**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/16/07	10/17/07	A7J030104-006 **J7488-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-007 **J749C-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-008 **J749D-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-009 **J749E-1-AF**	7285372 D	13	A0	SOLID	**1.95g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-001 **J7914-1-A4**	7285372 D	13	A0	SOLID	**1.97g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-002 **J792M-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-003 **J792N-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-004 **J792R-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-005 **J792W-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-006 **J7920-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/17/07	10/17/07	A7J040354-007 **J7923-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-008 **J7927-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-001 **J8FKF-1-A4**	7285372 DR	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-002 **J8FKG-1-AF**	7285372 DR	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-003 **J8FKH-1-AF**	7285372 DR	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-AA**B		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-AC**C		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-20(E071007B-80
COMMENTS:															

FILTERS:MILLIPORE:R7KN80394 0.1%HOAC IN ACN:RP5-27B
1.3G/L CACL2 SOLUTION:RP5-24A

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 24

Appendix

Includes (as applicable):

retention time windows

MDL summaries

calculation explanation sheets

standard raw data

statistical summary

STL Sacramento

Retention Time Window

INSTRUMENT ID: LC10-C18
COLUMN ID: Synergi Hydro-RP
COLUMN SN: 389480-1
DATE: 11-Sep-07
date - time
STANDARD 1: 9/6/07 736
STANDARD 2: 9/7/07 1603
STANDARD 3: 9/8/07 1928

METHOD ID: 8330M
Isocratic run 5:90:5
Flow rate 1.0 mL/min
Column Temperature 29 degrees
Injection volume 500 uL
SOP # SAC-LC-0009

	ANALYTE	RETENTION TIME 1	RETENTION TIME 2	RETENTION TIME 3	STANDARD DEVIATION	+/- 3X STD Deviation	RTW	
Channel 109; 250/265 nm								
1	HMX	5.380	5.370	5.380	0.006	0.018	0.15	*
2	RDX	8.210	8.200	8.210	0.006	0.018	0.15	*
3	Picric Acid	9.660	9.620	9.680	0.031	0.093	0.15	*
3	1,3,5-Trinitrobenzene	10.850	10.840	10.860	0.010	0.030	0.15	*
4	1,3-Dinitrobenzene	14.290	14.270	14.290	0.012	0.036	0.15	*
5	TETRYL	15.590	15.570	15.600	0.015	0.045	0.15	*
6	Nitrobenzene	16.410	16.400	16.420	0.010	0.030	0.15	*
7	2,4,6-Trinitrotoluene	18.010	17.990	18.010	0.012	0.036	0.15	*
9	4-AM-2,6-Dinitrotoluene	19.160	19.130	19.170	0.021	0.063	0.15	*
8	3,4-Dinitrotoluene (surr)	19.720	19.680	19.720	0.023	0.069	0.15	*
10	2-AM-4,6-Dinitrotoluene	20.390	20.360	20.400	0.021	0.063	0.15	*
11	2,6-Dinitrotoluene	22.350	22.310	22.360	0.026	0.078	0.15	*
12	2,4-Dinitrotoluene	23.160	23.130	23.170	0.021	0.063	0.15	*
13	2-Nitrotoluene	27.330	27.290	27.340	0.026	0.078	0.15	*
14	4-Nitrotoluene	29.370	29.330	29.400	0.035	0.105	0.15	*
15	3-Nitrotoluene	31.740	31.710	31.770	0.030	0.090	0.15	*
Channel 110; 200 nm								
17	Nitroglycerin	17.140	17.120	17.140	0.012	0.036	0.15	*
18	PETN	33.990	33.950	34.000	0.026	0.078	0.15	*

Note: The retention time window is the retention time +/- 0.15 minute, or 3X the standard deviation, whichever is greater. A * indicates that 3X the standard deviation is less than 0.15 minute, and that 0.15 minute was substituted in the 3X standard deviation column.

Prepared by: Frank Kenney 11-Sep-07

SOLID, Nitroguanidine

Raw Data Package

Run/Batch Data

Includes (as applicable):

runlogs

continuing calibration standards

interference/performance check standards

continuing calibration blanks

method blanks

lcs

ms/sd

sample raw data

ms tune data

****

Varian Star Workstation - RecalcList Wed Oct 17 11:18:49 2007

RecalcList: C:\Star\Sample list\NQ-10.16.2007.RCL

Created: Tue Oct 16 19:46:02 2007
Modified: Wed Oct 17 11:15:25 2007

NQ Analysis 16 Oct 2007

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STC-LC-0010

Line	Sample Type	Sample Name	Data F
1	Verification	PRIMER	nq-10-16-2007=19;58;53-primer.
2	Verification	PRIMER	nq-10-16-2007=20;19;36-primer.
3	Verification	PRIMER	nq-10-16-2007=20;40;18-primer.
4	Verification	PRIMER	nq-10-16-2007=21;01;03-primer.
5	Verification	PRIMER	nq-10-16-2007=21;21;47-primer.
6	Verification	PRIMER	nq-10-16-2007=21;42;28-primer.
7	Verification	PRIMER	nq-10-16-2007=22;03;09-primer.
8	Verification	PRIMER	nq-10-16-2007=22;23;52-primer.
9	Verification	PRIMER	nq-10-16-2007=22;44;33-primer.
10	Analysis	Blank	nq-10-16-2007=23;05;19-blank.
11	Verification	E071004F STD 4	nq-10-16-2007=23;26;02-e071004f std 4.
12	Verification	E070427E STD 2 MRL	nq-10-16-2007=23;46;49-e070427e std 2 mrl.
13	Analysis	G7J140000-049-MB	nq-10-17-2007=00;07;35-g7j140000-049-mb.
14	Analysis	G7J140000-049-LCS	nq-10-17-2007=00;28;17-g7j140000-049-lcs.
15	Analysis	A7I260304-1	nq-10-17-2007=00;49;03-a7i260304-1.
16	Analysis	A7I260304-1MS	nq-10-17-2007=01;09;45-a7i260304-1ms.
17	Analysis	A7I260304-1MSD	nq-10-17-2007=01;30;27-a7i260304-1msd.
18	Analysis	A7I260304-2	nq-10-17-2007=01;51;08-a7i260304-2.
19	Analysis	A7I270359-2	nq-10-17-2007=02;11;51-a7i270359-2.
20	Analysis	A7J030104-1	nq-10-17-2007=02;32;33-a7j030104-1.
21	Analysis	A7J030104-1MS	nq-10-17-2007=02;53;13-a7j030104-1ms.
22	Analysis	A7J030104-1MSD	nq-10-17-2007=03;13;55-a7j030104-1msd.
23	Verification	E070427F STD 5	nq-10-17-2007=03;34;41-e070427f std 5.
24	Verification	E070427E STD 2 MRL	nq-10-17-2007=03;55;28-e070427e std 2 mrl.
25	Analysis	A7J030104-2	nq-10-17-2007=04;16;10-a7j030104-2.
26	Analysis	A7J030104-3	nq-10-17-2007=04;36;52-a7j030104-3.
27	Analysis	A7J030104-4	nq-10-17-2007=04;57;36-a7j030104-4.
28	Analysis	A7J030104-6	nq-10-17-2007=05;18;17-a7j030104-6.
29	Analysis	A7J030104-7	nq-10-17-2007=05;38;59-a7j030104-7.
30	Analysis	A7J030104-8	nq-10-17-2007=05;59;41-a7j030104-8.
31	Analysis	A7J030104-9	nq-10-17-2007=06;20;23-a7j030104-9.
32	Analysis	A7J040354-1	nq-10-17-2007=06;41;04-a7j040354-1.
33	Analysis	A7J040354-2	nq-10-17-2007=07;01;46-a7j040354-2.
34	Analysis	A7J040354-3	nq-10-17-2007=07;22;28-a7j040354-3.
35	Verification	E071004F STD 4	nq-10-17-2007=07;43;15-e071004f std 4.
36	Verification	E070427E STD 2 MRL	nq-10-17-2007=08;04;02-e070427e std 2 mrl.
37	Analysis	A7J040354-4	nq-10-17-2007=08;24;45-a7j040354-4.
38	Analysis	A7J040354-5	nq-10-17-2007=08;45;27-a7j040354-5.
39	Analysis	A7J040354-6	nq-10-17-2007=09;06;08-a7j040354-6.
40	Analysis	A7J040354-7	nq-10-17-2007=09;26;48-a7j040354-7.
41	Analysis	A7J040354-8	nq-10-17-2007=09;47;29-a7j040354-8.
42	Verification	E071004F STD 4	nq-10-17-2007=10;08;16-e071004f std 4.
43	Verification	E070427E STD 2 MRL	nq-10-17-2007=10;29;02-e070427e std 2 mrl.
44	Analysis	END RUN	nq-10-17-2007=11;05;20-end run.

Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;26;02-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/16/2007 23:26 Calculation Date: 10/16/2007 23:36

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	187.1361	6.4	4.325	0.042	537	
	Totals:		187.1361			0.042	537	

Total Unidentified Counts : 0 counts

Detected Peaks: 7 Rejected Peaks: 6 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -91 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 4; 200ng/ml NQ
****

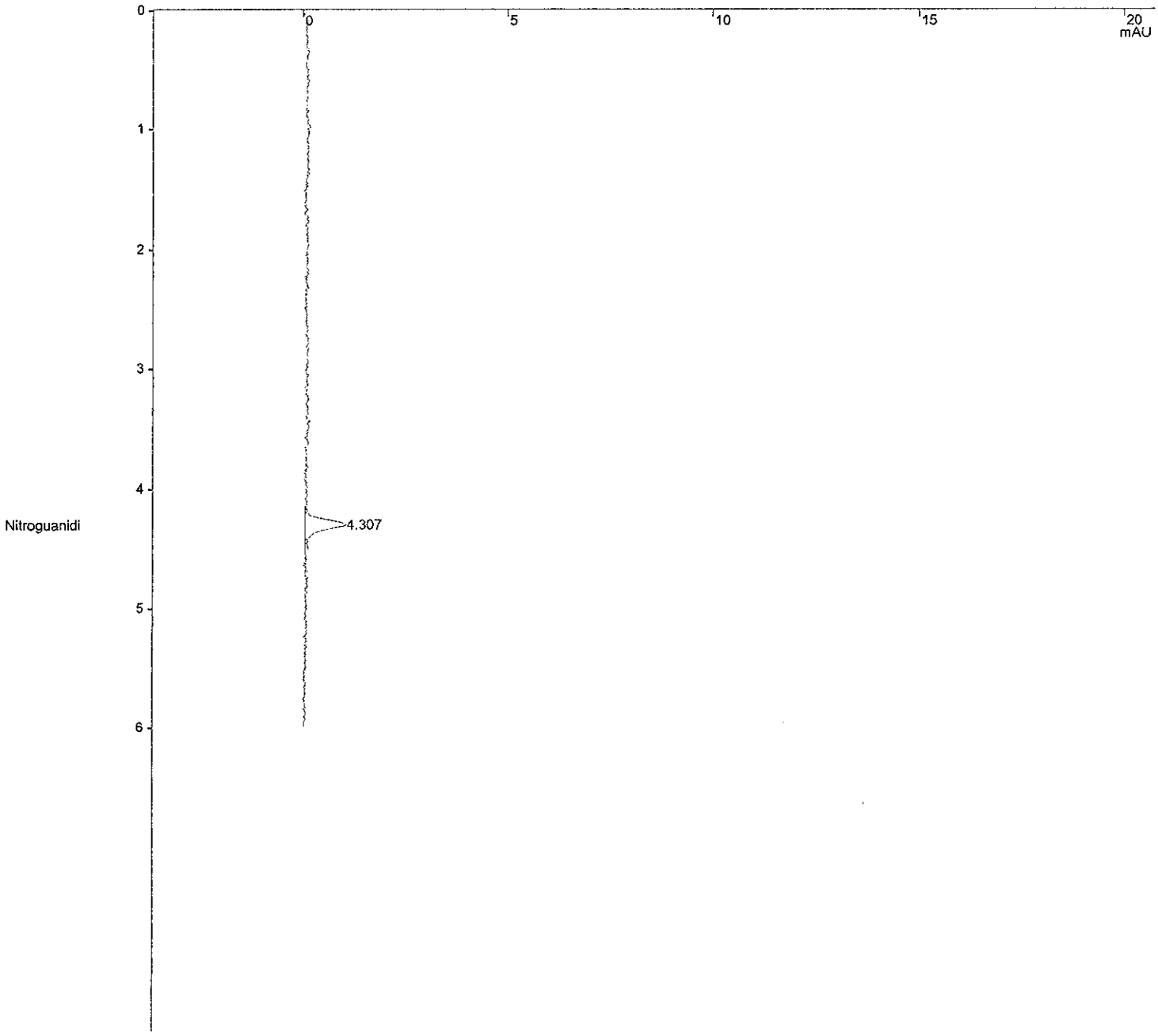
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;46;49-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/16/2007 23:46 Calculation Date: 10/16/2007 23:56

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-16-2007=23;46;49-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/16/2007 23:46 Calculation Date: 10/16/2007 23:56

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	44.9190	10.2	4.307	0.024	129	
	Totals:		44.9190			0.024	129	

Total Unidentified Counts : 0 counts

Detected Peaks: 2 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;07;35-g7j140000-049-mb.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-MB

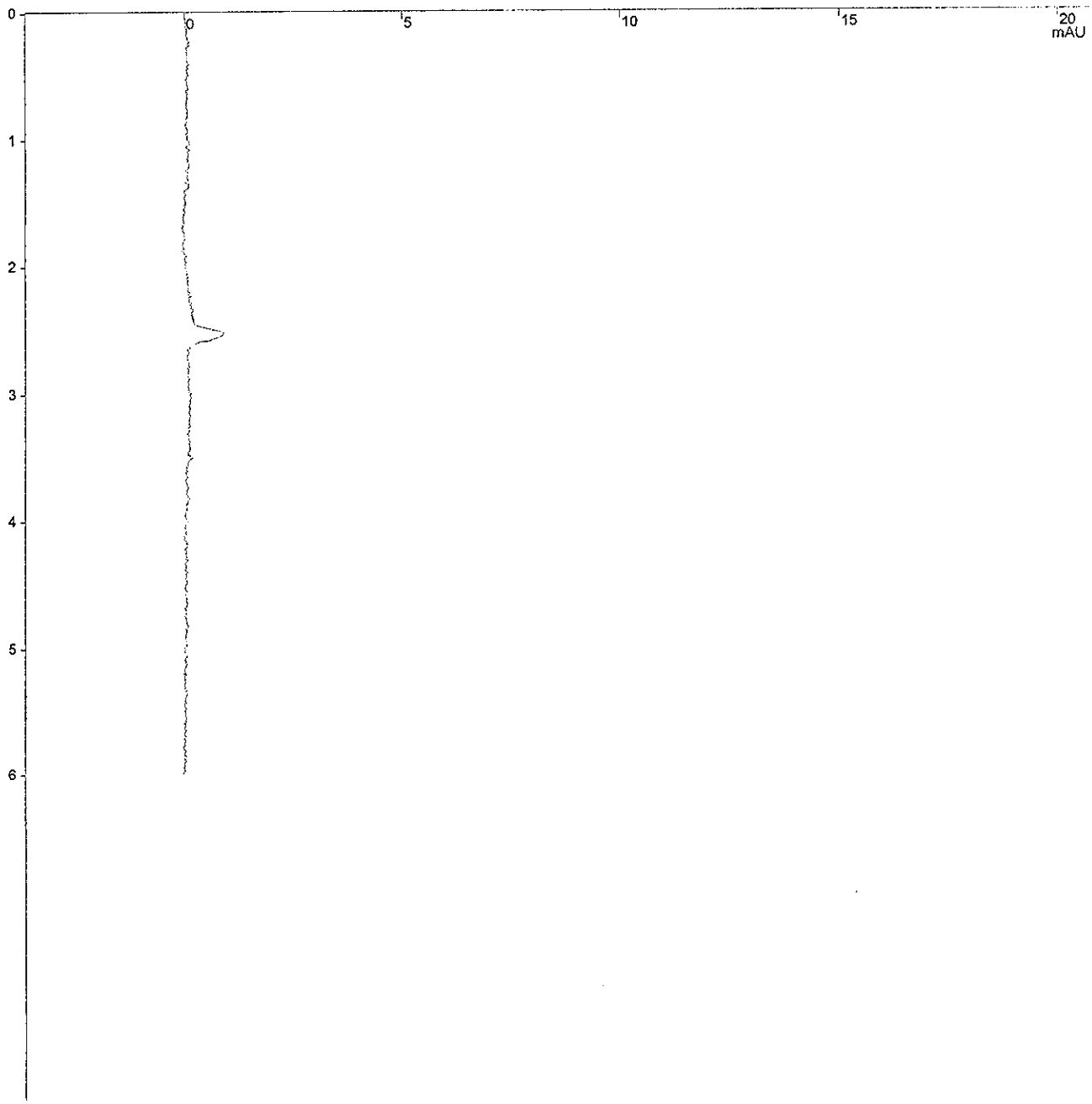
Injection Date: 10/17/2007 00:07 Calculation Date: 10/17/2007 00:17

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;07;35-g7j140000-049-mb.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-MB

Injection Date: 10/17/2007 00:07 Calculation Date: 10/17/2007 00:17

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
Totals:		0.0000		0.000	0			

Total Unidentified Counts : 0 counts

Detected Peaks: 0 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 92 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 3 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Data Handling: No peaks

Original Notes:

J80HJ1AAB 7287049 NQ soil @ 2g/10ml.
****

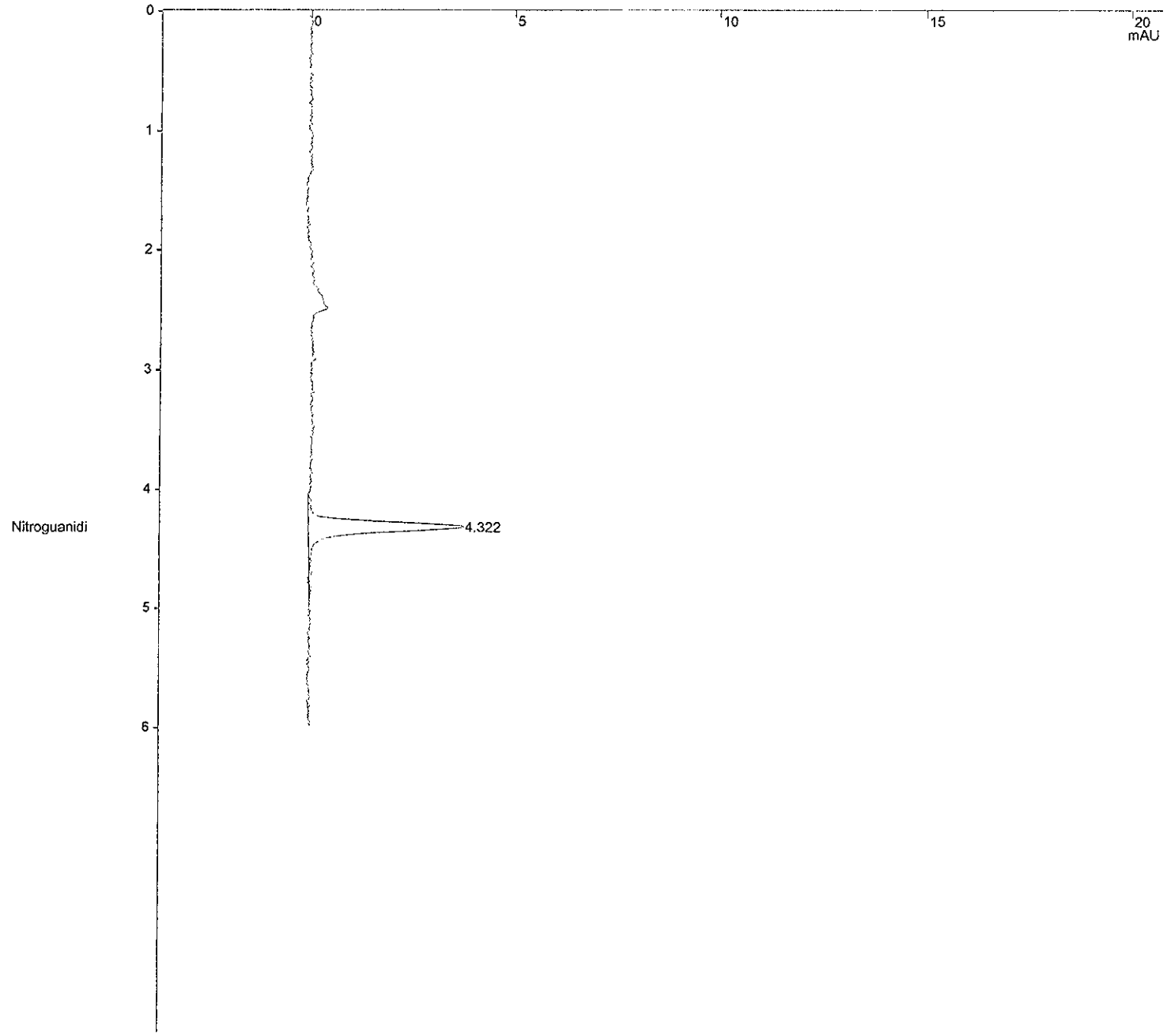
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;28;17-g7j140000-049-lcs.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-LCS

Injection Date: 10/17/2007 00:28 Calculation Date: 10/17/2007 00:38

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;28;17-g7j140000-049-lcs.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : G7J140000-049-LCS

Injection Date: 10/17/2007 00:28 Calculation Date: 10/17/2007 00:38

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	870.7800	4.322	0.039	500	BB	5.3	
	Totals:	870.7800		0.039	500			

Total Unidentified Counts : 0 counts

Detected Peaks: 4 Rejected Peaks: 3 Identified Peaks: 1

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 23 microAU

Noise (used): 83 microAU - monitored before this run

Vial: 5 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J80HJ1ACC 7287049 NQ soil @ 2g/10ml.
****

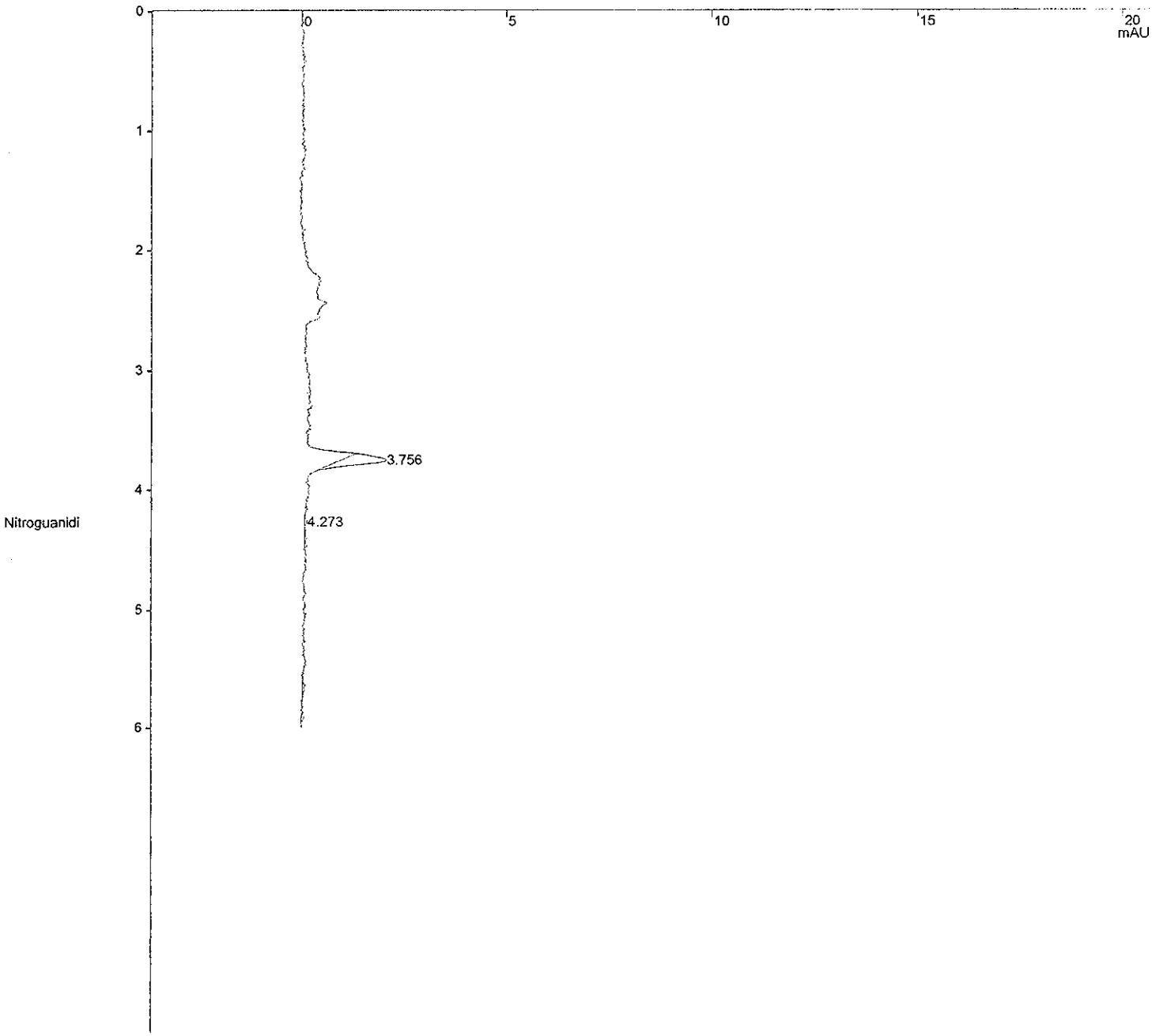
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;49;03-a7i260304-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1

Injection Date: 10/17/2007 00:49 Calculation Date: 10/17/2007 00:59

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=00;49;03-a7i260304-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1

Injection Date: 10/17/2007 00:49 Calculation Date: 10/17/2007 00:59

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.756	0.000	141	BB	3.8	
2	Nitroguanidi	18.7760	4.273	-0.010	11	BB	0.9	
	Totals:	18.7760		-0.010	152			

Total Unidentified Counts : 141 counts

Detected Peaks: 4 Rejected Peaks: 2 Identified Peaks: 1

Multiplier: 10 Divisor: 2.04 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 7 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AD 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;09;45-a7i260304-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MS

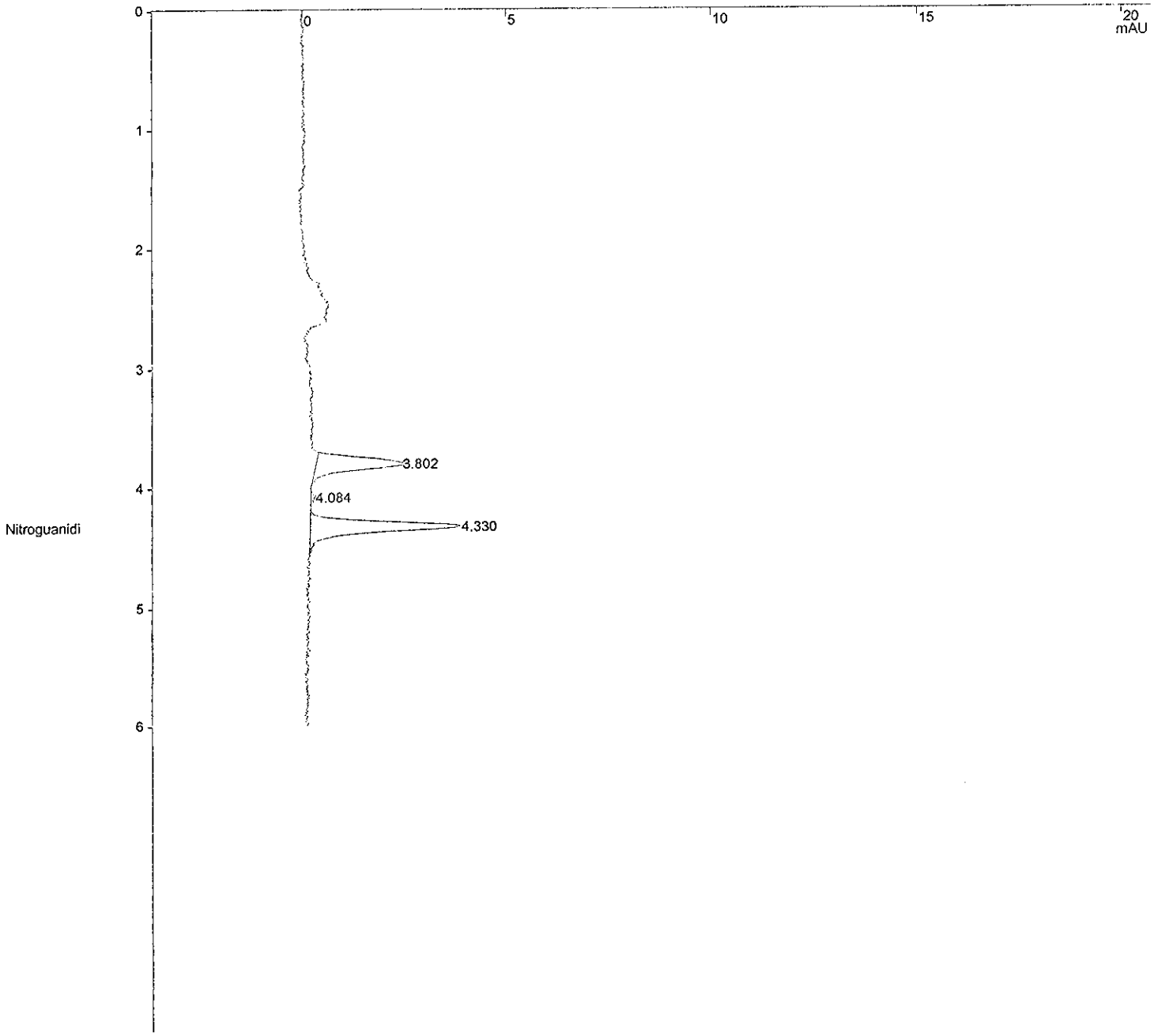
Injection Date: 10/17/2007 01:09 Calculation Date: 10/17/2007 01:19

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;09;45-a7i260304-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MS

Injection Date: 10/17/2007 01:09 Calculation Date: 10/17/2007 01:19

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.802	0.000	288	BP	6.3	
2		0.0000	4.084	0.000	15	PV	0.0	
3	Nitroguanidi	845.6499	4.330	0.047	481	VB	5.0	
	Totals:	845.6499		0.047	784			

Total Unidentified Counts : 303 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 31 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 9 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AES 7287049 NQ soil @ 2g/10ml.
****

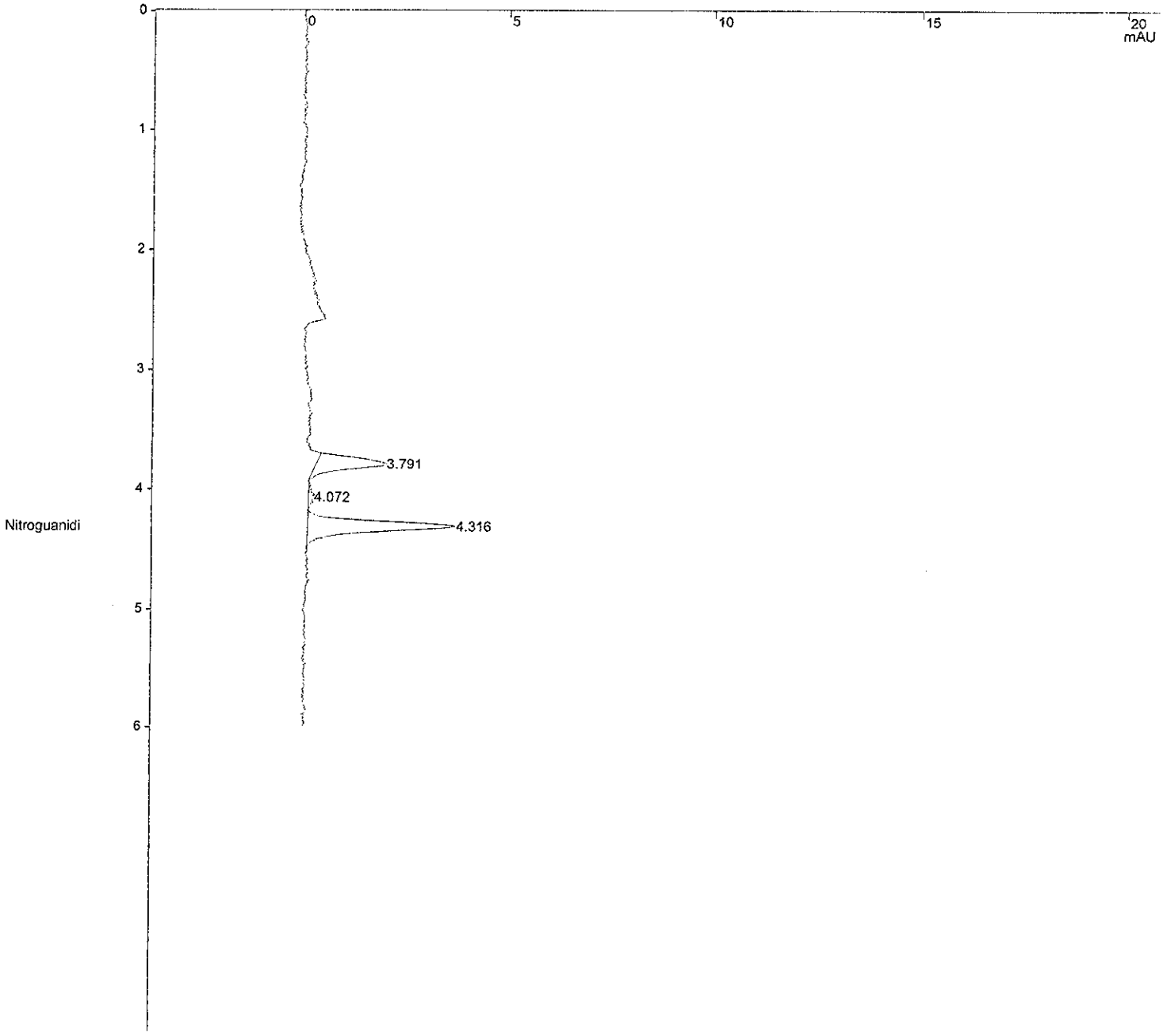
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;30;27-a7i260304-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MSD

Injection Date: 10/17/2007 01:30 Calculation Date: 10/17/2007 01:40

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=01;30;27-a7i260304-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7I260304-1MSD

Injection Date: 10/17/2007 01:30 Calculation Date: 10/17/2007 01:40

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.791	0.000	224	BP	5.9	
2		0.0000	4.072	0.000	18	PV	0.0	
3	Nitroguanidi	806.1050	4.316	0.033	468	VB	4.9	
	Totals:	806.1050		0.033	710			

Total Unidentified Counts : 242 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 2.02 Unidentified Peak Factor: 0

Baseline Offset: 38 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 11 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J7PGG1AFD 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;32;33-a7j030104-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1

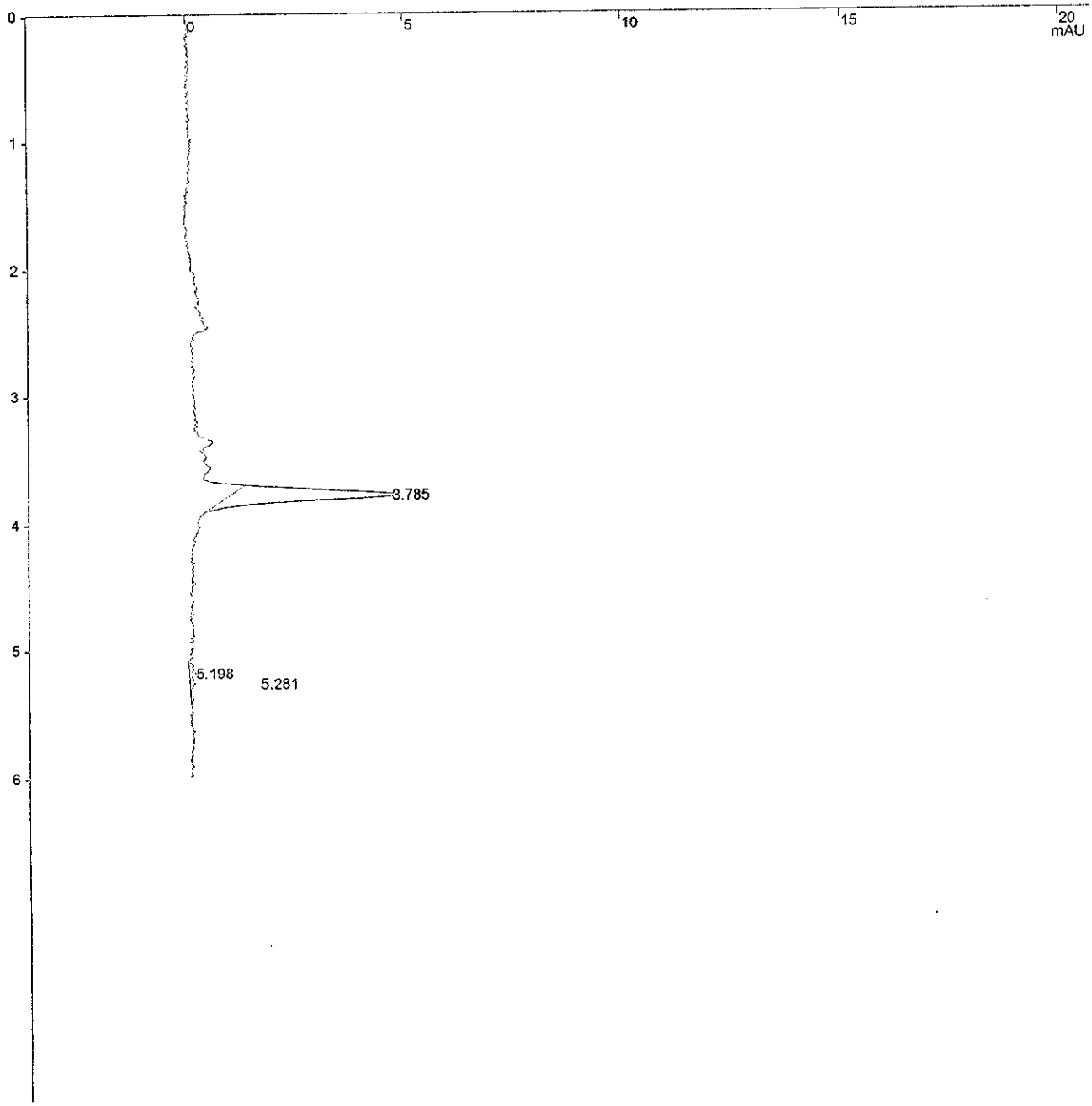
Injection Date: 10/17/2007 02:32 Calculation Date: 10/17/2007 02:42

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;32;33-a7j030104-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1

Injection Date: 10/17/2007 02:32 Calculation Date: 10/17/2007 02:42

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.785	0.000	504	BB	4.9	
2		0.0000	5.198	0.000	20	BV	1.6	
3		0.0000	5.281	0.000	14	VP	7.3	
	Totals:	0.0000		0.000	538			

Total Unidentified Counts : 538 counts

Detected Peaks: 5 Rejected Peaks: 2 Identified Peaks: 0

Multiplier: 10 Divisor: 2.02 Unidentified Peak Factor: 0

Baseline Offset: 15 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 17 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1A6 7287049 NQ soil @ 2g/10ml.
****

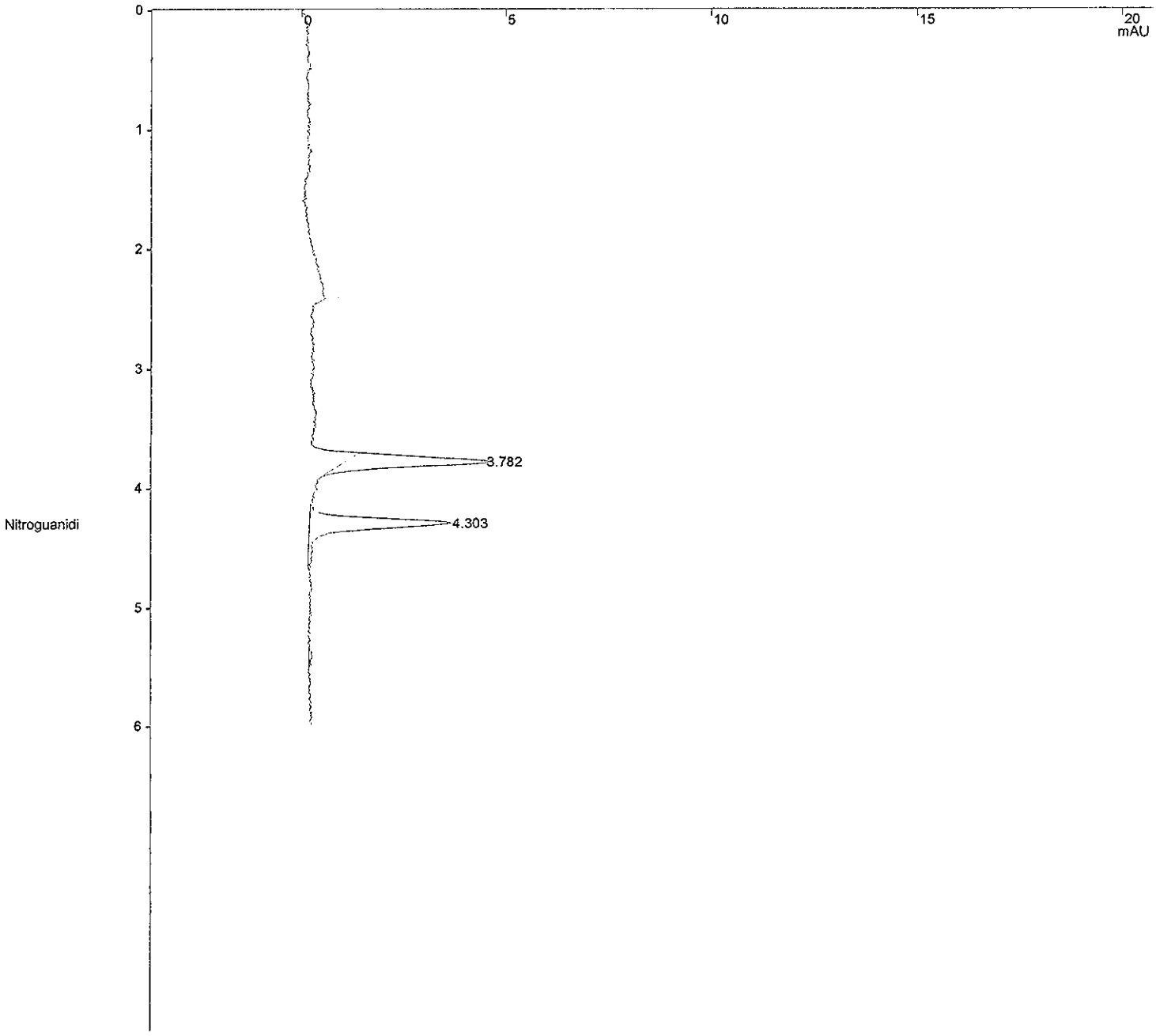
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;53;13-a7j030104-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MS

Injection Date: 10/17/2007 02:53 Calculation Date: 10/17/2007 03:03

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=02;53;13-a7j030104-1ms.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MS

Injection Date: 10/17/2007 02:53 Calculation Date: 10/17/2007 03:03

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.782	0.000	459	BB	4.8	
2	Nitroguanidi	808.4978	4.303	0.020	457	BB	5.3	
	Totals:	808.4978		0.020	916			

Total Unidentified Counts : 459 counts

Detected Peaks: 3 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: 10 Divisor: 1.97 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 19 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1DUS 7287049 NQ soil @ 2g/10ml.
****

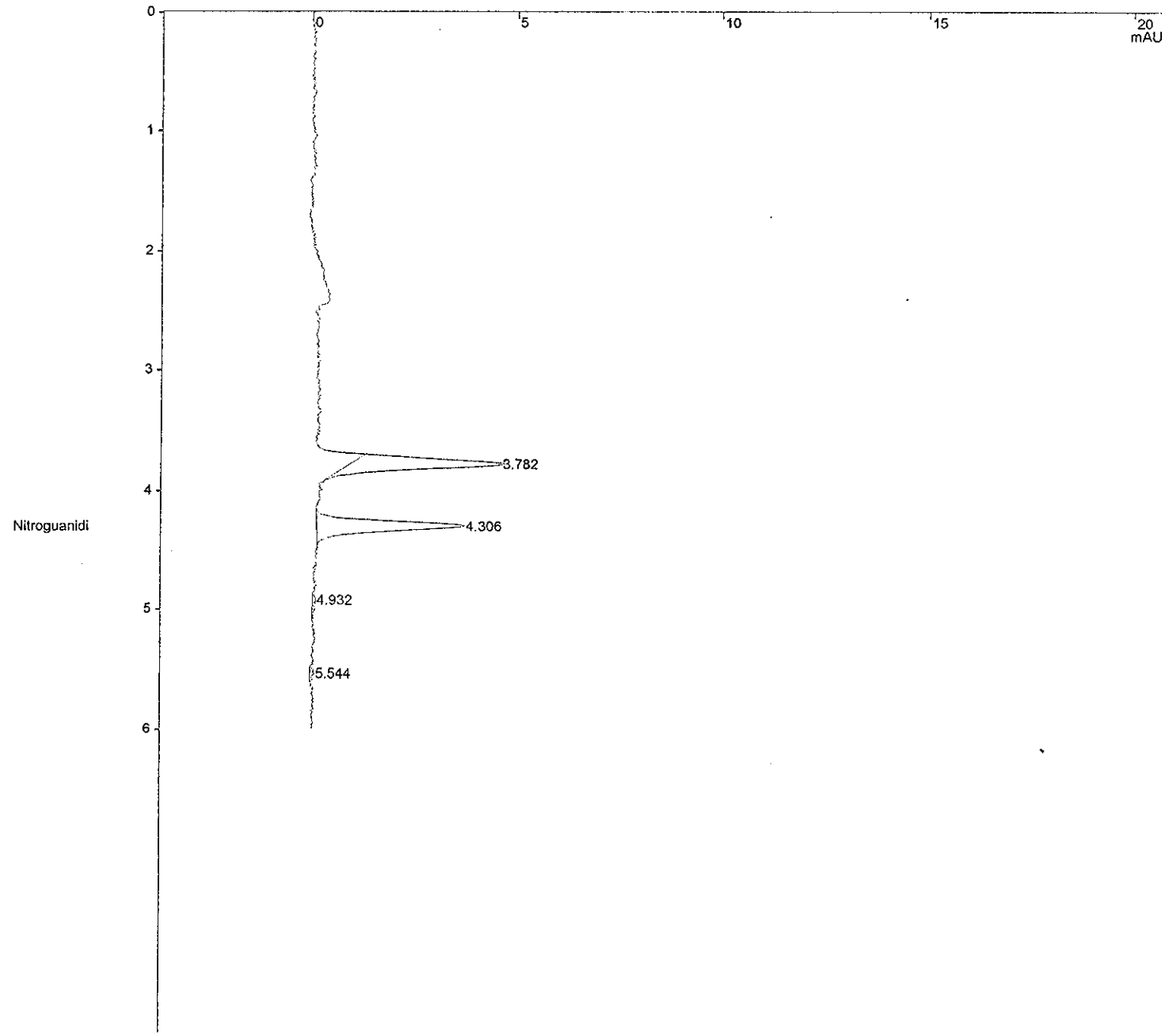
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;13;55-a7j030104-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MSD

Injection Date: 10/17/2007 03:13 Calculation Date: 10/17/2007 03:24

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;13;55-a7j030104-1msd.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J030104-1MSD

Injection Date: 10/17/2007 03:13 Calculation Date: 10/17/2007 03:24

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.782	0.000	489	BB	4.9	
2	Nitroguanidi	842.9666	4.306	0.023	474	BB	5.2	
3		0.0000	4.932	0.000	11	BB	3.6	
4		0.0000	5.544	0.000	13	BB	3.1	
	Totals:	842.9666		0.023	987			

Total Unidentified Counts : 513 counts

Detected Peaks: 4 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 1.96 Unidentified Peak Factor: 0

Baseline Offset: 69 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 21 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J748R1DVD 7287049 NQ soil @ 2g/10ml.
****

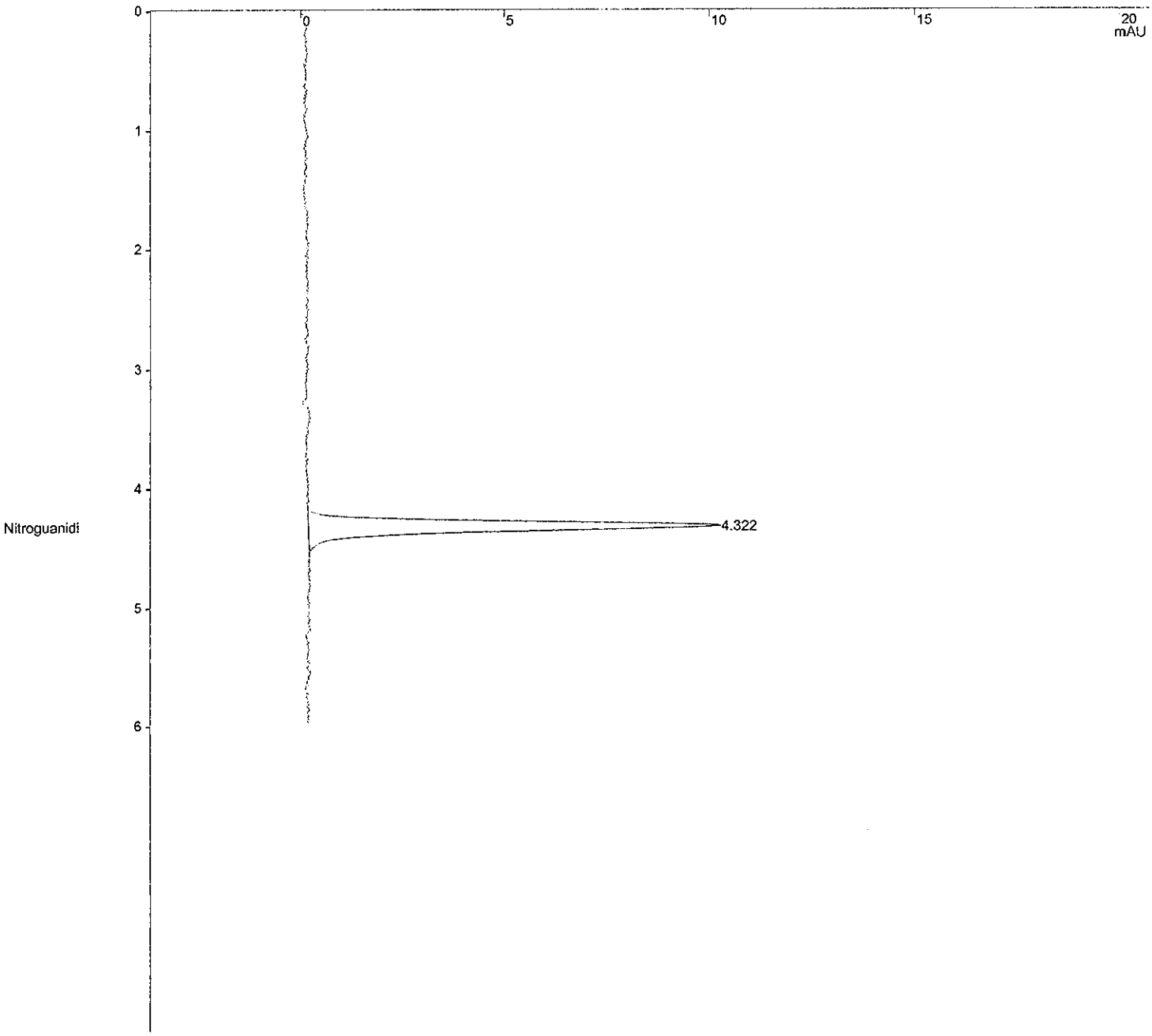
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;34;41-e070427f std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427F STD 5

Injection Date: 10/17/2007 03:34 Calculation Date: 10/17/2007 03:44

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;34;41-e070427f std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427F STD 5

Injection Date: 10/17/2007 03:34 Calculation Date: 10/17/2007 03:44

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 5
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	500.0000	460.5206	7.9	4.322	0.039	1323	
	Totals:		460.5206			0.039	1323	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 38 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 12 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 5; 500ng/ml NQ
****

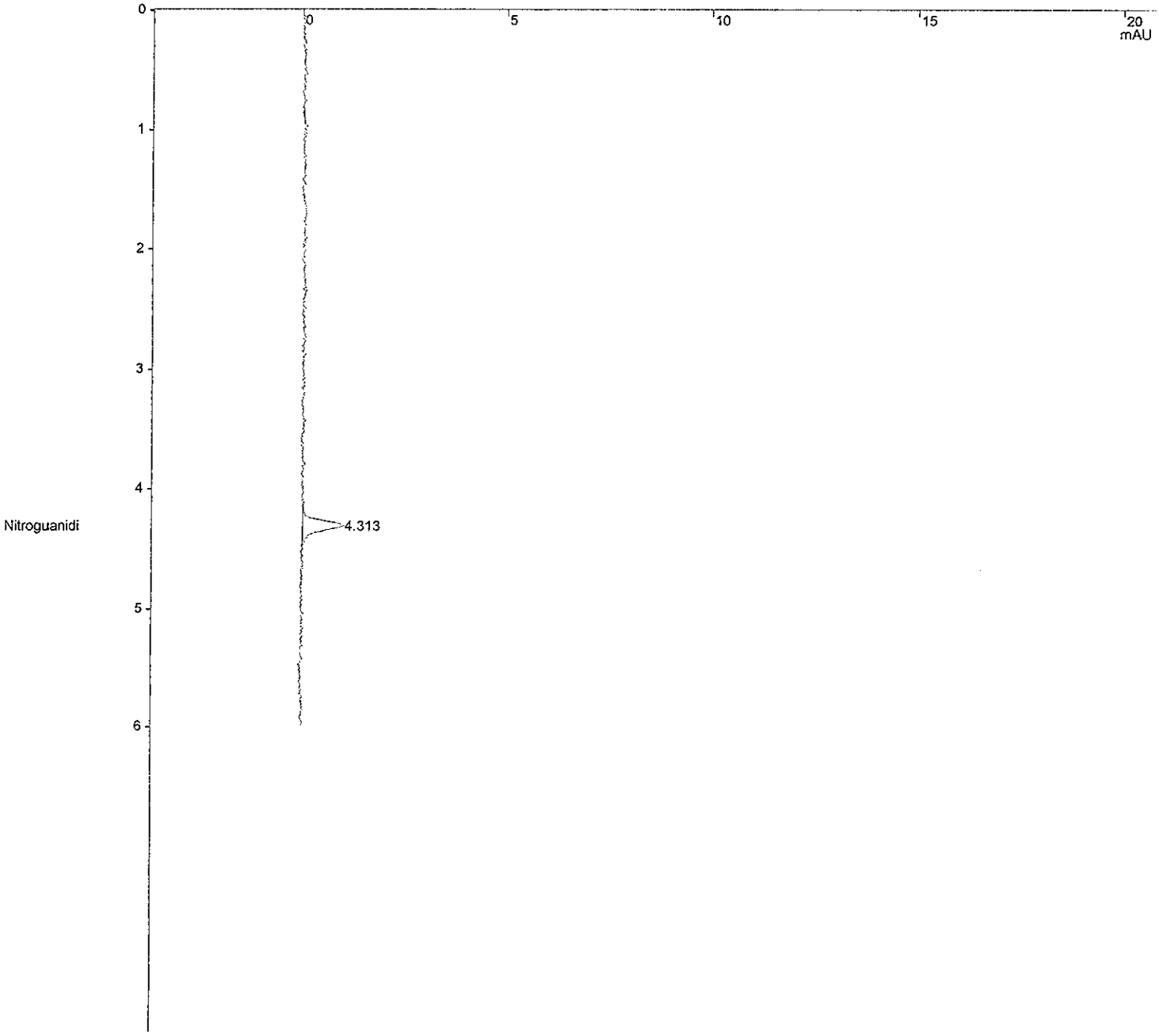
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;55;28-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 03:55 Calculation Date: 10/17/2007 04:05

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=03;55;28-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 03:55 Calculation Date: 10/17/2007 04:05

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	45.2447	9.5	4.313	0.030	130	
	Totals:		45.2447			0.030	130	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -7 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=06;41;04-a7j040354-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-1

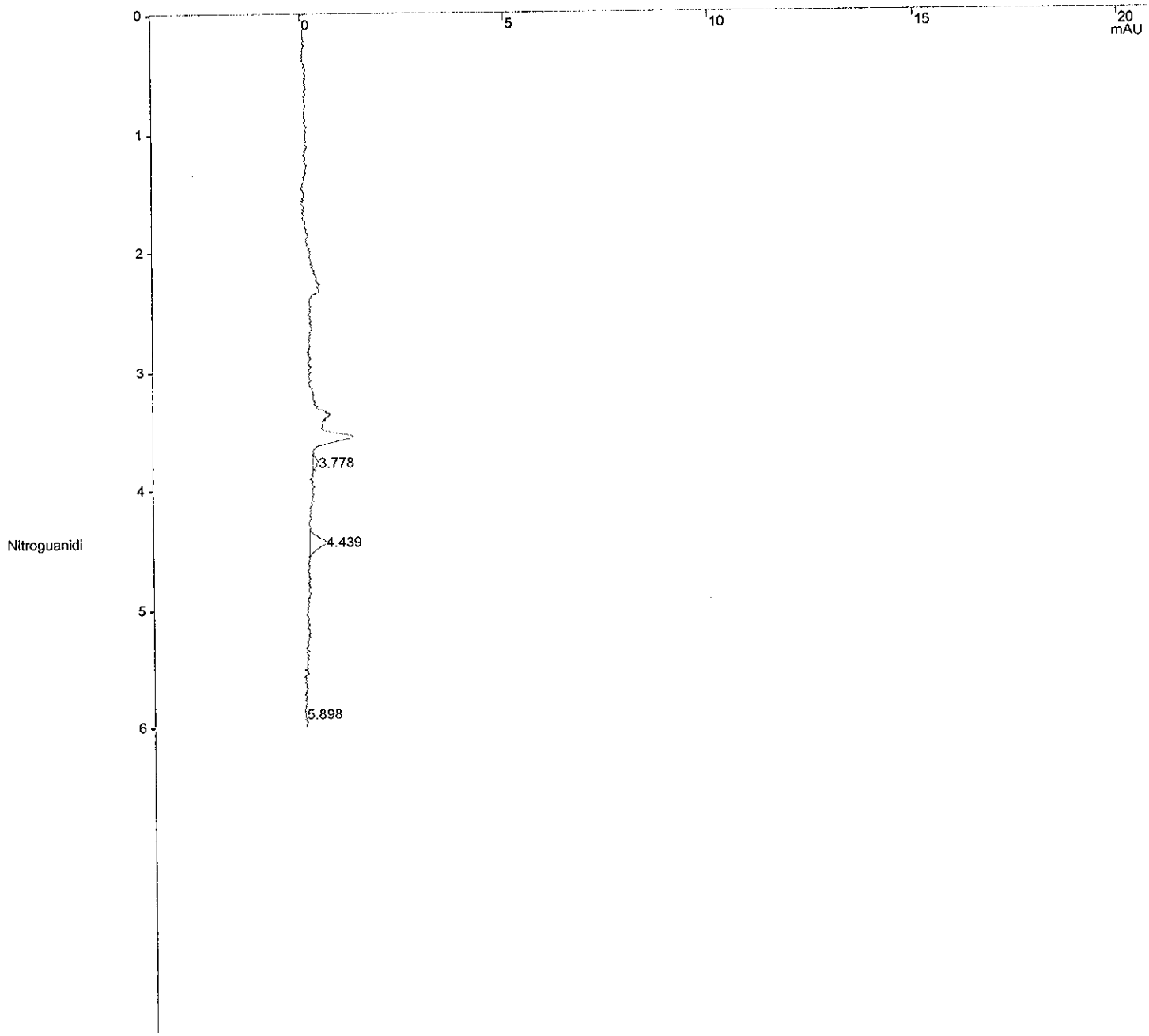
Injection Date: 10/17/2007 06:41 Calculation Date: 10/17/2007 06:51

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=06;41;04-a7j040354-1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-1

Injection Date: 10/17/2007 06:41 Calculation Date: 10/17/2007 06:51

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.778	0.000	16	BB	4.3	
2	Nitroguanidi	90.4569	4.439	0.156	51	BB	5.8	
3		0.0000	5.898	0.000	10	BB	1.3	
	Totals:	90.4569		0.156	77			

Total Unidentified Counts : 26 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 145 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 37 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J79141A6 7287049 NQ soil @ 2g/10ml.
****

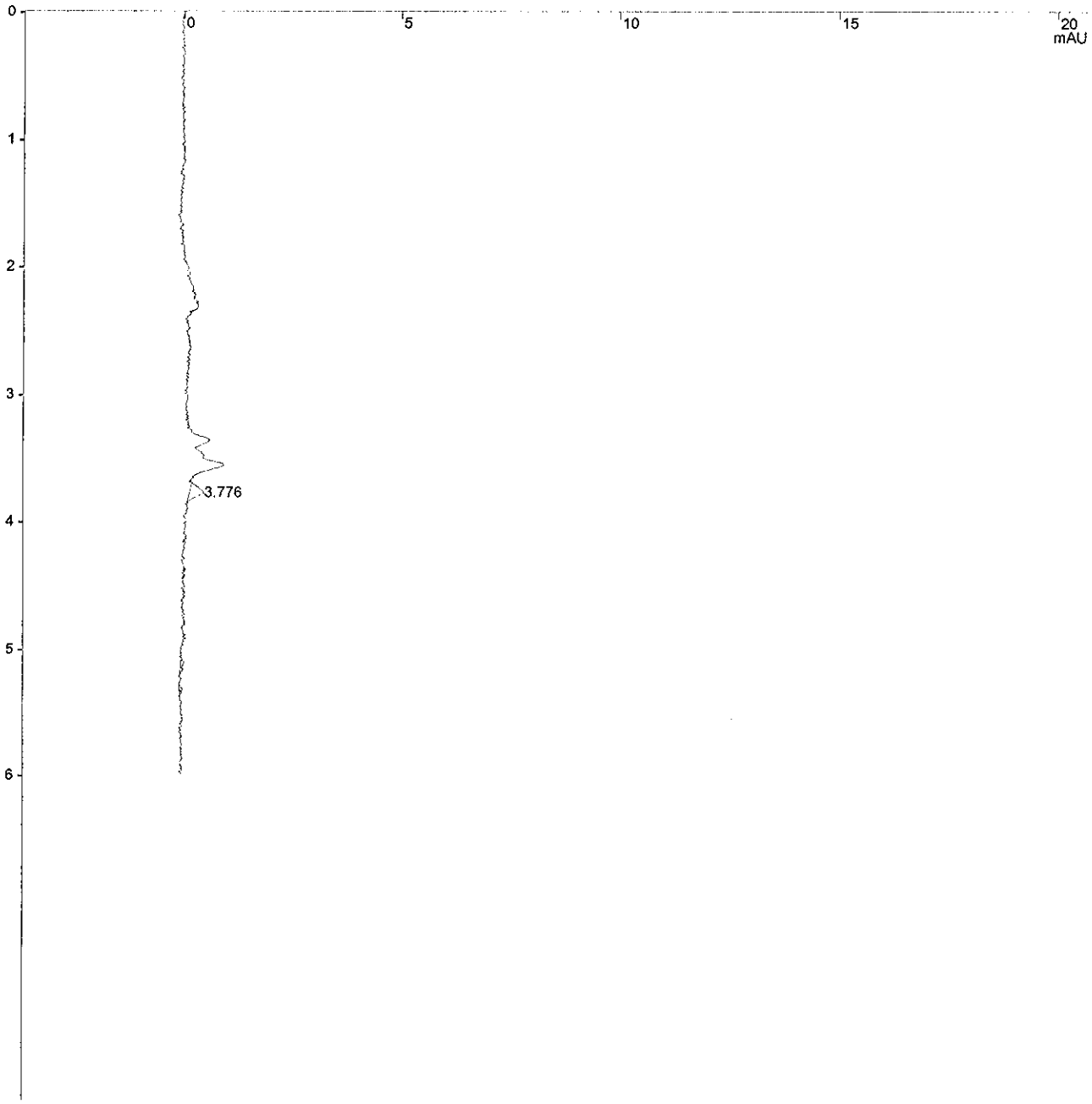
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;01;46-a7j040354-2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-2

Injection Date: 10/17/2007 07:01 Calculation Date: 10/17/2007 07:11

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;01;46-a7j040354-2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-2

Injection Date: 10/17/2007 07:01 Calculation Date: 10/17/2007 07:11

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.776	0.000	41	BB	4.6	
	Totals:	0.0000		0.000	41			

Total Unidentified Counts : 41 counts

Detected Peaks: 4 Rejected Peaks: 3 Identified Peaks: 0

Multiplier: 10 Divisor: 1.98 Unidentified Peak Factor: 0

Baseline Offset: 38 microAU

Noise (used): 91 microAU - monitored before this run

Vial: 39 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J792M1AH 7287049 NQ soil @ 2g/10ml.
****

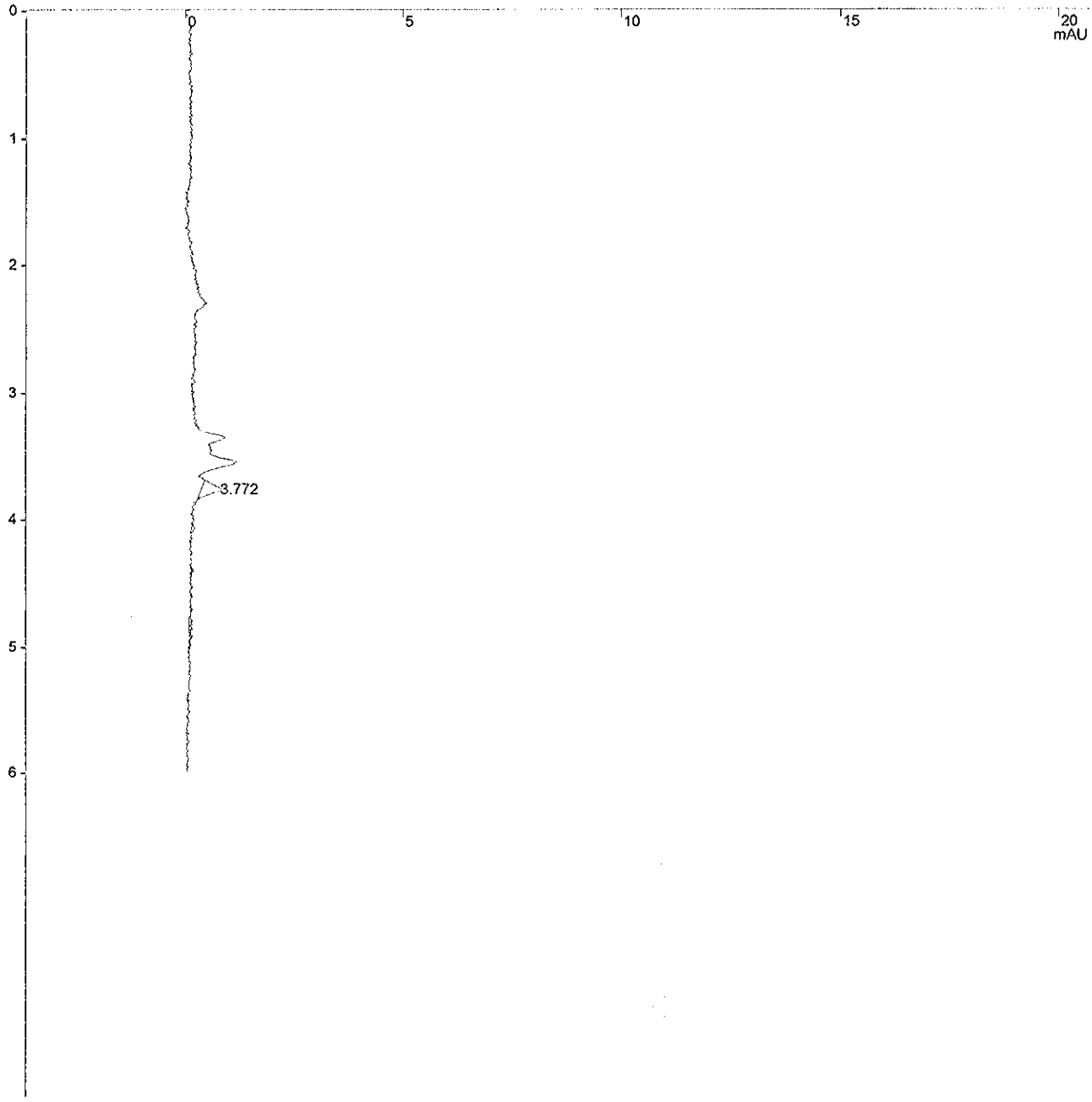
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;22;28-a7j040354-3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-3

Injection Date: 10/17/2007 07:22 Calculation Date: 10/17/2007 07:32

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;22;28-a7j040354-3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-3

Injection Date: 10/17/2007 07:22 Calculation Date: 10/17/2007 07:32

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.772	0.000	61	BB	3.9	
Totals:		0.0000		0.000	61			

Total Unidentified Counts : 61 counts

Detected Peaks: 5 Rejected Peaks: 4 Identified Peaks: 0

Multiplier: 10 Divisor: 1.96 Unidentified Peak Factor: 0

Baseline Offset: 92 microAU

Noise (used): 83 microAU - monitored before this run

Vial: 41 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J792N1AH 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;43;15-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

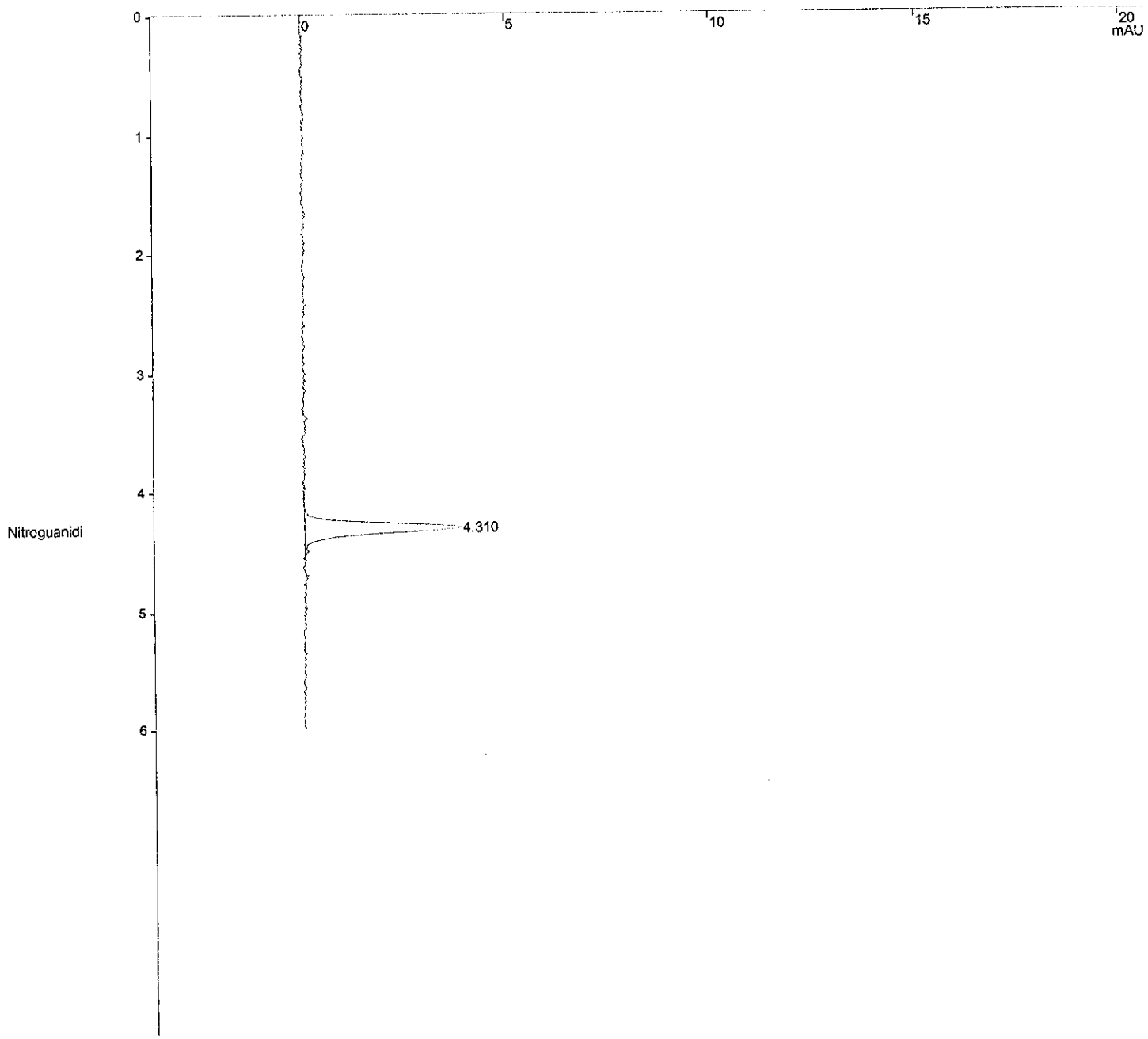
Injection Date: 10/17/2007 07:43 Calculation Date: 10/17/2007 07:53

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=07;43;15-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/17/2007 07:43 Calculation Date: 10/17/2007 07:53

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	174.4529	12.8	4.310	0.027	501	
	Totals:		174.4529			0.027	501	

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 46 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 4; 200ng/ml NQ
****

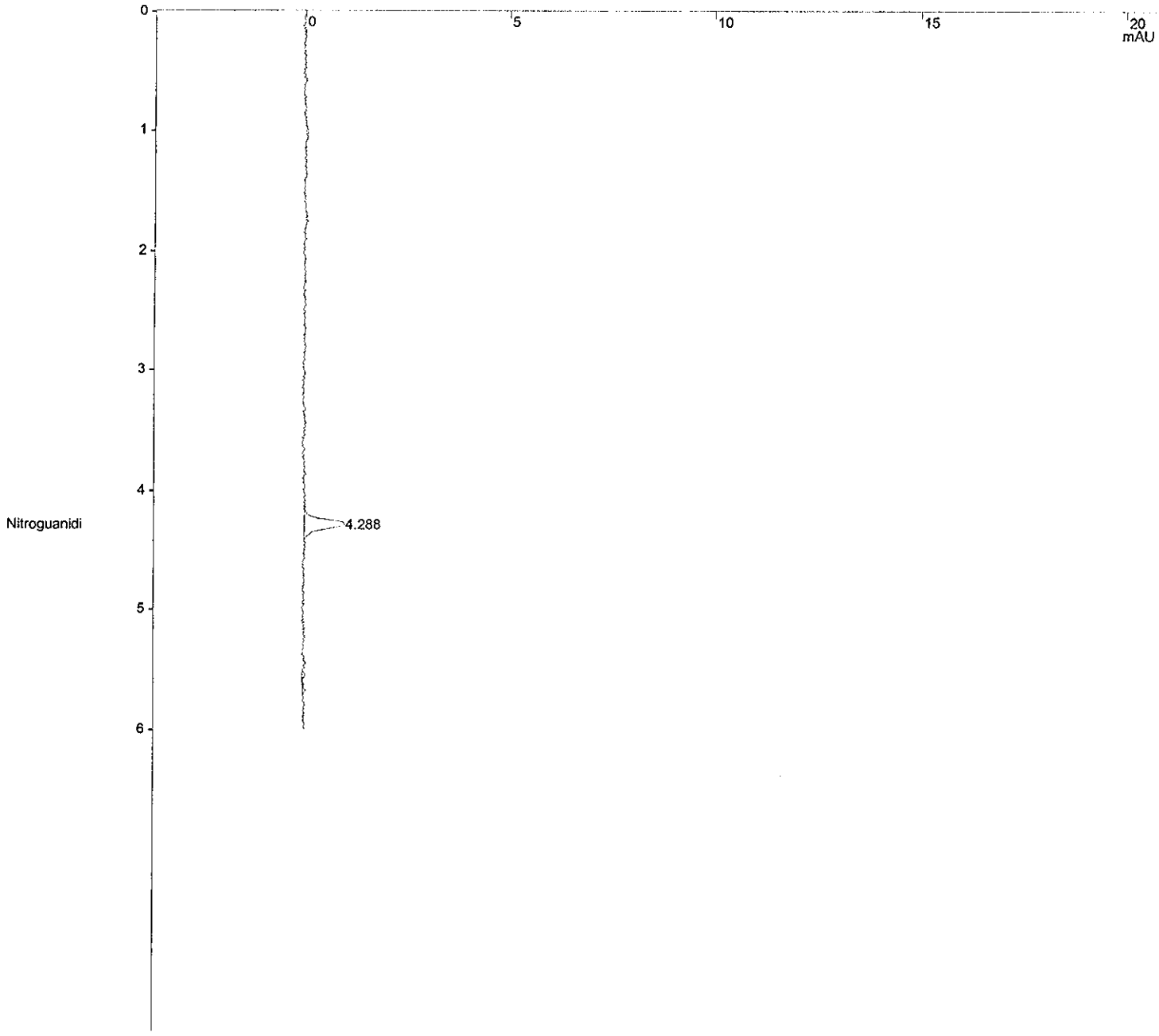
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;04;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 08:04 Calculation Date: 10/17/2007 08:14

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;04;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 08:04 Calculation Date: 10/17/2007 08:14

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	44.2226	11.6	4.288	0.005	127	
	Totals:		44.2226			0.005	127	

Total Unidentified Counts : 0 counts

Detected Peaks: 3 Rejected Peaks: 2 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 31 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

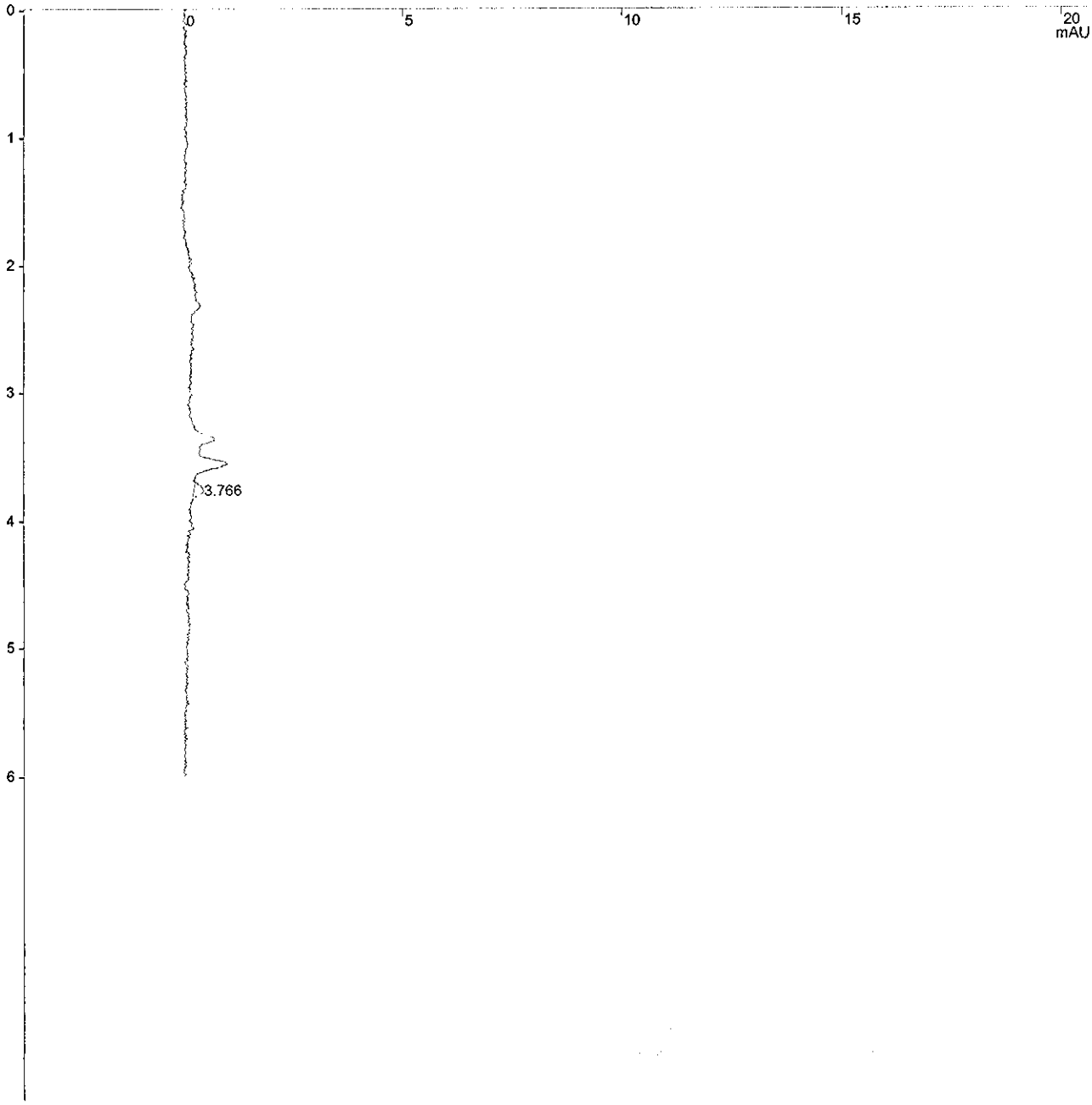
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;24;45-a7j040354-4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-4

Injection Date: 10/17/2007 08:24 Calculation Date: 10/17/2007 08:34

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 10.002 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;24;45-a7j040354-4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-4

Injection Date: 10/17/2007 08:24 Calculation Date: 10/17/2007 08:34

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 10.002 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.766	0.000	28	BB	4.6	
Totals:		0.0000		0.000	28			

Total Unidentified Counts : 28 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.99 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 43 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J792R1AH 7287049 NQ soil @ 2g/10ml.
****

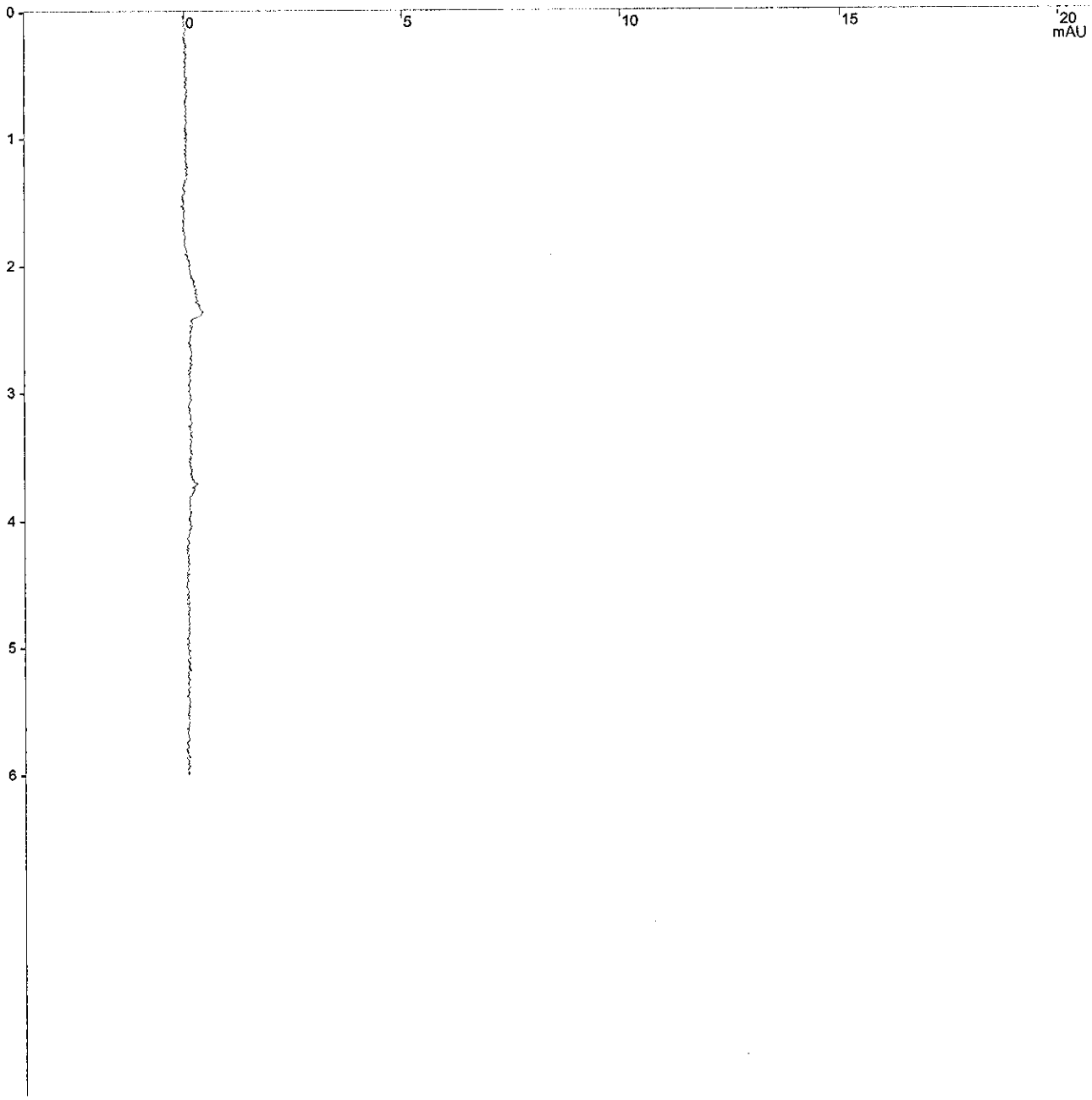
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;45;27-a7j040354-5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-5

Injection Date: 10/17/2007 08:45 Calculation Date: 10/17/2007 08:55

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=08;45;27-a7j040354-5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-5

Injection Date: 10/17/2007 08:45 Calculation Date: 10/17/2007 08:55

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
Totals:		0.0000		0.000	0			

Total Unidentified Counts : 0 counts

Detected Peaks: 0 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 2 Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 129 microAU - monitored before this run

Vial: 45 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Data Handling: No peaks

Original Notes:

J792W1AH 7287049 NQ soil @ 2g/10ml.

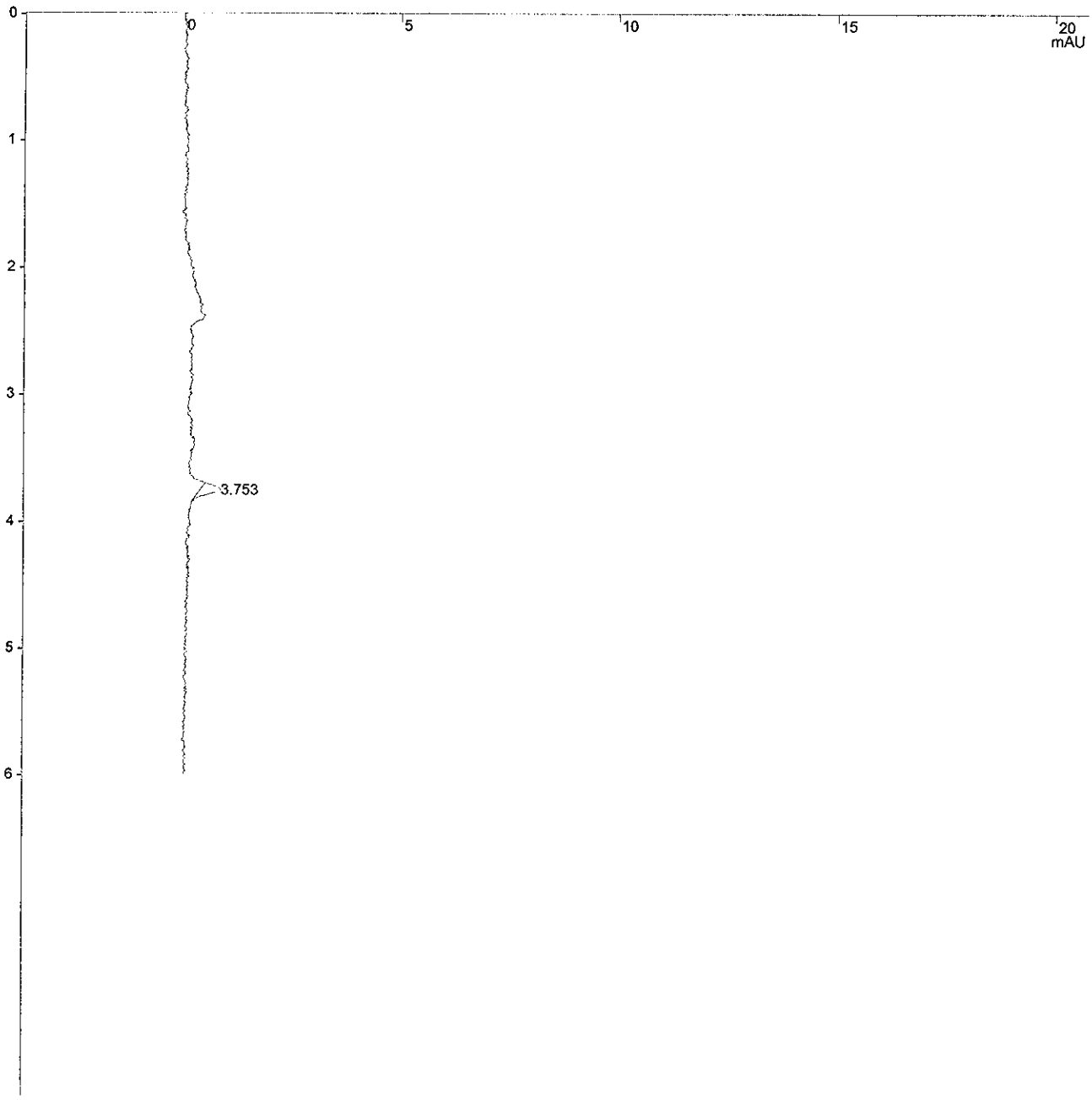
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;06;08-a7j040354-6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-6

Injection Date: 10/17/2007 09:06 Calculation Date: 10/17/2007 09:16

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;06;08-a7j040354-6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-6

Injection Date: 10/17/2007 09:06 Calculation Date: 10/17/2007 09:16

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	3.753	0.000	60	BB	3.5	
Totals:		0.0000		0.000	60			

Total Unidentified Counts : 60 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.95 Unidentified Peak Factor: 0

Baseline Offset: 53 microAU

Noise (used): 122 microAU - monitored before this run

Vial: 47 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J79201AH 7287049 NQ soil @ 2g/10ml.
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;26;48-a7j040354-7.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-7

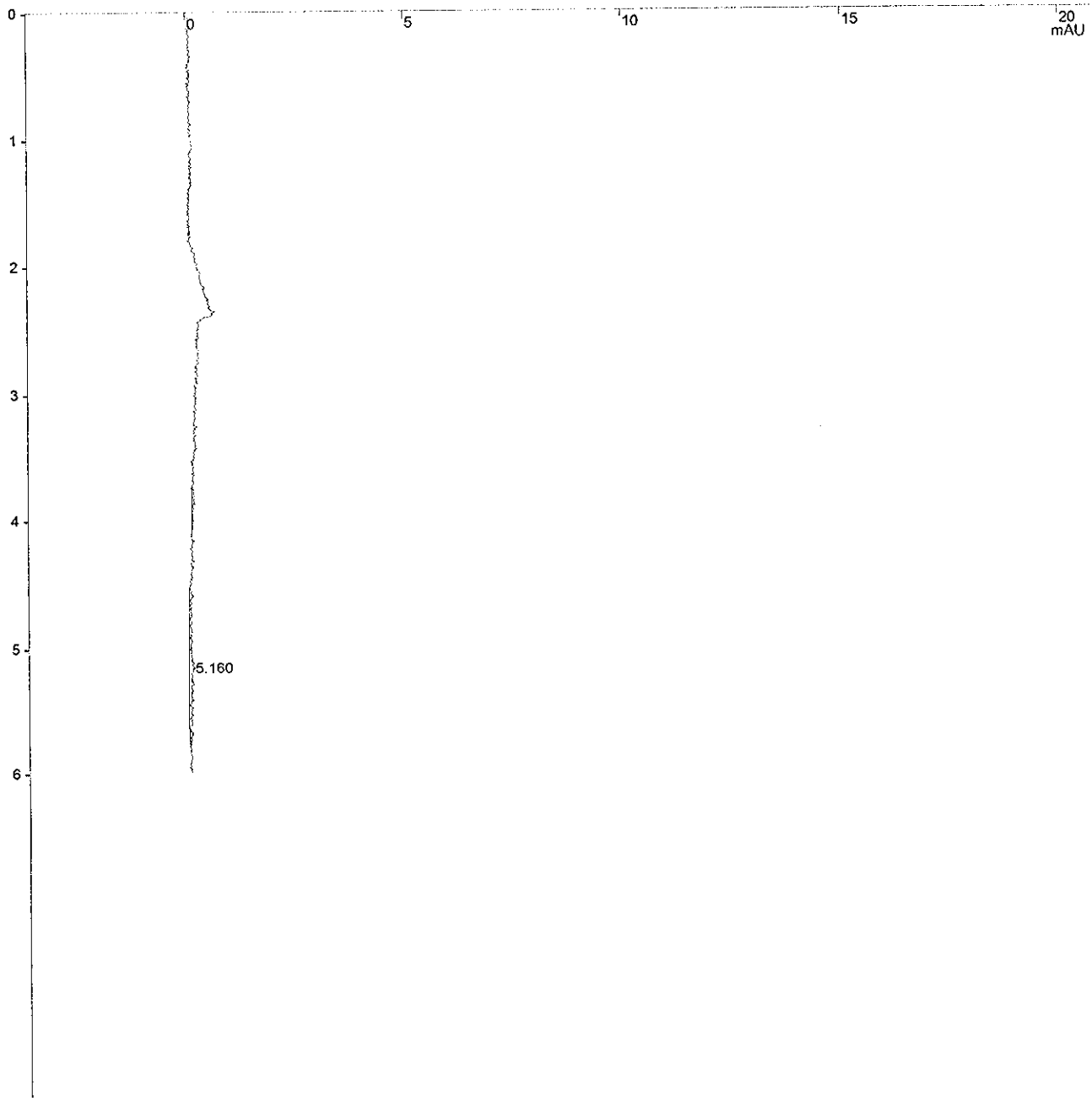
Injection Date: 10/17/2007 09:26 Calculation Date: 10/17/2007 09:36

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;26;48-a7j040354-7.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-7

Injection Date: 10/17/2007 09:26 Calculation Date: 10/17/2007 09:36

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1		0.0000	5.160	0.000	14	VP	6.8	
Totals:		0.0000		0.000	14			

Total Unidentified Counts : 14 counts

Detected Peaks: 4 Rejected Peaks: 3 Identified Peaks: 0

Multiplier: 10 Divisor: 1.97 Unidentified Peak Factor: 0

Baseline Offset: 15 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 49 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

J79231AH 7287049 NQ soil @ 2g/10ml.
****

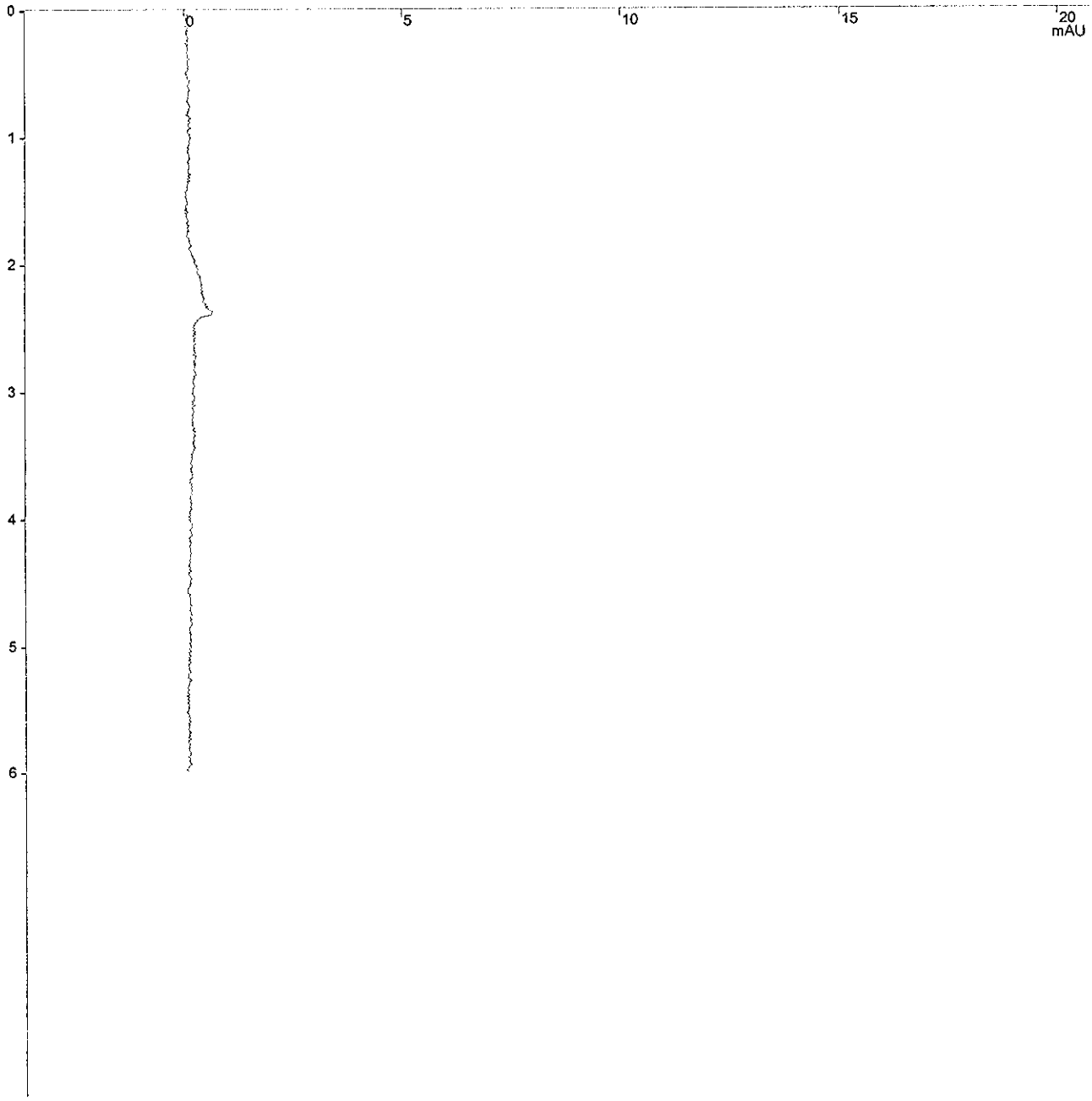
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;47;29-a7j040354-8.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-8

Injection Date: 10/17/2007 09:47 Calculation Date: 10/17/2007 09:57

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=09;47;29-a7j040354-8.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : A7J040354-8

Injection Date: 10/17/2007 09:47 Calculation Date: 10/17/2007 09:57

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
Totals:		0.0000		0.000	0			

Total Unidentified Counts : 0 counts

Detected Peaks: 0 Rejected Peaks: 0 Identified Peaks: 0

Multiplier: 10 Divisor: 1.97 Unidentified Peak Factor: 0

Baseline Offset: 15 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 51 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Data Handling: No peaks

Original Notes:

J79271AH 7287049 NQ soil @ 2g/10ml.
****

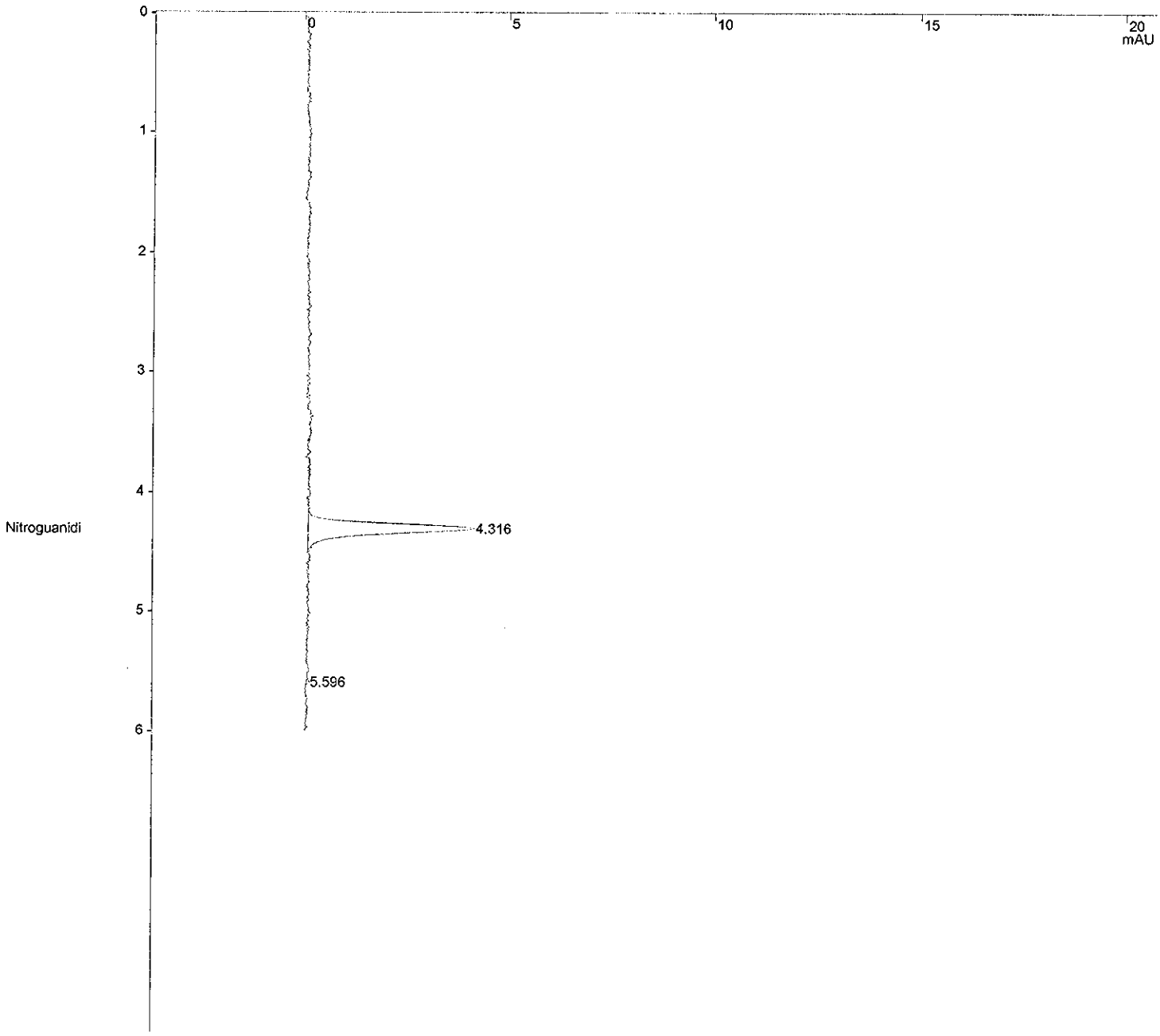
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=10;08;16-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/17/2007 10:08 Calculation Date: 10/17/2007 10:18

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.984 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=10;08;16-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/17/2007 10:08 Calculation Date: 10/17/2007 10:18

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.984 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	184.5089	7.7	4.316	0.033	530	
2		0.0000	0.0000	0.0	5.596	0.000	11	
	Totals:		184.5089			0.033	541	

Total Unidentified Counts : 11 counts

Detected Peaks: 3 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 91 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

STD 4; 200ng/ml NQ
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=10;29;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

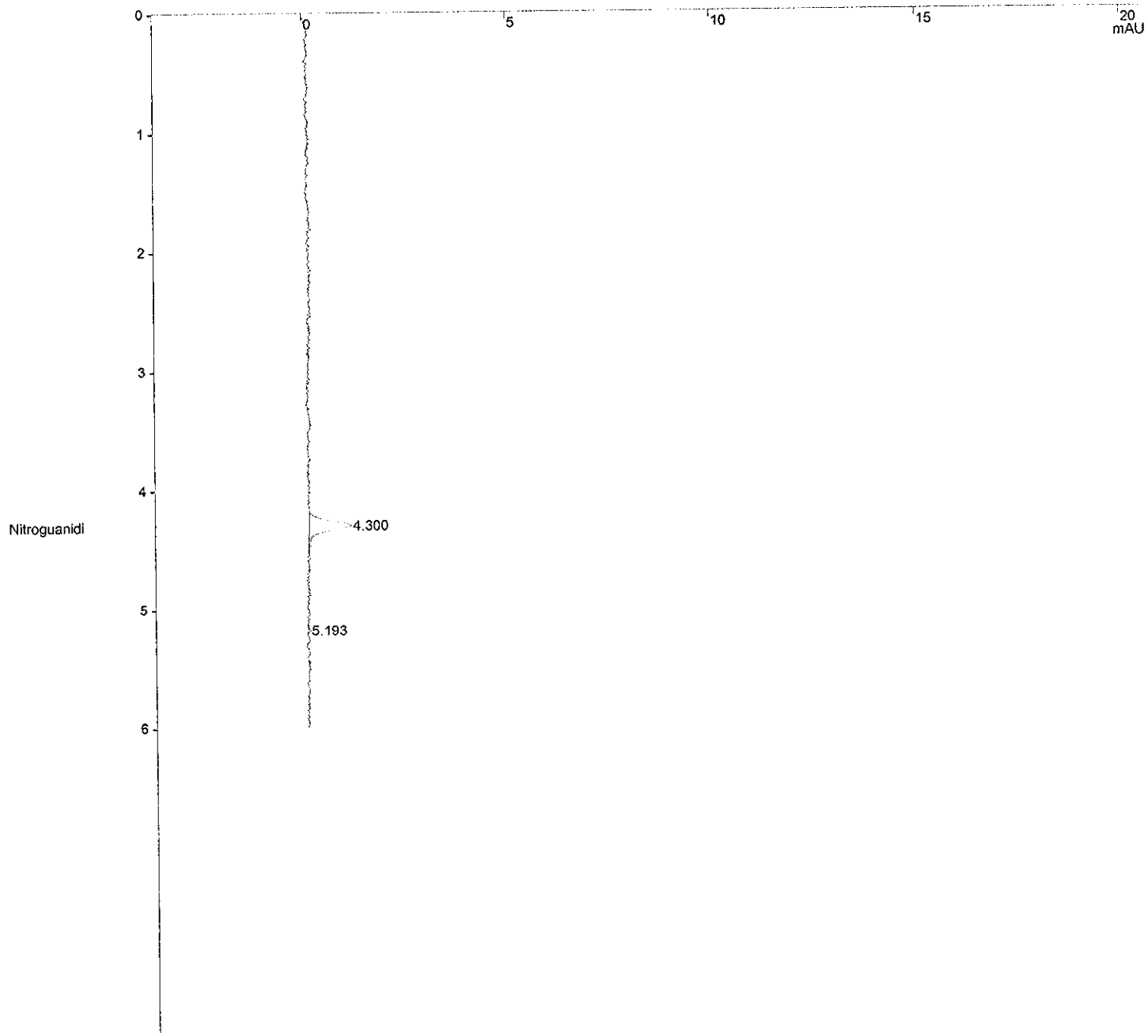
Injection Date: 10/17/2007 10:29 Calculation Date: 10/17/2007 10:39

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-17-2007=10;29;02-e070427e std 2 mrl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070427E STD 2 MRL

Injection Date: 10/17/2007 10:29 Calculation Date: 10/17/2007 10:39

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	50.0000	46.5312	6.9	4.300	0.017	134	
2		0.0000	0.0000	0.0	5.193	0.000	11	
	Totals:		46.5312			0.017	145	

Total Unidentified Counts : 11 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 99 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

MRL STD 2; 50ng/ml NQ
****

Initial Calibration

Includes (as applicable):

runlog

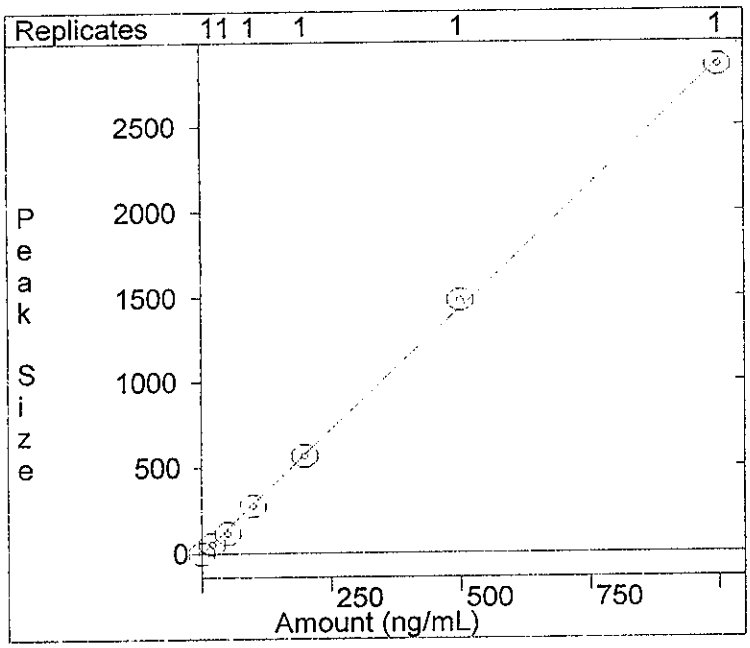
standard raw data

statistical summary

ms tune data

Print Date: 10 Oct 2007 21:21:52
Calibration Curves Report
File: c:\star\methods\ngu_amino_361244-11_10.10.2007.mth
Detector: 9065 Polychrom, Address: 4, Channel ID: 16

Nitroguanidine
External Standard Analysis
Resp. Fact. RSD: 8.297%
Curve Type: Linear
Origin: Force
Coeff. Det.(r^2): 0.999496
y = +2.8718e+000x



ICAL in control

reviewed by KMason
date 10-15-07

TestAmerica North Canton

Title : Calibration Block Report
Method File : c:\star\methods\ngu_amino_361244-11_10.10.2007.mth
Data Method Time : 10/10/2007 21:11

Requested Curve Type : linear
Requested Origin : force
Calibration Type : External Standard Analysis

Method Detector Type : 9065 Polychrom
Method Bus Address : 4
Method Channel : 16

Calibration Dates
Last Injection Date : 10/10/2007 21:01

Last Recalculation Date : 10/10/2007 21:11

**********Star Chromatography Workstation**********Version 5.52**********

Retention Time (min)	Peak Name	Curve\ Origin	X^3	X^2	X	C	r^2	Cal. Range	No. of Points	Edit Codes
4.283	Nitroguanidine	1 F			+2.8718e+000	+0.0000e+000	+9.9950e-001	1-6	6	

Curve Codes		Origin Codes		Edit Codes	
1	linear	I	include	1	curve
2	quadratic	IG	ignore	2	origin
3	cubic	F	force	3	coefficient

Ret. Time: 4.283 min.
Peak Name: Nitroguanidine
Peak Measurement: Height
Curve\Origin: 1 F

Level	Amount	Replicate No.	Response	Avg. Response	Std. Dev.
1	20.000000	1	54	54.0	#
2	50.000000	1	116	115.5	#
3	100.000000	1	276	276.3	#
4	200.000000	1	567	566.9	#
5	500.000000	1	1482	1482.2	#
6	1000.000000	1	2853	2852.7	#

= Too few points to calculate.

Peak Name	Level	Rep.	Injection Date Time	Run Files
Nitroguanidine	1	1	10/10/2007 19:18	c:\... \10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
	2	1	10/10/2007 19:39	c:\... \10.2007\nq-10-10-2007=19;39;02-e071004d std 2.run
	3	1	10/10/2007 19:59	c:\... \10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
	4	1	10/10/2007 20:20	c:\... \10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
	5	1	10/10/2007 20:41	c:\... \10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
	6	1	10/10/2007 21:01	c:\... \10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run

****

Varian Star Workstation - RecalcList Fri Oct 12 16:31:30 2007

RecalcList: C:\Star\Sample list\NQ-10.10.2007.RCL

Created: Wed Oct 10 15:49:16 2007
Modified: Thu Oct 11 02:17:37 2007

NQ Analysis 10 Oct 2007

****

Ste-CC-0010

Line	Sample Type	Sample Name	Data F
1	Verification	PRIMER	nq-10-10-2007=15;50;35-primer.
2	Verification	PRIMER	nq-10-10-2007=16;11;20-primer.
3	Verification	PRIMER	nq-10-10-2007=16;32;02-primer.
4	Verification	PRIMER	nq-10-10-2007=16;52;45-primer.
5	Verification	PRIMER	nq-10-10-2007=17;13;28-primer.
6	Verification	PRIMER	nq-10-10-2007=17;34;09-primer.
7	Verification	PRIMER	nq-10-10-2007=17;54;52-primer.
8	Verification	PRIMER	nq-10-10-2007=18;15;34-primer.
9	Verification	PRIMER	nq-10-10-2007=18;36;16-primer.
10	Analysis	Blank	nq-10-10-2007=18;57;02-blank.
11	New Calib Block		
12	Calibration	E071004C STD 1	nq-10-10-2007=19;18;19-e071004c std 1.
13	Calibration	E071004D STD 2	nq-10-10-2007=19;39;02-e071004d std 2.
14	Calibration	E071004E STD 3	nq-10-10-2007=19;59;44-e071004e std 3.
15	Calibration	E071004F STD 4	nq-10-10-2007=20;20;26-e071004f std 4.
16	Calibration	E071004G STD 5	nq-10-10-2007=20;41;08-e071004g std 5.
17	Calibration	E071004H STD 6	nq-10-10-2007=21;01;50-e071004h std 6.
18	Print Calib		
19	Analysis	Blank	nq-10-10-2007=21;22;38-blank.
20	Verification	E070713J ICV Std	nq-10-10-2007=21;43;22-e070713j icv std.
21	Analysis	E071004B 2 X MDL	nq-10-10-2007=22;04;06-e071004b 2 x mdl.
22	Verification	E071004F STD 4	nq-10-10-2007=22;24;51-e071004f std 4.
23	Verification	E070427E STD 2 MRL	nq-10-10-2007=22;45;37-e070427e std 2 mrl.
24	Analysis	G7J080000-454-MB	nq-10-10-2007=23;06;24-g7j080000-454-mb.
25	Analysis	G7J080000-454-LCS	nq-10-10-2007=23;27;04-g7j080000-454-lcs.
26	Analysis	A7I130241-5	nq-10-10-2007=23;47;45-a7i130241-5.
27	Analysis	A7I130241-5MS	nq-10-11-2007=00;08;24-a7i130241-5ms.
28	Analysis	A7I130241-5MSD	nq-10-11-2007=00;29;06-a7i130241-5msd.
29	Analysis	A7I130241-6	nq-10-11-2007=00;49;46-a7i130241-6.
30	Verification	E070427F STD 5	nq-10-11-2007=01;10;28-e070427f std 5.
31	Verification	E070427E STD 2 MRL	nq-10-11-2007=01;31;14-e070427e std 2 mrl.
32	Analysis	END RUN	nq-10-11-2007=02;07;32-end run.

Page 11

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;43;22-e070713j icv std.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070713J ICV Std

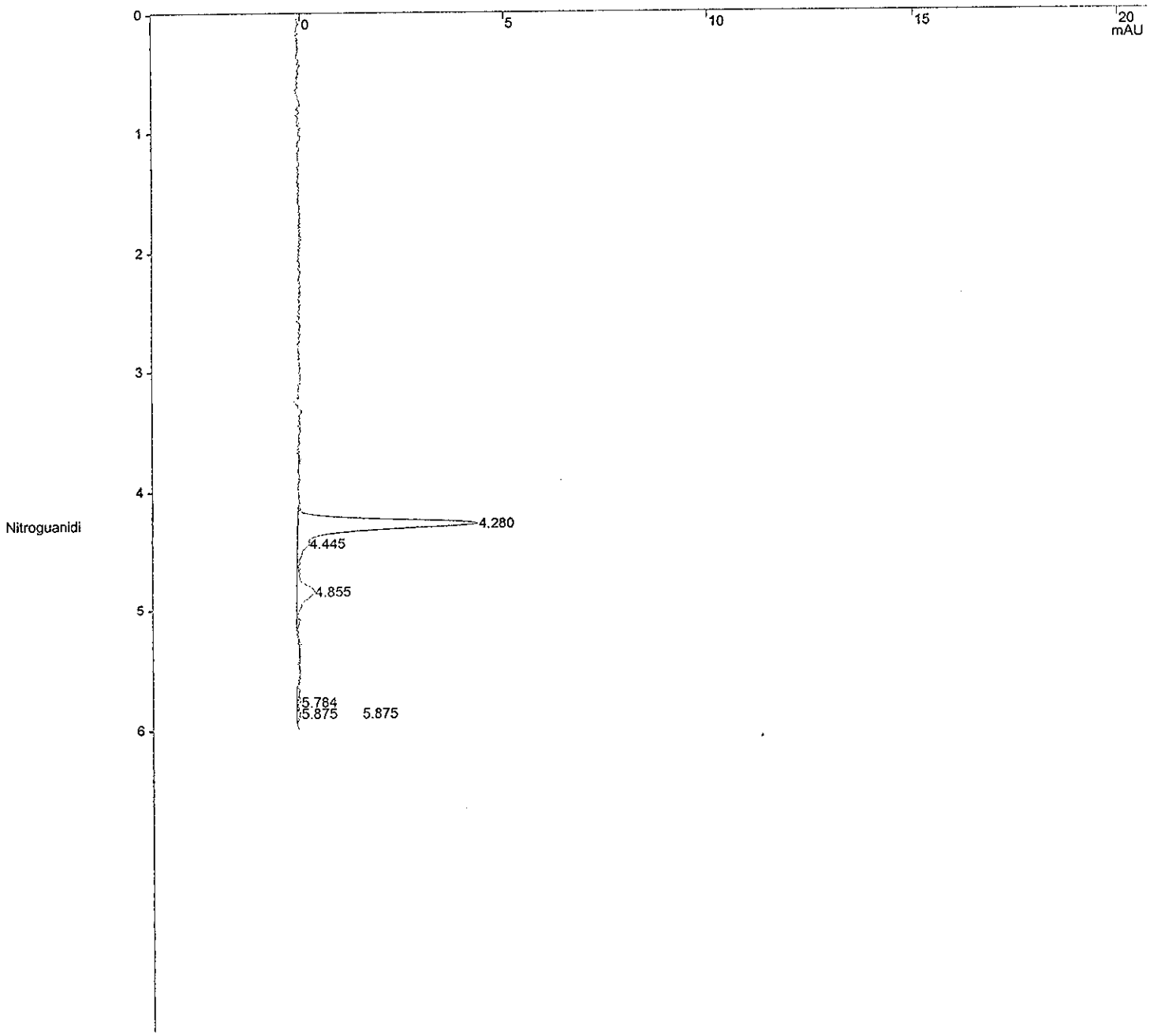
Injection Date: 10/10/2007 21:43 Calculation Date: 10/10/2007 21:53

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Verification Report

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;43;22-e070713j icv std.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E070713J ICV Std

Injection Date: 10/10/2007 21:43 Calculation Date: 10/10/2007 21:53

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Verification
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4
Tolerance : 15.0%

Peak No.	Peak Name	Expected Result (ppb)	Calculated Result (ppb)	Dev. %	Ret. Time (min)	Time Offset (min)	Height (counts)	Status Codes
1	Nitroguanidi	200.0000	201.8988	0.9	4.280	-0.003	580	
2		0.0000	0.0000	0.0	4.445	0.000	36	
3		0.0000	0.0000	0.0	4.855	0.000	60	
4		0.0000	0.0000	0.0	5.784	0.000	11	
5		0.0000	0.0000	0.0	5.875	0.000	11	
	Totals:		201.8988			-0.003	698	

ICV passes criteria ± 15% 10/17/07

Total Unidentified Counts : 118 counts

Detected Peaks: 12 Rejected Peaks: 7 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

✓ ICM 10/15/07

Baseline Offset: 0 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 16 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 200ng/ml ICV std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=18;57;02-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_08.10.2007.mth
Sample ID : Blank

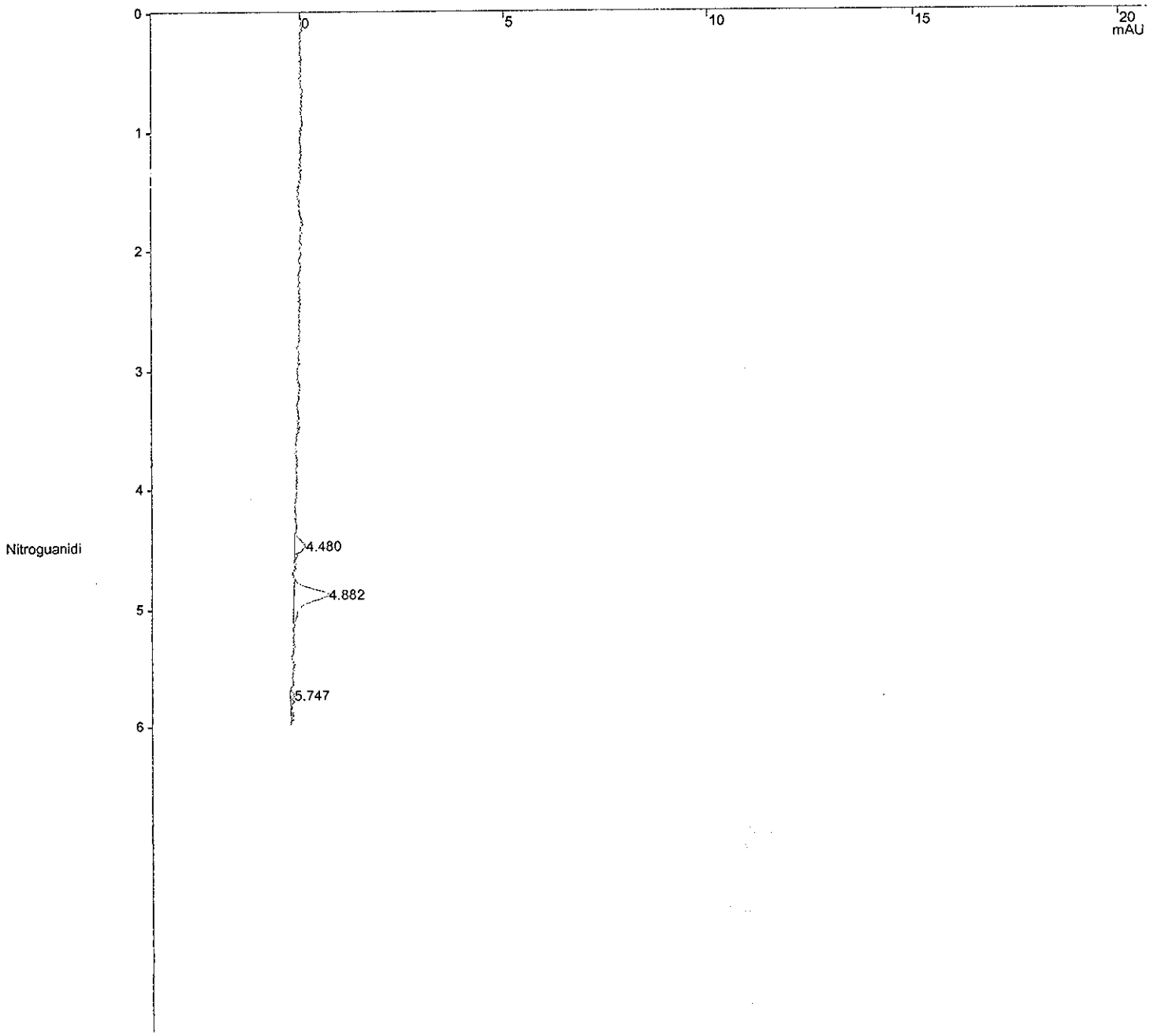
Injection Date: 10/10/2007 18:57 Calculation Date: 10/10/2007 19:07

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=18;57;02-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_08.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 18:57 Calculation Date: 10/10/2007 19:07

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	9.2493	4.480	0.165	35	BB	6.5	
2		0.0000	4.882	0.000	119	BB	6.3	
3		0.0000	5.747	0.000	10	BB	0.0	
	Totals:	9.2493		0.165	164			

Total Unidentified Counts : 129 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 1 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07

Original Notes:

water blank
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004C STD 1

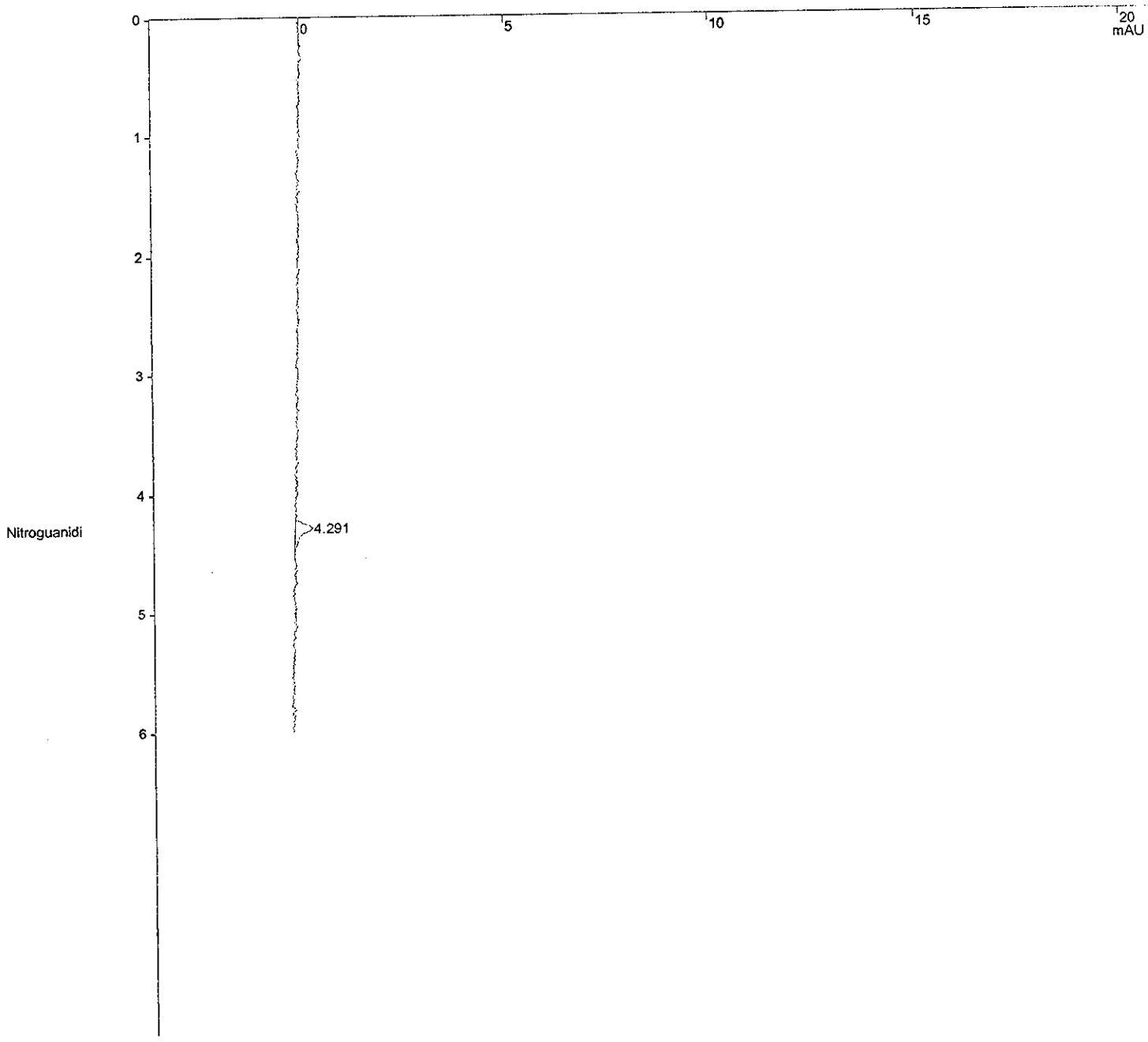
Injection Date: 10/10/2007 19:18 Calculation Date: 10/10/2007 19:28

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;18;19-e071004c std 1.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004C STD 1

Injection Date: 10/10/2007 19:18 Calculation Date: 10/10/2007 19:28

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 1

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.291	-0.024	54	BB	5.2	
	Totals:		-0.024	54			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 160 microAU - monitored before this run

Vial: 4 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 20ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;39;02-e071004d std 2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004D STD 2

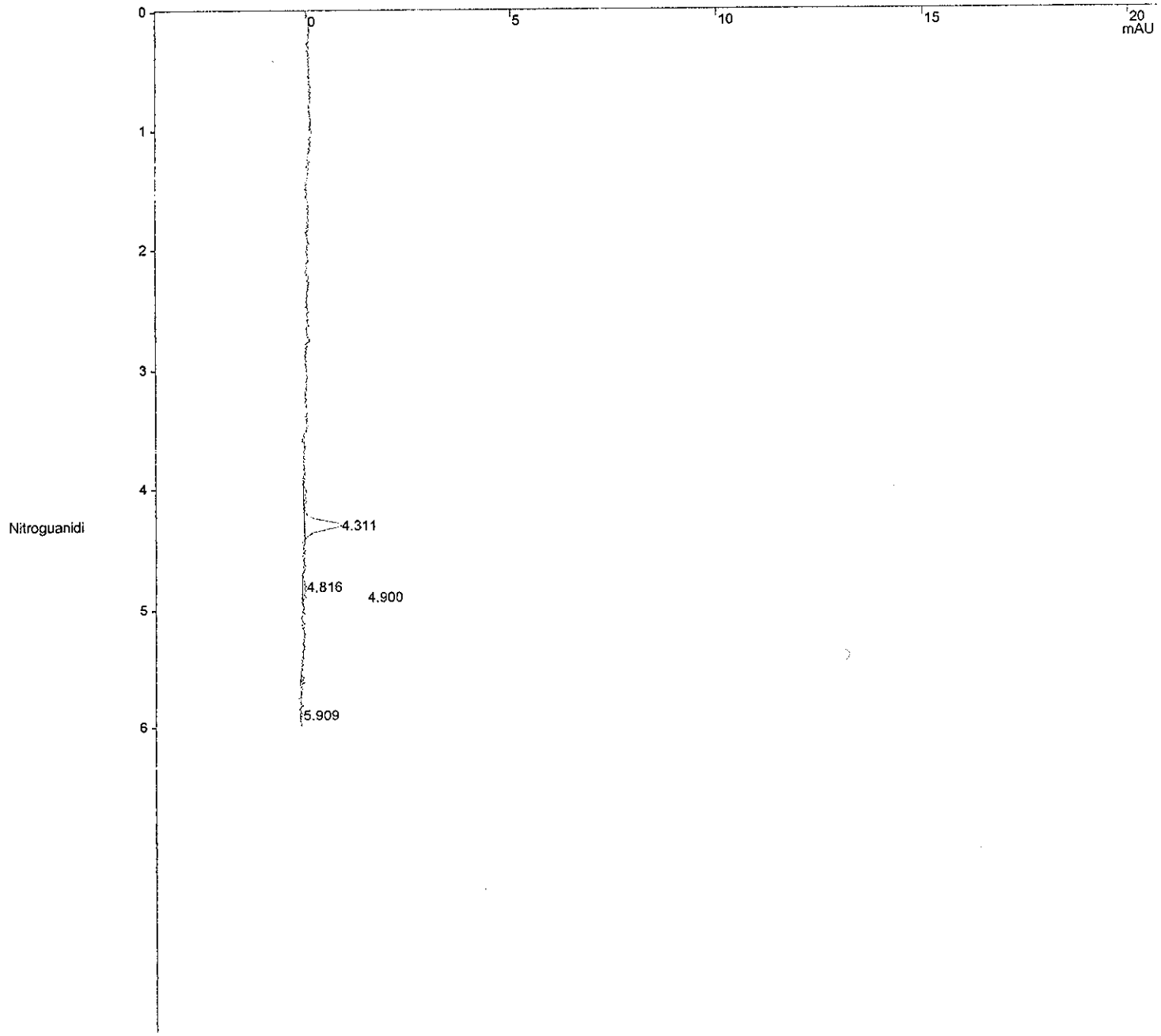
Injection Date: 10/10/2007 19:39 Calculation Date: 10/10/2007 19:49

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\ng-10-10-2007=19;39;02-e071004d std 2.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004D STD 2

Injection Date: 10/10/2007 19:39 Calculation Date: 10/10/2007 19:49

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 2

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.311	0.021	116	BB	5.3	
2		4.816	0.000	12	BV	6.2	
3		4.900	0.000	12	VB	8.7	
4		5.909	0.000	11	BB	0.8	
	Totals:		0.021	151			

Total Unidentified Counts : 35 counts

Detected Peaks: 5 Rejected Peaks: 1 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -30 microAU

Noise (used): 91 microAU - monitored before this run

Vial: 6 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 50ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004E STD 3

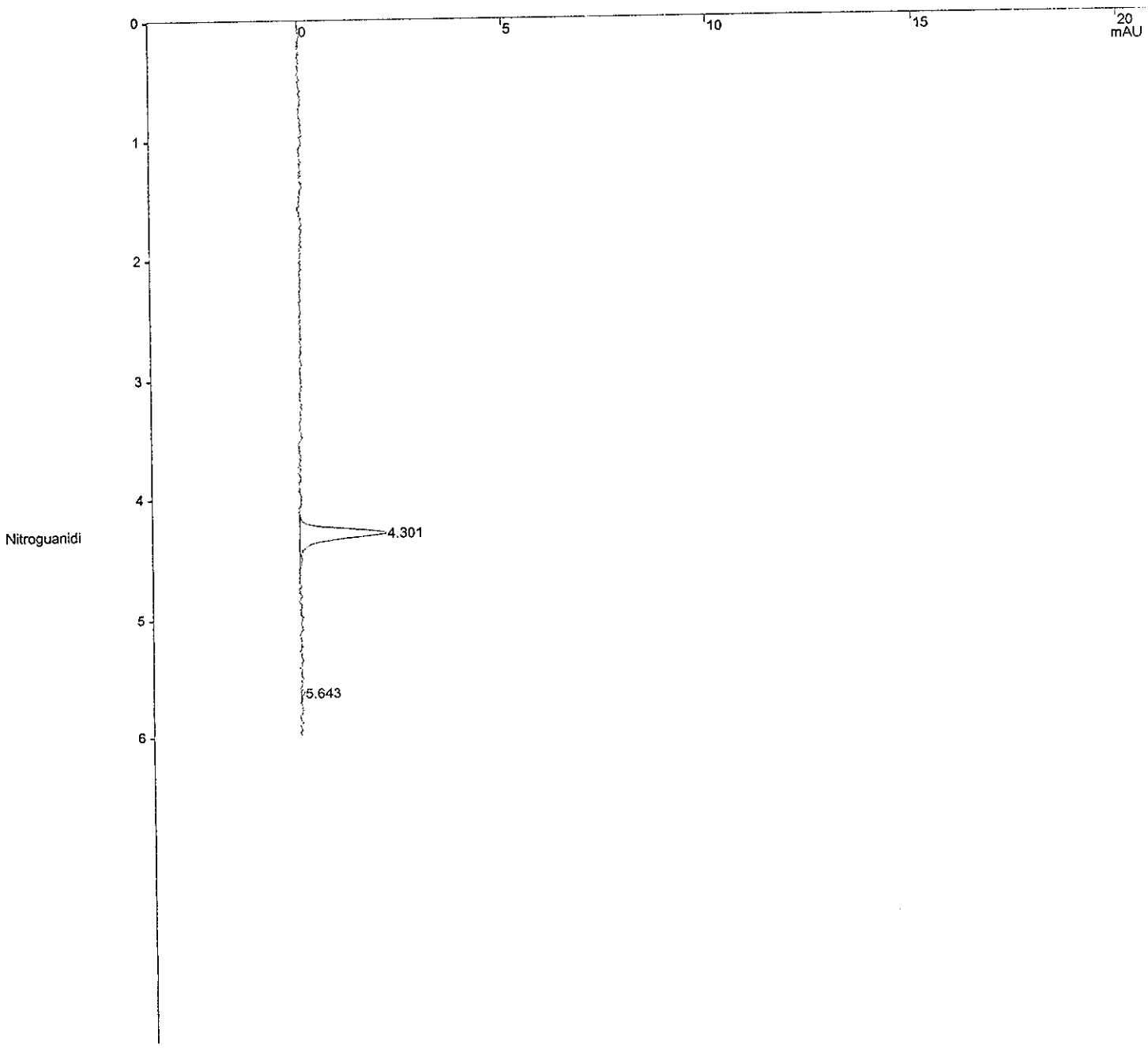
Injection Date: 10/10/2007 19:59 Calculation Date: 10/10/2007 20:09

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=19;59;44-e071004e std 3.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004E STD 3

Injection Date: 10/10/2007 19:59 Calculation Date: 10/10/2007 20:09

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 3

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.301	-0.009	276	BB	5.1	
2		5.643	0.000	12	BB	2.2	
	Totals:		-0.009	288			

Total Unidentified Counts : 12 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 8 microAU

Noise (used): 137 microAU - monitored before this run

Vial: 8 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 100ng/ml std
****

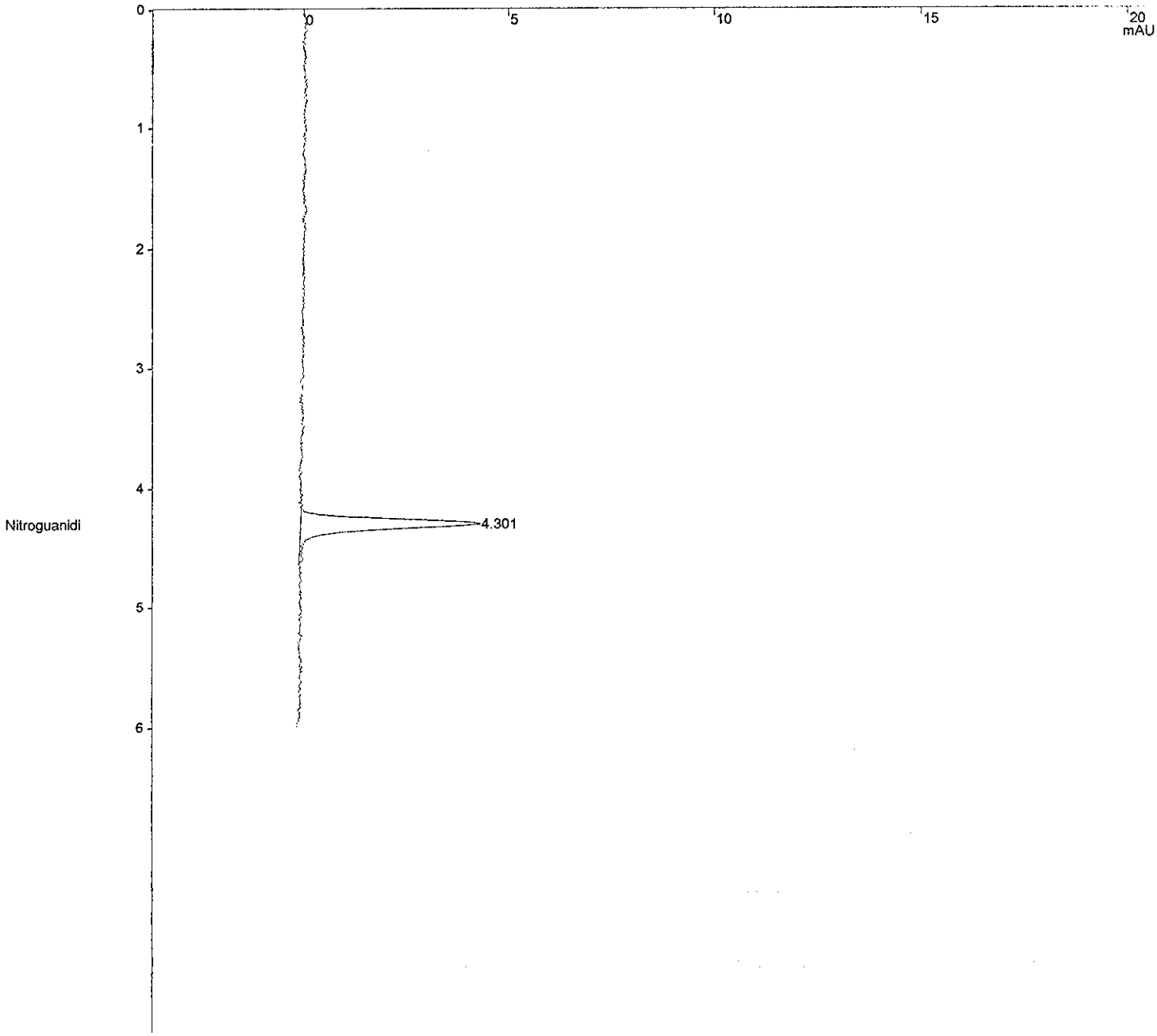
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/10/2007 20:20 Calculation Date: 10/10/2007 20:30

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;20;26-e071004f std 4.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004F STD 4

Injection Date: 10/10/2007 20:20 Calculation Date: 10/10/2007 20:30

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 4

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.301	0.001	567	BB	5.3	
	Totals:		0.001	567			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 114 microAU - monitored before this run

Vial: 10 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 200ng/ml std
****

Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004G STD 5

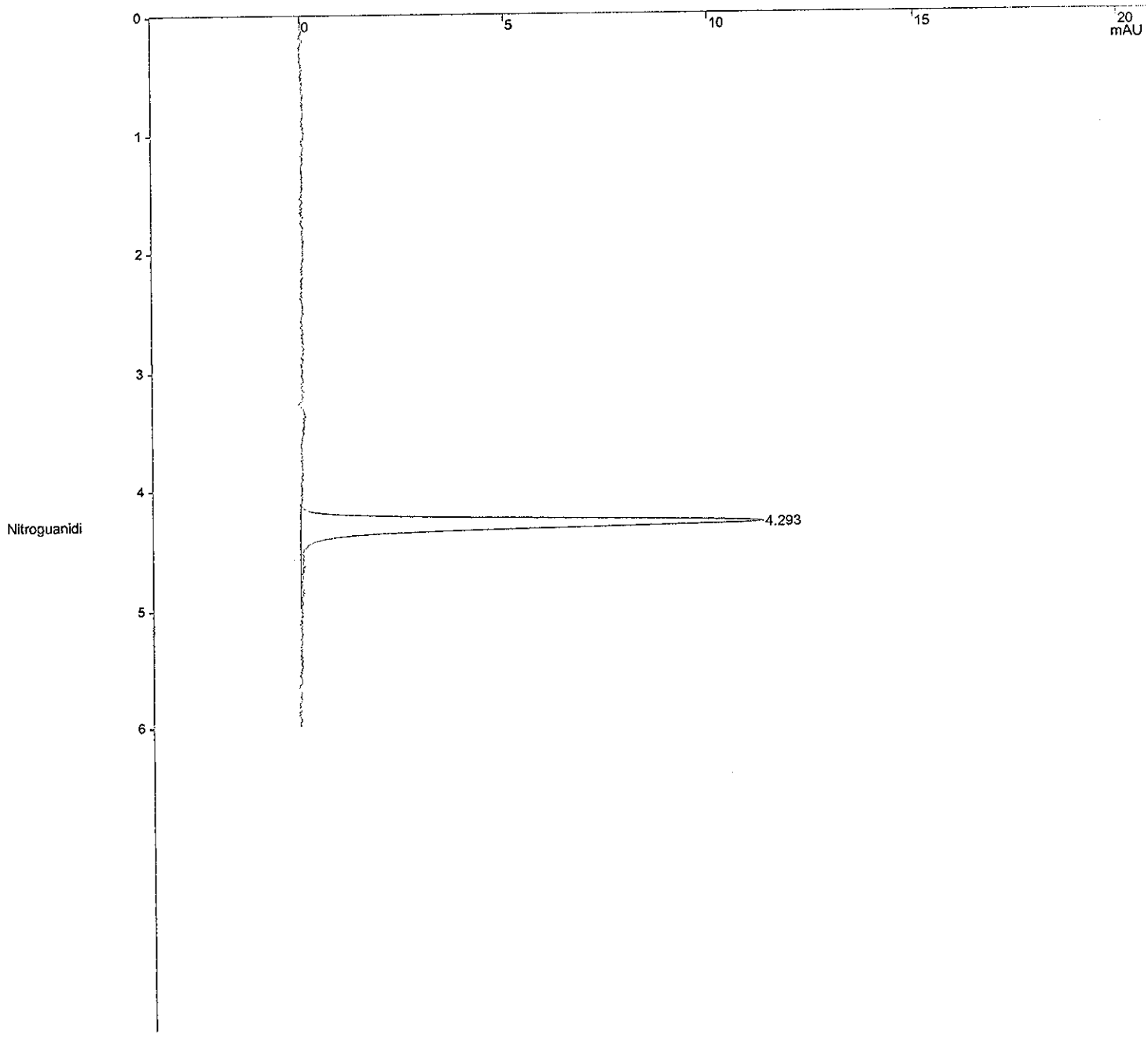
Injection Date: 10/10/2007 20:41 Calculation Date: 10/10/2007 20:51

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=20;41;08-e071004g std 5.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004G STD 5

Injection Date: 10/10/2007 20:41 Calculation Date: 10/10/2007 20:51

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 5

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.293	-0.008	1482	BB	5.3	
	Totals:		-0.008	1482			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 144 microAU - monitored before this run

Vial: 12 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 500ng/ml std
****

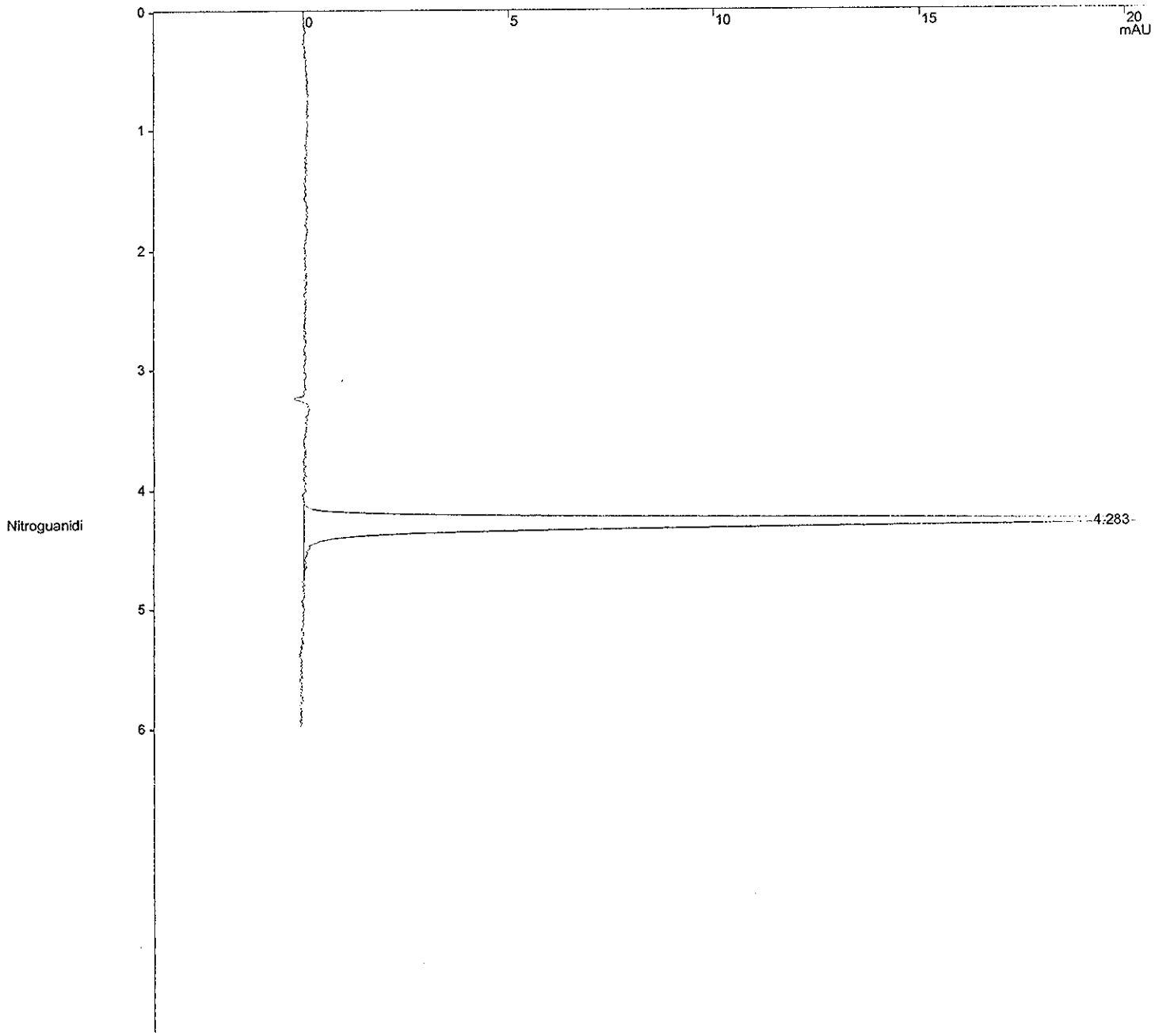
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004H STD 6

Injection Date: 10/10/2007 21:01 Calculation Date: 10/10/2007 21:11

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;01;50-e071004h std 6.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004H STD 6

Injection Date: 10/10/2007 21:01 Calculation Date: 10/10/2007 21:11

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Calibration
Peak Measurement: Peak Height
Calculation Type: External Standard
Level : 6

Peak No.	Peak Name	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	4.283	-0.010	2853	BB	5.2	
	Totals:		-0.010	2853			

Total Unidentified Counts : 0 counts

Detected Peaks: 1 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: 0 microAU

Noise (used): 152 microAU - monitored before this run

Vial: 14 Injection Number: 1 Partial Loopfill Volume: 50 ul

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Notes
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STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 1000ng/ml std
****

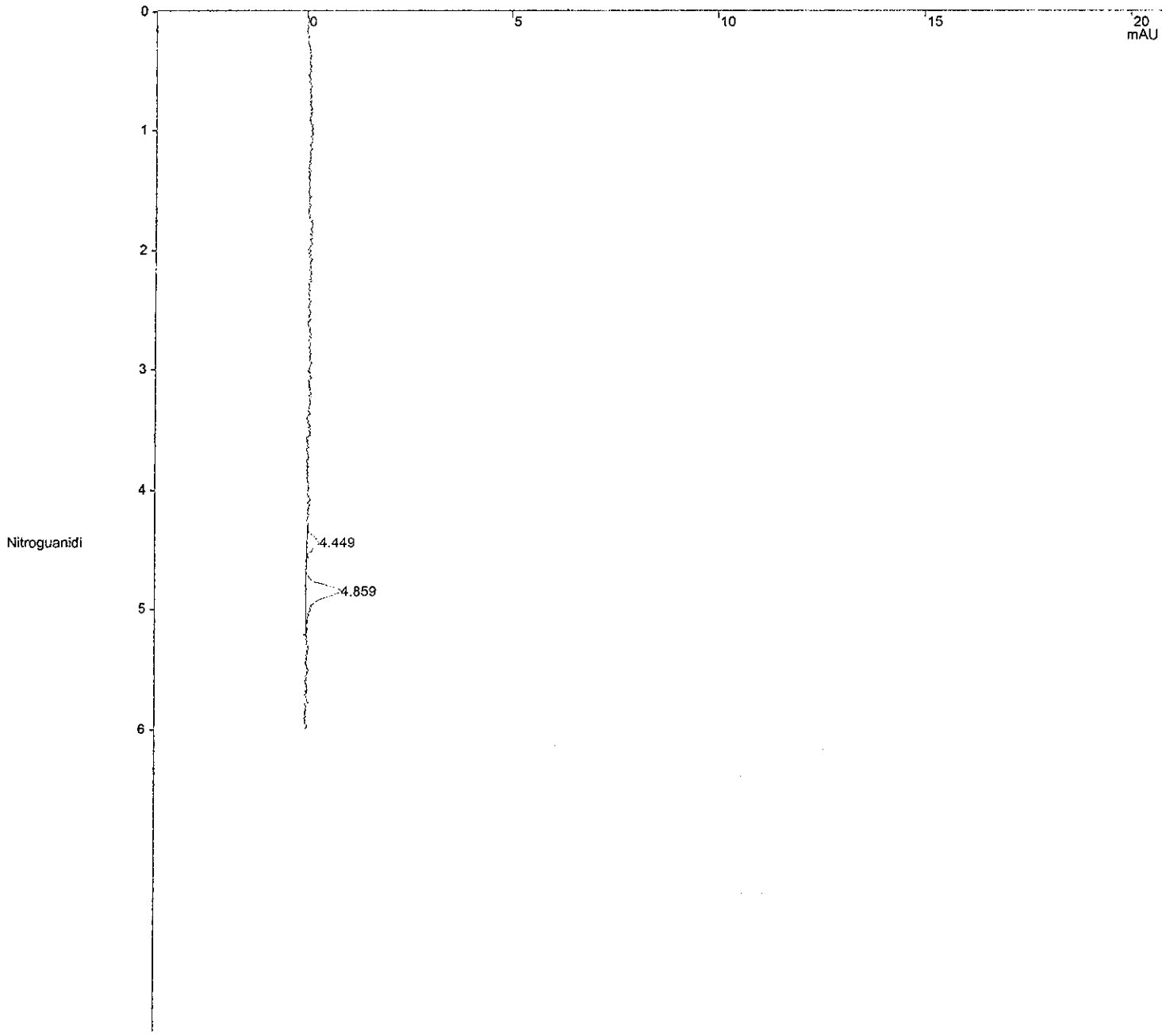
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;22;38-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 21:22 Calculation Date: 10/10/2007 21:32

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=21;22;38-blank.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : Blank

Injection Date: 10/10/2007 21:22 Calculation Date: 10/10/2007 21:32

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.990 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	12.9291	4.449	0.166	37	BB	6.5	
2		0.0000	4.859	0.000	114	BB	7.2	
	Totals:	12.9291		0.166	151			

Total Unidentified Counts : 114 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 46 microAU

Noise (used): 106 microAU - monitored before this run

Vial: 1 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, inst alled 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

water blank
****

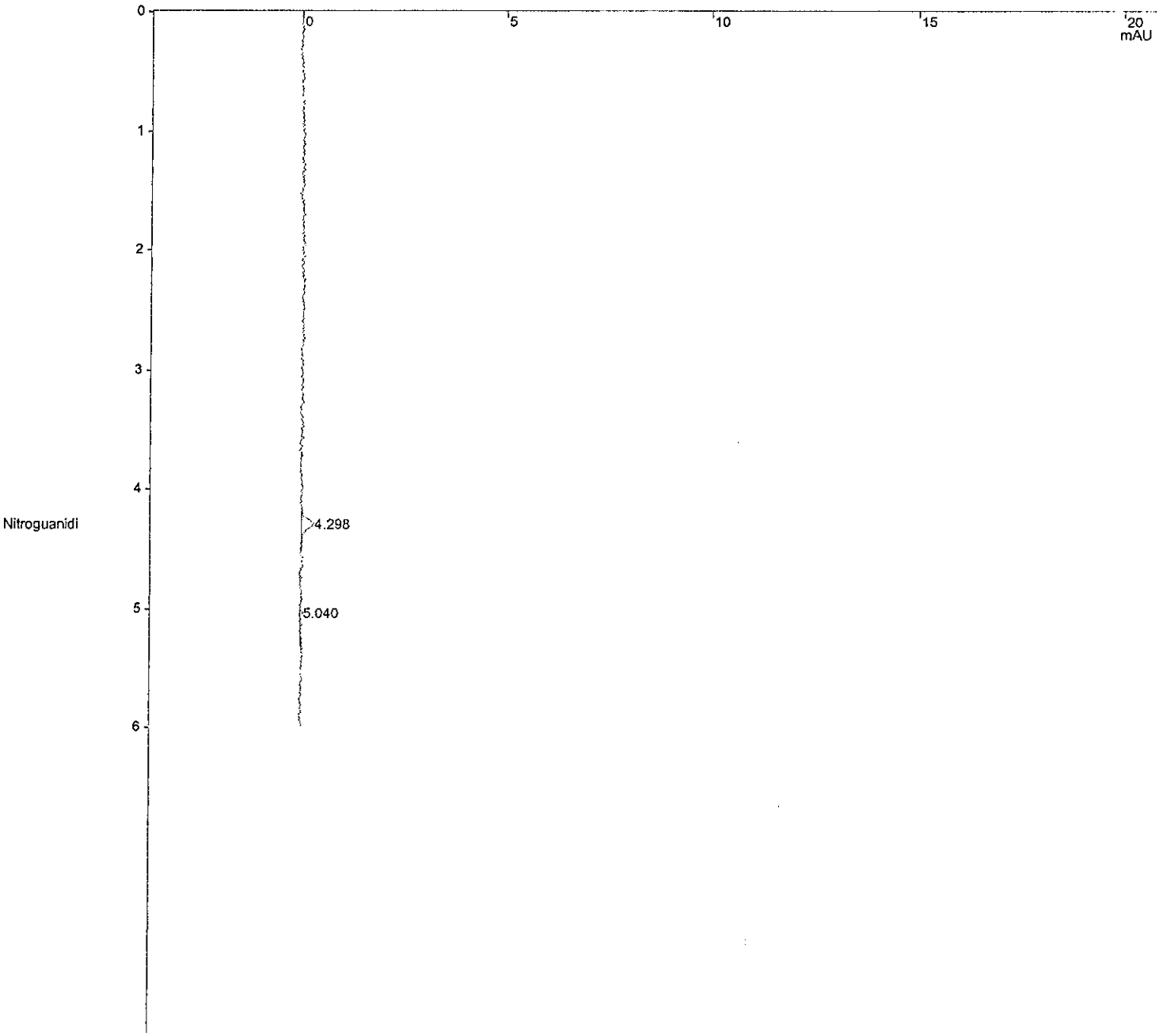
Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=22;04;06-e071004b 2 x mdl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004B 2 X MDL

Injection Date: 10/10/2007 22:04 Calculation Date: 10/10/2007 22:14

Operator : KenneyF Detector Type: 9065
Workstation: Bus Address : 4
Instrument : Varian Star #1 Sample Rate : 2.71 Hz
Channel : 16 = 263 nm Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Chart Speed = 2.00 cm/min Attenuation = 20 Zero Offset = 15%
Start Time = 0.000 min End Time = 6.000 min Min / Tick = 1.00



Title : Nitroguanidine Analysis on PDA @ 263 nm.
Run File : c:\star\data\10.2007\nq-10-10-2007=22;04;06-e071004b 2 x mdl.run
Method File : C:\Star\Methods\NGu_Amino_361244-11_10.10.2007.mth
Sample ID : E071004B 2 X MDL

Injection Date: 10/10/2007 22:04 Calculation Date: 10/10/2007 22:14

Operator : KenneyF
Workstation:
Instrument : Varian Star #1
Channel : 16 = 263 nm

Detector Type: 9065
Bus Address : 4
Sample Rate : 2.71 Hz
Run Time : 9.996 min

** Star Chromatography Workstation Version 5.52 ** 00123-5E00-E5E-03F9 **

Run Mode : Analysis
Peak Measurement: Peak Height
Calculation Type: External Standard

Peak No.	Peak Name	Result (ppb)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Nitroguanidi	13.4460	4.298	0.015	39	BB	5.0	
2		0.0000	5.040	0.000	11	BP	1.5	
	Totals:	13.4460		0.015	50			

Total Unidentified Counts : 11 counts

Detected Peaks: 6 Rejected Peaks: 4 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -7 microAU

Noise (used): 68 microAU - monitored before this run

Vial: 18 Injection Number: 1 Partial Loopfill Volume: 50 ul

****
Notes
****

STL Sacramento, SAC-LC-0010, Nitroguanidine Analysis on PDA, absorbance at 263nm.

O2N-NH-C(=NH)-NH2

Primary column = Phenomenex Luna NH2 s/n=361244-11, 250x4.6mm, 5um, installed 06/13/07 without Security NH2 Guard.
Security NH2 Guard has now been installed 8/10/07.
Isocratic at 100 % water, 6 minute run, wash with 100% acetonitrile.
Column Temperature 15 degrees C.
Injection volumn 50 uL.
07/17/05 installed new lamp.
07/21/06 replaced front keyboard of autosampler from extra A/S.

New lamp installed 2/24/07
Curved 6/13/07 with standards E070427A-G
Re-curved 8/3/07.
Re-curved 8/6/07.
Re-curved 8/10/07
Re-curved 10/10/07 with standards E071004B-H

Original Notes:

NQ 15ng/ml 2 x MDL std
****

Appendix

Includes (as applicable):

retention time windows

MDL summaries

calculation explanation sheets

standard raw data

statistical summary

INSTRUMENT ID: **HPLC - PDA**
Varian ProStar 9012 pump, AI-200 Autosampler, 9065 Polychrom Detector

COLUMN ID: **Phenomenex Luna**
SN: **361244-11**

	DATE	TIME
STANDARD 1:	19-Jul-07	2038
STANDARD 2:	20-Jul-07	1555
STANDARD 3:	21-Jul-07	1743

ANALYTE	RETENTION TIME 1	RETENTION TIME 2	RETENTION TIME 3	STANDARD DEVIATION	+/- 3 STD DEVIATION
Channel 16 = 263nm					
Nitroguanidine	4.033	4.048	4.060	0.014	0.15 *

Entry by Frank Kenney 7/21/07

Note: The retention time window is the retention time +/- 0.15 minute, or 3X the standard deviation, whichever is greater. A * indicates that 3X the standard deviation is less than 0.15 minute, and that 0.15 minute was substituted in the 3X standard deviation column.

Sample Extraction/Preparation Log Copies and Checklists

STL Sacramento

GC/HPLC Data Review Checklist

SEVERN TRENT SERVICES

10/26

Lot ID: A7J040354 **Test:** NQ-5 **PM:** MJL

Prep Batch(es) 728 7049

A. Calibration/Instrument Run QC	Analyst	Reviewer	N/A
1. ICAL or ICAL Summary and CCV included.	—	/	
2. ICAL, CCV Criteria met.	—	/	
3. Multiple-eluters (TPH-D, 8081A, 8082) ICAL/CCVs appropriate and within critiera.			—
4. CCVs every 10 samples/12 hours, all samples bracketed front and back.	—	/	
5. PEM frequency and criteria met.		/	—
6. Peaks correctly ID'd by data system.	—	/	
7. Copy of logbook for ICAL included	—	/	
8. Method Number is identified on data.	—	/	
B. QA/QC		/	
1. Method blank, LCS/LCSD and MS/SD frequencies met.	—	/	
2. LCS/LCSD and MB data is included.	—	/	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present in Clouseau.	—	/	
4. MS/MSD data complete.	—	/	
5. Holding Times were met.	—	/	
C. Sample Analysis		/	
1. Logbook copies for all injections made, including ICV standards and ICAL.	—	/	
2. Logbooks/prep sheets properly filled out.	—	/	
3. Manual Integrations reviewed and appropriate.	—	/	
4. All raw data for samples is included (applies to unused data as well)	—	/	
5. All analytes correctly reported.	—	/	
6. Correct reporting limits used. (Based on client request, prep factors, and dilutions)	—	/	
D. Documentation		/	
1. Are all nonconformances documented appropriately?	—	/	
2. Quantims entry correct, including dates and times.	—	/	
3. Appropriate footnotes used.	—	/	
4. Report sheets included and error-free.	—	/	

Analyst: [signature] Date: 10/17/07

2nd Level Reviewer: [signature] Date: 10/29/07

Comments:

q:\forms\qa-507_gc_review.doc

QA-508 GC Review
3/4/02 ERS

TestAmerica West Sacramento
ESC-Extraction Master Sheet

Holding Time Due: 10/15/07 / 35+ & 3-4 expired in Transit

Project Due:

BATCH #: 7287049

Initiated By: [signature] Date: 10/15/07

Test #: NGU-S

Extn Comp'd By: QP [signature] Date: 10/16/07

SOP No.: SAL-LC 0010

EXTRACTION COMMENTS:

Fortified as below/ extracted as per SOP 10/15/07

Extracts filtered/Vialed by QP 10/16/07

QC Code	Lab ID	Sample Size / Initial Mass	Final Volume / Final Mass	Difference in Mass
-B	-MB	2.00g	40.00ml	
-C	-LCS	2.00g	40.00ml	
	A7I260304-1	2.04g	40.00ml	
-S	-1MS	1.98g	40.00ml	
-D	-1MSD	2.02g	40.00ml	
	-2	1.97g	40.00ml	
	A7I270359-2	1.96g	40.00ml	
	A7J030104-1	2.02g	40.00ml	
-S	-1MS	1.97g	40.00ml	
-D	-1MSD	1.96g	40.00ml	
	-2	1.96g	40.00ml	
	-3	2.00g	40.00ml	
	-4	1.98g	40.00ml	
	-6	1.98g	40.00ml	
	-7	2.03g	40.00ml	
	-8	2.06g	40.00ml	
	-9	1.99g	40.00ml	
	A7J040354-1	1.98g	40.00ml	
	-2	1.98g	40.00ml	
	-3	1.96g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.00g	40.00ml	
	-6	1.95g	40.00ml	
	-7	1.97g	40.00ml	
	-8	1.97g	40.00ml	

QC Codes	Standard Information				
	Volume	STD ID	Exp. Date	STD Name/Conc.	ppm/ppb
GSID	40.0µl	E070427B	10/27/07	NGU-50.0µg/ml	1.0

Spiked By / Date: [signature] 10/15/07 Witnessed By / Date: HD-10-15-07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD, FB = Filter Blank

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

LEV 1	LEV 2		LEV 1	LEV 2	
Y	_	Blank	Y	_	Weights/Volumes
Y	_	Check	Y	_	Spike & Surrogate Worksheet
Y	_	MS/MSD	Y	_	Vial contains correct volume
			Y	_	Labels, greenbars, worksheets
					computer batch: correct & all match
			_	_	Anomalies to Extraction Method

_ Expanded Deliverable
_ COC Completed
Y Bench Sheet Copied
_ Package Submitted to AnalyticalGroup
_ Bench Sheet Copied per COC

Extractionist: 002531 Jonathan Reed

Concentrationist: 002263 Quan Phan

Reviewer/Date: REEDJ / 10/16/07

****
* *
* QC BATCH: 7287049 *
* *
****

PREP DATE: 10/15/07
COMP DATE: 10/16/07

Organic Compounds by UV/HPLC
SONICATION - Low Level

EXTR EXPR	ANL DUE	LOT#,MSRUN# / WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/10/07	10/10/07	A7I260304-001 7287040 **J7PGG-1-AD**	D	13	V9	SOLID	**2.04g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	10/10/07	A7I260304-001 7287040 **J7PGG-1-AES**	D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/10/07	10/10/07	A7I260304-001 7287040 **J7PGG-1-AFD**	D	13	V9	SOLID	**2.02g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/08/07	10/10/07	A7I260304-002 7287040 **J7PGL-1-AD**	D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/11/07	10/11/07	A7I270359-002 7287040 **J7TF7-1-AD**	D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 7287041 **J748R-1-A6**	D	13	V9	SOLID	**2.02g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 7287041 **J748R-1-DUS**	D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

QC BATCH: 7287049

PREP DATE: 10/15/07
COMP DATE: 10/16/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/15/07	10/17/07	A7J030104-001 **J748R-1-DVD**	7287041 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															
10/16/07	10/17/07	A7J030104-002 **J748X-1-AH**	7287041 D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-003 **J7481-1-AH**	7287041 D	13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/15/07	10/17/07	A7J030104-004 **J7483-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-006 **J7488-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-007 **J749C-1-AH**	7287041 D	13	V9	SOLID	**2.03g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-008 **J749D-1-AH**	7287041 D	13	V9	SOLID	**2.06g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/16/07	10/17/07	A7J030104-009 **J749E-1-AH**	7287041 D	13	V9	SOLID	**1.99g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-001 **J7914-1-A6**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-002 **J792M-1-AH**	7287041 D	13	V9	SOLID	**1.98g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/16/07
Time: 16:41:05

QC BATCH: 7287049

PREP DATE: 10/15/07
COMP DATE: 10/16/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/17/07	10/17/07	A7J040354-003 7287041 **J792N-1-AH**	D	13	V9	SOLID	**1.96g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-004 7287041 **J792R-1-AH**	D	13	V9	SOLID	**1.99g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-005 7287041 **J792W-1-AH**	D	13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-006 7287041 **J7920-1-AH**	D	13	V9	SOLID	**1.95g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-007 7287041 **J7923-1-AH**	D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/17/07	10/17/07	A7J040354-008 7287041 **J7927-1-AH**	D	13	V9	SOLID	**1.97g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	0/00/00	G7J140000-049 **J80HJ-1-AAB**		13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	
COMMENTS:															
10/10/07	0/00/00	G7J140000-049 **J80HJ-1-ACC**		13	V9	SOLID	**2.00g** 10.00mL	NA	NA	NA	CACL2	10.0	NA	.0	E070427A-40
COMMENTS:															

FILTERS:MILLIPORE:R7KN80394 1.3G/L CACL2 SOLUTION:RP5-23D

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 25

SOLID, 353.2, Nitrocellulose

Nitrocellulose

STL Sacramento

LEVEL 1&2 REVIEW CHECKLIST
GENERAL CHEMISTRY

LAB NUMBERS: G7J030161, A7J030104, A7J040354, G7J130230

ANALYSIS: Nitrocellulose (SOLIDS) DATE: 10-17-07 ANALYST: JDR

LEVEL 1 RUN REVIEW:	YES	NO	NA
1. Samples are properly preserved and verified			✓
2. Run set-up meets standard criteria (Curve, ICV, ICB, REF...CCV,CCB..)	✓		
3. Calibration criteria met	✓		
4. Calibration verifications and second source reference are in control	✓		
5. Batch QC are in control (Blank, LCS, MSQC, LCS dup when necessary)	✓		
6. Calculations have been checked	✓		
7. QAS +/or QAPP was consulted and followed for client specifics	✓		
8. Standard Tracking # noted on benchsheet +/or runlog	✓		
9. Manual integration performed, documented and approved			✓

LEVEL 1 DATA REVIEW:	YES	NO	NA
1. Benchsheet complete	✓		
2. QAS +/or QAPP consulted and followed for client specifics for data entry	✓		
3. Data entered properly	✓		
4. Copy of prep sheet and prep checklist attached to run	✓		
5. Analyst observations, HTV's, Anomalies properly documented and attached to run.			✓

Completed By & Date: JDR 10-17-07

LEVEL 2 REVIEW:	YES	NO	NA
1. Level 1 checklist complete and verified	✓		
2. Deviations, Anomalies, Holding times checked and approved	✓		
3. Reprep/Reanalysis documented and chemist notified			✓
4. Client specific criteria met	✓		
5. Data entry checked and released in Quantims	✓		
6. Indication on benchsheet on review and release (dated & signed)	✓		
7. Manual integration reviewed, approved, and properly documented			✓

Completed By & Date: LH 10/19/07

Comments:

QA-159 NEK 7/00

RQC050 Severn Trent Laboratories, Inc. Run Date: 10/17/07
WET CHEM BATCHSHEET Time: 20:16:50

TestAmerica West Sacramen

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: WA Nitrocellulose as N by 353.2
QC BATCH #: **7288307** INITIALS: DATA ENTRY:
PREP DATE: 10/15/07 12:00 PREP _____ INITIALS _____
COMP DATE: 10/17/07 10:15 ANAL _____ DATE _____
USER: ROGERSJ

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J75V4-1-A5	G-7J030161-001	XX A 76 WA A4	Y-D	_____	AAFBUNDS1S164
J81H8-1-AA	G-7J150000-307-B	XX A 76 WA A4		_____	INTRA-LAB BLANK
J81H8-1-AC	G-7J150000-307-C	XX A 76 WA A4		_____	INTRA-LAB CHECK

Control Limits

(30-122)

reviewed 10/19/07 VH

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch **7288307**

Date 10/17/2007
Time 19:18:22

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**

Work Order	Result	Units	LDL/Dil	Prep. - Anal.	Total Solids	PSRL Flag	R/R	Rounded Result	Output LDL	Dil.
J75V4-1-A5	1.12	mg/kg	5.0	10/15-10/17/07	81.97	N		1.4 F	6.1	1.00
J81H8-1-AA	ND	mg/kg	5.0	10/15-10/17/07	.00			ND	5.0	1.00

Notes:
Results and reporting limits have been adjusted for dry weight.
F Found: Analyte positively identified, concentration is an estimate >MDL and <RL.

Check Standard

Work Order	Exception Code	True Spike	Measured Spike	Percent Recovered	Prep. - Anal.	Control Limits	Dil.
J81H8-1-AC		50.1	44.4	88.62	10/15-10/17/07	(30-122)	1.00

Notes:

PRODUCTION TOTALS

TEST	TOTAL #	SAMPLE #	QC #	MATRIX #	OTHER #	MISC #	HOURS
	0	0	0	0	0	0	.0

RQC050

Severn Trent Laboratories, Inc.
WET CHEM BATCHSHEET

Run Date: 10/17/07
Time: 20:16:58

TestAmerica West Sacramen

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: WA Nitrocellulose as N by 353.2
QC BATCH #: **7288097**
PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15
USER: ROGERSJ

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J748R-1-A5	A-7J030104-001	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748R-1-DX	A-7J030104-001-D	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748R-1-DW	A-7J030104-001-S	XX A 76 WA 01	Y-D		RVAAP-LNWBG-SS-1
J748X-1-AG	A-7J030104-002	XX A 76 WA 01	Y-D		RVAAP-GR8-MC4
J7481-1-AG	A-7J030104-003	XX A 76 WA 01	Y-D		RVAAP-WW4-SS-1
J7483-1-AG	A-7J030104-004	XX A 76 WA 01	Y-D		RVAAP-WW4-SS-2
J7488-1-AG	A-7J030104-006	XX A 76 WA 01	Y-D		RVAAP-GR8-MC5
J749C-1-AG	A-7J030104-007	XX A 76 WA 01	Y-D		RVAAP-GR8-MC3
J749D-1-AG	A-7J030104-008	XX A 76 WA 01	Y-D		RVAAP-GR8-MC2
J749E-1-AG	A-7J030104-009	XX A 76 WA 01	Y-D		RVAAP-GR8-MC1
J7914-1-A5	A-7J040354-001	XX A 76 WA 01	Y-D		RVAAP-RQL-MC1
J792M-1-AG	A-7J040354-002	XX A 76 WA 01	Y-D		RVAAP-RQL-MC2
J792N-1-AG	A-7J040354-003	XX A 76 WA 01	Y-D		RVAAP-RQL-MC3
J792R-1-AG	A-7J040354-004	XX A 76 WA 01	Y-D		RVAAP-RQL-MC4
J792W-1-AG	A-7J040354-005	XX A 76 WA 01	Y-D		RVAAP-LL1-MC1
J7920-1-AG	A-7J040354-006	XX A 76 WA 01	Y-D		RVAAP-LL1-MC2
J7923-1-AG	A-7J040354-007	XX A 76 WA 01	Y-D		RVAAP-FTF-MC1
J7927-1-AG	A-7J040354-008	XX A 76 WA 01	Y-D		RVAAP-FTF-MC2
J80DH-1-AA	G-7J130230-002	XX A 76 WA 01	Y-D		MQJ0438-02

RQC050

Severn Trent Laboratories, Inc.
WET CHEM BATCHSHEET

Run Date: 10/17/07
Time: 20:16:58

TestAmerica West Sacramen

QC BATCH #: **7288097**
PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15
USER: ROGERSJ

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
J80NV-1-AA	G-7J150000-097-B	XX A 76 WA 01		_____	INTRA-LAB BLANK
J80NV-1-AC	G-7J150000-097-C	XX A 76 WA 01		_____	INTRA-LAB CHECK

Control Limits

(30-122)

(30-122)

(30-122)

Reviewed 10/19/07 LH

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch **7288097**

Date 10/17/2007
Time 19:27:12

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**

Work Order	Result	Units	LDL/Dil	Prep. - Anal.	Total Solids	PSRL Flag	R/R	Rounded Result	Output LDL	Dil.
J748R-1-A5	1.26	mg/kg	5.0	10/15-10/17/07	96.30	N		1.3 B	5.2	1.00
J748X-1-AG	12.8	mg/kg	5	10/15-10/17/07	96.11	N		13.3	5.2	1.00
J7481-1-AG	1.33	mg/kg	5	10/15-10/17/07	94.86	N		1.4 B	5.3	1.00
J7483-1-AG	1.07	mg/kg	5	10/15-10/17/07	95.10	N		1.1 B	5.3	1.00
J7488-1-AG	6.7	mg/kg	5	10/15-10/17/07	95.45	N		7.0	5.2	1.00
J749C-1-AG	5.88	mg/kg	5	10/15-10/17/07	97.58	N		6.0	5.1	1.00
J749D-1-AG	2.31	mg/kg	5	10/15-10/17/07	95.85	N		2.4 B	5.2	1.00
J749E-1-AG	1.92	mg/kg	5	10/15-10/17/07	96.77	N		2.0 B	5.2	1.00
J7914-1-A5	1.04	mg/kg	5.0	10/15-10/17/07	97.98	N		1.1 B	5.1	1.00
J792M-1-AG	1.08	mg/kg	5	10/15-10/17/07	96.16	N		1.1 B	5.2	1.00
J792N-1-AG	1	mg/kg	5	10/15-10/17/07	94.87	N		1.1 B	5.3	1.00
J792R-1-AG	ND	mg/kg	5	10/15-10/17/07	95.51	N		ND	5.2	1.00
J792W-1-AG	2.5	mg/kg	5	10/15-10/17/07	97.20	N		2.6 B	5.1	1.00
J7920-1-AG	3.24	mg/kg	5	10/15-10/17/07	96.43	N		3.4 B	5.2	1.00
J7923-1-AG	1.44	mg/kg	5	10/15-10/17/07	94.64	N		1.5 B	5.3	1.00
J7927-1-AG	1.77	mg/kg	5	10/15-10/17/07	97.12	N		1.8 B	5.1	1.00
J80DH-1-AA	2.35	mg/kg	5.0	10/15-10/17/07	.00	N		ND	5.0	1.00
J80NV-1-AA	ND	mg/kg	5.0	10/15-10/17/07	.00			ND	5.0	1.00

Notes:
Results and reporting limits have been adjusted for dry weight.
B Estimated result. Result is less than RL.

Check Standard

Work Order	Exception Code	True Spike	Measured Spike	Percent Recovered	Prep. - Anal.	Control Limits	Dil.
J80NV-1-AC		50.1	44.4	88.62	10/15-10/17/07	(30-122)	1.00

Notes:

PDE115

TestAmerica Laboratories, Inc.
Inorganics Batch Review
QC Batch **7288097**

Date 10/17/2007
Time 19:27:12

Method Code:**WA Nitrocellulose as N by 353.2**
Analyst:**Jeffery Rogers**
MS - MSD

Work Order	Exception Code	Measured Sample	True Spike	Measured SPIKE	Measured Dup.	Pct. Recovered SPIKE	Pct. Recovered DUP	RPD	Prep. - Anal.	Dil.
J748R-1-DW		1.26	50.1	34.8	33.2	66.94	64.26	4.70	10/15-10/17/07	1.0C

Notes:
Results and reporting limits have been adjusted for dry weight.

PRODUCTION TOTALS

TEST	TOTAL #	SAMPLE #	QC #	MATRIX #	OTHER #	MISC #	HOURS
	0	0	0	0	0	0	.0

Severn Trent
Sacramento Laboratory

NITROCELLULOSE

(SOP # SAC-WC-0050, Rev.0)

ANALYST ROGERS | DATE 10/17/07 18:51 | METHOD NO. 353.2 | FILE 101707A
CHECKED BY LH | DATE 10-19-07 | PROJECT NO. see run sequence
BATCH NO. 7288307 7288097

INST-F54

RL = 5 mg/Kg

	Lab ID	Time	Standard Conc. mg/L	Cup #	Sample Aliquot gram	Sample Aliquot mL	Extract Volume mL	Dilution	Height	$NO_3 + NO_2$ Raw Result	Nitrocellulose			
											Slope = 1.6023E+05			
											Intercept = 2.8329E+02			
											Correlation = 0.999993			
											%Nitrocellulose Assay = 0.111			
1	Cal 0	17:13	0	0					71.86922	-0.001319				
2	Cal 1	17:15	0.05	102					8170.164	0.049221				
3	Cal 2	17:17	0.2	103					33166.52	0.205220				
4	Cal 3	17:19	0.4	104					64069.89	0.398085				
5	Cal 4	17:21	1	105					160168.6	0.997825				
6	Cal 5	17:23	2	106					320905.8	2.000968	mg/L	ug/g	Recovery	Check
7	Blank	17:25		0				1	76.78324	-0.001289				
8	ICV/LCS 1PPM NOx	17:27		107				1	162415.7	1.011850			101%	
9	MRL 0.05PPM	17:29		102				1	8987.783	0.054324			109%	
10	NO2 1PPM	17:31		108				1	166470.7	1.037156			104%	
11	NO3 1PPM	17:33		109				1	158746.9	0.988953			99%	
12	blank /ICB	17:35		0				1	31.77727	-0.001570				
13	Baseline	17:37		0				1	0	-0.001768				
14	MB-S 7288307/097	17:39		201	10		40	1	3447.196	0.019746		0.71		< RL
15	LCS-S 7288307/097	17:41	50.1	202	10		40	1	197739.5	1.232301		44.40	88.6%	
16	G7J030161-1	17:43		203	10.02		40	1	5289.002	0.031240		1.12		< RL
17	A7J030104-1	17:45		204	10		40	1	5869.596	0.034863		1.26		< RL
18	A7J030104-1S	17:47	50.1	205	10		40	1	154992.2	0.965520		34.80	66.9%	
19	A7J030104-1D	17:49	49.7	206	10.08		40	1	148892.1	0.927450		33.20	64.3%	
20	A7J030104-2	17:51		207	10.02		40	1	57374.36	0.356299		12.80		
21	A7J030104-3	17:53		208	10.01		40	1	6181.746	0.036812		1.33		< RL
22	A7J030104-4	17:55		209	10		40	1	5020.122	0.029562		1.07		< RL
23	A7J030104-6	17:57		210	10.02		40	1	30123.07	0.186227		6.70		
24	MRL 0.05PPM	17:59	0.05	102				1	8200.748	0.049412			98.8%	
25	CCV Cal 4	18:01	1	105				1	166080.4	1.034720			103.5%	
26	Blank /CCB	18:03		0				1	11.31185	-0.001697				
27	Baseline	18:05		0				1	0	-0.001768				
28	A7J030104-7	18:07		211	10		40	1	26434.39	0.163206		5.88		
29	A7J030104-8	18:09		212	10		40	1	10555.71	0.064109		2.31		
30	A7J030104-9	18:11		213	10		40	1	8803.366	0.053173		1.92		
31	A7J040354-1	18:13		214	10.07		40	1	4961.865	0.029198		1.04		< RL
32	A7J040354-2	18:15		215	10.03		40	1	5100.566	0.030064		1.08		< RL
33	A7J040354-3	18:17		216	10.04		40	1	4741.221	0.027821		1.00		< RL
34	A7J040354-4	18:19		217	10.01		40	1	3545.114	0.020357		0.73		< RL

Color Rgt: 2980-WC-49.5 Exp. 12.3.07
Buffer: 2980-WC-50.2 Exp. 10.9.08

Nitrocellulose = (NO3 + NO2) * Prep Factor / 0.111

Severn Trent
Sacramento Laboratory

NITROCELLULOSE

(SOP # SAC-WC-0050, Rev.0)

ANALYST ROGERS
CHECKED BY LH
BATCH NO. 7288307 7288097

DATE 10/17/07 18:51
DATE 10-19-07

METHOD NO. 353.2
PROJECT NO. See run sequence

FILE 101707A

	Lab ID	Time	Standard Conc. mg/L	Cup #	Sample Aliquot gram	Sample Aliquot mL	Extract Volume mL	Dilution	Height	$NO_3 + NO_2$ Raw Result	Nitrocellulose			
35	A7J040354-5	18:21		218	10.01		40	1	11432.27	0.069579		2.50		
36	A7J040354-6	18:23		219	10		40	1	14698.68	0.089965		3.24		
37	A7J040354-7	18:25		220	10.04		40	1	6715.538	0.040143		1.44		< RL
38	MRL 0.05PPM	18:27	0.05	102				1	8230.622	0.049598			99.2%	
39	CCV Cal 4	18:29	1	105				1	164668.6	1.025910			102.6%	
40	Blank / CCB	18:31		0				1	15.93921	-0.001669				
41	Baseline	18:33		0				1	0	-0.001768				
42	A7J040354-8	18:35		221	10		40	1	8167.976	0.049207		1.77		< RL
43	G7J130230-2	18:37		222	10.07		40	1	10807.81	0.065682		2.35		
44	MRL 0.05PPM	18:39	0.05	102				1	8313.691	0.050117			100.2%	
45	CCV Cal 4	18:41	1	105				1	163576	1.019091			101.9%	
46	Blank	18:43		0				1	14.24335	-0.001679				
47	Baseline	18:45		0				1	0	-0.001768				

Nitrocellulose = (NO3 + NO2) * Prep Factor / 0.111

Run Results Report
Results: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Results completed: 18:51 October 17, 2007.
Operator: ROGERS

			Nitrate/Nitrite			Nitrite		
Time	Cup	Name	Height	Calc.	Flags	Height	Calc.	Flags
----------	User request: Start Data Collect ----------							
17:09	0	Carryover	31	-0.001577	LO	-89752	-0.268638	LO
17:11	0	Baseline	0	-0.001768	BL	0	0.148945	BL
17:13	0	Cal 0	72	-0.001319	LO	32765	0.301386	
17:15	102	Cal 1	8170	0.049221		-36337	-0.020116	LO
17:17	103	Cal 2	33167	0.205220		-75349	-0.201625	LO
17:19	104	Cal 3	64070	0.398085		15424	0.220709	
17:21	105	Cal 4	160169	0.997825		74378	0.494996	
17:23	106	Cal 5	320906	2.000968	HI	189292	1.029650	
17:25	0	Blank	77	-0.001289	LO	19005	0.237366	
17:27	107	ICV/LCS 1PPM	162416	1.011850		224717	1.194469	HI I
17:29	102	MRL 0.05PPM	8988	0.054324		217328	1.160089	HI I
17:31	108	NO2 1PPM	166471	1.037156		22423	0.253269	I FL
17:33	109	NO3 1PPM	158747	0.988953		254636	1.333670	HI I
17:35	0	blank	32	-0.001570	LO	41440	0.341751	I
17:37	0	Baseline	0	-0.001768	BL	0	0.148945	BL I
17:39	201	MB-S 7288307	3447	0.019746		-8184	0.110868	I
17:41	202	LCS-S 728830	197739	1.232301		51625	0.389137	I
17:43	203	G7J030161-1	5289	0.031240		67850	0.464627	I
17:45	204	A7J030104-1	5870	0.034863		-103950	-0.334692	LO I
17:47	205	A7J030104-1S	154992	0.965520		-158915	-0.590426	LO I
17:49	206	A7J030104-1D	148892	0.927450		694302	3.379266	HI I
17:51	207	A7J030104-2	57374	0.356299		606585	2.971154	HI I
17:53	208	A7J030104-3	6182	0.036812		519366	2.565354	HI I
17:55	209	A7J030104-4	5020	0.029562		433021	2.163627	HI I
17:57	210	A7J030104-6	30123	0.186227		345869	1.758141	HI I
17:59	102	MRL 0.05PPM	8201	0.049412		252522	1.323831	HI I
18:01	105	CCV Cal 4	166080	1.034720		164727	0.915356	F
18:03	0	Blank	11	-0.001697	LO	86515	0.551468	
18:05	0	Baseline	0	-0.001768	BL	0	0.148945	BL
18:07	211	A7J030104-7	26434	0.163206		672	0.152071	I
18:09	212	A7J030104-8	10556	0.064109		190	0.149828	I
18:11	213	A7J030104-9	8803	0.053173		541	0.151463	I
18:13	214	A7J040354-1	4962	0.029198		679	0.152102	I
18:15	215	A7J040354-2	5101	0.030064		264	0.150172	I
18:17	216	A7J040354-3	4741	0.027821		1097	0.154049	I
18:19	217	A7J040354-4	3545	0.020357		547	0.151488	I
18:21	218	A7J040354-5	11432	0.069579		-49	0.148715	I
18:23	219	A7J040354-6	14699	0.089965		736	0.152367	I
18:25	220	A7J040354-7	6716	0.040143		-309	0.147506	I
18:27	102	MRL 0.05PPM	8231	0.049598		281	0.150251	I
18:29	105	CCV Cal 4	164669	1.025910		517	0.151349	F
18:31	0	Blank	16	-0.001669	LO	399	0.150803	
18:33	0	Baseline	0	-0.001768	BL	0	0.148945	BL

LH
10/19/0

Run Results Report
Results: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Results completed: 18:51 October 17, 2007.
Operator: ROGERS

			Nitrate/Nitrite			Nitrite		
Time	Cup	Name	Height	Calc.	Flags	Height	Calc.	Flags
18:35	221	A7J040354-8	8168	0.049207		108	0.149449	I
18:37	222	G7J130230-2	10808	0.065682		130	0.149548	I
18:39	102	MRL 0.05PPM	8314	0.050117		271	0.150207	I
18:41	105	CCV Cal 4	163576	1.019091		445	0.151018	F
18:43	0	Blank	14	-0.001679	LO	-288	0.147604	
18:45	0	Baseline	0	-0.001768	BL	0	0.148945	BL

LM 10/19/07

Peak Table: Nitrate/Nitrite

File name: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Date: October 17, 2007
Operator: ROGERS

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (ppm)	Flags
1	105	Sync	SYNC	1	1	158451	0.987108	
2	0	Carryover	CO	1	1	31	-0.001577	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
4	0	Cal 0	C	1	1	72	-0.001319	LO
5	102	Cal 1	C	1	1	8170	0.049221	
6	103	Cal 2	C	1	1	33167	0.205220	
7	104	Cal 3	C	1	1	64070	0.398085	
8	105	Cal 4	C	1	1	160169	0.997825	
9	106	Cal 5	C	1	1	320906	2.000968	HI
10	0	Blank	BLNK	1	1	77	-0.001289	LO
11	107	ICV/LCS 1PPM NOx	U	1	1	162416	1.011850	
12	102	MRL 0.05PPM	U	1	1	8988	0.054324	
13	108	NO2 1PPM	U	1	1	166471	1.037156	
14	109	NO3 1PPM	U	1	1	158747	0.988953	
15	0	blank	BLNK	1	1	32	-0.001570	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
17	201	MB-S 7288307/097	U	1	1	3447	0.019746	
18	202	LCS-S 7288307/097	U	1	1	197739	1.232301	
19	203	G7J030161-1	U	1	1	5289	0.031240	
20	204	A7J030104-1	U	1	1	5870	0.034863	
21	205	A7J030104-1S	U	1	1	154992	0.965520	
22	206	A7J030104-1D	U	1	1	148892	0.927450	
23	207	A7J030104-2	U	1	1	57374	0.356299	
24	208	A7J030104-3	U	1	1	6182	0.036812	
25	209	A7J030104-4	U	1	1	5020	0.029562	
26	210	A7J030104-6	U	1	1	30123	0.186227	
27	102	MRL 0.05PPM	U	1	1	8201	0.049412	
28	105	CCV Cal 4	CCV	1	1	166080	1.034720	
29	0	Blank	BLNK	1	1	11	-0.001697	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
31	211	A7J030104-7	U	1	1	26434	0.163206	
32	212	A7J030104-8	U	1	1	10556	0.064109	
33	213	A7J030104-9	U	1	1	8803	0.053173	
34	214	A7J040354-1	U	1	1	4962	0.029198	
35	215	A7J040354-2	U	1	1	5101	0.030064	
36	216	A7J040354-3	U	1	1	4741	0.027821	
37	217	A7J040354-4	U	1	1	3545	0.020357	
38	218	A7J040354-5	U	1	1	11432	0.069579	
39	219	A7J040354-6	U	1	1	14699	0.089965	
40	220	A7J040354-7	U	1	1	6716	0.040143	
41	102	MRL 0.05PPM	U	1	1	8231	0.049598	
42	105	CCV Cal 4	CCV	1	1	164669	1.025910	
43	0	Blank	BLNK	1	1	16	-0.001669	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL
45	221	A7J040354-8	U	1	1	8168	0.049207	
46	222	G7J130230-2	U	1	1	10808	0.065682	
47	102	MRL 0.05PPM	U	1	1	8314	0.050117	
48	105	CCV Cal 4	CCV	1	1	163576	1.019091	
49	0	Blank	BLNK	1	1	14	-0.001679	LO
B	0	Baseline	RB	1	1	0	-0.001768	BL

Nitrate/Nitrite: Calibration, Peak 4-50

File name: V:\GENCH~%3\ALPKE~_-\2007\NITRO~K%\101707A.RST
Date: October 17, 2007
Operator: ROGERS

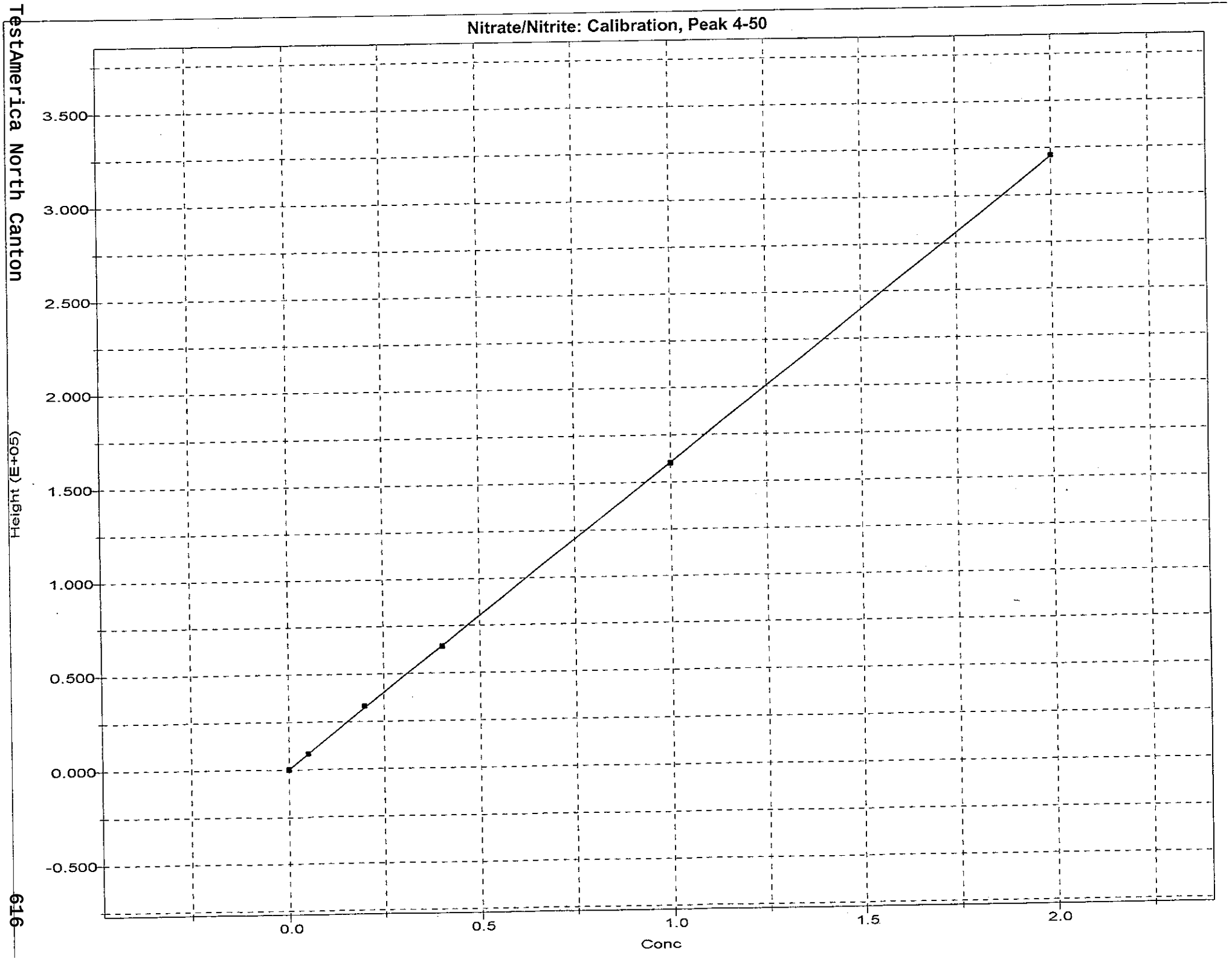
*	Name	Conc	Height
*	Cal 0	0.000000	71.869217
*	Cal 1	0.050000	8170.164062
*	Cal 2	0.200000	33166.515625
*	Cal 3	0.400000	64069.894531
*	Cal 4	1.000000	160168.578125
*	Cal 5	2.000000	320905.812500

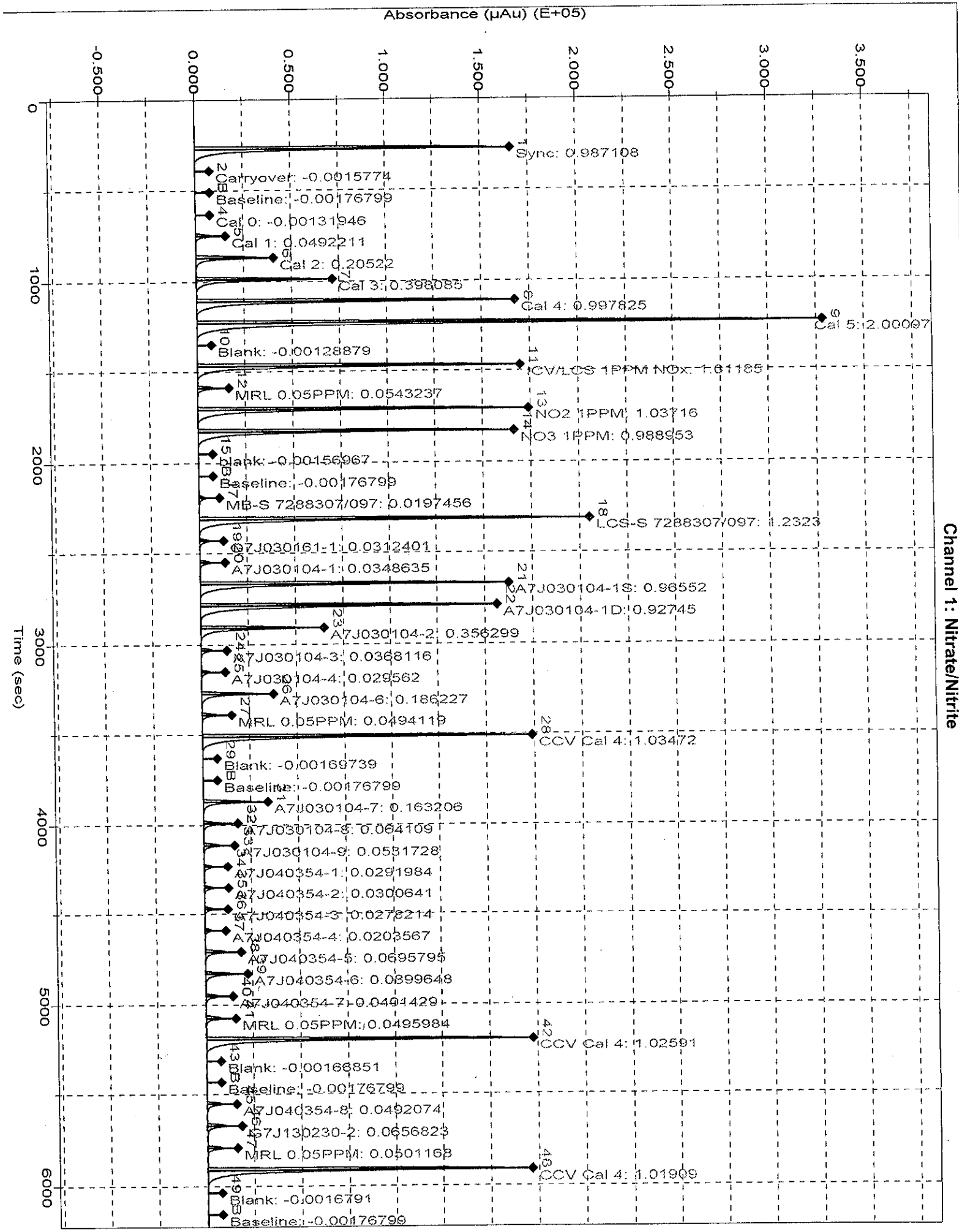
Calib Coef:
y=bx+a
a: (intercept) 2.8329e+02
b: 1.6023e+05

Corr Coef: 0.999993

Carryover: n/a

No Drift Peaks


Nitrate/Nitrite: Calibration, Peak 4-50
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
Height (E+05)
0.0
0.5
1.0
1.5
2.0
Conc


Absorbance (µAu) (E+05)
-0.500
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
Time (sec)
0
1000
2000
3000
4000
5000
6000
Channel 1: Nitrate/Nitrite
1 Sync: 0.987108
2 Carryover: -0.0015774
3 CB Baseline: -0.00176799
4 Cal 0: -0.00131946
5 Cal 1: 0.0492211
6 Cal 2: 0.20522
7 Cal 3: 0.398085
8 Cal 4: 0.997825
9 Cal 5: 2.00097
10 Blank: -0.00128879
11 CCV/LCS 1PPM NOx: 1.01185
12 MRL 0.05PPM: 0.0543237
13 NO2 1PPM: 1.03716
14 NO3 1PPM: 0.988953
15 Blank: -0.00156967
16 CB Baseline: -0.00176799
17 MB-S 7288307/097: 0.0197456
18 LCS-S 7288307/097: 1.2323
19 A7J030161-1: 0.0312401
20 A7J030104-1: 0.0348635
21 A7J030104-1S: 0.96552
22 A7J030104-1D: 0.92745
23 A7J030104-2: 0.356299
24 A7J030104-3: 0.0368116
25 A7J030104-4: 0.029562
26 A7J030104-6: 0.186227
27 MRL 0.05PPM: 0.0494119
28 CCV Cal 4: 1.03472
29 Blank: -0.00169739
30 CB Baseline: -0.00176799
31 A7J030104-7: 0.163206
32 A7J030104-8: 0.064109
33 A7J030104-9: 0.0531728
34 A7J040354-1: 0.0291984
35 A7J040354-2: 0.0300641
36 A7J040354-3: 0.0278214
37 A7J040354-4: 0.0203567
38 A7J040354-5: 0.0695795
39 A7J040354-6: 0.0899648
40 A7J040354-7: 0.0494429
41 MRL 0.05PPM: 0.0495984
42 CCV Cal 4: 1.02591
43 Blank: -0.00166851
44 CB Baseline: -0.00176799
45 A7J040354-8: 0.0492074
46 A7J130230-2: 0.0656823
47 MRL 0.05PPM: 0.0501163
48 CCV Cal 4: 1.01909
49 Blank: -0.0016791
50 CB Baseline: -0.00176799

*** Sample Table from Analysis ***

Date: October 17, 2007

Cup	Name	Type	R	Dil	Wt	Vial	Comment
105	Sync	SYNC	1	1	1		
0	Carryover	CO	1	1	1		
0	Baseline	RB	1	1	1		
0	Cal 0	C	1	1	1		
102	Cal 1	C	1	1	1		3125-WC-2-1
103	Cal 2	C	1	1	1		3125-WC-2-2
104	Cal 3	C	1	1	1		3125-WC-2-3
105	Cal 4	C	1	1	1		3125-WC-2-4
106	Cal 5	C	1	1	1		3125-WC-2-5
0	Blank	BLNK	1	1	1		
107	ICV/LCS 1PPM NOx	U	1	1	1		3125-WC-1-4
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
108	NO2 1PPM	U	1	1	1		3125-WC-1-5
109	NO3 1PPM	U	1	1	1		3125-WC-1-6
0	blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
201	MB-S 7288307/097	U	1	1	1		S
202	LCS-S 7288307/097	U	1	1	1		S
203	G7J030161-1	U	1	1	1		S
204	A7J030104-1	U	1	1	1		S
205	A7J030104-1S	U	1	1	1		S
206	A7J030104-1D	U	1	1	1		S
207	A7J030104-2	U	1	1	1		S
208	A7J030104-3	U	1	1	1		S
209	A7J030104-4	U	1	1	1		S
210	A7J030104-6	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
211	A7J030104-7	U	1	1	1		S
212	A7J030104-8	U	1	1	1		S
213	A7J030104-9	U	1	1	1		S
214	A7J040354-1	U	1	1	1		S
215	A7J040354-2	U	1	1	1		S
216	A7J040354-3	U	1	1	1		S
217	A7J040354-4	U	1	1	1		S
218	A7J040354-5	U	1	1	1		S
219	A7J040354-6	U	1	1	1		S
220	A7J040354-7	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		
221	A7J040354-8	U	1	1	1		S
222	G7J130230-2	U	1	1	1		S
102	MRL 0.05PPM	U	1	1	1		3125-WC-2-1
105	CCV Cal 4	CCV	1	1	1		3125-WC-2-4
0	Blank	BLNK	1	1	1		
0	Baseline	RB	1	1	1		

Sample Preparation Logs

Digestions
Distillations
Extractions
Leachates

shared QC w/ batch: 7288097

TestAmerica North Canton

TestAmerica West Sacramento
Nitrocellulose Extraction Sheet

Holding Time Due: 10-17-07 | Project Due: 10-17-07 | Analysis Date: 10-17-07

BATCH #: 7288307 | Initiated By: [signature] | Date: 10-15-07

MATRIX: SOLID / AQ / OTHER: _____ | Hydrolyzed By: [signature] | Date: 10-17-07

QC Code	Lab ID	Sample Size (g or mL)	Final Volume (mL)	pH Adjusted to 6-8
B	MB	10.0 g	40 mL	(Y) / N
C	LCS	10.00	40 mL	(Y) / N
	G7J030161 - 1	10.02	40 mL	(Y) / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N
				Y / N

SOP No.: SAC-WC-0050

EXTRACTION COMMENTS:

Hydrolyzed @ 10:15 QP 10/17/07

QC Codes	Standard Information			
	Volume	STD ID	Conc'n (µg/mL)	Exp. Date
C	1.0 mL	070917A1	501 µg/mL	3.17.08

Spiked By: [signature] 10-15-07 Witnessed By: [signature] 10/16/07

Signed 10/17

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD.

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:52

LEV 1	LEV 2		LEV 1	LEV 2	
Y	–	Blank	Y	–	Weights/Volumes
Y	–	Check	Y	–	Spike & Surrogate Worksheet
–	–	MS/MSD	Y	–	Vial contains correct volume
			Y	–	Labels, greenbars, worksheets
			–	–	computer batch: correct & all match
					Anomalies to Extraction Method
			–	–	

– Expanded Deliverable
– COC Completed
Y Bench Sheet Copied
– Package Submitted to AnalyticalGroup
– Bench Sheet Copied per COC

Extractionist: 002263 Quan Phan

Concentrationist: 002263 Quan Phan

Reviewer/Date: PHANQ / 10/17/07

****
* *
* **QC BATCH: 7288307** *
* *
****

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

Nitrocellulose as N by 353.2
EXTRACTION, SOLID/SOLVENT (Manual)

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/23/07	10/17/07	G7J030161-001 7288065 **J75V4-1-A5**	D	76	WA	SOLID	**10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/23/07	0/00/00	G7J150000-307 **J81H8-1-AAB**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/23/07	0/00/00	G7J150000-307 **J81H8-1-ACC**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															

FILTERS:MILLIPORE:R7EN48794 1N NAOH:1706570 2N H2S04:1704866 ACETONE:EO6E52

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 3

Other QC w/ batch: 7288307

TestAmerica North Canton

TestAmerica West Sacramento
Nitrocellulose Extraction Sheet

Holding Time Due: 10-17-07 | Project Due: 10-17-07 | Analysis Date: 10-17-07

BATCH #: 7288097 | Initiated By: [signature] | Date: 10-15-07

MATRIX: ~~SOLID~~ / AQ / OTHER: _____ | Hydrolyzed By: [signature] | Date: 10-17-07

QC Code	Lab ID	Sample Size (g or mL)	Final Volume (mL)	pH Adjusted to 6-8
B	MB	10.00g	40 mL	Y / N
C	LCS	10.00g	40	Y / N
	A7J030104 - 1	10.00g	40	Y / N
S	- 1MS	10.00g	40	Y / N
D	- 1MSD	10.08g	40	Y / N
	- 2	10.02g	40	Y / N
	- 3	10.01g	40	Y / N
	- 4	10.00g	40	Y / N
	- 6	10.02g	40	Y / N
	- 7	10.00g	40	Y / N
	- 8	10.00g	40	Y / N
	- 9	10.00g	40	Y / N
	A7J040354 - 1	10.07g	40	Y / N
	- 2	10.03g	40	Y / N
	- 3	10.04g	40	Y / N
	- 4	10.01g	40	Y / N
	- 5	10.01g	40	Y / N
	- 6	10.00g	40	Y / N
	- 7	10.01g	40	Y / N
	- 8	10.00g	40	Y / N
	G7J150250 - 2	10.07g	40	Y / N
				Y / N
				Y / N
				Y / N
				Y / N

SOP No.: SAC-WC-0050

EXTRACTION COMMENTS:

Hydrolyzed @ 10:15 on 10-17-07

QC Codes	Standard Information			
	Volume	STD ID	Conc'n (µg/mL)	Exp. Date
C,S,D	1.0mL	E070917A1	50 µg/mL	3-17-07

Spiked By: [signature] 10-15-07 Witnessed By: [signature] 10/15/07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD.

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

LEV 1	LEV 2		LEV 1	LEV 2	
Y	_	Blank	Y	_	Weights/Volumes
Y	_	Check	Y	_	Spike & Surrogate Worksheet
Y	_	MS/MSD	Y	_	Vial contains correct volume
			Y	_	Labels, greenbars, worksheets
			_	_	computer batch: correct & all match
			_	_	Anomalies to Extraction Method

_ Expanded Deliverable
_ COC Completed
Y Bench Sheet Copied
_ Package Submitted to AnalyticalGroup
_ Bench Sheet Copied per COC

Extractionist: 002263 Quan Phan

Concentrationist: 002263 Quan Phan

Reviewer/Date: PHANQ / 10/17/07

QC BATCH: 7288097

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

Nitrocellulose as N by 353.2
EXTRACTION, SOLID/SOLVENT (Manual)

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJI	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/27/07	10/17/07	A7J030104-001 **J748R-1-A5**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-001 **J748R-1-DWS**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															
10/27/07	10/17/07	A7J030104-001 **J748R-1-DXD**	7288065 D	76	WA	SOLID	10.08 **10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															
10/28/07	10/17/07	A7J030104-002 **J748X-1-AG**	7288065 D	76	WA	SOLID	10.02 **10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-003 **J7481-1-AG**	7288065 D	76	WA	SOLID	10.01 **10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	10/17/07	A7J030104-004 **J7483-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-006 **J7488-1-AG**	7288065 D	76	WA	SOLID	**10.02g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

QC BATCH: 7288097

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJ1	ADJ2	EXTRACTION	SOLVENTS VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/28/07	10/17/07	A7J030104-007 **J749C-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-008 **J749D-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/28/07	10/17/07	A7J030104-009 **J749E-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-001 **J7914-1-A5**	7288065 D	76	WA	SOLID	**10.07g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-002 **J792M-1-AG**	7288065 D	76	WA	SOLID	**10.03g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-003 **J792N-1-AG**	7288065 D	76	WA	SOLID	**10.04g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-004 **J792R-1-AG**	7288065 D	76	WA	SOLID	**10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-005 **J792W-1-AG**	7288065 D	76	WA	SOLID	**10.01g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-006 **J7920-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/29/07	10/17/07	A7J040354-007 **J7923-1-AG**	7288065 D	76	WA	SOLID	**10.04g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/17/07
Time: 16:28:28

QC BATCH: 7288097

PREP DATE: 10/15/07 12:00
COMP DATE: 10/17/07 10:15

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	INIT	PH"S ADJ1	ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/29/07	10/17/07	A7J040354-008 **J7927-1-AG**	7288065 D	76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
11/05/07	10/23/07	G7J130230-002 **J80DH-1-AA**	7288065 DR	76	WA	SOLID	**10.07g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	0/00/00	G7J150000-097 **J80NV-1-AAB**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	
COMMENTS:															
10/27/07	0/00/00	G7J150000-097 **J80NV-1-ACC**		76	WA	SOLID	**10.00g** 40.00mL	NA	NA	NA	ACETONE	45.0	H20	40.0	E070917A1-1ML
COMMENTS:															

FILTERS:MILLIPORE:R7EN48794 ACETONE:E06E52 1N NAOH:1706570 2N H2S04:1704866

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 21

TestAmerica North Canton

TestAmerica Laboratories, Inc.

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

SAMPLE ANALYSIS REQUISTION

Lab Request SR096834

Report Package: **Expanded Deliverables**

Need Analytical Report 2007-10-17

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J040354-4	J792R	RVAAP-RQL-MC4	2007-10-03 9:54	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-5	J792W	RVAAP-LL1-MC1	2007-10-03 13:10	SOLID, 8330, Explosives
A7J040354-5	J792W	RVAAP-LL1-MC1	2007-10-03 13:10	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-5	J792W	RVAAP-LL1-MC1	2007-10-03 13:10	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-6	J7920	RVAAP-LL1-MC2	2007-10-03 13:30	SOLID, 8330, Explosives
A7J040354-6	J7920	RVAAP-LL1-MC2	2007-10-03 13:30	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-6	J7920	RVAAP-LL1-MC2	2007-10-03 13:30	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-7	J7923	RVAAP-FTF-MC1	2007-10-03 15:05	SOLID, 8330, Explosives
A7J040354-7	J7923	RVAAP-FTF-MC1	2007-10-03 15:05	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-7	J7923	RVAAP-FTF-MC1	2007-10-03 15:05	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-8	J7927	RVAAP-FTF-MC2	2007-10-03 15:19	SOLID, 8330, Explosives

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

626

TestAmerica Laboratories, Inc.

SAMPLE ANALYSIS REQUISTION

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

Lab Request SR096834

Report Package: **Expanded Deliverables**
Need Analytical Report 2007-10-17

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J040354-8	J7927	RVAAP-FTF-MC2	2007-10-03 15:19	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-8	J7927	RVAAP-FTF-MC2	2007-10-03 15:19	SOLID, 353.2, Nitrocellulose Propellants

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TestAmerica Laboratories, Inc.

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

SAMPLE ANALYSIS REQUISTION

Lab Request SR096834

Report Package: **Expanded Deliverables**

Need Analytical Report 2007-10-17

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J040354-1	J7914	RVAAP-RQL-MC1	2007-10-03 11:46	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-1	J7914	RVAAP-RQL-MC1	2007-10-03 11:46	SOLID, 8330, Explosives
A7J040354-1	J7914	RVAAP-RQL-MC1	2007-10-03 11:46	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-2	J792M	RVAAP-RQL-MC2	2007-10-03 10:38	SOLID, 8330, Explosives
A7J040354-2	J792M	RVAAP-RQL-MC2	2007-10-03 10:38	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-2	J792M	RVAAP-RQL-MC2	2007-10-03 10:38	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-3	J792N	RVAAP-RQL-MC3	2007-10-03 10:20	SOLID, 8330, Explosives
A7J040354-3	J792N	RVAAP-RQL-MC3	2007-10-03 10:20	SOLID, 8330M, Nitroquanadine Propellant
A7J040354-3	J792N	RVAAP-RQL-MC3	2007-10-03 10:20	SOLID, 353.2, Nitrocellulose Propellants
A7J040354-4	J792R	RVAAP-RQL-MC4	2007-10-03 9:54	SOLID, 8330, Explosives
A7J040354-4	J792R	RVAAP-RQL-MC4	2007-10-03 9:54	SOLID, 8330M, Nitroquanadine Propellant

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/5/07 1630

Relinquished by: _____ Date/Time: _____

Received for lab by: _____ Date/Time: 10-6-07 1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

LOT RECEIPT CHECKLIST
TestAmerica West Sacramento

CLIENT TA-NCanton PM KD LOG # 48089

LOT# (QUANTIMS ID) A7J040354 QUOTE# NA LOCATION W19A

		Initials	Date
DATE RECEIVED	10-6-07		
TIME RECEIVED	920	CH	10-6-07

DELIVERED BY
- ☑ FEDEX
- ☐ CA OVERNIGHT
- ☐ CLIENT
- ☐ AIRBORNE
- ☐ GOLDENSTATE
- ☐ DHL
- ☐ UPS
- ☐ BAX GLOBAL
- ☐ GO-GETTERS
- ☐ TAL COURIER
- ☐ VALLEY LOGISTICS
- ☐ MORGAN HILL COURIER
- ☐ OTHER

CUSTODY SEAL STATUS ☑ INTACT ☐ BROKEN ☐ N/A

CUSTODY SEAL #(S) Seal

SHIPPPING CONTAINER(S) ☑ TAL ☐ CLIENT ☐ N/A

TEMPERTURE RECORD (IN °C) IR 4 ☐ 5 ☑ ☐ OTHER

COC #(S) NA

TEMPERATURE BLANK Observed: ✓ Corrected: —

SAMPLE TEMPERATURE
Observed: ambient Average: — Corrected Average: —

COLLECTOR'S NAME: ☐ Verified from COC ☑ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☑ N/A

LABELED BY.....

LABELS CHECKED BY.....

PEER REVIEW _____ ☑ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING
- WETCHEM ☑ N/A
- VOA-ENCORES ☑ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☑ N/A

☐ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☑ N/A

☑ CLOUSEAU ☑ TEMPERATURE EXCEEDED (2 °C – 6 °C)*1 ☐ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☑ NO COOLING AGENTS USED ☑ PM NOTIFIED

Notes: _____

*1 Acceptable temperature range for State of Wisconsin samples is≤4°C.

LEAVE NO SPACES BLANK. USE "N/A" IF NOT APPLICABLE.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

END OF REPORT

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

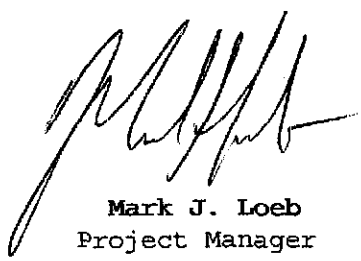
RVAAP, RAVENNA, OH

Lot #: A7J080104

Phil Werner

e2M Engineering-Environmental
2751 Prosperity Avenue
Suite 200
Fairfax, VA 22031

TESTAMERICA LABORATORIES, INC.



Mark J. Loeb
Project Manager

November 8, 2007

CASE NARRATIVE

CASE NARRATIVE

A7J080104

The following report contains the analytical results for six solid samples submitted to TestAmerica North Canton by E2M Engineering-Environmental Mngmt. Inc. from the RVAAP, Ravenna, OH Site. The samples were received October 06, 2007, according to documented sample acceptance procedures.

The 8330 Explosives analysis was performed at the TestAmerica West Sacramento laboratory. Refer to TestAmerica West Sacramento narrative included in their data package for additional information.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Phil Werner on November 01, 2007. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Mark J. Loeb, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 3.4°C.

METALS

The sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are +/- the standard reporting limit (SRL).

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "J". Refer to the sample report pages for the affected analyte(s).

Matrix spike recovery and relative percent difference (RPD) data were not calculated for some analytes for RVAAP-SMITH-SS-1 due to the sample concentration reading greater than four times the spike amount. See the Matrix Spike Report for the affected analytes which will be flagged with "NC, MSB".

The matrix spike/matrix spike duplicate(s) for RVAAP-SMITH-SS-1 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica North Canton (formerly STL North Canton) conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton (formerly STL North Canton) requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A7J080104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-SMITH-SS-1 10/05/07 09:42 001				
Mercury	0.076 B	0.10	mg/kg	SW846 7471A
Arsenic	8.2	1.0	mg/kg	SW846 6010B
Lead	22.5	1.0	mg/kg	SW846 6010B
Selenium	0.78 B	1.0	mg/kg	SW846 6010B
Thallium	0.96 B	2.1	mg/kg	SW846 6010B
Aluminum	11900	20.8	mg/kg	SW846 6010B
Barium	62.1 J	1.0	mg/kg	SW846 6010B
Beryllium	0.54 B	1.0	mg/kg	SW846 6010B
Cadmium	0.22 B	1.0	mg/kg	SW846 6010B
Calcium	1320	104	mg/kg	SW846 6010B
Chromium	16.8	2.1	mg/kg	SW846 6010B
Cobalt	7.8	2.1	mg/kg	SW846 6010B
Copper	7.1	2.1	mg/kg	SW846 6010B
Iron	19200	20.8	mg/kg	SW846 6010B
Magnesium	1720	104	mg/kg	SW846 6010B
Manganese	689	1.0	mg/kg	SW846 6010B
Nickel	11.6	2.1	mg/kg	SW846 6010B
Potassium	516 B,J	519	mg/kg	SW846 6010B
Vanadium	23.2	2.1	mg/kg	SW846 6010B
Zinc	50.5	4.2	mg/kg	SW846 6010B
Percent Solids	96.3	10.0	%	MCAWW 160.3 MOD
RVAAP-SMITH-SS-2 10/05/07 09:42 002				
1,3,5-Trinitrobenzene	0.020 J	0.24	mg/kg	SW846 8330
Mercury	0.067 B	0.10	mg/kg	SW846 7471A
Arsenic	7.5	1.0	mg/kg	SW846 6010B
Lead	19.1	1.0	mg/kg	SW846 6010B
Thallium	1.4 B	2.1	mg/kg	SW846 6010B
Aluminum	10900	20.8	mg/kg	SW846 6010B
Barium	55.9 J	1.0	mg/kg	SW846 6010B
Beryllium	0.48 B	1.0	mg/kg	SW846 6010B
Cadmium	0.17 B	1.0	mg/kg	SW846 6010B
Calcium	1190	104	mg/kg	SW846 6010B
Chromium	15.2	2.1	mg/kg	SW846 6010B
Cobalt	6.5	2.1	mg/kg	SW846 6010B
Copper	6.3	2.1	mg/kg	SW846 6010B
Iron	17300	20.8	mg/kg	SW846 6010B
Magnesium	1590	104	mg/kg	SW846 6010B
Manganese	573	1.0	mg/kg	SW846 6010B
Nickel	10.7	2.1	mg/kg	SW846 6010B
Potassium	484 B,J	519	mg/kg	SW846 6010B
Vanadium	21.4	2.1	mg/kg	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A7J080104

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
RVAAP-SMITH-SS-2 10/05/07 09:42 002				
Zinc	46.6	4.2	mg/kg	SW846 6010B
Percent Solids	96.4	10.0	%	MCAWW 160.3 MOD
RVAAP-DEETS-SS-1 10/05/07 11:45 003				
2,6-Dinitrotoluene	0.046 J	0.24	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	0.034 J	0.24	mg/kg	SW846 8330
Mercury	0.13	0.11	mg/kg	SW846 7471A
Arsenic	7.3	1.1	mg/kg	SW846 6010B
Lead	41.9	1.1	mg/kg	SW846 6010B
Selenium	1.1	1.1	mg/kg	SW846 6010B
Thallium	1.2 B	2.3	mg/kg	SW846 6010B
Aluminum	14400	22.5	mg/kg	SW846 6010B
Barium	334 J	1.1	mg/kg	SW846 6010B
Beryllium	0.94 B	1.1	mg/kg	SW846 6010B
Cadmium	1.3	1.1	mg/kg	SW846 6010B
Calcium	7220	113	mg/kg	SW846 6010B
Chromium	16.2	2.3	mg/kg	SW846 6010B
Cobalt	4.1	2.3	mg/kg	SW846 6010B
Copper	42.1	2.3	mg/kg	SW846 6010B
Iron	9770	22.5	mg/kg	SW846 6010B
Magnesium	2130	113	mg/kg	SW846 6010B
Manganese	193	1.1	mg/kg	SW846 6010B
Nickel	20.6	2.3	mg/kg	SW846 6010B
Potassium	863 J	564	mg/kg	SW846 6010B
Sodium	498	113	mg/kg	SW846 6010B
Vanadium	20.4	2.3	mg/kg	SW846 6010B
Zinc	105	4.5	mg/kg	SW846 6010B
Percent Solids	88.7	10.0	%	MCAWW 160.3 MOD
RVAAP-SMITH-SS-1(WET TS) 10/05/07 09:42 004				
Percent Solids	80.3	10.0	%	MCAWW 160.3 MOD
RVAAP-SMITH-SS-2(WET TS) 10/05/07 09:42 005				
Percent Solids	79.7	10.0	%	MCAWW 160.3 MOD
RVAAP-DEETS-SS-1(WET TS) 10/05/07 11:45 006				
Percent Solids	69.5	10.0	%	MCAWW 160.3 MOD

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A7J080104

PARAMETER	ANALYTICAL METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

SAMPLE SUMMARY

A7J080104

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
J8FKF	001	RVAAP-SMITH-SS-1	10/05/07	09:42
J8FKG	002	RVAAP-SMITH-SS-2	10/05/07	09:42
J8FKH	003	RVAAP-DEETS-SS-1	10/05/07	11:45
J8FKJ	004	RVAAP-SMITH-SS-1(WET TS)	10/05/07	09:42
J8FKK	005	RVAAP-SMITH-SS-2(WET TS)	10/05/07	09:42
J8FKL	006	RVAAP-DEETS-SS-1(WET TS)	10/05/07	11:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

15

TAL-4142 (0907)

Client: e2M	Project Manager: Phil Werner	Date: 10/5/07	Chain of Custody Number: 371310
Address: 2751 Prosperity Ave Ste 200	Telephone Number (Area Code)/Fax Number: (703) 752-7755	Lab Number:	Page 1 of 1
City: Fairfax / State: VA / Zip Code: 22031	Site Contact: Phil Werner	Lab Contact:	Analysis (Attach list if more space is needed)
Project Name and Location (State): RVAAP Ravenna, OH	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	TAL Metals	Explosives	Special Instructions/ Conditions of Receipt
RVAAP-SMITH-SS-1	10/5/07	0942				X							X	X	
RVAAP-SMITH-SS-2	10/5/07	0942				X							X	X	
RVAAP-DEETS-SS-1	10/5/07	1145				X							X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☑ Other normal

QC Requirements (Specify)

1. Relinquished By: Cindy Wall	Date: 10/5/07	Time: 1500	1. Received By: Rick Robison	Date: 10-5-07	Time: 1615
2. Relinquished By: Rick Robison	Date: 10-5-07	Time: 1738	2. Received By: Matt Jent TAL/NC	Date: 6 OCT 2007	Time: 0800
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica North Canton

TestAmerica Cooler Receipt Form/Narrative **Lot Number:** 420080104
North Canton Facility

Client: E2M Project: RVAAP Quote#:

Cooler Received on: 6 OCT 2007 Opened on: 6 OCT 2007 By: (Signature)

Fedx ☐ Client Drop Off ☐ UPS ☐ DHL ☐ FAS ☐ TestAmerica Courier ☒

Stetson ☐ US Cargo ☐ Other:

TestAmerica Cooler No# 14167 Foam Box ☐ Client Cooler ☐ Other

1. Were custody seals on the outside of the cooler? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
   If YES, Quantity TWO
   Were the custody seals signed and dated? Yes ☒ No ☐ NA ☐
2. Shipper's packing slip attached to this form? Yes ☐ No ☐ NA ☒
3. Did custody papers accompany the samples? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☒ No ☐
5. Packing material used: Bubble Wrap ☒ Foam ☐ None ☐ Other: PLASTIC/SORBENT/AIR BAGS
6. Cooler temperature upon receipt 3.4 °C (see back of form for multiple coolers/temp)

METHOD: IR ☒ Other ☐

COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐ BAG ICE

7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Could all bottle labels and/or tags be reconciled with the COC? Yes ☒ No ☐
9. Were samples at the correct pH upon receipt? Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☒ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☐ NA ☒
12. Sufficient quantity received to perform indicated analyses? Yes ☒ No ☐
13. Was a Trip Blank present in the cooler? Yes ☐ No ☒ Were VOAs on the COC? Yes ☐ No ☒

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐

Concerning: _____

1. CHAIN OF CUSTODY

The following discrepancies occurred:

2. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

3. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot* #042607-HNO3 - *Sulfuric Acid Lot* # 092006-*H2SO4; Sodium Hydroxide Lot* # 122805 -*NaOH; Hydrochloric Acid Lot* # 092006-*HCl; Sodium Hydroxide and Zinc Acetate Lot* # 050205-*CH3COO2ZN/NaOH*

Sample(s) _____ were received with bubble > 6 mm in diameter (cc: PM)

4. Other (see below or back)

Client ID	pH	Date	Initials

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp °C	Method	Coolant

Discrepancies Cont'd

METALS DATA

FORMS DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-001 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 3.7

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**11900**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AG**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**8.2**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AC**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**22.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AD**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.4	mg/kg	SW846 6010B	10/10-10/11/07	J8FKF1AH
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**62.1 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AJ**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**0.78 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AE**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.54 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AK**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**0.96 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AF**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.22 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AL**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**1320**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AM**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**16.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AN**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**7.8**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AP**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**7.1**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AQ**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**19200**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AR**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1720**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AT**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**689**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AU**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**11.6**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AV**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**516 B,J**	**519**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1AW**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J8FKF1AX
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	104	mg/kg	SW846 6010B	10/10-10/11/07	J8FKF1A0
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				

(Continued on next page)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**23.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1A1**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**50.5**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKF1A2**
		Dilution Factor: 1		Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.076 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J8FKF1A3**
		Dilution Factor: 1		Analysis Time..: 11:39	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2

TOTAL Metals

Lot-Sample #...: A7J080104-002 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 3.6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**10900**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AN**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**7.5**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AJ**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**19.1**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AK**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	10.4	mg/kg	SW846 6010B	10/10-10/11/07	J8FKG1AP
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**55.9 J**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AQ**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8FKG1AL
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.48 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AR**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.4 B**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AM**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**0.17 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AT**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**1190**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AU**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2

TOTAL Metals

Lot-Sample #...: A7J080104-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**15.2**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AV**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**6.5**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AW**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**6.3**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AX**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**17300**	**20.8**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1A0**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**1590**	**104**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1A1**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**573**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1A2**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**10.7**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1A3**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**484 B,J**	**519**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1A4**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.1	mg/kg	SW846 6010B	10/10-10/11/07	J8FKG1A5
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	ND	104	mg/kg	SW846 6010B	10/10-10/11/07	J8FKG1AA
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2

TOTAL Metals

Lot-Sample #...: A7J080104-002 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**21.4**	**2.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AC**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**46.6**	**4.2**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKG1AD**
		Dilution Factor: 1		Analysis Time..: 17:16	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.067 B**	**0.10**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J8FKG1AE**
		Dilution Factor: 1		Analysis Time..: 11:43	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-003 **Matrix.....:** SO
Date Sampled...: 10/05/07 11:45 **Date Received..:** 10/06/07
% Moisture.....: 11

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7283049						
Aluminum	**14400**	**22.5**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AN**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Arsenic	**7.3**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AJ**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Lead	**41.9**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AK**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Antimony	ND	11.3	mg/kg	SW846 6010B	10/10-10/11/07	J8FKH1AP
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Barium	**334 J**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AQ**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Selenium	**1.1**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AL**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Beryllium	**0.94 B**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AR**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Thallium	**1.2 B**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AM**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cadmium	**1.3**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AT**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Calcium	**7220**	**113**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AU**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	**16.2**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AV**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Cobalt	**4.1**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AW**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Copper	**42.1**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AX**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Iron	**9770**	**22.5**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1A0**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Magnesium	**2130**	**113**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1A1**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Manganese	**193**	**1.1**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1A2**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Nickel	**20.6**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1A3**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Potassium	**863 J**	**564**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1A4**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Silver	ND	2.3	mg/kg	SW846 6010B	10/10-10/11/07	J8FKH1A5
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Sodium	**498**	**113**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AA**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				

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e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1

TOTAL Metals

Lot-Sample #...: A7J080104-003 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**20.4**	**2.3**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AC**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Zinc	**105**	**4.5**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8FKH1AD**
		Dilution Factor: 1		Analysis Time..: 17:21	Analyst ID.....: 001644	
		Instrument ID..: I5				
Mercury	**0.13**	**0.11**	**mg/kg**	**SW846 7471A**	**10/10-10/12/07**	**J8FKH1AE**
		Dilution Factor: 1		Analysis Time..: 11:44	Analyst ID.....: 001086	
		Instrument ID..: H1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A7J100000-049 **Prep Batch #...:** 7283049						
Aluminum	ND	20.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AF
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Arsenic	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AA
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Antimony	ND	10.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AG
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Lead	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AC
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Barium	**0.072 B**	**1.0**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8KMT1AH**
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Selenium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AD
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Beryllium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AJ
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Thallium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AE
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Cadmium	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AK
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Calcium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AL
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Chromium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AM
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Cobalt	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AN
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Copper	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AP
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Iron	ND	20.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AQ
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Magnesium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AR
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Manganese	ND	1.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AT
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Nickel	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AU
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Potassium	**15.7 B**	**500**	**mg/kg**	**SW846 6010B**	**10/10-10/11/07**	**J8KMT1AV**
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Silver	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AW
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Sodium	ND	100	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1AX
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Vanadium	ND	2.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1A0
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Zinc	ND	4.0	mg/kg	SW846 6010B	10/10-10/11/07	J8KMT1A1
		Dilution Factor: 1				
		Analysis Time..: 14:37	Analyst ID.....: 001644		Instrument ID..: I5	
Mercury	ND	0.10	mg/kg	SW846 7471A	10/10-10/12/07	J8KMT1A2
		Dilution Factor: 1				
		Analysis Time..: 11:23	Analyst ID.....: 001086		Instrument ID..: H1	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J100000-049 **Prep Batch #...:** 7283049					
Arsenic	93	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A3
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Aluminum	96	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A7
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Lead	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A4
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Antimony	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A8
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Selenium	91	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A5
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Barium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A9
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Thallium	94	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1A6
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Beryllium	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CA
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Cadmium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CC
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Calcium	96	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CD
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CE
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Cobalt	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CF
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Copper	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CG
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Iron	113	(73 - 137)	SW846 6010B	10/10-10/11/07	J8KMT1CH
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Magnesium	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CJ
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Manganese	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CK
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Nickel	101	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CL
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Potassium	95	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CM
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Silver	100	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CN
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Sodium	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CP
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				
Vanadium	98	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CQ
	Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644		
	Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	97	(80 - 120)	SW846 6010B	10/10-10/11/07	J8KMT1CR
		Dilution Factor: 1	Analysis Time..: 14:42	Analyst ID.....: 001644	
		Instrument ID..: I5			
Mercury	100	(81 - 116)	SW846 7471A	10/10-10/12/07	J8KMT1CT
		Dilution Factor: 1	Analysis Time..: 11:24	Analyst ID.....: 001086	
		Instrument ID..: H1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A7J100000-049 **Prep Batch #...:** 7283049							
Arsenic	200	186	mg/kg	93	SW846 6010B	10/10-10/11/07	J8KMT1A3
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Aluminum	200	192	mg/kg	96	SW846 6010B	10/10-10/11/07	J8KMT1A7
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Lead	50.0	47.4	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1A4
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Antimony	50.0	50.5	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1A8
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Selenium	200	183	mg/kg	91	SW846 6010B	10/10-10/11/07	J8KMT1A5
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Barium	200	194	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1A9
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Thallium	200	188	mg/kg	94	SW846 6010B	10/10-10/11/07	J8KMT1A6
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Beryllium	5.0	5.0	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CA
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Cadmium	5.0	4.8	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CC
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Calcium	5000	4780	mg/kg	96	SW846 6010B	10/10-10/11/07	J8KMT1CD
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	20.0	19.4	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CE
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Cobalt	50.0	47.3	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CF
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Copper	25.0	24.9	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CG
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Iron	100	113	mg/kg	113	SW846 6010B	10/10-10/11/07	J8KMT1CH
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Magnesium	5000	4760	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CJ
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Manganese	50.0	50.5	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1CK
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Nickel	50.0	50.3	mg/kg	101	SW846 6010B	10/10-10/11/07	J8KMT1CL
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Potassium	5000	4730	mg/kg	95	SW846 6010B	10/10-10/11/07	J8KMT1CM
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Silver	5.0	5.0	mg/kg	100	SW846 6010B	10/10-10/11/07	J8KMT1CN
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Sodium	5000	4840	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CP
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					
Vanadium	50.0	48.9	mg/kg	98	SW846 6010B	10/10-10/11/07	J8KMT1CQ
		Dilution Factor: 1		Analysis Time..: 14:42		Analyst ID.....: 001644	
		Instrument ID..: I5					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	50.0	48.3	mg/kg	97	SW846 6010B	10/10-10/11/07	J8KMT1CR
			Dilution Factor: 1		Analysis Time..: 14:42	Analyst ID.....: 001644	
			Instrument ID..: I5				
Mercury	0.83	0.83	mg/kg	100	SW846 7471A	10/10-10/12/07	J8KMT1CT
			Dilution Factor: 1		Analysis Time..: 11:24	Analyst ID.....: 001086	
			Instrument ID..: H1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J080104-001 **Prep Batch #...:** 7283049					
Aluminum	NC,MSB	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CA
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Arsenic	87	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1A6
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Antimony	34 N	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CC
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Lead	86	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1A7
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Barium	95	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CD
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Selenium	85	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1A8
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Beryllium	93	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CE
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Thallium	86	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1A9
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Cadmium	89	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CF
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			
Calcium	89	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CG
		Dilution Factor: 1	Analysis Time..: 16:54	Instrument ID..: I5	
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	104	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CH
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Cobalt	88	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CJ
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Copper	98	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CK
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Iron	NC,MSB	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CL
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Magnesium	96	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CM
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Manganese	NC,MSB	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CN
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Nickel	95	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CP
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Potassium	95	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CQ
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Silver	90	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CR
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Sodium	92	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CT
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Vanadium	104	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CU
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	103	(75 - 125)	SW846 6010B	10/10-10/11/07	J8FKF1CV
		Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5
		Analyst ID.....: 001644			
Mercury	90	(11 - 192)	SW846 7471A	10/10-10/12/07	J8FKF1CW
		Dilution Factor: 1	Analysis Time..: 11:39		Instrument ID..: H1
		Analyst ID.....: 001086			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A7J080104-001 **Prep Batch #...:** 7283049								
Aluminum	11900	208	15700	mg/kg		SW846 6010B	10/10-10/11/07	J8FKF1CA
			Qualifiers: NC,MSB					
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Arsenic	8.2	208	189	mg/kg	87	SW846 6010B	10/10-10/11/07	J8FKF1A6
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Antimony	ND	51.9	17.4 N	mg/kg	34	SW846 6010B	10/10-10/11/07	J8FKF1CC
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Lead	22.5	51.9	67.3	mg/kg	86	SW846 6010B	10/10-10/11/07	J8FKF1A7
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Barium	62.1	208	259	mg/kg	95	SW846 6010B	10/10-10/11/07	J8FKF1CD
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Selenium	0.78	208	177	mg/kg	85	SW846 6010B	10/10-10/11/07	J8FKF1A8
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Beryllium	0.54	5.2	5.4	mg/kg	93	SW846 6010B	10/10-10/11/07	J8FKF1CE
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Thallium	0.96	208	179	mg/kg	86	SW846 6010B	10/10-10/11/07	J8FKF1A9
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Cadmium	0.22	5.2	4.8	mg/kg	89	SW846 6010B	10/10-10/11/07	J8FKF1CF
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Calcium	1320	5190	5960	mg/kg	89	SW846 6010B	10/10-10/11/07	J8FKF1CG
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	16.8	20.8	38.3	mg/kg	104	SW846 6010B	10/10-10/11/07	J8FKF1CH
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Cobalt	7.8	51.9	53.6	mg/kg	88	SW846 6010B	10/10-10/11/07	J8FKF1CJ
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Copper	7.1	26.0	32.5	mg/kg	98	SW846 6010B	10/10-10/11/07	J8FKF1CK
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Iron	19200	104	20200	mg/kg		SW846 6010B	10/10-10/11/07	J8FKF1CL
			Qualifiers: NC,MSB					
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Magnesium	1720	5190	6720	mg/kg	96	SW846 6010B	10/10-10/11/07	J8FKF1CM
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Manganese	689	51.9	751	mg/kg		SW846 6010B	10/10-10/11/07	J8FKF1CN
			Qualifiers: NC,MSB					
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Nickel	11.6	51.9	61.0	mg/kg	95	SW846 6010B	10/10-10/11/07	J8FKF1CP
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Potassium	516	5190	5440	mg/kg	95	SW846 6010B	10/10-10/11/07	J8FKF1CQ
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Silver	ND	5.2	4.6	mg/kg	90	SW846 6010B	10/10-10/11/07	J8FKF1CR
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					
Sodium	ND	5190	4790	mg/kg	92	SW846 6010B	10/10-10/11/07	J8FKF1CT
			Dilution Factor: 1	Analysis Time..: 16:54		Instrument ID..: I5		
			Analyst ID.....: 001644					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: A7J080104 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	23.2	51.9	77.3	mg/kg	104	SW846 6010B	10/10-10/11/07	J8FKF1CU
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Zinc	50.5	51.9	104	mg/kg	103	SW846 6010B	10/10-10/11/07	J8FKF1CV
			Dilution Factor: 1		Analysis Time..: 16:54		Instrument ID..: I5	
			Analyst ID.....: 001644					
Mercury	0.076	0.17	0.23	mg/kg	90	SW846 7471A	10/10-10/12/07	J8FKF1CW
			Dilution Factor: 1		Analysis Time..: 11:39		Instrument ID..: H1	
			Analyst ID.....: 001086					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

Metals

Client Lot #...: A7J080104 **Work Order #...:** J8FKF-SMP J8FKF-DUP **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 3.7

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Aluminum						SD Lot-Sample #: A7J080104-001		
	11900	11200	mg/kg	5.6	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Arsenic						SD Lot-Sample #: A7J080104-001		
	8.2	8.2	mg/kg	0.098	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Lead						SD Lot-Sample #: A7J080104-001		
	22.5	21.0	mg/kg	6.5	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Antimony						SD Lot-Sample #: A7J080104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Barium						SD Lot-Sample #: A7J080104-001		
	62.1 J	58.7	mg/kg	5.6	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Selenium						SD Lot-Sample #: A7J080104-001		
	0.78 B	0.49 B	mg/kg	47	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Beryllium						SD Lot-Sample #: A7J080104-001		
	0.54 B	0.52 B	mg/kg	3.8	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Thallium						SD Lot-Sample #: A7J080104-001		
	0.96 B	1.2 B	mg/kg	20	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cadmium						SD Lot-Sample #: A7J080104-001		
	0.22 B	0.18 B	mg/kg	21	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J080104-000 **Work Order #...:** J8FKF-SMP J8FKF-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Calcium						SD Lot-Sample #: A7J080104-001		
	1320	1220	mg/kg	7.9	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Chromium						SD Lot-Sample #: A7J080104-001		
	16.8	15.5	mg/kg	7.7	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Cobalt						SD Lot-Sample #: A7J080104-001		
	7.8	7.5	mg/kg	4.7	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Copper						SD Lot-Sample #: A7J080104-001		
	7.1	6.7	mg/kg	6.1	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Iron						SD Lot-Sample #: A7J080104-001		
	19200	19400	mg/kg	1.1	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Magnesium						SD Lot-Sample #: A7J080104-001		
	1720	1620	mg/kg	6.3	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Manganese						SD Lot-Sample #: A7J080104-001		
	689	699	mg/kg	1.5	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Nickel						SD Lot-Sample #: A7J080104-001		
	11.6	10.7	mg/kg	8.0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Potassium						SD Lot-Sample #: A7J080104-001		
	516 B,J	486 B	mg/kg	6.2	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						

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SAMPLE DUPLICATE EVALUATION REPORT

Metals

Lot-Sample #...: A7J080104-000 **Work Order #...:** J8FKF-SMP J8FKF-DUP **Matrix.....:** SO

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Silver						SD Lot-Sample #: A7J080104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Sodium						SD Lot-Sample #: A7J080104-001		
	ND	ND	mg/kg	0	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Vanadium						SD Lot-Sample #: A7J080104-001		
	23.2	22.6	mg/kg	2.8	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Zinc						SD Lot-Sample #: A7J080104-001		
	50.5	46.8	mg/kg	7.5	(0-20)	SW846 6010B	10/10-10/11/07	7283049
		Dilution Factor: 1				Analysis Time..: 16:54	Analyst ID.....: 001644	
		Instrument ID..: I5						
Mercury						SD Lot-Sample #: A7J080104-001		
	0.076 B	0.073 B	mg/kg	4.4	(0-20)	SW846 7471A	10/10-10/12/07	7283049
		Dilution Factor: 1				Analysis Time..: 11:39	Analyst ID.....: 001086	
		Instrument ID..: H1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 10/12/2007 11:03 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.41	**96.3**								

Test America North Canton

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICV 10/11/2007 8:31 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	12500.0	12608.27	**100.9**								
Antimony	206.838	250.0	268.78	**107.5**								
Arsenic	189.042	250.0	251.27	**100.5**								
Barium	493.409	1000.0	1011.25	**101.1**								
Beryllium	313.042	1000.0	1023.20	**102.3**								
Cadmium	226.502	250.0	251.28	**100.5**								
Calcium	317.933	25000.0	25636.00	**102.5**								
Chromium	267.716	1000.0	1005.21	**100.5**								
Cobalt	228.616	1000.0	984.02	**98.4**								
Copper	324.753	1000.0	1035.16	**103.5**								
Iron	271.441	12500.0	12742.35	**101.9**								
Lead	220.353	250.0	249.91	**100.0**								
Magnesium	279.078	25000.0	25252.30	**101.0**								
Manganese	257.61	1000.0	1026.67	**102.7**								
Nickel	231.604	1000.0	1011.24	**101.1**								
Potassium	766.491	25000.0	24202.78	**96.8**								
Selenium	196.026	250.0	245.45	**98.2**								
Silver	328.068	500.0	482.45	**96.5**								
Sodium	330.232	25000.0	25605.54	**102.4**								
Thallium	190.864	500.0	500.10	**100.0**								
Vanadium	292.402	1000.0	1025.81	**102.6**								
Zinc	213.856	1000.0	983.04	**98.3**								

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/2007 11:07 AM Found	% Rec	Ck2CCV 10/12/2007 11:17 AM Found	% Rec	Ck2CCV 10/12/2007 11:21 AM Found	% Rec	Ck2CCV 10/12/2007 11:35 AM Found	% Rec	Ck2CCV 10/12/2007 11:49 AM Found	% Rec
Mercury	253.7	5.0	5.19	**103.8**	5.27	**105.4**	5.25	**105.1**	5.24	**104.8**	5.24	**104.7**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/2007 12:03 PM Found	% Rec	Ck2CCV 10/12/2007 12:17 PM Found	% Rec	Ck2CCV 10/12/2007 12:31 PM Found	% Rec	Ck2CCV 10/12/2007 2:25 PM Found	% Rec	Ck2CCV 10/12/2007 2:33 PM Found	% Rec
Mercury	253.7	5.0	5.28	**105.6**	5.27	**105.4**	5.31	**106.1**	5.14	**102.8**	5.14	**102.7**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/2007 2:47 PM Found	% Rec	Ck2CCV 10/12/2007 3:01 PM Found	% Rec	Ck2CCV 10/12/2007 3:15 PM Found	% Rec	Ck2CCV 10/12/2007 3:29 PM Found	% Rec	Ck2CCV 10/12/2007 3:44 PM Found	% Rec
Mercury	253.7	5.0	5.27	**105.4**	5.28	**105.7**	5.28	**105.5**	5.27	**105.4**	5.30	**106.0**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 10/12/2007 3:51 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.27	**105.4**								

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/2007 10:14 AM Found	% Rec	CCV 10/11/2007 1:48 PM Found	% Rec	CCV 10/11/2007 3:33 PM Found	% Rec	CCV 10/11/2007 4:42 PM Found	% Rec	CCV 10/11/2007 5:49 PM Found	% Rec
Aluminum	308.215	25000.0	24920.68	**99.7**	24822.39	**99.3**	24862.44	**99.4**	24821.29	**99.3**	24952.40	**99.8**
Antimony	206.838	500.0	528.34	**105.7**	523.26	**104.7**	525.32	**105.1**	526.08	**105.2**	526.44	**105.3**
Arsenic	189.042	500.0	486.14	**97.2**	478.37	**95.7**	487.49	**97.5**	479.62	**95.9**	483.18	**96.6**
Barium	493.409	2000.0	1980.11	**99.0**	1979.74	**99.0**	1985.17	**99.3**	1991.66	**99.6**	2015.29	**100.8**
Beryllium	313.042	2000.0	1970.92	**98.5**	1957.99	**97.9**	1965.37	**98.3**	1963.39	**98.2**	1971.22	**98.6**
Cadmium	226.502	500.0	488.98	**97.8**	486.45	**97.3**	489.75	**97.9**	487.86	**97.6**	489.09	**97.8**
Calcium	317.933	50000.0	49180.29	**98.4**	48984.94	**98.0**	49220.84	**98.4**	49226.69	**98.5**	49476.36	**99.0**
Chromium	267.716	2000.0	1944.72	**97.2**	1931.57	**96.6**	1942.92	**97.1**	1944.43	**97.2**	1956.48	**97.8**
Cobalt	228.616	2000.0	1913.58	**95.7**	1901.30	**95.1**	1916.33	**95.8**	1914.72	**95.7**	1926.55	**96.3**
Copper	324.753	2000.0	2024.83	**101.2**	2001.55	**100.1**	2013.86	**100.7**	2009.16	**100.5**	2024.84	**101.2**
Iron	271.441	25000.0	24644.73	**98.6**	24309.20	**97.2**	24504.69	**98.0**	24564.42	**98.3**	24756.67	**99.0**
Lead	220.353	500.0	482.39	**96.5**	479.27	**95.9**	478.64	**95.7**	481.68	**96.3**	484.82	**97.0**
Magnesium	279.078	50000.0	49319.36	**98.6**	48979.05	**98.0**	49537.77	**99.1**	49348.15	**98.7**	49599.61	**99.2**
Manganese	257.61	2000.0	1991.59	**99.6**	2030.41	**101.5**	2064.42	**103.2**	2057.61	**102.9**	2057.96	**102.9**
Nickel	231.604	2000.0	2013.87	**100.7**	2011.45	**100.6**	2048.70	**102.4**	2033.05	**101.7**	2031.22	**101.6**
Potassium	766.491	50000.0	48954.36	**97.9**	49226.89	**98.5**	49099.22	**98.2**	49429.96	**98.9**	49676.34	**99.4**
Selenium	196.026	500.0	479.77	**96.0**	473.25	**94.7**	475.26	**95.1**	477.53	**95.5**	478.63	**95.7**
Silver	328.068	1000.0	954.36	**95.4**	945.76	**94.6**	949.48	**94.9**	945.29	**94.5**	947.69	**94.8**
Sodium	330.232	50000.0	48256.94	**96.5**	48330.45	**96.7**	48776.45	**97.6**	48989.28	**98.0**	49292.45	**98.6**
Thallium	190.864	1000.0	978.49	**97.8**	965.23	**96.5**	968.31	**96.8**	967.60	**96.8**	970.93	**97.1**
Vanadium	292.402	2000.0	1979.57	**99.0**	1969.86	**98.5**	1980.08	**99.0**	1987.51	**99.4**	2006.39	**100.3**
Zinc	213.856	2000.0	1893.25	**94.7**	1874.02	**93.7**	1891.21	**94.6**	1884.44	**94.2**	1890.41	**94.5**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/11/2007 6:57 PM Found	% Rec	CCV 10/11/2007 8:04 PM Found	% Rec	CCV 10/11/2007 9:12 PM Found	% Rec	CCV 10/11/2007 10:18 PM Found	% Rec	CCV 10/11/2007 11:28 PM Found	% Rec
Aluminum	308.215	25000.0	25044.67	**100.2**	25283.96	**101.1**	25437.55	**101.8**	25505.96	**102.0**	25543.27	**102.2**
Antimony	206.838	500.0	531.64	**106.3**	540.70	**108.1**	530.59	**106.1**	542.22	**108.4**	543.13	**108.6**
Arsenic	189.042	500.0	488.04	**97.6**	495.66	**99.1**	494.14	**98.8**	493.65	**98.7**	495.89	**99.2**
Barium	493.409	2000.0	2028.65	**101.4**	2046.08	**102.3**	2060.12	**103.0**	2061.42	**103.1**	2069.41	**103.5**
Beryllium	313.042	2000.0	1984.37	**99.2**	1999.46	**100.0**	2002.64	**100.1**	2013.01	**100.7**	2015.14	**100.8**
Cadmium	226.502	500.0	491.66	**98.3**	494.58	**98.9**	494.09	**98.8**	495.92	**99.2**	497.07	**99.4**
Calcium	317.933	50000.0	49844.07	**99.7**	50249.46	**100.5**	50363.72	**100.7**	50711.48	**101.4**	50742.27	**101.5**
Chromium	267.716	2000.0	1973.06	**98.7**	1991.67	**99.6**	1997.91	**99.9**	2010.89	**100.5**	2011.34	**100.6**
Cobalt	228.616	2000.0	1941.41	**97.1**	1957.84	**97.9**	1961.78	**98.1**	1973.02	**98.7**	1974.52	**98.7**
Copper	324.753	2000.0	2031.59	**101.6**	2049.98	**102.5**	2059.82	**103.0**	2060.52	**103.0**	2066.64	**103.3**
Iron	271.441	25000.0	25098.01	**100.4**	25469.62	**101.9**	25551.34	**102.2**	25800.47	**103.2**	25762.38	**103.0**
Lead	220.353	500.0	489.10	**97.8**	494.34	**98.9**	493.42	**98.7**	497.93	**99.6**	498.41	**99.7**
Magnesium	279.078	50000.0	49950.73	**99.9**	50334.71	**100.7**	50516.02	**101.0**	50783.98	**101.6**	50778.25	**101.6**
Manganese	257.61	2000.0	2068.68	**103.4**	2073.27	**103.7**	2080.96	**104.0**	2098.56	**104.9**	2113.71	**105.7**
Nickel	231.604	2000.0	2020.81	**101.0**	2015.11	**100.8**	2002.79	**100.1**	1993.27	**99.7**	1994.13	**99.7**
Potassium	766.491	50000.0	49561.18	**99.1**	49935.27	**99.9**	50222.73	**100.4**	50180.49	**100.4**	50187.97	**100.4**
Selenium	196.026	500.0	479.81	**96.0**	489.98	**98.0**	485.51	**97.1**	487.84	**97.6**	490.38	**98.1**
Silver	328.068	1000.0	946.90	**94.7**	952.69	**95.3**	954.93	**95.5**	955.20	**95.5**	957.37	**95.7**
Sodium	330.232	50000.0	49441.68	**98.9**	49939.42	**99.9**	50250.11	**100.5**	50518.02	**101.0**	50455.37	**100.9**
Thallium	190.864	1000.0	976.48	**97.6**	984.98	**98.5**	985.07	**98.5**	990.04	**99.0**	992.48	**99.2**
Vanadium	292.402	2000.0	2026.37	**101.3**	2048.57	**102.4**	2061.65	**103.1**	2074.22	**103.7**	2075.27	**103.8**
Zinc	213.856	2000.0	1894.74	**94.7**	1903.94	**95.2**	1902.66	**95.1**	1903.45	**95.2**	1908.18	**95.4**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/12/2007 12:09 AM Found	% Rec	CCV 10/12/2007 1:18 AM Found	% Rec	CCV 10/12/2007 2:14 AM Found	% Rec	CCV 10/12/2007 7:41 AM Found	% Rec	CCV 10/12/2007 8:07 AM Found	% Rec
Aluminum	308.215	25000.0	25326.13	**101.3**	25398.53	**101.6**	25473.66	**101.9**	25148.05	**100.6**	25109.74	**100.4**
Antimony	206.838	500.0	538.12	**107.6**	537.78	**107.6**	537.72	**107.5**	525.47	**105.1**	526.99	**105.4**
Arsenic	189.042	500.0	493.20	**98.6**	491.59	**98.3**	492.20	**98.4**	486.49	**97.3**	482.04	**96.4**
Barium	493.409	2000.0	2051.11	**102.6**	2055.32	**102.8**	2062.44	**103.1**	1994.70	**99.7**	1998.60	**99.9**
Beryllium	313.042	2000.0	1998.49	**99.9**	1995.32	**99.8**	2001.41	**100.1**	1981.65	**99.1**	1973.51	**98.7**
Cadmium	226.502	500.0	493.24	**98.6**	491.18	**98.2**	491.68	**98.3**	486.49	**97.3**	486.39	**97.3**
Calcium	317.933	50000.0	50318.31	**100.6**	50286.19	**100.6**	50431.85	**100.9**	49872.09	**99.7**	49530.64	**99.1**
Chromium	267.716	2000.0	1994.14	**99.7**	1993.02	**99.7**	1999.27	**100.0**	1976.57	**98.8**	1964.14	**98.2**
Cobalt	228.616	2000.0	1958.68	**97.9**	1955.49	**97.8**	1959.49	**98.0**	1927.47	**96.4**	1919.64	**96.0**
Copper	324.753	2000.0	2049.85	**102.5**	2052.44	**102.6**	2055.29	**102.8**	2029.14	**101.5**	2025.70	**101.3**
Iron	271.441	25000.0	25589.23	**102.4**	25608.46	**102.4**	25703.25	**102.8**	25371.32	**101.5**	25102.70	**100.4**
Lead	220.353	500.0	494.24	**98.8**	494.04	**98.8**	494.13	**98.8**	484.47	**96.9**	483.22	**96.6**
Magnesium	279.078	50000.0	50295.82	**100.6**	50326.41	**100.7**	50505.80	**101.0**	49904.48	**99.8**	49689.97	**99.4**
Manganese	257.61	2000.0	2081.69	**104.1**	2086.30	**104.3**	2088.14	**104.4**	1986.31	**99.3**	2001.39	**100.1**
Nickel	231.604	2000.0	1978.77	**98.9**	1966.80	**98.3**	1949.45	**97.5**	1895.72	**94.8**	1924.50	**96.2**
Potassium	766.491	50000.0	49754.30	**99.5**	49891.23	**99.8**	49811.64	**99.6**	48814.06	**97.6**	48642.89	**97.3**
Selenium	196.026	500.0	482.49	**96.5**	485.08	**97.0**	484.76	**97.0**	479.67	**95.9**	479.15	**95.8**
Silver	328.068	1000.0	948.63	**94.9**	948.61	**94.9**	951.19	**95.1**	945.00	**94.5**	944.49	**94.4**
Sodium	330.232	50000.0	49958.45	**99.9**	50079.91	**100.2**	49930.25	**99.9**	49290.41	**98.6**	48732.80	**97.5**
Thallium	190.864	1000.0	985.79	**98.6**	982.75	**98.3**	987.93	**98.8**	973.71	**97.4**	971.10	**97.1**
Vanadium	292.402	2000.0	2057.73	**102.9**	2058.23	**102.9**	2065.07	**103.3**	2029.65	**101.5**	2013.31	**100.7**
Zinc	213.856	2000.0	1892.83	**94.6**	1887.60	**94.4**	1886.61	**94.3**	1861.07	**93.1**	1865.24	**93.3**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/12/2007 2:28 PM Found	% Rec	CCV 10/12/2007 3:38 PM Found	% Rec	CCV 10/12/2007 4:48 PM Found	% Rec	CCV 10/12/2007 5:57 PM Found	% Rec	CCV 10/12/2007 7:05 PM Found	% Rec
Aluminum	308.215	25000.0	24860.48	**99.4**	24703.83	**98.8**	24839.09	**99.4**	24878.53	**99.5**	24931.11	**99.7**
Antimony	206.838	500.0	517.44	**103.5**	518.69	**103.7**	519.46	**103.9**	520.61	**104.1**	521.67	**104.3**
Arsenic	189.042	500.0	476.39	**95.3**	475.44	**95.1**	473.80	**94.8**	474.90	**95.0**	478.71	**95.7**
Barium	493.409	2000.0	1957.44	**97.9**	1968.18	**98.4**	1983.36	**99.2**	1984.74	**99.2**	1985.17	**99.3**
Beryllium	313.042	2000.0	1954.44	**97.7**	1952.97	**97.6**	1955.23	**97.8**	1954.49	**97.7**	1958.84	**97.9**
Cadmium	226.502	500.0	484.09	**96.8**	484.10	**96.8**	485.24	**97.0**	484.56	**96.9**	485.62	**97.1**
Calcium	317.933	50000.0	48757.00	**97.5**	48689.25	**97.4**	48743.87	**97.5**	48680.77	**97.4**	48776.96	**97.6**
Chromium	267.716	2000.0	1924.97	**96.2**	1922.56	**96.1**	1927.73	**96.4**	1926.72	**96.3**	1931.25	**96.6**
Cobalt	228.616	2000.0	1888.51	**94.4**	1888.26	**94.4**	1891.51	**94.6**	1889.97	**94.5**	1893.60	**94.7**
Copper	324.753	2000.0	2002.40	**100.1**	2001.27	**100.1**	2010.55	**100.5**	2011.62	**100.6**	2014.55	**100.7**
Iron	271.441	25000.0	24247.78	**97.0**	24010.87	**96.0**	24039.72	**96.2**	24119.17	**96.5**	24211.19	**96.8**
Lead	220.353	500.0	475.50	**95.1**	476.22	**95.2**	476.85	**95.4**	476.52	**95.3**	479.21	**95.8**
Magnesium	279.078	50000.0	48910.19	**97.8**	49121.17	**98.2**	49125.53	**98.3**	49081.74	**98.2**	49195.47	**98.4**
Manganese	257.61	2000.0	1933.40	**96.7**	2032.55	**101.6**	2018.55	**100.9**	2005.90	**100.3**	2004.44	**100.2**
Nickel	231.604	2000.0	1966.34	**98.3**	1977.01	**98.9**	1983.64	**99.2**	1972.58	**98.6**	1976.37	**98.8**
Potassium	766.491	50000.0	48782.71	**97.6**	48581.62	**97.2**	48955.02	**97.9**	48905.40	**97.8**	48855.41	**97.7**
Selenium	196.026	500.0	463.84	**92.8**	468.25	**93.6**	471.80	**94.4**	470.47	**94.1**	471.87	**94.4**
Silver	328.068	1000.0	944.77	**94.5**	944.92	**94.5**	949.33	**94.9**	948.72	**94.9**	950.53	**95.1**
Sodium	330.232	50000.0	48023.00	**96.0**	47847.44	**95.7**	48154.24	**96.3**	48136.66	**96.3**	48260.38	**96.5**
Thallium	190.864	1000.0	955.49	**95.5**	951.09	**95.1**	957.30	**95.7**	958.56	**95.9**	957.20	**95.7**
Vanadium	292.402	2000.0	1958.18	**97.9**	1953.82	**97.7**	1960.09	**98.0**	1959.65	**98.0**	1964.36	**98.2**
Zinc	213.856	2000.0	1861.54	**93.1**	1865.43	**93.3**	1869.98	**93.5**	1867.04	**93.4**	1869.58	**93.5**

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/12/2007 8:12 PM Found	% Rec	CCV 10/12/2007 8:55 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	25000.0	24965.00	**99.9**	24777.74	**99.1**						
Antimony	206.838	500.0	521.41	**104.3**	518.77	**103.8**						
Arsenic	189.042	500.0	475.28	**95.1**	474.44	**94.9**						
Barium	493.409	2000.0	1983.79	**99.2**	1966.73	**98.3**						
Beryllium	313.042	2000.0	1957.15	**97.9**	1952.67	**97.6**						
Cadmium	226.502	500.0	484.49	**96.9**	483.88	**96.8**						
Calcium	317.933	50000.0	48811.02	**97.6**	48742.05	**97.5**						
Chromium	267.716	2000.0	1933.25	**96.7**	1927.41	**96.4**						
Cobalt	228.616	2000.0	1892.69	**94.6**	1888.02	**94.4**						
Copper	324.753	2000.0	2011.91	**100.6**	1995.30	**99.8**						
Iron	271.441	25000.0	24272.00	**97.1**	24222.59	**96.9**						
Lead	220.353	500.0	477.57	**95.5**	476.57	**95.3**						
Magnesium	279.078	50000.0	49266.55	**98.5**	49240.10	**98.5**						
Manganese	257.61	2000.0	2001.10	**100.1**	1997.89	**99.9**						
Nickel	231.604	2000.0	1957.81	**97.9**	1947.31	**97.4**						
Potassium	766.491	50000.0	48928.25	**97.9**	48487.09	**97.0**						
Selenium	196.026	500.0	465.65	**93.1**	467.50	**93.5**						
Silver	328.068	1000.0	949.52	**95.0**	943.99	**94.4**						
Sodium	330.232	50000.0	48290.18	**96.6**	48035.04	**96.1**						
Thallium	190.864	1000.0	956.11	**95.6**	956.53	**95.7**						
Vanadium	292.402	2000.0	1968.29	**98.4**	1960.71	**98.0**						
Zinc	213.856	2000.0	1863.65	**93.2**	1856.76	**92.8**						

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck3CRA\MRL 10/12/2007 11:06 AM Found	% Rec	CRA/MRL 10/12/2007 3:49 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	0.2	0.20	**101.0**	0.23	**115.7**						

Test America North Canton

Metals Data Reporting Form

Contract Required Detection Limit Standard

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 70% - 130%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CRI/MRL 10/11/2007 8:45 AM Found	% Rec	CRI/MRL 10/12/2007 8:48 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	200.0	205.09	**102.5**	191.48	**95.7**						
Antimony	206.838	10.0	8.50	**85.0**	17.98	**179.8**						
Arsenic	189.042	15.0	13.36	**89.1**	11.82	**78.8**						
Barium	493.409	10.0	10.36	**103.6**	10.29	**102.9**						
Beryllium	313.042	5.0	5.27	**105.4**	5.26	**105.3**						
Cadmium	226.502	5.0	5.26	**105.1**	5.20	**104.0**						
Calcium	317.933	5000.0	5167.87	**103.4**	5063.04	**101.3**						
Chromium	267.716	5.0	4.99	**99.8**	4.82	**96.3**						
Cobalt	228.616	5.0	5.18	**103.5**	3.50	**70.0**						
Copper	324.753	15.0	15.22	**101.5**	14.76	**98.4**						
Iron	271.441	300.0	309.82	**103.3**	308.39	**102.8**						
Lead	220.353	10.0	10.46	**104.6**	10.47	**104.7**						
Magnesium	279.078	5000.0	5085.07	**101.7**	5033.20	**100.7**						
Manganese	257.61	15.0	15.96	**106.4**	15.99	**106.6**						
Nickel	231.604	25.0	27.62	**110.5**	24.97	**99.9**						
Potassium	766.491	5000.0	4474.39	**89.5**	4432.65	**88.7**						
Selenium	196.026	20.0	22.73	**113.6**	20.28	**101.4**						
Silver	328.068	5.0	4.85	**97.0**	3.03	**60.5**						
Sodium	330.232	5000.0	5376.67	**107.5**	5221.82	**104.4**						
Thallium	190.864	15.0	13.97	**93.1**	20.00	**133.3**						
Vanadium	292.402	7.0	6.94	**99.1**	7.66	**109.5**						
Zinc	213.856	40.0	46.08	**115.2**	45.12	**112.8**						

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck4ICB 10/12/2007 11:04 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 10/11/2007 8:40 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	16.7	U								
Antimony	206.838	100	2.6	U								
Arsenic	189.042	10	1.9	U								
Barium	493.409	10	0.2	U								
Beryllium	313.042	10	0.1	U								
Cadmium	226.502	10	0.2	U								
Calcium	317.933	1000	**-3.8**	**B**								
Chromium	267.716	20	**-0.7**	**B**								
Cobalt	228.616	20	0.6	U								
Copper	324.753	20	**-1.2**	**B**								
Iron	271.441	200	**-7.8**	**B**								
Lead	220.353	10	1.1	U								
Magnesium	279.078	1000	3.2	U								
Manganese	257.61	10	0.1	U								
Nickel	231.604	20	1.7	U								
Potassium	766.491	5000	**136.0**	**B**								
Selenium	196.026	10	2.5	U								
Silver	328.068	20	1.2	U								
Sodium	330.232	1000	**-890.0**	**B**								
Thallium	190.864	20	**2.3**	**B**								
Vanadium	292.402	20	0.4	U								
Zinc	213.856	40	0.5	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/2007 11:08 AM Found	Q	Ck1CCB 10/12/2007 11:18 AM Found	Q	Ck1CCB 10/12/2007 11:22 AM Found	Q	Ck1CCB 10/12/2007 11:36 AM Found	Q	Ck1CCB 10/12/2007 11:50 AM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/2007 12:04 PM Found	Q	Ck1CCB 10/12/2007 12:18 PM Found	Q	Ck1CCB 10/12/2007 12:32 PM Found	Q	Ck1CCB 10/12/2007 2:26 PM Found	Q	Ck1CCB 10/12/2007 2:34 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/2007 2:48 PM Found	Q	Ck1CCB 10/12/2007 3:02 PM Found	Q	Ck1CCB 10/12/2007 3:16 PM Found	Q	Ck1CCB 10/12/2007 3:31 PM Found	Q	Ck1CCB 10/12/2007 3:45 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11012b.prn

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	Ck1CCB 10/12/2007 3:52 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/2007 10:22 AM Found	Q	CCB 10/11/2007 1:56 PM Found	Q	CCB 10/11/2007 3:41 PM Found	Q	CCB 10/11/2007 4:50 PM Found	Q	CCB 10/11/2007 5:56 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	**0.1**	**B**	**0.1**	**B**	0.1	U	0.1	U	0.1	U
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**-6.8**	**B**	**-6.3**	**B**	**-6.4**	**B**	**-6.0**	**B**	3.4	U
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	**-1.3**	**B**	1.1	U	**-1.9**	**B**	**-2.0**	**B**	1.1	U
Iron	271.441	200	7.6	U	7.6	U	7.6	U	**-10.0**	**B**	**-9.3**	**B**
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	0.1	U	**0.1**	**B**	0.1	U	**0.1**	**B**
Nickel	231.604	20	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**147.0**	**B**	**143.0**	**B**	**144.0**	**B**	**144.0**	**B**	**147.0**	**B**
Selenium	196.026	10	**3.8**	**B**	2.5	U	2.5	U	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-420.0**	**B**	**-730.0**	**B**	**-440.0**	**B**	**-470.0**	**B**	320.0	U
Thallium	190.864	20	2.2	U	2.2	U	2.2	U	2.2	U	**3.0**	**B**
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	**-0.5**	**B**	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/11/2007 7:05 PM Found	Q	CCB 10/11/2007 8:11 PM Found	Q	CCB 10/11/2007 9:20 PM Found	Q	CCB 10/11/2007 10:25 PM Found	Q	CCB 10/11/2007 11:35 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	**-2.6**	**B**	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	0.1	U	**-0.1**	**B**	**-0.1**	**B**	**-0.1**	**B**	**-0.2**	**B**
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	3.4	U	3.4	U	**7.2**	**B**	**7.9**	**B**	**8.8**	**B**
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Iron	271.441	200	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	**0.1**	**B**	0.1	U	0.1	U	0.1	U
Nickel	231.604	20	1.7	U	**1.7**	**B**	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**138.0**	**B**	**145.0**	**B**	**144.0**	**B**	**142.0**	**B**	**141.0**	**B**
Selenium	196.026	10	2.5	U	**2.9**	**B**	2.5	U	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-630.0**	**B**	**-580.0**	**B**	**-420.0**	**B**	**-640.0**	**B**	**-430.0**	**B**
Thallium	190.864	20	2.2	U	**3.2**	**B**	2.2	U	2.2	U	**4.5**	**B**
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

5.21.0

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/12/2007 12:18 AM Found	Q	CCB 10/12/2007 1:27 AM Found	Q	CCB 10/12/2007 2:24 AM Found	Q	CCB 10/12/2007 7:49 AM Found	Q	CCB 10/12/2007 8:15 AM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	2.6	U	**-5.0**	**B**	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	**-0.1**	**B**	**-0.2**	**B**	**-0.2**	**B**	**-0.1**	**B**	**-0.1**	**B**
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**4.9**	**B**	**5.1**	**B**	**5.8**	**B**	3.4	U	3.4	U
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	1.1	U	1.1	U	1.1	U	1.1	U	**-1.6**	**B**
Iron	271.441	200	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	**3.4**	**B**	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	**0.1**	**B**	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	231.604	20	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**139.0**	**B**	**142.0**	**B**	**141.0**	**B**	**153.0**	**B**	**141.0**	**B**
Selenium	196.026	10	2.5	U	2.5	U	**3.4**	**B**	2.5	U	2.5	U
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-560.0**	**B**	**-500.0**	**B**	**-450.0**	**B**	320.0	U	**-770.0**	**B**
Thallium	190.864	20	**2.9**	**B**	**3.8**	**B**	2.2	U	2.2	U	**3.2**	**B**
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 10/12/2007 2:36 PM Found	Q	CCB 10/12/2007 3:46 PM Found	Q	CCB 10/12/2007 4:56 PM Found	Q	CCB 10/12/2007 6:05 PM Found	Q	CCB 10/12/2007 7:13 PM Found	Q
Aluminum	308.215	200	16.7	U	16.7	U	16.7	U	16.7	U	16.7	U
Antimony	206.838	100	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Arsenic	189.042	10	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Barium	493.409	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	313.042	10	**0.1**	**B**	**0.2**	**B**	**0.1**	**B**	**0.1**	**B**	**0.1**	**B**
Cadmium	226.502	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	317.933	1000	**-6.7**	**B**	**-7.4**	**B**	**-6.0**	**B**	**-5.7**	**B**	**-6.3**	**B**
Chromium	267.716	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Cobalt	228.616	20	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Copper	324.753	20	1.1	U	1.1	U	**-1.4**	**B**	**-1.1**	**B**	**-1.3**	**B**
Iron	271.441	200	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U
Lead	220.353	10	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Magnesium	279.078	1000	**4.8**	**B**	3.2	U	3.2	U	3.2	U	3.2	U
Manganese	257.61	10	0.1	U	0.1	U	**0.1**	**B**	0.1	U	0.1	U
Nickel	231.604	20	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Potassium	766.491	5000	**144.0**	**B**	**144.0**	**B**	**146.0**	**B**	**148.0**	**B**	**135.0**	**B**
Selenium	196.026	10	2.5	U	2.5	U	2.5	U	**2.9**	**B**	**3.0**	**B**
Silver	328.068	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Sodium	330.232	1000	**-700.0**	**B**	**-650.0**	**B**	**-560.0**	**B**	**-560.0**	**B**	**-770.0**	**B**
Thallium	190.864	20	2.2	U	**2.3**	**B**	**3.0**	**B**	**4.0**	**B**	2.2	U
Vanadium	292.402	20	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Zinc	213.856	40	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Test America North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC

Standard Source: **Standard ID:**

Element	WL/ Mass	Report Limit	CCB 10/12/2007 8:20 PM Found	Q	CCB 10/12/2007 9:03 PM Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	16.7	U	16.7	U						
Antimony	206.838	100	2.6	U	2.6	U						
Arsenic	189.042	10	1.9	U	1.9	U						
Barium	493.409	10	**0.5**	**B**	0.2	U						
Beryllium	313.042	10	**0.2**	**B**	0.1	U						
Cadmium	226.502	10	**0.4**	**B**	0.2	U						
Calcium	317.933	1000	**-5.2**	**B**	**-5.9**	**B**						
Chromium	267.716	20	**0.6**	**B**	0.6	U						
Cobalt	228.616	20	**1.3**	**B**	0.6	U						
Copper	324.753	20	1.1	U	**-1.8**	**B**						
Iron	271.441	200	**16.0**	**B**	**-11.0**	**B**						
Lead	220.353	10	1.1	U	1.1	U						
Magnesium	279.078	1000	**13.3**	**B**	3.2	U						
Manganese	257.61	10	**0.2**	**B**	**-0.1**	**B**						
Nickel	231.604	20	**3.3**	**B**	1.7	U						
Potassium	766.491	5000	**164.0**	**B**	**146.0**	**B**						
Selenium	196.026	10	2.5	U	2.5	U						
Silver	328.068	20	**2.1**	**B**	1.2	U						
Sodium	330.232	1000	320.0	U	**-400.0**	**B**						
Thallium	190.864	20	**5.9**	**B**	2.2	U						
Vanadium	292.402	20	**1.3**	**B**	**-0.6**	**B**						
Zinc	213.856	40	0.5	U	**0.7**	**B**						

U Result is less than the IDL

B Result is between IDL and RL

Test America North Canton

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 10/11/2007 10:00 AM Found	Found	Found	Found	Found
Aluminum	308.215		500000	488000				
Antimony	206.838	100		-5				
Arsenic	189.042	10		-1				
Barium	493.409	10		2				
Beryllium	313.042	10		0				
Cadmium	226.502	10		1				
Calcium	317.933		500000	471000				
Chromium	267.716	20		-2				
Cobalt	228.616	20		2				
Copper	324.753	20		1				
Iron	271.441		200000	188000				
Lead	220.353	10		0				
Magnesium	279.078		500000	510000				
Manganese	257.61	10		14				
Nickel	231.604	20		3				
Potassium	766.491	5000		131				
Selenium	196.026	10		-1				
Silver	328.068	20		0				
Sodium	330.232	1000		-840				
Thallium	190.864	20		4				
Vanadium	292.402	20		0				
Zinc	213.856	40		11				

U Result is less than the IDL

B Result is between IDL and RL

Form 4 Equivalent

Test America North Canton

Metals Data Reporting Form

Interference Check Standard AB

Instrument: ICPST **Units:** ug/L

Chart Number: I51011A.ARC **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 10/11/2007 10:05 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	500000	489125.6	**97.8**								
Antimony	206.838	1000	1088.6	**108.9**								
Arsenic	189.042	1000	1006.6	**100.7**								
Barium	493.409	500	515.6	**103.1**								
Beryllium	313.042	500	496.2	**99.2**								
Cadmium	226.502	1000	944.7	**94.5**								
Calcium	317.933	500000	476214.9	**95.2**								
Chromium	267.716	500	477.0	**95.4**								
Cobalt	228.616	500	471.5	**94.3**								
Copper	324.753	500	527.3	**105.5**								
Iron	271.441	200000	190525.0	**95.3**								
Lead	220.353	1000	945.0	**94.5**								
Magnesium	279.078	500000	518170.8	**103.6**								
Manganese	257.61	500	497.8	**99.6**								
Nickel	231.604	1000	950.8	**95.1**								
Potassium	766.491	10000	9992.1	**99.9**								
Selenium	196.026	1000	944.6	**94.5**								
Silver	328.068	1000	1008.0	**100.8**								
Sodium	330.232	10000	10852.2	**108.5**								
Thallium	190.864	1000	950.2	**95.0**								
Vanadium	292.402	500	495.7	**99.1**								
Zinc	213.856	1000	989.9	**99.0**								

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL

Test America North Canton

Metals Data Reporting Form

Post Digest Spike Sample Results

Spike Sample ID: J8FKFA

Original Sample ID: J8FKF **Client ID:** RVAAP-SMITH-SS-1

Matrix: Solid **Units:** ug/L **Prep Date:** 10/10/2007 **Prep Batch:** 7283049

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	PDS Conc	Q	Spike Level	% Rec	OS DF	PDS DF	Instr	OS Anal Date	OS Anal Time	PDS Anal Date	PDS Anal Time
Antimony	206.8	2.6	U	218		200	109.0	1	1	ICPST	10/11/2007	16:54	10/12/2007	14:41

Comments:

5.21.0

N Spike recovery failed
NC Percent recovery was not calculated
U Result is less than the IDL
B Result is between IDL and RL

Form 5B Equivalent

Test America North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: J8FKFL

Original Sample ID: J8FKF **Client ID:** RVAAP-SMITH-SS-1

Matrix: Solid **Units:** ug/L **Prep Date:** 10/10/2007 **Prep Batch:** 7283049

Weight: NA **Volume:** NA **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	Serial Dilution Conc	Q	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	114000		117000		2.6	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Antimony	206.838	2.6	U	13.0	U		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Arsenic	189.042	78.8		76.5			1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Barium	493.409	598		608		1.6	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Beryllium	313.042	5.2	B	5.5	B	5.8	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Cadmium	226.502	2.1	B	2.6	B		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Calcium	317.933	12700		12800		0.7	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Chromium	267.716	162		169		4.4	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Cobalt	228.616	75.3		82.6	B	9.7	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Copper	324.753	68.1		63.6	B	6.7	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Iron	271.441	185000		192000		3.4	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Lead	220.353	216		220		1.9	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Magnesium	279.078	16600		17100		2.8	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Manganese	257.61	6640		6930		4.4	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Nickel	231.604	112		121		8.2	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Potassium	766.491	4970	B	4940	B	0.7	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Selenium	196.026	7.6	B	13.3	B		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Silver	328.068	1.2	U	6.7	B		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Sodium	330.232	320	U	1600	U		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Thallium	190.864	9.2	B	30.9	B		1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Vanadium	292.402	224		228		2.0	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59
Zinc	213.856	486		501		3.1	1	5	ICPST	10/11/2007	16:54	10/11/2007	16:59

Comments:

E Serial dilution percent difference not within limits

U Result is less than the IDL

B Result is between IDL and RL

Form 9 Equivalent

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Mercury	253.700	0.6	0.10	2/1/2007

Test America North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Aluminum	308.215	200.0	16.7	6/5/2007
Antimony	206.838	100.0	2.6	6/5/2007
Arsenic	189.042	10.0	1.9	6/5/2007
Barium	493.409	10.0	0.20	6/5/2007
Beryllium	313.042	10.0	0.089	6/5/2007
Cadmium	226.502	10.0	0.15	6/5/2007
Calcium	317.933	1000.0	3.4	6/5/2007
Chromium	267.716	20.0	0.60	6/5/2007
Cobalt	228.616	20.0	0.63	6/5/2007
Copper	324.753	20.0	1.1	6/5/2007
Iron	271.441	200.0	7.6	6/5/2007
Lead	220.353	10.0	1.1	6/5/2007
Magnesium	279.078	1000.0	3.2	6/5/2007
Manganese	257.610	10.0	0.053	6/5/2007
Nickel	231.604	20.0	1.7	6/5/2007
Potassium	766.491	5000.0	16.9	6/5/2007
Selenium	196.026	10.0	2.5	6/5/2007
Silver	328.068	20.0	1.2	6/5/2007
Sodium	330.232	1000.0	320	6/5/2007
Thallium	190.864	20.0	2.2	6/5/2007
Vanadium	292.402	20.0	0.43	6/5/2007
Zinc	213.856	40.0	0.52	6/5/2007

Test America North Canton

Metals Data Reporting Form

Inter-Element Correction Factors

Instrument: ICPST **Date of IEC's:** 6/5/2007

Interfering Element	Wavelength /Mass	Correction Factor(s)
Aluminum	308.215	Cd(0.000004), Pb(-0.00001333), Sb(-0.00000667), Se(-0.00000667), Tl(-0.00002), Zn(0.000011)
Chromium	267.716	As(-0.00324), Fe(0.001539), Sb(0.01166), Tl(0.000317)
Copper	324.753	Pb(0.00008667), Zn(0.000506)
Iron	271.441	As(0.000006), Cd(0.000082), Mn(0.000006), Mo(-0.00001), Pb(0.00004867), Sb(0.00002267), Se(-0.00018), Tl(-0.00006), V(0.000027), Zn(0.000106)
Manganese	257.61	Ag(0.000126), Al(0.013466), Mg(-0.00193), Pb(0.00005733), Se(0.00056933), Tl(-0.00088)
Molybdenum	202.03	Al(0.014499), As(-0.00131), Cu(0.00048), Fe(0.002719), Pb(-0.00066333), Sb(-0.00739233), V(-0.00073)
Nickel	231.604	Cd(0.000027), Co(0.00022), Pb(0.00018667), Sb(-0.00275333), Zn(0.005936)
Titanium	334.941	Be(-0.00178)
Vanadium	292.402	Al(0.028359), Be(0.000207), Cr(0.000165), Cu(-0.00024), Fe(0.011236), Pb(-0.00014), Sb(-0.00009333), Tl(0.002281)

Test America North Canton

Metals Data Reporting Form

Linear Dynamic Ranges

Instrument: ICPST **Units:** ppb

Element	Wavelength /Mass	Linear Range	Date of Linear Range
Aluminum	308.22	500000	6/5/2007
Antimony	206.84	10000	6/5/2007
Arsenic	189.04	10000	6/5/2007
Barium	493.41	25000	6/5/2007
Beryllium	313.04	4000	6/5/2007
Cadmium	226.50	2500	6/5/2007
Calcium	317.93	600000	6/5/2007
Chromium	267.72	50000	6/5/2007
Cobalt	228.62	50000	6/5/2007
Copper	324.75	50000	6/5/2007
Iron	271.44	600000	6/5/2007
Lead	220.35	15000	6/5/2007
Magnesium	279.08	500000	6/5/2007
Manganese	257.61	25000	6/5/2007
Nickel	231.60	50000	6/5/2007
Potassium	766.49	600000	6/5/2007
Selenium	196.03	10000	6/5/2007
Silver	328.07	2000	6/5/2007
Sodium	330.23	600000	6/5/2007
Thallium	190.86	20000	6/5/2007
Vanadium	292.40	50000	6/5/2007
Zinc	213.86	10000	6/5/2007

Batch Number: **7283049**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/10/07
Due Date: 10/17/07

Lot	Work Order			ICP Weight	ICPMS Weight	Hg Weight
A7J100000 Solid	J8KMT	B	Due Date: SDG:	1.00 g		0.60 g
A7J100000 Solid	J8KMT	C	Due Date: SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total	S	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7914 Total	X	Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792M Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792N Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792R Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J792W Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7920 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7923 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J040354 Solid	J7927 Total		Due Date: 10/17/07 SDG:	1.00 g		0.60 g
A7J050117 Solid	J8AT0 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT0 Total	S	Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT0 Total	X	Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT5 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AT9 Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J050117 Solid	J8AVC Total		Due Date: 10/18/07 SDG:	1.00 g		
A7J080104 Solid	J8FKF Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKF Total	S	Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKF Total	X	Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080104 Solid	J8FKG Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g

Batch Number: **7283049**

TestAmerica Laboratories, Inc.
Metals Prep Log/ Batch Summary

Prepared By: David Cox (e-Signature)

Prep Date: 10/10/07
Due Date: 10/17/07

Lot	Work Order			ICP Weight	ICPMS Weight	Hg Weight
A7J080104 Solid	J8FKH Total		Due Date: 10/19/07 SDG:	1.00 g		0.60 g
A7J080109 Solid	J8FLN Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FLN Total	S	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FLN Total	X	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FRK Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total		Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total	S	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FR7 Total	X	Due Date: 10/19/07 SDG:	1.00 g		
A7J080109 Solid	J8FTD Total		Due Date: 10/19/07 SDG:	1.00 g		

LEVEL 2

BLANK AND CHECK STANDARD ON BATCH	X
MS/MSD AND PDS ON BATCH	X
CORRECT SPIKES ADDED	X
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG	X

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICP ELEMENTS WITHIN THE BATCH:

AG AL AS BA BE CA CD CO CR CU FE KX MG MN NA NI PB SB SE TL VX ZN

Matrix Spike Information:
J8AT0 ICP-1

Matrix Spike Information:
J8FR7 ICP-1

Matrix Spike Information:
J7914 ICP-1 ICP-2A Hg Ag

Matrix Spike Information:
J8FKF ICP-1 ICP-2A Hg Ag

Matrix Spike Information:
J8FLN ICP-1

Check Sample Information:
J8KMT ICP-1 ICP-2A Hg Ag

Prep Method(s): SW846 3050B, SW846 7471A

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:       Instrument Upload                                    Run Log - Page  1 :
:       Started Sat Oct 13 06:34:02 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	12-OCT-2007	10:56:34			H1
2	STD2REP1	1	12-OCT-2007	10:57:41			H1
3	STD3REP1	1	12-OCT-2007	10:59:01			H1
4	STD4REP1	1	12-OCT-2007	11:00:11			H1
5	STD5REP1	1	12-OCT-2007	11:01:19			H1
6	STD6REP1	1	12-OCT-2007	11:02:28			H1
7	CK5ICV	1	12-OCT-2007	11:03:44			H1
8	CK4ICB	1	12-OCT-2007	11:04:48			H1
9	CK3CRA\MRL	1	12-OCT-2007	11:06:13			H1
10	CK2CCV	1	12-OCT-2007	11:07:20			H1
11	CK1CCB	1	12-OCT-2007	11:08:27			H1
12	J8KMQB	1	12-OCT-2007	11:09:35			H1
13	J8KMQC	1	12-OCT-2007	11:10:39			H1
14	J8H3L	1	12-OCT-2007	11:11:44			H1
15	J8HTE	1	12-OCT-2007	11:12:59			H1
16	J8HTES	1	12-OCT-2007	11:14:14			H1
17	J8HTED	1	12-OCT-2007	11:15:21			H1
18	J8DG2	5	12-OCT-2007	11:16:36			H1
19	CK2CCV	1	12-OCT-2007	11:17:44			H1
20	CK1CCB	1	12-OCT-2007	11:18:49			H1
21	CK2CCV	1	12-OCT-2007	11:21:25			H1
22	CK1CCB	1	12-OCT-2007	11:22:30			H1
23	J8KMTB	1	12-OCT-2007	11:23:36	7283049	A7J100000	H1
24	J8KMTC	1	12-OCT-2007	11:24:42	7283049	A7J100000	H1
25	J7914	1	12-OCT-2007	11:25:52	7283049	A7J040354	H1
26	J7914X	1	12-OCT-2007	11:26:59	7283049	A7J040354	H1
27	J7914S	1	12-OCT-2007	11:28:04	7283049	A7J040354	H1
28	J7920	1	12-OCT-2007	11:29:14	7283049	A7J040354	H1
29	J7923	1	12-OCT-2007	11:30:20	7283049	A7J040354	H1
30	J7927	1	12-OCT-2007	11:31:36	7283049	A7J040354	H1
31	J792M	1	12-OCT-2007	11:33:14	7283049	A7J040354	H1
32	J792N	1	12-OCT-2007	11:34:29	7283049	A7J040354	H1
33	CK2CCV	1	12-OCT-2007	11:35:33			H1
34	CK1CCB	1	12-OCT-2007	11:36:38			H1
35	J792R	1	12-OCT-2007	11:37:45	7283049	A7J040354	H1
36	J792W	1	12-OCT-2007	11:38:50	7283049	A7J040354	H1
37	J8FKF	1	12-OCT-2007	11:39:59	7283049	A7J080104	H1
38	J8FKFX	1	12-OCT-2007	11:41:06	7283049	A7J080104	H1
39	J8FKFS	1	12-OCT-2007	11:42:11	7283049	A7J080104	H1
40	J8FKG	1	12-OCT-2007	11:43:18	7283049	A7J080104	H1
41	J8FKH	1	12-OCT-2007	11:44:22	7283049	A7J080104	H1
42	J8NFNB	1	12-OCT-2007	11:45:30	7284023	A7J110000	H1
43	J8NFNC	1	12-OCT-2007	11:46:40	7284023	A7J110000	H1
44	J8K02	1	12-OCT-2007	11:48:05	7284023	7J10111	H1

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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	CK2CCV	1	12-OCT-2007	11:49:10			H1
46	CK1CCB	1	12-OCT-2007	11:50:26			H1
47	J8K02S	1	12-OCT-2007	11:51:33	7284023	7J10111	H1
48	J8K02D	1	12-OCT-2007	11:52:59	7284023	7J10111	H1
49	J8K1J	1	12-OCT-2007	11:54:06	7284023	7J10111	H1
50	J8K1K	1	12-OCT-2007	11:55:16	7284023	7J10111	H1
51	J8K1L	1	12-OCT-2007	11:56:25	7284023	7J10111	H1
52	J8K1P	1	12-OCT-2007	11:57:44	7284023	7J10111	H1
53	J8K1Q	1	12-OCT-2007	11:58:52	7284023	7J10111	H1
54	J8NFQB	1	12-OCT-2007	11:59:57	7284024	A7J110000	H1
55	J8NFQC	1	12-OCT-2007	12:01:06	7284024	A7J110000	H1
56	J8L63	1	12-OCT-2007	12:02:12	7284024	A7J100268	H1
57	CK2CCV	1	12-OCT-2007	12:03:27			H1
58	CK1CCB	1	12-OCT-2007	12:04:43			H1
59	J8L7P	1	12-OCT-2007	12:05:48	7284024	A7J100268	H1
60	J8CAC	1	12-OCT-2007	12:07:05	7284024	A7J050163	H1
61	J8CAG	1	12-OCT-2007	12:08:12	7284024	A7J050163	H1
62	J8CAH	1	12-OCT-2007	12:09:17	7284024	A7J050163	H1
63	J8CAL	1	12-OCT-2007	12:10:28	7284024	A7J050163	H1
64	J8CAM	1	12-OCT-2007	12:11:34	7284024	A7J050163	H1
65	J8CAQ	1	12-OCT-2007	12:12:42	7284024	A7J050163	H1
66	J8CAV	1	12-OCT-2007	12:13:49	7284024	A7J050163	H1
67	J8LF3	1	12-OCT-2007	12:15:09	7284024	A7J100170	H1
68	J8LF4	1	12-OCT-2007	12:16:14	7284024	A7J100170	H1
69	CK2CCV	1	12-OCT-2007	12:17:23			H1
70	CK1CCB	1	12-OCT-2007	12:18:27			H1
71	J8LF6	1	12-OCT-2007	12:19:43	7284024	A7J100170	H1
72	J8LF7	1	12-OCT-2007	12:20:49	7284024	A7J100170	H1
73	J8LFR	1	12-OCT-2007	12:21:56	7284024	A7J100170	H1
74	J8LFRS	1	12-OCT-2007	12:23:01	7284024	A7J100170	H1
75	J8LFRD	1	12-OCT-2007	12:24:09	7284024	A7J100170	H1
76	J8LG7	1	12-OCT-2007	12:25:20	7284024	A7J100170	H1
77	J8LG8	1	12-OCT-2007	12:26:27	7284024	A7J100170	H1
78	J8LGG	1	12-OCT-2007	12:27:35	7284024	A7J100170	H1
79	J8LHA	1	12-OCT-2007	12:28:41	7284024	A7J100170	H1
80	J8LHC	1	12-OCT-2007	12:29:57	7284024	A7J100170	H1
81	CK2CCV	1	12-OCT-2007	12:31:14			H1
82	CK1CCB	1	12-OCT-2007	12:32:22			H1
83	CK2CCV	1	12-OCT-2007	14:25:12			H1
84	CK1CCB	1	12-OCT-2007	14:26:21			H1
85	J8CAG	5	12-OCT-2007	14:27:38	7284024	A7J050163	H1
86	J8CAM	5	12-OCT-2007	14:28:42	7284024	A7J050163	H1
87	J8CAQ	5	12-OCT-2007	14:29:46	7284024	A7J050163	H1
88	J8CAV	10	12-OCT-2007	14:30:53	7284024	A7J050163	H1

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: Instrument Upload Run Log - Page 3 :
: Started Sat Oct 13 06:34:02 2007 by LISTM :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J8LF3	1	12-OCT-2007	14:31:57	7284024	A7J100170	H1
90	CK2CCV	1	12-OCT-2007	14:33:22			H1
91	CK1CCB	1	12-OCT-2007	14:34:27			H1
92	J8CAV	50	12-OCT-2007	14:35:36	7284024	A7J050163	H1
93	J8RMQB	1	12-OCT-2007	14:36:45	7285024	A7J120000	H1
94	J8RMQC	1	12-OCT-2007	14:37:50	7285024	A7J120000	H1
95	J8N1K	1	12-OCT-2007	14:39:16	7285024	A7J110140	H1
96	J8N1KS	1	12-OCT-2007	14:40:26	7285024	A7J110140	H1
97	J8N1KD	1	12-OCT-2007	14:41:34	7285024	A7J110140	H1
98	J8N1Q	1	12-OCT-2007	14:42:41	7285024	A7J110140	H1
99	J8N1R	1	12-OCT-2007	14:44:06	7285024	A7J110140	H1
100	J8N1T	1	12-OCT-2007	14:45:10	7285024	A7J110140	H1
101	J8N1W	1	12-OCT-2007	14:46:17	7285024	A7J110140	H1
102	CK2CCV	1	12-OCT-2007	14:47:24			H1
103	CK1CCB	1	12-OCT-2007	14:48:34			H1
104	J8PL3	1	12-OCT-2007	14:49:40	7285024	A7J110194	H1
105	J8PM3	1	12-OCT-2007	14:50:48	7285024	A7J110194	H1
106	J8PM6	1	12-OCT-2007	14:51:53	7285024	A7J110194	H1
107	J8PM8	1	12-OCT-2007	14:52:58	7285024	A7J110194	H1
108	J8PMK	1	12-OCT-2007	14:54:08	7285024	A7J110194	H1
109	J8PMX	1	12-OCT-2007	14:55:14	7285024	A7J110194	H1
110	J8RMTB	1	12-OCT-2007	14:56:20	7285026	A7J120000	H1
111	J8RMTC	1	12-OCT-2007	14:57:27	7285026	A7J120000	H1
112	J8PN0	1	12-OCT-2007	14:58:52	7285026	7J10111	H1
113	J8PN3	1	12-OCT-2007	14:59:56	7285026	7J10111	H1
114	CK2CCV	1	12-OCT-2007	15:01:02			H1
115	CK1CCB	1	12-OCT-2007	15:02:08			H1
116	J8PN6	1	12-OCT-2007	15:03:17	7285026	7J10111	H1
117	J8PN7	1	12-OCT-2007	15:04:31	7285026	7J10111	H1
118	J8PN9	1	12-OCT-2007	15:05:38	7285026	7J10111	H1
119	J8PNM	1	12-OCT-2007	15:06:43	7285026	7J10111	H1
120	J8PNMS	1	12-OCT-2007	15:07:49	7285026	7J10111	H1
121	J8PNMD	1	12-OCT-2007	15:09:01	7285026	7J10111	H1
122	J8PPA	1	12-OCT-2007	15:10:09	7285026	7J10111	H1
123	J8PPD	1	12-OCT-2007	15:11:18	7285026	7J10111	H1
124	J8PQE	1	12-OCT-2007	15:12:24	7285026	7J10111	H1
125	J8PQH	1	12-OCT-2007	15:14:02	7285026	7J10111	H1
126	CK2CCV	1	12-OCT-2007	15:15:08			H1
127	CK1CCB	1	12-OCT-2007	15:16:16			H1
128	J8RMNB	1	12-OCT-2007	15:17:30	7285023	A7J120000	H1
129	J8RMNC	1	12-OCT-2007	15:18:36	7285023	A7J120000	H1
130	J8P77	1	12-OCT-2007	15:19:46	7285023	A7J110256	H1
131	J8P78	1	12-OCT-2007	15:21:03	7285023	A7J110256	H1
132	J8P79	1	12-OCT-2007	15:22:13	7285023	A7J110256	H1

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:       Instrument Upload                                    Run Log - Page  4 :
:       Started Sat Oct 13 06:34:02 2007 by LISTM                              :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG11012B.PRN;1                       :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	J8P7H	1	12-OCT-2007	15:23:23	7285023	A7J110256	H1
134	J8P8A	1	12-OCT-2007	15:24:59	7285023	A7J110256	H1
135	J8P8C	1	12-OCT-2007	15:26:15	7285023	A7J110256	H1
136	J8P8D	1	12-OCT-2007	15:27:21	7285023	A7J110256	H1
137	J8P8E	1	12-OCT-2007	15:28:43	7285023	A7J110256	H1
138	CK2CCV	1	12-OCT-2007	15:29:50			H1
139	CK1CCB	1	12-OCT-2007	15:31:07			H1
140	J8P8F	1	12-OCT-2007	15:32:14	7285023	A7J110256	H1
141	J8N2D	1	12-OCT-2007	15:33:31	7285023	A7J110144	H1
142	J8N2DS	1	12-OCT-2007	15:34:39	7285023	A7J110144	H1
143	J8N2DD	1	12-OCT-2007	15:36:20	7285023	A7J110144	H1
144	J8N2N	1	12-OCT-2007	15:37:29	7285023	A7J110144	H1
145	J8N2R	1	12-OCT-2007	15:38:37	7285023	A7J110144	H1
146	J8N37	1	12-OCT-2007	15:39:43	7285023	A7J110144	H1
147	J8N3X	1	12-OCT-2007	15:40:52	7285023	A7J110144	H1
148	J8N4C	1	12-OCT-2007	15:42:21	7285023	A7J110144	H1
149	J8N4E	1	12-OCT-2007	15:43:38	7285023	A7J110144	H1
150	CK2CCV	1	12-OCT-2007	15:44:45			H1
151	CK1CCB	1	12-OCT-2007	15:45:52			H1
152	J8N4G	1	12-OCT-2007	15:47:20	7285023	A7J110144	H1
153	J8N4N	1	12-OCT-2007	15:48:27	7285023	A7J110144	H1
154	CRA	1	12-OCT-2007	15:49:44			H1
155	CK2CCV	1	12-OCT-2007	15:51:00			H1
156	CK1CCB	1	12-OCT-2007	15:52:04			H1
157	CK2CCV	1	12-OCT-2007	15:55:56			H1
158	CK1CCB	1	12-OCT-2007	15:57:01			H1
159	J8P79	2	12-OCT-2007	15:58:15	7285023	A7J110256	H1
160	CK2CCV	1	12-OCT-2007	15:59:25			H1
161	CK1CCB	1	12-OCT-2007	16:00:30			H1

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:        Instrument Upload                                    Run Log - Page  1 :
:        Started Fri Oct 12 07:56:12 2007 by WILLIAML                           :
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1	STD1	1	11-OCT-2007	07:57:00			I5	
2	CAL1	1	11-OCT-2007	08:03:00			I5	
3	CAL2	1	11-OCT-2007	08:08:00			I5	
4	CAL3	1	11-OCT-2007	08:14:00			I5	
5	SCAL	1	11-OCT-2007	08:20:00			I5	
6	CAL	1	11-OCT-2007	08:24:00			I5	
7	ICV	1	11-OCT-2007	08:31:00			I5	
8	ICB	1	11-OCT-2007	08:40:00			I5	
9	CRI	MRL	11-OCT-2007	08:45:00			I5	
10	ICSA	1	11-OCT-2007	08:52:00			I5	
11	AL	1	11-OCT-2007	09:02:00			I5	
12	FE	1	11-OCT-2007	09:07:00			I5	
13	Z	1	11-OCT-2007	09:12:00			I5	
14	ICSA	1	11-OCT-2007	10:00:00			I5	
15	ICSAB	1	11-OCT-2007	10:05:00			I5	
16	CCV	1	11-OCT-2007	10:14:00			I5	
17	CCB	1	11-OCT-2007	10:22:00			I5	
18	J8FG1B	1	11-OCT-2007	10:38:00			I5	
19	J8AG4B	1	11-OCT-2007	10:44:00	7278028	A7J050000	I5	
20	J8AG4C	1	11-OCT-2007	10:49:00	7278028	A7J050000	I5	
21	J748R	1	11-OCT-2007	10:56:00	7278028	A7J030104	I5	
22	J748RL	1	11-OCT-2007	11:01:00			I5	
23	J748RX	1	11-OCT-2007	11:06:00	7278028	A7J030104	I5	
24	J748RS	1	11-OCT-2007	11:11:00	7278028	A7J030104	I5	- 5b PDS run @ 13:14
25	J748X	1	11-OCT-2007	11:17:00	7278028	A7J030104	I5	
26	J7481	1	11-OCT-2007	11:22:00	7278028	A7J030104	I5	
27	J7483	1	11-OCT-2007	11:27:00	7278028	A7J030104	I5	
28	CCV	1	11-OCT-2007	11:36:00			I5	
29	CCB	1	11-OCT-2007	11:44:00			I5	
30	J7484	1	11-OCT-2007	11:49:00	7278028	A7J030104	I5	
31	J7488	1	11-OCT-2007	11:54:00	7278028	A7J030104	I5	
32	J749C	1	11-OCT-2007	11:59:00	7278028	A7J030104	I5	
33	J749D	1	11-OCT-2007	12:04:00	7278028	A7J030104	I5	
34	J749E	1	11-OCT-2007	12:09:00	7278028	A7J030104	I5	
35	J777D	1	11-OCT-2007	12:14:00	7278028	A7J040113	I5	
36	J777DL	1	11-OCT-2007	12:19:00			I5	
37	J777DX	1	11-OCT-2007	12:24:00	7278028	A7J040113	I5	
38	J777DS	1	11-OCT-2007	12:29:00	7278028	A7J040113	I5	
39	J777P	1	11-OCT-2007	12:36:00	7278028	A7J040113	I5	
40	CCV	1	11-OCT-2007	12:50:00			I5	
41	CCB	1	11-OCT-2007	12:58:00			I5	
42	J778P	1	11-OCT-2007	13:05:00	7278028	A7J040113	I5	
43	J7782	1	11-OCT-2007	13:10:00	7278028	A7J040113	I5	
44	J748RA	1	11-OCT-2007	13:14:00	7278028	A7J030104	I5	- 5b PDS @ 200ppb

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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	J748X	5	11-OCT-2007	13:20:00	7278028	A7J030104	I5
46	J7488	5	11-OCT-2007	13:25:00	7278028	A7J030104	I5
47	J749C	5	11-OCT-2007	13:30:00	7278028	A7J030104	I5
48	Z	1	11-OCT-2007	13:39:00			I5
49	CCV	1	11-OCT-2007	13:48:00			I5
50	CCB	1	11-OCT-2007	13:56:00			I5
51	J8KMTB	1	11-OCT-2007	14:37:00	7283049	A7J100000	I5
52	J8KMTC	1	11-OCT-2007	14:42:00	7283049	A7J100000	I5
53	J7914	1	11-OCT-2007	14:49:00	7283049	A7J040354	I5
54	J7914L	1	11-OCT-2007	14:54:00			I5
55	J7914X	1	11-OCT-2007	14:59:00	7283049	A7J040354	I5
56	J7914S	1	11-OCT-2007	15:04:00	7283049	A7J040354	I5
57	J792M	1	11-OCT-2007	15:10:00	7283049	A7J040354	I5
58	J792N	1	11-OCT-2007	15:15:00	7283049	A7J040354	I5
59	J792R	1	11-OCT-2007	15:20:00	7283049	A7J040354	I5
60	J792W	1	11-OCT-2007	15:25:00	7283049	A7J040354	I5
61	CCV	1	11-OCT-2007	15:33:00			I5
62	CCB	1	11-OCT-2007	15:41:00			I5
63	J7920	1	11-OCT-2007	15:45:00	7283049	A7J040354	I5
64	J7923	1	11-OCT-2007	15:50:00	7283049	A7J040354	I5
65	J7927	1	11-OCT-2007	15:55:00	7283049	A7J040354	I5
66	J8AT0	1	11-OCT-2007	16:00:00	7283049	A7J050117	I5
67	J8AT0L	1	11-OCT-2007	16:08:00			I5
68	J8AT0X	1	11-OCT-2007	16:13:00	7283049	A7J050117	I5
69	J8AT0S	1	11-OCT-2007	16:17:00	7283049	A7J050117	I5
70	J8AT5	1	11-OCT-2007	16:24:00	7283049	A7J050117	I5
71	J8AT9	1	11-OCT-2007	16:29:00	7283049	A7J050117	I5
72	J8AVC	1	11-OCT-2007	16:34:00	7283049	A7J050117	I5
73	CCV	1	11-OCT-2007	16:42:00			I5
74	CCB	1	11-OCT-2007	16:50:00			I5
75	J8FKF	1	11-OCT-2007	16:54:00	7283049	A7J080104	I5
76	J8FKFL	1	11-OCT-2007	16:59:00			I5
77	J8FKFX	1	11-OCT-2007	17:04:00	7283049	A7J080104	I5
78	J8FKFS	1	11-OCT-2007	17:09:00	7283049	A7J080104	I5
79	J8FKG	1	11-OCT-2007	17:16:00	7283049	A7J080104	I5
80	J8FKH	1	11-OCT-2007	17:21:00	7283049	A7J080104	I5
81	J8FLN	1	11-OCT-2007	17:26:00	7283049	A7J080109	I5
82	J8FLNL	1	11-OCT-2007	17:31:00			I5
83	J8FLNX	1	11-OCT-2007	17:36:00	7283049	A7J080109	I5
84	J8FLNS	1	11-OCT-2007	17:41:00	7283049	A7J080109	I5
85	CCV	1	11-OCT-2007	17:49:00			I5
86	CCB	1	11-OCT-2007	17:56:00			I5
87	J8FRK	1	11-OCT-2007	18:01:00	7283049	A7J080109	I5
88	J8FR7	1	11-OCT-2007	18:06:00	7283049	A7J080109	I5

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:       Instrument Upload                                    Run Log - Page  3 :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	J8FR7L	1	11-OCT-2007	18:11:00			I5
90	J8FR7X	1	11-OCT-2007	18:16:00	7283049	A7J080109	I5
91	J8FR7S	1	11-OCT-2007	18:21:00	7283049	A7J080109	I5
92	J8FTD	1	11-OCT-2007	18:26:00	7283049	A7J080109	I5
93	J8KMMB	1	11-OCT-2007	18:33:00	7283043	A7J100000	I5
94	J8KMMC	1	11-OCT-2007	18:37:00	7283043	A7J100000	I5
95	J8G44	1	11-OCT-2007	18:44:00	7283043	A7J090101	I5
96	J8G44L	1	11-OCT-2007	18:49:00			I5
97	CCV	1	11-OCT-2007	18:57:00			I5
98	CCB	1	11-OCT-2007	19:05:00			I5
99	J8G44X	1	11-OCT-2007	19:10:00	7283043	A7J090101	I5
100	J8G44S	1	11-OCT-2007	19:15:00	7283043	A7J090101	I5
101	J8G46	1	11-OCT-2007	19:21:00	7283043	A7J090101	I5
102	J8G5M	1	11-OCT-2007	19:26:00	7283043	A7J090101	I5
103	J8G5R	1	11-OCT-2007	19:31:00	7283043	A7J090101	I5
104	J8G5W	1	11-OCT-2007	19:36:00	7283043	A7J090101	I5
105	J8G51	1	11-OCT-2007	19:41:00	7283043	A7J090101	I5
106	J8G52	1	11-OCT-2007	19:46:00	7283043	A7J090101	I5
107	J8G55	1	11-OCT-2007	19:51:00	7283043	A7J090101	I5
108	J8G57	1	11-OCT-2007	19:56:00	7283043	A7J090101	I5
109	CCV	1	11-OCT-2007	20:04:00			I5
110	CCB	1	11-OCT-2007	20:11:00			I5
111	J8NFGB	1	11-OCT-2007	20:16:00	7284018	A7J110000	I5
112	J8NFGC	1	11-OCT-2007	20:21:00	7284018	A7J110000	I5
113	J8KP1	1	11-OCT-2007	20:28:00	7284018	A7J100103	I5
114	J8KP3	1	11-OCT-2007	20:33:00	7284018	A7J100103	I5
115	J8KP6	1	11-OCT-2007	20:38:00	7284018	A7J100103	I5
116	J8KP6L	1	11-OCT-2007	20:43:00			I5
117	J8KP6X	1	11-OCT-2007	20:48:00	7284018	A7J100103	I5
118	J8KP6S	1	11-OCT-2007	20:53:00	7284018	A7J100103	I5
119	J8KQA	1	11-OCT-2007	20:59:00	7284018	A7J100103	I5
120	J8KQG	1	11-OCT-2007	21:04:00	7284018	A7J100103	I5
121	CCV	1	11-OCT-2007	21:12:00			I5
122	CCB	1	11-OCT-2007	21:20:00			I5
123	J8KQH	1	11-OCT-2007	21:25:00	7284018	A7J100103	I5
124	J8KQK	1	11-OCT-2007	21:30:00	7284018	A7J100103	I5
125	J8KQN	1	11-OCT-2007	21:35:00	7284018	A7J100103	I5
126	J8KQQ	1	11-OCT-2007	21:40:00	7284018	A7J100103	I5
127	J8KQV	1	11-OCT-2007	21:45:00	7284018	A7J100103	I5
128	J8KQ0	1	11-OCT-2007	21:50:00	7284018	A7J100103	I5
129	J8KQ2	1	11-OCT-2007	21:55:00	7284018	A7J100103	I5
130	J8KQ5	1	11-OCT-2007	22:00:00	7284018	A7J100103	I5
131	J8KRD	1	11-OCT-2007	22:05:00	7284018	A7J100103	I5
132	J8KRDL	1	11-OCT-2007	22:09:00			I5

-sb PDS run @ 23:12

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134	CCB	1	11-OCT-2007	22:25:00			I5	
135	J8KRDX	1	11-OCT-2007	22:30:00	7284018	A7J100103	I5	
136	J8KRDS	1	11-OCT-2007	22:35:00	7284018	A7J100103	I5	
137	J8KRG	1	11-OCT-2007	22:42:00	7284018	A7J100103	I5	-
138	J7914A	1	11-OCT-2007	22:47:00	7283049	A7J040354	I5	Sb 200ppb
139	J8FKFA	1	11-OCT-2007	23:07:00	7283049	A7J080104	I5	Rerun
140	J8FR7A	1	11-OCT-2007	23:12:00			I5	Sb200ppb
141	CRI	MRL	11-OCT-2007	23:20:00			I5	
142	CCV	1	11-OCT-2007	23:28:00			I5	
143	CCB	1	11-OCT-2007	23:35:00			I5	
144	CCV	1	12-OCT-2007	00:09:00			I5	
145	CCB	1	12-OCT-2007	00:18:00			I5	
146	J8NFEB	1	12-OCT-2007	00:23:00			I5	
147	J8NFEC	1	12-OCT-2007	00:28:00			I5	
148	J8LFT	1	12-OCT-2007	00:35:00			I5	
149	J8LF5	1	12-OCT-2007	00:40:00			I5	
150	J8K71	1	12-OCT-2007	00:44:00			I5	
151	J8LPT	1	12-OCT-2007	00:49:00			I5	
152	J8LPTL	1	12-OCT-2007	00:54:00			I5	
153	J8LFC	1	12-OCT-2007	00:59:00	7284017	A7J100170	I5	
154	J8LLA	1	12-OCT-2007	01:04:00			I5	
155	J8LN1	1	12-OCT-2007	01:09:00			I5	
156	CCV	1	12-OCT-2007	01:18:00			I5	
157	CCB	1	12-OCT-2007	01:27:00			I5	
158	J8LP0	1	12-OCT-2007	01:32:00			I5	
159	J8LQG	1	12-OCT-2007	01:37:00			I5	
160	J8LR0	1	12-OCT-2007	01:42:00	7284017	A7J100211	I5	
161	J8KW0	1	12-OCT-2007	01:47:00	7284017	7J10109	I5	
162	J8KW0S	1	12-OCT-2007	01:52:00	7284017	7J10109	I5	
163	J8KW0D	1	12-OCT-2007	01:57:00	7284017	7J10109	I5	
164	CRI	MRL	12-OCT-2007	02:06:00			I5	
165	CCV	1	12-OCT-2007	02:14:00			I5	
166	CCB	1	12-OCT-2007	02:24:00			I5	
167	CCV	1	12-OCT-2007	07:41:00			I5	
168	CCB	1	12-OCT-2007	07:49:00			I5	
169	J8NFEC	1	12-OCT-2007	07:54:00			I5	
170	ZZZZZ	1	12-OCT-2007	07:59:00			I5	
171	CCV	1	12-OCT-2007	08:07:00			I5	
172	CCB	1	12-OCT-2007	08:15:00			I5	
173	CCV	1	12-OCT-2007	14:28:00			I5	
174	CCB	1	12-OCT-2007	14:36:00			I5	
175	J8FKFA	1	12-OCT-2007	14:41:00	7283049	A7J080104	I5	Sb 200ppb
176	J8RMGB	1	12-OCT-2007	14:48:00	7285020	A7J120000	I5	

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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
177	J8RMGC	1	12-OCT-2007	14:52:00	7285020	A7J120000	I5
178	J8H37	1	12-OCT-2007	14:59:00	7285020	A7J090219	I5
179	J8H4K	1	12-OCT-2007	15:04:00	7285020	A7J090219	I5
180	J8H4KL	1	12-OCT-2007	15:09:00			I5
181	J8H4KX	1	12-OCT-2007	15:14:00	7285020	A7J090219	I5
182	J8H4KS	1	12-OCT-2007	15:19:00	7285020	A7J090219	I5
183	J8H4W	1	12-OCT-2007	15:25:00	7285020	A7J090219	I5
184	J8H41	1	12-OCT-2007	15:30:00	7285020	A7J090219	I5
185	CCV	1	12-OCT-2007	15:38:00			I5
186	CCB	1	12-OCT-2007	15:46:00			I5
187	J8LAJ	1	12-OCT-2007	15:51:00	7285020	A7J100154	I5
188	J8LAJL	1	12-OCT-2007	15:56:00			I5
189	J8LAJX	1	12-OCT-2007	16:01:00	7285020	A7J100154	I5
190	J8LAJS	1	12-OCT-2007	16:06:00	7285020	A7J100154	I5
191	J8LCG	1	12-OCT-2007	16:12:00	7285020	A7J100154	I5
192	J8LCK	1	12-OCT-2007	16:17:00	7285020	A7J100154	I5
193	J8RL9B	1	12-OCT-2007	16:24:00	7285017	A7J120000	I5
194	J8RL9C	1	12-OCT-2007	16:29:00	7285017	A7J120000	I5
195	J8KP8	1	12-OCT-2007	16:35:00	7285017	A7J100103	I5
196	J8KP8L	1	12-OCT-2007	16:40:00			I5
197	CCV	1	12-OCT-2007	16:48:00			I5
198	CCB	1	12-OCT-2007	16:56:00			I5
199	J8KP8X	1	12-OCT-2007	17:01:00	7285017	A7J100103	I5
200	J8KP8S	1	12-OCT-2007	17:06:00	7285017	A7J100103	I5
201	J8NPW	1	12-OCT-2007	17:12:00	7285017	A7J110121	I5
202	J8NP0	1	12-OCT-2007	17:17:00	7285017	A7J110121	I5
203	J8NP4	1	12-OCT-2007	17:22:00	7285017	A7J110121	I5
204	J8NP4L	1	12-OCT-2007	17:27:00			I5
205	J8NP4X	1	12-OCT-2007	17:32:00	7285017	A7J110121	I5
206	J8NP4S	1	12-OCT-2007	17:37:00	7285017	A7J110121	I5
207	J8NP6	1	12-OCT-2007	17:44:00	7285017	A7J110121	I5
208	J8NQH	1	12-OCT-2007	17:48:00	7285017	A7J110121	I5
209	CCV	1	12-OCT-2007	17:57:00			I5
210	CCB	1	12-OCT-2007	18:05:00			I5
211	J8NQP	1	12-OCT-2007	18:10:00	7285017	A7J110121	I5
212	J8NQW	1	12-OCT-2007	18:14:00	7285017	A7J110121	I5
213	J8NRN	1	12-OCT-2007	18:19:00	7285017	A7J110121	I5
214	J8NRV	1	12-OCT-2007	18:24:00	7285017	A7J110121	I5
215	J8NR1	1	12-OCT-2007	18:29:00	7285017	A7J110121	I5
216	J8NTF	1	12-OCT-2007	18:34:00	7285017	A7J110121	I5
217	J8NTL	1	12-OCT-2007	18:39:00	7285017	A7J110121	I5
218	J8RL7B	1	12-OCT-2007	18:46:00	7285016	A7J120000	I5
219	J8RL7C	1	12-OCT-2007	18:51:00	7285016	A7J120000	I5
220	J8RHP	1	12-OCT-2007	18:57:00	7285016	A7J110400	I5

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
221	CCV	1	12-OCT-2007	19:05:00			I5
222	CCB	1	12-OCT-2007	19:13:00			I5
223	J8RHPL	1	12-OCT-2007	19:18:00			I5
224	J8RHPX	1	12-OCT-2007	19:23:00	7285016	A7J110400	I5
225	J8RHPS	1	12-OCT-2007	19:28:00	7285016	A7J110400	I5
226	J8RHT	1	12-OCT-2007	19:34:00	7285016	A7J110400	I5
227	J8RHW	1	12-OCT-2007	19:39:00	7285016	A7J110400	I5
228	J8RH1	1	12-OCT-2007	19:44:00	7285016	A7J110400	I5
229	J8RH3	1	12-OCT-2007	19:49:00	7285016	A7J110400	I5
230	J8RH5	1	12-OCT-2007	19:54:00	7285016	A7J110400	I5
231	J8RH7	1	12-OCT-2007	19:59:00	7285016	A7J110400	I5
232	J8RH9	1	12-OCT-2007	20:04:00	7285016	A7J110400	I5
233	CCV	1	12-OCT-2007	20:12:00			I5
234	CCB	1	12-OCT-2007	20:20:00			I5
235	J8RJC	1	12-OCT-2007	20:25:00	7285016	A7J110400	I5
236	J8RJE	1	12-OCT-2007	20:30:00	7285016	A7J110400	I5
237	J8RJG	1	12-OCT-2007	20:35:00	7285016	A7J110400	I5
238	J8RJJ	1	12-OCT-2007	20:40:00	7285016	A7J110400	I5
239	CRI	MRL	12-OCT-2007	20:48:00			I5
240	CCV	1	12-OCT-2007	20:55:00			I5
241	CCB	1	12-OCT-2007	21:03:00			I5
242	CCV	1	13-OCT-2007	15:27:00			I5
243	CCB	1	13-OCT-2007	15:36:00			I5
244	J8X0WB	1	13-OCT-2007	15:49:00	7286138	A7J130000	I5
245	J8X0WC	1	13-OCT-2007	15:54:00	7286138	A7J130000	I5
246	J8XQA	1	13-OCT-2007	16:00:00	7286138	A7J130163	I5
247	J8XQAS	1	13-OCT-2007	16:05:00	7286138	A7J130163	I5
248	J8XQAD	1	13-OCT-2007	16:10:00	7286138	A7J130163	I5
249	J8XQ1	1	13-OCT-2007	16:19:00	7286138	A7J130163	I5
250	J8XQM	1	13-OCT-2007	16:24:00	7286138	A7J130163	I5
251	J8XQN	1	13-OCT-2007	16:29:00	7286138	A7J130163	I5
252	J8XQP	1	13-OCT-2007	16:34:00	7286138	A7J130163	I5
253	J8XQQ	1	13-OCT-2007	16:39:00	7286138	A7J130163	I5
254	CCV	1	13-OCT-2007	16:47:00			I5
255	CCB	1	13-OCT-2007	16:55:00			I5
256	J8XQR	1	13-OCT-2007	17:00:00	7286138	A7J130163	I5
257	J8XQW	1	13-OCT-2007	17:05:00	7286138	A7J130163	I5
258	J8XQX	1	13-OCT-2007	17:09:00	7286138	A7J130163	I5
259	J8XQXL	1	13-OCT-2007	17:14:00			I5
260	CRI	MRL	13-OCT-2007	17:22:00			I5
261	CCV	1	13-OCT-2007	17:31:00			I5
262	CCB	1	13-OCT-2007	17:39:00			I5
263	J8PMK	5	13-OCT-2007	17:48:00	7285024	A7J110194	I5
264	J8PM6	5	13-OCT-2007	17:53:00	7285024	A7J110194	I5

---------- (continued) ----------

INSTRUMENT PRINTOUTS

Test America North Canton Hg Data Review Checklist

Run/Project Information

Run Date: 10-12-07 Analyst: ML Instrument: H1
Prep Batches Run: See Run Log

Circle Methods used: 7470A / 245.1 : CORP-MT-0005 Rev 1 (7471 / 245.1 : CORP-MT-0007 Rev 1)

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions and at SOP specified levels?	✓			✓
2. ICV/CCV analyzed at appropriate frequency and within control limits?	✓			✓
3. ICB/CCB analyzed at appropriate frequency and within +/- RL?	✓			✓
4. CRA run?	✓			✓
B. Sample Results				
1. Were samples with concentrations > high calibration standard diluted and reanalyzed?	✓			✓
2. All reported results bracketed by in control QC?	✓			✓
3. Sample analyses done within holding time?	✓			✓
C. Preparation/ Matrix QC				
1. LCS done per prep batch and within QC limits?	✓			✓
2. Method blank done per prep batch and < RL?	✓			✓
3. MS run at required frequency and within limits?	✓			✓
4. MSD or DU run at required frequency and RPD within SOP limits?	✓			✓
D. Other				
1. Are all nonconformances documented appropriately?	✓			✓
2. Current IDL/MDL data on file?	✓			✓
3. Calculations and Transcription checked for error?	✓			✓
4. All client/project specific requirements met?	✓			✓
5. Date of analysis verified as correct?	✓			✓

Level I Analyst: Michaelyn Lentz Date: 10-12-07 10:56-11:18
Comments: Michaelyn Lentz 10-13-07 11:21-16:00

2nd Level Reviewer: Karen L Counts Date: 10-12-07 10:56-11:18
Karen L Counts 10-13-07 11:21-16:00

Curve Prepared Date: 10-12-07 Time: 8:55

ICV HBS0707501 $SnCl_2$ 7MR687

CAL/CCV HBS0707502 NACL $NH_2OH{\cdot}HCL$ 7MR688

Revised 09/21/2007

*** Standard: 1 Rep: 1 Seq: 0 10:56:34 12 Oct 2007 HG

Hg .0000 ppb 1040

*** Standard: 2 Rep: 1 Seq: 1 10:57:41 12 Oct 2007 HG

Hg .2000 ppb 15444

*** Standard: 3 Rep: 1 Seq: 2 10:59:01 12 Oct 2007 HG

Hg .5000 ppb 33108

*** Standard: 4 Rep: 1 Seq: 3 11:00:11 12 Oct 2007 HG

Hg 1.000 ppb 68182

*** Standard: 5 Rep: 1 Seq: 4 11:01:19 12 Oct 2007 HG

Hg 5.000 ppb 337293

*** Standard: 6 Rep: 1 Seq: 5 11:02:28 12 Oct 2007 HG

Hg 10.00 ppb 655622

RunProt: HGPPB Hg analysis in the ppb range

RunFold: HG110128 Seq: 6 Batch:

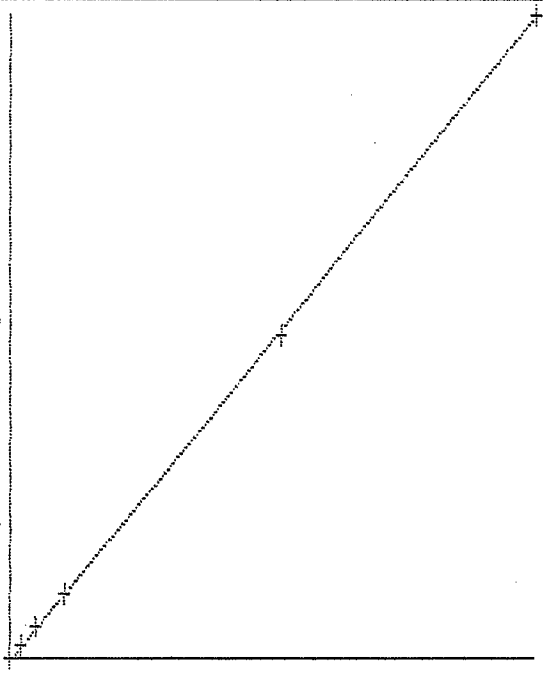
Prnt: R/T On Pump: On

Rev: 4.2 Xmit: Off Gas: 0.70 LPM

State: Idle Macro SCOTT 66: F3 Print User: SMI A/S: On

CALIBRATION: Line proto: HGPPB

	Hg Conc.	Calc.	Dev.	Accepted -> linear
S1	.0000	-.0262	-.0262	Quadratic
S2	.2000	.1992	-.0008	Wtd linear
S3	.5000	.4682	-.0318	C
S4	1.000	1.002	.0024	Accept o
S5	5.000	5.101	.1011	n
S6	10.00	9.949	-.0506	c
A	.00000000	r	.999911	
B	1.52305e-5	C	-3.60629e-2	



	Mean		
S1	1040	0 SD	1040
S2	15444	0 %RSD	15444
S3	33108	0 %RSD	33108
S4	68182	0 %RSD	68182
S5	337293	0 %RSD	337293
S6	655622	0 %RSD	655622

New cal coefficients stored

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 5 Ck5ICV Seq: 6 11:03:44 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 96.28 2.407 2.500 ppb .0000 %

*** Check Standard: 4 Ck4ICB Seq: 7 11:04:48 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg -73380 -.0073 .0000 ppb .0000 %

*** Check Standard: 3 Ck3CRA\MRL Seq: 8 11:06:13 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 101.0 .2020 .2000 ppb .0000 %

*** Check Standard: 2 Ck2CCV Seq: 9 11:07:20 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 103.8 5.190 5.000 ppb .0000 %

*** Check Standard: 1 Ck1CCB Seq: 10 11:08:27 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0214 .2000 ppb .0000 %

*** Sample ID: J8KMQB Seq: 11 11:09:35 12 Oct 2007 HG
7283044
Hg -.0161 ppb .0000 % -.0161

*** Sample ID: J8KMQC Seq: 12 11:10:39 12 Oct 2007 HG
SOLID
Hg 4.905 ppb .0000 % 4.905

*** Sample ID: J8H3L Seq: 13 11:11:44 12 Oct 2007 HG
SOLID
Hg .0981 ppb .0000 % .0981

*** Sample ID: J8HTE Seq: 14 11:12:59 12 Oct 2007 HG
SOLID
Hg .2996 ppb .0000 % .2996

*** Sample ID: J8HTES Seq: 15 11:14:14 12 Oct 2007 HG
SOLID
Hg 1.206 ppb .0000 % 1.206

*** Sample ID: J8HTED Seq: 16 11:15:21 12 Oct 2007 HG
SOLID
Hg 1.129 ppb .0000 % 1.129

*** Sample ID: J8DG2/5 Seq: 17 11:16:36 12 Oct 2007 HG
SOLID
Hg 2.079 ppb .0000 % 2.079

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2CCV Seq: 18 11:17:44 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.272	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 19 11:18:49 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0204	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 20 11:21:25 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.1	5.253	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 21 11:22:30 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0539	.2000	ppb	.0000 %

*** Sample ID: J8KMTB Seq: 22 11:23:36 12 Oct 2007 HG

7283049

Hg	.0223	ppb	.0000 %	.0223

*** Sample ID: J8KMTC Seq: 23 11:24:42 12 Oct 2007 HG

SOLID

Hg	4.979	ppb	.0000 %	4.979

*** Sample ID: J7914 Seq: 24 11:25:52 12 Oct 2007 HG

SOLID

Hg	.2077	ppb	.0000 %	.2077

*** Sample ID: J7914X Seq: 25 11:26:59 12 Oct 2007 HG

SOLID

Hg	.2039	ppb	.0000 %	.2039

*** Sample ID: J7914S Seq: 26 11:28:04 12 Oct 2007 HG

SOLID

Hg	1.120	ppb	.0000 %	1.120

*** Sample ID: J7920 Seq: 27 11:29:14 12 Oct 2007 HG

SOLID

Hg	.2961	ppb	.0000 %	.2961

*** Sample ID: J7923 Seq: 28 11:30:20 12 Oct 2007 HG

SOLID

Hg	.2190	ppb	.0000 %	.2190

*** Sample ID: J7927 Seq: 29 11:31:36 12 Oct 2007 HG

SOLID

Hg	.1927	ppb	.0000 %	.1927

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J792M Seq: 30 11:33:14 12 Oct 2007 HG
SOLID
Hg .5725 ppb .0000 % .5725

*** Sample ID: J792N Seq: 31 11:34:29 12 Oct 2007 HG
SOLID
Hg .6597 ppb .0000 % .6597

*** Check Standard: 2 Ck2CCV Seq: 32 11:35:33 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.8	5.240	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 33 11:36:38 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0388	.2000	ppb	.0000 %

*** Sample ID: J792R Seq: 34 11:37:45 12 Oct 2007 HG
SOLID
Hg .5463 ppb .0000 % .5463

*** Sample ID: J792W Seq: 35 11:38:50 12 Oct 2007 HG
SOLID
Hg .3141 ppb .0000 % .3141

*** Sample ID: J8FKF Seq: 36 11:39:59 12 Oct 2007 HG
SOLID
Hg .4381 ppb .0000 % .4381

*** Sample ID: J8FKFX Seq: 37 11:41:06 12 Oct 2007 HG
SOLID
Hg .4193 ppb .0000 % .4193

*** Sample ID: J8FKFS Seq: 38 11:42:11 12 Oct 2007 HG
SOLID
Hg 1.343 ppb .0000 % 1.343

*** Sample ID: J8FKG Seq: 39 11:43:18 12 Oct 2007 HG
SOLID
Hg .3894 ppb .0000 % .3894

*** Sample ID: J8FKH Seq: 40 11:44:22 12 Oct 2007 HG
SOLID
Hg .6924 ppb .0000 % .6924

*** Sample ID: J8NFNB Seq: 41 11:45:30 12 Oct 2007 HG
7284023
Hg .0159 ppb .0000 % .0159

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8NFNC Seq: 42 11:46:40 12 Oct 2007 HG

SOLID

Hg	4.934	ppb	.0000 %	4.934

*** Sample ID: J8K02 Seq: 43 11:48:05 12 Oct 2007 HG

SOLID

Hg	.2445	ppb	.0000 %	.2445

*** Check Standard: 2 Ck2CCV Seq: 44 11:49:10 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.7	5.235	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 45 11:50:26 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0120	.2000	ppb	.0000 %

*** Sample ID: J8K02S Seq: 46 11:51:33 12 Oct 2007 HG

SOLID

Hg	1.169	ppb	.0000 %	1.169

*** Sample ID: J8K02D Seq: 47 11:52:59 12 Oct 2007 HG

SOLID

Hg	1.149	ppb	.0000 %	1.149

*** Sample ID: J8K1J Seq: 48 11:54:06 12 Oct 2007 HG

SOLID

Hg	.1687	ppb	.0000 %	.1687

*** Sample ID: J8K1K Seq: 49 11:55:16 12 Oct 2007 HG

SOLID

Hg	.0637	ppb	.0000 %	.0637

*** Sample ID: J8K1L Seq: 50 11:56:25 12 Oct 2007 HG

SOLID

Hg	.1582	ppb	.0000 %	.1582

*** Sample ID: J8K1P Seq: 51 11:57:44 12 Oct 2007 HG

SOLID

Hg	.1121	ppb	.0000 %	.1121

*** Sample ID: J8K1Q Seq: 52 11:58:52 12 Oct 2007 HG

SOLID

Hg	.0976	ppb	.0000 %	.0976

*** Sample ID: J8NFQB Seq: 53 11:59:57 12 Oct 2007 HG

7284024

Hg	.0534	ppb	.0000 %	.0534

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8NFQC Seq: 54 12:01:06 12 Oct 2007 HG

SOLID

Hg 4.943 ppb .0000 % 4.943

*** Sample ID: J8L63 Seq: 55 12:02:12 12 Oct 2007 HG

SOLID

Hg 3.980 ppb .0000 % 3.980

*** Check Standard: 2 Ck2CCV Seq: 56 12:03:27 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.6	5.280	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 57 12:04:43 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0280	.2000	ppb	.0000 %

*** Sample ID: J8L7P Seq: 58 12:05:48 12 Oct 2007 HG

SOLID

Hg .6287 ppb .0000 % .6287

*** Sample ID: J8CAC Seq: 59 12:07:05 12 Oct 2007 HG

SOLID

Hg 6.324 ppb .0000 % 6.324

*** Sample ID: J8CAG Seq: 60 12:08:12 12 Oct 2007 HG

SOLID

5X Hg 31.12 ppb .0000 % 31.12

*** Sample ID: J8CAH Seq: 61 12:09:17 12 Oct 2007 HG

SOLID

Hg 6.476 ppb .0000 % 6.476

*** Sample ID: J8CAL Seq: 62 12:10:28 12 Oct 2007 HG

SOLID

Hg .4906 ppb .0000 % .4906

*** Sample ID: J8CAM Seq: 63 12:11:34 12 Oct 2007 HG

SOLID

5X Hg 19.10 ppb .0000 % 19.10

*** Sample ID: J8CAQ Seq: 64 12:12:42 12 Oct 2007 HG

SOLID

5X Hg 27.94 ppb .0000 % 27.94

*** Sample ID: J8CAV Seq: 65 12:13:49 12 Oct 2007 HG

SOLID

10X Hg 81.60 ppb .0000 % 81.60

Line Conc. Units SD/RSD 1 2 3 4 5

*** Sample ID: J8LF3 Seq: 66 12:15:09 12 Oct 2007 HG
SOLID
Hg -.3068 ppb .0000 % -.3068

*** Sample ID: J8LF4 Seq: 67 12:16:14 12 Oct 2007 HG
SOLID
Hg .1146 ppb .0000 % .1146

*** Check Standard: 2 Ck2CCV Seq: 68 12:17:23 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 105.4 5.272 5.000 ppb .0000 %

*** Check Standard: 1 Ck1CCB Seq: 69 12:18:27 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0097 .2000 ppb .0000 %

*** Sample ID: J8LF6 Seq: 70 12:19:43 12 Oct 2007 HG
SOLID
Hg .1260 ppb .0000 % .1260

*** Sample ID: J8LF7 Seq: 71 12:20:49 12 Oct 2007 HG
SOLID
Hg .2335 ppb .0000 % .2335

*** Sample ID: J8LFR Seq: 72 12:21:56 12 Oct 2007 HG
SOLID
Hg .1603 ppb .0000 % .1603

*** Sample ID: J8LFRS Seq: 73 12:23:01 12 Oct 2007 HG
SOLID
Hg 1.103 ppb .0000 % 1.103

*** Sample ID: J8LFRD Seq: 74 12:24:09 12 Oct 2007 HG
SOLID
Hg 1.070 ppb .0000 % 1.070

*** Sample ID: J8LG7 Seq: 75 12:25:20 12 Oct 2007 HG
SOLID
Hg .1209 ppb .0000 % .1209

*** Sample ID: J8LG8 Seq: 76 12:26:27 12 Oct 2007 HG
SOLID
Hg .1102 ppb .0000 % .1102

*** Sample ID: J8LGG Seq: 77 12:27:35 12 Oct 2007 HG
SOLID
Hg .0829 ppb .0000 % .0829

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: J8LHA Seq: 78 12:28:41 12 Oct 2007 HG

SOLID

Hg .0564 ppb .0000 % .0564

*** Sample ID: J8LHC Seq: 79 12:29:57 12 Oct 2007 HG

SOLID

Hg .1137 ppb .0000 % .1137

*** Check Standard: 2 Ck2CCV Seq: 80 12:31:14 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		106.1	5.306	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 81 12:32:22 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0251	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 82 14:25:12 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.8	5.141	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 83 14:26:21 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0372	.2000	ppb	.0000 %

*** Sample ID: J8CAG/5 Seq: 84 14:27:38 12 Oct 2007 HG

SOLID

Hg 6.876 ppb .0000 % 6.876

*** Sample ID: J8CAM/5 Seq: 85 14:28:42 12 Oct 2007 HG

SOLID

Hg 3.853 ppb .0000 % 3.853

*** Sample ID: J8CAQ/5 Seq: 86 14:29:46 12 Oct 2007 HG

SOLID

Hg 6.084 ppb .0000 % 6.084

*** Sample ID: J8CAV/10 Seq: 87 14:30:53 12 Oct 2007 HG

SOLID

50x Hg 17.23 ppb .0000 % 17.23

*** Sample ID: J8LF3 Seq: 88 14:31:57 12 Oct 2007 HG

SOLID

Hg .0425 ppb .0000 % .0425

*** Check Standard: 2 Ck2CCV Seq: 89 14:33:22 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		102.7	5.136	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 90 14:34:27 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0240	.2000	ppb	.0000 %

*** Sample ID: J8CAV/50 Seq: 91 14:35:36 12 Oct 2007 HG

SOLID

Hg	4.133	ppb	.0000 %	4.133

*** Sample ID: J8RMQB Seq: 92 14:36:45 12 Oct 2007 HG

7285024

Hg	.0113	ppb	.0000 %	.0113

*** Sample ID: J8RMQC Seq: 93 14:37:50 12 Oct 2007 HG

SOLID

Hg	4.989	ppb	.0000 %	4.989

*** Sample ID: J8N1K Seq: 94 14:39:16 12 Oct 2007 HG

SOLID

Hg	.1222	ppb	.0000 %	.1222

*** Sample ID: J8N1KS Seq: 95 14:40:26 12 Oct 2007 HG

SOLID

Hg	1.157	ppb	.0000 %	1.157

*** Sample ID: J8N1KD Seq: 96 14:41:34 12 Oct 2007 HG

SOLID

Hg	1.143	ppb	.0000 %	1.143

*** Sample ID: J8N1Q Seq: 97 14:42:41 12 Oct 2007 HG

SOLID

Hg	.0411	ppb	.0000 %	.0411

*** Sample ID: J8N1R Seq: 98 14:44:06 12 Oct 2007 HG

SOLID

Hg	.0815	ppb	.0000 %	.0815

*** Sample ID: J8N1T Seq: 99 14:45:10 12 Oct 2007 HG

SOLID

Hg	.1208	ppb	.0000 %	.1208

*** Sample ID: J8N1W Seq: 100 14:46:17 12 Oct 2007 HG

SOLID

Hg	.0806	ppb	.0000 %	.0806

*** Check Standard: 2 Ck2CCV Seq: 101 14:47:24 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.268	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 102 14:48:34 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0043	.2000	ppb	.0000 %

*** Sample ID: J8PL3 Seq: 103 14:49:40 12 Oct 2007 HG

SOLID

Hg	1.314	ppb	.0000 %	1.314

*** Sample ID: J8PM3 Seq: 104 14:50:48 12 Oct 2007 HG

SOLID

Hg	2.956	ppb	.0000 %	2.956

*** Sample ID: J8PM6 Seq: 105 14:51:53 12 Oct 2007 HG

SOLID

Hg	.5501	ppb	.0000 %	.5501

*** Sample ID: J8PM8 Seq: 106 14:52:58 12 Oct 2007 HG

SOLID

Hg	.1544	ppb	.0000 %	.1544

*** Sample ID: J8PMK Seq: 107 14:54:08 12 Oct 2007 HG

SOLID

Hg	.3142	ppb	.0000 %	.3142

*** Sample ID: J8PMX Seq: 108 14:55:14 12 Oct 2007 HG

SOLID

Hg	1.662	ppb	.0000 %	1.662

*** Sample ID: J8RMTB Seq: 109 14:56:20 12 Oct 2007 HG

7285026

Hg	-.0132	ppb	.0000 %	-.0132

*** Sample ID: J8RMTC Seq: 110 14:57:27 12 Oct 2007 HG

SOLID

Hg	4.973	ppb	.0000 %	4.973

*** Sample ID: J8PN0 Seq: 111 14:58:52 12 Oct 2007 HG

SOLID

Hg	.4863	ppb	.0000 %	.4863

*** Sample ID: J8PN3 Seq: 112 14:59:56 12 Oct 2007 HG

SOLID

Hg	.2798	ppb	.0000 %	.2798

*** Check Standard: 2 Ck2CCV Seq: 113 15:01:02 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.7	5.283	5.000	ppb	.0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 114 15:02:08 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0096	.2000	ppb	.0000 %

*** Sample ID: J8PN6 Seq: 115 15:03:17 12 Oct 2007 HG

SOLID

Hg	1.490	ppb	.0000 %	1.490	

*** Sample ID: J8PN7 Seq: 116 15:04:31 12 Oct 2007 HG

SOLID

Hg	.1215	ppb	.0000 %	.1215	

*** Sample ID: J8PN9 Seq: 117 15:05:38 12 Oct 2007 HG

SOLID

Hg	.4921	ppb	.0000 %	.4921	

*** Sample ID: J8PNM Seq: 118 15:06:43 12 Oct 2007 HG

SOLID

Hg	.0523	ppb	.0000 %	.0523	

*** Sample ID: J8PNMS Seq: 119 15:07:49 12 Oct 2007 HG

SOLID

Hg	1.133	ppb	.0000 %	1.133	

*** Sample ID: J8PNMD Seq: 120 15:09:01 12 Oct 2007 HG

SOLID

Hg	1.136	ppb	.0000 %	1.136	

*** Sample ID: J8PPA Seq: 121 15:10:09 12 Oct 2007 HG

SOLID

Hg	.1271	ppb	.0000 %	.1271	

*** Sample ID: J8PPD Seq: 122 15:11:18 12 Oct 2007 HG

SOLID

Hg	.4560	ppb	.0000 %	.4560	

*** Sample ID: J8PQE Seq: 123 15:12:24 12 Oct 2007 HG

SOLID

Hg	.2375	ppb	.0000 %	.2375	

*** Sample ID: J8PQH Seq: 124 15:14:02 12 Oct 2007 HG

SOLID

Hg	.2263	ppb	.0000 %	.2263	

*** Check Standard: 2 Ck2CCV Seq: 125 15:15:08 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.5	5.277	5.000	ppb	.0000 %

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 1 Ck1CCB Seq: 126 15:16:16 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0287 .2000 ppb .0000 %

*** Sample ID: J8RMNB Seq: 127 15:17:30 12 Oct 2007 HG
7285023
Hg -.0270 ppb .0000 % -.0270

*** Sample ID: J8RMNC Seq: 128 15:18:36 12 Oct 2007 HG
SOLID
Hg 5.061 ppb .0000 % 5.061

*** Sample ID: J8P77 Seq: 129 15:19:46 12 Oct 2007 HG
SOLID
Hg .6653 ppb .0000 % .6653

*** Sample ID: J8P78 Seq: 130 15:21:03 12 Oct 2007 HG
SOLID
Hg 1.991 ppb .0000 % 1.991

*** Sample ID: J8P79 Seq: 131 15:22:13 12 Oct 2007 HG
SOLID
Hg 13.50 ppb .0000 % 13.50

*** Sample ID: J8P7H Seq: 132 15:23:23 12 Oct 2007 HG
SOLID
Hg .9567 ppb .0000 % .9567

*** Sample ID: J8P8A Seq: 133 15:24:59 12 Oct 2007 HG
SOLID
Hg 2.398 ppb .0000 % 2.398

*** Sample ID: J8P8C Seq: 134 15:26:15 12 Oct 2007 HG
SOLID
Hg .8324 ppb .0000 % .8324

*** Sample ID: J8P8D Seq: 135 15:27:21 12 Oct 2007 HG
SOLID
Hg .9363 ppb .0000 % .9363

*** Sample ID: J8P8E Seq: 136 15:28:43 12 Oct 2007 HG
SOLID
Hg .6248 ppb .0000 % .6248

*** Check Standard: 2 Ck2CCV Seq: 137 15:29:50 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 105.4 5.272 5.000 ppb .0000 %

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 1 Ck1CCB Seq: 138 15:31:07 12 Oct 2007 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.0030 .2000 ppb .0000 %

*** Sample ID: J8P8F Seq: 139 15:32:14 12 Oct 2007 HG
SOLID
Hg 2.265 ppb .0000 % 2.265

*** Sample ID: J8N2D Seq: 140 15:33:31 12 Oct 2007 HG
SOLID
Hg .1585 ppb .0000 % .1585

*** Sample ID: J8N2DS Seq: 141 15:34:39 12 Oct 2007 HG
SOLID
Hg 1.146 ppb .0000 % 1.146

*** Sample ID: J8N2DD Seq: 142 15:36:20 12 Oct 2007 HG
SOLID
Hg 1.152 ppb .0000 % 1.152

*** Sample ID: J8N2N Seq: 143 15:37:29 12 Oct 2007 HG
SOLID
Hg .2460 ppb .0000 % .2460

*** Sample ID: J8N2R Seq: 144 15:38:37 12 Oct 2007 HG
SOLID
Hg .2285 ppb .0000 % .2285

*** Sample ID: J8N37 Seq: 145 15:39:43 12 Oct 2007 HG
SOLID
Hg .1428 ppb .0000 % .1428

*** Sample ID: J8N3X Seq: 146 15:40:52 12 Oct 2007 HG
SOLID
Hg .1071 ppb .0000 % .1071

*** Sample ID: J8N4C Seq: 147 15:42:21 12 Oct 2007 HG
SOLID
Hg .1920 ppb .0000 % .1920

*** Sample ID: J8N4E Seq: 148 15:43:38 12 Oct 2007 HG
SOLID
Hg .1256 ppb .0000 % .1256

*** Check Standard: 2 Ck2CCV Seq: 149 15:44:45 12 Oct 2007 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 106.0 5.300 5.000 ppb .0000 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 1 Ck1CCB Seq: 150 15:45:52 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0099	.2000	ppb	.0000 %

*** Sample ID: J8N4G Seq: 151 15:47:20 12 Oct 2007 HG

SOLID

Hg (.2526) ppb .0000 % .2526

*** Sample ID: J8N4N Seq: 152 15:48:27 12 Oct 2007 HG

SOLID

Hg (.1222) ppb .0000 % .1222

*** Sample ID: CRA Seq: 153 15:49:44 12 Oct 2007 HG

SOLID

Hg .2313 ppb .0000 % .2313

*** Check Standard: 2 Ck2CCV Seq: 154 15:51:00 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		105.4	5.270	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 155 15:52:04 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		.0034	.2000	ppb	.0000 %

*** Check Standard: 2 Ck2CCV Seq: 156 15:55:56 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		106.0	5.298	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 157 15:57:01 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0255	.2000	ppb	.0000 %

*** Sample ID: J8P79/2 Seq: 158 15:58:15 12 Oct 2007 HG

SOLID

Hg (6.910) ppb .0000 % 6.910

*** Check Standard: 2 Ck2CCV Seq: 159 15:59:25 12 Oct 2007 HG

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		104.5	5.224	5.000	ppb	.0000 %

*** Check Standard: 1 Ck1CCB Seq: 160 16:00:30 12 Oct 2007 HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.0236	.2000	ppb	.0000 %

SCAL	STD —	ICSA	STD 7H456	CAL1/CRI	STD 7J541
SCAL2	STD —	ICSAB	STD 7J517	CAL2 (2X)- CAL3	STD 7J532
CRI	STD 7J541	ICV	STD 7H417	SCAL (2X)- CAL 2	STD 7J540
		CCV	STD 7J529		

Test America North Canton ICP Data Review Checklist

Run/Project Information:

Run Date: 10.11.07 **Analyst:** LCW **Instrument:** 7 5

Prep Batches Run: SEE RUN LOG

Circle Methods used: (6010B / 200.7:) CORP-MT-0001 Rev 3.2
6010A/200.7: CORP-MT-0001NC, Rev 2

Review Items

A. Calibration/Instrument Run QC	Yes	No	N/A	2nd Level
1. Instrument calibrated per manufacturer's instructions (2 exposures/sample) and at SOP specified levels ?	✓			/
2. ICV/CCV analyzed at appropriate frequency and within control limits ? *(ICV (2nd source):* 200.7=95 –105%, 6010B 90-110%) *(CCV: 90 – 110%)*	✓			/
3. ICB/CCB analyzed at appropriate frequency and within +/- RL ?	✓			/
4. High Std. (HCAL) reanalyzed before samples and recovered within QC limits ? (6010A only 95-105%)			✓	
5. CRI run at SOP or project-specific frequency? Recovered within QC limits? (6010A +/- 50%, project specific limits may vary)	✓			/
6. ICSA/ICSAB run at required frequency and within SOP limits ?	✓			/
B. Sample Results				
1. Were samples with concentrations > the linear range for any parameter diluted and reanalyzed ?	✓			/
2. All reported results bracketed by in control QC ?	✓			/
3. Sample analyses done within holding time ?	✓			/
C. Preparation/Matrix QC				
1. LCS done per prep batch and within QC limits ?	✓			/
2. Method blank done per prep batch and < RL ?	✓			/
3. MS/MSD run at required frequency and within limits ?	✓			/
4. MSD or DU run at required frequency and RPD within SOP limits ?	✓			/
5. Serial dilution done per prep batch ?	✓			/
6. Post digest spike analyzed if required?	✓			/
D. ther				
1. Are all nonconformances documented appropriately ?	✓			/
2. Current IDL/MDL/LR/IEC data on file ?	✓			/
3. Calculations checked for error ?	✓			/
4. Transcriptions checked for error ?	✓			/
5. All client/project specific requirements met ?	✓			/
6. Date/time of analysis verified as correct ?	✓			/

Level I Analyst: Lay R. Will Date: 10.12.07 Time: 07:57 – 08:15
Level I Analyst: Karen L. Counts Date: 10-13-07 Time: 14:28 - 18:09
Level I Analyst: _____ Date: _____ Time: _____
Level I Analyst: _____ Date: _____ Time: _____

Level II Reviewer: Karen L. Counts Date: 10-12-07 Time: 07:57-08:15
Level II Reviewer: [signature] Date: 10.15-07 Time: 14:24-18:09
Level II Reviewer: _____ Date: _____ Time: _____
Level II Reviewer: _____ Date: _____ Time: _____

Comments: _____

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: 01-10836
NCM Initiated By: Dorothy Leeson
Date Opened: 03/05/2004
Date Closed: 03/08/2004

Classification: Anomaly
Status: CLOSED
Production Area: Metals
Tests: None
Lot #'s (Sample #'s): ,
QC Batches: None.,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Dorothy Leeson	03/05/2004	Stock standard solutions used for ICP ICSA solutions commonly have low level contamination for certain elements, especially zinc.

Verified contamination is not corrected by interelement correction factors (IEC's) since instrumental determination of the presence of the analyte is due not to spectral interference but due to actual presence of the element in the solution. Contamination can be verified by performing a wavelength scan of the standard solution. If contamination exists, the peak apex will be directly at the expected wavelength for the element of concern. If the presence of the analyte is due to interference from another analyte which produces a peak near the element of concern, the peak apex of the interfering analyte will not be exactly at the wavelength for the element of concern, and an IEC would be generated.

If contamination for an element such as zinc is suspected, an IEC would be inappropriate, and the concentration during analysis of the daily ICSA solution may exceed SOP criteria. In these cases, this NCM will be referenced and a copy of this NCM will be included with the run.

Zinc contamination in ICSA stock solutions has been verified in this lab at various times with wavelength scans. Similarly, contamination for other elements has been verified when suspected. An example scan is included with the I6 ICP analytical run from 4/3/01.

Corrective Action

Name	Date	Corrective Action
Dorothy Leeson	03/05/2004	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
LAMBERTB		Verified/completed	

Method: ARMY Sample Name: STD1-Blank Operator:
Run Time: 10/11/07 07:57 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	-.00084	.05943	-.00085	.00284	.00077	.00323
SDev	.00134	.00127	.00352	.00004	.00007	0
%RSD	158.785	2.14857	413.743	1.71458	10.2808	.27448

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.01675	-.00802	-.00072	.00158	.00941	.00095
SDev	.00021	.00325	.00065	.00085	.00029	.00033
%RSD	1.29336	40.5956	90.409	54.0562	3.1877	35.2048

Elems	K	Mg	Mn	Mo	Na	Ni
Units	count	count	count	count	count	count
Avge	.01407	.00876	.0023	.00038	.00205	.00069
SDev	.00392	.00076	.00008	.00003	.00202	.00026
%RSD	27.8611	8.78019	3.91091	10.2808	98.8976	37.4628

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	.00177	.00007	-.03031	.00048	.0054	.01122
SDev	.00221	.00011	.00123	.00061	.00013	.00038
%RSD	124.836	141.421	4.08708	126.363	2.52675	3.46336

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	Y_3710
Units	count	count	count	count	count	count
Avge	-.0008	-.02091	.00844	-.00015	-.00511	5
SDev	.00702	.00065	.00445	.0008	.00185	0
%RSD	872.133	3.12912	52.7961	529.451	36.3419	0

Elems	*Y
Units	
Avge	19342.4
SDev	165.745
%RSD	.85689

Method: ARMY Sample Name: CAL1 Operator:
Run Time: 10/11/07 08:03 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	count	count	count	count	count	count
Avge	.02103	.09802	.06325	.05536	.01171	.02436
SDev	.002	.00043	.00781	.00004	.00007	0
%RSD	9.55103	.43953	12.3549	.07322	.6157	.0073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	count	count	count	count	count	count
Avge	.48425	.13818	.00637	.0096	.02095	.03205
SDev	.00036	.00114	.00054	.00014	.00021	.00065
%RSD	.07561	.82614	8.59561	1.51335	1.03768	2.05688

Elems	Mg	Mn	Mo	Ni	Sn	Ti
Units	count	count	count	count	count	count
Avge	.97733	.06294	.00258	.01827	.0831	.01791
SDev	.00014	.00003	.00036	.00007	.00088	0
%RSD	.0151	.05067	14.1349	.40679	1.06137	.0073

Elems	Tl	V	Zn	2203\1	2203\2	1960\1
Units	count	count	count	count	count	count
Avge	.0096	.00859	.09131	.06865	.04717	.01971
SDev	.00189	.0004	.0005	.00393	.00809	.01715
%RSD	19.7757	4.67886	.55231	5.73462	17.1676	86.9955

Elems	1960\2	2068/2	2068/1	*Y
Units	count	count	count	
Avge	.05025	.00449	.01538	19373
SDev	.00522	.00036	.00832	1.41421
%RSD	10.3941	8.13494	54.0945	.00729

Method: ARMY Sample Name: CAL2 Operator:
Run Time: 10/11/07 08:08 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	3.878	2.10004	1.28922	2.15965	8.33636	14.3205
SDev	.01219	.02965	.00992	.00718	.03175	.11205
%RSD	.31445	1.41217	.76971	.33285	.3809	.78247

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	2.5401	3.11833	1.63144	7.83906	.4441	1.35755
SDev	.01728	.01979	.00047	.01838	.00264	.01087
%RSD	.68066	.6349	.02881	.23456	.5961	.8012

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	4.05764	1.73652	2.64513	2.43469	3.6424	2.00127
SDev	.03871	.00335	.02038	.01307	.00868	.03039
%RSD	.95412	.193	.77058	.53687	.23847	1.5189

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	2.63265	.86546	.99692	.16615	1.65398	19410.4
SDev	.00314	.009	.00681	.00143	.00428	236.174
%RSD	.11942	1.03994	.68323	.86594	.25894	1.21673

Method: ARMY Sample Name: CAL3 Operator:
Run Time: 10/11/07 08:14 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	As	B	Ba	Be	Cd
Units	count	count	count	count	count	count
Avge	7.75381	4.17655	2.58658	4.29783	16.2606	28.1341
SDev	.00901	.00623	.01265	.00679	.03784	.0493
%RSD	.1163	.14933	.48937	.15799	.23273	.17526

Elems	Co	Cr	Cu	Mn	Mo	Ni
Units	count	count	count	count	count	count
Avge	5.02068	6.17788	3.2368	15.6878	.88339	2.64888
SDev	.01344	.01596	.00303	.06774	.00246	.00072
%RSD	.26788	.2585	.09384	.43184	.27919	.0272

Elems	Sn	Ti	Tl	V	Zn	2203\1
Units	count	count	count	count	count	count
Avge	8.02938	3.44263	5.25293	4.84241	7.10918	4.00795
SDev	.01949	.00805	.01074	.01127	.0111	.00655
%RSD	.24273	.23399	.2045	.23281	.15625	.16365

Elems	2203\2	1960\1	1960\2	2068/2	2068/1	*Y
Units	count	count	count	count	count	
Avge	5.28424	1.75296	1.96788	.33235	3.34766	19069.7
SDev	.02066	.00186	.0045	.00021	.01796	9.19238
%RSD	.39107	.10621	.22909	.06336	.53663	.0482

Method: ARMY Sample Name: SCAL Operator:
Run Time: 10/11/07 08:20 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	Mg	*Y
Units	count	count	count	count	
Avge	5.07165	4.55586	2.58508	9.68365	19218.1
SDev	.00303	.00101	.00165	.00026	13.7181
%RSD	.05992	.02229	.06383	.0027	.07138

Method: ARMY Sample Name: CAL 2 Operator:
Run Time: 10/11/07 08:24 Filename: I51011A
Mode: IR Type: X Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Al	Ca	Fe	K	Mg	Na
Units	count	count	count	count	count	count
Avge	10.1325	9.02645	5.11707	15.6477	19.5177	.89209
SDev	.02542	.03208	.01773	.02215	.08191	.00026
%RSD	.25087	.35545	.34659	.1416	.41969	.02925

Elems	*Y
Units	
Avge	19106.8
SDev	16.6874
%RSD	.08733

IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	19107	--	--	--	--	--	--
SDev	16.68745	--	--	--	--	--	--
%RSD	.0873377	--	--	--	--	--	--
#1	19119	--	--	--	--	--	--
#2	19095	--	--	--	--	--	--

Method: ARMY Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag	328.068	Multiple	Standards	247.410	.205564	10/11/07 08:14:34
Al	308.215	Multiple	Standards	5046.90	-299.903	10/11/07 08:24:34
As	189.042	Multiple	Standards	234.078	.198838	10/11/07 08:14:34
B	249.678	Multiple	Standards	3855.03	-10.9845	10/11/07 08:14:34
Ba	493.409	Multiple	Standards	923.719	-.717713	10/11/07 08:14:34
Be	313.042	Multiple	Standards	238.726	-.772681	10/11/07 08:14:34
Ca	317.933	Multiple	Standards	10934.6	-184.209	10/11/07 08:24:34
Cd	226.502	Multiple	Standards	34.9262	.279474	10/11/07 08:14:34
Co	228.616	Multiple	Standards	761.074	.544835	10/11/07 08:14:34
Cr	267.716	Multiple	Standards	637.577	-1.00881	10/11/07 08:14:34
Cu	324.753	Multiple	Standards	1256.63	-11.8209	10/11/07 08:14:34
Fe	271.441	Multiple	Standards	9699.32	-9.30579	10/11/07 08:24:34
K	766.491	CAL 2	STD1-Blank	1.48930	-.011437	10/11/07 08:24:34
Mg	279.078	Multiple	Standards	5151.92	-45.0625	10/11/07 08:24:34
Mn	257.610	Multiple	Standards	252.490	-.583856	10/11/07 08:14:34
Mo	202.030	Multiple	Standards	4531.83	-1.75741	10/11/07 08:14:34
Na	330.232	CAL 2	STD1-Blank	1.13257	-.001163	10/11/07 08:24:34
Ni	231.604	Multiple	Standards	1468.28	-1.03433	10/11/07 08:14:34
Se	196.026	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Pb	220.353	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sb	206.838	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Sn	189.989	Multiple	Standards	1235.99	-2.19801	10/11/07 08:14:34
Ti	334.941	Multiple	Standards	2862.21	-.233580	10/11/07 08:14:34
Tl	190.864	Multiple	Standards	376.738	11.4209	10/11/07 08:14:34
V	292.402	Multiple	Standards	836.210	-.406296	10/11/07 08:14:34
Zn	213.856	Multiple	Standards	525.699	-2.88841	10/11/07 08:14:34
2203\1	220.351	Multiple	Standards	220.278	-2.49602	10/11/07 08:14:34
2203\2	220.352	Multiple	Standards	194.594	.162622	10/11/07 08:14:34
1960\1	196.021	Multiple	Standards	538.730	11.2495	10/11/07 08:14:34
1960\2	196.022	Multiple	Standards	498.003	-4.21471	10/11/07 08:14:34
2068/2	206.832	Multiple	Standards	2622.87	.375756	10/11/07 08:14:34
2068/1	206.831	Multiple	Standards	358.343	1.85655	10/11/07 08:14:34
Y_3710	371.030	NONE	STD1-Blank	1.00000	.000000	*NOT STANDARDIZED

Method: ARMY

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ag	328.068	STD1-Blank	.000000	-.004063	.004063
		CAL1	5.00000	5.40971	-.409714
		CAL2	1000.00	959.663	40.3374
		CAL3	2000.00	1918.58	81.4214

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Al	308.215	STD1-Blank	.000000	.057045	-.057045
		CAL1	200.000	194.810	5.19040
		SCAL	25000.0	25296.2	-296.229
		CAL 2	50000.0	50837.6	-837.625

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
As	189.042	STD1-Blank	.000000	-.000336	.000336
		CAL1	15.0000	15.0062	-.006248
		CAL2	500.000	491.774	8.22632
		CAL3	1000.00	977.840	22.1605

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
B	249.678	STD1-Blank	.000000	-.023507	.023507
		CAL1	200.000	202.432	-2.43208
		CAL2	5000.00	4959.01	40.9937
		CAL3	10000.0	9960.38	39.6172

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ba	493.409	STD1-Blank	.000000	-.001055	.001055
		CAL1	10.0000	10.1058	-.105811
		CAL2	2000.00	1994.20	5.79993
		CAL3	4000.00	3969.28	30.7246

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Be	313.042	STD1-Blank	.000000	-.001310	.001310
		CAL1	5.00000	5.04359	-.043585
		CAL2	2000.00	1989.33	10.6671
		CAL3	4000.00	3881.06	118.936

CorCoef: 0.99992

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ca	317.933	STD1-Blank	.000000	-1.03557	1.03557
		CAL1	5000.00	5110.94	-110.943
		SCAL	50000.0	49632.3	367.688
		CAL 2	100000.	98516.5	1483.48

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cd	226.502	STD1-Blank	.000000	-.000822	.000822
		CAL1	5.00000	5.10565	-.105647
		CAL2	500.000	500.439	-.439392
		CAL3	1000.00	982.897	17.1031

CorCoef: 0.99996

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Co	228.616	STD1-Blank	.000000	-.003904	.003904
		CAL1	5.00000	5.39659	-.396586
		CAL2	2000.00	1933.75	66.2462
		CAL3	4000.00	3821.66	178.342

CorCoef: 0.99998

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cr	267.716	STD1-Blank	.000000	-.001112	.001112
		CAL1	5.00000	5.11256	-.112559
		CAL2	2000.00	1987.17	12.8296
		CAL3	4000.00	3937.87	62.1321

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cu	324.753	STD1-Blank	.000000	.004859	-.004859
		CAL1	15.0000	14.5143	.485667
		CAL2	2000.00	2038.31	-38.3070
		CAL3	4000.00	4055.65	-55.6538

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Fe	271.441	STD1-Blank	.000000	-.014877	.014877
		CAL1	300.000	301.605	-1.60550
		SCAL	25000.0	25064.3	-64.3027
		CAL 2	50000.0	49622.8	377.180

CorCoef: 0.99999

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
K	766.491	STD1-Blank	.009531	.014079	-.004548
		CAL 2	23.2926	15.6477	7.64493

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mg	279.078	STD1-Blank	.000000	.101435	-.101435
		CAL1	5000.00	4990.11	9.88721
		SCAL	50000.0	49844.4	155.641
		CAL 2	100000.	100508.	-508.438

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mn	257.610	STD1-Blank	.000000	-.003064	.003064
		CAL1	15.0000	15.3100	-.309978
		CAL2	2000.00	1978.70	21.3013
		CAL3	4000.00	3960.43	39.5684

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mo	202.030	STD1-Blank	.000000	.000579	-.000579
		CAL1	10.0000	9.93879	.061211
		CAL2	2000.00	2010.84	-10.8359
		CAL3	4000.00	4001.62	-1.61963

CorCoef: 1.00000

Element	Wavelength	Standard	Known Signal	Measured Signal	Residual Signal
Na	330.232	STD1-Blank	.001159	.002051	-.000892
		CAL 2	1.00920	.892091	.117105

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ni	231.604	STD1-Blank	.000000	-.007897	.007897

		CAL1	25.0000	25.7953	-.795326
		CAL2	2000.00	1992.24	7.76245
		CAL3	4000.00	3888.27	111.727
CorCoef:	0.99992				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Se	196.026	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Pb	220.353	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sb	206.838	NONE	.000000	.000000	.000000
		NONE	.000000	.000000	.000000
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Sn	189.989	STD1-Blank	.000000	-.005168	.005168
		CAL1	100.000	100.519	-.519455
		CAL2	5000.00	5013.01	-13.0068
		CAL3	10000.0	9922.04	77.9590
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Ti	334.941	STD1-Blank	.000000	-.010263	.010263
		CAL1	50.0000	51.0329	-1.03295
		CAL2	5000.00	4970.06	29.9429
		CAL3	10000.0	9853.30	146.703
CorCoef:	0.99999				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Tl	190.864	STD1-Blank	.000000	-.000557	.000557
		CAL1	15.0000	15.0380	-.037983
		CAL2	1000.00	1007.94	-7.94379
		CAL3	2000.00	1990.40	9.59656
CorCoef:	0.99998				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
V	292.402	STD1-Blank	.000000	.002196	-.002196
		CAL1	7.00000	6.78047	.219533
		CAL2	2000.00	2035.51	-35.5114
		CAL3	4000.00	4048.87	-48.8694
CorCoef:	1.00000				
			Known	Measured	Residual
Element	Wavelength	Standard	Concentration	Concentration	Concentration
Zn	213.856	STD1-Blank	.000000	-.048554	.048554
		CAL1	40.0000	45.1145	-5.11455
		CAL2	2000.00	1911.92	88.0815
		CAL3	4000.00	3734.40	265.600
CorCoef:	0.99993				
			Known	Measured	Residual

Element	Wavelength	Standard	Concentration	Concentration	Concentration
2203\1	220.351	STD1-Blank	.000000	-.024388	.024388
		CAL1	10.0000	12.6265	-2.62652
		CAL2	500.000	438.341	61.6589
		CAL3	1000.00	880.367	119.633

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2203\2	220.352	STD1-Blank	.000000	.005858	-.005858
		CAL1	10.0000	9.34330	.656696
		CAL2	500.000	512.460	-12.4600
		CAL3	1000.00	1028.44	-28.4418

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\1	196.021	STD1-Blank	.000000	-.018295	.018295
		CAL1	20.0000	21.8719	-1.87191
		CAL2	500.000	477.503	22.4971
		CAL3	1000.00	955.624	44.3758

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
1960\2	196.022	STD1-Blank	.000000	-.008489	.008489
		CAL1	20.0000	20.8102	-.810184
		CAL2	500.000	492.259	7.74115
		CAL3	1000.00	975.798	24.2018

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/2	206.832	STD1-Blank	.000000	-.022027	.022027
		CAL1	10.0000	12.1545	-2.15453
		CAL2	500.000	436.183	63.8168
		CAL3	1000.00	872.111	127.889

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2068/1	206.831	STD1-Blank	.000000	.025305	-.025305
		CAL1	10.0000	7.36856	2.63144
		CAL2	500.000	594.550	-94.5496
		CAL3	1000.00	1201.47	-201.467

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Y_3710	371.030	STD1-Blank	.000000	.000000	.000000
		NONE	.000000	.000000	.000000

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31:14
Comment:
Mode: CONC Corr. Factor: 1

VOID 200.7

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.	25640.
SDev	.6	23.	1.36	2.	1.	1.	27.
%RSD	.1154	.1838	.54130	.2064	.1414	.0693	.1049

Method: ARMY Sample Name: ICV Operator:
Run Time: 10/11/07 08:31 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.4	12610.	251.27	1018.	1011.	1023.
SDev	.5567	23.17	1.3601	2.1	1.43	.7096
%RSD	.1154	.1838	.5413	.2064	.1414	.0693

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	25640.	251.3	984.0	1005.	1035.	12740.
SDev	26.89	.2562	.7156	1.294	1.996	18.64
%RSD	.1049	.102	.0727	.1287	.1928	.1463

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24200.	25250.	1027.	1015.	25610.	1011.
SDev	9.951	37.71	.6332	.6302	216.9	.4566
%RSD	.0411	.1493	.0617	.0621	.847	.0451

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	245.45	249.91	Q268.78	1020.	1015.	500.10
SDev	.00787	1.7341	1.4707	.9233	1.905	2.0773
%RSD	.0032	.69388	.54716	.0905	.1878	.41537

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1026.	983.0	222.47	263.61	240.50	247.92
SDev	1.108	.5696	.80286	2.199	.1515	.08743
%RSD	.108	.0579	.36089	.83418	.06299	.03526

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	231.71	287.29	5.0000	19294.2
SDev	1.2432	1.5842	0	5.65685
%RSD	.53653	.55144	0	.02931

Method: ARMY Sample Name: ICB Operator:
Run Time: 10/11/07 08:40 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3752	-9.689	-.50303	11.27	.0203	-.0098
SDev	1.074	5.834	.50837	.2989	.0331	.0014
%RSD	286.2	60.22	101.06	2.651	162.6	14.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.834	.0541	-.4757	-.6970	-1.165	-7.805
SDev	1.45	.0535	.8329	.999	.5123	2.117
%RSD	37.82	98.82	175.1	143.3	43.99	27.12

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	136.4	-.5769	.0279	-.0053	-893.1	.4791
SDev	16.1	2.477	.0179	.1666	434.4	.8551
%RSD	11.81	429.3	64.12	3134	48.64	178.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.50209	.75790	.02820	-.1909	-.0859	2.3307
SDev	.68654	1.0851	2.3218	.1368	.4174	2.6159
%RSD	136.73	143.17	8231.5	71.63	486.1	112.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0829	-.1797	-1.0595	1.6652	-.15295	.82913
SDev	.2129	.0839	2.452	2.8509	3.7994	2.9262
%RSD	256.9	46.69	231.43	171.2	2484	352.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7347	-.82374	5.0000	19398.8
SDev	1.5158	4.2377	0	15.5563
%RSD	87.383	514.45	0	.08019

Method: ARMY Sample Name: CRI/MRL Operator:
Run Time: 10/11/07 08:45 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.852	205.1	13.363	211.8	10.36	5.271
SDev	.0544	9.635	.58714	5.628	.263	.1158
%RSD	1.122	4.698	4.3938	2.656	2.54	2.197

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5168.	5.256	5.177	4.992	15.22	309.8
SDev	125.7	.1608	.1988	.552	.2908	7.406
%RSD	2.431	3.06	3.84	11.06	1.91	2.39

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4474.	5085.	15.96	10.65	5377.	27.62
SDev	108.8	123.4	.347	.3854	243.4	.234
%RSD	2.431	2.426	2.175	3.62	4.527	.8471

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.726	10.461	8.4972	104.1	51.31	13.968
SDev	1.0844	.18504	.82032	2.737	1.224	.61448
%RSD	4.7718	1.769	9.654	2.629	2.385	4.3991

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.935	46.08	12.568	9.4089	21.965	23.106
SDev	.0247	1.347	.38328	.08607	7.3742	5.3074
%RSD	.3563	2.925	3.0497	.91486	33.573	22.97

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	11.828	6.8344	5.0000	19190.3
SDev	1.9392	.26174	0	337.856
%RSD	16.395	3.8298	0	1.76055

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 08:52 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.198	489000.	-.41827	-1.178	1.910	.0485
SDev	.3721	223.3	.99852	1.629	.0683	.0009
%RSD	31.05	.0457	238.72	138.2	3.579	1.768

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	474900.	.8735	2.834	-.3119	1.894	191100.
SDev	1672	.2557	.5861	1.282	.8093	640.8
%RSD	.352	29.27	20.68	411	42.73	.3353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.6	515900.	13.62	-.0952	-407.7	4.026
SDev	18.94	2151	.0561	2.11	620.7	.1076
%RSD	12.83	.4169	.4122	2217	152.2	2.673

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.03995	Q-8.0739	-6.6988	-.2032	-8.298	6.3611
SDev	3.6436	.44097	3.8496	.0502	.1203	.99661
%RSD	9118.2	5.4618	57.467	24.69	1.449	15.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5730	10.51	-33.377	4.5589	19.054	-9.4529
SDev	.3992	.1327	3.9042	2.6103	9.7443	.59778
%RSD	69.66	1.263	11.697	57.257	51.14	6.3239

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5336	-10.809	5.0000	18278.7
SDev	1.6414	4.952	0	21.6372
%RSD	107.03	45.814	0	.11837

Method: ARMY Sample Name: AL 500PPM Operator: LRW
Run Time: 10/11/07 09:02 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3370	494800.	1.8761	392.5	.8295	.0658
SDev	.149	218.4	3.2232	3.413	.1061	.0368
%RSD	44.21	.0441	171.81	.8695	12.79	56

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	78.33	-.2294	.3422	-.0934	.6402	52.84
SDev	41.03	.0108	.0002	.1449	.441	5.542
%RSD	52.38	4.727	.07	155.1	68.88	10.49

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.9	25.77	1.510	1.375	316.4	1.425
SDev	3.958	21.2	.0405	.3368	131.1	.0522
%RSD	2.694	82.28	2.684	24.49	41.45	3.66

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.7245	-13.481	-5.0130	1.976	.3752	5.2360
SDev	4.2489	.38838	2.4762	1.074	.0008	1.4196
%RSD	89.932	2.881	49.395	54.36	.2013	27.113

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0062	-1.203	-18.787	-10.832	19.159	-2.4818
SDev	.5031	.6235	.01337	.58897	5.6863	3.5312
%RSD	8091	51.83	.07121	5.4375	29.68	142.29

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3727	-8.2010	5.0000	18806.9
SDev	3.1504	2.1395	0	23.3345
%RSD	229.5	26.089	0	.12407

Method: ARMY Sample Name: FE 200PPM Operator: LRW
Run Time: 10/11/07 09:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8379	-44.35	-1.7102	37.69	1.333	.0651
SDev	.2616	1.562	.89152	1.247	.0009	.0352
%RSD	31.22	3.522	52.13	3.308	.064	54.07

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-84.83	-.1954	.3088	-.5315	.9961	203300.
SDev	.0414	.0733	.111	.2559	.5915	325.1
%RSD	.0488	37.54	35.96	48.15	59.38	.1599

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	148.2	-18.32	-.4086	-.8942	-660.6	.9748
SDev	.5256	2.811	.0579	.6582	24.76	1.018
%RSD	.3546	15.34	14.16	73.61	3.748	104.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.4463	-1.0853	-1.4177	-.1558	-.2336	2.6641
SDev	.23763	.57475	.67743	1.443	0	4.6504
%RSD	6.8955	52.96	47.783	926.4	0	174.56

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3814	-3.095	1.5407	-2.3963	-.97846	-4.6784
SDev	.0188	.0464	.28402	1.0035	1.2686	.98963
%RSD	4.937	1.5	18.434	41.877	129.65	21.153

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.36235	-2.3064	5.0000	19364.3
SDev	.6423	.69497	0	8.06129
%RSD	177.26	30.132	0	.04162

Method: ARMY Sample Name: ZZZZZ Operator: LRW
Run Time: 10/11/07 09:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7100	-227.9	.11627	-5.598	-.0761	-.5403
SDev	.3201	3.235	1.5007	.2852	.0572	.0093
%RSD	45.08	1.419	1290.6	5.096	75.2	1.714

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-110.1	.0106	-.0325	-.8069	-8.705	14.64
SDev	.8876	.2018	.362	.4992	.0941	3.467
%RSD	.8059	1905	1114	61.86	1.08	23.68

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	128.0	4.314	.0236	-.7954	-227.3	.9762
SDev	12	.6559	.0493	.3462	441.2	.1053
%RSD	9.376	15.21	209.1	43.52	194.2	10.79

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6720	-.30963	1.0449	-1.841	-.5162	2.8936
SDev	.01834	.19242	1.3677	.9703	.0794	1.629
%RSD	1.0973	62.145	130.89	52.7	15.38	56.296

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3174	-1.292	.12491	-.52658	4.3830	.31852
SDev	.6196	.0372	1.2736	.92434	1.7254	.88889
%RSD	195.2	2.876	1019.6	175.54	39.364	279.06

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.8870	.62450	5.0000	35860.2
SDev	.39172	1.8549	0	2911.02
%RSD	20.759	297.03	0	8.11768

Method: ARMY Sample Name: ICSA Operator:
Run Time: 10/11/07 10:00 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2171	488200.	-1.3931	-7.493	1.868	.1367
SDev	.5953	1160	1.216	.7491	.0724	.0085
%RSD	274.2	.2376	87.285	9.998	3.873	6.248

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	471100.	.5489	1.881	-1.464	.8036	188300.
SDev	758.6	.2114	.709	1.089	.2943	473.6
%RSD	.161	38.51	37.69	74.38	36.62	.2515

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131.0	510200.	13.52	-.9938	-840.1	3.117
SDev	19.9	748.2	.0326	3.337	672.2	1.54
%RSD	15.19	.1466	.241	335.8	80.02	49.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.3749	.35802	-4.9930	.5841	-8.168	4.4089
SDev	2.0961	.69052	4.592	1.632	.3313	.26469
%RSD	152.45	192.87	91.968	279.4	4.056	6.0037

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1165	10.73	-32.240	16.632	12.815	-8.4595
SDev	.4384	.0835	2.1502	.0382	1.1855	3.7344
%RSD	376.2	.7788	6.6694	.2297	9.2503	44.144

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.5744	-6.2006	5.0000	18216.4
SDev	.04531	6.8619	0	4.52437
%RSD	1.7603	110.67	0	.02483

Method: ARMY Sample Name: ICSAB Operator:
Run Time: 10/11/07 10:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1008.	489100.	1006.6	1011.	515.6	496.2
SDev	1.895	583.3	1.8181	6.39	.8239	.4616
%RSD	.188	.1192	.18061	.6323	.1598	.093

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476200.	944.7	471.5	477.0	527.3	190500.
SDev	424	.9001	1.604	1.239	1.033	228.5
%RSD	.089	.0953	.3402	.2598	.196	.1199

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9992.	518200.	497.8	991.4	10850.	950.8
SDev	12.27	423.5	1.042	2.059	70.28	.4636
%RSD	.1228	.0817	.2092	.2077	.6476	.0488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.60	945.05	1088.6	990.7	975.2	950.15
SDev	.34133	1.0583	.38997	.2789	2.034	.37789
%RSD	.03613	.11198	.03582	.0282	.2086	.03977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	495.7	989.9	820.59	1007.2	936.49	948.65
SDev	.7687	2.048	3.4503	.1359	3.0305	1.0012
%RSD	.1551	.2069	.42045	.01349	.32359	.10553

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	920.74	1172.4	5.0000	18203.1
SDev	5.3564	3.2588	0	15.1324
%RSD	.58174	.27796	0	.08313

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 10:14 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.4	24920.	486.14	4797.	1980.	1971.
SDev	2.77	74.88	.5325	4.06	6.552	6.561
%RSD	.2903	.3005	.10953	.0846	.3309	.3329

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49180.	489.0	1914.	1945.	2025.	24640.
SDev	138.8	1.693	7.479	5.733	6.6	66.81
%RSD	.2822	.3463	.3908	.2948	.3259	.2711

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48950.	49320.	1992.	1972.	48260.	2014.
SDev	100.6	191.8	4.809	7.72	197.6	8.727
%RSD	.2056	.3888	.2415	.3915	.4094	.4334

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.77	482.39	528.34	4959.	4853.	978.49
SDev	1.7051	.78543	2.7937	16.44	12.92	2.0695
%RSD	.35539	.16282	.52876	.3316	.2661	.2115

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1893.	432.13	507.48	472.95	483.18
SDev	4.932	7.649	1.074	1.7138	2.6383	3.8735
%RSD	.2491	.404	.24853	.33769	.55783	.80167

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	451.21	566.85	5.0000	19311.9
SDev	.38911	4.3827	0	2.40305
%RSD	.08623	.77316	0	.01244

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 10:22 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1929	-1.101	-1.6741	9.933	-.0321	.1003
SDev	.4836	.9583	.81646	.8344	.0333	.0093
%RSD	250.7	87.06	48.771	8.4	103.9	9.279

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.773	.0362	-.0787	.1988	-1.335	-4.583
SDev	.7672	.0275	.0551	.1383	.3623	4.565
%RSD	11.33	76.09	70.02	69.57	27.13	99.61

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.3	.9574	-.0216	-1.062	-421.3	.8071
SDev	3.248	3.177	.0092	.3279	56.91	.3718
%RSD	2.205	331.8	42.54	30.89	13.51	46.06

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.7738	.56876	-1.5376	.8074	-.4533	1.5471
SDev	.42618	.37287	1.0495	1.656	.3108	1.2829
%RSD	11.293	65.559	68.255	205.1	68.55	82.924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2571	.0815	1.7838	-.03786	3.5138	3.9035
SDev	.0299	.1309	.47061	.32407	1.3837	.05187
%RSD	11.64	160.5	26.382	855.91	39.38	1.3289

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.7752	-3.6909	5.0000	19535.3
SDev	.38288	1.7647	0	2.68755
%RSD	13.797	47.812	0	.01375

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 13:48 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.8	24820.	478.37	4755.	1980.	1958.
SDev	1.479	43.07	2.0668	13.58	2.351	5.294
%RSD	.1564	.1735	.43204	.2855	.1188	.2704

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48980.	486.4	1901.	1932.	2002.	24310.
SDev	150.9	.6487	4.812	5.336	1.938	86.62
%RSD	.308	.1333	.2531	.2762	.0968	.3563

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	48980.	2030.	1959.	48330.	2011.
SDev	124.8	85.39	4.888	4.327	118.7	2.905
%RSD	.2534	.1743	.2407	.2209	.2456	.1444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	473.25	479.27	523.26	4901.	4819.	965.23
SDev	3.3762	1.7394	1.1978	7.392	14.25	.17069
%RSD	.71339	.36293	.22891	.1508	.2957	.01768

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1970.	1874.	429.70	504.02	463.03	478.36
SDev	5.777	2.019	1.7705	1.7239	3.0335	3.5472
%RSD	.2933	.1077	.41204	.34202	.65514	.74154

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	444.69	562.48	5.0000	19340.2
SDev	.59202	1.5003	0	34.506
%RSD	.13313	.26673	0	.17841

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 13:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0084	-6.955	.04391	11.15	.0907	.0937
SDev	.1704	1.588	.08341	1.62	.0028	.0225
%RSD	2020	22.83	189.96	14.54	3.095	24.06

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.326	.1081	.0354	-.2045	-.9518	.9350
SDev	.6177	.0116	.1645	.0724	.4045	2.51
%RSD	9.765	10.72	464.1	35.39	42.5	268.4

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.9	1.887	.0206	-.3605	-730.6	1.498
SDev	2.66	3.164	.0297	1.645	189	.1516
%RSD	1.861	167.6	143.9	456.3	25.87	10.12

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.16400	.42941	-1.2057	.1543	-.0120	1.6316
SDev	3.456	.64134	.9621	1.162	.3133	3.0104
%RSD	2107.2	149.35	79.796	753.1	2608	184.5

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0887	-.0821	-.07737	.68243	-.68967	.59020
SDev	.1527	.0867	.34644	1.1345	7.6895	1.3424
%RSD	172	105.6	447.75	166.24	1115	227.44

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0620	-2.8371	5.0000	19424.9
SDev	.84061	1.0228	0	67.4569
%RSD	40.767	36.05	0	.34727

Method: ARMY Sample Name: J8KMTB Operator: LRW
Run Time: 10/11/07 14:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3809	-61.51	-1.0167	-5.583	.7178	.0845
SDev	.8553	3.405	.7797	.4033	.0297	.0236
%RSD	224.5	5.537	76.686	7.223	4.141	27.97

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81.28	.0347	.1947	.5012	-1.063	9.724
SDev	.2641	.0565	.6041	.5705	.2076	1.697
%RSD	.3249	162.9	310.2	113.8	19.53	17.45

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	156.7	32.38	.4775	-1.180	-429.7	1.472
SDev	8.507	1.293	.0117	.1647	209.4	.0467
%RSD	5.429	3.994	2.458	13.96	48.73	3.172

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8553	.32929	-1.0818	H31.05	-.2336	3.2829
SDev	3.1651	.45278	2.6508	1.699	0	1.012
%RSD	170.6	137.5	245.03	5.471	0	30.827

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1521	3.116	3.0153	-1.0117	4.9455	.31250
SDev	.2402	.1552	1.1271	.11611	2.0151	3.7393
%RSD	158	4.979	37.38	11.477	40.746	1196.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.2263	-3.7319	5.0000	19625.6
SDev	2.0611	5.0033	0	48.6481
%RSD	48.769	134.07	0	.24788

Method: ARMY Sample Name: J8KMTC Operator: LRW
Run Time: 10/11/07 14:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50.18	1923.	1857.3	897.5	1939.	49.76
SDev	.0514	.9924	1.0137	1.442	1.85	.0396
%RSD	.1024	.0516	.05458	.1607	.0954	.0796

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47780.	48.29	473.4	193.8	249.4	1132.
SDev	24.91	.0132	.2649	.1379	.2371	6.07
%RSD	.0521	.0273	.056	.0711	.0951	.5364

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47300.	47570.	504.9	955.3	48420.	503.1
SDev	102.7	26.02	.101	2.151	370.9	.0715
%RSD	.2171	.0547	.02	.2252	.7661	.0142

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1826.7	474.07	504.85	1913.	943.7	1882.9
SDev	3.8887	.42675	1.8029	2.12	1.164	.20698
%RSD	.21288	.09001	.3571	.1108	.1234	.01099

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	488.6	482.7	427.81	497.17	1773.3	1853.3
SDev	.2042	.8986	.66211	.97037	.80706	6.233
%RSD	.0418	.1862	.15476	.19518	.04551	.33631

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	426.58	543.93	5.0000	19320.7
SDev	1.0131	2.1971	0	23.3345
%RSD	.23749	.40393	0	.12077

Method: ARMY Sample Name: J7914 Operator: LRW
Run Time: 10/11/07 14:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2592	23810.	85.649	7.329	126.7	1.148
SDev	.3349	.9364	1.7772	.5956	.1124	.0044
%RSD	129.2	.0039	2.075	8.128	.0887	.3828

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	928.4	.1614	15.15	301.9	69.25	128200.
SDev	1.539	.0087	.0904	1.057	.4222	338
%RSD	.1658	5.399	.5965	.3502	.6096	.2637

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3279.	4127.	514.9	10.63	-512.9	216.7
SDev	3.343	6.299	.7418	.1315	274.3	1.253
%RSD	.1019	.1527	.1441	1.237	53.48	.5785

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6469	232.80	1.5756	15.63	256.4	5.7660
SDev	2.7032	1.8312	3.1515	.5293	.3187	2.2746
%RSD	102.13	.7866	200.03	3.385	.1243	39.448

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	65.75	221.3	208.52	244.92	7.3541	.29680
SDev	.1604	.0463	1.3824	2.0552	8.4026	.14228
%RSD	.244	.0209	.66297	.83915	114.26	47.939

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0207	1.3534	5.0000	19788.5
SDev	1.9656	5.7063	0	48.2241
%RSD	97.275	421.64	0	.24369

Method: ARMY Sample Name: J7914L Operator: LRW
Run Time: 10/11/07 14:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0022	4763.	17.365	-3.079	26.23	.3194
SDev	.1254	7.61	.69634	.2862	.0896	.0003
%RSD	5580	.1598	4.01	9.295	.3418	.1084

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	139.3	.0242	3.071	60.90	12.02	25930.
SDev	.2721	.0841	.1126	.1445	.1121	47.14
%RSD	.1954	348	3.667	.2373	.9323	.1818

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	700.2	829.9	103.7	2.102	-645.3	43.79
SDev	5.619	1.109	.0784	1.804	195.9	.6543
%RSD	.8025	.1337	.0756	85.79	30.36	1.494

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9321	47.292	-1.8785	4.202	51.20	2.7808
SDev	1.8777	.52838	.36604	.0842	.268	1.372
%RSD	64.038	1.1173	19.486	2.005	.5235	49.337

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12.86	45.49	44.651	48.611	4.0161	2.3909
SDev	.1001	.4424	.7144	1.1488	4.0964	.76995
%RSD	.7785	.9725	1.6	2.3634	102	32.203

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0585	-3.8441	5.0000	19505.2
SDev	2.0234	1.559	0	16.4057
%RSD	98.291	40.555	0	.0841

Method: ARMY Sample Name: J7914X Operator: LRW
Run Time: 10/11/07 14:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1694	24230.	90.411	5.225	135.1	1.174
SDev	.2186	17.77	.06981	.287	.0855	.0144
%RSD	129	.0734	.07722	5.493	.0633	1.226

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	999.5	.1756	14.48	298.3	72.51	127100.
SDev	.1305	.027	.066	.5764	.1486	251.8
%RSD	.0131	15.37	.4557	.1933	.205	.1981

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3616.	4173.	566.9	10.74	-686.2	218.4
SDev	9.686	4.95	.6184	.4689	95.75	.347
%RSD	.2678	.1186	.1091	4.365	13.95	.1589

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8254	251.63	-1.1843	8.537	215.2	5.5208
SDev	1.7135	.70352	2.2266	.7531	.6941	.62518
%RSD	60.645	.27958	188.01	8.822	.3226	11.324

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	66.19	228.1	223.12	265.86	8.6487	-.08186
SDev	.4979	.1672	.81102	.64985	.93932	2.1
%RSD	.7522	.0733	.36348	.24443	10.861	2565

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.81588	-1.3682	5.0000	19977.1
SDev	.20232	3.2372	0	17.3945
%RSD	24.799	236.6	0	.08707

Method: ARMY Sample Name: J7914S Operator: LRW
Run Time: 10/11/07 15:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.86	44450.	1819.2	837.7	1962.	47.39
SDev	.3149	10.74	2.0795	1.961	2.162	.0323
%RSD	.6721	.0242	.11431	.2341	.1102	.0682

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45140.	44.74	454.9	490.6	307.0	129400.
SDev	90.97	.0985	.0969	1.032	.7223	232.7
%RSD	.2015	.2203	.0213	.2104	.2353	.1798

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50660.	49610.	962.0	880.1	45290.	678.7
SDev	16.18	109.9	.6889	.8917	141.1	.2388
%RSD	.0319	.2216	.0716	.1013	.3114	.0352

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1693.5	667.01	263.02	1670.	1099.	1723.2
SDev	5.4964	1.7863	20.689	.9985	1.118	9.6322
%RSD	.32455	.26781	7.866	.0598	.1017	.55896

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	545.2	681.4	598.90	701.01	1660.4	1710.1
SDev	.5056	.3381	.71306	3.0342	2.4839	7.0003
%RSD	.0927	.0496	.11906	.43282	.1496	.40935

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	235.76	276.63	5.0000	19565.3
SDev	1.2392	30.399	0	42.0024
%RSD	.52564	10.989	0	.21467

Method: ARMY Sample Name: J792M Operator: LRW
Run Time: 10/11/07 15:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8101	104600.	95.862	5.665	781.8	6.310
SDev	.1866	133.1	.94543	1.092	.8987	.0222
%RSD	23.04	.1273	.98624	19.27	.1149	.3518

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1520.	1.395	125.6	142.5	110.7	171800.
SDev	1.451	.1053	.1402	.6169	.7894	163.3
%RSD	.0955	7.554	.1117	.4328	.7129	.095

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4826.	14170.	12410.	11.62	-617.6	185.5
SDev	23.07	16	9.786	1.577	93.26	.3246
%RSD	.478	.113	.0789	13.57	15.1	.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.0701	266.24	-6.9176	20.62	617.8	17.776
SDev	1.0061	.74515	.50499	2.032	.9179	3.1127
%RSD	19.843	.27988	7.3001	9.855	.1486	17.511

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	196.6	557.4	232.74	282.96	11.264	1.9775
SDev	.4214	.1319	1.5409	.34785	1.1337	.94234
%RSD	.2144	.0237	.66209	.12293	10.064	47.654

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.67159	-10.707	5.0000	20608.5
SDev	1.2992	1.4057	0	41.4362
%RSD	193.45	13.13	0	.20106

Method: ARMY Sample Name: J792N Operator: LRW
Run Time: 10/11/07 15:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6984	101100.	90.332	-.1242	841.3	7.018
SDev	.3069	195.9	2.1583	4.605	.7322	.0069
%RSD	43.94	.1937	2.3893	3707	.087	.0987

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1653.	2.131	156.6	138.8	103.2	157400.
SDev	.939	.0124	.0859	.7409	.0426	71.3
%RSD	.0568	.5846	.0548	.5339	.0412	.0453

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4519.	12170.	17620.	13.67	-338.7	156.0
SDev	2.405	23.3	17.45	.1382	199.7	.1243
%RSD	.0532	.1915	.0991	1.011	58.98	.0797

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.4167	388.14	-3.8531	6.046	478.8	23.054
SDev	.50884	.24494	8.4543	4.596	.2479	4.3453
%RSD	9.3939	.0631	219.41	76.01	.0518	18.848

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.8	578.2	352.57	405.89	21.797	-2.7612
SDev	1.8	1.148	12.097	5.672	12.323	5.3892
%RSD	.9848	.1986	3.431	1.3974	56.533	195.17

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	6.1572	-8.8508	5.0000	20770.5
SDev	6.248	9.5557	0	23.0514
%RSD	101.48	107.97	0	.11098

Method: ARMY Sample Name: J792R Operator: LRW
Run Time: 10/11/07 15:20 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5845	101600.	93.172	1.676	687.0	5.169
SDev	.5865	298.5	1.7051	.5869	1.508	.0008
%RSD	100.3	.2937	1.83	35.03	.2195	.0148

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	1.387	147.1	161.1	105.7	172400.
SDev	6.281	.0024	.6481	.9117	.1893	766.1
%RSD	.5097	.173	.4406	.5658	.1791	.4443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4170.	12020.	13360.	12.43	-638.1	141.9
SDev	13.49	59.58	49.54	.2387	218.5	.4014
%RSD	.3236	.4955	.3707	1.921	34.25	.2829

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0988	282.16	-6.8775	9.015	483.7	17.308
SDev	2.1473	.39515	2.6873	1.081	1.637	.31171
%RSD	69.294	.14004	39.074	11.99	.3384	1.8009

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	203.1	465.5	245.03	300.69	9.8235	-.25846
SDev	.8314	.874	1.5004	.15666	.76445	2.8377
%RSD	.4093	.1877	.61233	.0521	7.7819	1097.9

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.48387	-10.553	5.0000	20551.2
SDev	2.1517	2.9548	0	123.886
%RSD	444.68	28	0	.60281

Method: ARMY Sample Name: J792W Operator: LRW
Run Time: 10/11/07 15:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9490	145900.	67.700	163.2	1449.	26.55
SDev	.3314	337.6	1.1654	.407	2.762	.0478
%RSD	34.93	.2313	1.7215	.2495	.1906	.1801

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	476900.	5.951	46.72	266.3	166.8	158200.
SDev	1660	.0076	.083	.1455	.0364	453.8
%RSD	.348	.1284	.1776	.0546	.0218	.2868

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10650.	98950.	11640.	11.63	2984.	224.2
SDev	27.79	320.6	27.21	.2575	39.52	.8033
%RSD	.2609	.324	.2338	2.214	1.324	.3583

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.2723	834.28	-5.8807	5.119	2236.	17.747
SDev	.71503	2.4621	.86713	.7344	1.955	1.5604
%RSD	11.4	.29511	14.746	14.35	.0875	8.7924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	120.1	676.8	733.49	884.60	20.013	-.58756
SDev	.1641	.7596	3.4948	1.9464	6.1213	1.9841
%RSD	.1366	.1122	.47646	.22003	30.588	337.67

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.09474	-8.7693	5.0000	21872.2
SDev	.38273	1.4911	0	74.104
%RSD	403.96	17.004	0	.3388

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 15:33 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	949.5	24860.	487.49	4772.	1985.	1965.
SDev	2.355	4.422	3.6644	2.723	4.05	7.497
%RSD	.2481	.0178	.75168	.0571	.204	.3814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49220.	489.7	1916.	1943.	2014.	24500.
SDev	244.6	3.481	9.712	8.623	1.491	144.4
%RSD	.497	.7109	.5068	.4438	.0741	.5892

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49100.	49540.	2064.	1973.	48780.	2049.
SDev	.6436	333.2	3.852	8.265	598.4	22.45
%RSD	.0013	.6726	.1866	.419	1.227	1.096

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	475.26	478.64	525.32	4944.	4834.	968.31
SDev	.30601	.79702	5.3954	35.12	3.887	7.6283
%RSD	.06438	.16651	1.0271	.7104	.0804	.78779

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1980.	1891.	431.29	502.28	468.54	478.62
SDev	4.635	5.869	.02388	1.183	.49858	.70771
%RSD	.2341	.3104	.00553	.23552	.10641	.14786

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	449.16	563.35	5.0000	19498.3
SDev	.55877	7.8102	0	17.3945
%RSD	.1244	1.3864	0	.08921

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 15:41 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0344	-11.39	-.71842	10.90	-.0058	.0729
SDev	.4941	2.972	.81132	1.025	.0014	.0162
%RSD	1435	26.08	112.93	9.395	24.88	22.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.382	.0763	-.1393	-.0256	-1.942	-7.305
SDev	.7552	.0085	.4685	.3727	.254	6.349
%RSD	11.83	11.17	336.4	1454	13.08	86.92

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.2	2.721	.0584	-.7098	-442.4	1.004
SDev	7.235	1.406	.0079	.1625	74.55	1.178
%RSD	5.018	51.69	13.57	22.89	16.85	117.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.98458	-.34146	-1.1766	2.025	-.4545	-.33941
SDev	2.2661	1.1691	2.0727	.4855	.3124	.48351
%RSD	230.15	342.39	176.15	23.98	68.74	142.46

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1088	-.0832	.84641	-.93450	-2.3036	2.6262
SDev	.1815	.0745	1.789	2.646	2.1604	2.3188
%RSD	166.9	89.58	211.36	283.14	93.779	88.295

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3353	-3.4292	5.0000	19461.7
SDev	4.1926	5.2006	0	39.174
%RSD	125.7	151.66	0	.20128

Method: ARMY Sample Name: J7920 Operator: LRW
Run Time: 10/11/07 15:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9874	124400.	86.646	95.66	1133.	18.22
SDev	.2916	295.3	.64087	1.628	1.276	.0205
%RSD	29.53	.2373	.73964	1.702	.1126	.1127

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	320800.	6.513	67.11	245.5	217.2	164000.
SDev	278.8	.0257	.0891	.1113	.3658	92.44
%RSD	.0869	.394	.1327	.0453	.1684	.0564

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8626.	68800.	10700.	8.162	1899.	207.8
SDev	6.157	90.07	6.002	.7735	108.1	.7743
%RSD	.0714	.1309	.0561	9.477	5.694	.3726

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6593	721.22	-9.0513	13.17	1221.	14.536
SDev	.66303	.37413	8.4829	1.105	.7829	1.0847
%RSD	24.933	.05187	93.72	8.388	.0641	7.462

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.6	824.8	635.32	764.11	8.7208	-.36690
SDev	.0809	2.036	2.6508	1.8843	1.2573	1.6217
%RSD	.0584	.2468	.41724	.2466	14.417	442

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1575	-14.148	5.0000	21075.2
SDev	1.6164	13.525	0	36.2047
%RSD	139.65	95.596	0	.17178

Method: ARMY Sample Name: J7923 Operator: LRW
Run Time: 10/11/07 15:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7099	89340.	77.391	29.58	643.3	8.507
SDev	.2785	33.87	1.2775	.3997	.1044	.0023
%RSD	39.23	.0379	1.6507	1.351	.0162	.027

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	123000.	1.949	57.35	262.1	202.8	169900.
SDev	154.2	.032	.3634	.3344	.7825	262.2
%RSD	.1254	1.642	.6336	.1276	.3859	.1543

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8209.	31200.	6156.	24.78	542.6	214.0
SDev	8.323	41.46	8.035	.3924	278.2	1.037
%RSD	.1014	.1329	.1305	1.584	51.27	.4844

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.36826	236.20	-3.6289	4.005	516.4	12.819
SDev	1.521	.34116	1.4444	.2769	.0736	2.5335
%RSD	413.01	.14443	39.803	6.915	.0143	19.764

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	127.5	479.3	206.81	250.88	10.937	-4.9080
SDev	.159	.2729	3.2156	1.0939	1.5714	1.4958
%RSD	.1247	.0569	1.5549	.43602	14.368	30.476

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.88847	-5.8842	5.0000	20621.2
SDev	.83154	2.5807	0	65.6187
%RSD	93.593	43.858	0	.3182

Method: ARMY Sample Name: J7927 Operator: LRW
Run Time: 10/11/07 15:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6299	90250.	83.531	30.68	667.2	8.083
SDev	.1252	80.35	1.8788	.1857	.2479	.0256
%RSD	19.87	.089	2.2492	.6054	.0372	.3167

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118200.	2.974	61.94	230.7	207.4	167600.
SDev	157.3	.1236	.1201	.705	.4101	294
%RSD	.1331	4.158	.1939	.3055	.1977	.1755

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8433.	30500.	5531.	11.13	356.6	218.1
SDev	.0269	38.66	5.092	.4384	108.2	1.345
%RSD	.0003	.1268	.0921	3.939	30.34	.6166

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2412	231.24	-4.9460	2.908	612.8	11.238
SDev	3.6705	.30885	.2046	.4292	.4397	.7114
%RSD	295.72	.13356	4.1367	14.76	.0718	6.3306

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	133.2	504.9	201.79	245.94	7.3108	-1.7890
SDev	.3862	.7196	1.6222	1.2729	3.3742	3.8184
%RSD	.2899	.1425	.80391	.51757	46.154	213.43

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-2.0053	-6.4142	5.0000	20817.3
SDev	2.0357	1.3231	0	38.0429
%RSD	101.52	20.627	0	.18274

Method: ARMY Sample Name: J8AT0 Operator: LRW
Run Time: 10/11/07 16:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5325	59980.	82.739	48.36	930.2	6.368
SDev	.0322	223.4	.14203	.0823	2.975	.0539
%RSD	6.051	.3725	.17166	.1702	.3199	.8471

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	159600.	11.59	37.14	252.2	249.4	107300.
SDev	364.8	.1562	.3203	1.037	.9713	239.3
%RSD	.2285	1.348	.8626	.4111	.3895	.2231

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5029.	29160.	7169.	5.788	364.5	153.0
SDev	15.3	56.2	17.14	.4876	38.66	.8231
%RSD	.3043	.1928	.2392	8.424	10.61	.5381

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8595	1565.6	-3.3675	4.983	981.8	12.071
SDev	3.3345	3.5608	1.0186	.3605	2.712	.3276
%RSD	116.61	.22744	30.247	7.234	.2762	2.7139

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76.35	1124.	1399.0	1648.7	9.7484	-.57974
SDev	.6098	5.435	3.1779	3.7519	.52196	5.2599
%RSD	.7986	.4836	.22714	.22756	5.3544	907.27

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.59128	-5.3440	5.0000	20656.1
SDev	.08155	1.4864	0	63.2156
%RSD	13.793	27.815	0	.30603

Method: ARMY Sample Name: J8AT0L Operator: LRW
Run Time: 10/11/07 16:08 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0612	12430.	16.920	6.152	193.6	1.387
SDev	.2843	17.92	.7921	.1445	.2343	.0009
%RSD	464.5	.1441	4.6815	2.349	.121	.0616

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33910.	2.454	7.748	53.57	50.14	22890.
SDev	25.36	.0179	.3528	.0193	.5179	12.94
%RSD	.0748	.731	4.553	.036	1.033	.0565

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	984.9	6105.	1540.	.7739	-345.3	32.72
SDev	1.469	3.828	.3738	.6521	121	.4628
%RSD	.1492	.0627	.0243	84.26	35.03	1.415

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3241	334.24	-3.0032	2.982	206.5	2.6512
SDev	.30579	1.8871	4.2992	.579	.0728	.99916
%RSD	13.158	.56457	143.15	19.42	.0352	37.688

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15.91	238.9	299.81	351.43	5.5819	.69758
SDev	.4445	.0115	.12999	2.7643	1.5475	1.2311
%RSD	2.793	.0048	.04335	.78657	27.723	176.47

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4729	-5.2379	5.0000	19684.3
SDev	1.3286	5.7822	0	6.93019
%RSD	90.204	110.39	0	.0352

Method: ARMY Sample Name: J8AT0X Operator: LRW
Run Time: 10/11/07 16:13 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.036	90020.	100.76	65.66	1292.	9.681
SDev	.5105	405.5	.36231	.3084	6.202	.0702
%RSD	49.3	.4504	.35956	.4698	.4799	.7249

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	269200.	18.75	57.46	461.6	385.2	175700.
SDev	902.3	.0589	.3051	1.851	2.026	644
%RSD	.3352	.3141	.5309	.4011	.5259	.3666

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7166.	43360.	10920.	10.56	950.1	260.9
SDev	16.19	151.8	38.2	.0036	205.4	.574
%RSD	.2259	.35	.3498	.0339	21.62	.22

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.79047	3499.7	-4.8087	15.37	1164.	16.084
SDev	.42226	4.8286	.15455	.4722	4.178	4.2795
%RSD	53.419	.13797	3.214	3.071	.359	26.606

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118.7	1806.	3129.0	3684.7	5.3887	-3.8754
SDev	.4441	8.583	1.6191	8.0477	5.8049	3.5312
%RSD	.374	.4753	.05174	.2184	107.72	91.118

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.70722	-7.5626	5.0000	21453.2
SDev	4.1187	2.288	0	20.3638
%RSD	582.37	30.254	0	.09492

Method: ARMY Sample Name: J8AT0S Operator: LRW
Run Time: 10/11/07 16:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.75	61880.	1294.1	663.9	2020.	38.27
SDev	.0902	111	1.3141	2.084	2.951	.0571
%RSD	.2756	.1795	.10154	.314	.1461	.1493

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	173900.	41.14	340.8	360.0	406.7	83160.
SDev	69.63	.0082	.3815	.0601	.7896	13.31
%RSD	.04	.0199	.112	.0167	.1941	.016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38430.	57260.	6179.	616.4	33690.	466.5
SDev	63.21	2.458	2.422	1.677	70.79	.6179
%RSD	.1645	.0043	.0392	.2721	.2101	.1325

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1214.9	1512.4	171.28	1182.	1729.	1242.5
SDev	.10651	3.0758	.40189	.5237	1.419	1.0752
%RSD	.00876	.20337	.23464	.0443	.0821	.08653

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	398.3	1198.	1353.3	1591.8	1192.8	1226.0
SDev	.0411	1.887	2.4454	5.8322	7.3871	3.5283
%RSD	.0103	.1575	.18068	.36638	.61928	.28779

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	147.65	183.07	5.0000	20237.1
SDev	1.4573	1.3301	0	2.12132
%RSD	.98695	.72653	0	.01048

Method: ARMY Sample Name: J8AT5 Operator: LRW
Run Time: 10/11/07 16:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1146	49660.	68.349	11.02	860.1	3.868
SDev	.2592	106.7	.15173	.0143	1.418	.0077
%RSD	226.2	.2149	.222	.13	.1649	.2002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44140.	28.64	58.19	334.7	237.9	134700.
SDev	155.8	.0096	.0497	1.324	.4883	484.5
%RSD	.3529	.0335	.0855	.3957	.2052	.3596

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3825.	13800.	3893.	12.24	-57.85	204.4
SDev	11.33	40.97	8.816	.0843	284.2	.0048
%RSD	.2963	.2969	.2264	.6884	491.3	.0024

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.00761	4932.0	-1.6340	24.39	490.1	2.6042
SDev	1.6228	19.784	.28154	2.23	2.083	7.6977
%RSD	21319	.40113	17.231	9.141	.425	295.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89.79	2363.	4421.9	5186.6	8.3456	-4.1551
SDev	.0034	2.972	19.229	20.061	1.8545	3.3589
%RSD	.0038	.1258	.43484	.38678	22.221	80.837

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46758	-2.6832	5.0000	20238.3
SDev	3.404	2.1216	0	110.733
%RSD	728	79.07	0	.54714

Method: ARMY Sample Name: J8AT9 Operator: LRW
Run Time: 10/11/07 16:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8001	44760.	47.737	42.86	525.0	6.519
SDev	.0526	4.4	.11043	.4938	.5012	.0202
%RSD	6.575	.0098	.23134	1.152	.0955	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	165800.	2.645	27.70	295.0	85.18	94770.
SDev	399.1	.1105	.1767	.312	.0852	221.3
%RSD	.2407	4.178	.6378	.1058	.1001	.2335

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3395.	25030.	13090.	1.502	468.4	103.8
SDev	5.837	71.11	28.79	.1462	1.731	.7313
%RSD	.172	.2841	.2198	9.738	.3696	.7044

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3573	197.61	-6.0027	3.505	1020.	16.358
SDev	.95395	1.4906	1.38	1.086	1.713	.33448
%RSD	70.281	.75431	22.989	30.99	.168	2.0447

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98.72	348.1	172.05	210.37	7.2676	-1.5934
SDev	.1969	.7792	.53277	1.9688	.19054	1.5253
%RSD	.1994	.2239	.30967	.93586	2.6218	95.731

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.03396	-8.9825	5.0000	20583.3
SDev	.6365	2.3867	0	64.3467
%RSD	1874.3	26.57	0	.31261

Method: ARMY Sample Name: J8AVC Operator: LRW
Run Time: 10/11/07 16:34 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3072	100300.	89.926	36.25	737.3	8.557
SDev	.3288	185.5	.38224	.8783	1.373	.0011
%RSD	107	.185	.42507	2.423	.1863	.0125

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	164100.	1.624	62.68	179.3	94.60	154700.
SDev	225.4	.0527	.0556	.6281	.2977	188.7
%RSD	.1373	3.243	.0887	.3503	.3146	.122

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5572.	34100.	6763.	6.717	616.3	154.7
SDev	15.42	26.64	4.188	.9553	119.2	1.025
%RSD	.2768	.0781	.0619	14.22	19.34	.6629

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.84553	158.97	-4.4071	3.532	533.5	13.472
SDev	.71287	.14653	.60153	1.473	.9894	1.8141
%RSD	84.31	.09217	13.649	41.7	.1855	13.466

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.6	405.5	136.11	170.39	8.3292	-2.8907
SDev	.0564	.1151	.51412	.47636	.15989	1.1486
%RSD	.0385	.0284	.37772	.27957	1.9197	39.735

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.2506	-5.9831	5.0000	20280.4
SDev	.85884	1.3306	0	26.87
%RSD	68.677	22.24	0	.13249

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 16:42 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.3	24820.	479.62	4808.	1992.	1963.
SDev	.8058	18.23	.60369	33.1	1.924	1.612
%RSD	.0852	.0734	.12587	.6885	.0966	.0821

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49230.	487.9	1915.	1944.	2009.	24560.
SDev	81.11	.6098	1.869	2.412	.1529	72.4
%RSD	.1648	.125	.0976	.124	.0076	.2948

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49430.	49350.	2058.	1973.	48990.	2033.
SDev	45.19	77.24	2.211	4.332	211.5	7.091
%RSD	.0914	.1565	.1074	.2196	.4318	.3488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	477.53	481.68	526.08	4919.	4849.	967.60
SDev	1.1845	.73865	1.8865	3.475	10.36	.7213
%RSD	.24804	.15334	.35858	.0706	.2136	.07454

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1988.	1884.	435.20	504.89	469.69	481.45
SDev	2.343	.1735	.69648	1.4552	.83576	1.3586
%RSD	.1179	.0092	.16003	.28821	.17793	.28218

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	446.21	565.96	5.0000	19209.9
SDev	1.1327	3.3938	0	8.05991
%RSD	.25385	.59964	0	.04195

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 16:50 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1422	-8.778	.50619	11.08	-.0300	.0296
SDev	.0536	3.964	.78909	1.169	.0364	.0053
%RSD	37.72	45.16	155.89	10.55	121.2	17.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.973	.0135	.2123	-.0921	-2.047	-10.29
SDev	1.132	.0109	.1396	.05	.087	3.517
%RSD	18.95	80.71	65.77	54.27	4.249	34.19

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.7	.5676	-.0004	-.3656	-465.9	.5122
SDev	3.437	2.62	.0207	1.968	26.47	.5927
%RSD	2.391	461.5	4677	538.4	5.681	115.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8474	.42735	-2.1869	-.2953	-.3068	-.21571
SDev	1.5066	.75789	.16658	.4408	.1036	1.5668
%RSD	81.55	177.34	7.6172	149.3	33.76	726.31

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4697	-.0150	3.3901	-1.0518	3.3485	1.0980
SDev	.4535	.0112	.33134	1.3017	1.8902	1.3151
%RSD	96.55	74.89	9.7738	123.76	56.449	119.77

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7866	-4.1707	5.0000	19478.6
SDev	.45292	.47587	0	80.327
%RSD	25.351	11.41	0	.41238

Method: ARMY Sample Name: J8FKF Operator: LRW
Run Time: 10/11/07 16:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7190	114200.	78.823	7.734	598.3	5.176
SDev	.2606	107.2	.6412	.3897	.6912	.0071
%RSD	36.24	.0939	.81347	5.039	.1155	.1379

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12720.	2.127	75.28	161.7	68.11	185200.
SDev	6.316	.1113	.043	.4442	.0304	51.51
%RSD	.0496	5.233	.0571	.2748	.0447	.0278

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4975.	16580.	6636.	16.01	-592.2	111.9
SDev	10.98	1.967	5.612	.4942	309.2	1.295
%RSD	.2207	.0119	.0846	3.087	52.22	1.157

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.5502	216.29	-3.8267	4.943	485.6	9.2490
SDev	1.4104	.39158	.27529	.7902	3.375	1.6614
%RSD	18.68	.18105	7.1941	15.99	.6951	17.963

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223.5	486.1	185.41	231.70	14.067	4.2970
SDev	.3311	1.371	.70333	.23595	2.186	3.2059
%RSD	.1481	.282	.37933	.10183	15.541	74.609

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35010	-5.5623	5.0000	20079.3
SDev	.83926	.00627	0	18.8088
%RSD	239.72	.11272	0	.09367

Method: ARMY Sample Name: J8FKFL Operator: LRW
Run Time: 10/11/07 16:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.348	23420.	15.309	.4616	121.6	1.095
SDev	.9197	43.1	.85745	.1664	.2634	.0224
%RSD	68.24	.184	5.6011	36.06	.2166	2.043

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2562.	.5253	16.51	33.77	12.71	38310.
SDev	7.386	.0767	.7527	.601	.3462	79.98
%RSD	.2883	14.6	4.559	1.78	2.723	.2088

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	987.8	3410.	1386.	2.997	-180.7	24.23
SDev	12.38	12.61	4.189	.9858	240.3	.7811
%RSD	1.253	.3698	.3022	32.89	133	3.224

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6516	44.091	-2.9305	2.161	98.04	6.1855
SDev	.64962	.93706	1.5883	1.01	.4778	4.8717
%RSD	24.499	2.1253	54.2	46.73	.4874	78.76

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	45.58	100.2	42.618	44.827	8.1886	-.11269
SDev	.0318	.1939	3.5881	3.1963	.93136	.50897
%RSD	.0698	.1935	8.4194	7.1302	11.374	451.65

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6400	-6.2108	5.0000	19703.2
SDev	.9053	1.9293	0	48.3664
%RSD	24.871	31.064	0	.24547

Method: ARMY Sample Name: J8FKFX Operator: LRW
Run Time: 10/11/07 17:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3782	107900.	78.900	5.688	565.5	4.982
SDev	.5397	1312	2.5593	2.352	6.308	.0651
%RSD	142.7	1.216	3.2438	41.35	1.116	1.306

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11760.	1.729	71.82	149.7	64.10	187200.
SDev	154.9	.0413	.8475	2.194	.9778	2411
%RSD	1.318	2.391	1.18	1.466	1.525	1.288

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4678.	15560.	6735.	15.54	-552.4	103.3
SDev	45.92	217.7	85.05	1.31	304.5	1.472
%RSD	.9816	1.399	1.263	8.43	55.13	1.425

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6786	202.67	-3.7183	4.221	453.5	11.290
SDev	2.8017	2.1555	2.1406	.549	5.658	1.3641
%RSD	59.883	1.0635	57.57	13.01	1.248	12.082

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	217.4	451.1	174.63	216.68	10.254	1.8950
SDev	2.977	4.467	2.0807	2.1929	1.1869	4.793
%RSD	1.369	.9901	1.1915	1.0121	11.575	252.93

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.92428	-5.1132	5.0000	20132.4
SDev	.93735	2.7413	0	224.294
%RSD	101.41	53.613	0	1.11409

Method: ARMY Sample Name: J8FKFS Operator: LRW
Run Time: 10/11/07 17:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	44.76	151100.	1818.8	766.0	2494.	51.88
SDev	.037	40.4	.03513	2.277	1.707	.088
%RSD	.0827	.0267	.00193	.2973	.0684	.1697

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57380.	46.60	516.2	369.1	313.2	194700.
SDev	115.4	.0038	.5129	1.134	.0603	371.3
%RSD	.201	.0081	.0993	.3071	.0192	.1906

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52440.	64740.	7229.	888.2	46090.	587.1
SDev	61.1	158.9	10.45	5.393	144.5	1.881
%RSD	.1165	.2454	.1445	.6072	.3134	.3204

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1703.5	648.62	167.82	1542.	1621.	1728.8
SDev	5.7989	2.0548	3.362	.3921	1.463	6.1293
%RSD	.34041	.31679	2.0034	.0254	.0903	.35453

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	744.2	1001.	575.88	684.94	1674.1	1718.2
SDev	.9986	1.388	2.0756	2.0444	2.8926	10.138
%RSD	.1342	.1387	.36041	.29848	.17278	.59004

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	146.10	178.66	5.0000	19581.7
SDev	2.8163	3.6344	0	53.8824
%RSD	1.9277	2.0342	0	.27516

Method: ARMY Sample Name: J8FKG Operator: LRW
Run Time: 10/11/07 17:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3267	104800.	72.010	7.171	539.1	4.619
SDev	.2497	289.7	.5889	1.964	.4186	.0088
%RSD	76.44	.2763	.81781	27.38	.0777	.1904

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11500.	1.663	62.89	146.7	60.60	167100.
SDev	53.36	.0367	.4949	.179	.0752	703.7
%RSD	.4641	2.204	.7869	.122	.1241	.4212

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4665.	15300.	5526.	13.47	-787.7	103.5
SDev	3.707	86.27	19.87	1.007	222.6	.378
%RSD	.0795	.5637	.3597	7.477	28.26	.3651

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.6676	184.11	-4.0424	7.443	475.5	13.479
SDev	1.1528	2.0137	.3235	.5267	1.072	1.6975
%RSD	31.433	1.0938	8.0027	7.077	.2254	12.594

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	205.8	449.0	159.11	196.59	6.5704	2.2185
SDev	1.266	1.712	2.1089	1.9662	4.3092	3.8798
%RSD	.6154	.3813	1.3254	1.0002	65.585	174.89

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.02582	-6.0735	5.0000	20060.7
SDev	2.478	1.7222	0	82.4484
%RSD	9597	28.355	0	.41099

Method: ARMY Sample Name: J8FKH Operator: LRW
Run Time: 10/11/07 17:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1816	127800.	64.334	12.56	2961.	8.312
SDev	.0226	206.6	.80669	.6778	4.743	.016
%RSD	12.46	.1616	1.2539	5.397	.1602	.1926

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	64010.	11.32	36.20	144.1	373.8	86670.
SDev	76.26	.1168	.2099	.2362	.0695	93.69
%RSD	.1191	1.031	.58	.1639	.0186	.1081

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7654.	18940.	1711.	10.12	4421.	183.1
SDev	10.59	21.11	3.217	.975	2.19	.3851
%RSD	.1384	.1115	.188	9.636	.0495	.2103

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.8996	371.35	2.9799	39.76	222.2	11.060
SDev	1.7821	.71513	2.2263	2.001	1.68	2.0861
%RSD	18.001	.19257	74.711	5.031	.7563	18.861

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	180.8	931.3	325.84	394.06	17.997	5.8571
SDev	.1599	.3139	1.682	1.9119	.63551	2.3545
%RSD	.0884	.0337	.51619	.48517	3.5313	40.199

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.9727	1.9850	5.0000	22431.6
SDev	1.5708	2.5535	0	48.9326
%RSD	31.588	128.64	0	.21814

Method: ARMY Sample Name: J8FLN Operator: LRW
Run Time: 10/11/07 17:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6205	101900.	108.76	7.885	578.6	5.017
SDev	.1021	252.9	.02397	.9697	1.145	.0014
%RSD	16.46	.2482	.02204	12.3	.1979	.0283

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	19160.	1.339	76.35	189.5	151.1	213800.
SDev	40.66	.0319	.1257	.2985	.0024	445.2
%RSD	.2123	2.384	.1647	.1575	.0016	.2082

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7110.	21810.	2915.	8.547	-550.6	199.5
SDev	7.482	59.65	6.836	.013	171.2	.3795
%RSD	.1052	.2735	.2346	.1526	31.1	.1903

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.09272	174.52	-2.3032	3.219	376.1	11.016
SDev	.01733	1.076	.47106	.3289	.8696	1.4876
%RSD	18.694	.61656	20.453	10.22	.2312	13.504

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	171.2	537.6	149.10	187.22	1.9862	-.85260
SDev	.7026	.5471	2.3706	.42976	4.2538	2.0977
%RSD	.4103	.1018	1.59	.22955	214.17	246.04

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.58024	-3.1633	5.0000	20533.5
SDev	1.0499	.18209	0	43.9815
%RSD	180.93	5.7565	0	.21419

Method: ARMY Sample Name: J8FLNL Operator: LRW
Run Time: 10/11/07 17:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1541	21210.	22.194	-3.444	119.9	1.027
SDev	.3273	50.19	2.638	.6555	.3621	.0011
%RSD	212.4	.2367	11.886	19.03	.3021	.1073

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3965.	.3081	15.79	39.83	29.63	45280.
SDev	12.6	.0221	.1026	.4534	.2041	112.8
%RSD	.3177	7.182	.6497	1.138	.6889	.2491

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1358.	4549.	613.7	1.690	-579.1	42.06
SDev	15.91	16.35	1.986	.3416	114.9	.1569
%RSD	1.171	.3595	.3236	20.21	19.85	.373

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.45799	36.455	-2.2547	-.0633	78.02	5.6718
SDev	.84091	.53227	.01386	.3448	.7972	5.316
%RSD	183.61	1.4601	.61491	544.9	1.022	93.727

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	35.45	112.5	32.987	38.186	5.2836	-1.9512
SDev	.1806	.2809	.77665	.41026	3.4863	.4798
%RSD	.5096	.2498	2.3544	1.0744	65.984	24.59

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3573	-4.0580	5.0000	19677.8
SDev	.83703	.3971	0	97.0145
%RSD	61.669	9.7857	0	.49301

Method: ARMY Sample Name: J8FLNX Operator: LRW
Run Time: 10/11/07 17:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4967	107000.	111.76	9.407	624.2	5.310
SDev	.2571	184	.3833	1.209	1.093	.0305
%RSD	51.76	.1719	.34296	12.85	.175	.5752

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20360.	1.514	78.93	212.9	154.2	219600.
SDev	43.8	.1348	.2592	1.057	.6246	594.2
%RSD	.2151	8.903	.3284	.4966	.4051	.2705

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7888.	22650.	3361.	7.950	-407.9	212.6
SDev	7.22	55.81	8.355	1.239	108.2	.4734
%RSD	.0915	.2464	.2486	15.59	26.52	.2227

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.5878	175.23	-2.5734	3.948	447.1	9.1500
SDev	1.182	.61262	.21436	.5074	1.465	.14962
%RSD	74.445	.34961	8.33	12.85	.3276	1.6352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	182.1	556.0	149.95	187.85	6.9207	-5.8357
SDev	.4474	.2029	.67195	.58299	8.5666	2.5047
%RSD	.2456	.0365	.44812	.31035	123.78	42.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.6217	-3.0486	5.0000	20512.9
SDev	1.2219	.28865	0	12.8688
%RSD	75.348	9.4684	0	.06273

Method: ARMY Sample Name: J8FLNS Operator: LRW
Run Time: 10/11/07 17:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42.60	140100.	1747.1	761.0	2362.	48.75
SDev	.2822	226.1	.28001	2.725	3.63	.0456
%RSD	.6624	.1614	.01602	.3581	.1537	.0935

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	60860.	43.32	494.5	406.3	378.4	223400.
SDev	20.14	.0681	.1259	.1144	.5512	120.6
%RSD	.0331	.1572	.0255	.0282	.1457	.054

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54340.	67220.	3537.	815.7	43760.	647.5
SDev	72.93	44.09	3.26	3.718	40.44	.0866
%RSD	.1342	.0656	.0922	.4559	.0924	.0134

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1590.6	607.24	149.51	1452.	1210.	1620.3
SDev	1.5523	.42433	1.9587	1.389	1.493	3.4661
%RSD	.09759	.06987	1.3101	.0957	.1234	.21391

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	664.6	975.3	538.80	641.42	1572.4	1599.7
SDev	1.45	.61	2.3132	1.791	5.2462	.29192
%RSD	.2181	.0625	.42931	.27923	.33364	.01824

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	127.55	160.47	5.0000	20069
SDev	1.8823	3.8763	0	42.1433
%RSD	1.4758	2.4156	0	.20999

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 17:49 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	947.7	24950.	483.18	4903.	2015.	1971.
SDev	1.59	18.81	.01834	25.36	.8329	1.488
%RSD	.1677	.0754	.00379	.5171	.0413	.0755

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49480.	489.1	1927.	1956.	2025.	24760.
SDev	65.79	.0071	1.259	1.77	2.193	58.71
%RSD	.133	.0014	.0654	.0905	.1083	.2372

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49680.	49600.	2058.	1991.	49290.	2031.
SDev	50.76	43.82	2.151	2.952	217.8	7.369
%RSD	.1022	.0883	.1045	.1483	.4418	.3628

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	478.63	484.82	526.44	4929.	4898.	970.93
SDev	3.2791	.61336	2.6436	.956	8.435	1.5972
%RSD	.6851	.12651	.50217	.0194	.1722	.1645

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2006.	1890.	437.84	508.27	474.55	480.66
SDev	1.576	.2691	1.5722	.13463	3.1929	3.3221
%RSD	.0785	.0142	.35907	.02648	.67282	.69115

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	450.01	564.60	5.0000	19183.8
SDev	2.0368	4.9803	0	41.2953
%RSD	.4526	.8821	0	.21526

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 17:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1989	-8.682	-1.1010	11.89	-.0533	-.0064
SDev	.2247	1.816	.70991	.9259	.0016	.0068
%RSD	113	20.92	64.48	7.786	2.973	106.4

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-3.303	.0205	.0954	.1053	-1.071	-9.299
SDev	1.226	.0621	.4135	.2343	.2934	.709
%RSD	37.11	303.4	433.5	222.5	27.39	7.624

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.0	.3292	.0648	-.3620	-280.7	1.117
SDev	10.03	4.197	.0168	1.314	9.754	.6986
%RSD	6.825	1275	25.93	362.9	3.475	62.57

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1650	.27897	-1.5997	1.550	-.2336	3.0214
SDev	2.3513	.24318	1.7487	.907	0	.82878
%RSD	108.61	87.17	109.32	58.52	0	27.431

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4279	.0372	1.3418	-.25165	2.6837	1.9060
SDev	.0922	.0162	.9436	.83569	1.6434	4.3456
%RSD	21.54	43.6	70.322	332.08	61.235	228

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0525	-3.4231	5.0000	19463
SDev	1.4468	3.3441	0	46.3859
%RSD	70.487	97.692	0	.23832

Method: ARMY Sample Name: J8FRK Operator: LRW
Run Time: 10/11/07 18:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6082	101500.	114.95	12.39	587.2	5.163
SDev	.069	81.25	.21698	1.841	.7581	.0043
%RSD	11.35	.0801	.18876	14.86	.1291	.0834

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21440.	2.721	76.66	172.1	151.8	222400.
SDev	5.556	.036	.0815	.079	.0017	3.447
%RSD	.0259	1.324	.1064	.0459	.0011	.0016

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7073.	22090.	3471.	9.886	-554.5	197.1
SDev	12.38	8.168	1.497	.4601	210.4	.4663
%RSD	.1751	.037	.0431	4.654	37.95	.2366

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.67878	171.71	-.78393	3.304	423.6	12.589
SDev	1.2537	1.0547	1.6866	2.485	.7334	1.0704
%RSD	184.7	.61419	215.14	75.21	.1731	8.5024

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	178.7	567.0	146.25	184.43	2.8822	-2.4566
SDev	.091	1.017	.02354	1.5929	2.4822	.64042
%RSD	.0509	.1794	.01609	.86372	86.119	26.069

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.35112	-1.0000	5.0000	20446.3
SDev	1.1747	1.9422	0	21.9203
%RSD	334.54	194.21	0	.1072

Method: ARMY Sample Name: J8FR7 Operator: LRW
Run Time: 10/11/07 18:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4481	101000.	115.43	13.01	975.9	8.064
SDev	.1985	90.03	1.3164	1.306	1.386	.0314
%RSD	44.29	.0891	1.1405	10.03	.1421	.3898

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53620.	2.097	102.7	160.2	139.0	228000.
SDev	24.59	.1618	.2394	.1048	.2443	198.9
%RSD	.0459	7.716	.2331	.0654	.1758	.0872

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6335.	20360.	12230.	9.074	102.9	172.3
SDev	3.998	32.35	1.164	.1482	173.8	1.103
%RSD	.0631	.1589	.0095	1.633	168.9	.6402

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.04428	180.50	-5.2760	7.009	408.7	16.188
SDev	2.8267	.19795	.99688	1.102	.2749	3.6183
%RSD	6382.6	.10967	18.895	15.72	.0673	22.351

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	193.9	586.2	157.40	192.03	7.7949	-3.8252
SDev	.4072	.958	4.5863	2.5865	3.9663	2.2578
%RSD	.21	.1634	2.9137	1.347	50.883	59.023

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4301	-8.6240	5.0000	20402.7
SDev	2.3846	2.6851	0	25.8798
%RSD	166.74	31.135	0	.12684

Method: ARMY Sample Name: J8FR7L Operator: LRW
Run Time: 10/11/07 18:11 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3535	21290.	23.807	.3917	205.7	1.681
SDev	.2562	45.44	2.6511	1.7	.3317	.0257
%RSD	72.46	.2134	11.136	434.1	.1612	1.532

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11370.	.4018	21.67	34.11	28.04	48920.
SDev	43.06	.1006	.0133	.8926	.5348	145.5
%RSD	.3786	25.03	.0613	2.617	1.907	.2974

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	4302.	2685.	.1155	-481.2	37.13
SDev	14.58	20.09	9.462	.3319	397.9	.2998
%RSD	1.183	.4671	.3524	287.4	82.69	.8074

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3981	38.794	-2.4467	1.824	86.98	4.3004
SDev	3.0688	.69316	.0992	1.232	.6922	2.6863
%RSD	127.97	1.7868	4.0547	67.54	.7959	62.467

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	41.27	123.9	33.228	41.573	1.8737	2.6599
SDev	.2248	.3549	.07653	1.0774	4.8764	2.1664
%RSD	.5447	.2863	.23031	2.5917	260.25	81.445

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3263	-4.3305	5.0000	19659.1
SDev	.94359	.32235	0	63.2156
%RSD	71.143	7.4439	0	.32155

Method: ARMY Sample Name: J8FR7X Operator: LRW
Run Time: 10/11/07 18:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4374	97400.	113.60	12.08	810.9	7.527
SDev	.1892	72.32	1.6966	1.554	1.234	.0226
%RSD	43.25	.0742	1.4935	12.86	.1522	.3002

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50260.	1.788	86.10	151.8	117.1	214000.
SDev	53.29	.1112	.2405	.9099	.0226	299.2
%RSD	.106	6.221	.2794	.5994	.0193	.1398

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6236.	18850.	9792.	6.495	-125.2	157.2
SDev	14.36	10.67	13.65	.1735	412	.7735
%RSD	.2303	.0566	.1394	2.672	329.2	.4921

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.3603	171.75	-5.6997	5.409	399.1	14.569
SDev	1.6901	.92478	3.0781	.2834	1.173	1.1897
%RSD	71.606	.53844	54.005	5.239	.2939	8.1657

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	185.2	521.5	147.52	183.85	9.8090	-1.3585
SDev	.0343	.2093	.82915	1.8004	.31138	2.3784
%RSD	.0185	.0401	.56205	.97931	3.1745	175.08

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.5111	-7.7908	5.0000	20390
SDev	2.4572	3.3881	0	44.6886
%RSD	162.6	43.489	0	.21916

Method: ARMY Sample Name: J8FR7S Operator: LRW
Run Time: 10/11/07 18:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46.18	150300.	1898.1	851.6	2836.	55.72
SDev	.1075	291.5	4.6792	.8067	4.611	.0886
%RSD	.2329	.1939	.24652	.0947	.1626	.159

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	96730.	47.15	555.2	385.7	373.3	225000.
SDev	119.7	.1575	1.314	.8576	.307	319.3
%RSD	.1237	.334	.2367	.2223	.0822	.1419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57300.	70020.	11580.	893.7	48120.	651.1
SDev	5.519	117.2	14.52	1.255	157.7	1.887
%RSD	.0096	.1674	.1254	.1404	.3278	.2897

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1728.8	623.42	167.61	1578.	1468.	1775.5
SDev	7.2585	.35463	.64838	1.149	2.277	7.2427
%RSD	.41986	.05688	.38683	.0728	.1551	.40791

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	730.1	1095.	553.35	658.40	1718.6	1733.9
SDev	1.081	3.329	.31958	.69118	2.6944	12.228
%RSD	.1481	.304	.05775	.10497	.15677	.70521

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	145.94	178.44	5.0000	19963.2
SDev	.13893	1.0415	0	18.6679
%RSD	.0952	.58366	0	.09351

Method: ARMY Sample Name: J8FTD Operator: LRW
Run Time: 10/11/07 18:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3513	102800.	116.56	17.04	819.0	7.759
SDev	.2255	27.1	1.8284	1.127	.518	.0053
%RSD	64.18	.0264	1.5686	6.614	.0632	.0679

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47770.	1.653	92.56	160.1	113.6	232700.
SDev	11.32	.1009	.1646	.3158	.1468	28.96
%RSD	.0237	6.105	.1778	.1973	.1292	.0124

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6688.	19280.	10260.	8.889	-5.088	154.4
SDev	1.243	20.65	6.556	.1346	163.8	.9612
%RSD	.0186	.1071	.0639	1.514	3220	.6225

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.2648	167.44	-5.2276	5.787	467.2	17.544
SDev	2.3545	.58431	.9765	1.69	.5472	.48345
%RSD	72.118	.34895	18.68	29.21	.1171	2.7556

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	207.1	538.7	144.74	178.78	8.8838	.45954
SDev	.1014	.5321	1.9171	.08106	.86682	3.0973
%RSD	.049	.0988	1.3245	.04534	9.7573	673.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.46194	-8.0681	5.0000	20427
SDev	1.1114	2.0189	0	54.0232
%RSD	240.58	25.023	0	.26446

Method: ARMY Sample Name: J8KMMB Operator: LRW
Run Time: 10/11/07 18:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4586	-54.99	.29489	-2.899	.2041	-.0338
SDev	.0167	1.232	1.6981	.5202	.1045	.0046
%RSD	3.648	2.24	575.82	17.94	51.22	13.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-66.17	.1062	.2527	.3115	-.5050	3.098
SDev	.242	.0195	.0263	.3398	.0387	1.342
%RSD	.3657	18.39	10.41	109.1	7.664	43.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.8	1.468	.2947	-1.292	-635.1	.8048
SDev	10.15	3.385	.0772	.6579	291.5	.5757
%RSD	7.06	230.6	26.18	50.92	45.89	71.54

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.27823	-.43427	-.87323	3.123	-.0132	1.7330
SDev	1.2478	.14906	.15649	4.138	.3117	.52098
%RSD	448.48	34.325	17.922	132.5	2361	30.063

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2120	.3349	.37484	-.83822	-.81518	-.01016
SDev	.4504	.0186	.43173	.43902	3.9975	.12492
%RSD	212.5	5.557	115.18	52.375	490.38	1228.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2369	-2.4260	5.0000	19545.9
SDev	1.9195	.72367	0	90.935
%RSD	85.811	29.83	0	.46523

Method: ARMY Sample Name: J8KMMC Operator: LRW
Run Time: 10/11/07 18:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.10	2107.	2076.6	1072.	2131.	53.92
SDev	.0401	1.007	6.8404	6.382	1.28	.0591
%RSD	.0728	.0478	.3294	.5952	.0601	.1096

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51830.	52.42	515.7	210.3	273.2	1131.
SDev	78.17	.0663	.5527	.6056	.1681	7.04
%RSD	.1508	.1264	.1072	.2879	.0615	.6223

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51880.	52460.	555.4	1055.	53800.	535.0
SDev	12.54	68.95	.3825	4.292	92.12	2.787
%RSD	.0242	.1314	.0689	.4069	.1712	.5208

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2087.3	516.81	558.27	2057.	1039.	2072.0
SDev	2.2972	.24587	1.9821	2.026	1.847	12.641
%RSD	.11005	.04757	.35504	.0985	.1778	.61007

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	539.5	519.4	466.71	541.82	2061.3	2100.3
SDev	.9547	1.119	2.6409	.94982	.22252	3.3332
%RSD	.177	.2154	.56584	.1753	.01079	.1587

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	469.17	602.75	5.0000	19433.8
SDev	.81621	2.5642	0	36.4864
%RSD	.17396	.42541	0	.18774

Method: ARMY Sample Name: J8G44 Operator: LRW
Run Time: 10/11/07 18:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1492	1012.	.35576	53.72	18.29	.2406
SDev	.116	3.874	1.0286	1.304	.1239	.0099
%RSD	77.73	.3827	289.12	2.428	.6773	4.111

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18780.	.8811	13.60	-.3280	4.575	39.79
SDev	4.484	.0162	.0655	.3202	.5182	.4138
%RSD	.0239	1.841	.4813	97.62	11.33	1.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2337.	5070.	765.3	-1.412	18490.	43.59
SDev	2.624	.9516	.2689	.4885	19.48	.1016
%RSD	.1123	.0188	.0351	34.61	.1054	.2331

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.3110	1.0816	-3.0602	1.606	-.3792	5.1254
SDev	.04331	.64083	3.5909	1.472	.0002	3.4057
%RSD	3.3036	59.247	117.34	91.62	.0489	66.449

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1107	43.96	.49079	1.3766	3.0801	.42774
SDev	.0601	.0792	.69531	.61363	.24199	.18575
%RSD	54.33	.1801	141.67	44.576	7.8567	43.425

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.50975	-4.3336	5.0000	19660.5
SDev	.27814	5.2448	0	25.0318
%RSD	54.565	121.03	0	.12732

Method: ARMY Sample Name: J8G44L Operator: LRW
Run Time: 10/11/07 18:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1820	179.4	-1.2719	7.424	3.693	-.0255
SDev	.0716	2.429	.51369	.2962	.0632	.0004
%RSD	39.31	1.354	40.387	3.99	1.71	1.551

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3697.	.1827	2.790	-.2885	.3416	-1.828
SDev	7.28	.0349	.2466	.1395	.1262	7.748
%RSD	.1969	19.08	8.841	48.34	36.93	423.8

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	521.2	999.7	152.3	-.5939	3641.	8.917
SDev	7.667	4.479	.2221	.3302	140.1	.311
%RSD	1.471	.448	.1459	55.6	3.848	3.488

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6133	.36517	-2.1867	.4361	-.3071	1.3949
SDev	4.9133	.66001	3.0733	1.034	.104	2.4114
%RSD	304.54	180.74	140.55	237.2	33.86	172.87

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1704	56.07	2.0590	-.48049	1.6241	1.6079
SDev	.3949	.1106	1.4291	1.703	3.4697	5.6339
%RSD	231.8	.1973	69.404	354.43	213.64	350.38

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.63973	-3.5978	5.0000	19476.2
SDev	.38423	4.7995	0	17.2537
%RSD	60.061	133.4	0	.08858

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 18:57 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	946.9	25040.	488.04	5025.	2029.	1984.
SDev	.1224	13.43	1.2198	32.02	.7783	.6487
%RSD	.0129	.0536	.24994	.6372	.0384	.0327

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49840.	491.7	1941.	1973.	2032.	25100.
SDev	22.7	.4986	1.172	.2126	.8983	14.52
%RSD	.0455	.1014	.0604	.0108	.0442	.0579

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49560.	49950.	2069.	2003.	49440.	2021.
SDev	16.91	23.67	1.019	.3075	156.8	7.198
%RSD	.0341	.0474	.0493	.0154	.3172	.3562

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.81	489.10	531.64	4960.	4951.	976.48
SDev	4.5339	2.0807	.49002	1.012	7.212	1.1223
%RSD	.94495	.42542	.09217	.0204	.1457	.11493

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2026.	1895.	441.57	512.83	475.72	481.85
SDev	2.133	1.353	.00041	3.1197	7.5146	3.0459
%RSD	.1053	.0714	.00009	.60834	1.5796	.63211

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	448.93	572.94	5.0000	19251.4
SDev	.71558	1.0919	0	14.1421
%RSD	.15939	.19058	0	.07346

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 19:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2001	-10.67	-1.2367	12.41	-.0081	-.0583
SDev	.2873	1.509	.96001	2.127	.001	.007
%RSD	143.6	14.14	77.625	17.14	12.29	12.05

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.650	-.0017	-.2154	-.1273	-1.073	-6.324
SDev	.2565	.1008	.084	.0911	.561	.0073
%RSD	15.55	5960	38.99	71.56	52.29	.115

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.3	1.375	.0175	-.2488	-628.3	.5831
SDev	3.04	.8115	.01	.1662	57.46	1.119
%RSD	2.198	59.02	57.17	66.82	9.144	191.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2070	.15436	-2.6331	1.125	-.4532	-2.0833
SDev	1.9093	.61518	.22654	.4075	.3106	2.9287
%RSD	158.19	398.53	8.6038	36.21	68.54	140.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0211	-.1041	1.1143	-.32486	.57331	1.5233
SDev	.3021	.1363	1.2965	.27502	2.7553	1.4869
%RSD	1432	130.9	116.36	84.659	480.6	97.606

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1110	-4.5023	5.0000	19526.2
SDev	2.1803	1.4282	0	27.4349
%RSD	196.25	31.721	0	.1405

Method: ARMY Sample Name: J8G44X Operator: LRW
Run Time: 10/11/07 19:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1019	1334.	-1.1282	82.19	19.74	.2096
SDev	.2865	4.946	.83914	.5922	.0286	.0073
%RSD	281.1	.3708	74.381	.7205	.1451	3.491

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20580.	.9911	14.65	-.1610	4.571	42.55
SDev	15.03	.0221	.1087	.1829	.0603	1.152
%RSD	.073	2.231	.7421	113.6	1.319	2.708

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2511.	5471.	822.4	-.7140	19920.	46.36
SDev	18.75	5.734	.674	.162	133.5	1.044
%RSD	.7468	.1048	.082	22.68	.6702	2.253

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8537	.43207	-2.6227	-.2690	-.4535	3.1035
SDev	1.9907	.65674	2.1362	.7636	.311	4.3095
%RSD	107.39	152	81.447	283.9	68.58	138.86

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2798	46.68	.41116	.44251	4.6147	.47531
SDev	.1814	.2364	1.5711	1.769	7.9782	.99851
%RSD	64.83	.5064	382.11	399.76	172.89	210.07

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.69932	-4.2813	5.0000	19549.4
SDev	1.6127	2.3975	0	36.4878
%RSD	230.61	55.999	0	.18664

Method: ARMY Sample Name: J8G44S Operator: LRW
Run Time: 10/11/07 19:15 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55.22	3270.	2134.5	1162.	2197.	55.12
SDev	.4125	4.246	4.0022	.1158	5.663	.1192
%RSD	.7469	.1298	.1875	.01	.2578	.2162

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	71970.	53.58	537.7	212.5	282.2	1201.
SDev	169.7	.0163	.8022	.1923	.4112	2.75
%RSD	.2358	.0303	.1492	.0905	.1457	.229

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55880.	58660.	1347.	1065.	73150.	584.2
SDev	141.2	110	3.574	2.472	39.76	1.774
%RSD	.2527	.1876	.2653	.2321	.0544	.3037

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2126.4	522.84	574.20	2103.	1056.	2084.0
SDev	1.4727	.41725	.15316	.4513	2.99	4.2406
%RSD	.06926	.0798	.02667	.0215	.283	.20348

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	547.1	570.7	470.38	549.03	2100.9	2139.1
SDev	1.428	1.181	.57761	.33719	1.6445	3.0292
%RSD	.2609	.2069	.12279	.06141	.07827	.14161

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	482.30	620.08	5.0000	19442.9
SDev	3.4039	1.929	0	12.0208
%RSD	.70575	.31109	0	.06182

Method: ARMY Sample Name: J8G46 Operator: LRW
Run Time: 10/11/07 19:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1769	24.40	1.8431	81.96	16.26	-.0531
SDev	.0363	1.298	1.9695	1.51	.0209	.0009
%RSD	20.51	5.321	106.86	1.842	.1285	1.632

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47380.	.1095	1.927	-.0620	.5945	47.80
SDev	49.82	.0226	.3047	.4627	.3788	.6359
%RSD	.1052	20.63	15.81	746	63.71	1.33

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3344.	8982.	120.2	-1.176	4610.	6.782
SDev	5.584	11.48	.1121	.8209	165.3	.2222
%RSD	.167	.1278	.0932	69.77	3.585	3.276

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.92150	-.96808	-.42251	-.6796	-.8196	2.6099
SDev	2.4986	.71304	.02063	.0019	.0007	2.7248
%RSD	271.15	73.656	4.8842	.275	.088	104.41

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2586	4.668	-.16965	-1.3667	5.5916	-1.4100
SDev	.0916	.103	2.171	.01485	2.5865	2.4548
%RSD	35.43	2.207	1279.7	1.0866	46.257	174.09

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.9079	-2.0852	5.0000	19535.8
SDev	.93913	.43792	0	24.0416
%RSD	32.296	21.001	0	.12306

Method: ARMY Sample Name: J8G5M Operator: LRW
Run Time: 10/11/07 19:26 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1016	-41.59	-1.5843	51.28	5.387	-.0675
SDev	.6246	3.208	1.0371	.6227	.0929	.0163
%RSD	614.9	7.714	65.459	1.214	1.724	24.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	23450.	.1115	.8350	-.6506	-.2783	12.23
SDev	11.82	.0322	.3025	.5526	.985	3.126
%RSD	.0504	28.83	36.22	84.95	353.9	25.57

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	747.5	8961.	135.5	-.3687	4820.	5.934
SDev	8.453	21.45	.2782	1.637	226.9	.0978
%RSD	1.131	.2393	.2053	443.9	4.706	1.648

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.49950	-.16941	-3.7959	-.0214	-.8178	.97636
SDev	2.3306	.00773	.14152	.9391	.0007	.43654
%RSD	466.58	4.5676	3.7284	4389	.0835	44.711

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1084	3.085	.98390	-.74520	6.4188	-2.4557
SDev	.3605	.1054	1.7602	.89036	1.9969	4.491
%RSD	332.6	3.417	178.9	119.48	31.109	182.88

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.71192	-6.0464	5.0000	19595.8
SDev	1.0594	.7411	0	22.9105
%RSD	148.81	12.257	0	.11691

Method: ARMY Sample Name: J8G5R Operator: LRW
Run Time: 10/11/07 19:31 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0573	-63.59	-.05465	89.48	19.37	-.0842
SDev	.3702	1.685	.65261	.7869	.0841	0
%RSD	646.1	2.65	1194.2	.8795	.434	.0254

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55360.	.0873	5.041	-.3500	.2852	19.76
SDev	106.2	.051	.1353	.2334	.1474	2.814
%RSD	.1918	58.38	2.685	66.69	51.68	14.24

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2082.	37790.	921.7	-.8206	8426.	23.35
SDev	1.185	69.43	2.449	.6628	137.2	.2883
%RSD	.0569	.1837	.2657	80.78	1.628	1.235

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7169	-.58721	-1.0575	.0992	-1.195	3.4278
SDev	.52207	1.0519	.45736	2.797	.3144	.9162
%RSD	19.215	179.13	43.251	2819	26.32	26.729

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4721	3.814	-1.3114	-.22565	6.3318	.91219
SDev	.1532	.081	.28392	1.4353	2.4346	1.9982
%RSD	32.45	2.123	21.65	636.05	38.45	219.05

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0598	-2.6137	5.0000	19359.5
SDev	1.0451	1.2075	0	15.9803
%RSD	50.74	46.198	0	.08254

Method: ARMY Sample Name: J8G5W Operator: LRW
Run Time: 10/11/07 19:36 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0942	-66.01	16.791	28.25	26.99	-.0315
SDev	.7022	.5849	1.019	1.611	.1177	.0595
%RSD	745.8	.886	6.0683	5.7	.4362	188.9

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37450.	.2537	2.950	-.0908	.7110	5450.
SDev	119.1	.1284	.3641	.2335	1.348	31.72
%RSD	.318	50.62	12.34	257.2	189.6	.582

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	821.9	16860.	1591.	-.7704	5130.	7.004
SDev	3.198	81.4	3.938	.6603	143.7	.5726
%RSD	.3891	.4827	.2474	85.71	2.801	8.175

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.15070	-.86543	-2.0685	.0266	-.7487	3.6070
SDev	3.175	1.0375	8.015	.7229	.105	2.3637
%RSD	2106.8	119.88	387.48	2720	14.02	65.532

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3372	4.143	-.51125	-1.0423	3.3766	-1.9117
SDev	.3631	.3991	4.0673	3.586	5.8041	1.8624
%RSD	107.7	9.635	795.55	344.06	171.89	97.422

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.96027	-3.5808	5.0000	19451.9
SDev	1.8972	11.07	0	35.2145
%RSD	197.57	309.14	0	.18103

Method: ARMY Sample Name: J8G51 Operator: LRW
Run Time: 10/11/07 19:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3402	-2.156	.37228	74.10	6.726	-.0997
SDev	.2675	.1167	2.222	.2632	.0259	.0146
%RSD	78.62	5.415	596.86	.3552	.3856	14.66

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	38840.	.1226	.2907	-.3219	.3377	19.32
SDev	99.87	.0659	.1372	.1827	.3615	1.155
%RSD	.2571	53.75	47.21	56.77	107	5.976

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1922.	4256.	1.878	-.3610	2318.	2.093
SDev	3.676	9.189	.0647	.3338	4.732	.0424
%RSD	.1912	.2159	3.447	92.46	.2042	2.025

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.4019	-.09770	-.49003	-.2629	-.5270	2.8606
SDev	2.9197	.31094	.03601	.1413	.2067	1.3921
%RSD	85.826	318.25	7.349	53.75	39.23	48.667

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1710	2.196	-.97449	.34003	7.3050	1.4533
SDev	.0314	.1731	.98852	.02734	5.5783	1.5925
%RSD	18.36	7.881	101.44	8.0409	76.362	109.57

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.91225	-1.1901	5.0000	19483.4
SDev	.38931	.14037	0	67.8822
%RSD	42.677	11.795	0	.34841

Method: ARMY Sample Name: J8G52 Operator: LRW
Run Time: 10/11/07 19:46 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7500	129.8	-.96608	14.53	.2501	-.0715
SDev	.6733	11.9	.5532	1.607	.103	.0069
%RSD	89.77	9.171	57.263	11.06	41.17	9.637

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.9	-.0491	-.3116	-1.402	.0596	-.6072
SDev	3.406	.0794	.5524	1.43	.0561	12.29
%RSD	2.469	161.8	177.3	102	94.16	2024

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	114.0	4.045	.3195	-1.757	-1722.	.0531
SDev	29.9	5.17	.112	.3276	855.5	.3682
%RSD	26.22	127.8	35.07	18.65	49.68	693.8

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.64422	.42837	-13.939	.1400	-.1606	-1.9720
SDev	.64253	.19028	21.66	.7214	.1032	8.5775
%RSD	99.736	44.421	155.39	515.4	64.26	434.96

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0007	.2931	-4.0678	2.6731	-2.8107	2.3691
SDev	.6356	.0466	5.2669	2.3442	6.8734	4.3949
%RSD	92020	15.91	129.48	87.698	244.54	185.51

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.1130	-20.342	5.0000	19569.2
SDev	2.4492	33.696	0	57.1334
%RSD	220.06	165.65	0	.29195

Method: ARMY Sample Name: J8G55 Operator: LRW
Run Time: 10/11/07 19:51 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2157	-57.48	23.104	25.87	94.48	-.0970
SDev	.1265	2.684	2.1173	1.112	.2408	.0181
%RSD	58.67	4.669	9.1646	4.299	.2549	18.62

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	95320.	.1240	.2102	-.1355	.0311	1253.
SDev	123.1	.0734	.1947	.1634	.143	.5549
%RSD	.1291	59.18	92.62	120.6	459.4	.0443

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1425.	34010.	223.8	1.417	14190.	1.432
SDev	9.161	53.61	.4962	.8268	84.22	.5893
%RSD	.6427	.1576	.2217	58.35	.5935	41.15

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9677	-.50539	-2.2250	-.6011	-1.713	5.7732
SDev	1.848	1.191	2.7983	.6317	.2086	2.3428
%RSD	62.27	235.65	125.77	105.1	12.18	40.58

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4170	1.264	-1.0163	-.25030	4.0468	2.4290
SDev	.0911	.1205	.87065	1.3509	7.0121	.73017
%RSD	21.85	9.528	85.667	539.68	173.27	30.061

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1784	-4.4234	5.0000	19348.7
SDev	1.4507	4.9195	0	7.77817
%RSD	66.593	111.22	0	.04019

Method: ARMY Sample Name: J8G57 Operator: LRW
Run Time: 10/11/07 19:56 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3768	-44.30	-.21237	26.02	4.346	-.0732
SDev	.3502	4.139	.41837	1.758	.0918	.033
%RSD	92.94	9.342	197	6.754	2.111	45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	18040.	.0800	.0153	-.0728	-.1443	-6.053
SDev	13.39	.0536	.0819	.6283	.3905	.3581
%RSD	.0742	66.98	535.5	863.2	270.6	5.917

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1060.	7215.	25.05	-1.291	14230.	3.162
SDev	8.625	8.137	.0918	.3291	129.5	1.023
%RSD	.8133	.1128	.3663	25.49	.9099	32.36

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6181	-.13856	-1.0805	-.1633	-.6017	3.4210
SDev	.08752	.50061	2.0547	1.526	.3119	2.1952
%RSD	5.4092	361.28	190.17	934.3	51.84	64.167

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2779	6.769	.17272	-.29397	4.3915	.23354
SDev	.0609	.1225	1.4613	1.4801	4.1106	2.1834
%RSD	21.9	1.81	846.03	503.47	93.604	934.92

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8555	-3.0455	5.0000	19425.7
SDev	.48415	2.8388	0	34.9314
%RSD	16.955	93.212	0	.17982

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 20:04 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	952.7	25280.	495.66	5121.	2046.	1999.
SDev	3.181	48.31	2.9237	2.894	5.666	6.195
%RSD	.3339	.1911	.58986	.0565	.2769	.3098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50250.	494.6	1958.	1992.	2050.	25470.
SDev	168.8	1.888	6.493	5.929	6.024	53.58
%RSD	.3359	.3818	.3316	.2977	.2939	.2104

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49940.	50330.	2073.	2025.	49940.	2015.
SDev	128	206.7	6.039	12.79	83.61	12.9
%RSD	.2564	.4107	.2913	.6317	.1674	.6403

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	489.98	494.34	540.70	4982.	5012.	984.98
SDev	2.2066	2.413	4.0178	15.44	11.8	3.9463
%RSD	.45034	.48812	.74308	.3099	.2354	.40065

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2049.	1904.	448.56	517.20	486.75	491.59
SDev	4.61	8.202	6.2159	.5144	6.8076	.09052
%RSD	.225	.4308	1.3857	.09946	1.3986	.01841

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.53	583.22	5.0000	19166.6
SDev	6.2802	2.8884	0	81.4595
%RSD	1.3786	.49524	0	.425

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 20:11 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2184	-12.54	-.70115	13.45	.0470	-.1120
SDev	0	1.701	.62959	1.549	.0001	.0267
%RSD	.0025	13.56	89.794	11.51	.1907	23.86

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.358	.1255	.1507	-.1017	-.0850	-1.278
SDev	.0217	.044	.2227	.35	.3235	.7105
%RSD	1.601	35.07	147.8	344.2	380.8	55.58

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.8	2.251	.0563	-.3506	-578.6	1.738
SDev	1.773	3.199	.0555	.663	370.3	.2683
%RSD	1.225	142.1	98.61	189.1	64	15.43

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.9317	-.27074	-1.1915	2.310	-.0115	3.2042
SDev	1.6485	.00172	.7663	.7693	.3141	2.4108
%RSD	56.23	.63667	64.314	33.29	2740	75.24

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2857	.0391	1.7450	-1.2771	2.8730	2.9611
SDev	.122	.0786	.73243	.36308	1.0437	1.9505
%RSD	42.68	200.9	41.974	28.431	36.327	65.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9326	-2.7512	5.0000	19327.6
SDev	1.8102	.24514	0	2.26357
%RSD	93.667	8.9105	0	.01171

Method: ARMY Sample Name: J8NFGB Operator: LRW
Run Time: 10/11/07 20:16 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4712	-75.36	-.52205	-2.021	.7929	-.0899
SDev	.4831	15.64	.37425	2.639	.0654	.0006
%RSD	102.5	20.75	71.689	130.5	8.246	.7032

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	189.6	-.0751	.6227	-1.466	.3169	-7.071
SDev	2.03	.2891	.6051	1.843	.7158	19.96
%RSD	1.071	385.1	97.17	125.8	225.9	282.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	111.0	44.06	.7065	-.9468	-1813.	.8792
SDev	35.3	6.063	.1264	.1643	1147	.1609
%RSD	31.82	13.76	17.9	17.35	63.24	18.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0569	-1.3759	-3.0193	-1.536	-.3068	4.2770
SDev	1.6672	.6303	2.6486	2.456	.1035	3.8446
%RSD	157.73	45.811	87.722	159.9	33.74	89.892

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7705	4.294	4.7956	-4.4570	12.871	-4.8414
SDev	.9365	.2767	6.3936	4.137	1.168	3.0826
%RSD	121.5	6.444	133.32	92.821	9.0744	63.673

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.6011	-6.8237	5.0000	19567.2
SDev	2.7747	2.5856	0	17.8199
%RSD	60.305	37.892	0	.09107

Method: ARMY Sample Name: J8NFGC Operator: LRW
Run Time: 10/11/07 20:21 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51.58	1981.	1946.9	1034.	2009.	50.39
SDev	.0053	5.884	.66153	.9817	3.094	.0501
%RSD	.0103	.2971	.03397	.0949	.154	.0995

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48640.	48.83	484.5	197.3	257.3	1070.
SDev	48.03	.0994	.5146	.278	.4339	9.609
%RSD	.0988	.2036	.1062	.1409	.1686	.8977

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49170.	48870.	516.5	986.0	50820.	492.5
SDev	123.4	67.79	.5712	.3874	55.28	.7671
%RSD	.2509	.1387	.1106	.0393	.1088	.1557

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1961.2	485.15	525.13	1919.	985.3	1940.7
SDev	1.1982	.51263	.99717	.2526	.739	10.402
%RSD	.06109	.10566	.18989	.0132	.075	.53598

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	509.8	489.0	436.56	509.41	1941.4	1971.0
SDev	1.108	.3507	2.2794	1.9065	5.3906	4.4877
%RSD	.2172	.0717	.52212	.37426	.27766	.22768

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	440.03	567.61	5.0000	19302.2
SDev	6.4579	4.7191	0	18.3848
%RSD	1.4676	.83139	0	.09524

Method: ARMY Sample Name: J8KP1 Operator: LRW
Run Time: 10/11/07 20:28 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4501	812.7	2.3633	40.51	31.77	-.0764
SDev	.6681	7.537	.75417	2.08	.4074	.0289
%RSD	148.5	.9274	31.912	5.135	1.282	37.85

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	88110.	.3676	1.055	1.721	1.562	1240.
SDev	318.3	.1752	.445	.7033	1.266	21.09
%RSD	.3612	47.66	42.19	40.87	81.06	1.702

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1638.	29060.	191.2	1.294	9957.	3.661
SDev	28.09	123.2	.5732	.3373	235.3	.5456
%RSD	1.715	.4239	.2998	26.08	2.363	14.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6327	.11692	-8.6684	2.011	7.443	1.6588
SDev	2.4228	.22944	12.991	1.902	.8517	6.9291
%RSD	148.4	196.23	149.87	94.59	11.44	417.73

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.309	21.67	.15666	.09709	4.2161	.34286
SDev	.9488	.0092	2.8669	1.0873	5.1218	1.0754
%RSD	72.47	.0425	1830	1119.9	121.48	313.64

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6796	-13.835	5.0000	19391.2
SDev	1.3392	20.146	0	42.1433
%RSD	79.731	145.62	0	.21733

Method: ARMY Sample Name: J8KP3 Operator: LRW
Run Time: 10/11/07 20:33 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0605	1306.	1.2729	39.66	34.11	-.0371
SDev	.5326	4.547	.04469	.0727	.0131	.009
%RSD	879.8	.3481	3.511	.1833	.0383	24.2

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	89130.	.2454	.9370	1.508	2.223	1977.
SDev	5.817	.0067	.3894	.113	.3025	2.643
%RSD	.0065	2.727	41.55	7.489	13.61	.1337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1752.	29450.	190.4	-.3336	9802.	4.157
SDev	2.095	2.382	.0631	.6635	13.11	.2749
%RSD	.1195	.0081	.0331	198.9	.1338	6.613

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.22032	.36094	-1.7794	1.376	15.43	1.0110
SDev	2.181	.92628	.01567	1.9	.3968	3.3144
%RSD	989.92	256.63	.88064	138	2.572	327.84

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.958	22.10	-.24782	.66487	-.26686	-.19709
SDev	.0572	.071	.18697	1.4821	7.6335	.54109
%RSD	2.923	.3214	75.447	222.91	2860.5	274.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.60091	-2.3678	5.0000	19373
SDev	.87126	.41148	0	26.0221
%RSD	144.99	17.378	0	.13432

Method: ARMY Sample Name: J8KP6 Operator: LRW
Run Time: 10/11/07 20:38 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.240	-65.04	61.224	2076.	173.5	.8458
SDev	3.485	17.5	3.6269	11.81	.4848	.0614
%RSD	155.6	26.91	5.9241	.569	.2794	7.256

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	84850.	.7112	5.275	.6366	2.386	142300.
SDev	607.7	.526	2.249	2.653	2.658	728.9
%RSD	.7162	73.96	42.64	416.7	111.4	.5123

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6988.	36690.	1283.	1.069	19720.	17.57
SDev	53.69	345.4	4.068	3.316	1115	3.804
%RSD	.7683	.9414	.3169	310.2	5.655	21.65

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31725	-.98560	-3.6101	2.364	-1.046	8.5187
SDev	.55062	.94941	2.3243	6.091	.5225	7.0014
%RSD	173.56	96.328	64.383	257.7	49.94	82.189

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.271	.1919	-.03211	-1.4616	1.1571	-1.0533
SDev	2.15	.4349	2.8122	2.8274	2.1471	1.8974
%RSD	169.2	226.6	8757.3	193.44	185.55	180.14

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0121	-6.4170	5.0000	19371.2
SDev	1.1407	4.0542	0	1.41421
%RSD	56.689	63.179	0	.0073

Method: ARMY Sample Name: J8KP6L Operator: LRW
Run Time: 10/11/07 20:43 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3973	-58.30	9.7712	406.6	34.07	.0557
SDev	.3897	1.64	.85511	1.453	.1175	.0157
%RSD	98.08	2.812	8.7514	.3574	.345	28.23

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	16860.	.1355	.8004	-.3143	.3679	28460.
SDev	10.33	.016	.1944	.0451	.5234	12.54
%RSD	.0613	11.82	24.29	14.35	142.3	.0441

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1286.	7176.	256.2	-1.119	3769.	3.686
SDev	.0138	12.13	.2351	.8321	14.85	1.496
%RSD	.0011	.169	.0917	74.35	.3941	40.6

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.7043	-.72739	-1.5748	-.4367	-.7533	-1.3942
SDev	.23836	.29114	.06924	1.401	.1063	3.2279
%RSD	13.986	40.026	4.397	320.8	14.11	231.52

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2531	.0834	.54299	-1.3616	-2.1507	-1.4814
SDev	.2479	.0998	.24738	.31299	1.7948	1.2534
%RSD	97.94	119.6	45.56	22.987	83.453	84.612

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7690	-3.2442	5.0000	19279
SDev	.46276	.12722	0	47.517
%RSD	26.16	3.9215	0	.24647

Method: ARMY Sample Name: J8KP6X Operator: LRW
Run Time: 10/11/07 20:48 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3967	-75.66	62.272	2142.	179.9	.8260
SDev	.1625	2.355	.05333	4.322	.3388	.0256
%RSD	40.97	3.113	.08565	.2018	.1883	3.095

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	87430.	.4919	3.893	-1.356	1.069	146600.
SDev	262.2	.1352	.1649	.1633	.1742	391
%RSD	.2999	27.49	4.236	12.04	16.29	.2667

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7200.	37700.	1327.	-.5261	19680.	16.46
SDev	18.88	118.1	2.825	.6681	24.4	.4434
%RSD	.2622	.3131	.2128	127	.124	2.693

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.62380	-1.1637	-2.0123	-1.493	-1.642	7.6356
SDev	2.6643	.08085	1.1913	.4533	.3156	1.4298
%RSD	427.11	6.9482	59.199	30.35	19.22	18.726

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0618	-.4278	-1.9581	-.76710	7.0626	-4.4612
SDev	.1707	.1211	.53372	.14523	1.627	4.8068
%RSD	276.1	28.3	27.257	18.933	23.037	107.75

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.17216	-2.9310	5.0000	19302.8
SDev	2.5059	.53495	0	14.4253
%RSD	1455.5	18.252	0	.07473

Method: ARMY Sample Name: J8KP6S Operator: LRW
Run Time: 10/11/07 20:53 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.99	2028.	2090.8	3141.	2262.	52.66
SDev	.3259	1.005	8.1954	13.68	4.352	.1401
%RSD	.6036	.0496	.39197	.4354	.1924	.2661

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	131800.	50.19	504.7	201.5	271.9	139300.
SDev	443.4	.0774	.6696	.196	.4712	474.2
%RSD	.3364	.1542	.1327	.0973	.1733	.3405

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	58990.	86780.	1784.	1018.	70460.	516.2
SDev	69.39	323.5	5.554	2.714	233.4	.8613
%RSD	.1176	.3728	.3113	.2666	.3313	.1669

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2023.0	496.04	546.55	1991.	1015.	1988.6
SDev	1.6874	1.9275	4.7415	12.34	2.852	12.6
%RSD	.08341	.38856	.86753	.6198	.2809	.63362

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	525.7	498.6	446.87	520.59	2017.7	2025.6
SDev	.3705	1.377	1.7425	3.7597	.87551	2.967
%RSD	.0705	.2761	.38994	.72219	.04339	.14647

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	459.21	590.15	5.0000	19187.8
SDev	1.3864	6.4165	0	11.8799
%RSD	.3019	1.0873	0	.06191

Method: ARMY Sample Name: J8KQA Operator: LRW
Run Time: 10/11/07 20:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7594	-60.25	33.066	82.69	76.14	-.0983
SDev	.2726	1.725	2.524	2.712	.0695	.0156
%RSD	35.89	2.864	7.6331	3.28	.0912	15.87

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	117100.	.1269	.8197	.6048	-.3338	1213.
SDev	221.7	.0504	.055	.0423	.1209	2.835
%RSD	.1893	39.69	6.709	6.993	36.23	.2337

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3360.	47150.	69.43	2.119	17810.	1.090
SDev	.6684	110.8	.1955	1.5	101.3	.5418
%RSD	.0199	.235	.2815	70.78	.5689	49.71

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2625	-.12325	-3.9229	-.4424	-2.155	1.7466
SDev	2.6097	.33038	4.3803	.0497	.005	.82299
%RSD	206.71	268.04	111.66	11.24	.2325	47.119

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5887	1.309	.47556	-.42222	6.5919	-1.3982
SDev	.3962	.0659	2.4291	.71738	4.218	1.8067
%RSD	67.31	5.035	510.78	169.91	63.988	129.21

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0623	-7.4102	5.0000	19361.3
SDev	.22076	6.6773	0	50.4877
%RSD	7.2092	90.11	0	.26076

Method: ARMY Sample Name: J8KQG Operator: LRW
Run Time: 10/11/07 21:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1417	-62.34	36.799	233.5	10.52	-.1343
SDev	.1006	1.696	.38332	.7407	.153	.0076
%RSD	71.02	2.72	1.0417	.3172	1.454	5.692

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	223700.	.1554	2.903	-.1378	-.3006	4344.
SDev	446.9	.0489	.2301	.2355	.0652	10.09
%RSD	.1998	31.49	7.923	170.9	21.7	.2323

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4508.	120400.	228.2	3.407	100400.	4.521
SDev	3.965	223.9	.3056	1.187	27.84	.3365
%RSD	.088	.186	.1339	34.84	.0277	7.444

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1469	-1.0766	-3.1082	-2.686	-4.369	3.2029
SDev	2.5783	.58149	1.8708	.6896	.0995	.22532
%RSD	120.1	54.01	60.187	25.68	2.277	7.0352

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9806	.8533	-.66490	-1.2822	4.9922	.72638
SDev	.0936	.1623	.45479	1.0989	3.4719	2.1322
%RSD	9.543	19.02	68.399	85.7	69.546	293.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0118	-6.1637	5.0000	19031.5
SDev	1.5347	2.0385	0	31.5367
%RSD	50.955	33.074	0	.1657

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 21:12 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	954.9	25440.	494.14	5211.	2060.	2003.
SDev	.4283	15.32	1.7294	31.61	2.63	3.847
%RSD	.0449	.0602	.34998	.6065	.1277	.1921

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50360.	494.1	1962.	1998.	2060.	25550.
SDev	127.8	.1606	4.382	4.118	.3064	74.86
%RSD	.2538	.0325	.2234	.2061	.0149	.293

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50220.	50520.	2081.	2030.	50250.	2003.
SDev	19.11	111.3	5.476	3.543	139	5.146
%RSD	.0381	.2203	.2631	.1745	.2767	.2569

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	485.51	493.42	530.59	4983.	5046.	985.07
SDev	1.4371	.47057	11.021	14.98	14.74	3.8837
%RSD	.296	.09537	2.0772	.3006	.2921	.39426

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2062.	1903.	444.01	518.08	484.37	486.08
SDev	5.553	.1281	.00157	.70628	1.4904	2.8987
%RSD	.2693	.0067	.00035	.13632	.30769	.59634

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	453.74	568.96	5.0000	19169.5
SDev	.70244	16.875	0	50.7708
%RSD	.15481	2.9659	0	.26485

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 21:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4344	-8.203	-1.8389	17.65	.0419	-.1104
SDev	.1616	.9979	1.9203	2.41	.0664	.0008
%RSD	37.21	12.17	104.43	13.66	158.5	.757

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.161	.1256	-.1206	-.2059	-.0979	-2.326
SDev	.2096	.0997	.2774	.024	.2399	1.403
%RSD	2.927	79.35	229.9	11.64	245.1	60.32

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.9	2.867	.0326	.1060	-425.0	1.494
SDev	2.464	.4215	.0098	.0018	64.88	.4828
%RSD	1.712	14.7	30.03	1.712	15.27	32.31

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7989	.33980	-2.0318	2.535	-.1600	1.2169
SDev	1.4276	.22163	1.3489	.4895	.1041	1.6603
%RSD	79.36	65.225	66.387	19.31	65.07	136.44

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0623	.1971	1.8224	-.40038	3.7181	.84077
SDev	.0004	.2868	.10076	.28198	1.5589	1.3621
%RSD	.6035	145.5	5.5293	70.429	41.926	162

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8055	-4.4468	5.0000	19455.7
SDev	1.3324	1.3571	0	19.0919
%RSD	47.492	30.519	0	.09813

Method: ARMY Sample Name: J8KQH Operator: LRW
Run Time: 10/11/07 21:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2889	-68.28	-.05744	3.831	.2290	-.1246
SDev	.0009	3.878	.91138	1.371	.0653	.001
%RSD	.2973	5.679	1586.7	35.79	28.52	.7722

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-72.42	.0335	-.0017	-.2737	.5434	7.595
SDev	2.176	.0131	.4973	.068	.2518	2.782
%RSD	3.004	38.91	28890	24.85	46.34	36.62

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.4	2.328	.2248	-.9444	-754.9	.4702
SDev	5.664	.2691	.0077	.1656	89.97	.3166
%RSD	4.123	11.56	3.437	17.54	11.92	67.33

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.03418	-.27187	-4.7333	.3675	-.1603	2.5385
SDev	1.6057	.57709	1.7543	.318	.1036	1.4078
%RSD	4696.5	212.27	37.062	86.53	64.61	55.457

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0859	-.1572	-.36232	-.22671	3.2270	-1.6624
SDev	.0901	.0882	.36095	.685	.85341	1.9813
%RSD	105	56.11	99.622	302.15	26.446	119.18

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.09683	-7.1447	5.0000	19514
SDev	1.1432	2.0593	0	33.9411
%RSD	1180.6	28.823	0	.17393

Method: ARMY Sample Name: J8KQK Operator: LRW
Run Time: 10/11/07 21:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2211	22100.	34.318	118.4	212.3	1.484
SDev	.8069	379.7	.19419	.6447	1.464	.0281
%RSD	365	1.718	.56585	.5447	.6896	1.891

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76710.	.2687	17.38	36.66	21.21	31600.
SDev	100.8	.0573	.4849	.4597	.3426	12.65
%RSD	.1314	21.34	2.79	1.254	1.615	.04

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7946.	31860.	465.6	.9963	13350.	37.78
SDev	136.3	15.85	.4664	.494	82.54	.6123
%RSD	1.715	.0498	.1002	49.58	.6184	1.621

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.77083	11.968	-.71395	-1.533	262.0	1.6819
SDev	3.3586	.29363	4.3972	.2234	26.26	1.6509
%RSD	435.7	2.4536	615.9	14.57	10.02	98.162

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	37.73	63.55	9.6769	13.112	6.0643	-1.8719
SDev	.9426	.2485	.11825	.38119	4.8374	2.6203
%RSD	2.498	.391	1.2221	2.9073	79.768	139.98

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.93391	-1.5367	5.0000	19521.4
SDev	.7737	6.2062	0	13.0097
%RSD	82.845	403.88	0	.06664

Method: ARMY Sample Name: J8KQN Operator: LRW
Run Time: 10/11/07 21:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4414	-45.02	-1.2580	36.25	15.29	-.1221
SDev	.5405	1.964	1.616	.5487	.0966	.0177
%RSD	122.5	4.363	128.46	1.513	.6318	14.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34430.	.2205	1.632	.2551	.2462	5106.
SDev	13.31	.1415	.2212	.2086	.2254	1.804
%RSD	.0386	64.19	13.56	81.8	91.54	.0353

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1236.	15620.	1461.	-1.240	10180.	46.89
SDev	.6046	3.281	.3754	.0001	117.2	.7355
%RSD	.0489	.021	.0257	.0087	1.151	1.568

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.44455	-.56045	-3.0482	-.8617	-.5283	4.0513
SDev	1.7165	.01873	.65825	.3596	.2085	.35975
%RSD	386.12	3.3435	21.595	41.74	39.46	8.8799

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3277	106.5	1.5906	-1.6344	5.9359	-2.2970
SDev	.4263	.3867	.86336	.40294	.43316	2.3572
%RSD	130.1	.3632	54.279	24.654	7.2974	102.62

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.6669	-6.4007	5.0000	19422.3
SDev	1.9066	1.9387	0	5.23286
%RSD	51.993	30.289	0	.02694

Method: ARMY Sample Name: J8KQQ Operator: LRW
Run Time: 10/11/07 21:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6042	-50.42	10.821	31.70	125.9	-.1343
SDev	.1901	1.382	.68111	.4695	.0731	.0167
%RSD	31.46	2.741	6.2942	1.481	.058	12.45

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	98900.	.0853	.1711	-.1368	-.0147	5565.
SDev	159	.1126	.0273	.3016	.3537	9.374
%RSD	.1608	132.1	15.96	220.5	2398	.1684

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1540.	24270.	636.5	.6375	10510.	2.149
SDev	7.543	32.44	1.057	.3282	10.64	.2179
%RSD	.4898	.1337	.1661	51.47	.1013	10.14

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.07078	-.80939	-.92676	-.0922	-1.416	1.9376
SDev	.52065	.10711	2.8763	.3633	.0013	1.509
%RSD	735.59	13.234	310.36	394	.0927	77.879

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1438	1.817	-.46194	-.98285	.81889	-.51494
SDev	.0305	.1689	1.635	.6557	.53898	1.0497
%RSD	21.21	9.295	353.95	66.715	65.818	203.84

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4866	-3.1301	5.0000	19371
SDev	.09402	4.3592	0	21.4963
%RSD	2.6968	139.27	0	.11097

Method: ARMY Sample Name: J8KQV Operator: LRW
Run Time: 10/11/07 21:45 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1664	-58.78	-1.9304	58.84	19.13	-.1184
SDev	.2455	.2435	.31201	1.064	.0544	.0081
%RSD	147.5	.4142	16.163	1.808	.2842	6.872

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	298200.	.1331	.2670	.2505	.4587	-.7305
SDev	270.9	.0227	.2235	.0456	.7516	4.984
%RSD	.0908	17.04	83.7	18.2	163.9	682.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4109.	14840.	56.08	-.5797	1959.	4.766
SDev	.8	5.093	.0119	.0012	81.65	.006
%RSD	.0195	.0343	.0213	.2005	4.168	.1252

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.40112	-.59353	-2.7548	-2.808	-5.440	3.1189
SDev	3.6884	.05995	.72793	.2265	.0054	.11533
%RSD	919.51	10.101	26.425	8.066	.0985	3.6977

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5805	1.934	.91413	-1.3462	6.0482	-2.4182
SDev	.1844	.0529	1.1948	.50661	6.7856	2.1421
%RSD	31.76	2.734	130.7	37.632	112.19	88.583

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.4323	-5.8437	5.0000	19239.8
SDev	.48585	.84879	0	19.799
%RSD	14.155	14.525	0	.1029

Method: ARMY Sample Name: J8KQ0 Operator: LRW
Run Time: 10/11/07 21:50 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3714	-97.67	36.024	146.9	62.47	-.1416
SDev	.0812	3.848	1.6548	1.559	.0069	.0086
%RSD	21.86	3.94	4.5935	1.061	.011	6.089

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	33930.	.1780	5.437	-.4511	.2331	17380.
SDev	37.13	.0214	.1113	.1854	.1358	17.42
%RSD	.1094	12.04	2.048	41.11	58.25	.1002

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5123.	51980.	2401.	-.6513	2480.	5.951
SDev	14.4	66.2	1.336	.0003	342.5	.373
%RSD	.2811	.1274	.0557	.0424	13.81	6.268

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.87744	-.70310	-3.0527	-1.658	-.8224	4.2593
SDev	.77501	.35285	1.3183	2.023	.0001	2.3419
%RSD	88.327	50.186	43.186	122	.0078	54.984

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.192	-.4319	-.47056	-.81919	-.12001	-1.2556
SDev	.0299	.001	.55911	.24988	1.9604	2.1407
%RSD	2.51	.2217	118.82	30.503	1633.5	170.49

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7840	-5.4674	5.0000	19442.7
SDev	.0939	1.9296	0	2.12132
%RSD	5.2639	35.293	0	.01091

Method: ARMY Sample Name: J8KQ2 Operator: LRW
Run Time: 10/11/07 21:55 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3534	-92.31	34.486	144.0	62.01	-.1236
SDev	.2981	1.446	1.3695	.0885	.0104	.0154
%RSD	84.35	1.567	3.9712	.0615	.0168	12.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34010.	.1656	5.356	.0238	.1608	16900.
SDev	10.75	.1213	.2361	.0726	.375	9.911
%RSD	.0316	73.29	4.407	304.7	233.2	.0586

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5110.	51000.	2406.	.1601	2558.	6.513
SDev	2.59	8.565	.1548	.829	163.2	.404
%RSD	.0507	.0168	.0064	518	6.379	6.203

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8058	-.44646	-1.2140	1.836	-.8221	4.9212
SDev	4.0415	.36401	.54359	.392	.0018	1.7375
%RSD	223.81	81.534	44.777	21.35	.2181	35.308

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9201	-.2255	1.1827	-1.2598	5.2629	.07981
SDev	.1521	.0995	1.6709	1.3799	3.5211	4.3013
%RSD	16.53	44.11	141.28	109.54	66.904	5388.8

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4039	-2.5210	5.0000	19453.7
SDev	.11132	.87056	0	59.2547
%RSD	7.9294	34.532	0	.30459

Method: ARMY Sample Name: J8KQ5 Operator: LRW
Run Time: 10/11/07 22:00 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1777	-79.45	51.431	1113.	55.74	-.1335
SDev	.0905	1.946	1.2018	2.414	.2075	.0166
%RSD	50.92	2.45	2.3368	.2169	.3724	12.43

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140100.	.2155	6.874	-.2321	.2950	19360.
SDev	110.9	.0787	.0768	.3497	.1057	10.7
%RSD	.0791	36.51	1.117	150.6	35.83	.0553

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8755.	105600.	2729.	.0806	10420.	12.32
SDev	30.57	167.2	1.174	.002	33.04	.9299
%RSD	.3492	.1583	.043	2.421	.3171	7.546

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.0417	-1.2652	-3.1818	.4936	-2.533	3.2563
SDev	1.4492	1.0531	.60047	1.181	.1023	2.4832
%RSD	139.12	83.236	18.872	239.2	4.04	76.259

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.073	9.615	-.24271	-1.7756	.95466	-2.0383
SDev	.0311	.2602	.15743	1.5002	1.8672	1.2405
%RSD	2.899	2.706	64.864	84.49	195.59	60.858

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4613	-5.4998	5.0000	19291.1
SDev	2.7934	.49432	0	21.6372
%RSD	191.16	8.9881	0	.11216

Method: ARMY Sample Name: J8KRD Operator: LRW
Run Time: 10/11/07 22:05 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2129	-64.80	40.523	88.56	72.37	-.1238
SDev	.0218	.378	.8461	2.281	.9062	.0143
%RSD	10.25	.5834	2.088	2.575	1.252	11.54

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	81460.	.0648	.1490	-.0813	.0287	796.5
SDev	840	.0378	.0593	.0389	.2418	15.54
%RSD	1.031	58.28	39.8	47.81	841.5	1.952

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3230.	65350.	56.13	.8376	25500.	.6051
SDev	16.49	771.5	.6595	.6433	196.2	.1476
%RSD	.5104	1.181	1.175	76.8	.7692	24.39

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.0236	.00414	-.72275	-.6951	-1.423	3.8994
SDev	4.4097	.20851	.39702	1.395	.0103	1.4223
%RSD	217.91	5036	54.932	200.6	.7259	36.475

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.054	.5472	.26061	-.12390	6.5214	-.22193
SDev	.5773	.1248	.15511	.39004	8.0757	2.5795
%RSD	54.76	22.8	59.517	314.8	123.83	1162.3

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.97022	-1.5680	5.0000	19248.4
SDev	.10041	.64537	0	167.159
%RSD	10.349	41.159	0	.86843

Method: ARMY Sample Name: J8KRDL Operator: LRW
Run Time: 10/11/07 22:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1273	-61.45	8.3429	15.95	14.10	-.1493
SDev	.2898	1.398	.30022	.2717	.0619	.0082
%RSD	227.7	2.274	3.5985	1.703	.4386	5.507

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15990.	.0335	.2293	-.1673	.1131	154.8
SDev	.9301	.0724	.1116	.2104	.0415	7.741
%RSD	.0058	216	48.65	125.8	36.67	4.999

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	659.2	12540.	11.08	1.059	5028.	1.853
SDev	.7981	12.99	.0046	.001	133	.1086
%RSD	.1211	.1036	.0413	.0958	2.645	5.859

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7935	.28577	-1.5323	1.352	-.3076	2.0803
SDev	.07418	.87553	1.5956	2.215	.1047	2.9749
%RSD	2.6558	306.37	104.13	163.9	34.04	143.01

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0635	.0233	1.3673	-.25415	5.2568	1.5637
SDev	.4281	.1526	1.4441	.59165	9.4214	4.5924
%RSD	674.2	655.2	105.62	232.79	179.23	293.68

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.3554	-3.4732	5.0000	19321.5
SDev	1.4387	1.674	0	7.49505
%RSD	61.08	48.198	0	.03879

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 22:18 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	955.2	25510.	493.65	5278.	2061.	2013.
SDev	.9866	8.902	.71854	26.65	1.509	2.284
%RSD	.1033	.0349	.14555	.505	.0732	.1135

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50710.	495.9	1973.	2011.	2061.	25800.
SDev	105.6	.1143	3.33	2.16	.7163	64.58
%RSD	.2083	.023	.1688	.1074	.0348	.2503

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50180.	50780.	2099.	2043.	50520.	1993.
SDev	.6712	171.9	3.03	5.848	71.51	.2101
%RSD	.0013	.3386	.1444	.2862	.1415	.0105

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	487.84	497.93	542.22	5006.	5083.	990.04
SDev	.71036	.20657	1.2319	2.767	8.142	7.8609
%RSD	.14561	.04148	.22719	.0553	.1602	.794

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2074.	1903.	449.48	522.12	486.99	488.26
SDev	2.729	.1163	.7431	.06128	1.142	1.6351
%RSD	.1316	.0061	.16532	.01173	.2345	.33489

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.92	585.30	5.0000	19177.8
SDev	2.2693	2.98	0	20.3652
%RSD	.49774	.50913	0	.10619

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 22:25 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1293	-11.18	-1.2269	14.47	.0416	-.1353
SDev	.0181	1.271	.16021	2.068	.001	.0008
%RSD	13.98	11.37	13.059	14.3	2.36	.6233

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.924	.0907	.1145	-.2389	-.3289	-7.316
SDev	.2485	.0558	.0004	.2095	.259	3.52
%RSD	3.136	61.54	.3327	87.68	78.75	48.11

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.0	2.581	.0064	-.0113	-644.9	1.115
SDev	1.181	1.436	.0267	.1624	244.7	.7973
%RSD	.8315	55.62	417.1	1433	37.95	71.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.29993	-.19987	-1.3517	.5628	-.2336	1.3932
SDev	1.0974	.91233	1.645	2.376	0	.56055
%RSD	365.89	456.45	121.7	422.2	0	40.234

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1738	-.0311	1.9480	-1.2722	.66120	.11957
SDev	.0904	.1438	1.0313	1.8827	.65979	1.3159
%RSD	52.01	462.5	52.942	147.99	99.786	1100.5

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6595	-2.8550	5.0000	19463.8
SDev	1.4266	3.1785	0	25.1727
%RSD	85.964	111.33	0	.12933

Method: ARMY Sample Name: J8KRDX Operator: LRW
Run Time: 10/11/07 22:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3512	-67.51	48.570	105.2	83.27	-.1378
SDev	.4897	.0049	2.6261	.224	.0259	.0259
%RSD	139.4	.0072	5.4068	.2128	.0311	18.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	93670.	.1709	.8995	.5285	.2642	926.1
SDev	46.3	.0861	.2785	.0222	.1297	5.019
%RSD	.0494	50.37	30.96	4.2	49.12	.5419

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3708.	75100.	64.06	2.951	29500.	1.592
SDev	2.633	42.31	.0368	.0033	34.38	1.129
%RSD	.071	.0563	.0574	.1116	.1165	70.9

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.31312	-.38922	-.63054	-.2748	-1.495	4.2160
SDev	1.0535	1.2639	1.2557	1.723	.1058	1.3717
%RSD	336.43	324.72	199.14	627.1	7.079	32.536

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2772	.2485	.08404	-.62549	4.2792	-2.6058
SDev	.521	.1831	.52241	1.6341	4.2611	.54797
%RSD	187.9	73.68	621.6	261.24	99.578	21.029

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.37703	-1.1336	5.0000	19286.3
SDev	.96202	2.3628	0	13.7181
%RSD	255.16	208.44	0	.07112

Method: ARMY Sample Name: J8KRDS Operator: LRW
Run Time: 10/11/07 22:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56.73	2166.	2186.2	1238.	2282.	54.63
SDev	.6484	9.599	2.0423	2.888	3.447	.0441
%RSD	1.143	.4432	.09341	.2332	.151	.0807

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138600.	52.60	522.7	213.7	280.8	2031.
SDev	182.9	.0645	.7101	.1853	.9395	7.261
%RSD	.132	.1226	.1358	.0867	.3346	.3574

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	57760.	124100.	623.8	1075.	81350.	525.8
SDev	153	112.9	.9428	2.59	125.7	2.969
%RSD	.2649	.0909	.1511	.2409	.1546	.5647

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2131.6	523.23	580.72	2090.	1072.	2096.6
SDev	6.3419	.58488	1.151	2.771	.4816	3.5514
%RSD	.29752	.11178	.1982	.1326	.0449	.16939

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	553.4	526.4	470.64	549.48	2122.4	2136.1
SDev	.4712	2.128	.25646	1.0049	1.1366	8.9405
%RSD	.0852	.4043	.05449	.18288	.05355	.41854

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	486.59	627.71	5.0000	19182.3
SDev	.83791	2.144	0	31.2536
%RSD	.1722	.34155	0	.16292

Method: ARMY Sample Name: J8KRG Operator: LRW
Run Time: 10/11/07 22:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5917	-67.69	24.645	38.40	79.40	-.1440
SDev	.1612	1.133	1.7465	.864	.0489	.0027
%RSD	27.24	1.674	7.0868	2.25	.0616	1.884

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146800.	.1871	.7425	-.0315	.2928	4386.
SDev	271.6	.0369	.0563	.1141	.361	4.588
%RSD	.1851	19.7	7.588	362.4	123.3	.1046

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2147.	80540.	206.3	.9961	26850.	.8748
SDev	7.612	174.2	.3368	.8412	96.16	.9772
%RSD	.3545	.2163	.1633	84.45	.3581	111.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.49570	.04820	-1.1884	-.2390	-2.315	3.5872
SDev	1.0688	1.6882	1.1148	.0392	.4141	1.9954
%RSD	215.62	3502	93.812	16.42	17.89	55.627

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5438	2.818	-1.2504	.69651	1.9767	-1.7300
SDev	.0926	.2188	2.2148	1.4252	3.7711	.28027
%RSD	17.03	7.766	177.14	204.62	190.78	16.201

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.3524	-3.4554	5.0000	19243.1
SDev	1.1335	1.1055	0	60.6689
%RSD	33.812	31.994	0	.31527

Method: ARMY Sample Name: J7914A Sb 200ppb Operator: LRW
Run Time: 10/11/07 22:47 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2870	24170.	86.957	12.46	130.6	.9224
SDev	.3363	82.16	.98196	.8486	.3758	.02
%RSD	117.2	.3399	1.1293	6.812	.2877	2.168

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	982.1	.7195	15.37	307.0	71.99	132600.
SDev	.581	.0638	.1487	1.06	.4308	410
%RSD	.0592	8.861	.9676	.3453	.5985	.3091

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3302.	4195.	525.7	11.17	-574.7	211.1
SDev	17.43	11.53	1.393	.501	72.84	1.126
%RSD	.5278	.2747	.265	4.487	12.67	.5336

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.7809	238.01	230.43	16.15	266.9	5.8413
SDev	2.0903	.70532	1.009	.547	1.046	2.0234
%RSD	75.166	.29633	.43789	3.386	.392	34.639

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	67.20	223.7	210.74	251.63	1.3228	3.5089
SDev	.0796	.6622	1.8528	.13244	3.9657	1.154
%RSD	.1184	.296	.87916	.05263	299.8	32.888

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	192.61	249.31	5.0000	19734.8
SDev	.22619	1.3999	0	16.6874
%RSD	.11743	.56149	0	.08455

Method: ARMY Sample Name: J8FKFA SB 200PPB Operator: LRW
Run Time: 10/11/07 23:07 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3792	115200.	79.218	6.217	608.7	5.024
SDev	.0905	174.2	1.3066	1.156	.4527	.0006
%RSD	23.88	.1512	1.6493	18.59	.0744	.012

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	12910.	2.762	76.48	164.8	69.87	190700.
SDev	25.22	.0024	.3308	.9659	.1196	500.2
%RSD	.1954	.0874	.4325	.5861	.1711	.2622

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4967.	16780.	6676.	17.76	-200.5	108.3
SDev	4.3	41.74	6.841	.0915	257.8	.226
%RSD	.0866	.2487	.1025	.5152	128.6	.2086

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.6826	217.37	255.30	6.348	499.5	10.353
SDev	1.7592	.01253	.76561	2.773	.208	1.9589
%RSD	22.899	.00576	.29988	43.68	.0416	18.92

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	228.8	483.6	188.13	231.97	12.926	5.0649
SDev	.7515	.2718	.62989	.29567	.82265	2.2268
%RSD	.3284	.0562	.33482	.12746	6.3644	43.966

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	213.93	275.96	5.0000	19947.8
SDev	2.2884	2.2904	0	72.6911
%RSD	1.0697	.82996	0	.3644

Method: ARMY Sample Name: J8FR7A SB 200PPB Operator: LRW
Run Time: 10/11/07 23:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3911	102600.	117.70	11.20	994.2	8.029
SDev	.1059	565.4	3.7087	.4271	6.635	.053
%RSD	27.08	.5509	3.151	3.813	.6674	.6606

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54410.	3.065	104.1	163.3	141.5	234400.
SDev	316.8	.1167	.7219	1.23	.5804	1509
%RSD	.5823	3.807	.6932	.7536	.4101	.6438

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6388.	20580.	12420.	8.278	275.2	167.6
SDev	24.91	108.4	58.71	.2106	148.6	1.239
%RSD	.39	.5267	.4725	2.544	53.98	.7393

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.6105	182.50	245.25	5.374	425.8	16.148
SDev	.78413	.22395	.73208	.9401	2.895	1.1569
%RSD	17.007	.12271	.2985	17.49	.6798	7.1641

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	198.5	583.8	156.07	195.69	8.3541	2.7415
SDev	1.145	4.348	1.0979	.88392	4.5076	1.0748
%RSD	.5768	.7448	.70349	.45169	53.957	39.205

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	206.13	264.78	5.0000	20329.6
SDev	2.0011	.09853	0	100.126
%RSD	.97081	.03721	0	.49251

Method: ARMY Sample Name: CRI/MRL Operator: LRW
Run Time: 10/11/07 23:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.148	186.8	13.998	218.8	10.55	5.101
SDev	.1633	2.488	.30527	.0736	.0109	.0034
%RSD	3.172	1.332	2.1809	.0336	.1033	.0666

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5209.	5.244	4.917	5.017	15.77	312.5
SDev	5.785	.1048	.2041	.487	.1188	1.976
%RSD	.1111	1.999	4.151	9.705	.7534	.6325

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4485.	5121.	16.60	9.767	5471.	26.50
SDev	2.279	1.103	.0239	1.107	36.25	.962
%RSD	.0508	.0215	.1442	11.33	.6626	3.63

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22.905	10.788	8.2090	104.0	52.48	15.727
SDev	2.5104	.10473	1.0091	.778	.104	.13999
%RSD	10.96	.97082	12.293	.7483	.1981	.8902

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.325	45.67	11.172	10.597	21.103	23.804
SDev	.0296	.0528	1.4443	.87811	.64566	4.086
%RSD	.4047	.1156	12.928	8.2866	3.0596	17.165

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	9.8866	7.3715	5.0000	19466.5
SDev	.58775	1.8063	0	76.7915
%RSD	5.945	24.504	0	.39448

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/11/07 23:28 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	957.4	25540.	495.89	5286.	2069.	2015.
SDev	.5924	4.558	1.8039	3.661	2.138	3.655
%RSD	.0619	.0178	.36377	.0693	.1033	.1814

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50740.	497.1	1975.	2011.	2067.	25760.
SDev	54.26	.5255	4.173	1.441	2.031	38.5
%RSD	.1069	.1057	.2114	.0717	.0983	.1494

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50190.	50780.	2114.	2042.	50460.	1994.
SDev	35.69	27.65	3.356	.3198	302.8	2.513
%RSD	.0711	.0545	.1588	.0157	.6001	.126

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	490.38	498.41	543.13	5009.	5091.	992.48
SDev	.67331	.10215	1.5249	1.343	9.526	6.5383
%RSD	.1373	.02049	.28075	.0268	.1871	.65878

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2075.	1908.	449.20	522.97	490.71	490.22
SDev	3.561	.6724	.43913	.37237	1.4994	1.758
%RSD	.1716	.0352	.09775	.0712	.30556	.35862

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	455.73	586.77	5.0000	19246.5
SDev	1.4199	2.9951	0	20.5061
%RSD	.31156	.51043	0	.10654

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/11/07 23:35 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4559	-15.34	.93137	14.79	.0691	-.1633
SDev	.6782	1.641	.74355	2.775	.1042	.0063
%RSD	148.8	10.7	79.833	18.77	150.8	3.863

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	8.802	.1397	.1331	-.0705	.5022	-1.038
SDev	.7635	.1475	.4147	.2597	.1404	5.341
%RSD	8.675	105.6	311.6	368.4	27.96	514.6

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	140.8	.0076	.0287	.2310	-434.2	.4078
SDev	9.081	.0096	.0392	.1733	116.9	1.185
%RSD	6.447	127.2	136.7	75.01	26.93	290.4

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7390	-.18396	1.3169	.7382	-.2336	4.4521
SDev	.46288	.92575	.33184	.9138	0	1.3338
%RSD	26.618	503.22	25.199	123.8	0	29.958

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1766	.2710	1.2728	-.91127	2.9059	1.1564
SDev	.0328	.4461	1.213	1.9935	.77987	.30462
%RSD	18.58	164.6	95.301	218.76	26.837	26.343

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.9369	1.0073	5.0000	19375.4
SDev	.10148	.54818	0	76.6493
%RSD	5.2396	54.419	0	.3956

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 00:09 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	948.6	25330.	493.20	5237.	2051.	1998.
SDev	1.915	41.46	5.0325	16.95	4.361	2.05
%RSD	.2018	.1637	1.0204	.3236	.2126	.1026

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50320.	493.2	1959.	1994.	2050.	25590.
SDev	35.61	.7849	3.308	2.274	3.856	24.35
%RSD	.0708	.1591	.1689	.114	.1881	.0952

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49750.	50300.	2082.	2023.	49960.	1979.
SDev	106.6	58.02	2.574	3.021	69.43	7.792
%RSD	.2143	.1154	.1236	.1493	.139	.3938

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	482.49	494.24	538.12	4966.	5049.	985.79
SDev	4.5459	.85242	.95505	5.691	4.448	3.8562
%RSD	.94218	.17246	.17747	.1146	.0881	.39117

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2058.	1893.	443.42	519.62	480.16	483.65
SDev	.6752	3.464	.7962	.88051	1.622	6.0057
%RSD	.0328	.183	.17955	.16945	.33779	1.2418

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	453.16	580.53	5.0000	19268.3
SDev	3.3169	.22407	0	9.75862
%RSD	.73194	.03859	0	.05064

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 00:18 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2022	-13.30	-.26294	12.14	-.0040	-.1406
SDev	.1095	2.839	.92129	1.904	.2042	.0114
%RSD	54.14	21.35	350.38	15.69	5086	8.082

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.944	.0194	.0351	-.3686	-.1099	-2.067
SDev	.6542	.0456	.057	.0718	.3158	1.741
%RSD	13.23	234.7	162.5	19.47	287.3	84.2

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.6	3.350	.0597	-.9434	-562.5	1.194
SDev	6.765	3.731	.0482	1.482	279.7	.6872
%RSD	4.88	111.4	80.74	157.1	49.72	57.53

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8934	-.06562	-2.2811	-1.465	-.4541	2.9488
SDev	.44214	.16746	.16592	.6775	.3118	3.0063
%RSD	23.352	255.17	7.2738	46.24	68.67	101.95

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1964	-.0672	.11881	-.15771	3.3150	1.1837
SDev	.3664	.1967	.47435	.48788	.85119	1.0879
%RSD	186.5	292.9	399.24	309.35	25.677	91.903

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.1720	-4.0050	5.0000	19423.7
SDev	2.5018	1.0003	0	67.1751
%RSD	213.46	24.975	0	.34584

Method: ARMY Sample Name: J8NFEB Operator: LRW
Run Time: 10/12/07 00:23 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2557	-67.34	-.52811	.5440	.1320	-.1569
SDev	.1965	4.715	.56867	.7404	.0635	.011
%RSD	76.87	7.002	107.68	136.1	48.13	6.986

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-80.53	.1274	.3307	-.1446	.4811	1.357
SDev	.7887	.0038	.027	.3489	.6372	1.092
%RSD	.9793	2.969	8.17	241.4	132.4	80.43

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.0	-1.212	.9067	-1.179	-680.9	.9141
SDev	5.904	2.215	.04	.1616	80.28	1.478
%RSD	4.098	182.8	4.409	13.71	11.79	161.7

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.99948	-.21346	-2.6512	.9584	-.2336	.98643
SDev	1.7451	.62216	1.1069	1.239	0	3.3757
%RSD	174.6	291.45	41.751	129.3	0	342.21

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1271	-.0723	-.38030	-.13017	3.2842	-3.1381
SDev	.0321	.095	3.3069	.71816	2.4834	3.8562
%RSD	25.25	131.4	869.52	551.69	75.615	122.88

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.2965	-4.6221	5.0000	19564.3
SDev	1.14	1.0904	0	74.2462
%RSD	87.929	23.59	0	.37949

Method: ARMY Sample Name: J8NFEC Operator: LRW
Run Time: 10/12/07 00:28 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	58.95	2129.	2110.8	1122.	2153.	54.13
SDev	6.8	29.21	19.442	4.645	17.07	.5953
%RSD	11.53	1.372	.9211	.4139	.7931	1.1

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-50.78	54.96	536.8	217.1	280.9	H1232.
SDev	8.184	1.891	8.805	5.302	4.474	92.21
%RSD	16.12	3.44	1.64	2.441	1.593	7.482

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L203.6	L24.22	560.5	1069.	L119.1	539.1
SDev	96.38	33.79	2.684	10.04	2368	16.05
%RSD	47.33	139.5	.4789	.9397	1988	2.977

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2114.8	533.08	570.14	2096.	1062.	2118.1
SDev	4.3726	.66852	8.9592	31.42	1.791	28.291
%RSD	.20676	.1254	1.5714	1.499	.1687	1.3356

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	551.3	527.5	483.10	558.03	2114.4	2115.0
SDev	4.816	2.135	5.4377	3.7171	19.732	3.2956
%RSD	.8735	.4048	1.1256	.6661	.93323	.15581

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	473.36	618.46	5.0000	19584.1
SDev	5.1759	10.848	0	73.6813
%RSD	1.0934	1.754	0	.37623

Method: ARMY Sample Name: J8LFT Operator: LRW
Run Time: 10/12/07 00:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3298	250.0	9.4898	1891.	522.6	1.287
SDev	.0941	3.427	.34538	.9342	1.235	.0195
%RSD	28.52	1.371	3.6395	.0494	.2363	1.516

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	H696300.	.4067	3.768	1.299	2.296	2378.
SDev	438.9	.0565	.2042	.4377	.2351	5.865
%RSD	.063	13.9	5.42	33.69	10.24	.2466

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	82830.	196900.	11390.	83.36	434600.	22.25
SDev	167	144.7	.5607	.4909	267.4	1.859
%RSD	.2016	.0735	.0049	.5889	.0615	8.355

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.2162	49.965	1.5135	-1.363	-9.281	36.708
SDev	1.5737	.32181	.42237	1.086	.325	2.6
%RSD	25.316	.64407	27.906	79.64	3.502	7.0829

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4046	164.2	44.185	52.851	12.352	3.1530
SDev	.0001	1.07	.95171	.95762	2.4062	3.5607
%RSD	.0176	.6517	2.1539	1.8119	19.481	112.93

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	10.401	-2.9235	5.0000	18507.4
SDev	1.6041	.16758	0	6.22309
%RSD	15.422	5.7323	0	.03362

Method: ARMY Sample Name: J8LF5 Operator: LRW
Run Time: 10/12/07 00:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3157	28.75	1.9945	801.8	11.66	-.1704
SDev	.1915	2.17	.84881	3.756	.5157	.0742
%RSD	60.66	7.548	42.558	.4685	4.425	43.52

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	99110.	.1907	-.0367	5.874	4.814	1802.
SDev	300.2	.3545	.1394	.3749	2.851	4.117
%RSD	.3029	185.9	380.3	6.382	59.22	.2285

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	133500.	724.3	167.8	4817.	372400.	9.340
SDev	158.5	6.792	.4159	6.544	342.2	1.175
%RSD	.1188	.9378	.2479	.1358	.0919	12.58

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.6326	192.77	17.296	.3372	.3690	1.4547
SDev	.87317	2.3237	2.8554	2.303	.8522	4.2823
%RSD	11.44	1.2054	16.51	682.9	230.9	294.39

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.745	26.67	172.08	203.09	6.3602	8.2679
SDev	.0009	.5254	1.2213	2.874	4.9161	1.1452
%RSD	.0516	1.97	.70973	1.4151	77.295	13.852

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	24.365	13.766	5.0000	19038.7
SDev	.13685	4.2127	0	54.4472
%RSD	.56167	30.602	0	.28598

Method: ARMY Sample Name: J8K71 Operator: LRW
Run Time: 10/12/07 00:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0709	-5.438	-1.2446	141.2	41.88	-.1315
SDev	.22	1.451	1.2981	.1705	.1046	.0084
%RSD	310.3	26.69	104.31	.1208	.2497	6.357

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	69170.	.0886	.2453	.6602	1.860	28.77
SDev	102.2	.0034	.3102	.0485	.3827	.0297
%RSD	.1477	3.813	126.4	7.34	20.58	.1032

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	19030.	24240.	34.75	4.767	48250.	2.578
SDev	85.37	26.16	.0574	.4983	84.48	.2201
%RSD	.4486	.1079	.1652	10.45	.1751	8.538

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.1818	.16419	-2.4880	-.7741	-1.432	1.9285
SDev	3.2895	.59684	.93112	1.008	.0009	.1042
%RSD	150.77	363.51	37.425	130.2	.0632	5.4038

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6006	12.43	1.3864	-.44599	5.3332	.60846
SDev	.0304	.1074	.78759	1.288	1.7993	4.0335
%RSD	5.069	.8637	56.809	288.8	33.737	662.89

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.1432	-5.7986	5.0000	19102.2
SDev	1.5583	2.174	0	14.4253
%RSD	37.612	37.492	0	.07551

Method: ARMY Sample Name: J8LPT Operator: LRW
Run Time: 10/12/07 00:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2849	-4.576	21.197	980.8	160.0	-.1339
SDev	.1428	6.231	1.7958	4.115	.0546	.0029
%RSD	50.14	136.2	8.472	.4196	.0342	2.191

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55750.	.1229	.0536	-.3512	4.501	360.2
SDev	280.6	.1187	.5261	.2306	.3281	9.33
%RSD	.5032	96.57	981.2	65.66	7.288	2.59

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2821.	30830.	43.91	39.29	128300.	5.291
SDev	9.952	165.8	.2448	.3636	273.2	.4618
%RSD	.3528	.5377	.5575	.9255	.213	8.727

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6772	-.39934	1.2315	.4170	-1.045	2.9649
SDev	1.5505	.99544	.44918	.0986	.5196	1.237
%RSD	92.444	249.27	36.475	23.65	49.72	41.722

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1926	6.371	-1.3849	.09267	2.3185	1.3571
SDev	.2747	.0318	.89065	1.0478	.14651	2.2514
%RSD	142.6	.4984	64.314	1130.6	6.3193	165.9

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.86654	1.4137	5.0000	19379.6
SDev	1.2407	1.2929	0	62.5085
%RSD	143.18	91.455	0	.32254

Method: ARMY Sample Name: J8LPTL Operator: LRW
Run Time: 10/12/07 00:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3890	-34.62	4.0511	193.9	31.10	-.1603
SDev	.1891	2.376	1.3447	3.409	.0393	.0192
%RSD	48.62	6.863	33.193	1.759	.1262	11.99

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10980.	.0276	.0560	.1376	.1508	49.00
SDev	11.79	.0438	.3031	.0024	.712	18.44
%RSD	.1074	158.7	541.1	1.753	472.1	37.63

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	604.5	5994.	8.579	6.741	26000.	2.171
SDev	3.548	1.151	.1401	.8427	94.91	.366
%RSD	.587	.0192	1.633	12.5	.3651	16.86

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0016	-.60668	-1.9818	-2.990	-.5272	-1.3220
SDev	3.2677	.25972	2.5698	1.659	.4152	1.0983
%RSD	326.26	42.81	129.67	55.5	78.76	83.075

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8308	1.091	5.6257	-3.7182	8.4140	-2.6991
SDev	1.275	.1618	5.1897	2.9804	7.872	.96899
%RSD	153.5	14.83	92.251	80.156	93.559	35.901

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2846	-4.1119	5.0000	19467.1
SDev	3.3187	2.1959	0	44.5477
%RSD	145.26	53.405	0	.22883

Method: ARMY Sample Name: J8LFC Operator: LRW
Run Time: 10/12/07 00:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2309	-50.55	-1.9995	3.200	.1618	-.1281
SDev	.144	.5201	1.09	1.794	.0318	.0101
%RSD	62.38	1.029	54.515	56.07	19.64	7.855

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-57.02	.1687	.2895	-.3033	.7587	-7.561
SDev	.2675	.0129	.2497	.0247	.0195	.3497
%RSD	.4692	7.651	86.24	8.144	2.574	4.625

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	138.1	2.006	.1179	-.4741	-656.0	1.912
SDev	1.581	2.911	.0169	.4975	244.9	.5281
%RSD	1.144	145.2	14.33	104.9	37.34	27.62

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.83345	-.55949	-3.1100	.5698	-.2336	2.6927
SDev	1.8477	.28172	.15072	.5906	0	.89565
%RSD	221.69	50.353	4.8463	103.7	0	33.263

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3036	-.3014	-1.3173	-.18114	3.6861	-.59074
SDev	.0894	.0086	1.5126	.33279	7.748	1.098
%RSD	29.46	2.867	114.82	183.72	210.19	185.87

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6539	-5.4884	5.0000	19429.9
SDev	.84946	.19812	0	40.8713
%RSD	51.36	3.6099	0	.21035

Method: ARMY Sample Name: J8LLA Operator: LRW
Run Time: 10/12/07 01:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1273	417.7	9.1206	225.1	406.5	-.0801
SDev	.6848	7.839	1.3743	.072	1.874	.0457
%RSD	537.9	1.877	15.068	.032	.461	56.98

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	194100.	.1060	.0347	1.374	5.923	2913.
SDev	1128	.1208	.0538	.4956	.1499	19.83
%RSD	.5815	114	155	36.07	2.531	.6806

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	41300.	62390.	426.3	2.009	58740.	1.577
SDev	158.4	356.1	2.504	.0124	163.2	.1691
%RSD	.3836	.5708	.5874	.62	.2779	10.72

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8414	.56211	.23976	-.5077	-1.414	2.3755
SDev	.89476	.45541	.24326	1.402	.0039	.72959
%RSD	31.49	81.019	101.46	276.1	.2738	30.714

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4883	37.89	1.1078	.28968	7.7560	.38784
SDev	.5816	.1367	.37809	.49402	.031	1.326
%RSD	119.1	.3607	34.13	170.54	.39974	341.89

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.5385	-1.9064	5.0000	19404
SDev	2.2067	.73698	0	63.6396
%RSD	48.622	38.659	0	.32797

Method: ARMY Sample Name: J8LN1 Operator: LRW
Run Time: 10/12/07 01:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3135	-81.28	4.9453	154.8	292.3	-.1436
SDev	.3365	3.927	1.5714	.6982	.2062	.0011
%RSD	107.3	4.831	31.774	.451	.0705	.7501

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	118800.	.1589	.8003	.1344	15.63	2319.
SDev	191	.0504	.3078	.3527	.159	3.924
%RSD	.1608	31.7	38.46	262.5	1.017	.1692

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1419.	23120.	2250.	.5043	324400.	7.633
SDev	8.671	38.73	1.633	1.165	114.2	.6019
%RSD	.6111	.1675	.0726	230.9	.0352	7.886

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0228	-.25645	-5.0278	.9201	-1.648	2.6512
SDev	.46175	.7247	1.5045	.8665	.3145	.62824
%RSD	45.147	282.58	29.924	94.18	19.09	23.696

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.839	44.36	1.4740	-1.1204	4.4166	-.67157
SDev	.3124	.4264	1.8789	2.0246	3.8889	1.2493
%RSD	5.35	.9613	127.47	180.7	88.053	186.02

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.3381	-8.7053	5.0000	19227.7
SDev	.59742	2.5539	0	17.6777
%RSD	25.551	29.338	0	.09193

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 01:18 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	948.6	25400.	491.59	5250.	2055.	1995.
SDev	.2344	28.84	2.0443	10.26	.3798	1.266
%RSD	.0247	.1136	.41584	.1954	.0185	.0635

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50290.	491.2	1955.	1993.	2052.	25610.
SDev	23.82	.5187	1.542	.5994	1.248	13.27
%RSD	.0474	.1056	.0789	.0301	.0608	.0518

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49890.	50330.	2086.	2018.	50080.	1967.
SDev	8.016	20.22	.9914	4.71	104.2	1.696
%RSD	.0161	.0402	.0475	.2334	.2081	.0862

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	485.08	494.04	537.78	4950.	5052.	982.75
SDev	1.027	.59306	.86808	5.002	2.617	1.9001
%RSD	.21172	.12004	.16141	.101	.0518	.19334

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2058.	1888.	442.14	519.95	487.35	483.94
SDev	1.702	1.731	.28862	1.0333	2.9433	3.0092
%RSD	.0827	.0917	.06527	.19872	.60393	.62181

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	452.50	580.36	5.0000	19203
SDev	1.9505	2.2752	0	10.7475
%RSD	.43105	.39203	0	.05596

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 01:27 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.9079	-15.60	-.07893	12.89	-.1218	-.1699
SDev	.1626	.8925	2.8675	1.408	.1685	.0181
%RSD	17.91	5.723	3632.7	10.92	138.4	10.68

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.133	-.0053	.0928	-.1862	-.3738	-6.304
SDev	.3921	.1141	.0277	.4188	1.512	.0043
%RSD	7.639	2148	29.85	225	404.6	.0675

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	142.3	-.2580	.0482	.4645	-504.0	1.353
SDev	1.256	.9385	.0276	1.158	262.7	.268
%RSD	.8825	363.7	57.29	249.2	52.11	19.81

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.24208	-.17465	-2.1486	1.661	-.5290	3.7883
SDev	1.4147	.22102	4.3387	.1352	.4178	.75632
%RSD	584.37	126.55	201.93	8.137	78.98	19.965

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0474	-.1008	3.3346	-1.9267	2.8654	-1.0676
SDev	.0313	.2693	1.7049	.51981	.88443	2.5625
%RSD	66.17	267.2	51.128	26.98	30.866	240.02

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.3476	-4.3934	5.0000	19375.3
SDev	1.4235	7.2156	0	.7071
%RSD	60.639	164.24	0	.00364

Method: ARMY Sample Name: J8LP0 Operator: LRW
Run Time: 10/12/07 01:32 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2776	-29.93	5.7383	142.7	176.3	-.0967
SDev	.3279	2.799	.15303	1.367	.2686	.0274
%RSD	118.1	9.353	2.667	.9573	.1524	28.37

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	112700.	.2793	.5036	1.039	7.181	2181.
SDev	519.7	.1241	.0562	.6839	.7993	15.53
%RSD	.461	44.42	11.16	65.82	11.13	.7122

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1749.	21490.	2703.	-1.025	365700.	6.941
SDev	2.636	123.1	10.22	.67	712.5	.104
%RSD	.1507	.5726	.3779	65.35	.1948	1.499

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.1421	.66884	-1.2249	.2552	-1.728	7.2242
SDev	1.2399	.91083	.33087	.4578	.422	.48247
%RSD	39.46	136.18	27.013	179.4	24.42	6.6787

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.374	15.49	-.66178	1.3332	5.2998	2.0649
SDev	.6811	.2613	2.1899	2.4589	4.4648	.37015
%RSD	28.69	1.686	330.9	184.44	84.246	17.926

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.89985	-1.3871	5.0000	19146.3
SDev	3.5826	2.2847	0	10.6066
%RSD	398.13	164.71	0	.05539

Method: ARMY Sample Name: J8LQG Operator: LRW
Run Time: 10/12/07 01:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0955	1430.	1.8397	7779.	19.53	-.1890
SDev	.4061	5.527	1.8749	23.47	.3325	.0089
%RSD	425.1	.3864	101.92	.3017	1.702	4.684

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24470.	.1113	.3468	5.898	33.75	326.2
SDev	105.9	.1125	.0554	.0945	.9984	4.668
%RSD	.4328	101	15.98	1.602	2.958	1.431

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	66710.	5943.	12.54	1.753	70190.	7.639
SDev	219.9	45.66	.1502	.0008	60.65	.2697
%RSD	.3297	.7683	1.197	.0465	.0864	3.531

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.77272	3.0212	-8.2498	5650.	-.7504	1.8479
SDev	.51343	.09151	5.5623	25.22	.1045	2.0505
%RSD	66.446	3.0291	67.424	.4464	13.93	110.97

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0254	48.28	4.7933	2.1365	.40914	-1.3628
SDev	.427	.2782	1.835	.77894	.19888	.67047
%RSD	1681	.5761	38.284	36.459	48.611	49.2

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7479	-13.241	5.0000	19384.2
SDev	.47762	8.5778	0	4.24264
%RSD	27.326	64.781	0	.02188

Method: ARMY Sample Name: J8LR0 Operator: LRW
Run Time: 10/12/07 01:42 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2120	74.97	3.7462	462.1	191.3	-.1183
SDev	.2193	3.769	1.8992	6.271	.4324	.0092
%RSD	103.4	5.027	50.698	1.357	.226	7.784

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	210000.	.1367	2.564	2.872	12.59	4518.
SDev	308	.1764	.0569	.6382	.571	3.777
%RSD	.1467	129.1	2.221	22.22	4.534	.0836

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	22400.	85060.	645.7	13.91	187300.	40.00
SDev	36.83	97.39	1.101	1.014	303.3	2.194
%RSD	.1644	.1145	.1705	7.285	.1619	5.484

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.1380	1.8211	-1.6225	1.967	-.2336	3.0702
SDev	.70611	.30655	.30303	.4134	0	.41075
%RSD	62.049	16.834	18.678	21.02	0	13.379

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2979	183.9	.64294	2.4093	3.7245	-.15331
SDev	.001	.0187	1.9934	.53558	2.7501	.31436
%RSD	.3255	.0101	310.04	22.23	73.839	205.05

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.4259	-3.6436	5.0000	19141.4
SDev	1.3654	.22734	0	11.3137
%RSD	56.284	6.2396	0	.0591

Method: ARMY Sample Name: J8KW0 Operator: LRW
Run Time: 10/12/07 01:47 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0655	205.7	1.5022	272.6	10.37	-.1282
SDev	.1998	3.119	1.5832	.3619	.0591	.0022
%RSD	304.9	1.516	105.39	.1328	.5696	1.721

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20220.	.1589	.6938	3.932	5.827	526.6
SDev	32.34	.011	.1399	.0121	.4081	.9183
%RSD	.16	6.914	20.16	.3089	7.005	.1744

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32380.	20060.	91.27	16.34	342500.	130.8
SDev	22.99	10.39	.0144	1.038	156.7	.1381
%RSD	.071	.0518	.0158	6.352	.0457	.1056

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.4404	.73464	3.2362	6.452	.8056	1.2494
SDev	1.0263	.64109	.85526	.2915	.422	1.8408
%RSD	18.864	87.265	26.428	4.518	52.39	147.33

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.431	58.33	1.7826	.21147	9.7608	3.2834
SDev	.0379	.2453	.56147	1.2415	.29971	1.389
%RSD	1.558	.4205	31.498	587.05	3.0706	42.304

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	7.6227	1.0462	5.0000	19289.8
SDev	1.3773	.59464	0	43.8406
%RSD	18.068	56.838	0	.22727

Method: ARMY Sample Name: J8KW0S Operator: LRW
Run Time: 10/12/07 01:52 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54.20	2192.	2092.2	1346.	2141.	52.73
SDev	.1397	2.125	2.6061	.1136	1.291	.0506
%RSD	.2578	.0969	.12456	.0084	.0603	.0959

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21690.	51.43	520.2	211.4	285.8	1736.
SDev	20.25	.1724	.0738	.4543	.2523	8.919
%RSD	.0933	.3351	.0142	.2149	.0883	.5136

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	36220.	21800.	650.5	1059.	373100.	656.3
SDev	51.97	32.6	.6693	1.919	407.3	1.825
%RSD	.1435	.1495	.1029	.1813	.1092	.2781

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2092.2	516.55	567.97	2068.	1041.	2050.0
SDev	2.546	1.3046	1.9483	.1404	.6383	2.7053
%RSD	.12169	.25255	.34302	.0068	.0613	.13196

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	540.1	584.5	463.07	543.25	2081.7	2097.4
SDev	.9517	.1227	1.6602	1.127	6.8584	.39308
%RSD	.1762	.021	.35851	.20746	.32946	.01874

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	475.33	614.22	5.0000	19246.6
SDev	.60126	3.2211	0	7.63592
%RSD	.12649	.52442	0	.03967

Method: ARMY Sample Name: J8KW0D Operator: LRW
Run Time: 10/12/07 01:57 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56.43	2304.	2184.5	1407.	2238.	55.11
SDev	.5851	16	14.605	4.681	12.55	.4002
%RSD	1.037	.6946	.66855	.3325	.5607	.7262

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	23450.	53.62	542.5	220.5	298.6	1820.
SDev	151.8	.4861	3.365	1.536	1.007	7.388
%RSD	.6474	.9065	.6203	.6968	.3371	.406

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	39440.	23570.	681.8	1105.	403900.	693.5
SDev	194.9	155.7	4.273	5.263	2168	7.017
%RSD	.4942	.6604	.6268	.4763	.5368	1.012

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2187.1	539.59	592.61	2160.	1085.	2137.5
SDev	20.001	3.4077	5.199	13.44	6.6	13.595
%RSD	.9145	.63153	.8773	.6221	.6085	.63604

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	563.3	614.7	484.29	567.19	2173.4	2194.0
SDev	3.836	3.635	4.2499	2.9872	16.259	21.869
%RSD	.681	.5913	.87755	.52666	.7481	.99679

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	496.96	640.37	5.0000	19274.1
SDev	3.6743	5.9602	0	48.2255
%RSD	.73935	.93075	0	.2502

Method: ARMY Sample Name: CRI/MRL Operator: LRW
Run Time: 10/12/07 02:06 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.132	197.3	13.917	230.0	10.69	5.125
SDev	.5103	2.616	.44006	.671	.0118	.0028
%RSD	9.942	1.326	3.1621	.2917	.11	.0555

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5230.	5.286	5.043	5.185	16.65	314.4
SDev	.0148	.0129	.4124	.2732	.0162	3.171
%RSD	.0003	.2438	8.179	5.27	.0976	1.009

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4506.	5140.	16.60	10.89	5675.	25.45
SDev	1.262	4.635	.0546	.6494	118.6	.5093
%RSD	.028	.0902	.3289	5.962	2.089	2.001

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	21.319	10.941	11.429	104.1	52.94	15.179
SDev	.37924	.0238	.676	1.246	.0498	1.7662
%RSD	1.7789	.21755	5.9146	1.197	.0941	11.636

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.286	46.05	9.8812	11.471	24.153	19.903
SDev	.0685	.0043	.0342	.05276	1.7191	1.4269
%RSD	.94	.0093	.34619	.46	7.1176	7.1689

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	11.379	11.455	5.0000	19349.3
SDev	2.5834	.27625	0	19.9398
%RSD	22.703	2.4117	0	.10305

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 02:14 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	951.2	25470.	492.20	5303.	2062.	2001.
SDev	.0687	20.65	2.1019	13.11	2.567	2.918
%RSD	.0072	.081	.42704	.2473	.1245	.1458

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50430.	491.7	1959.	1999.	2055.	25700.
SDev	68.62	.935	3.074	1.329	1.383	43.35
%RSD	.1361	.1902	.1569	.0665	.0673	.1686

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49810.	50510.	2088.	2026.	49930.	1949.
SDev	18.9	65.94	2.611	4.929	86.23	8.619
%RSD	.0379	.1306	.125	.2432	.1727	.4421

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	484.76	494.13	537.72	4962.	5070.	987.93
SDev	5.9242	.92792	3.1679	1.224	7.237	2.0829
%RSD	1.2221	.18779	.58913	.0247	.1427	.21084

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2065.	1887.	444.48	518.91	481.63	486.33
SDev	1.74	2.519	1.5782	2.1792	7.7404	5.0174
%RSD	.0843	.1335	.35507	.41994	1.6071	1.0317

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	451.78	580.63	5.0000	19171.4
SDev	1.5637	3.9688	0	14.9901
%RSD	.34611	.68353	0	.07818

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 02:24 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2693	-11.21	-1.0225	16.33	.0228	-.1558
SDev	.2532	3.459	2.4554	.0483	.0351	.0008
%RSD	94.02	30.84	240.14	.2961	154.1	.5246

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.799	.0541	.3087	-.2664	.2022	-5.526
SDev	.4634	.013	.3336	.4909	.2973	15.25
%RSD	7.992	24.03	108.1	184.3	147.1	276.1

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	141.4	2.763	.0038	-.0001	-450.8	1.129
SDev	3.851	.4805	.0194	.4939	42	.372
%RSD	2.725	17.39	511.1	398100	9.317	32.94

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.4009	-.02947	-.96388	1.606	-.3077	-.61922
SDev	3.5543	1.0119	.35468	.9559	.1048	.41942
%RSD	104.51	3432.5	36.797	59.52	34.06	67.734

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3625	.1096	1.1322	-.60944	4.4993	2.8525
SDev	.4274	.0519	1.2213	2.1268	7.9701	1.3497
%RSD	117.9	47.38	107.87	348.97	177.14	47.316

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.98712	-1.9379	5.0000	19336.2
SDev	2.2177	.57544	0	34.2242
%RSD	224.67	29.694	0	.17699

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 07:41 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	945.0	25150.	486.49	5102.	1995.	1982.
SDev	1.73	14.38	3.5798	6.398	1.325	4.732
%RSD	.1831	.0572	.73583	.1254	.0664	.2388

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49870.	486.5	1927.	1977.	2029.	25370.
SDev	160.8	.9716	4.855	4.973	1.212	79.41
%RSD	.3224	.1997	.2519	.2516	.0597	.313

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48810.	49900.	1986.	1994.	49290.	1896.
SDev	9.057	147	1.54	.8641	153.3	4.515
%RSD	.0186	.2946	.0775	.0433	.3109	.2382

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.67	484.47	525.47	4893.	4982.	973.71
SDev	.40128	1.5088	.75734	6.337	7.697	1.2569
%RSD	.08365	.31142	.14412	.1295	.1545	.12908

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2030.	1861.	435.79	508.77	475.47	481.76
SDev	4.409	3.673	2.3608	1.0834	6.2102	2.4988
%RSD	.2172	.1974	.54172	.21294	1.3061	.51867

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	445.47	565.41	5.0000	19036
SDev	.51494	.87835	0	38.75
%RSD	.11559	.15534	0	.20356

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 07:49 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1415	-6.895	.72510	8.342	-.0219	-.0915
SDev	.2908	.5199	1.3969	1.277	.1017	.0182
%RSD	205.6	7.54	192.66	15.31	464.7	19.85

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1551	.1112	-.1670	.2499	-.4288	-6.281
SDev	.7817	.0473	.056	.0466	.322	2.849
%RSD	504	42.5	33.56	18.67	75.1	45.35

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	153.3	-.4990	-.0001	-.3448	-267.5	.5293
SDev	2.162	.1944	.0463	.3331	66.17	.9168
%RSD	1.41	38.96	43150	96.59	24.74	173.2

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.0465	.43710	Q-5.0132	1.205	-.5310	.93958
SDev	1.388	.61771	2.8166	.5453	.4206	1.288
%RSD	132.64	141.32	56.185	45.24	79.21	137.08

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0806	-.1322	1.0732	.11956	4.4620	-.65877
SDev	.2147	.1221	1.8545	.00024	3.1061	.53029
%RSD	266.4	92.36	172.81	.20389	69.612	80.497

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7311	-8.3803	5.0000	19248.8
SDev	1.7398	5.0915	0	2.26218
%RSD	100.5	60.755	0	.01175

Method: ARMY Sample Name: J8NFEC Operator: LRW
Run Time: 10/12/07 07:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54.69	2115.	2081.7	1084.	2126.	53.77
SDev	.0746	10.7	3.6605	1.459	2.698	.1461
%RSD	.1365	.5061	.17584	.1346	.1269	.2717

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-18.51	53.41	526.9	212.4	276.5	1182.
SDev	5.532	.2011	1.078	.7508	.9724	2.749
%RSD	29.89	.3766	.2045	.3535	.3517	.2326

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L142.2	L1.743	541.2	1053.	L-1584.	519.1
SDev	1.499	.5546	1.192	.2671	89.52	.8735
%RSD	1.055	31.81	.2203	.0254	5.651	.1683

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2098.0	528.68	560.24	2060.	1051.	2091.9
SDev	2.595	.99583	1.69	8.442	2.755	2.2608
%RSD	.12369	.18836	.30165	.4097	.2622	.10807

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	542.4	524.1	470.97	557.49	2064.0	2115.0
SDev	.7881	.2068	3.6094	.30901	9.6939	8.7304
%RSD	.1453	.0395	.76637	.05542	.46967	.41279

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	466.82	606.88	5.0000	19533
SDev	.45989	2.3041	0	1.13109
%RSD	.09851	.37966	0	.00579

Method: ARMY Sample Name: ZZZZZ Operator: LRW
Run Time: 10/12/07 07:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6802	-230.5	1.5363	-4.677	.0758	-.5531
SDev	.5699	4.63	.39567	.8952	.1766	.026
%RSD	83.78	2.009	25.754	19.14	232.8	4.698

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-106.6	.2007	.5559	-.7681	-7.236	6.761
SDev	.3906	.1085	.042	.3622	.8229	.8681
%RSD	.3663	54.06	7.551	47.15	11.37	12.84

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	120.8	2.924	.0312	-.6017	-221.4	1.102
SDev	10.39	1.053	.0513	.0878	325.1	.2865
%RSD	8.601	36	164.4	14.6	146.9	26.01

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2404	.04188	2.9875	1.287	.0741	6.3730
SDev	.11642	.05082	1.7136	.0908	.4351	1.7724
%RSD	5.1966	121.35	57.359	7.051	587.4	27.811

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0175	-.9731	.00223	.06168	4.0214	1.3512
SDev	.2578	.1278	.19205	.17208	4.5685	2.1063
%RSD	1473	13.14	8606.8	278.98	113.6	155.88

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.49348	4.2326	5.0000	39327
SDev	1.2668	1.9367	0	2988.23
%RSD	256.7	45.756	0	7.59842

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 08:07 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.5	25110.	482.04	5011.	1999.	1974.
SDev	9.279	246.1	3.31	32.32	18.95	18.3
%RSD	.9825	.98	.68665	.645	.9481	.9273

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	49530.	486.4	1920.	1964.	2026.	25100.
SDev	436.5	4.567	17.98	18.63	20.99	241.8
%RSD	.8812	.9389	.9369	.9485	1.036	.9633

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48640.	49690.	2001.	1986.	48730.	1925.
SDev	452.9	429.3	16.26	17.05	374.1	19.62
%RSD	.9311	.8639	.8124	.8583	.7677	1.02

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	479.15	483.22	526.99	4891.	4942.	971.10
SDev	3.333	7.0546	5.7153	47.78	45.11	6.8166
%RSD	.6956	1.4599	1.0845	.977	.9129	.70195

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2013.	1865.	432.14	508.72	469.93	483.76
SDev	18.86	17.69	2.7311	9.2132	1.2737	4.3611
%RSD	.9366	.9482	.63197	1.811	.27103	.9015

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	442.69	569.07	5.0000	19186.1
SDev	2.9639	7.089	0	90.3674
%RSD	.6695	1.2457	0	.471

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 08:15 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2034	-10.30	-1.2712	13.48	-.1693	-.1088
SDev	.8309	2.278	1.6956	1.992	.5061	.0542
%RSD	408.6	22.12	133.38	14.77	298.9	49.83

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.675	-.0012	.0340	-.3344	-1.607	-4.295
SDev	.2272	.2172	.6112	.2087	1.89	6.381
%RSD	13.56	17670	1799	62.41	117.7	148.6

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	141.2	1.726	.0025	-.4721	-771.0	.1396
SDev	.5893	1.46	.0179	1.818	115	.9097
%RSD	.4174	84.57	726.7	385	14.92	651.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.92880	-.08185	.85587	1.981	-.7502	3.2474
SDev	.53442	.62814	3.5492	3.657	.7306	2.9757
%RSD	57.539	767.42	414.69	184.6	97.39	91.634

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0829	-.1886	-1.0582	.40559	-2.1505	2.4661
SDev	.0317	.1406	2.3621	2.121	.01228	.80737
%RSD	38.24	74.54	223.21	522.94	.57138	32.738

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.91442	1.7397	5.0000	19379.1
SDev	2.6095	6.624	0	18.2425
%RSD	285.37	380.76	0	.09413

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 14:28 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.8	24860.	476.39	4765.	1957.	1954.
SDev	1.516	44.71	2.636	38.93	3.622	4.762
%RSD	.1604	.1798	.55332	.8169	.185	.2437

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48760.	484.1	1889.	1925.	2002.	24250.
SDev	158.7	.259	4.104	5.869	1.747	95.66
%RSD	.3254	.0535	.2173	.3049	.0873	.3945

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48780.	48910.	1933.	1942.	48020.	1966.
SDev	18.43	189.7	8.263	6.488	121.6	6.193
%RSD	.0378	.3879	.4274	.3342	.2532	.315

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	463.84	475.50	517.44	4828.	4824.	955.49
SDev	1.8823	1.9125	1.4758	6.438	17.2	6.6118
%RSD	.40581	.4022	.28521	.1333	.3565	.69198

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1958.	1862.	426.50	499.96	453.43	469.03
SDev	7.608	1.669	3.537	1.1015	1.7084	1.9692
%RSD	.3885	.0896	.82929	.2203	.37676	.41983

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	440.43	555.89	5.0000	19240.7
SDev	.32722	2.376	0	31.2549
%RSD	.07429	.42742	0	.16244

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 14:36 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3080	-7.261	.12567	9.051	.0665	.1362
SDev	.3963	1.208	.06608	1.743	.0359	.0142
%RSD	128.7	16.64	52.582	19.26	54.04	10.46

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.711	.0701	-.0620	-.2538	-.9917	-5.555
SDev	.1317	.0047	.0813	.3733	.2879	5.999
%RSD	1.962	6.654	131.2	147.1	29.04	108

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	143.7	4.773	-.0187	-.0075	-701.9	.1360
SDev	2.766	2.023	.0108	.8296	164.4	.3704
%RSD	1.925	42.38	57.91	11070	23.42	272.3

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6993	.32801	-1.5796	.7278	-.0122	-.48056
SDev	2.2466	.3112	2.653	.3685	.313	.34694
%RSD	132.21	94.875	167.96	50.63	2562	72.194

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0897	-.1293	1.5347	-.27440	3.0128	1.0436
SDev	.7016	.0666	2.2244	.64393	2.6505	4.6915
%RSD	782.5	51.48	144.94	234.67	87.976	449.55

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1337	-3.4335	5.0000	19436.2
SDev	.58575	3.6851	0	57.9828
%RSD	27.453	107.33	0	.29832

Method: ARMY Sample Name: J8FKFA Operator: LRW
Run Time: 10/12/07 14:41 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7266	99020.	110.39	9.614	559.6	5.147
SDev	.2429	369.6	.44174	.2905	2.062	.0016
%RSD	33.43	.3733	.40018	3.021	.3684	.0321

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20620.	2.879	73.56	165.8	145.7	211500.
SDev	71.58	.0525	.175	.6815	1.048	861.8
%RSD	.3471	1.822	.2379	.4111	.7193	.4075

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6853.	21310.	3226.	9.974	-643.1	187.9
SDev	32.03	73.67	15.24	1.348	71.44	.4387
%RSD	.4673	.3457	.4726	13.52	11.11	.2335

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.8099	164.37	217.99	4.015	406.8	9.9618
SDev	1.896	.0885	.75268	.2034	2.146	1.2874
%RSD	67.478	.05384	.34528	5.065	.5276	12.924

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	170.7	548.1	141.79	175.65	5.6815	-7.0492
SDev	.4752	.2522	1.4297	.84645	4.7883	.45209
%RSD	.2783	.046	1.0083	.4819	84.278	6.4134

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	188.59	232.66	5.0000	20492.2
SDev	1.527	.36611	0	108.045
%RSD	.80967	.15735	0	.52724

Method: ARMY Sample Name: J8RMGB Operator: LRW
Run Time: 10/12/07 14:48 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.116	-57.37	-.82162	-4.346	.7329	.1519
SDev	1.017	4.3	.22096	1.92	.1955	.0072
%RSD	91.1	7.496	26.894	44.17	26.68	4.769

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48.19	.0097	-.5340	-.6044	-.9026	15.51
SDev	.873	.0672	.7064	.572	.8334	3.073
%RSD	1.811	692.1	132.3	94.63	92.34	19.81

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	132.2	29.59	.5545	-.9525	-1526.	-.5498
SDev	9.624	1.262	.0519	1.138	176.1	1
%RSD	7.281	4.264	9.359	119.5	11.54	182

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.06986	-.04919	1.2759	19.15	-.3790	2.9097
SDev	.72927	.10259	3.5066	8.457	.4105	1.1441
%RSD	1043.8	208.57	274.83	44.17	108.3	39.321

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0156	4.452	-4.5118	2.1788	.44502	-.32692
SDev	.5974	.1972	4.2869	2.2941	5.0342	1.42
%RSD	3821	4.43	95.014	105.29	1131.2	434.34

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.09284	1.9593	5.0000	19737.9
SDev	4.4258	7.4669	0	40.8713
%RSD	4767.1	381.11	0	.20707

Method: ARMY Sample Name: J8RMGC Operator: LRW
Run Time: 10/12/07 14:52 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L3.370	1775.	1726.5	L741.8	1776.	45.30
SDev	.5958	.3581	.48061	3.96	1.411	.0944
%RSD	17.68	.0202	.02783	.5338	.0794	.2083

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L59.07	45.25	438.7	175.3	231.7	1005.
SDev	1.046	.048	.8772	.1522	.1605	.0547
%RSD	1.77	.1062	.2	.0868	.0693	.0054

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L152.2	L31.27	452.4	856.5	L-1482.	456.4
SDev	6.753	.5726	.1923	2.628	128	.3823
%RSD	4.437	1.831	.0425	.3069	8.631	.0838

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1782.6	440.73	437.54	1716.	854.6	1740.6
SDev	1.1996	.17507	7.8878	.3241	.2347	.08761
%RSD	.06729	.03972	1.8027	.0189	.0275	.00503

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	439.2	453.1	393.07	464.52	1729.5	1809.1
SDev	.2338	1.096	2.3082	.8899	8.8525	2.621
%RSD	.0532	.242	.58723	.19157	.51186	.14487

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	379.04	466.75	5.0000	19664.1
SDev	9.0406	7.3122	0	52.7499
%RSD	2.3851	1.5666	0	.26825

Method: ARMY Sample Name: J8H37 Operator: LRW
Run Time: 10/12/07 14:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7916	82350.	97.686	17.62	839.5	8.050
SDev	.3853	39.34	.14651	1.308	1.56	.0049
%RSD	48.68	.0478	.14998	7.423	.1858	.0604

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	153900.	2.770	75.48	284.6	117.3	148500.
SDev	142.3	.0399	.0671	.5182	.2118	182.7
%RSD	.0925	1.439	.0889	.1821	.1806	.123

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4574.	26180.	10160.	6.696	-66.25	219.4
SDev	19.13	18	20.55	.6461	253	.5277
%RSD	.4184	.0688	.2023	9.65	382	.2405

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.02546	172.88	.12415	8.457	893.0	13.768
SDev	2.2633	.00797	4.8639	1	2.085	.31231
%RSD	8888.9	.00461	3917.6	11.83	.2335	2.2683

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	126.5	530.9	146.10	186.24	8.5533	-4.2321
SDev	.2422	.8387	1.3652	.69356	5.2859	.7543
%RSD	.1915	.158	.93443	.37239	61.8	17.823

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.7697	-.69738	5.0000	20817
SDev	1.5719	8.077	0	96.1665
%RSD	88.823	1158.2	0	.46196

Method: ARMY Sample Name: J8H4K Operator: LRW
Run Time: 10/12/07 15:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4874	123300.	104.40	31.53	847.9	10.09
SDev	.3822	70.04	1.6042	.3537	.2776	.0004
%RSD	78.41	.0568	1.5366	1.122	.0327	.0037

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	214200.	3.652	67.12	181.3	217.5	185300.
SDev	631	.022	.4633	.8091	.5126	667.9
%RSD	.2945	.601	.6904	.4462	.2357	.3605

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7698.	45540.	8500.	6.510	306.2	168.3
SDev	.4067	128.5	28.45	.9718	102.6	.2016
%RSD	.0053	.2822	.3347	14.93	33.5	.1198

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-2.7856	215.60	-6.7057	6.545	1365.	14.507
SDev	.09287	.31381	.04591	.9016	3.456	1.3564
%RSD	3.3342	.14555	.68477	13.77	.2532	9.3504

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	163.9	589.0	184.17	231.29	4.1921	-6.2692
SDev	.4912	.1242	.45753	.24204	4.9708	2.3424
%RSD	.2996	.0211	.24843	.10465	118.58	37.364

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.8231	-10.964	5.0000	20493.2
SDev	.29493	.0784	0	85.9839
%RSD	16.178	.71509	0	.41957

Method: ARMY Sample Name: J8H4KL Operator: LRW
Run Time: 10/12/07 15:09 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3127	25660.	20.153	2.348	177.5	2.235
SDev	.2589	23.51	.59517	.302	.0981	.005
%RSD	82.8	.0916	2.9533	12.86	.0553	.2246

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	46110.	.7920	14.08	39.34	43.76	39900.
SDev	55.62	.176	.3535	.2354	.0319	53.48
%RSD	.1206	22.23	2.51	.5983	.0729	.134

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1465.	9554.	1859.	.5997	-121.6	36.94
SDev	3.066	12.44	2.934	1.137	17.7	.3345
%RSD	.2093	.1302	.1578	189.6	14.56	.9055

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6760	47.236	.78975	1.730	288.8	4.4901
SDev	1.4758	.43516	2.427	1.104	.2276	.28713
%RSD	88.054	.92126	307.32	63.82	.0788	6.3949

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	34.94	125.2	40.568	50.564	1.4097	1.8089
SDev	.1255	.0633	.14632	.72547	2.1137	1.1573
%RSD	.3591	.0506	.36068	1.4348	149.94	63.976

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.1637	.10379	5.0000	19662
SDev	2.4385	4.8561	0	36.4864
%RSD	112.7	4678.5	0	.18556

Method: ARMY Sample Name: J8H4KX Operator: LRW
Run Time: 10/12/07 15:14 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.047	116500.	100.81	36.46	784.1	9.403
SDev	.6622	218.1	.4414	.8876	1.81	.0335
%RSD	63.27	.1872	.43784	2.435	.2309	.3558

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	200200.	3.952	68.04	193.2	249.0	186200.
SDev	409.9	.104	.3595	.0622	.897	229.8
%RSD	.2047	2.633	.5284	.0322	.3602	.1234

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7344.	43510.	8397.	7.350	170.2	171.8
SDev	12.03	90.52	11.31	.2983	19.73	1.464
%RSD	.1639	.208	.1347	4.058	11.59	.8524

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.21777	210.83	-6.5686	6.397	1416.	16.446
SDev	1.4059	.05734	2.7249	2.346	4.512	.74148
%RSD	645.59	.02719	41.484	36.67	.3187	4.5086

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.9	632.8	177.57	227.44	8.2143	-3.7745
SDev	.208	1.579	1.0854	.62787	5.2964	.53638
%RSD	.1435	.2496	.61127	.27606	64.478	14.211

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.24240	-9.7270	5.0000	20640.3
SDev	4.1544	6.1595	0	41.4362
%RSD	1713.8	63.324	0	.20075

Method: ARMY Sample Name: J8H4KS Operator: LRW
Run Time: 10/12/07 15:19 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.367	176700.	1682.9	739.3	2749.	52.63
SDev	.229	381	3.8861	.3698	10.17	.0252
%RSD	16.76	.2156	.23091	.05	.3699	.048

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	249500.	43.94	472.1	416.3	451.1	224900.
SDev	313.5	.1796	.2472	.4753	1.031	126.4
%RSD	.1257	.4087	.0524	.1142	.2286	.0562

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15960.	53990.	11570.	736.2	402.4	601.8
SDev	32.17	103.1	8.13	1.72	43.06	3.368
%RSD	.2016	.191	.0702	.2337	10.7	.5597

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1568.8	680.41	108.84	1405.	1783.	1539.9
SDev	3.8872	.88293	6.2223	1.362	.5245	5.8879
%RSD	.24777	.12976	5.717	.097	.0294	.38236

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	639.2	1116.	587.55	726.78	1525.7	1590.3
SDev	.4523	1.466	7.3133	4.9749	7.305	2.1808
%RSD	.0708	.1313	1.2447	.68451	.47878	.13712

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	96.898	114.80	5.0000	20465.5
SDev	.3051	9.1764	0	60.952
%RSD	.31487	7.9935	0	.29782

Method: ARMY Sample Name: J8H4W Operator: LRW
Run Time: 10/12/07 15:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7848	83580.	76.764	.4878	551.6	5.432
SDev	.3502	77.21	.1971	1.324	.6734	.0092
%RSD	44.62	.0924	.25676	271.4	.1221	.1686

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4962.	1.578	83.39	136.1	71.25	149200.
SDev	11.03	.0574	.4354	.0938	.5879	346.2
%RSD	.2224	3.639	.5221	.0689	.8251	.232

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3993.	12230.	9006.	6.142	-1207.	125.4
SDev	3.662	39.98	21.18	.1466	228.1	.4593
%RSD	.0917	.3268	.2351	2.386	18.9	.3661

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.0838	152.94	-6.6678	7.704	523.5	15.695
SDev	1.5021	1.342	.59942	.1055	2.317	4.3024
%RSD	138.6	.87747	8.9898	1.37	.4426	27.413

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	158.8	465.1	130.82	163.99	6.8435	-5.0415
SDev	.7014	1.468	.98617	2.5044	3.7565	.37662
%RSD	.4416	.3156	.75383	1.5272	54.892	7.4704

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.29872	-9.8476	5.0000	20158.9
SDev	.85425	1.3252	0	49.9228
%RSD	285.97	13.457	0	.24764

Method: ARMY Sample Name: J8H41 Operator: LRW
Run Time: 10/12/07 15:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9304	119800.	104.66	36.91	880.0	9.833
SDev	.4776	104	.00074	.1466	1.238	.0318
%RSD	51.33	.0868	.00071	.3973	.1406	.3231

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	209700.	5.833	68.82	229.5	148.4	188800.
SDev	75.65	.0757	.2294	.2208	.2626	67.84
%RSD	.0361	1.298	.3333	.0962	.1769	.0359

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7625.	46890.	8990.	5.772	3.164	183.4
SDev	8.278	13.2	5.124	.7798	67.75	.4577
%RSD	.1086	.0282	.057	13.51	2141	.2495

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.93103	440.62	-8.4058	3.413	1577.	15.662
SDev	1.8211	1.6679	2.0329	.6842	1.925	1.1382
%RSD	195.6	.37852	24.185	20.05	.1221	7.2675

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	152.8	839.6	381.52	470.13	12.596	-7.6844
SDev	.073	1.595	1.4112	1.796	2.8992	4.1777
%RSD	.0478	.1899	.36988	.38202	23.017	54.367

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-3.2411	-10.984	5.0000	20486.1
SDev	1.8007	3.9469	0	5.7991
%RSD	55.558	35.932	0	.0283

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 15:38 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.9	24700.	475.44	4746.	1968.	1953.
SDev	.5303	46.58	1.5136	39.12	3.213	4.832
%RSD	.0561	.1886	.31836	.8241	.1633	.2474

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48690.	484.1	1888.	1923.	2001.	24010.
SDev	176.5	1.12	5.723	6.16	1.522	115.8
%RSD	.3626	.2313	.3031	.3204	.0761	.4821

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48580.	49120.	2033.	1940.	47850.	1977.
SDev	36.65	172.1	5.38	4.015	6.604	2.906
%RSD	.0754	.3504	.2647	.2069	.0138	.147

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	468.25	476.22	518.69	4841.	4803.	951.09
SDev	3.8877	.59293	2.7606	14.26	17.78	.21613
%RSD	.83025	.1245	.53222	.2946	.3702	.02272

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1954.	1865.	427.02	500.79	456.40	474.16
SDev	7.555	2.026	.43309	.67273	1.4827	5.0884
%RSD	.3867	.1086	.10142	.13433	.32487	1.0731

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	442.97	556.50	5.0000	19312.4
SDev	.73893	4.5078	0	61.3774
%RSD	.16681	.81003	0	.31781

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 15:46 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1007	-4.884	-.24117	11.39	.0448	.1506
SDev	.108	1.06	.24208	.4474	.0009	.001
%RSD	107.2	21.7	100.38	3.928	1.938	.6812

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-7.354	.0376	.0147	-.3179	-.8963	.2048
SDev	.6002	.0705	.2493	.2799	.333	.7005
%RSD	8.161	187.5	1696	88.04	37.16	342

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.2	1.582	.0218	-.8218	-649.5	.9350
SDev	2.442	3.894	.0454	.6624	368.9	.3191
%RSD	1.694	246.1	207.7	80.6	56.79	34.13

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.91879	.72285	.03734	1.341	-.2336	2.3162
SDev	.61901	.22927	3.524	.6723	0	1.8721
%RSD	67.372	31.718	9436.6	50.15	0	80.825

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0617	-.1541	-.08852	1.1279	-1.8824	-.43770
SDev	.1229	.1967	2.4212	1.5525	1.3411	.25849
%RSD	199.2	127.6	2735.1	137.64	71.245	59.056

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.02752	.04224	5.0000	19383.2
SDev	2.3858	4.0923	0	22.0626
%RSD	8667.8	9686.7	0	.11382

Method: ARMY Sample Name: J8LAJ Operator: LRW
Run Time: 10/12/07 15:51 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.527	117800.	86.891	17.88	1013.	7.097
SDev	.5316	264.7	.31112	1.389	4.52	.0468
%RSD	34.82	.2246	.35806	7.765	.4464	.6595

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	69140.	2.286	71.69	169.1	110.1	177400.
SDev	158.4	.0426	.6033	.0902	.6605	411.3
%RSD	.2291	1.865	.8415	.0534	.5999	.2319

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6132.	26160.	10320.	8.750	-709.4	146.6
SDev	27.68	53.95	39.4	.4956	162.3	.2784
%RSD	.4514	.2063	.3816	5.664	22.88	.1899

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2645	212.32	-7.2083	7.417	1215.	15.748
SDev	2.7082	1.4856	1.0633	2.065	4.215	1.6167
%RSD	119.59	.69968	14.751	27.83	.3468	10.266

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	200.1	659.1	178.72	229.10	11.850	-2.5210
SDev	.9502	1.314	2.5671	.94563	2.9628	2.5811
%RSD	.4749	.1993	1.4364	.41276	25.003	102.38

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-1.4185	-10.099	5.0000	20497.3
SDev	1.8906	.65022	0	52.7499
%RSD	133.29	6.4386	0	.25735

Method: ARMY Sample Name: J8LAJL Operator: LRW
Run Time: 10/12/07 15:56 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1956	24340.	17.592	.8546	209.3	1.570
SDev	.1683	41.06	1.9163	.1238	.523	.0231
%RSD	86.02	.1687	10.893	14.49	.2499	1.471

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	14400.	.3801	15.08	35.33	21.33	37230.
SDev	29.68	.055	.1543	.0446	.3562	110.1
%RSD	.2061	14.46	1.023	.1262	1.67	.2958

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1200.	5388.	2217.	1.031	-665.3	32.58
SDev	.3891	14.63	6.373	.4921	202.2	.7791
%RSD	.0324	.2715	.2875	47.74	30.39	2.391

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.6893	44.793	-1.8114	1.693	252.1	6.2895
SDev	.21513	.47809	1.2013	1.07	2.056	.78364
%RSD	7.9999	1.0673	66.32	63.19	.8158	12.46

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	41.79	138.5	39.848	47.263	7.6047	.23524
SDev	.2005	.3886	.08539	.67415	.21537	.43007
%RSD	.4798	.2805	.21431	1.4264	2.8322	182.82

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.1729	-4.2998	5.0000	19699.9
SDev	.29045	1.9461	0	24.1825
%RSD	9.1542	45.26	0	.12275

Method: ARMY Sample Name: J8LAJX Operator: LRW
Run Time: 10/12/07 16:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2208	108600.	86.740	9.676	853.1	6.223
SDev	.2994	291.8	2.9178	.6262	.5796	.0504
%RSD	135.6	.2688	3.3639	6.472	.0679	.8098

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48130.	1.994	69.70	212.1	106.3	169500.
SDev	58.19	.0476	.1106	.1298	.1465	118.6
%RSD	.1209	2.388	.1587	.0612	.1379	.07

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5572.	21950.	8983.	8.699	-1331.	164.3
SDev	38.89	45.86	13.29	.4891	452.2	.2256
%RSD	.698	.2089	.148	5.622	33.98	.1373

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.19634	216.97	-6.9917	6.239	1081.	15.413
SDev	1.3551	.00214	.3654	2.079	.5343	2.1845
%RSD	690.16	.00098	5.2263	33.33	.0494	14.173

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	196.6	605.2	184.25	233.30	10.015	-4.7058
SDev	.4251	1.342	1.525	.75815	.88591	1.5893
%RSD	.2162	.2218	.82765	.32497	8.8456	33.773

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.31373	-10.326	5.0000	20430.8
SDev	.56427	.26612	0	40.446
%RSD	179.86	2.5773	0	.19796

Method: ARMY Sample Name: J8LAJS Operator: LRW
Run Time: 10/12/07 16:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.8826	149600.	1618.4	619.9	2529.	47.66
SDev	.0657	1508	17.58	11.97	28.13	.5923
%RSD	7.447	1.008	1.0863	1.932	1.112	1.243

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52530.	41.16	466.5	357.3	321.7	187400.
SDev	616.9	.4701	5.13	4.024	3.851	2295
%RSD	1.174	1.142	1.1	1.126	1.197	1.225

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10400.	25470.	10260.	735.1	-1473.	554.3
SDev	78.22	288	118.1	11.35	420	5.614
%RSD	.7521	1.131	1.151	1.544	28.51	1.013

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1554.7	593.73	156.14	1438.	1769.	1528.1
SDev	16.733	3.3654	8.0815	17.97	19.84	19.998
%RSD	1.0762	.56682	5.1759	1.25	1.122	1.3087

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	647.9	1063.	520.56	630.27	1521.9	1571.1
SDev	8.391	11.43	2.8275	3.634	14.578	17.808
%RSD	1.295	1.075	.54316	.57657	.9579	1.1335

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	140.08	164.16	5.0000	20301.5
SDev	2.1426	11.047	0	186.535
%RSD	1.5296	6.7293	0	.91882

Method: ARMY Sample Name: J8LCG Operator: LRW
Run Time: 10/12/07 16:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9552	130000.	102.18	8.220	687.4	6.633
SDev	.2986	126.7	2.6828	2.764	.72	.0346
%RSD	31.26	.0975	2.6255	33.62	.1048	.5217

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3890.	1.743	85.30	164.9	103.7	204900.
SDev	8.813	.1227	.5089	.2659	.6827	238.4
%RSD	.2266	7.038	.5966	.1613	.6582	.1164

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7203.	17220.	9424.	10.53	-1492.	138.6
SDev	1.548	46.24	15.01	.3368	134	3.13
%RSD	.0215	.2686	.1593	3.2	8.984	2.258

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.60527	156.79	-5.3869	6.327	964.8	17.542
SDev	2.6145	.27659	3.9151	.1492	.6291	4.7098
%RSD	431.94	.1764	72.679	2.358	.0652	26.849

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	259.8	460.6	131.00	169.67	6.3604	-4.0829
SDev	.9807	1.484	2.2056	1.5158	2.9293	2.4573
%RSD	.3775	.3222	1.6837	.8934	46.055	60.184

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.98114	-8.5661	5.0000	20370.8
SDev	.49072	6.1148	0	48.9312
%RSD	50.015	71.383	0	.2402

Method: ARMY Sample Name: J8LCK Operator: LRW
Run Time: 10/12/07 16:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8410	119300.	93.752	10.26	528.8	5.185
SDev	.3345	87.89	1.2814	1.2	.0556	.0016
%RSD	39.77	.0737	1.3668	11.7	.0105	.0314

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1434.	1.128	69.90	160.4	115.5	186700.
SDev	.1233	.0186	.4006	.7851	.3136	108.1
%RSD	.0086	1.647	.573	.4895	.2715	.0579

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7470.	19760.	2960.	7.545	-1022.	149.7
SDev	15.69	18.66	2.773	1.726	373.9	.4692
%RSD	.2101	.0944	.0937	22.88	36.57	.3135

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.2987	108.16	-3.4482	3.250	969.3	12.615
SDev	.62455	.63584	.80156	.1716	3.891	.14295
%RSD	48.091	.58787	23.246	5.281	.4014	1.1332

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	201.3	454.5	87.301	118.57	9.8897	-2.9903
SDev	.1936	.0642	.39994	1.153	6.5594	2.3384
%RSD	.0962	.0141	.45811	.97236	66.325	78.198

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.00878	-5.1654	5.0000	20416.5
SDev	.83921	.78276	0	1.55508
%RSD	9552	15.154	0	.00761

Method: ARMY Sample Name: J8RL9B Operator: LRW
Run Time: 10/12/07 16:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4688	-59.75	-.36507	-5.287	.1062	.1514
SDev	.525	3.881	.99398	1.101	.0984	.0162
%RSD	112	6.495	272.27	20.83	92.63	10.71

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-71.61	.0601	-.0950	-.5698	-1.219	1.813
SDev	.2029	.0309	.4101	.3456	.3356	5.225
%RSD	.2834	51.42	431.7	60.65	27.53	288.2

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137.3	.6314	.7096	-.2547	-984.9	.2765
SDev	6.132	4.746	.0431	1.146	413.4	1.114
%RSD	4.464	751.7	6.08	449.9	41.97	402.8

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.48349	.15037	-1.5418	.0078	-.3799	4.7454
SDev	3.1842	.61442	5.0928	.6277	.4129	1.0846
%RSD	658.58	408.61	330.31	8079	108.7	22.856

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2539	1.319	-1.5133	.98096	1.6277	-.08773
SDev	.2691	.1908	4.1604	2.9983	6.5655	1.4961
%RSD	106	14.47	274.92	305.65	403.37	1705.3

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.08735	-2.2680	5.0000	19617
SDev	2.9431	9.1048	0	35.3553
%RSD	3369.2	401.45	0	.18022

Method: ARMY Sample Name: J8RL9C Operator: LRW
Run Time: 10/12/07 16:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52.99	1812.	1773.9	891.7	1818.	46.94
SDev	.1627	3.137	2.9198	1.098	.9609	.011
%RSD	.3069	.1731	.16459	.1231	.0528	.0235

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50790.	45.40	441.7	180.5	235.1	967.4
SDev	27.08	.1666	.1788	.1321	.2811	.687
%RSD	.0533	.3669	.0405	.0731	.1196	.071

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	50940.	51660.	476.5	895.7	52120.	455.6
SDev	6.897	22.08	.3298	1.843	170.4	1.765
%RSD	.0135	.0427	.0692	.2058	.3269	.3875

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1802.2	443.67	479.96	1758.	885.8	1768.7
SDev	7.8496	.31978	.28024	3.312	.323	.95923
%RSD	.43555	.07207	.05838	.1884	.0365	.05423

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	457.7	452.1	396.42	467.26	1749.4	1828.6
SDev	.8885	.4483	.15178	.55521	9.0237	7.2635
%RSD	.1941	.0992	.03828	.11882	.51581	.39722

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	404.77	517.51	5.0000	19363.3
SDev	1.9042	.53054	0	6.64707
%RSD	.47045	.10251	0	.03432

Method: ARMY Sample Name: J8KP8 Operator: LRW
Run Time: 10/12/07 16:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.7696	-57.89	34.915	71.16	78.11	.1435
SDev	1.027	11.5	.97386	.0813	.0564	.0016
%RSD	133.4	19.87	2.7892	.1143	.0722	1.088

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	119800.	.0558	.9402	5.591	-.8369	1310.
SDev	16.29	.1392	.7265	1.171	.454	2.909
%RSD	.0136	249.6	77.27	20.95	54.25	.2221

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3466.	48440.	74.61	2.591	18070.	5.084
SDev	12	42.88	.0002	.1316	392	1.39
%RSD	.3461	.0885	.0003	5.081	2.169	27.35

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.1419	-.80112	-.60462	.7115	-2.010	2.1466
SDev	2.6298	.73868	1.5955	.2489	.014	1.2897
%RSD	230.31	92.205	263.88	34.98	.6942	60.079

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0155	4.583	-.46510	-.96888	3.7773	-.17383
SDev	.1563	.2565	.24229	1.2284	1.3193	4.6014
%RSD	1011	5.597	52.094	126.79	34.927	2647.1

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8155	-2.3121	5.0000	19335.6
SDev	.48518	2.1499	0	151.886
%RSD	17.232	92.982	0	.78552

Method: ARMY Sample Name: J8KP8L Operator: LRW
Run Time: 10/12/07 16:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4207	-56.16	7.6826	8.411	15.54	.1130
SDev	.0536	4.448	.62522	1.219	.107	.0152
%RSD	12.75	7.92	8.1381	14.49	.6889	13.44

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24080.	.0288	.4660	.7036	-1.672	248.0
SDev	75.51	.0183	.1663	1.074	.2531	11.41
%RSD	.3136	63.43	35.68	152.7	15.14	4.601

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	721.9	9568.	14.91	.1181	3395.	2.073
SDev	23.39	25.69	.001	1.658	484.5	.8649
%RSD	3.24	.2685	.0066	1404	14.27	41.71

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.1686	-.42869	-.68067	1.024	-.8244	1.9709
SDev	.98238	1.4732	.93168	.3236	.0014	.39446
%RSD	84.066	343.65	136.88	31.61	.1747	20.015

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8663	.8323	3.5888	-2.4345	2.7825	-3.1412
SDev	.3353	.2161	1.9827	3.1986	7.6066	5.2704
%RSD	38.7	25.96	55.247	131.39	273.38	167.79

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0044	-2.5204	5.0000	19377.2
SDev	3.7524	.47656	0	47.2339
%RSD	124.9	18.908	0	.24376

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 16:48 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	949.3	24840.	473.80	4746.	1983.	1955.
SDev	1.712	8.046	1.4316	2.374	2.109	6.23
%RSD	.1803	.0324	.30215	.05	.1064	.3186

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48740.	485.2	1892.	1928.	2011.	24040.
SDev	111.6	1.406	4.548	5.378	1.213	70.61
%RSD	.2289	.2897	.2404	.279	.0604	.2937

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48960.	49130.	2019.	1945.	48150.	1984.
SDev	104.4	104.2	5.223	4.929	75.78	.6858
%RSD	.2133	.2121	.2587	.2534	.1574	.0346

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	471.80	476.85	519.46	4849.	4813.	957.30
SDev	.1353	.97589	4.939	11.85	11.11	3.7926
%RSD	.02867	.20465	.95078	.2444	.2309	.39617

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1960.	1870.	427.33	501.57	459.63	477.87
SDev	5.957	4.694	1.2875	.82033	.67521	.13426
%RSD	.3039	.251	.30128	.16355	.1469	.02809

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	445.31	556.48	5.0000	19272.8
SDev	1.3297	6.7409	0	53.7401
%RSD	.29859	1.2113	0	.27883

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 16:56 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0870	-9.400	-1.6988	11.74	.0195	.0997
SDev	.3956	2.118	1.6091	2.054	.1025	.0022
%RSD	454.9	22.54	94.723	17.5	525.2	2.213

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.034	.0633	.2312	-.0403	-1.437	-.0594
SDev	.7989	.0506	.0008	.1183	.1143	5.318
%RSD	13.24	79.9	.3563	293.3	7.956	8946

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.0	.6921	.0792	-.4732	-562.9	.7805
SDev	4.506	.6657	.0566	.8278	99.11	.5386
%RSD	3.085	96.19	71.51	174.9	17.61	69.01

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.14298	.19677	-1.4892	1.271	-.1598	3.0139
SDev	2.4531	.56139	2.1608	1.223	.1044	.90098
%RSD	1715.7	285.3	145.1	96.17	65.31	29.894

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0841	-.1178	.04432	.27288	-2.5600	1.4925
SDev	.2728	.2513	.02845	.85588	2.8719	2.244
%RSD	324.5	213.4	64.193	313.64	112.18	150.36

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.36739	-2.4162	5.0000	19423.7
SDev	1.7083	2.3867	0	43.6984
%RSD	464.96	98.783	0	.22497

Method: ARMY Sample Name: J8KP8X Operator: LRW
Run Time: 10/12/07 17:01 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3570	-59.21	31.719	70.49	74.35	.1354
SDev	1.29	2.974	1.0827	1.356	.059	.0196
%RSD	361.3	5.022	3.4133	1.923	.0794	14.49

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	114200.	.0227	-.0438	-.4655	-1.347	1217.
SDev	78.37	.0799	.6096	.1642	.0212	.2921
%RSD	.0686	351.7	1391	35.27	1.577	.024

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3287.	46130.	68.22	.8276	17080.	.7467
SDev	10.16	22.76	.1327	.0061	216	.165
%RSD	.3092	.0493	.1945	.7325	1.265	22.09

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2500	-.68785	1.4428	.9925	-2.154	3.0234
SDev	1.6238	1.212	.97014	.7292	.0045	4.1326
%RSD	72.17	176.2	67.239	73.48	.2102	136.69

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.7189	2.529	-3.1022	.51750	4.5971	1.0783
SDev	.2753	.0454	3.5502	.04465	6.9641	1.0423
%RSD	38.29	1.797	114.44	8.6293	151.49	96.66

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.68619	1.8206	5.0000	19375.3
SDev	2.3922	.26017	0	45.6788
%RSD	348.62	14.291	0	.23575

Method: ARMY Sample Name: J8KP8S Operator: LRW
Run Time: 10/12/07 17:06 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.95	1985.	1983.8	1057.	2064.	50.77
SDev	.6393	6.507	5.9962	7.252	5.953	.1729
%RSD	1.185	.3278	.30225	.6861	.2884	.3406

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	165400.	48.72	476.0	194.6	256.1	2297.
SDev	419.5	.21	.9867	.2001	1.903	20.86
%RSD	.2537	.431	.2073	.1028	.7432	.9084

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	56400.	99900.	583.0	971.0	69740.	488.8
SDev	109.1	273.5	2.009	3.199	32.08	3.672
%RSD	.1934	.2738	.3447	.3295	.046	.7512

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1946.3	476.67	528.21	1915.	960.8	1914.0
SDev	11.01	1.0958	4.6974	7.141	3.158	8.0931
%RSD	.56571	.22989	.8893	.373	.3287	.42283

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	496.6	488.5	423.44	503.24	1889.6	1974.5
SDev	2.55	1.057	2.8459	3.0637	.68181	16.848
%RSD	.5135	.2164	.67208	.60879	.03608	.85324

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	445.28	569.62	5.0000	19208.8
SDev	1.1687	7.6261	0	10.4657
%RSD	.26245	1.3388	0	.05448

Method: ARMY Sample Name: J8NPW Operator: LRW
Run Time: 10/12/07 17:12 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0072	-57.95	-.69254	20.35	13.97	.1551
SDev	.135	.6597	.78145	2.019	.0975	.0022
%RSD	1878	1.138	112.84	9.923	.6978	1.418

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	78310.	.0875	-.1191	-.1590	-.3511	-5.838
SDev	240.9	.0589	.0566	.2752	.427	15.46
%RSD	.3076	67.29	47.57	173.1	121.6	264.8

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	877.8	24200.	12.32	-.4799	4080.	1.713
SDev	.1315	124.8	.1235	.4899	62.31	.8982
%RSD	.015	.5159	1.002	102.1	1.527	52.45

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.5461	.60373	-1.2196	1.825	-1.481	5.8052
SDev	2.4966	.33184	3.4085	1.379	.1069	3.238
%RSD	98.056	54.965	279.48	75.58	7.216	55.777

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3212	1.241	-1.0006	1.4047	4.7022	1.4696
SDev	.3636	.0747	3.1521	2.0712	2.8887	2.3008
%RSD	113.2	6.017	315.01	147.45	61.432	156.56

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6492	-2.6519	5.0000	19501.1
SDev	.66523	5.4424	0	48.5072
%RSD	40.337	205.23	0	.24874

Method: ARMY Sample Name: J8NP0 Operator: LRW
Run Time: 10/12/07 17:17 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1451	-61.57	6.4274	47.08	37.78	.1048
SDev	.2059	.0413	1.4638	.5612	.1856	.0049
%RSD	141.9	.067	22.774	1.192	.4913	4.654

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	91140.	.1276	.1518	-.0384	-1.157	1730.
SDev	371.8	.014	.0575	.0744	.5556	7.325
%RSD	.4079	10.95	37.89	193.9	48	.4233

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1773.	30390.	203.4	.3637	10710.	1.580
SDev	5.065	138.9	.9007	.0102	20.14	.4946
%RSD	.2856	.4569	.4428	2.809	.188	31.31

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.1986	-.91477	-.37954	-1.402	-1.710	4.4965
SDev	.30766	.46646	.8614	.492	.2159	.79055
%RSD	25.67	50.992	226.96	35.09	12.62	17.581

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6458	1.110	-1.0650	-.83979	1.8759	.86038
SDev	.1514	.0797	.21049	.80443	2.2459	.65998
%RSD	23.44	7.177	19.765	95.79	119.72	76.708

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.51742	-.82736	5.0000	19387.3
SDev	.28708	1.4348	0	93.479
%RSD	55.484	173.42	0	.48216

Method: ARMY Sample Name: J8NP4 Operator: LRW
Run Time: 10/12/07 17:22 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0008	-61.86	11.413	62.52	89.44	.1280
SDev	.6488	2.851	.05197	.4992	.08	.0111
%RSD	81550	4.609	.4554	.7985	.0894	8.651

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	76300.	.0680	.4269	-.3198	-1.020	743.0
SDev	65.18	.0076	.1106	.1374	.2127	5.701
%RSD	.0854	11.19	25.91	42.96	20.84	.7674

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1975.	26110.	416.8	.2328	13090.	2.554
SDev	2.85	16.09	.5787	.1703	74.71	.5779
%RSD	.1443	.0616	.1388	73.17	.5706	22.62

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.02964	.57199	-1.6217	.8540	-1.412	2.6800
SDev	1.1498	.0396	1.5411	.9812	.0032	.4921
%RSD	3878.6	6.9246	95.028	114.9	.2296	18.362

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5759	.3740	.71946	.49836	5.0166	-2.5490
SDev	.4563	.0634	.76926	.44343	.43377	1.5072
%RSD	79.24	16.95	106.92	88.979	8.6469	59.131

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.0576	-3.9578	5.0000	19430.2
SDev	3.257	.68439	0	53.457
%RSD	106.52	17.292	0	.27512

Method: ARMY Sample Name: J8NP4L Operator: LRW
Run Time: 10/12/07 17:27 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1058	-55.93	1.4377	10.36	17.57	.0926
SDev	.0182	.0254	1.2837	.1704	.1266	.0099
%RSD	17.18	.0454	89.291	1.645	.7205	10.73

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	15240.	.0371	.3486	.3700	-1.693	152.3
SDev	52.34	.0748	.0556	.3231	.5175	1.288
%RSD	.3434	201.7	15.95	87.32	30.57	.8459

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	470.1	5166.	83.59	-.7056	2747.	.8935
SDev	1.43	17.27	.247	.1665	4.421	.3716
%RSD	.3041	.3342	.2955	23.6	.161	41.58

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.44000	.03921	-1.6316	1.111	-.8232	1.3649
SDev	1.4652	.28262	2.1957	.4454	.0008	1.262
%RSD	333	720.71	134.57	40.07	.1007	92.459

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1956	.0831	2.1497	-1.0144	.05140	-.68533
SDev	.1214	.0131	.67537	.08654	2.9268	3.658
%RSD	62.06	15.79	31.418	8.5312	5693.9	533.75

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4357	-3.1629	5.0000	19418.5
SDev	.94789	3.7651	0	27.294
%RSD	66.025	119.04	0	.14055

Method: ARMY Sample Name: J8NP4X Operator: LRW
Run Time: 10/12/07 17:32 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0126	-63.67	9.9791	59.75	86.77	.1282
SDev	.543	7.355	.3447	2.124	1.131	.0123
%RSD	4297	11.55	3.4543	3.555	1.304	9.568

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	74150.	.1290	.4871	.1873	-.3253	731.5
SDev	905.2	.0258	.1919	.9609	.4831	2.058
%RSD	1.221	19.99	39.4	513	148.5	.2813

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1915.	25370.	404.3	.5669	12710.	3.167
SDev	38.37	281.5	5.161	.0308	327.3	.3687
%RSD	2.003	1.109	1.276	5.437	2.574	11.64

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.12938	-.83463	-.77168	.8611	-1.330	3.5463
SDev	1.3417	.00324	2.658	.8082	.0889	3.1691
%RSD	1037	.38923	344.44	93.85	6.68	89.363

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3854	.4162	-2.9187	.20584	.86931	-.62798
SDev	.4226	.0288	3.8764	1.9304	9.1313	2.5473
%RSD	109.6	6.923	132.81	937.78	1050.4	405.63

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.57519	-.86978	5.0000	19561.1
SDev	1.4951	4.7315	0	260.358
%RSD	259.93	543.98	0	1.33099

Method: ARMY Sample Name: J8NP4S Operator: LRW
Run Time: 10/12/07 17:37 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	53.95	1998.	1972.3	1053.	2097.	51.36
SDev	.1142	6.61	.25083	6.511	.7653	.0225
%RSD	.2117	.3309	.01271	.6181	.0365	.0438

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	124300.	48.98	482.0	196.6	258.8	1802.
SDev	243.4	.0068	.2945	1.486	.3846	7.514
%RSD	.1959	.0138	.0611	.7559	.1486	.4169

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54490.	77930.	921.4	977.7	65370.	498.8
SDev	17.87	141.2	1.331	3.06	159.1	.4436
%RSD	.0328	.1811	.1444	.3129	.2434	.0889

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1966.7	481.27	527.97	1929.	971.1	1933.9
SDev	5.5468	.18471	2.4803	.0368	1.969	9.1398
%RSD	.28203	.03838	.46977	.0019	.2028	.4726

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	502.2	492.5	430.96	506.38	1908.3	1995.8
SDev	.7714	.0724	1.8751	.65922	6.3748	5.1334
%RSD	.1536	.0147	.4351	.13018	.33405	.2572

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	449.62	567.09	5.0000	19250.5
SDev	1.9779	2.7311	0	30.6887
%RSD	.4399	.4816	0	.15941

Method: ARMY Sample Name: J8NP6 Operator: LRW
Run Time: 10/12/07 17:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4649	-57.11	-1.2460	-1.518	.7234	.1244
SDev	.1161	4.023	1.1528	1.96	.0323	.008
%RSD	24.98	7.044	92.522	129.1	4.461	6.444

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-77.10	.1251	.1359	-.3729	-.7642	-5.834
SDev	.3111	.0452	.0829	.1149	.3724	2.804
%RSD	.4035	36.09	61	30.8	48.72	48.07

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	144.5	.9274	.1911	-.2506	-795.6	.4678
SDev	3.585	5.813	.0736	.1651	146.3	.0012
%RSD	2.481	626.8	38.53	65.9	18.39	.2532

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.26887	-.54561	-.66584	-.6167	-.2336	1.7723
SDev	1.9339	.63605	.01496	1.79	0	3.3742
%RSD	719.27	116.58	2.2482	290.2	0	190.39

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3210	.1491	-.15749	-.73938	1.0630	-.12761
SDev	.4241	.0361	.48204	.71294	4.1196	.84274
%RSD	132.1	24.19	306.07	96.425	387.53	660.4

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.97986	-1.4875	5.0000	19549.1
SDev	.47033	.25725	0	15.4141
%RSD	48	17.295	0	.07884

Method: ARMY Sample Name: J8NQH Operator: LRW
Run Time: 10/12/07 17:48 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0619	-59.47	-1.5253	66.31	24.08	.1186
SDev	.136	.9316	.38726	.155	.0292	.0302
%RSD	219.5	1.567	25.389	.2338	.1211	25.46

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	64370.	.1492	.0763	.0871	-.9636	-6.082
SDev	299.9	.0586	.0526	.2137	.194	4.555
%RSD	.4658	39.29	68.97	245.5	20.13	74.9

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	819.7	21310.	56.03	1.493	5969.	1.564
SDev	3.448	102.1	.2961	.969	104.8	.4927
%RSD	.4207	.4793	.5284	64.89	1.755	31.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2515	-.03638	-3.3691	-.5794	-1.335	3.4658
SDev	1.2592	.3891	.79235	.9496	.1095	1.2279
%RSD	55.928	1069.3	23.518	163.9	8.207	35.428

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6188	-.3892	.52662	-.31747	6.4353	.16268
SDev	.2409	.1038	1.6132	.22201	1.4591	1.1594
%RSD	38.92	26.67	306.32	69.932	22.673	712.64

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.0050	-5.5529	5.0000	19501.7
SDev	1.2235	1.7988	0	101.966
%RSD	121.74	32.393	0	.52285

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 17:57 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	948.7	24880.	474.90	4767.	1985.	1954.
SDev	.3013	12.55	.30098	1.718	.676	1.614
%RSD	.0318	.0504	.06337	.036	.0341	.0826

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48680.	484.6	1890.	1927.	2012.	24120.
SDev	51.48	.045	.1886	.831	1.486	40.84
%RSD	.1058	.0093	.01	.0431	.0739	.1693

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48910.	49080.	2006.	1947.	48140.	1973.
SDev	10.68	42.58	1.273	2.627	28.73	.0347
%RSD	.0218	.0867	.0635	.1349	.0597	.0018

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	470.47	476.52	520.61	4843.	4818.	958.56
SDev	.33199	.37107	.91176	8.272	4.75	1.9761
%RSD	.07056	.07787	.17513	.1708	.0986	.20615

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1960.	1867.	426.24	501.62	458.96	476.21
SDev	3.118	.0846	.43346	.33989	2.9454	1.9683
%RSD	.1591	.0045	.10169	.06775	.64174	.41331

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	440.71	560.50	5.0000	19276.6
SDev	3.4523	.35661	0	10.1826
%RSD	.78335	.06362	0	.05282

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 18:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3585	-5.782	-.05164	10.36	.0197	.1249
SDev	.0359	2.821	1.2908	.9598	.0328	.0015
%RSD	10.01	48.79	2499.6	9.264	166.6	1.216

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.673	.0660	.0352	.0256	-1.141	-1.817
SDev	.1925	.1	.1104	.0221	.1027	4.234
%RSD	3.393	151.3	313.8	86.39	8.995	233

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	147.7	2.702	.0404	.2271	-557.1	.4780
SDev	.5781	.4268	.0191	.8274	56.92	.4262
%RSD	.3915	15.79	47.25	364.3	10.22	89.16

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.8604	-.67035	.03872	1.399	-.0123	4.0005
SDev	1.0822	.76863	2.3804	1.129	.313	4.4784
%RSD	37.836	114.66	6147.6	80.69	2549	111.95

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1754	-.0609	.12292	-1.0664	5.0884	1.7480
SDev	.0318	.0897	.3718	1.338	1.2627	.99214
%RSD	18.13	147.3	302.48	125.47	24.816	56.758

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.8789	-1.3792	5.0000	19415
SDev	1.4479	2.8459	0	20.9301
%RSD	50.295	206.34	0	.1078

Method: ARMY Sample Name: J8NQP Operator: LRW
Run Time: 10/12/07 18:10 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2514	-12.13	.26860	1011.	245.2	.1336
SDev	.1435	.2783	1.2262	4.12	.3164	.0144
%RSD	57.06	2.294	456.49	.4075	.129	10.75

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	26940.	.0415	.2705	-.6317	-1.115	83.27
SDev	10.66	.0959	.1114	.4872	.3111	5.309
%RSD	.0396	231.1	41.19	77.12	27.9	6.375

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4051.	9317.	36.98	-.4783	45270.	3.336
SDev	4.536	12.44	.034	.4889	108.5	.0152
%RSD	.112	.1335	.092	102.2	.2397	.4564

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.7357	-.16044	-.80612	1.067	-.1603	4.6495
SDev	.37091	.58452	1.4417	1.02	.1036	2.2663
%RSD	21.37	364.31	178.84	95.64	64.62	48.742

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1728	.4560	-.51822	.01817	7.8755	-1.3296
SDev	.031	.0502	.88853	1.32	2.7053	1.9067
%RSD	17.91	11.01	171.46	7262.9	34.351	143.41

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2549	-2.3343	5.0000	19486.6
SDev	.95709	1.6837	0	67.8822
%RSD	42.446	72.126	0	.34835

Method: ARMY Sample Name: J8NQW Operator: LRW
Run Time: 10/12/07 18:14 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1128	-8.819	-1.0329	1113.	252.7	.0989
SDev	.2142	1.359	.79433	8.674	1.544	.0102
%RSD	189.9	15.41	76.905	.7793	.611	10.3

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	27020.	.1043	.0582	-.4392	-.9767	102.4
SDev	130.2	.1279	.1933	.0678	.4773	2.697
%RSD	.4818	122.6	331.9	15.43	48.88	2.634

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4141.	9391.	36.51	-.6005	49120.	2.939
SDev	32.01	32.7	.198	.9792	12.26	.3095
%RSD	.773	.3482	.5424	163.1	.025	10.53

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.67037	.16980	-1.7720	-2.420	.0585	1.0820
SDev	3.5146	.17224	.43495	1.205	.206	.97169
%RSD	524.27	101.43	24.546	49.8	352.3	89.801

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1880	.7479	-.78963	.64880	3.0531	-.51917
SDev	.3014	.142	1.0301	.77252	4.6311	2.9572
%RSD	160.4	18.99	130.46	119.07	151.69	569.58

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.7811	-4.0452	5.0000	19585.3
SDev	2.6431	.66744	0	42.0024
%RSD	95.037	16.5	0	.21445

Method: ARMY Sample Name: J8NRN Operator: LRW
Run Time: 10/12/07 18:19 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0583	-58.50	4.4567	28.67	39.71	.1312
SDev	.368	2.165	.24897	.9746	.1296	0
%RSD	630.8	3.7	5.5865	3.399	.3265	.0368

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	66100.	.0511	.1152	-.2237	-1.151	275.1
SDev	118.1	.1163	.1104	.2775	.3175	3.198
%RSD	.1787	227.5	95.81	124.1	27.58	1.162

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1145.	17880.	129.5	-.0109	5031.	.5099
SDev	2.037	20.1	.0774	.8218	19.04	.4792
%RSD	.1778	.1124	.0598	7518	.3784	93.98

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.1314	-.45928	-.84381	.1798	-1.408	4.2547
SDev	2.3166	1.4272	.2799	2.017	.0001	1.9283
%RSD	73.98	310.75	33.172	1122	.0091	45.321

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4136	.5060	-.85692	-.26076	9.1752	.11402
SDev	.242	.1175	2.7558	.76388	3.8111	1.5705
%RSD	58.51	23.22	321.6	292.94	41.537	1377.4

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6455	-2.0866	5.0000	19491.5
SDev	1.0377	.09844	0	2.12132
%RSD	63.064	4.718	0	.01088

Method: ARMY Sample Name: J8NRV Operator: LRW
Run Time: 10/12/07 18:24 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1401	-60.79	.71995	89.66	49.40	.0858
SDev	.2711	.3581	2.0445	.4216	.169	0
%RSD	193.5	.5891	283.98	.4702	.3422	.0145

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	137700.	.0382	.0333	.2755	-.3982	-9.555
SDev	171.9	.1054	.2224	.0932	.0003	3.19
%RSD	.1249	276.3	668.3	33.82	.0808	33.38

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1752.	27620.	12.74	.2320	5227.	2.492
SDev	4.88	23.16	.0831	.8275	4.596	.3754
%RSD	.2785	.0838	.6525	356.7	.0879	15.06

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.5959	.02752	-2.1902	.6746	-2.599	4.0951
SDev	1.8609	.284	2.6681	.0903	0	3.0543
%RSD	71.689	1032	121.82	13.39	.0007	74.585

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1683	47.64	-.59950	.34056	6.2860	.75354
SDev	.0298	.3633	.79672	.82355	1.2983	3.4382
%RSD	17.73	.7625	132.9	241.82	20.653	456.27

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5958	-4.0803	5.0000	19361.9
SDev	.96898	3.5164	0	.14086
%RSD	60.722	86.178	0	.00072

Method: ARMY Sample Name: J8NR1 Operator: LRW
Run Time: 10/12/07 18:29 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4427	-63.42	12.364	30.66	55.43	.1143
SDev	.6303	1.01	.51851	.577	.1225	.0084
%RSD	142.4	1.593	4.1937	1.882	.2209	7.308

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	92790.	.0815	.1140	-.3035	-1.187	1792.
SDev	111.4	.1466	.2216	.2549	.2328	11.28
%RSD	.1201	179.8	194.3	83.97	19.62	.6293

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1829.	34040.	294.2	-.1076	13130.	.4007
SDev	4.46	46.32	.3525	.329	161	.4267
%RSD	.2438	.1361	.1198	305.7	1.227	106.5

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2188	-.43822	-1.3874	-.4491	-2.000	2.4079
SDev	.11774	.52494	1.5184	1.664	.0007	1.0168
%RSD	5.3068	119.79	109.45	370.5	.0341	42.228

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9272	1.424	.01641	-.66520	4.6487	1.0056
SDev	.0601	.2456	1.1291	1.3507	2.9024	1.2725
%RSD	6.483	17.25	6876.4	203.05	62.435	126.54

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.5886	-2.8732	5.0000	19438.9
SDev	2.3873	3.4684	0	7.49643
%RSD	150.27	120.72	0	.03856

Method: ARMY Sample Name: J8NTF Operator: LRW
Run Time: 10/12/07 18:34 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0395	-59.60	1.4370	20.16	45.87	.1056
SDev	.0784	3.445	.50689	1.049	1.314	.0044
%RSD	198.4	5.78	35.274	5.207	2.864	4.145

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	134500.	.0862	1.388	.3272	-1.146	511.6
SDev	3539	.0795	.4721	.109	.0749	7.02
%RSD	2.632	92.21	34.02	33.32	6.533	1.372

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1451.	59050.	346.6	.5160	15190.	2.855
SDev	40.04	1557	9.29	.8958	619.7	.1498
%RSD	2.759	2.636	2.681	173.6	4.079	5.247

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6955	-.03262	-2.5032	-.2678	-2.406	1.8475
SDev	1.8652	.13787	2.1369	1.144	.2651	1.0716
%RSD	110.01	422.61	85.369	427.1	11.02	58.004

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.8619	1.261	-.12897	.01547	3.8700	.60983
SDev	.3204	.1407	2.5549	1.0688	.63726	3.1146
%RSD	37.17	11.16	1980.9	6905	16.467	510.73

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.57201	-4.0384	5.0000	19072.1
SDev	.50515	3.456	0	467.681
%RSD	88.312	85.577	0	2.45217

Method: ARMY Sample Name: J8NTL Operator: LRW
Run Time: 10/12/07 18:39 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1982	4.646	20.217	47.74	33.78	.1505
SDev	.3518	6.195	.20204	.3062	.1384	.0141
%RSD	177.5	133.3	.9994	.6414	.4096	9.347

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	100400.	.0709	.3883	-.2688	-.1935	1640.
SDev	220.9	.0329	.4433	.2577	.7462	2.174
%RSD	.22	46.47	114.2	95.87	385.7	.1326

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1986.	42750.	213.4	.1290	21370.	.9729
SDev	17.62	145.4	.2613	.6661	113.5	.9156
%RSD	.8873	.34	.1224	516.5	.5313	94.11

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.1590	-.40074	.88569	.7317	.0621	6.9298
SDev	2.823	1.1291	6.0424	.983	.4182	.34328
%RSD	89.365	281.74	682.22	134.3	673.2	4.9537

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3635	2.082	-1.3671	.08170	6.7140	1.3842
SDev	.0616	.2974	.73875	1.324	3.7191	2.3756
%RSD	16.96	14.29	54.038	1620.5	55.394	171.63

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0729	.29297	5.0000	19397.5
SDev	.9443	8.5877	0	54.7303
%RSD	45.555	2931.2	0	.28215

Method: ARMY Sample Name: J8RL7B Operator: LRW
Run Time: 10/12/07 18:46 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.5413	-58.71	-1.9566	-4.062	.1827	.1090
SDev	.3132	.2266	1.7849	.0201	.0026	.0329
%RSD	57.85	.386	91.224	.4958	1.434	30.14

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-74.82	.0996	.4667	-.4859	-.9900	-11.28
SDev	.3183	.032	.0551	.3686	.0599	5.621
%RSD	.4254	32.16	11.8	75.85	6.046	49.83

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	145.9	-2.372	1.204	-.7106	-622.1	.7729
SDev	2.766	1.806	.0418	.4963	31.69	.4209
%RSD	1.896	76.16	3.473	69.85	5.095	54.45

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.4806	.23541	-.55161	.6272	-.0873	2.3251
SDev	.69309	.07385	1.7768	2.385	.4149	1.5434
%RSD	46.811	31.37	322.11	380.2	475	66.379

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3633	1.020	1.6618	-.47672	7.8965	-1.7225
SDev	.1823	.0896	1.6979	.9584	3.7618	2.9172
%RSD	50.19	8.783	102.17	201.04	47.638	169.36

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.5962	-2.6224	5.0000	19492.1
SDev	2.8343	1.2488	0	56.7108
%RSD	78.812	47.621	0	.29094

Method: ARMY Sample Name: J8RL7C Operator: LRW
Run Time: 10/12/07 18:51 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52.89	1809.	1765.5	894.6	1813.	46.64
SDev	.9201	6.891	2.8698	.2544	.6514	.0067
%RSD	1.74	.381	.16254	.0284	.0359	.0143

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51230.	44.94	438.4	179.5	235.1	988.2
SDev	28.64	.0815	.0126	.1869	.8738	.0883
%RSD	.0559	.1813	.0029	.1041	.3716	.0089

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51540.	52210.	467.1	890.9	52710.	451.9
SDev	109.1	27.18	.1457	1.5	136.8	2.209
%RSD	.2116	.0521	.0312	.1684	.2595	.4889

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1784.6	439.33	478.57	1748.	882.6	1769.9
SDev	2.5026	1.0029	3.9777	3.877	.3984	4.0562
%RSD	.14023	.22827	.83117	.2218	.0451	.22918

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	456.9	446.6	389.24	464.33	1727.4	1813.2
SDev	.1576	.6121	.34969	1.6782	10.362	1.4213
%RSD	.0345	.1371	.08983	.36142	.59987	.07838

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	403.05	516.26	5.0000	19358
SDev	.77359	5.5774	0	32.5269
%RSD	.19193	1.0803	0	.16802

Method: ARMY Sample Name: J8RHP Operator: LRW
Run Time: 10/12/07 18:57 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1200	-55.70	-.81572	31.09	21.87	.0029
SDev	.9086	2.145	1.6283	1.124	.8781	.1175
%RSD	757	3.85	199.61	3.616	4.016	4003

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20120.	-.2947	.0356	-.1583	-3.973	-.8317
SDev	71.37	.3282	.3885	.5992	3.813	3.494
%RSD	.3547	111.4	1091	378.7	95.99	420

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	707.5	6246.	.6480	-1.175	15860.	2.019
SDev	4.809	42.91	.051	.4956	14.72	.47
%RSD	.6798	.6869	7.872	42.19	.0929	23.28

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.4296	-.01958	-8.4643	-.1359	-1.849	1.5196
SDev	4.5177	.25309	6.172	.6667	1.242	2.8963
%RSD	316.01	1292.5	72.918	490.4	67.19	190.6

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6651	.3841	.12739	-.09296	6.1611	-.93258
SDev	.1826	.7565	.58312	.67058	3.1138	5.2186
%RSD	27.45	197	457.72	721.34	50.539	559.59

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.6465	-14.011	5.0000	19470.1
SDev	2.4558	10.479	0	62.9325
%RSD	92.795	74.792	0	.32322

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 19:05 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	950.5	24930.	478.71	4774.	1985.	1959.
SDev	.8153	17.62	.12349	.2175	1.02	.7829
%RSD	.0858	.0707	.02579	.0046	.0514	.04

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48780.	485.6	1894.	1931.	2015.	24210.
SDev	21.6	.1466	.4547	.443	1.214	8.217
%RSD	.0443	.0302	.024	.0229	.0602	.0339

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48860.	49200.	2004.	1948.	48260.	1976.
SDev	93.5	18.1	1.036	.4698	82.38	5.665
%RSD	.1914	.0368	.0517	.0241	.1707	.2866

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	471.87	479.21	521.67	4852.	4826.	957.20
SDev	.8044	.17904	1.4327	9.129	1.879	.52817
%RSD	.17047	.03736	.27464	.1882	.0389	.05517

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1964.	1870.	428.15	504.70	461.16	477.22
SDev	.033	.5757	.68949	.07578	2.3596	.028
%RSD	.0017	.0308	.16103	.01501	.51165	.00586

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	443.46	560.71	5.0000	19207.8
SDev	.00153	2.1488	0	42.4264
%RSD	.00034	.38322	0	.22088

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 19:13 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0505	-10.34	-.42685	11.78	.0207	.1073
SDev	.6143	4.114	1.7699	2.606	.0316	.0113
%RSD	1216	39.8	414.64	22.13	152.8	10.52

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-6.282	.0201	-.3591	-.3356	-1.321	-7.062
SDev	.6902	.052	.6686	.6258	.4888	4.583
%RSD	10.99	258.7	186.2	186.5	37	64.9

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	135.2	2.896	.0153	.4608	-765.8	.7822
SDev	12.15	1.554	.0386	1.481	303	.6374
%RSD	8.987	53.67	252.7	321.4	39.56	81.49

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0177	.21449	1.8017	.3168	-.2336	.70372
SDev	3.3855	.33055	.83447	2.202	0	.62056
%RSD	112.19	154.11	46.315	694.8	0	88.183

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0181	-.0446	-.12835	.38566	5.7886	1.6342
SDev	.3658	.0505	1.7425	.37437	.23207	5.1916
%RSD	2016	113.3	1357.6	97.074	4.0091	317.68

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6709	1.8670	5.0000	19389.2
SDev	.29806	1.3999	0	55.1543
%RSD	17.839	74.979	0	.28445

Method: ARMY Sample Name: J8RHPL Operator: LRW
Run Time: 10/12/07 19:18 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2500	-44.64	-1.3585	6.760	4.342	.0918
SDev	.0269	2.871	.86672	.735	.3792	.0461
%RSD	10.76	6.432	63.8	10.87	8.734	50.18

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3965.	-.0627	.1336	.4667	-2.772	4.406
SDev	15.52	.1954	.0284	.0493	1.296	5.969
%RSD	.3915	311.8	21.22	10.55	46.76	135.5

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	251.9	1231.	.2600	-.5911	3165.	1.042
SDev	3.487	3.575	.0718	.9909	144.7	.4765
%RSD	1.384	.2903	27.61	167.6	4.574	45.75

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.0799	-.10829	-3.1068	1.617	-.6011	4.1998
SDev	.53678	.77638	2.137	1.535	.5197	6.3979
%RSD	13.157	716.93	68.785	94.95	86.46	152.34

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0659	.4458	1.0600	-.69159	5.7683	3.2370
SDev	.3023	.2195	.68645	1.5067	5.8663	2.124
%RSD	458.7	49.23	64.757	217.86	101.7	65.616

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.83532	-5.0749	5.0000	19445.4
SDev	1.064	2.6727	0	37.3358
%RSD	127.38	52.665	0	.192

Method: ARMY Sample Name: J8RHPX Operator: LRW
Run Time: 10/12/07 19:23 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0343	-55.12	-.85283	32.06	21.92	.1008
SDev	.2957	1.533	1.4637	.5706	.1737	.0095
%RSD	861.2	2.782	171.63	1.78	.7922	9.386

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	19670.	.1575	-.0596	.3137	-.4612	.6329
SDev	5.609	.1131	.138	.346	.2307	1.401
%RSD	.0285	71.83	231.5	110.3	50.03	221.4

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	695.7	6096.	.9356	-.3648	15760.	1.034
SDev	2.602	1.438	.027	.0004	150.5	.0526
%RSD	.374	.0236	2.885	.104	.9554	5.088

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.50104	.26961	-2.4116	.7139	-.4534	1.1757
SDev	1.631	.97916	1.6666	.1799	.3109	1.0615
%RSD	325.52	363.17	69.107	25.19	68.57	90.289

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2781	1.131	.30623	.25133	5.2458	-1.8678
SDev	.0605	.0557	.50246	1.7189	1.8942	3.391
%RSD	21.75	4.919	164.08	683.89	36.109	181.55

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	3.2556	-5.2409	5.0000	19525.1
SDev	1.6193	1.6902	0	5.5146
%RSD	49.738	32.251	0	.02824

Method: ARMY Sample Name: J8RHPS Operator: LRW
Run Time: 10/12/07 19:28 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54.07	1936.	1889.8	980.1	1958.	49.64
SDev	.2432	1.632	5.0215	.4828	.5659	.0165
%RSD	.4498	.0843	.26571	.0493	.0289	.0333

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	70590.	47.59	467.1	190.7	250.8	1042.
SDev	82.07	.0007	1.084	.4513	.4002	4.992
%RSD	.1163	.0014	.232	.2367	.1596	.479

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	52870.	58310.	498.7	946.9	67630.	482.8
SDev	22.4	55.33	.4451	1.778	45.73	2.531
%RSD	.0424	.0949	.0893	.1878	.0676	.5243

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1898.4	466.89	510.88	1860.	937.6	1875.4
SDev	5.3389	.94661	.93992	5.869	1.239	.80058
%RSD	.28123	.20274	.18398	.3156	.1321	.04268

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	483.9	478.1	416.73	491.93	1843.5	1925.8
SDev	.0507	.6766	1.072	.88401	3.0842	6.4647
%RSD	.0105	.1415	.25723	.1797	.1673	.33568

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	434.06	549.24	5.0000	19331.7
SDev	1.0473	1.932	0	12.5857
%RSD	.24127	.35176	0	.0651

Method: ARMY Sample Name: J8RHT Operator: LRW
Run Time: 10/12/07 19:34 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3228	-55.38	-1.7309	28.56	4.659	.0957
SDev	.673	2.009	1.8457	3.676	.0949	.0168
%RSD	208.5	3.627	106.63	12.87	2.037	17.58

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	24700.	.1577	1.072	-.1255	-.8004	-28.42
SDev	18.6	.0261	.4145	.2781	.5352	35.48
%RSD	.0753	16.56	38.68	221.5	66.87	124.8

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	511.0	9748.	29.06	-.4791	8764.	1.225
SDev	3.526	17.26	.1679	.4947	9.112	.1088
%RSD	.6901	.177	.5776	103.3	.104	8.886

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0101	-.76157	.40696	-1.816	-.6740	2.8198
SDev	.67814	.78069	5.5199	3.138	.0005	.24362
%RSD	22.529	102.51	1356.4	172.8	.0678	8.64

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.520	5.628	6.8321	-4.5527	14.730	-2.8411
SDev	2	.1573	8.3151	5.3218	11.404	6.7103
%RSD	131.6	2.794	121.71	116.89	77.421	236.19

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	5.0078	-1.8900	5.0000	19497.9
SDev	7.8869	4.3382	0	20.2244
%RSD	157.49	229.53	0	.10372

Method: ARMY Sample Name: J8RHW Operator: LRW
Run Time: 10/12/07 19:39 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0678	-36.54	-1.4061	37.95	14.10	.1550
SDev	.2241	2.289	.21415	1.906	.0859	.0004
%RSD	330.4	6.264	15.23	5.022	.6092	.2682

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9190.	.1521	-.0011	-.4215	-.5654	20.47
SDev	17.82	.0498	.1096	.0455	.5348	8.391
%RSD	.1939	32.73	9725	10.8	94.59	40.99

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	576.0	4053.	8.197	-.9455	2690.	3.099
SDev	7.095	18.03	.0737	.1633	55.59	.4291
%RSD	1.232	.4448	.8988	17.27	2.066	13.85

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.6686	-.88527	-1.6690	-.1422	-.4535	.61933
SDev	1.5478	.79214	.66498	.2217	.311	2.2872
%RSD	92.756	89.48	39.844	155.9	68.58	369.31

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3841	3.119	-2.2217	-.21808	3.5230	.74282
SDev	.332	.0045	2.8003	2.5857	1.8017	1.421
%RSD	86.45	.1437	126.04	1185.6	51.141	191.29

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.43366	-2.7187	5.0000	19538.6
SDev	1.6121	1.8018	0	18.9496
%RSD	371.75	66.275	0	.09698

Method: ARMY Sample Name: J8RH1 Operator: LRW
Run Time: 10/12/07 19:44 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0682	-55.91	-.14479	117.5	43.41	.1292
SDev	.2968	1.505	.45084	.6089	.006	.006
%RSD	434.9	2.691	311.37	.5184	.0138	4.668

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	79860.	.1605	-.2401	.2897	-.5195	-12.80
SDev	17.68	.0243	.0577	.3059	.105	2.11
%RSD	.0221	15.17	24.01	105.6	20.2	16.49

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1425.	45320.	.6394	-.1211	9396.	1.576
SDev	6.573	22.08	.0333	.9957	143.5	.474
%RSD	.4614	.0487	5.201	822.1	1.527	30.08

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.9628	.43592	-2.1644	-.8896	-1.414	2.8301
SDev	2.3477	.73747	1.9929	1.761	.0034	.95014
%RSD	59.244	169.18	92.078	197.9	.2434	33.573

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.4925	7.807	-.63919	.97267	7.3389	2.2773
SDev	.1824	.0045	.59275	1.4016	4.9756	1.0358
%RSD	37.04	.0571	92.735	144.1	67.797	45.484

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	-.03580	-3.2271	5.0000	19402.8
SDev	1.1371	2.4202	0	56.5685
%RSD	3176.2	74.996	0	.29154

Method: ARMY Sample Name: J8RH3 Operator: LRW
Run Time: 10/12/07 19:49 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0327	-60.76	-.37110	117.5	19.45	.0567
SDev	.0627	1.667	.975	.9316	.3872	.0701
%RSD	191.4	2.743	262.73	.793	1.99	123.6

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	55700.	-.0012	.0178	.1188	-1.901	-4.334
SDev	29.02	.2391	.0278	.0239	2.817	4.92
%RSD	.0521	19960	156.6	20.15	148.2	113.5

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1067.	6483.	12.95	-.0148	2352.	1.600
SDev	3.971	5.106	.0281	.8226	30.98	.6368
%RSD	.3723	.0788	.2173	5563	1.317	39.8

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.5119	-.35914	-4.7861	2.364	-1.554	2.2967
SDev	.76012	.45254	2.544	.8927	.831	1.6593
%RSD	30.26	126.01	53.153	37.77	53.46	72.246

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1061	1.429	.82074	-.94820	5.7975	.87164
SDev	.0597	.4675	.84908	.25457	2.3867	2.3312
%RSD	56.22	32.71	103.45	26.848	41.169	267.45

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.2560	-8.3019	5.0000	19507.2
SDev	2.2686	2.6814	0	14.1421
%RSD	100.56	32.299	0	.07249

Method: ARMY Sample Name: J8RH5 Operator: LRW
Run Time: 10/12/07 19:54 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1528	-59.53	-.73047	116.3	19.37	.1422
SDev	.1075	3.797	1.8777	.1599	.0972	.0346
%RSD	70.41	6.378	257.05	.1375	.5017	24.33

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	54820.	.1491	.2914	-.4862	-.3931	-6.820
SDev	2.326	.2561	.138	.1847	.6811	.7001
%RSD	.0042	171.8	47.36	37.98	173.3	10.27

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1056.	6388.	16.79	-1.177	2216.	.2444
SDev	14.04	5.134	.0338	.1643	265.9	.7444
%RSD	1.33	.0804	.2014	13.95	12	304.6

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.0009	.05027	-3.2248	-.6151	-1.333	1.3972
SDev	3.3939	.05826	2.4292	1.164	.1039	2.0757
%RSD	113.09	115.89	75.331	189.2	7.79	148.56

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2142	1.582	.24228	-.04559	8.7108	.15025
SDev	.2118	.0818	1.5753	.69911	.76165	4.708
%RSD	98.89	5.167	650.17	1533.4	8.7438	3133.4

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.4391	-5.5532	5.0000	19519.4
SDev	.18558	3.5494	0	3.11016
%RSD	12.896	63.916	0	.01593

Method: ARMY Sample Name: J8RH7 Operator: LRW
Run Time: 10/12/07 19:59 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.1953	-63.29	.22737	11.70	16.11	.0935
SDev	.0822	.5076	1.7537	.6189	.1091	.011
%RSD	42.1	.8021	771.26	5.29	.6769	11.78

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	69940.	.1024	.5245	-.2192	-.9549	590.7
SDev	59.39	.0412	.139	.2308	.7154	1.7
%RSD	.0849	40.23	26.51	105.3	74.91	.2878

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2165.	21810.	190.7	-1.987	43580.	2.339
SDev	10.06	13.47	.3166	.993	74.32	.4906
%RSD	.4647	.0618	.166	49.98	.1706	20.98

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.2960	-.50163	-.94795	-.1244	-1.489	3.9630
SDev	1.2379	.1578	.57328	.2307	.1014	.11843
%RSD	37.558	31.459	60.476	185.5	6.806	2.9886

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.6175	.3877	-.03173	-.73623	7.3642	1.2649
SDev	.1514	.1395	1.2646	.39477	1.5436	1.0853
%RSD	24.52	35.98	3985.3	53.62	20.961	85.799

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6117	-2.2259	5.0000	19374.1
SDev	.4873	1.1028	0	47.941
%RSD	30.234	49.543	0	.24744

Method: ARMY Sample Name: J8RH9 Operator: LRW
Run Time: 10/12/07 20:04 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0013	-62.12	-2.7964	391.4	281.0	.1321
SDev	.251	.8162	1.6482	5.164	.4728	.0357
%RSD	19740	1.314	58.939	1.319	.1683	27.01

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	30660.	.1803	-.1387	-.0935	.1274	-24.69
SDev	2.033	.1028	.1377	.1845	.9567	48.48
%RSD	.0066	57.04	99.33	197.3	751.1	196.3

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4665.	13040.	10.99	-1.177	12520.	3.745
SDev	9.884	33.23	.3564	1.479	91.85	.9046
%RSD	.2118	.2548	3.243	125.6	.7335	24.16

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.45612	-1.1044	-.72167	-3.307	-.6003	2.6361
SDev	.54672	1.5725	2.6051	3.987	.3112	.67128
%RSD	119.86	142.38	360.98	120.6	51.84	25.465

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-1.778	7.238	8.8429	-6.0707	12.413	-6.8808
SDev	2.424	.2197	12.809	8.7523	15.403	6.8703
%RSD	136.3	3.036	144.85	144.17	124.09	99.846

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	6.5446	-4.3494	5.0000	19509.8
SDev	7.397	.21279	0	.28311
%RSD	113.02	4.8925	0	.00145

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 20:12 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	949.5	24960.	475.28	4811.	1984.	1957.
SDev	2.169	80.35	.37133	18.95	4.993	2.394
%RSD	.2284	.3218	.07812	.394	.2517	.1223

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48810.	484.5	1893.	1933.	2012.	24270.
SDev	90.42	1.098	3.314	3.198	3.22	50.27
%RSD	.1852	.2266	.1751	.1654	.16	.2071

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48930.	49270.	2001.	1949.	48290.	1958.
SDev	183.4	87.49	4.891	3.83	135.8	.9259
%RSD	.3748	.1776	.2444	.1965	.2812	.0473

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	465.65	477.57	521.41	4841.	4835.	956.11
SDev	.81983	.13122	.4097	15.37	11.52	5.4209
%RSD	.17606	.02747	.07857	.3176	.2383	.56697

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1968.	1864.	427.60	502.51	452.61	472.16
SDev	4.264	1.948	.75054	.57146	8.0815	2.8056
%RSD	.2166	.1045	.17552	.11372	1.7855	.59419

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	445.21	559.46	5.0000	19199
SDev	2.3649	.56641	0	11.5968
%RSD	.53119	.10124	0	.0604

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 20:20 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q2.098	-2.971	1.0892	13.04	.5130	.1897
SDev	2.135	18.07	1.8439	5.592	.7302	.0913
%RSD	101.8	608.2	169.29	42.87	142.3	48.11

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.151	.3599	1.281	.6045	.8462	15.97
SDev	3.678	.5599	1.819	2.189	2.979	32.91
%RSD	71.4	155.6	142	362	352.1	206.1

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	163.7	13.34	.1799	1.377	-62.47	3.257
SDev	42.59	14.98	.2885	2.12	1084	1.68
%RSD	26.01	112.3	160.3	153.9	1736	51.57

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.9682	.11726	-.85361	3.689	.4973	5.9136
SDev	1.6573	.34846	2.7824	4.451	1.242	7.2921
%RSD	84.201	297.16	325.96	120.6	249.8	123.31

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.348	.3805	1.0190	-.33292	5.1475	.38096
SDev	2.176	.6901	1.1941	.07373	3.0897	.94214
%RSD	161.4	181.3	117.19	22.149	60.023	247.3

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.6736	-2.1153	5.0000	19479.3
SDev	1.8098	5.0751	0	118.087
%RSD	108.14	239.92	0	.60621

Method: ARMY Sample Name: J8RJC Operator: LRW
Run Time: 10/12/07 20:25 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2819	-45.82	-1.1319	70.33	16.31	.1011
SDev	.0724	.3984	.31668	.2925	.1711	.0001
%RSD	25.66	.8695	27.98	.416	1.049	.1076

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	85100.	.0922	.3277	.0624	-.7448	19.78
SDev	230.3	.0456	.0835	.0234	.5985	4.258
%RSD	.2706	49.51	25.47	37.54	80.36	21.53

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1232.	19540.	2.875	.2342	10780.	3.596
SDev	.7878	46.46	.0558	.166	143.6	.1067
%RSD	.0639	.2378	1.941	70.88	1.332	2.968

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.60334	.19954	-1.1491	-2.134	-1.417	4.3446
SDev	1.0251	.37794	.71537	2.078	.0001	1.97
%RSD	169.91	189.4	62.253	97.38	.011	45.344

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2553	1.723	-.50629	.55193	2.9760	-.58121
SDev	.0306	.2119	.47543	.80399	2.638	.21992
%RSD	11.98	12.3	93.905	145.67	88.642	37.838

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	2.0724	-2.7575	5.0000	19343.8
SDev	2.0112	.06842	0	2.5453
%RSD	97.046	2.4815	0	.01315

Method: ARMY Sample Name: J8RJE Operator: LRW
Run Time: 10/12/07 20:30 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.0978	-60.83	-1.7245	-2.027	.0842	.1044
SDev	.1611	1.516	1.66	.409	.0008	.0015
%RSD	164.7	2.492	96.259	20.18	.9213	1.402

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-76.71	-.0041	.0395	-.4388	-.2368	-3.109
SDev	1.289	.0497	.0556	.2539	.238	2.443
%RSD	1.68	1215	140.9	57.85	100.5	78.58

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	135.8	1.377	.4090	-.8317	-1152.	.2782
SDev	9.447	.2309	.0173	.0009	568.3	.6906
%RSD	6.958	16.78	4.22	.1048	49.35	248.2

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.2349	-1.1563	-1.8836	-1.062	-.4527	.83976
SDev	2.4628	.05828	.56927	.4474	.3099	1.9221
%RSD	110.2	5.0412	30.223	42.15	68.45	228.88

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3216	.3730	.09904	-1.7830	3.7923	1.4574
SDev	.3018	.1321	.48377	.32891	2.0549	2.6665
%RSD	93.86	35.4	488.43	18.448	54.186	182.96

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	.77003	-3.2084	5.0000	19581.2
SDev	.38105	.66323	0	18.9496
%RSD	49.486	20.672	0	.09677

Method: ARMY Sample Name: J8RJG Operator: LRW
Run Time: 10/12/07 20:35 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.0479	-62.66	-.44016	10.96	41.95	.1212
SDev	.4416	8.909	1.4877	.4305	.0514	.0357
%RSD	922.4	14.22	337.98	3.926	.1225	29.44

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	112000.	-.0150	.2701	-.8771	-1.267	244.1
SDev	14.71	.1497	.5543	.9292	.0956	3.634
%RSD	.0131	998.9	205.3	105.9	7.544	1.489

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1110.	32360.	189.4	-1.405	9118.	1.803
SDev	20.07	20.59	.0223	.8257	285.5	.4826
%RSD	1.808	.0636	.0118	58.79	3.132	26.77

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.34786	.18467	-4.5329	.8589	-2.372	-.49878
SDev	.29042	.57216	1.7511	.9919	.3119	1.079
%RSD	83.489	309.82	38.63	115.5	13.15	216.33

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.9954	.9091	.74270	-.09392	6.4341	-2.6907
SDev	.1526	.094	1.0152	1.3647	4.1399	1.6314
%RSD	15.33	10.34	136.69	1453	64.343	60.632

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.3011	-7.4455	5.0000	19408.9
SDev	.95811	2.147	0	8.05991
%RSD	73.641	28.836	0	.04152

Method: ARMY Sample Name: J8RJJ Operator: LRW
Run Time: 10/12/07 20:40 Filename: I51011A
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.4098	-70.35	.26327	56.77	129.7	.0985
SDev	.045	.2128	.55075	1.981	.1959	.0172
%RSD	10.98	.3025	209.19	3.49	.1511	17.47

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	51850.	.0541	.1524	-.2694	-1.846	2478.
SDev	85.52	.1491	0	.3484	.0018	6.182
%RSD	.1649	275.7	.0074	129.3	.1001	.2495

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2393.	16300.	755.7	-.9151	7822.	.9333
SDev	.3052	19.23	1.273	.4957	106.7	.4277
%RSD	.0127	.118	.1685	54.18	1.364	45.83

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.1087	-.08457	.03282	.6369	-1.414	4.1367
SDev	1.0496	.24392	2.8647	.2246	.0002	1.5105
%RSD	94.668	288.42	8726.1	35.27	.0176	36.513

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.2358	.7343	.91253	-.58237	2.9451	.19186
SDev	.0912	.2135	.13589	.29785	1.3526	2.2489
%RSD	38.66	29.07	14.892	51.145	45.928	1172.1

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	4.5272	-2.2110	5.0000	19401.7
SDev	.68055	3.9552	0	4.10039
%RSD	15.033	178.89	0	.02113

Method: ARMY Sample Name: CRI/MRL Operator: LRW
Run Time: 10/12/07 20:48 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	Q3.026	191.5	11.819	202.1	10.29	5.263
SDev	3.577	.0928	3.1701	2.396	.2431	.0397
%RSD	118.2	.0485	26.821	1.185	2.363	.754

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5063.	5.201	Q3.498	4.816	14.76	308.4
SDev	24.4	.2937	2.412	.0192	1.481	11.86
%RSD	.482	5.646	68.94	.3979	10.03	3.846

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4433.	5033.	15.99	8.278	5222.	24.97
SDev	9.632	31.34	.1403	3.966	73.16	3.332
%RSD	.2173	.6227	.8776	47.91	1.401	13.35

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	20.279	10.472	Q17.977	101.3	50.16	Q20.001
SDev	.64424	1.0998	5.8097	2.683	.4523	.65049
%RSD	3.1769	10.502	32.318	2.648	.9018	3.2523

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7.663	45.12	.07546	15.663	6.9543	26.932
SDev	.404	.3184	9.88	6.5814	9.7437	5.8304
%RSD	5.272	.7057	13091	42.02	140.11	21.649

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	5.9048	24.003	5.0000	19425.9
SDev	5.6938	11.553	0	13.7168
%RSD	96.426	48.13	0	.07061

Method: ARMY Sample Name: CCV Operator: LRW
Run Time: 10/12/07 20:55 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	944.0	24780.	474.44	4789.	1967.	1953.
SDev	7.304	206.2	3.3772	60.27	16.72	15.55
%RSD	.7737	.8324	.71182	1.259	.85	.7962

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48740.	483.9	1888.	1927.	1995.	24220.
SDev	387	3.74	14.97	16.19	16.85	217.7
%RSD	.794	.773	.7931	.8402	.8443	.8988

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	48490.	49240.	1998.	1942.	48040.	1947.
SDev	284.4	410.9	17.53	16.32	213.7	17.32
%RSD	.5866	.8345	.8776	.8405	.4449	.8897

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	467.50	476.57	518.77	4829.	4813.	956.53
SDev	2.1416	2.1348	3.6681	38.11	41.7	10.007
%RSD	.4581	.44795	.70706	.7892	.8664	1.0461

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1961.	1857.	427.97	500.83	456.46	473.01
SDev	16.06	14.78	1.1212	2.6408	1.0146	2.7043
%RSD	.8192	.7958	.26197	.52729	.22227	.57172

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	444.02	556.09	5.0000	19277.1
SDev	3.0569	3.9732	0	72.832
%RSD	.68845	.71448	0	.37781

Method: ARMY Sample Name: CCB Operator: LRW
Run Time: 10/12/07 21:03 Filename: I51011A
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: N.CANTON Cust. Smpl. ID.: Cust. ID.:

Elems	Ag	Al	As	B	Ba	Be
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.1167	-11.12	-.31195	10.73	-.0762	.0864
SDev	.1257	.2996	.58569	.4961	.103	.003
%RSD	107.7	2.695	187.75	4.625	135.2	3.463

Elems	Ca	Cd	Co	Cr	Cu	Fe
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-5.930	.0714	-.1402	-.1557	-1.835	-11.03
SDev	1.415	.0286	.0252	.2347	.6293	7.393
%RSD	23.87	40.01	17.98	150.7	34.3	67

Elems	K	Mg	Mn	Mo	Na	Ni
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	146.1	.6536	-.0577	.2228	-401.2	.4389
SDev	6.192	4.843	.0661	.4875	181.8	.3789
%RSD	4.238	741	114.4	218.8	45.33	86.33

Elems	Se	Pb	Sb	Sn	Ti	Tl
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.29351	.61462	-1.1604	-.2578	-.3070	.12527
SDev	.18252	.84398	.80813	.7709	.1038	.23316
%RSD	62.188	137.32	69.639	299	33.82	186.13

Elems	V	Zn	2203\1	2203\2	1960\1	1960\2
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.5548	.7072	4.0343	-1.0926	2.7598	-1.8179
SDev	.8809	.0291	1.9008	.31635	5.8285	2.6362
%RSD	158.8	4.112	47.117	28.953	211.2	145.02

Elems	2068/2	2068/1	Y_3710	*Y
Units	ppb	ppb	ppb	
Avge	1.8628	-2.6698	5.0000	19443.2
SDev	1.1491	1.7853	0	67.5991
%RSD	61.686	66.869	0	.34767

MISCELLANEOUS DATA

Metals Internal Chain of Custody

Date Prepared: 10/10/07 **Prep Analyst:** Michaelyn List

Laboratory Sample ID			Lab ID	Method	Analysis Date	Analyst	Instrument
A7J080104	1		J8FKF	SW846 6010B	10/11/07	Larry Williams	I5
A7J080104	1	S	J8FKF	SW846 6010B	10/11/07	Larry Williams	I5
A7J080104	1	X	J8FKF	SW846 6010B	10/11/07	Larry Williams	I5
A7J080104	1		J8FKF	SW846 7471A	10/12/07	Michaelyn List	H1
A7J080104	1	S	J8FKF	SW846 7471A	10/12/07	Michaelyn List	H1
A7J080104	1	X	J8FKF	SW846 7471A	10/12/07	Michaelyn List	H1
A7J080104	2		J8FKG	SW846 6010B	10/11/07	Larry Williams	I5
A7J080104	2		J8FKG	SW846 7471A	10/12/07	Michaelyn List	H1
A7J080104	3		J8FKH	SW846 6010B	10/11/07	Larry Williams	I5
A7J080104	3		J8FKH	SW846 7471A	10/12/07	Michaelyn List	H1

U - Unfiltered F - Filtered T - TCLP L - SPLP East

METALS PREPARATION SUMMARY

Preparation Type	Matrix	Amount of Standard added to LCS & MS/MSD		Initial Sample Vol/Wt	Final Sample Volume
		Amount	Standard name		
ICP	water	1 mL 1 mL 1.0 mL	Ag ICP-1 ICP-2A	50 mL	50 mL
ICPMS	water	0.5ml 0.5ml	ICPMS-1 ICPMS-2	50 mL	50 mL
Hg - CVAA	water	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL
Hg - CVAF (low level)	water	0.2 mL (LCS/MS/MSD)	HG ICAL	40 ml	40 ml
ICP	solid	2 mL 2 mL 2 mL	Ag ICP-1 ICP-2A	1.00 +/- .02g	100 mL
ICPMS	solid	1ml 1ml	ICPMS-1 ICPMS-2	1.00 +/- .02g	100ml
Hg - CVAA	solid	5 mL (LCS) 1 mL (MS/MSD)	HG-1 HG-1	0.60 +/- .01g	100 mL
ICP	TCLP	1 mL (LCS) 1 mL(LCS)	Ag ICP-1	50 mL	50 mL
ICP	TCLP	0.5 mL(MS/MSD)	TCLP Spike I RCRA	50 mL	50 mL
ICP	TCLP	1 mL(MS/MSD)	TCLP Spike II Non-RCRA	50 mL	50 mL
Hg - CVAA	TCLP	5 mL (LCS) 5 mL (MS/MSD)	HG-1 HG-1	100 mL	100 mL

Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.0002 ppm		0.2 mL	HG-2	0.1 ppm
0.0005 ppm		0.5 mL	HG-2	0.1 ppm
0.001 ppm		1 mL	HG-2	0.1 ppm
0.005 ppm		5 mL	HG-2	0.1 ppm
0.010 ppm		10 mL	HG-2	0.1 ppm
ICV Preparation				
0.0025 ppm		2.5 mL	HG-1	0.1 ppm
CCV Preparation:				
0.005 ppm		5 mL	HG-2	0.1 ppm

Low Level Mercury Standards Preparation				
Final Concentration		Spiking Standard		
		Amount	Standard	Concentration
Calibration Standards:				
0.5 ppt		20 ul	HG ICAL	1.0 ppb
1.0 ppt		40 ul	HG ICAL	1.0 ppb
2 ppt		80 ul	HG ICAL	1.0 ppb
5 ppt		200 ul	HG ICAL	1.0 ppb
10 ppt		400 ul	HG ICAL	1.0 ppb
25 ppt		1000 ul	HG ICAL	1.0 ppb
ICV Preparation				
5 ppt		200 ul	HG ICV	1.0 ppb
CCV Preparation:				
5 ppt		200 ul	HG ICAL	1.0 ppb

SPIKING STANDARD DEFINITIONS

Elements	Ag	ICP-1	ICP-2A	ICPMS-1	ICPMS-2	HG-1	HG-2	HG ICAL	HG ICV	TCLP Spike I	TCLP Spike II
Ag	2.5 ppm			10ppm						100 ppm	
Al		100 ppm			100ppm						100 ppm
As		100 ppm		10ppm						500 ppm	
Ba		100 ppm		10ppm						5000 ppm	
Be		2.5 ppm		10ppm							2.5 ppm
Cd		2.5 ppm		10ppm						100 ppm	
Ca			2500 ppm		100ppm						
Co		25 ppm		10ppm							25 ppm
Cr		10 ppm		10ppm						500 ppm	
Cu		12.5 ppm		10ppm							12.5 ppm
Fe		50 ppm			100ppm						50 ppm
Hg						0.1 ppm	0.1 ppm	1.0 ppb	1.0 ppb		
K			2500 ppm		100ppm						
Mg			2500 ppm		100ppm						
Mn		25 ppm		10ppm							25 ppm
Na			2500 ppm		100ppm						
Ni		25 ppm		10ppm							25 ppm
Pb		25 ppm		10ppm						500 ppm	
Sb		25 ppm		10ppm							25 ppm
Se		100 ppm		10ppm						100 ppm	
Tl		100 ppm		10ppm							100 ppm
V		25 ppm		10ppm							25 ppm
Zn		25 ppm		10ppm							25 ppm
B		50 ppm		10ppm							50 ppm
Sr		50 ppm		10ppm							
Mo		50 ppm		10ppm							50 ppm
W		50 ppm		10ppm							
Sn		100 ppm		10ppm							100 ppm
Zr		50 ppm		10ppm							
Ti		50 ppm		10ppm							

Test America North Canton
Revised 4/5/02
N:\Metals\Preplog.xls

DATE: 10-10-07

METALS PREPARATION REAGENTS/STANDARDS

Reagents and Standards listed on this form are used for the entire day's prep batches unless otherwise noted on the individual prep log.

REAGENT NAME	REAGENT NUMBER
1:1 HNO_3 (nitric acid)	7MR685
1:1 HCl (hydrochloric acid)	7MR674
HNO_3 (nitric acid)	7MR675
HCl (hydrochloric acid)	7MR650
$KMnO_4$ (potassium permanganate)	7MR673
$K_2S_2O_8$ (potassium persulfate)	7MR660
H_2O_2 (hydrogen peroxide)	7MR624
H_2SO_4 (sulfuric acid)	7MR651
HCl/HNO_3 (aqua regia)	7MR686

STANDARD NAME	STANDARD/LOT NUMBER
ICP-1	7J545
ICP-2A	7J546
RCRA	US F000785
non-RCRA	HPS 0712210
Ag	7J544
Hg	7J548
ICPMS-1	HPS0712908-A HPS0712909-B
ICPMS-2	HPS 634703

Waters

Hg time in the water bath 10:25

Hg time out of the water bath 12:25

Solids

Hg time in the water bath 12:45

Hg time out of the water bath ~~1:45~~ 1:15

MC10-10-07

Times listed are for the waters and solids for that day unless otherwise noted.

Daily Batch Level II Michaela List

STL North Canton
Revision Date: 08/09/07
n:\metals\reagent1.doc

Hg Standard Curve Preparation Summary

Date: 10-10-07

Time In: 12:30 > water

Time Out: 2:30

Standard Concentrations	Standard Numbers
S0	
0.2 ppb	
CRA - 0.2 ppb	
0.5 ppb	
1.0 ppb	STD 7J54A
5.0 ppb	
10.0 ppb	
CCV - 5.0 ppb	
CCB	
ICV - 2.5 ppb	STD 7J54B
ICB	

GENERAL CHEMISTRY DATA

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SAMPLE DATA

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1

General Chemistry

Lot-Sample #...: A7J080104-001 **Work Order #...:** J8FKF **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 3.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**96.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2

General Chemistry

Lot-Sample #...: A7J080104-002 **Work Order #...:** J8FKG **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 3.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**96.4**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1

General Chemistry

Lot-Sample #...: A7J080104-003 **Work Order #...:** J8FKH **Matrix.....:** SO
Date Sampled...: 10/05/07 11:45 **Date Received..:** 10/06/07
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**88.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J080104-004 **Work Order #...:** J8FKJ **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**80.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2(WET TS)

General Chemistry

Lot-Sample #...: A7J080104-005 **Work Order #...:** J8FKK **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**79.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1(WET TS)

General Chemistry

Lot-Sample #...: A7J080104-006 **Work Order #...:** J8FKL **Matrix.....:** SO
Date Sampled...: 10/05/07 11:45 **Date Received..:** 10/06/07
% Moisture.....: 31

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	**69.5**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/16-10/17/07**	**7290099**

Dilution Factor: 1

NOTE(S):

RL Reporting Limit

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A7J080104 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids		Work Order #: J84VA1AA		MB Lot-Sample #:	A7J170000-099	
	ND	10.0	%	MCAWW 160.3 MOD	10/16-10/17/07	7290099
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J080104 **Work Order #...:** J8H4K-SMP **Matrix.....:** SOLID
J8H4K-DUP
Date Sampled...: 10/08/07 08:45 **Date Received..:** 10/09/07
% Moisture.....: 2.4

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J090219-002		
	97.6	97.5	%	0.017	(0-20)	MCAWW 160.3 MOD	10/16-10/17/07	7290099

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A7J080104 **Work Order #...:** J8QNR-SMP **Matrix.....:** SOLID
J8QNR-DUP
Date Sampled...: 10/04/07 **Date Received..:** 10/11/07
% Moisture.....: 63

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A7J110306-001		
	37.4	31.5	%	17	(0-20)	MCAWW 160.3 MOD	10/16-10/17/07	7290099

Dilution Factor: 1

SUPPORTIVE RAW DATA

			TestAmerica, North Canton			
		Percent Total Solid/Percent Moisture Logsheet				
Analysis	TS			Batch	7290099	
Prep Date	10/16/2007	Time In	15:45	Analyst	KK/JB	
Anal date	10/17/2007	Time Out	8:30	RL	10	
Sample	Tare	Wet	Dry	Result TS	Result MS	comments
ID	wt	wt	wt	%	%	
BLK D	4.5334	4.5740	4.5610	1.35	ND	
J8QNR	4.5334	7.6591	5.7015	37.371	62.629	
J8QNR X	4.5334	6.3572	5.1082	31.517	68.483	
J8PP1	4.5334	13.5375	12.8199	92.030	7.970	
J8PQV	4.5334	22.0659	19.6973	86.490	13.510	
J8PQX	4.5334	16.4238	14.4186	83.136	16.864	
J8PQ2	4.5334	13.4712	12.5140	89.290	10.710	
J8PQ4	4.5334	18.2263	14.8204	75.127	24.873	
J8PQ6	4.5334	13.4383	12.3055	87.279	12.721	
J8PQ9	4.5334	12.5529	11.2649	83.939	16.061	
J8PRC	4.5334	11.2024	9.7246	77.841	22.159	
J8PRD	4.5334	11.9711	10.9000	85.599	14.401	
J8H37	4.5334	12.8449	12.6740	97.944	2.056	
J8H4K	4.5334	13.6166	13.3953	97.564	2.436	
J8H4K X	4.5334	14.1775	13.9409	97.547	2.453	
J8H41	4.5334	12.9038	12.7075	97.655	2.345	
J8H4W	4.5334	11.3586	11.1730	97.281	2.719	
J8FKJ	4.5334	17.8165	15.2013	80.312	19.688	
J8FKK	4.5334	15.9391	13.6276	79.734	20.266	
J8FKL	4.5334	14.9152	11.7462	69.475	30.525	
J8FKF	4.5334	9.6257	9.4383	96.320	3.680	
J8FKH	4.5334	10.2769	9.6290	88.719	11.281	
J8FKG	4.5334	11.0411	10.8060	96.387	3.613	

TestAmerica North Canton

Sample Control Chain of Custody for General Chemistry

Lot Number	Sample	Suffix	Lab ID	Test	Prep Date	Prepared by	Analysis Date	Analyzed by
A7J080104	1		J8FKF1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns
A7J080104	2		J8FKG1AH	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns
A7J080104	3		J8FKH1AH	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns
A7J080104	4		J8FKJ1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns
A7J080104	5		J8FKK1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns
A7J080104	6		J8FKL1AA	Solids, Percent (as TS - 160.3 MOD) - Solids	10/16/07	Jill Burns	10/17/07	Jill Burns

TESTAMERICA WEST SACRAMENTO DATA

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER A7J080104

General Comments
The samples were received at ambient temperature.

The samples were dried & chopped prior to this laboratory's receipt of the samples.

There were no other anomalies associated with this project.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-1

HPLC

Lot-Sample #...: A7J080104-001 **Work Order #...:** J8FKF1A4 **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.99
% Moisture.....: 3.7 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg
1,3-Dinitrobenzene	ND	0.25	mg/kg
2,4-Dinitrotoluene	ND	0.25	mg/kg
2,6-Dinitrotoluene	ND	0.25	mg/kg
HMX	ND	0.25	mg/kg
Nitrobenzene	ND	0.25	mg/kg
2-Nitrotoluene	ND	0.25	mg/kg
3-Nitrotoluene	ND	0.25	mg/kg
4-Nitrotoluene	ND	0.25	mg/kg
RDX	ND	0.25	mg/kg
Tetryl	ND	0.25	mg/kg
1,3,5-Trinitrobenzene	ND	0.25	mg/kg
2,4,6-Trinitrotoluene	ND	0.25	mg/kg
Nitroglycerin	ND	0.50	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	94	(50 - 150)

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-SMITH-SS-2

HPLC

Lot-Sample #...: A7J080104-002 **Work Order #...:** J8FKG1AF **Matrix.....:** SO
Date Sampled...: 10/05/07 09:42 **Date Received..:** 10/06/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.96
% Moisture.....: 3.6 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	ND	0.24	mg/kg
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.020 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.48	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

e2M Engineering-Environmental Mngmt Inc

Client Sample ID: RVAAP-DEETS-SS-1

HPLC

Lot-Sample #...: A7J080104-003 **Work Order #...:** J8FKH1AF **Matrix.....:** SO
Date Sampled...: 10/05/07 11:45 **Date Received..:** 10/06/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/27/07
Prep Batch #...: 7285667
Dilution Factor: 0.98
% Moisture.....: 11 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2-Amino-4,6-dinitrotoluene	ND	0.29	mg/kg
4-Amino-2,6-dinitrotoluene	ND	0.24	mg/kg
1,3-Dinitrobenzene	ND	0.24	mg/kg
2,4-Dinitrotoluene	ND	0.24	mg/kg
2,6-Dinitrotoluene	**0.046 J**	**0.24**	**mg/kg**
HMX	ND	0.24	mg/kg
Nitrobenzene	ND	0.24	mg/kg
2-Nitrotoluene	ND	0.24	mg/kg
3-Nitrotoluene	ND	0.24	mg/kg
4-Nitrotoluene	ND	0.24	mg/kg
RDX	ND	0.24	mg/kg
Tetryl	ND	0.24	mg/kg
1,3,5-Trinitrobenzene	**0.034 J**	**0.24**	**mg/kg**
2,4,6-Trinitrotoluene	ND	0.24	mg/kg
Nitroglycerin	ND	0.49	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J8W2J1AA **Matrix.....:** SOLID
MB Lot-Sample #: G7J120000-667
Prep Date.....: 10/14/07
Analysis Date..: 10/26/07 **Prep Batch #...:** 7285667
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Amino-4,6-dinitrotoluene	ND	0.30	mg/kg	SW846 8330
4-Amino-2,6-dinitrotoluene	ND	0.25	mg/kg	SW846 8330
1,3-Dinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
2,6-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
HMX	ND	0.25	mg/kg	SW846 8330
Nitrobenzene	ND	0.25	mg/kg	SW846 8330
2-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
3-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
4-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
RDX	ND	0.25	mg/kg	SW846 8330
Tetryl	ND	0.25	mg/kg	SW846 8330
1,3,5-Trinitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	ND	0.25	mg/kg	SW846 8330
Nitroglycerin	ND	0.50	mg/kg	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
1,3-Dinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
2,6-Dinitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
HMX	**99**	**(60 - 120)**	**SW846 8330**
Nitrobenzene	**99**	**(60 - 120)**	**SW846 8330**
2-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
3-Nitrotoluene	**99**	**(60 - 120)**	**SW846 8330**
4-Nitrotoluene	**98**	**(60 - 120)**	**SW846 8330**
RDX	**103**	**(60 - 120)**	**SW846 8330**
Tetryl	**82**	**(60 - 120)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(60 - 120)**	**SW846 8330**
2,4,6-Trinitrotoluene	**95**	**(60 - 120)**	**SW846 8330**
Nitroglycerin	**97**	**(60 - 120)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J8W2J1AC **Matrix.....:** SOLID
LCS Lot-Sample#: G7J120000-667
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2-Amino-4,6-dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
1,3-Dinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4-Dinitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
2,6-Dinitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
HMX	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
Nitrobenzene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
2-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
3-Nitrotoluene	**1.0**	**0.99**	**mg/kg**	**99**	**SW846 8330**
4-Nitrotoluene	**1.0**	**0.98**	**mg/kg**	**98**	**SW846 8330**
RDX	**1.0**	**1.0**	**mg/kg**	**103**	**SW846 8330**
Tetryl	**1.0**	**0.82**	**mg/kg**	**82**	**SW846 8330**
1,3,5-Trinitrobenzene	**1.0**	**1.0**	**mg/kg**	**100**	**SW846 8330**
2,4,6-Trinitrotoluene	**1.0**	**0.95**	**mg/kg**	**95**	**SW846 8330**
Nitroglycerin	**5.0**	**4.9**	**mg/kg**	**97**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	93	(50 - 150)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2-Amino-4,6-dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**6.5**	**(0-50)**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**89**	**(50 - 140)**			**SW846 8330**
	84	**(50 - 140)**	**10**	**(0-50)**	**SW846 8330**
1,3-Dinitrobenzene	**99**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**5.5**	**(0-50)**	**SW846 8330**
2,4-Dinitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**4.3**	**(0-50)**	**SW846 8330**
2,6-Dinitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.5**	**(0-50)**	**SW846 8330**
HMX	**97**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**4.4**	**(0-50)**	**SW846 8330**
Nitrobenzene	**101**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**7.8**	**(0-50)**	**SW846 8330**
2-Nitrotoluene	**97**	**(50 - 140)**			**SW846 8330**
	98	**(50 - 140)**	**3.3**	**(0-50)**	**SW846 8330**
3-Nitrotoluene	**98**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**3.4**	**(0-50)**	**SW846 8330**
4-Nitrotoluene	**96**	**(50 - 140)**			**SW846 8330**
	97	**(50 - 140)**	**3.2**	**(0-50)**	**SW846 8330**
RDX	**100**	**(50 - 140)**			**SW846 8330**
	99	**(50 - 140)**	**5.4**	**(0-50)**	**SW846 8330**
Tetryl	**81**	**(50 - 140)**			**SW846 8330**
	75	**(50 - 140)**	**12**	**(0-50)**	**SW846 8330**
1,3,5-Trinitrobenzene	**100**	**(50 - 140)**			**SW846 8330**
	101	**(50 - 140)**	**3.1**	**(0-50)**	**SW846 8330**
2,4,6-Trinitrotoluene	**94**	**(50 - 140)**			**SW846 8330**
	94	**(50 - 140)**	**5.2**	**(0-50)**	**SW846 8330**
Nitroglycerin	**97**	**(50 - 140)**			**SW846 8330**
	96	**(50 - 140)**	**4.7**	**(0-500)**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD
Date Sampled...: 10/01/07 15:36 **Date Received..:** 10/03/07
Prep Date.....: 10/14/07 **Analysis Date..:** 10/26/07
Prep Batch #...: 7285667
Dilution Factor: 1 **% Moisture.....:** 3.7

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2-Amino-4,6-dinitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**6.5**	**SW846 8330**
4-Amino-2,6-dinitrotoluene	**ND**	**1.0**	**0.90**	**mg/kg**	**89**		**SW846 8330**
	ND	**0.96**	**0.81**	**mg/kg**	**84**	**10**	**SW846 8330**
1,3-Dinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**99**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**5.5**	**SW846 8330**
2,4-Dinitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**4.3**	**SW846 8330**
2,6-Dinitrotoluene	**0.032**	**1.0**	**1.0**	**mg/kg**	**96**		**SW846 8330**
	0.032	**0.96**	**0.96**	**mg/kg**	**97**	**3.5**	**SW846 8330**
HMX	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**4.4**	**SW846 8330**
Nitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**101**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**7.8**	**SW846 8330**
2-Nitrotoluene	**ND**	**1.0**	**0.97**	**mg/kg**	**97**		**SW846 8330**
	ND	**0.96**	**0.94**	**mg/kg**	**98**	**3.3**	**SW846 8330**
3-Nitrotoluene	**ND**	**1.0**	**0.98**	**mg/kg**	**98**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**3.4**	**SW846 8330**
4-Nitrotoluene	**ND**	**1.0**	**0.96**	**mg/kg**	**96**		**SW846 8330**
	ND	**0.96**	**0.93**	**mg/kg**	**97**	**3.2**	**SW846 8330**
RDX	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.95**	**mg/kg**	**99**	**5.4**	**SW846 8330**
Tetryl	**ND**	**1.0**	**0.81**	**mg/kg**	**81**		**SW846 8330**
	ND	**0.96**	**0.72**	**mg/kg**	**75**	**12**	**SW846 8330**
1,3,5-Trinitrobenzene	**ND**	**1.0**	**1.0**	**mg/kg**	**100**		**SW846 8330**
	ND	**0.96**	**0.97**	**mg/kg**	**101**	**3.1**	**SW846 8330**
2,4,6-Trinitrotoluene	**ND**	**1.0**	**0.95**	**mg/kg**	**94**		**SW846 8330**
	ND	**0.96**	**0.90**	**mg/kg**	**94**	**5.2**	**SW846 8330**
Nitroglycerin	**ND**	**5.0**	**4.8**	**mg/kg**	**97**		**SW846 8330**
	ND	**4.8**	**4.6**	**mg/kg**	**96**	**4.7**	**SW846 8330**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
3,4-Dinitrotoluene	92	(50 - 150)
	92	(50 - 150)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: A7J080104 **Work Order #...:** J748R1DR-MS **Matrix.....:** SOLID
MS Lot-Sample #: A7J030104-001 J748R1DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SOLID, 8330, Explosives

Raw Data Package

Run/Batch Data

Includes (as applicable):

runlogs

continuing calibration standards

interference/performance check standards

continuing calibration blanks

method blanks

lcs

ms/sd

sample raw data

ms tune data

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 45
Book# 399

GC/LC SEMI-VOLATILES

Standard ID's

Cert: 10202007.B

Inst ID : LC10.I
Batch ID : 10252007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
25-OCT-2007	17:04	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
25-OCT-2007	17:57	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
25-OCT-2007	18:50	KenneyF	STD_5 E070821L 100/200/100/100	A-000003.	0 g	0 mL	1	
25-OCT-2007	19:43	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000004.	0 g	0 mL	1	
25-OCT-2007	20:36	KenneyF	J87W81AAB 7290638 MB	A-000005.	1000 mL	20 mL	1	
25-OCT-2007	21:29	KenneyF	J87W81ACC 7290638 LCS	A-000006.	1000 mL	20 mL	1	
25-OCT-2007	22:22	KenneyF	J86KW1AA 7290638 G7J170250-1	A-000007.	927 mL	20 mL	1	
25-OCT-2007	23:15	KenneyF	J8RHF1AP 7290551 A7J110400-1	A-000008.	911 mL	20 mL	1	
26-OCT-2007	00:08	KenneyF	J8RHF1AQS 7290551 A7J110400-1M	A-000009.	879 mL	20 mL	1	
26-OCT-2007	01:01	KenneyF	J8RHF1ARD 7290551 A7J110400-1M	A-000010.	857 mL	20 mL	1	
26-OCT-2007	01:54	KenneyF	J8RHR1AG 7290551 A7J110400-3	A-000011.	878 mL	20 mL	1	
26-OCT-2007	02:47	KenneyF	J8RHV1AG 7290551 A7J110400-5	A-000012.	885 mL	20 mL	1	
26-OCT-2007	03:40	KenneyF	STD_6 E070821P 200/500/200/200	A-000013.	0 g	0 mL	1	
26-OCT-2007	04:33	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000014.	0 g	0 mL	1	
26-OCT-2007	05:26	KenneyF	J8RH01AG 7290551 A7J110400-8	A-000015.	945 mL	20 mL	1	
26-OCT-2007	06:19	KenneyF	J8RH21AG 7290551 A7J110400-10	A-000016.	1013 mL	20 mL	1	
26-OCT-2007	07:12	KenneyF	J8RH41AG 7290551 A7J110400-12	A-000017.	1021 mL	20 mL	1	
26-OCT-2007	08:05	KenneyF	J8RH61AG 7290551 A7J110400-14	A-000018.	1002 mL	20 mL	1	
26-OCT-2007	08:58	KenneyF	J8RJA1AG 7290551 A7J110400-18	A-000019.	988 mL	20 mL	1	
26-OCT-2007	09:51	KenneyF	J8RJE1AF 7290551 A7J110400-20	A-000020.	868 mL	20 mL	1	
26-OCT-2007	10:44	KenneyF	J8RJF1AG 7290551 A7J110400-21	A-000021.	991 mL	20 mL	1	
26-OCT-2007	11:37	KenneyF	J8RJH1AG 7290551 A7J110400-23	A-000022.	1000 mL	20 mL	1	
26-OCT-2007	12:30	KenneyF	J8RJK1AG 7290551 A7J110400-25	A-000023.	904 mL	20 mL	1	
26-OCT-2007	13:23	KenneyF	STD_5 E070821L 100/200/100/100	A-000024.	0 g	0 mL	1	
26-OCT-2007	14:16	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000025.	0 g	0 mL	1	
26-OCT-2007	16:09	KenneyF	J8W2J1AAB 7285667 MB	A-000026.	2 g	40 mL	1	
26-OCT-2007	17:02	KenneyF	J8W2J1ACC 7285667 LCS	A-000027.	2 g	40 mL	1	
26-OCT-2007	17:55	KenneyF	J748R1A4 7285667 A7J030104-1	A-000028.	2.05 g	40 mL	1	
26-OCT-2007	18:47	KenneyF	J748R1DRS 7285667 A7J030104-1M	A-000029.	1.99 g	40 mL	1	
26-OCT-2007	19:40	KenneyF	J748R1DTD 7285667 A7J030104-1M	A-000030.	2.08 g	40 mL	1	
26-OCT-2007	20:33	KenneyF	J748X1AF 7285667 A7J030104-2	A-000031.	2.03 g	40 mL	1	
26-OCT-2007	21:26	KenneyF	J74811AF 7285667 A7J030104-3	A-000032.	2.06 g	40 mL	1	
26-OCT-2007	22:19	KenneyF	J74831AF 7285667 A7J030104-4	A-000033.	1.99 g	40 mL	1	
26-OCT-2007	23:12	KenneyF	STD_5 E070821M 100/200/100/100	A-000034.	0 g	0 mL	1	
27-OCT-2007	00:05	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
27-OCT-2007	00:58	KenneyF	J74841A4 7285667 A7J030104-5	A-000036.	2.06 g	40 mL	1	
27-OCT-2007	01:52	KenneyF	J74881AF 7285667 A7J030104-6	A-000037.	2.02 g	40 mL	1	
27-OCT-2007	02:45	KenneyF	J749C1AF 7285667 A7J030104-7	A-000038.	2.05 g	40 mL	1	
27-OCT-2007	03:38	KenneyF	J749D1AF 7285667 A7J030104-8	A-000039.	2.02 g	40 mL	1	
27-OCT-2007	04:31	KenneyF	J749E1AF 7285667 A7J030104-9	A-000040.	1.95 g	40 mL	1	
27-OCT-2007	05:24	KenneyF	J79141A4 7285667 A7J040354-1	A-000041.	1.97 g	40 mL	1	
27-OCT-2007	06:17	KenneyF	J792M1AF 7285667 A7J040354-2	A-000042.	2.05 g	40 mL	1	
27-OCT-2007	07:10	KenneyF	J792N1AF 7285667 A7J040354-3	A-000043.	1.99 g	40 mL	1	
27-OCT-2007	08:04	KenneyF	STD_5 E070821M 100/200/100/100	A-000044.	0 g	0 mL	1	
27-OCT-2007	08:57	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000045.	0 g	0 mL	1	
27-OCT-2007	09:50	KenneyF	J792R1AF 7285667 A7J040354-4	A-000046.	1.99 g	40 mL	1	
27-OCT-2007	10:43	KenneyF	J792W1AF 7285667 A7J040354-5	A-000047.	2.02 g	40 mL	1	
27-OCT-2007	11:36	KenneyF	J79201AF 7285667 A7J040354-6	A-000048.	2.04 g	40 mL	1	
27-OCT-2007	12:29	KenneyF	J79231AF 7285667 A7J040354-7	A-000049.	2.04 g	40 mL	1	

27-OCT-2007	13:22	KenneyF	J79271AF 7285667 A7J040354-8	A-000050.	1.99 g	40 mL	1	
27-OCT-2007	14:15	KenneyF	J8FKF1A4 7285667 A7J080104-1	A-000051.	2.02 g	40 mL	1	
27-OCT-2007	15:08	KenneyF	J8FKG1AF 7285667 A7J080104-2	A-000052.	2.08 g	40 mL	1	
27-OCT-2007	16:01	KenneyF	J8FKH1AF 7285667 A7J080104-3	A-000053.	2.04 g	40 mL	1	
27-OCT-2007	16:55	KenneyF	STD_5 E070821M 100/200/100/100	A-000054.	0 g	0 mL	1	
27-OCT-2007	17:48	KenneyF	MRL_1 E070926A 5/50/20/20ng/mL	A-000055.	0 g	0 mL	1	

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TestAmerica West Sacramento

A-000024.D

Chromatography Summary

Injection Date: 10/26/2007 13:23 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000024.D **Vial Num:** 2

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821L 100/200/100/100ng/mL**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821L 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.72	4931	99.4800<	100	-1%	Acceptable		18.72	9660	101.3000	100	1%	Acceptable		(±15)	
HMX	5.27	13428	102.5000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.95	8501	106.9000<	100	7%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.31	17406	210.9000	200	5%	Acceptable		9.31	25651	211.2000<	200	6%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.49	15274	102.6000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.70	14530	101.7000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.84	8829	97.3700<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.72	6136	94.4900<	100	-6%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.20	9056	101.5000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.19	6618	101.0000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.36	7545	100.9000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.21	5235	99.7200<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.99	8594	100.6000<	100	1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.92	3347	92.1500<	100	-8%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.87	4131	94.1000<	100	-6%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.07	3962	93.4800<	100	-7%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.35	7718	102.9000<	100	3%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.97	4247	106.0000<	100	6%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/26/2007 2:52 PM

Test America West Sacramento

Method 8330

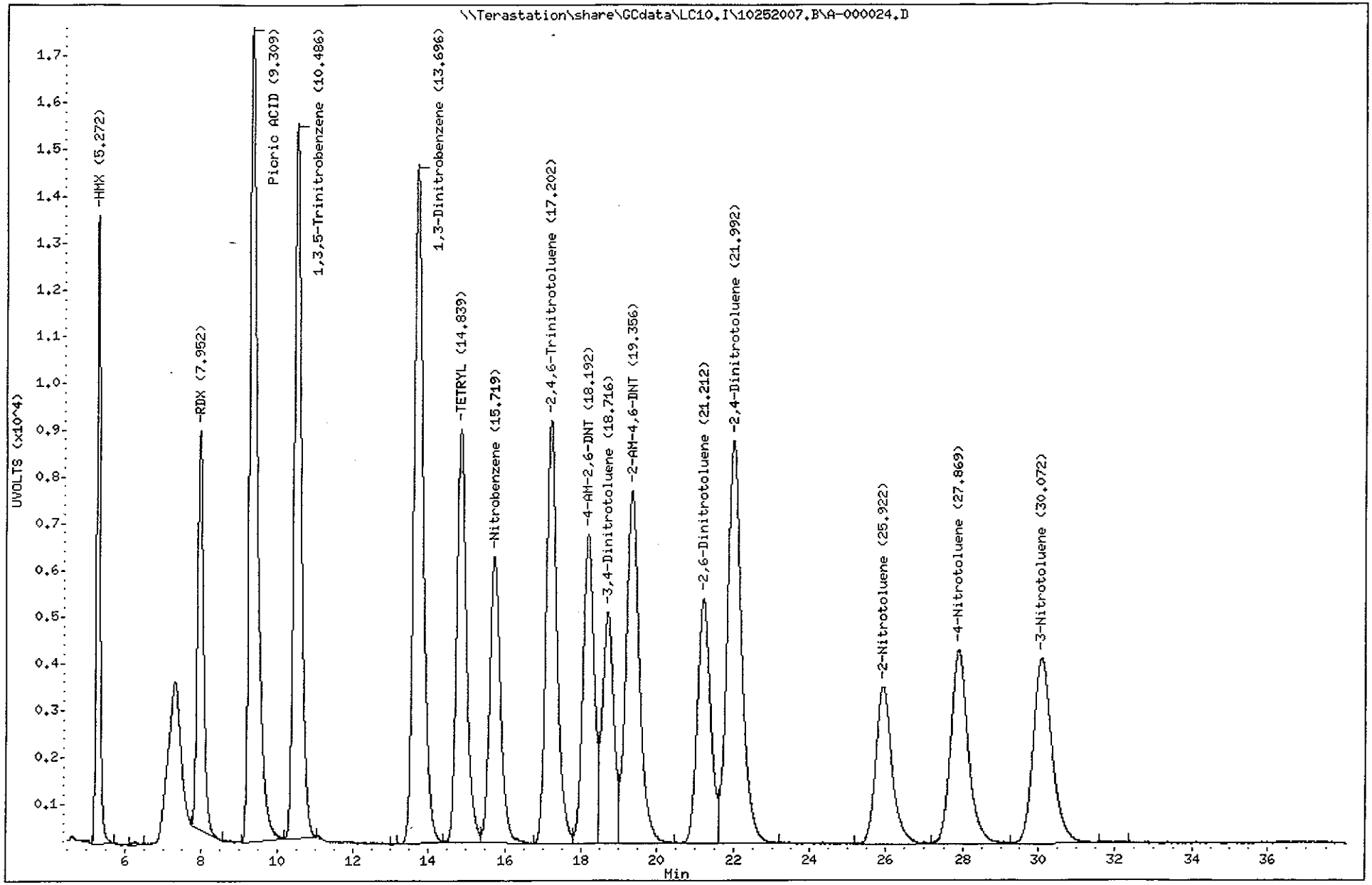
Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.272	82943	13428	0.162	9.75		4	HMX
6.279	883	70	0.079	0.05			
7.952	92895	8501	0.092	6.17		5	RDX
9.309	248154	17406	0.070	12.72		6	Picric ACID
10.486	203880	15274	0.075	11.09		7	1,3,5-Trinitrobenze
13.089	137	26	0.190	0.01			
13.696	251460	14530	0.058	10.55		8	1,3-Dinitrobenzene
14.839	156264	8829	0.057	6.41		9	TETRYL
15.719	121784	6136	0.050	4.45		10	Nitrobenzene
17.202	180602	9056	0.050	6.57		11	2,4,6-Trinitrotolue
18.192	137225	6618	0.048	4.80		12	4-AM-2,6-DNT
18.716	104151	4931	0.047	3.58	$	13	3,4-Dinitrotoluene
19.356	182751	7545	0.041	5.48		14	2-AM-4,6-DNT
21.212	122954	5235	0.043	3.80		15	2,6-Dinitrotoluene
21.992	223568	8594	0.038	6.24		16	2,4-Dinitrotoluene
25.922	100151	3347	0.033	2.43		17	2-Nitrotoluene
27.869	131723	4131	0.031	3.00		18	4-Nitrotoluene
30.072	136177	3962	0.029	2.87		19	3-Nitrotoluene
31.876	1010	47	0.047	0.03			
	2478711	137666		100.000			

Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024
Lab Smp Id: STD_5 E070821L 100/
Inj Date : 26-OCT-2007 13:23
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821L 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 14:12 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

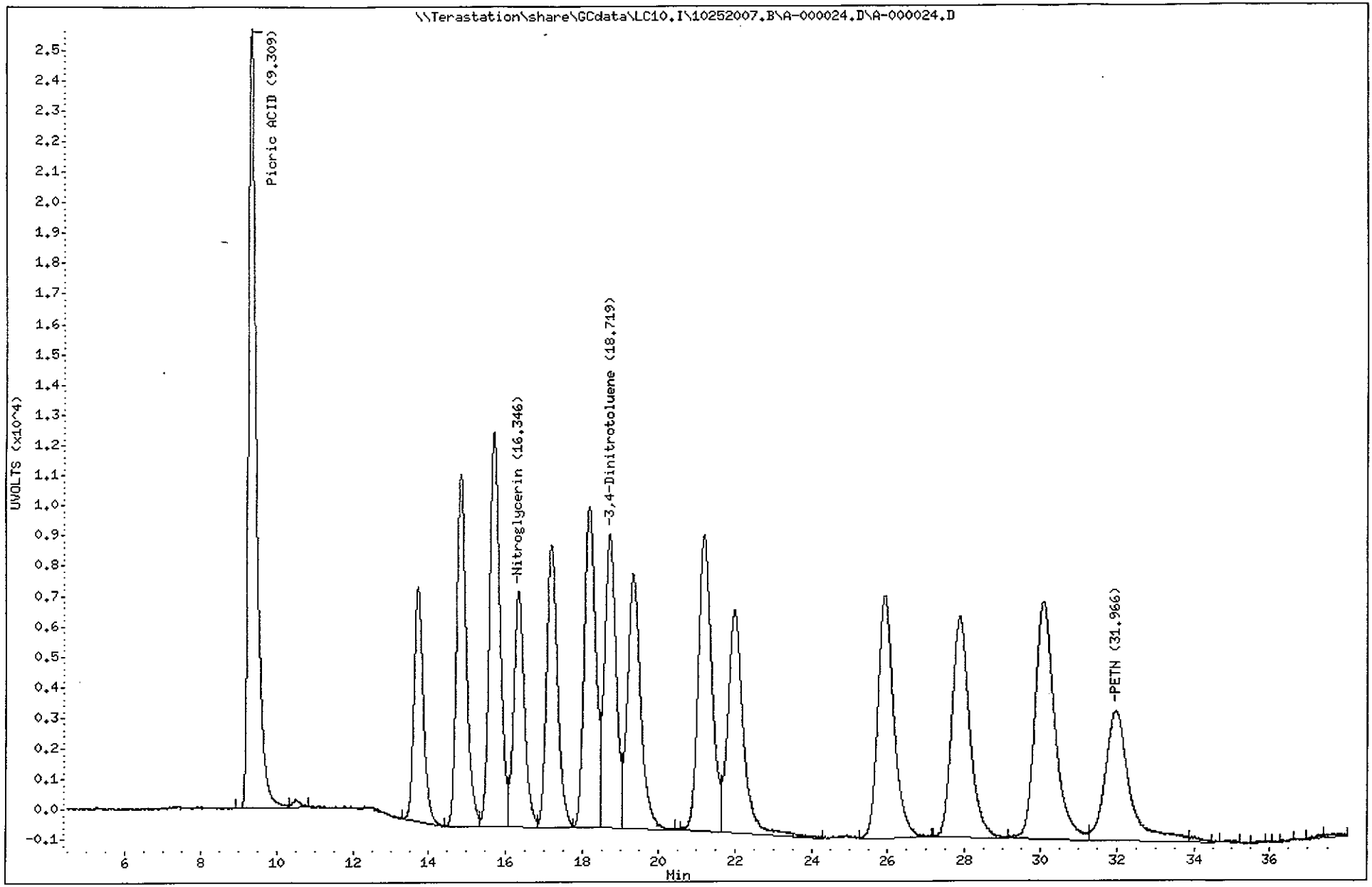
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.309	364884	25651	0.070	17.36	6 Picric ACID
10.496	3240	241	0.074	0.16	
13.696	134890	7690	0.057	5.17	
14.842	203974	11556	0.057	7.77	
15.719	248630	12982	0.052	8.73	
16.346	146551	7718	0.053	5.19	1 Nitroglycerin
17.199	180831	9278	0.051	6.24	
18.192	213223	10540	0.049	7.09	
18.719	206341	9660	0.047	6.49	$ 13 3,4-Dinitrotoluene
19.349	203849	8350	0.041	5.61	
21.212	234151	9725	0.042	6.54	
21.992	206273	7318	0.035	4.92	
25.919	236160	7948	0.034	5.34	
27.859	232126	7253	0.031	4.87	
30.072	277878	7775	0.028	5.23	
31.966	181790	4247	0.023	2.85	2 PETN
33.916	3851	196	0.051	0.13	
34.822	1692	87	0.051	0.05	
35.676	1031	68	0.066	0.04	
36.216	410	57	0.139	0.03	
36.572	742	56	0.075	0.03	
37.322	1661	128	0.077	0.08	
37.656	2439	125	0.051	0.08	
	3286616	148649		100.000	

Total unknown % height = 68.11

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000024.D\A-000024.D
Date : 26-OCT-2007 13:23
Client ID:
Sample Info: STD_5 E070821L 100/200/100/100ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000025.D

Chromatography Summary

Injection Date: 10/26/2007 14:16 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000025.D **Vial Num:** 5

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.70**	**944**	**19.0400<**	20 5	**281%**	**Fails**	-50%	18.72	1736	18.2100	5	**264%**	**Fails**		(±15)	
HMX	5.27	645	4.9220<	5	-2%	Acceptable					5	**-100%**	**Fails**		(±15)	45
RDX	7.94	373	4.6920<	5	-6%	Acceptable					5	**-100%**	**Fails**		(±15)	45
Picric ACID	**9.33**	**4275**	**51.7900**	50 10	**418%**	**Fails**	+400%	9.33	6293	51.8000<	10	**418%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.49	738	4.9560<	5	-1%	Acceptable					5	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.69	760	5.3200<	5	6%	Acceptable					5	**-100%**	**Fails**		(±15)	45
TETRYL	14.83	445	4.9080<	5	-2%	Acceptable					5	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.70	345	5.3130<	5	6%	Acceptable					5	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.18	464	5.2010<	5	4%	Acceptable					5	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.17	341	5.2040<	5	4%	Acceptable					5	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.35	394	5.2710<	5	5%	Acceptable					5	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.18	296	5.6380<	5	13%	Acceptable					5	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	21.97	432	5.0590<	5	1%	Acceptable					5	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	**25.94**	**219**	**6.0290<**	5	**21%**	**Fails**					5	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.83	248	5.6500<	5	13%	Acceptable					5	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.06	237	5.5920<	5	12%	Acceptable					5	**-100%**	**Fails**		(±15)	45
Nitroglycerin				5	**-100%**	**Fails**		16.34	1581	21.0800<	20 5	**322%**	**Fails**	+50%	(±15)	45
PETN				5	**-100%**	**Fails**		31.85	782	19.5300<	20 5	**291%**	**Fails**	-20%	(±15)	45
3,5-Dinitroaniline				5	**-100%**	**Fails**					5	**-100%**	**Fails**		(±15)	

10/26/2007

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/26/2007 3:20 PM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.275	3723	645	0.173	5.69		4 HMX
7.945	3419	373	0.109	3.29		5 RDX
9.331	61101	4275	0.070	37.83		6 Picric ACID
10.488	9067	738	0.081	6.51		7 1,3,5-Trinitrobenze
12.791	466	28	0.060	0.24		
13.695	13518	760	0.056	6.70		8 1,3-Dinitrobenzene
14.828	7795	445	0.057	3.92		9 TETRYL
15.705	7067	345	0.049	3.04		10 Nitrobenzene
17.178	9382	464	0.049	4.09		11 2,4,6-Trinitrotolue
18.175	6502	341	0.052	3.00		12 4-AM-2,6-DNT
18.698	20139	944	0.047	8.33	$	13 3,4-Dinitrotoluene
19.351	9578	394	0.041	3.47		14 2-AM-4,6-DNT
21.178	6553	296	0.045	2.61		15 2,6-Dinitrotoluene
21.971	10983	432	0.039	3.81		16 2,4-Dinitrotoluene
24.058	318	34	0.107	0.30		
24.588	398	40	0.101	0.35		
25.945	7367	219	0.030	1.93		17 2-Nitrotoluene
27.828	7856	248	0.032	2.18		18 4-Nitrotoluene
29.405	317	31	0.098	0.27		
30.058	8599	237	0.028	2.09		19 3-Nitrotoluene
33.725	511	40	0.078	0.35		
	194658	11329		100.000		

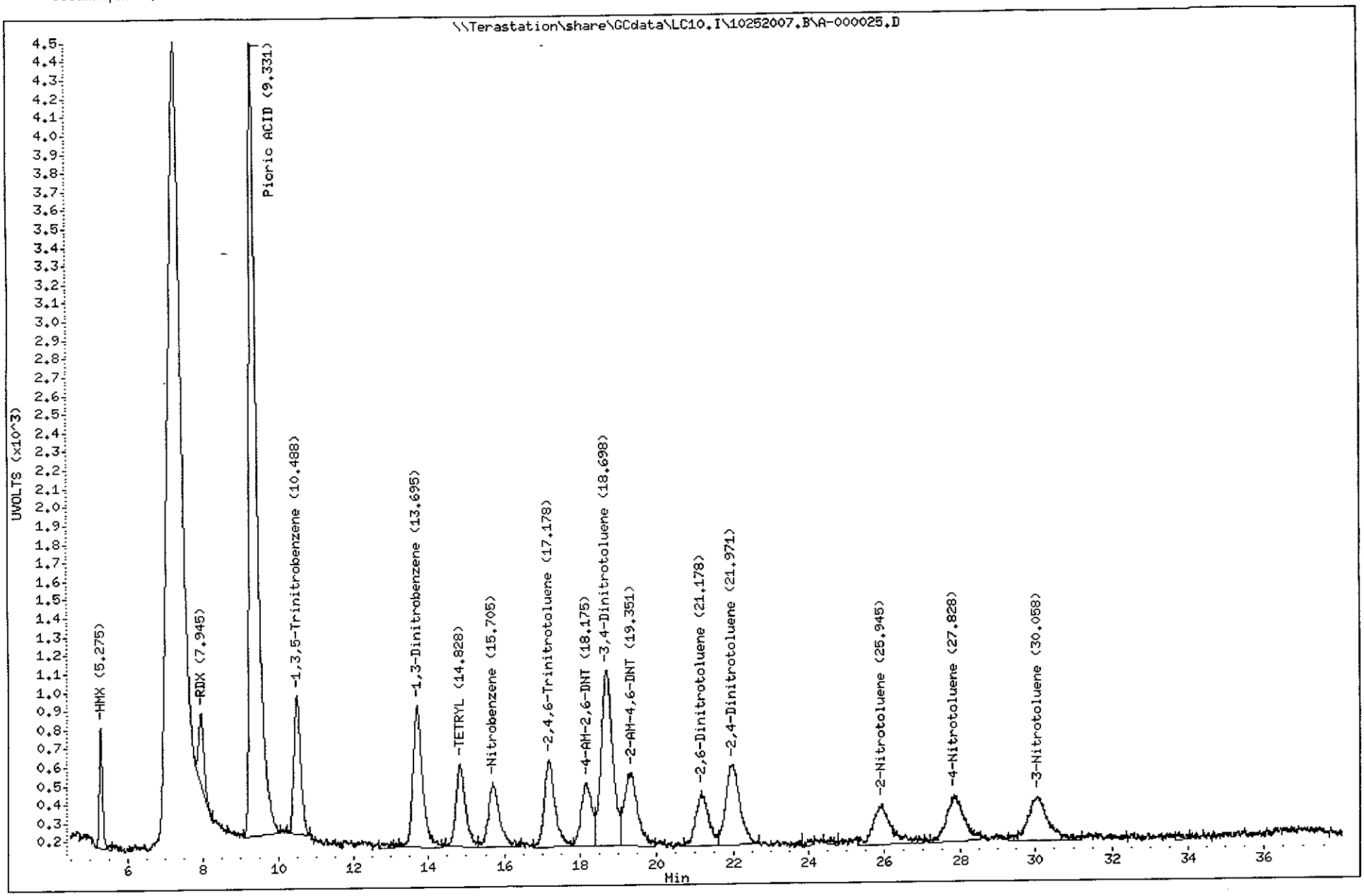
Total unknown % height = 1.510

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 26-OCT-2007 14:16
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.331	88427	6293	0.071	36.49	6 Picric ACID
13.691	6784	398	0.059	2.29	
14.825	11141	615	0.055	3.55	
15.721	16934	846	0.050	4.88	
16.341	29375	1581	0.054	9.12	1 Nitroglycerin
17.175	9955	499	0.050	2.88	
18.175	9562	518	0.054	2.99	
18.725	35862	1736	0.048	10.02	$ 13 3,4-Dinitrotoluene
21.178	13152	553	0.042	3.19	
21.975	5692	281	0.049	1.62	
25.948	13369	490	0.037	2.82	
26.718	565	55	0.097	0.31	
27.228	457	67	0.147	0.38	
27.855	17368	505	0.029	2.91	
28.958	2689	136	0.051	0.78	
29.088	1329	187	0.141	1.07	
29.358	3159	249	0.079	1.43	
30.015	30470	660	0.022	3.81	
31.855	30418	782	0.026	4.51	2 PETN
33.515	919	62	0.067	0.35	
34.201	2774	121	0.044	0.69	
34.678	985	78	0.079	0.45	
35.048	1096	94	0.086	0.54	
35.495	255	59	0.231	0.34	
35.858	924	94	0.102	0.54	
36.015	351	98	0.280	0.56	
36.288	409	52	0.127	0.30	
36.651	429	33	0.077	0.19	
37.011	1624	70	0.043	0.40	
37.401	581	57	0.098	0.32	
37.691	189	48	0.254	0.27	
	337244	17317		100.000	

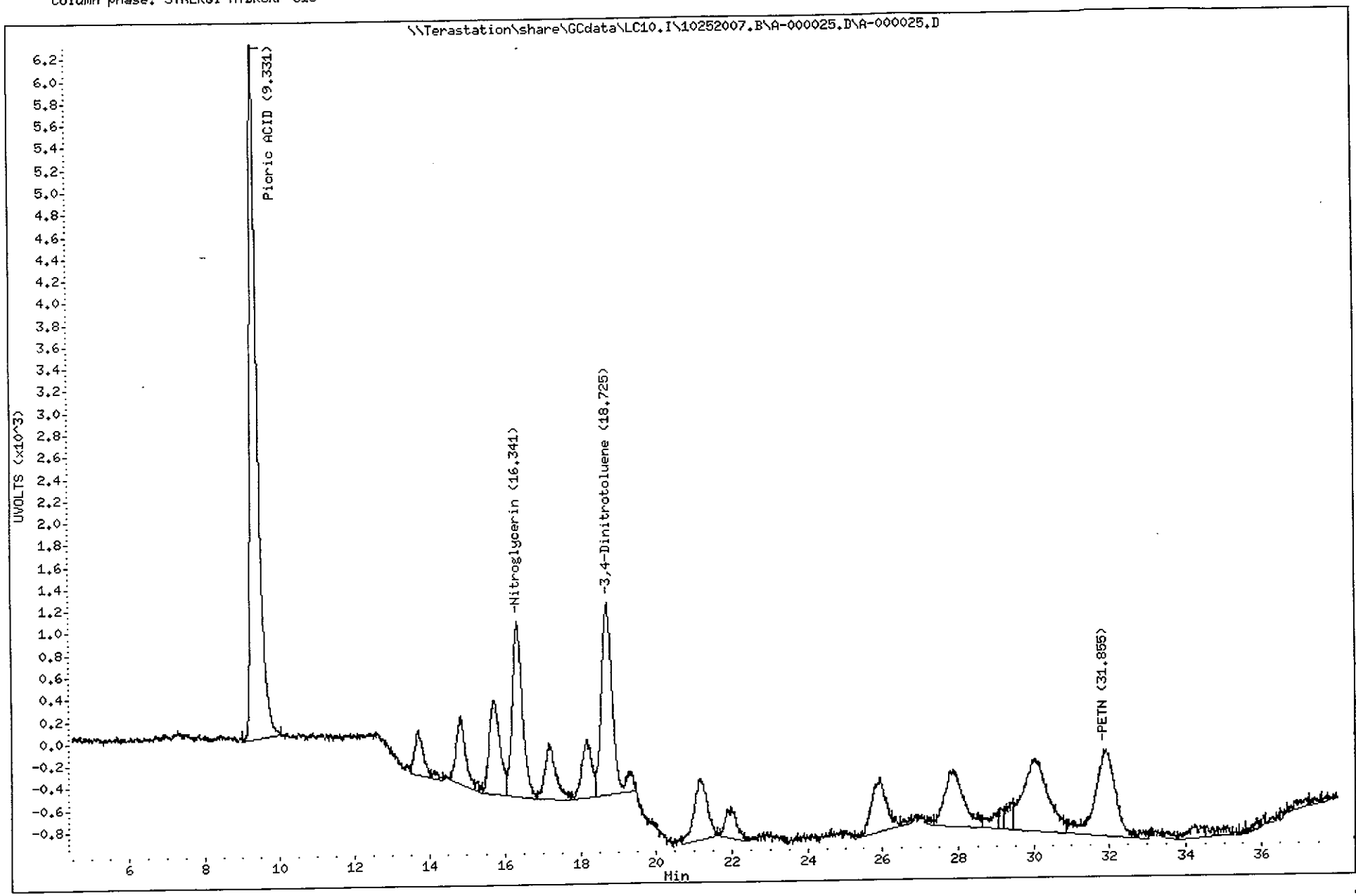
Total unknown % height = 39.86

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000025.D\A-000025.D
Date : 26-OCT-2007 14:16
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000026.D

Chromatography Summary

Injection Date: 10/26/2007 16:09 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000026.D **Vial Num:** 30

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1AAB 7285667 MB**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J8W2J1AAB 7285667 MB;0

Misc. Info: ; ; ;2;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.73**	**0.028**	**4613**	**1861.0000<**		**18.72**	**-0.002**	**9166**	**1923.0000**		**0.0000**	**0.00**	
HMX											30.0000	250.00	
RDX											40.0000	250.00	
Picric ACID											250.0000	1000.00	
1,3,5-Trinitrobenzene											20.0000	250.00	
1,3-Dinitrobenzene											50.0000	250.00	
TETRYL											50.0000	250.00	
Nitrobenzene											50.0000	250.00	
2,4,6-Trinitrotoluene											20.0000	250.00	
4-AM-2,6-DNT											20.0000	250.00	
2-AM-4,6-DNT											100.0000	250.00	
2,6-Dinitrotoluene											30.0000	250.00	
2,4-Dinitrotoluene											20.0000	250.00	
2-Nitrotoluene											80.0000	250.00	
4-Nitrotoluene											80.0000	250.00	
3-Nitrotoluene											70.0000	250.00	
Nitroglycerin											130.0000	500.00	
PETN											160.0000	500.00	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**2000.0000**	**1861.0000**	**93**	**2000.0000**	**1923.0000**	**96**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

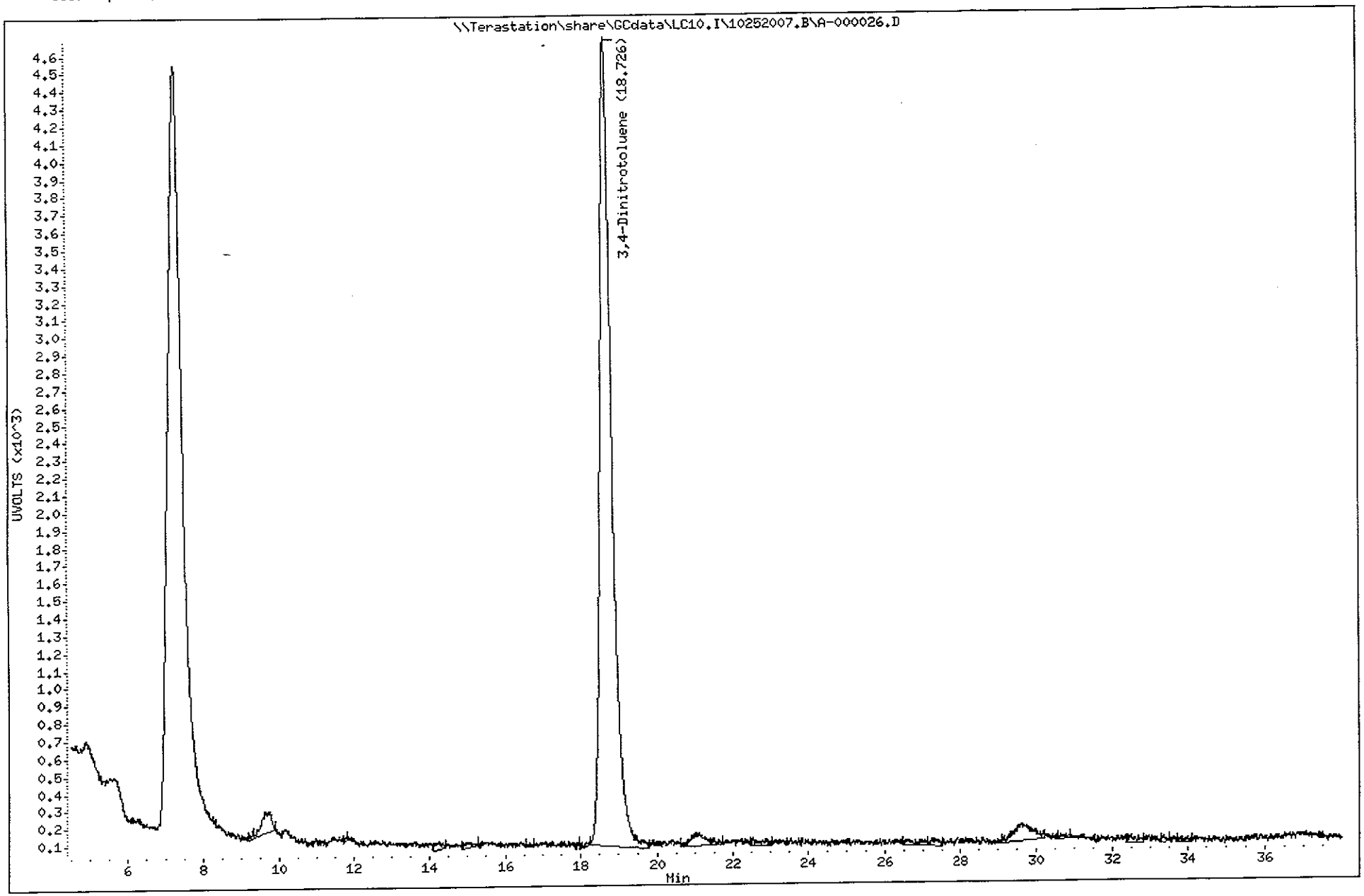
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.293	177	42	0.237	0.78	
9.616	2159	126	0.058	2.34	
11.790	86	24	0.280	0.44	
14.240	568	44	0.077	0.81	
15.083	489	31	0.063	0.57	
16.656	173	27	0.156	0.50	
18.230	268	21	0.078	0.39	
18.726	99580	4613	0.046	86.04	$ 13 3,4-Dinitrotoluene
21.116	1994	71	0.036	1.32	
22.540	693	44	0.063	0.81	
26.563	824	36	0.044	0.67	
27.236	564	42	0.074	0.78	
29.620	3333	97	0.029	1.80	
30.630	323	29	0.090	0.54	
32.486	599	47	0.079	0.87	
33.333	245	36	0.147	0.67	
33.986	433	36	0.083	0.67	
	112508	5366		100.000	

Total unknown % height = 13.96

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D
Date : 26-OCT-2007 16:09
Client ID:
Sample Info: J8W2J1AAB 7285667 MB:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026
Lab Smp Id: J8W2J1AAB 7285667 M
Inj Date : 26-OCT-2007 16:09
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1AAB 7285667 MB;0
Misc Info : ; ; ;2;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 30
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

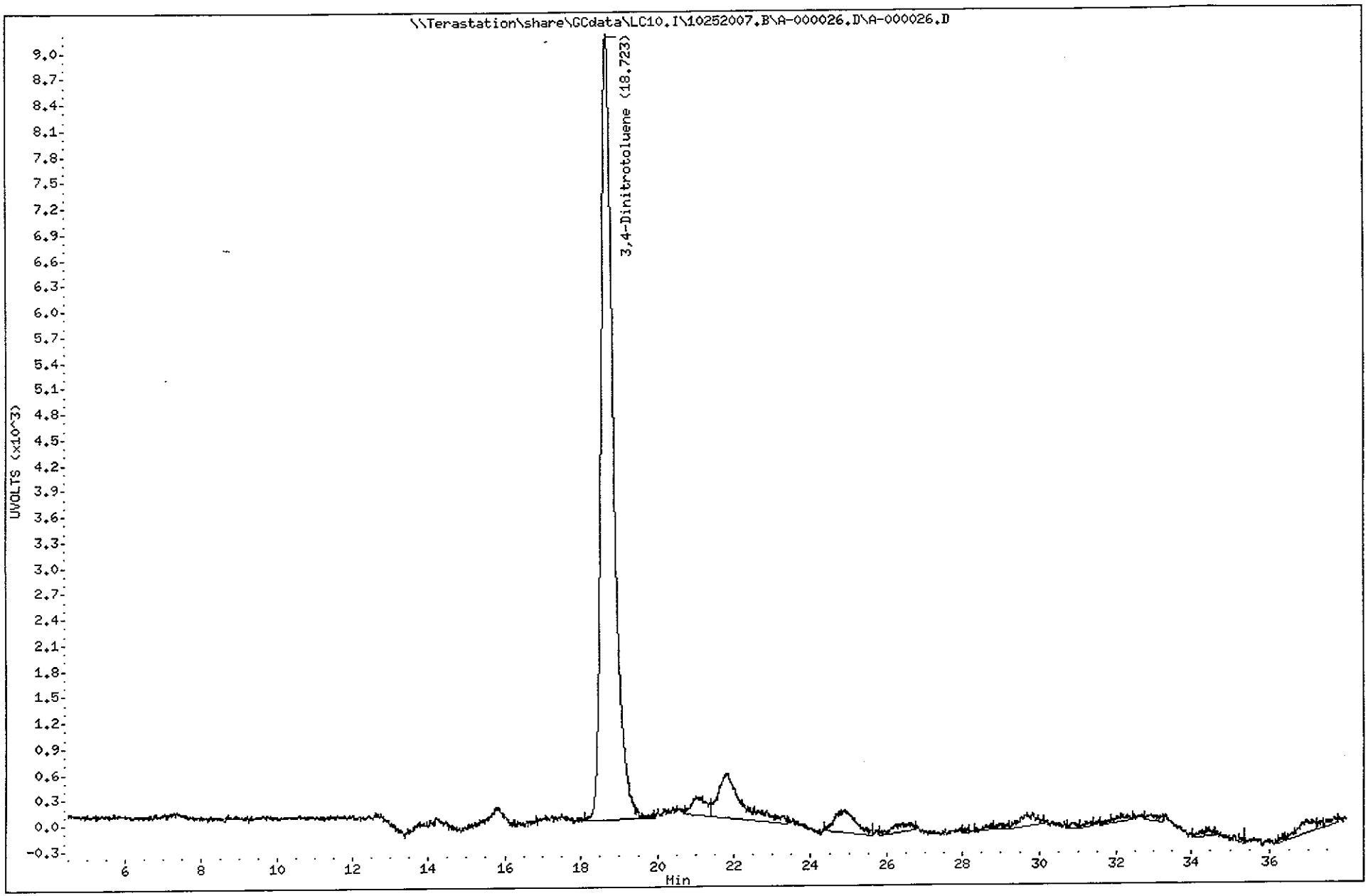
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.723	199424	9166	0.046	79.51	$ 13 3,4-Dinitrotoluene
21.016	5871	222	0.038	1.92	
21.806	22459	514	0.023	4.45	
24.906	9689	269	0.028	2.33	
26.416	3135	100	0.032	0.86	
28.133	306	57	0.187	0.49	
28.606	1086	73	0.067	0.63	
29.016	1000	73	0.073	0.63	
29.673	4189	155	0.037	1.34	
30.846	726	65	0.090	0.56	
31.210	701	66	0.094	0.57	
31.793	406	46	0.113	0.39	
32.106	1372	82	0.060	0.71	
32.926	1413	80	0.057	0.69	
34.286	1553	74	0.048	0.64	
35.340	321	77	0.240	0.66	
36.326	476	96	0.202	0.83	
36.936	4604	155	0.034	1.34	
37.323	718	87	0.121	0.75	
37.680	1224	81	0.066	0.70	
	260672	11538		100.000	

Total unknown % height = 20.49

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000026.D\A-000026.D
Date : 26-OCT-2007 16:09
Client ID:
Sample Info: J8W2J1AAB 7285667 MB;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000027.D

Chromatography Summary

Injection Date: 10/26/2007 17:02 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000027.D **Vial Num:** 31

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8W2J1ACC 7285667 LCS**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J8W2J1ACC 7285667 LCS;3

Misc. Info: LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.74	4626	1866.0000<	2000	93%	Acceptable		18.74	9105	1910.0000	2000	96%	Acceptable		(84-127)	
HMX	5.28	6486	989.9000<	1000	99%	Acceptable					1000	0%	Fails		(87-117)	45
RDX	7.96	4089	1029.0000<	1000	103%	Acceptable					1000	0%	Fails		(85-115)	45
Picric ACID				5000	0%	Fails					5000	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7447	1000.0000<	1000	100%	Acceptable					1000	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	7116	996.2000<	1000	100%	Acceptable					1000	0%	Fails		(85-115)	45
TETRYL	14.86	3732	823.2000<	1000	82%	Acceptable					1000	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3204	986.8000<	1000	99%	Acceptable					1000	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4216	945.1000<	1000	95%	Acceptable					1000	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	3206	978.6000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3694	988.4000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2601	990.9000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.02	4199	983.5000<	1000	98%	Acceptable					1000	0%	Fails		(81-115)	45
2-Nitrotoluene	25.99	1791	986.2000<	1000	99%	Acceptable					1000	0%	Fails		(84-114)	45
4-Nitrotoluene	27.91	2152	980.5000<	1000	98%	Acceptable					1000	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2104	992.9000<	1000	99%	Acceptable					1000	0%	Fails		(88-118)	45
Nitroglycerin				5000	0%	Fails		16.37	18270	4871.0000<	5000	97%	Acceptable		(50-112)	45
PETN				5000	0%	Fails		32.01	9410	4699.0000<	5000	94%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000	1866.0000	93	2000.0000	1910.0000	96	(84-127)

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

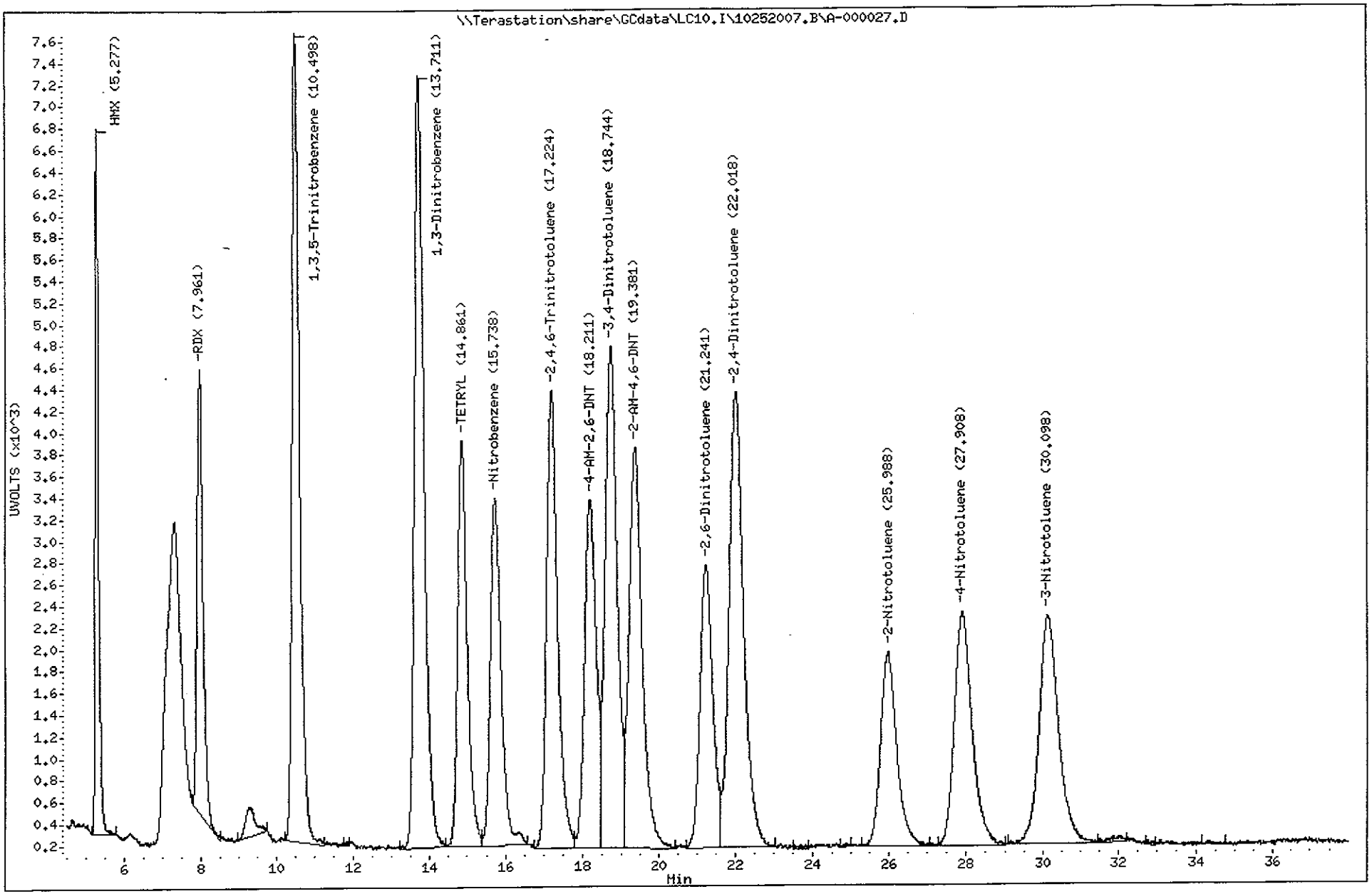
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.277	40050	6486	0.162	10.60		4 HMX
7.961	44308	4089	0.092	6.68		5 RDX
9.254	5180	268	0.052	0.43		
10.498	101339	7447	0.073	12.28		7 1,3,5-Trinitrobenze
11.808	198	37	0.187	0.06		
13.711	124530	7116	0.057	11.63		8 1,3-Dinitrobenzene
14.861	66187	3732	0.056	6.10		9 TETRYL
15.738	63956	3204	0.050	5.23		10 Nitrobenzene
17.224	84496	4216	0.050	6.89		11 2,4,6-Trinitrotolue
18.211	65195	3206	0.049	5.24		12 4-AM-2,6-DNT
18.744	99141	4626	0.047	7.56	$	13 3,4-Dinitrotoluene
19.381	91570	3694	0.040	6.03		14 2-AM-4,6-DNT
21.241	61419	2601	0.042	4.25		15 2,6-Dinitrotoluene
22.018	109972	4199	0.038	6.86		16 2,4-Dinitrotoluene
23.724	466	41	0.088	0.06		
24.874	316	35	0.111	0.05		
25.988	53070	1791	0.034	2.92		17 2-Nitrotoluene
27.908	68135	2152	0.032	3.51		18 4-Nitrotoluene
30.098	74888	2104	0.028	3.43		19 3-Nitrotoluene
31.868	1099	54	0.049	0.08		
32.754	279	43	0.154	0.07		
34.331	377	29	0.077	0.04		
	1156171	61170		100.000		

Total unknown % height = 0.7900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027
Lab Smp Id: J8W2J1ACC 7285667 L
Inj Date : 26-OCT-2007 17:02
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8W2J1ACC 7285667 LCS;3
Misc Info : LCS; ; ;2;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 31 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.000	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.254	8975	431	0.048	0.48	
10.501	1435	109	0.076	0.12	
13.708	65223	3740	0.057	4.22	
14.858	87192	4873	0.056	5.50	
15.738	138464	7166	0.052	8.10	
16.374	346324	18270	0.053	20.77	1 Nitroglycerin
17.218	85875	4337	0.051	4.90	
18.214	101710	5123	0.050	5.79	
18.741	196686	9105	0.046	10.29	$ 13 3,4-Dinitrotoluene
19.371	105694	4166	0.039	4.70	
21.238	118122	4805	0.041	5.43	
22.018	107726	3763	0.035	4.25	
25.301	191	71	0.372	0.08	
25.971	136859	4322	0.032	4.88	
27.231	3673	233	0.063	0.26	
27.924	143196	3948	0.028	4.46	
30.111	154237	4175	0.027	4.71	
32.008	354605	9410	0.027	10.63	2 PETN
33.928	439	71	0.162	0.08	
35.404	1865	104	0.056	0.11	
36.424	233	35	0.150	0.03	
36.618	295	69	0.234	0.07	
36.974	837	52	0.062	0.05	
37.484	1288	81	0.063	0.09	

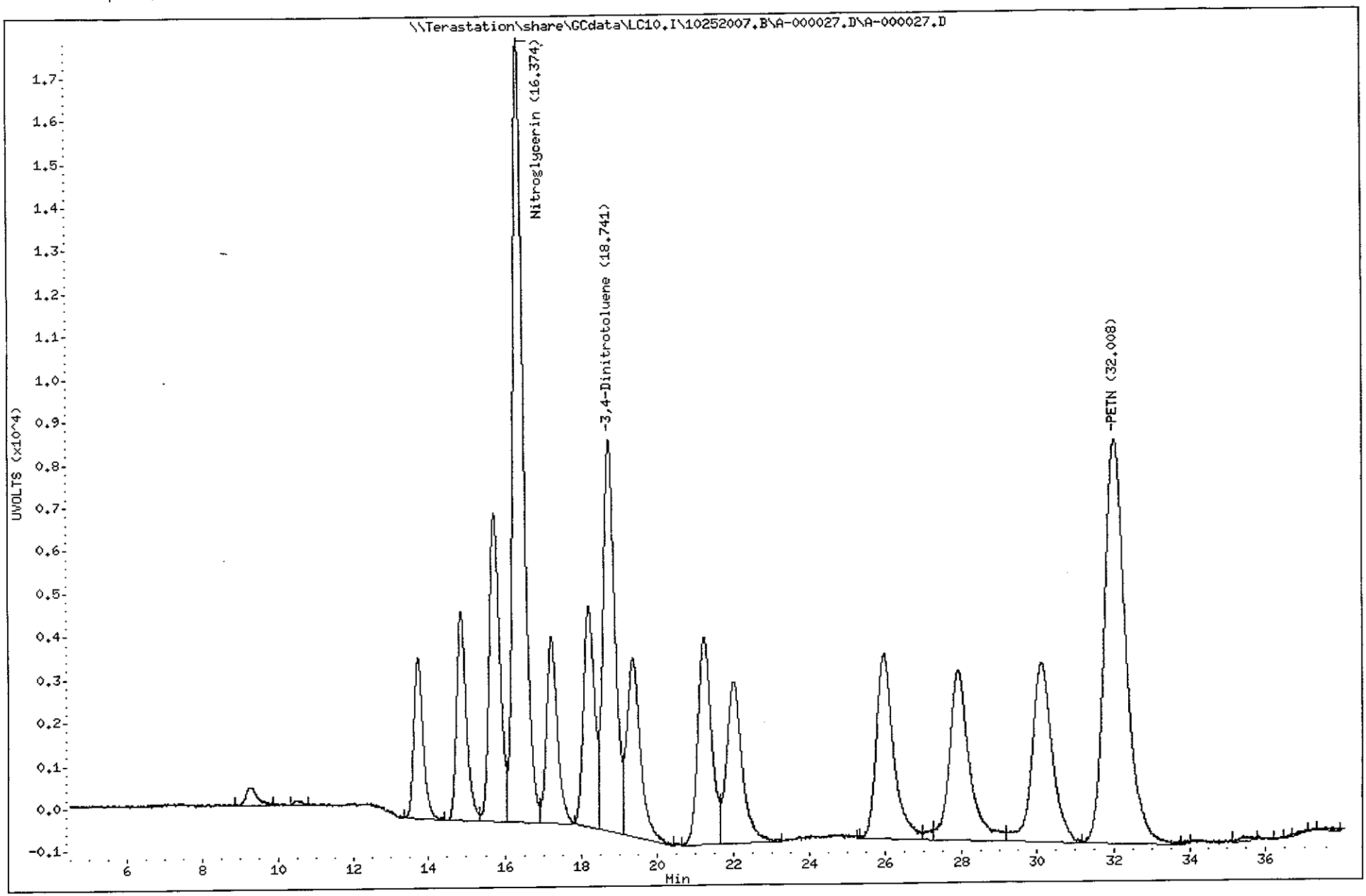
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	2161143	88459		100.000	

Total unknown % height = 58.31

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000027.D\A-000027.D
Date : 26-OCT-2007 17:02
Client ID:
Sample Info: J8W2J1ACC 7285667 LCS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000028.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/26/2007 17:55 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000028.D **Vial Num:** 32
Instrument ID: LC10

Sample : **J748R1A4 7285667 A7J030104-1**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J748R1A4 7285667 A7J030104-1;0
Misc. Info: ; ; ;2.05;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.75**	**0.049**	**4600**	**1811.0000<**		**18.75**	**0.026**	**9084**	**1859.0000**		**0.0000**	**0.00**	
HMX											29.2683	243.90	
RDX											39.0244	243.90	
Picric ACID											243.9024	975.61	
1,3,5-Trinitrobenzene											19.5122	243.90	
1,3-Dinitrobenzene											48.7805	243.90	
TETRYL											48.7805	243.90	
Nitrobenzene											48.7805	243.90	
2,4,6-Trinitrotoluene											19.5122	243.90	
4-AM-2,6-DNT											19.5122	243.90	
2-AM-4,6-DNT											97.5610	243.90	
2,6-Dinitrotoluene	21.13	-0.044	87	32.3400<							29.2683	243.90	45
2,4-Dinitrotoluene											19.5122	243.90	
2-Nitrotoluene											78.0488	243.90	
4-Nitrotoluene											78.0488	243.90	
3-Nitrotoluene											68.2927	243.90	
Nitroglycerin											126.8293	487.80	
PETN											156.0976	487.80	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1951.2195**	**1811.0000**	**93**	**1951.2195**	**1859.0000**	**95**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

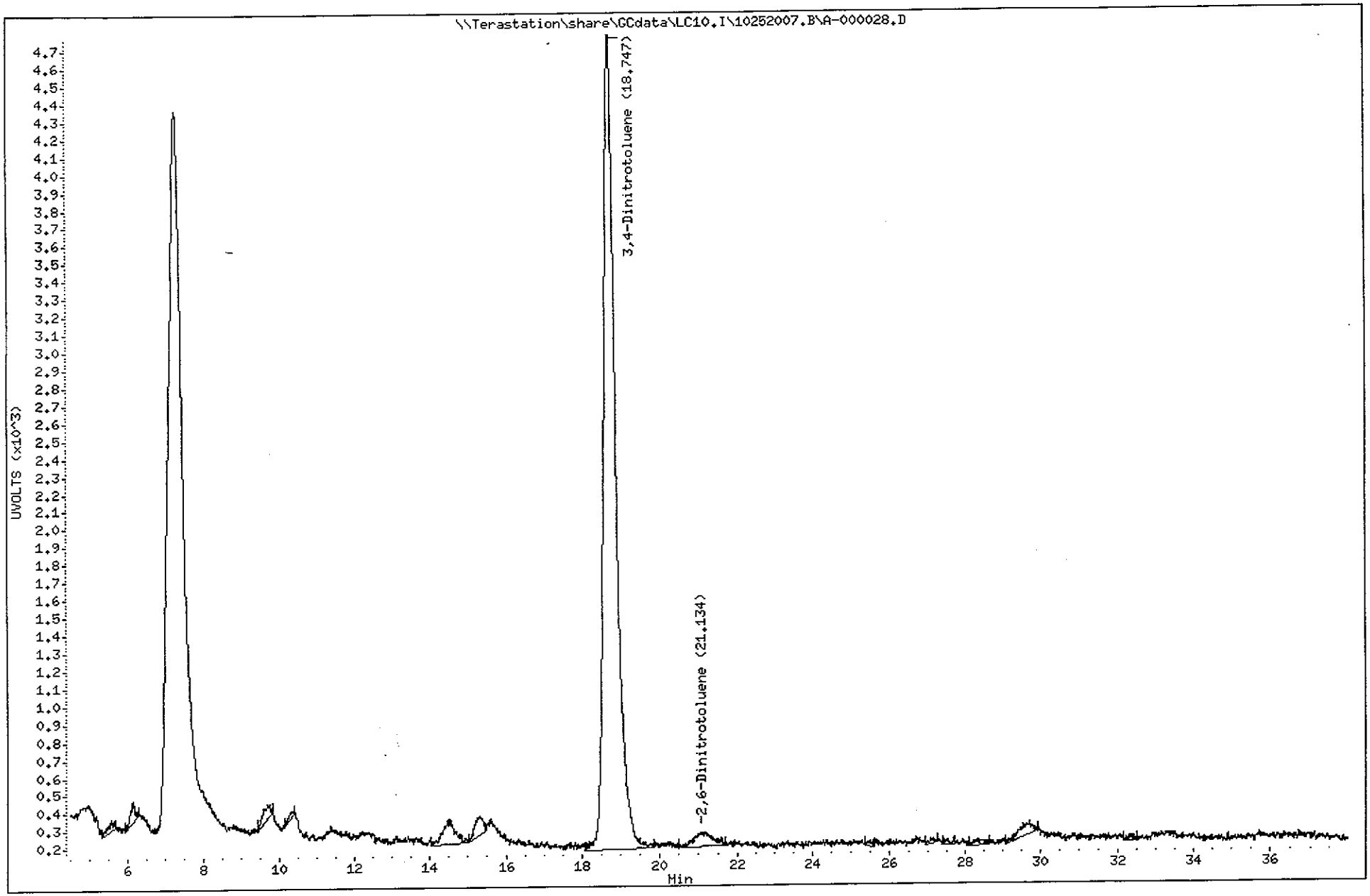
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.500	636	42	0.066	0.77		
6.140	1005	112	0.111	2.06		
9.654	1090	66	0.061	1.21		
10.317	308	36	0.117	0.66		
14.500	3035	139	0.046	2.55		
15.290	1697	106	0.062	1.95		
18.747	100098	4600	0.046	84.74	$	13 3,4-Dinitrotoluene
21.134	2810	87	0.031	1.60		15 2,6-Dinitrotoluene
25.497	265	36	0.136	0.66		
27.080	297	33	0.111	0.60		
27.494	325	32	0.098	0.58		
28.337	504	36	0.071	0.66		
29.540	1648	71	0.043	1.30		
32.370	318	36	0.113	0.66		
	114037	5432		100.000		

Total unknown % height = 13.66

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028
Lab Smp Id: J748R1A4 7285667 A7
Inj Date : 26-OCT-2007 17:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1A4 7285667 A7J030104-1;0
Misc Info : ; ; ;2.05;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 32
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.050	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

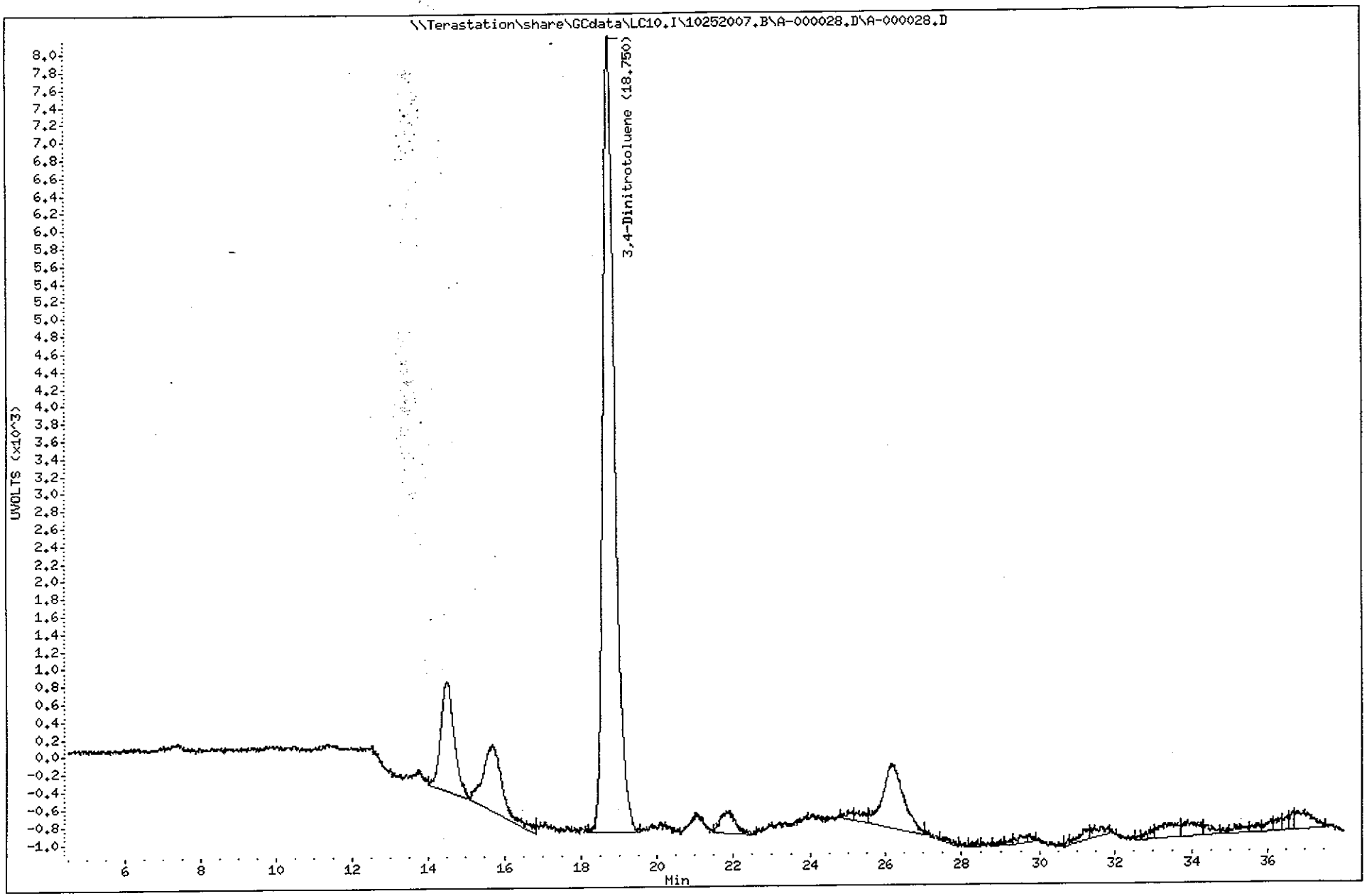
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
14.484	31196	1249	0.040	8.51	
15.684	25937	744	0.029	5.07	
18.750	192104	9084	0.047	62.06	$ 13 3,4-Dinitrotoluene
21.920	7208	261	0.036	1.77	
24.987	1307	112	0.086	0.76	
25.287	2106	128	0.061	0.87	
26.167	28902	738	0.026	5.03	
27.504	957	52	0.054	0.35	
28.277	610	66	0.108	0.44	
28.824	438	50	0.114	0.34	
29.257	449	56	0.125	0.38	
29.484	1845	85	0.046	0.57	
30.744	266	60	0.226	0.40	
31.267	2079	115	0.055	0.78	
31.457	2640	140	0.053	0.95	
32.597	220	44	0.200	0.29	
32.930	1309	124	0.095	0.84	
33.437	5459	167	0.031	1.13	
33.884	4595	179	0.039	1.22	
34.400	1861	115	0.062	0.78	
34.800	463	73	0.158	0.49	
35.107	1746	101	0.058	0.68	
35.737	1335	92	0.069	0.62	
36.074	1516	124	0.082	0.84	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
36.343	1533	129	0.084	0.87	
36.517	1418	158	0.111	1.07	
36.674	1304	204	0.156	1.39	
36.983	6207	221	0.036	1.50	
	327008	14671		100.000	

Total unknown % height = 37.94

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000028.D\A-000028.D
Date : 26-OCT-2007 17:55
Client ID:
Sample Info: J748R1A4 7285667 A7J030104-1:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000029.D

Chromatography Summary

Injection Date: 10/26/2007 18:47 **Operator:** KenneyF

DataFile: LC10.R\10252007.B\A-000029.D **Vial Num:** 33

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1DRS 7285667 A7J030104-1MS**

Method File: LC10.R\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DRS 7285667 A7J030104-1MS;3

Misc. Info: MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.70	4578	1856.0000<	2010.050251	92%	Acceptable		18.70	9043	1906.0000	2010.050251	95%	Acceptable		(84-127)	
HMX	5.27	6324	970.0000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(87-117)	45
RDX	7.94	3969	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(85-115)	45
Picric ACID				5025.125628	0%	Fails					5025.125628	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.47	7439	1004.0000<	1005.025126	100%	Acceptable					1005.025126	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.68	7073	995.1000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(85-115)	45
TETRYL	14.82	3674	814.4000<	1005.025126	81%	Acceptable					1005.025126	0%	Fails		(75-109)	45
Nitrobenzene	15.70	3286	1017.0000<	1005.025126	101%	Acceptable					1005.025126	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.17	4207	947.8000<	1005.025126	94%	Acceptable					1005.025126	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.17	2925	897.3000<	1005.025126	89%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.32	3579	962.5000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.18	2609	998.9000<	1005.025126	99%	Acceptable					1005.025126	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	21.97	4182	984.4000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(81-115)	45
2-Nitrotoluene	25.91	1754	970.7000<	1005.025126	97%	Acceptable					1005.025126	0%	Fails		(84-114)	45
4-Nitrotoluene	27.83	2104	963.4000<	1005.025126	96%	Acceptable					1005.025126	0%	Fails		(84-114)	45
3-Nitrotoluene	30.04	2074	983.6000<	1005.025126	98%	Acceptable					1005.025126	0%	Fails		(88-118)	45
Nitroglycerin				5025.125628	0%	Fails		16.33	18098	4850.0000<	5025.125628	97%	Acceptable		(50-112)	45
PETN				5025.125628	0%	Fails		31.92	9466	4751.0000<	5025.125628	95%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2010.0503	1856.0000	92	2010.0503	1906.0000	95	(84-127)

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:43 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

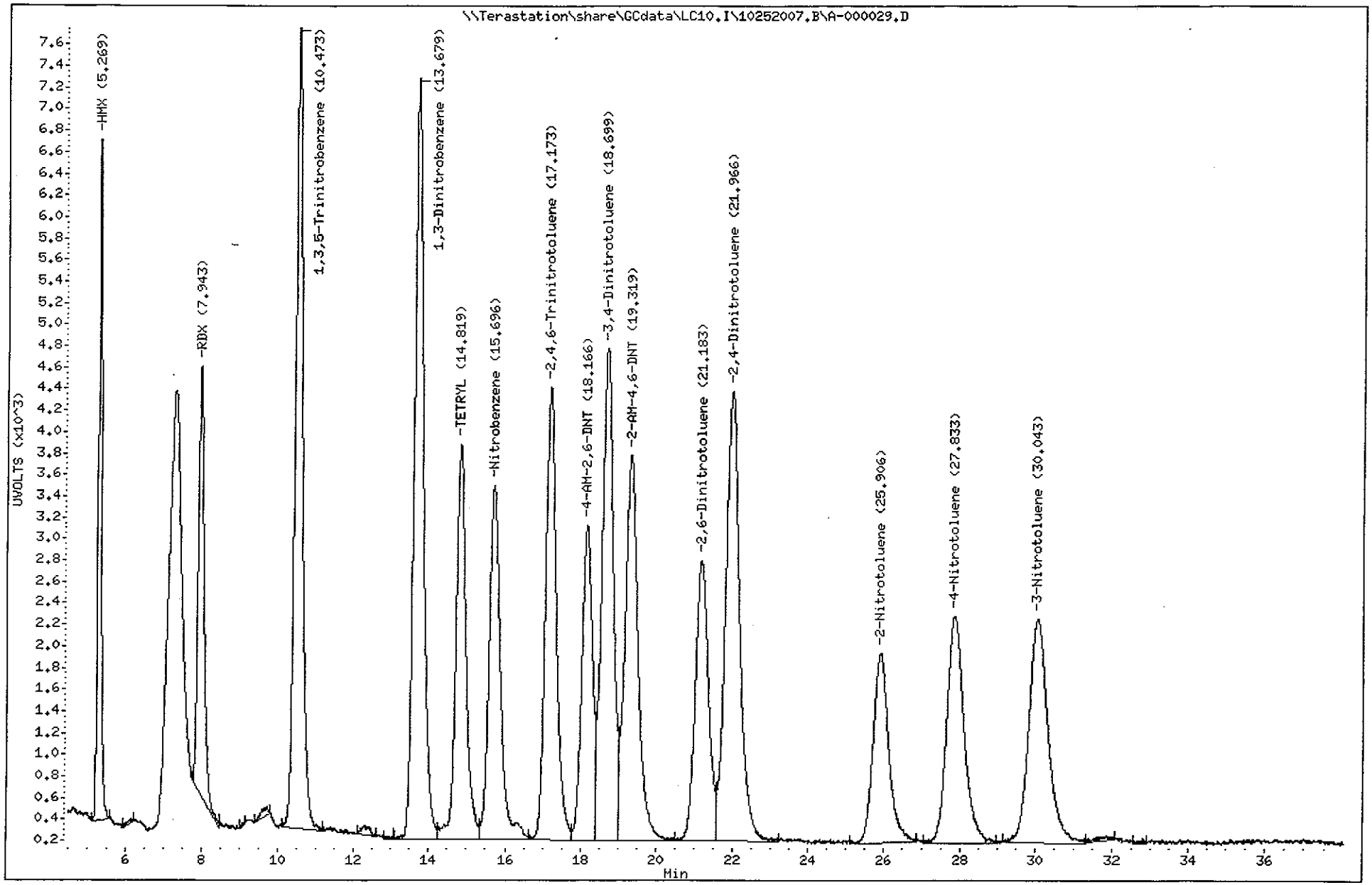
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.269	37852	6324	0.167	10.52		4 HMX
6.133	293	38	0.130	0.06		
7.943	42661	3969	0.093	6.60		5 RDX
9.079	111	30	0.271	0.04		
9.619	1063	74	0.070	0.12		
10.473	100518	7439	0.074	12.49		7 1,3,5-Trinitrobenze
12.296	1404	87	0.062	0.14		
13.063	208	22	0.106	0.03		
13.679	121511	7073	0.058	11.76		8 1,3-Dinitrobenzene
14.819	67443	3674	0.054	6.11		9 TETRYL
15.696	67697	3286	0.049	5.46		10 Nitrobenzene
17.173	83569	4207	0.050	7.00		11 2,4,6-Trinitrotolue
18.166	58584	2925	0.050	4.86		12 4-AM-2,6-DNT
18.699	95916	4578	0.048	7.61	$	13 3,4-Dinitrotoluene
19.319	87258	3579	0.041	5.95		14 2-AM-4,6-DNT
21.183	62413	2609	0.042	4.34		15 2,6-Dinitrotoluene
21.966	108090	4182	0.039	6.95		16 2,4-Dinitrotoluene
25.906	51540	1754	0.034	2.91		17 2-Nitrotoluene
27.833	66859	2104	0.031	3.50		18 4-Nitrotoluene
30.043	72210	2074	0.029	3.45		19 3-Nitrotoluene
31.686	1122	44	0.039	0.07		
32.639	280	23	0.082	0.03		
	1128600	60095		100.000		

Total unknown % height = 0.4900

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029
Lab Smp Id: J748R1DRS 7285667 A
Inj Date : 26-OCT-2007 18:47
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DRS 7285667 A7J030104-1MS;3
Misc Info : MS; ; ;1.99;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 33 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

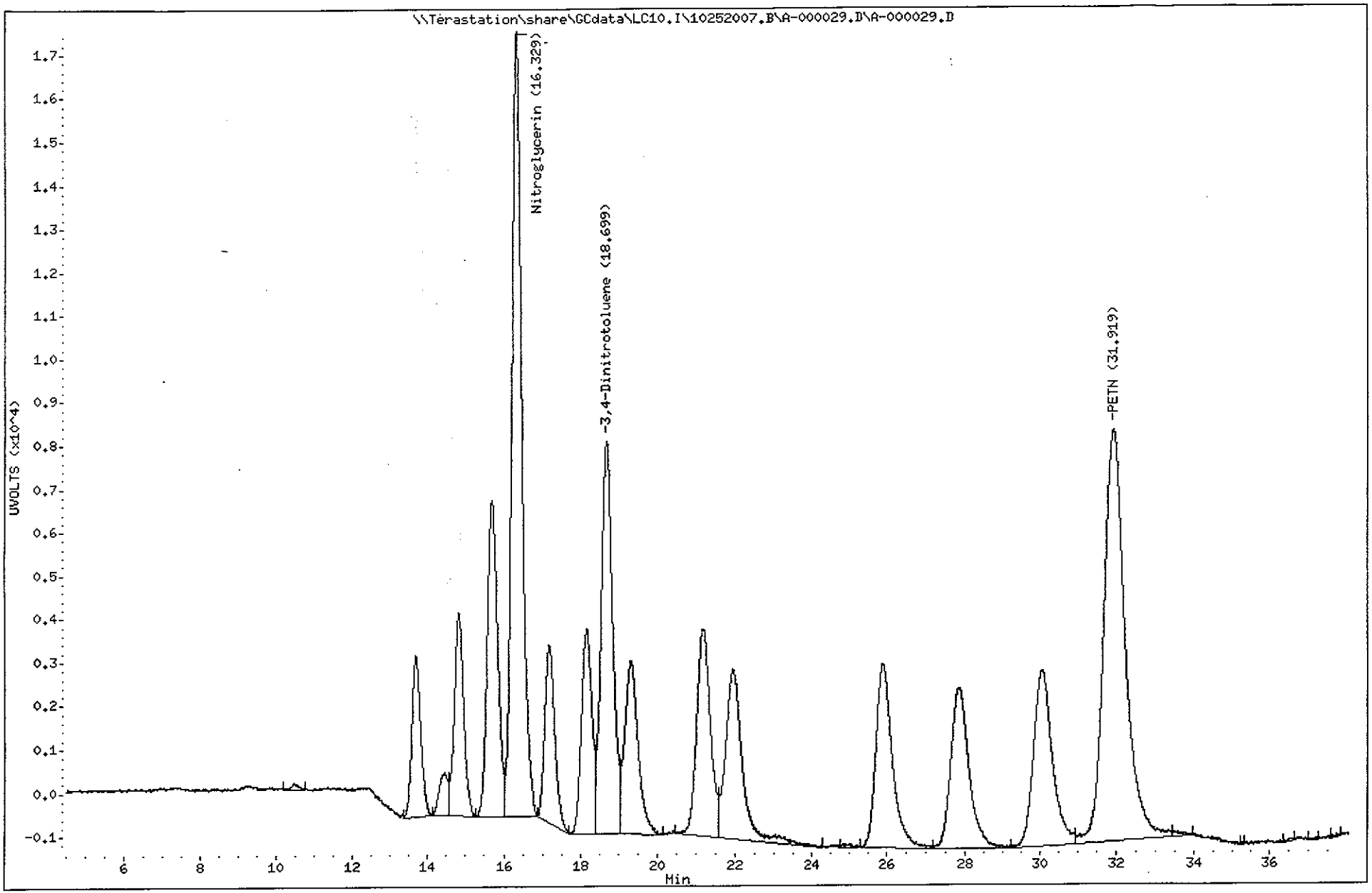
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	1.990	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
10.449	1961	146	0.074	0.16		
13.679	59811	3688	0.062	4.22		
14.439	15968	973	0.061	1.11		
14.819	80072	4675	0.058	5.35		
15.693	136926	7286	0.053	8.34		
16.329	329536	18098	0.055	20.82		1 Nitroglycerin
17.173	74028	4072	0.055	4.66		
18.169	91363	4716	0.052	5.40		
18.699	192279	9043	0.047	10.36	$	13 3,4-Dinitrotoluene
19.316	94991	3973	0.042	4.55		
21.173	115832	4769	0.041	5.46		
21.943	117221	3903	0.033	4.47		
24.833	1663	106	0.064	0.12		
25.886	128176	4226	0.033	4.84		
27.826	120307	3687	0.031	4.22		
30.039	141034	4044	0.029	4.63		
31.919	361530	9466	0.026	10.84		2 PETN
33.556	2522	135	0.054	0.15		
35.259	300	82	0.274	0.09		
36.566	615	58	0.094	0.06		
37.176	449	63	0.140	0.07		
37.713	517	72	0.139	0.08		
	2067100	87281		100.000		

Total unknown % height = 57.98

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000029.D\A-000029.D
Date : 26-OCT-2007 18:47
Client ID:
Sample Info: J748R1DRS 7285667 A7J030104-1MS:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000030.D

Chromatography Summary

Injection Date: 10/26/2007 19:40 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000030.D **Vial Num:** 34

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J748R1DTD 7285667 A7J030104-1MSD**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:** SOIL.spk

Samp. Info: J748R1DTD 7285667 A7J030104-1MSD;3

Misc. Info: MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	RT	Response	Conc (ug/Kg)	Spike Level	%R	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.75	4543	1762.0000<	1923.076923	92%	Acceptable		18.75	9105	1836.0000	1923.076923	95%	Acceptable		(84-127)	
HMX	5.28	6323	927.9000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(87-117)	45
RDX	7.96	3930	950.7000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(85-115)	45
Picric ACID				4807.692308	0%	Fails					4807.692308	0%	Fails		(70-130)	
1,3,5-Trinitrobenzene	10.50	7534	973.1000<	961.538462	101%	Acceptable					961.538462	0%	Fails		(80-113)	45
1,3-Dinitrobenzene	13.71	6997	941.8000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
TETRYL	14.85	3416	724.5000<	961.538462	75%	Acceptable					961.538462	0%	Fails		(75-109)	45
Nitrobenzene	15.74	3178	941.1000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(85-115)	45
2,4,6-Trinitrotoluene	17.22	4172	899.3000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(82-114)	45
4-AM-2,6-DNT	18.21	2755	808.6000<	961.538462	84%	Acceptable					961.538462	0%	Fails		(84-114)	45
2-AM-4,6-DNT	19.38	3504	901.5000<	961.538462	94%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,6-Dinitrotoluene	21.24	2632	964.1000<	961.538462	100%	Acceptable					961.538462	0%	Fails		(84-114)	45
2,4-Dinitrotoluene	22.03	4185	942.5000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(81-115)	45
2-Nitrotoluene	25.95	1774	939.2000<	961.538462	98%	Acceptable					961.538462	0%	Fails		(84-114)	45
4-Nitrotoluene	27.92	2129	932.7000<	961.538462	97%	Acceptable					961.538462	0%	Fails		(84-114)	45
3-Nitrotoluene	30.10	2095	950.6000<	961.538462	99%	Acceptable					961.538462	0%	Fails		(88-118)	45
Nitroglycerin				4807.692308	0%	Fails		16.37	18039	4625.0000<	4807.692308	96%	Acceptable		(50-112)	45
PETN				4807.692308	0%	Fails		31.99	9739	4677.0000<	4807.692308	97%	Acceptable		(75-117)	45

Surrogates:	Spiked	Recovered	%Rec		Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	1923.0769	1762.0000	92		1923.0769	1836.0000	96	(84-127)

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:43 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 26-Oct-2007 15:20 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

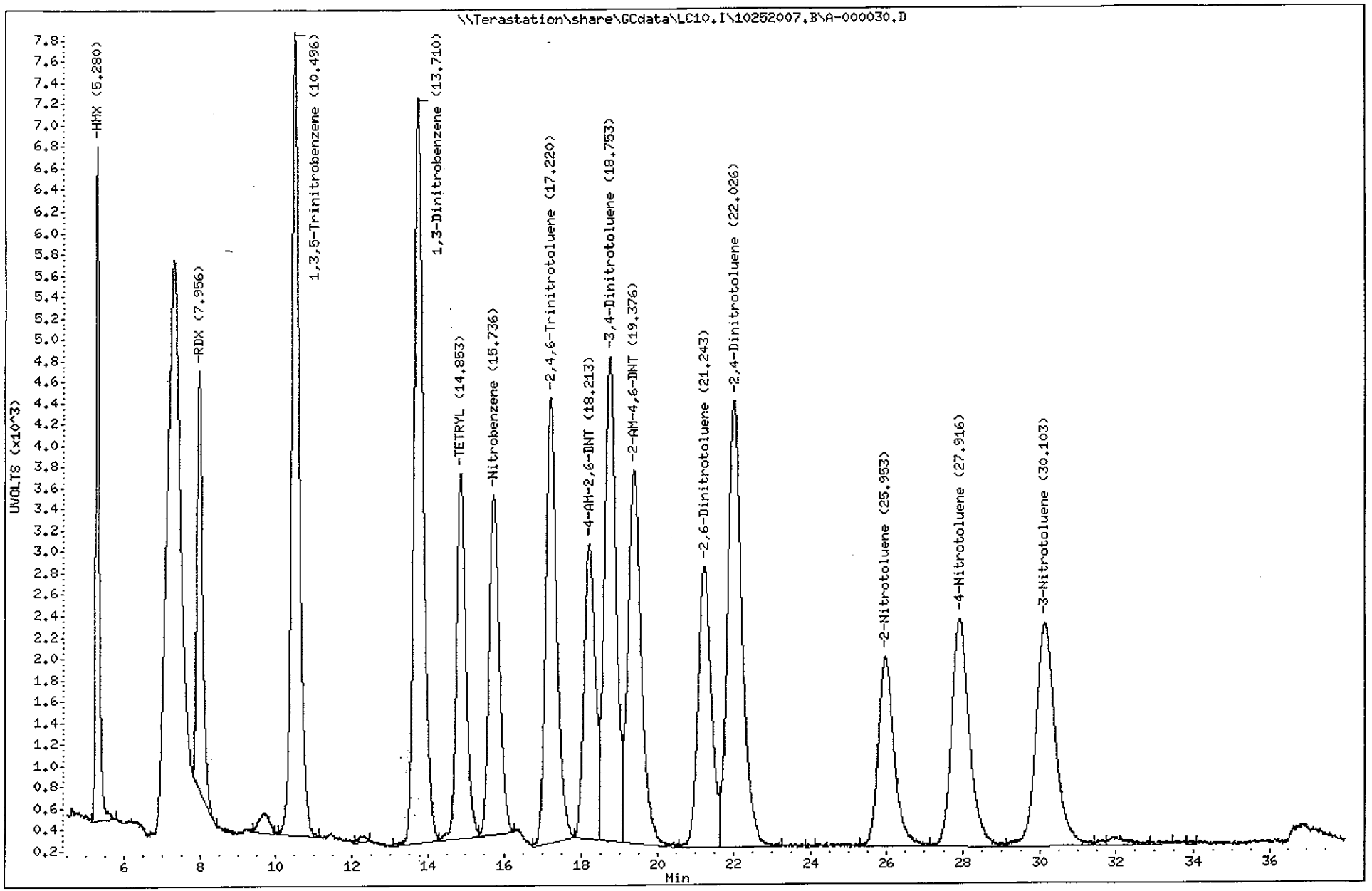
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.280	39367	6323	0.161	10.59		4 HMX
7.956	42212	3930	0.093	6.58		5 RDX
9.696	3717	198	0.053	0.33		
10.496	105058	7534	0.072	12.73		7 1,3,5-Trinitrobenze
12.193	808	64	0.079	0.10		
13.710	120005	6997	0.058	11.72		8 1,3-Dinitrobenzene
14.853	59126	3416	0.058	5.72		9 TETRYL
15.736	59585	3178	0.053	5.32		10 Nitrobenzene
17.220	81451	4172	0.051	6.99		11 2,4,6-Trinitrotolue
18.213	54416	2755	0.051	4.61		12 4-AM-2,6-DNT
18.753	95475	4543	0.048	7.61	$	13 3,4-Dinitrotoluene
19.376	84938	3504	0.041	5.87		14 2-AM-4,6-DNT
21.243	63638	2632	0.041	4.41		15 2,6-Dinitrotoluene
22.026	108729	4185	0.038	7.01		16 2,4-Dinitrotoluene
23.926	268	32	0.120	0.05		
25.953	52797	1774	0.034	2.97		17 2-Nitrotoluene
27.916	68188	2129	0.031	3.56		18 4-Nitrotoluene
30.103	74838	2095	0.028	3.51		19 3-Nitrotoluene
31.663	602	48	0.080	0.08		
31.916	2723	81	0.030	0.13		
33.106	570	34	0.060	0.05		
33.876	329	37	0.112	0.06		
	1118840	59661		100.000		

Total unknown % height = 0.8000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD;3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



Data File: A-000030.D
Report Date: 26-Oct-2007 20:29

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030
Lab Smp Id: J748R1DTD 7285667 A
Inj Date : 26-OCT-2007 19:40
Operator : KenneyF Inst ID: LC10.i
Smp Info : J748R1DTD 7285667 A7J030104-1MSD;3
Misc Info : MS; ; ;2.08;40;2;EXPS.sub;SOIL.spk;1;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 26-Oct-2007 15:05 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 34 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

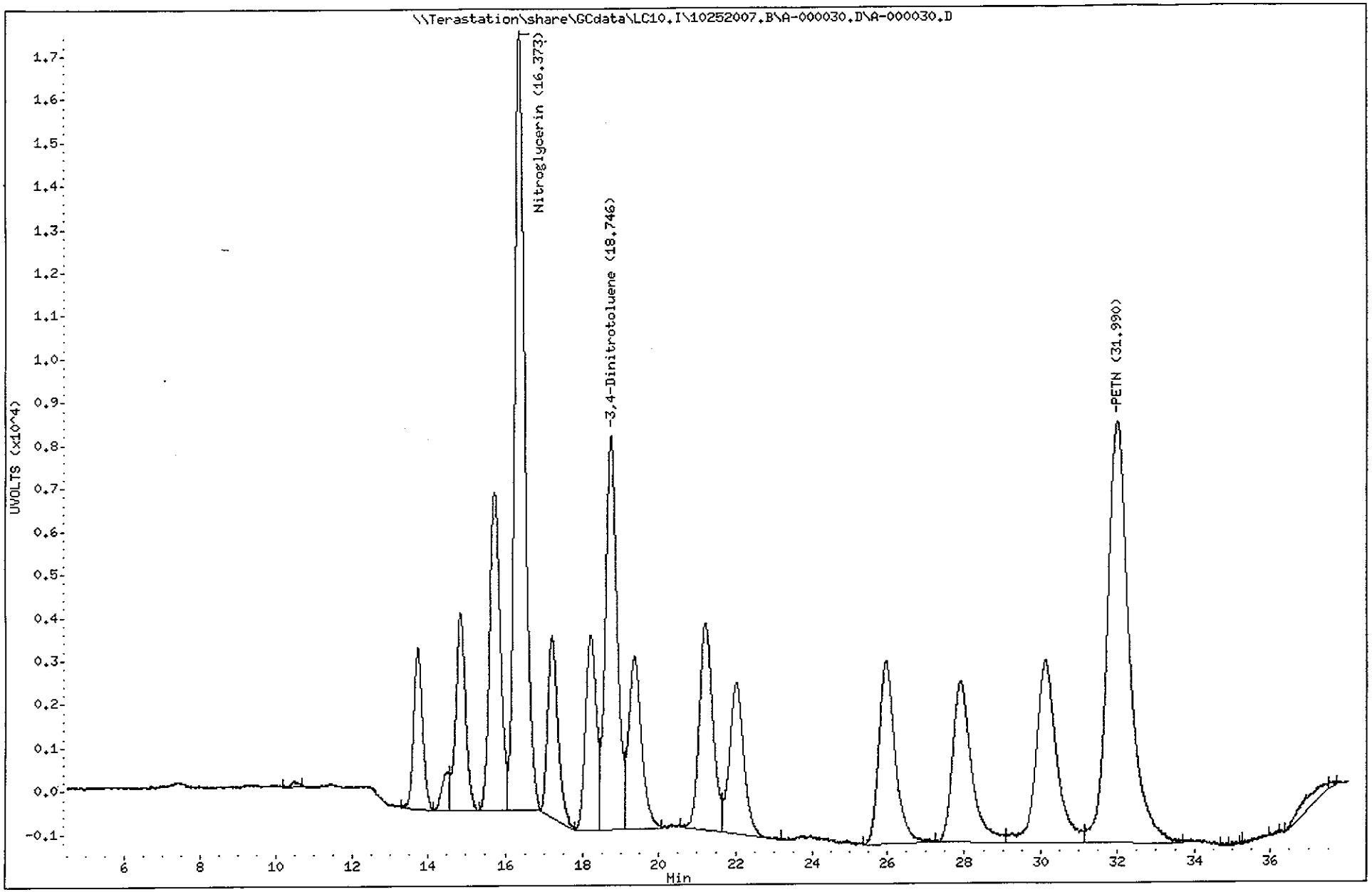
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
10.473	1852	148	0.080	0.17	
13.716	60996	3710	0.061	4.26	
14.503	12963	911	0.070	1.04	
14.846	81259	4555	0.056	5.23	
15.733	140121	7367	0.053	8.46	
16.373	330442	18039	0.055	20.83	1 Nitroglycerin
17.223	77921	4173	0.054	4.79	
18.213	86538	4483	0.052	5.15	
18.746	196179	9105	0.046	10.46	$ 13 3,4-Dinitrotoluene
19.380	95533	3974	0.042	4.56	
21.233	114202	4746	0.042	5.45	
22.003	90032	3473	0.039	3.99	
25.983	127119	4211	0.033	4.83	
27.916	123901	3716	0.030	4.27	
30.113	159111	4197	0.026	4.82	
31.990	384345	9739	0.025	11.19	2 PETN
34.846	416	56	0.134	0.06	
35.110	585	55	0.094	0.06	
35.946	1434	28	0.020	0.03	
36.193	624	75	0.120	0.08	
37.470	14090	130	0.009	0.14	
37.586	1081	115	0.106	0.13	
	2100746	87006		100.000	

Total unknown % height = 57.52

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000030.D\A-000030.D
Date : 26-OCT-2007 19:40
Client ID:
Sample Info: J748R1DTD 7285667 A7J030104-1MSD:3
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000034.D

Chromatography Summary

Injection Date: 10/26/2007 23:12 **Operator:** KenneyF

DataFile: LC10.B\10252007.B\A-000034.D **Vial Num:** 6

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.B\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.71	4774	96.3100<	100	-4%	Acceptable		18.72	9534	100.0000	100	0%	Acceptable		(±15)	
HMX	5.27	13088	99.8800<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.95	8099	101.9000<	100	2%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.31	17021	206.2000	200	3%	Acceptable		9.31	25092	206.6000<	200	3%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.48	14839	99.6600<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.69	14145	99.0100<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.84	8681	95.7400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.71	6385	98.3200<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.20	8848	99.1700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.19	6480	98.8900<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.35	7352	98.3600<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.20	5143	97.9600<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.99	8436	98.7900<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.92	3556	97.9000<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.87	4282	97.5400<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.07	4161	98.1800<	100	-2%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.36	7769	103.6000<	100	4%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.98	3861	96.4100<	100	-4%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:45 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

	RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
	5.271	81883	13088	0.160	9.66		4	HMX
	6.277	470	43	0.091	0.03			
	7.947	89353	8099	0.091	5.97		5	RDX
	9.307	240755	17021	0.071	12.66		6	Picric ACID
	10.481	201533	14839	0.074	10.95		7	1,3,5-Trinitrobenze
	13.691	248300	14145	0.057	10.44		8	1,3-Dinitrobenzene
	14.837	154043	8681	0.056	6.40		9	TETRYL
	15.714	128252	6385	0.050	4.71		10	Nitrobenzene
	17.204	176782	8848	0.050	6.53		11	2,4,6-Trinitrotolue
	18.187	134093	6480	0.048	4.78		12	4-AM-2,6-DNT
	18.711	101881	4774	0.047	3.52	$	13	3,4-Dinitrotoluene
	19.354	178248	7352	0.041	5.42		14	2-AM-4,6-DNT
	20.617	197	28	0.142	0.02			
	21.201	120566	5143	0.043	3.79		15	2,6-Dinitrotoluene
	21.987	220929	8436	0.038	6.22		16	2,4-Dinitrotoluene
	24.827	473	32	0.068	0.02			
	25.924	105377	3556	0.034	2.62		17	2-Nitrotoluene
	27.867	136211	4282	0.031	3.16		18	4-Nitrotoluene
	30.067	142366	4161	0.029	3.07		19	3-Nitrotoluene
	34.967	685	52	0.076	0.03			
		2462396	135445		100.000			

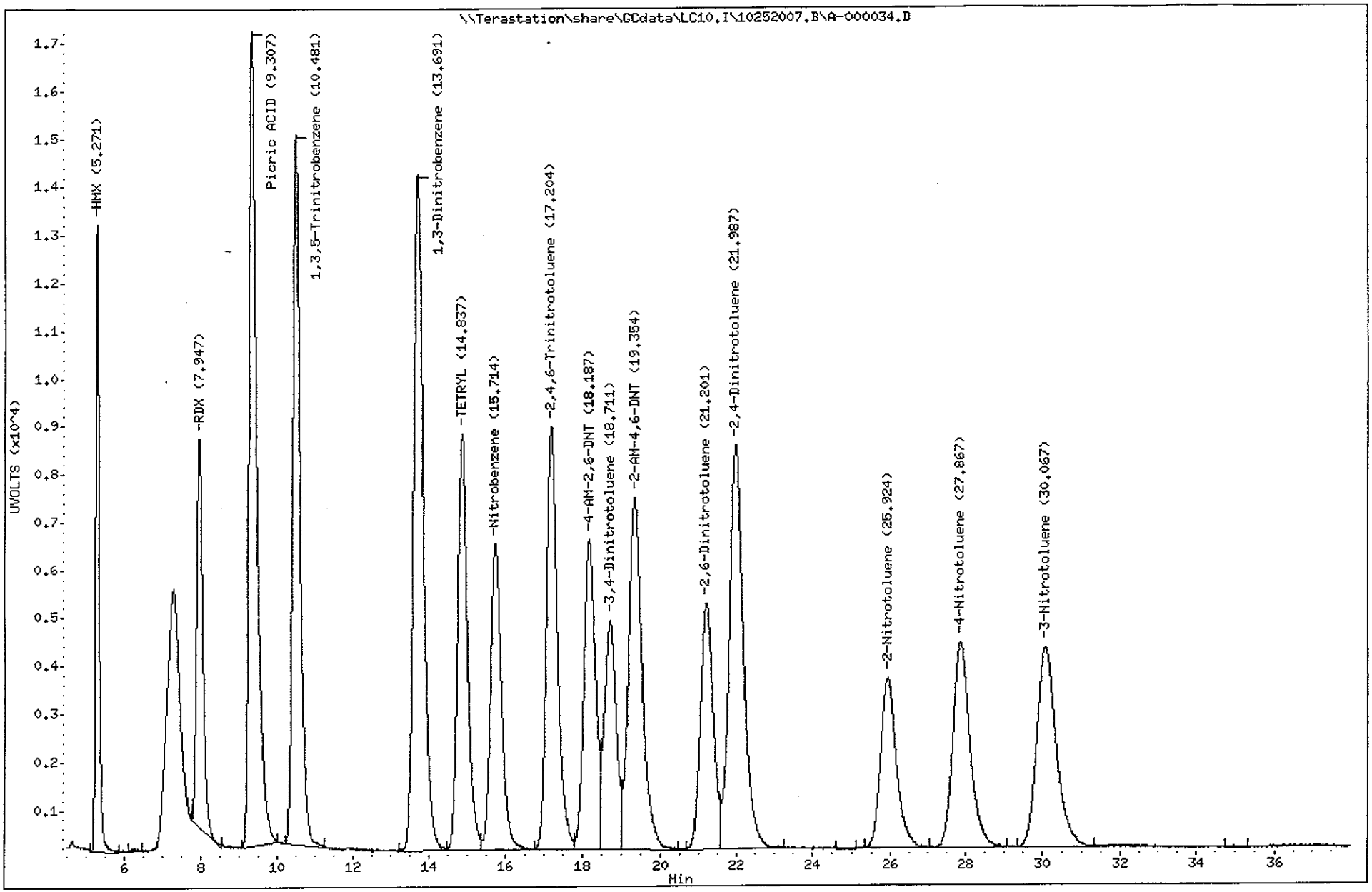
Total unknown % height = 0.1000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D
Date : 26-OCT-2007 23:12
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000034.D
Report Date: 27-Oct-2007 00:01

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 26-OCT-2007 23:12
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:01 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

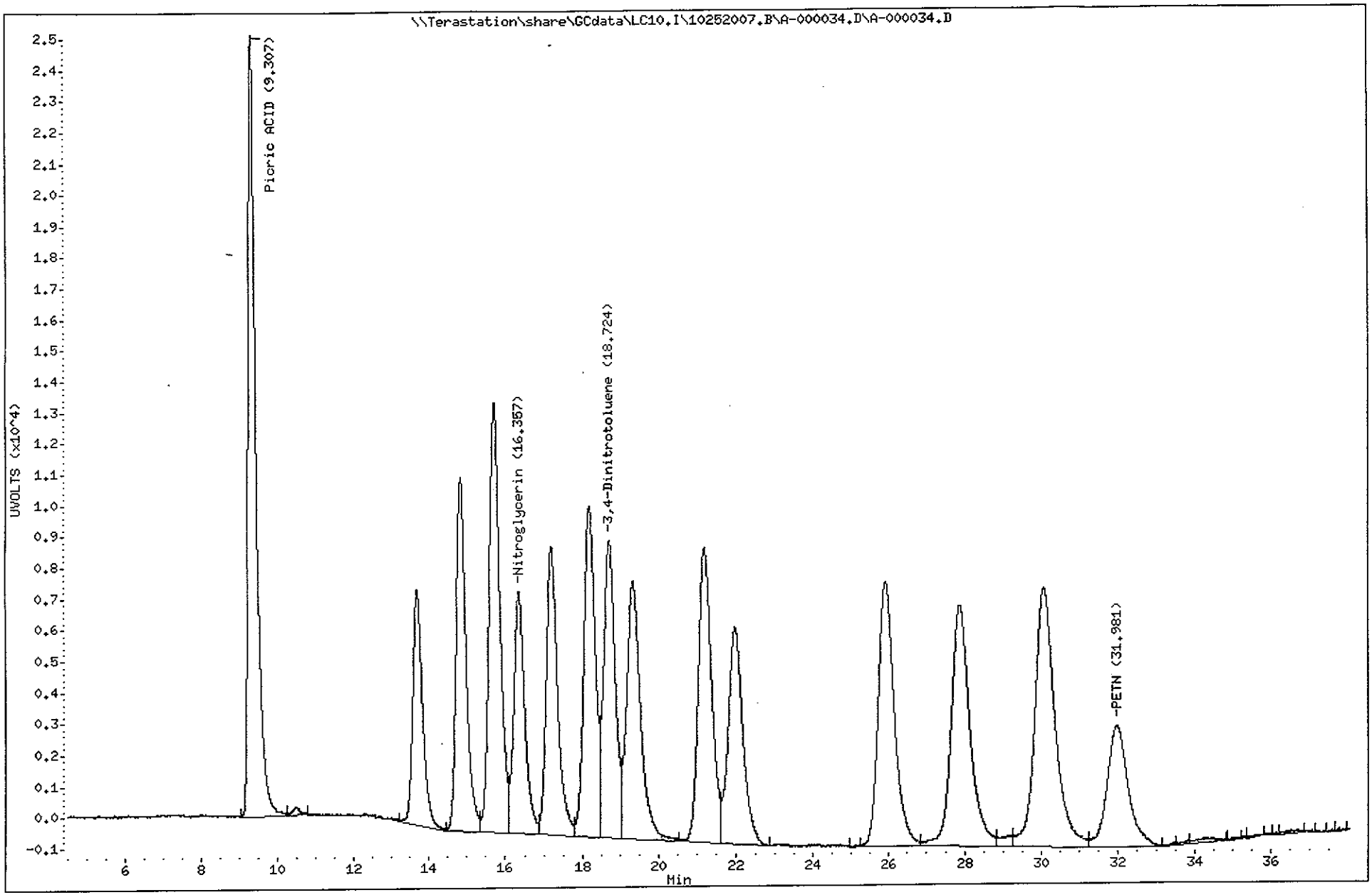
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.307	356809	25092	0.070	16.91	6 Picric ACID
10.484	3368	246	0.073	0.16	
13.691	135654	7548	0.056	5.04	
14.841	204837	11374	0.056	7.60	
15.714	271549	13794	0.051	9.22	
16.357	152251	7769	0.051	5.19	1 Nitroglycerin
17.204	190106	9277	0.049	6.20	
18.187	220659	10587	0.048	7.08	
18.724	205087	9534	0.046	6.37	$ 13 3,4-Dinitrotoluene
19.351	207290	8242	0.040	5.51	
21.217	224660	9449	0.042	6.31	
21.984	180691	6952	0.038	4.64	
25.144	524	71	0.135	0.04	
25.924	255692	8499	0.033	5.68	
27.847	264369	7731	0.029	5.17	
29.231	8166	375	0.046	0.25	
30.064	306654	8314	0.027	5.56	
31.981	147097	3861	0.026	2.58	2 PETN
33.444	565	81	0.143	0.05	
33.817	1293	116	0.090	0.07	
34.331	4822	144	0.030	0.09	
35.011	964	89	0.092	0.05	
35.777	1274	34	0.027	0.02	
36.144	437	66	0.151	0.04	
36.531	2252	109	0.048	0.07	
37.194	553	47	0.085	0.03	
37.564	340	55	0.162	0.03	
37.824	534	70	0.131	0.04	
	3348495	149526		100.000	

Total unknown % height = 68.95

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000034.D\A-000034.D
Date : 26-OCT-2007 23:12
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Chromatography Summary

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Matrix: NONE SubList: EXPWDNA.sub SpikeList:

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

Injection Date: 10/27/2007 0:05 Operator: KenneyF

DataFile: LC10.I\10252007.B\A-000035.D Vial Num: 5

Instrument ID: LC10

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.71**	**960**	**19.3700<**	~~20~~ 5	**287%**	**Fails**	-30	18.69	**1809**	**18.9700**	**5**	**279%**	**Fails**		(±15)	
HMX	5.27	668	5.0980<	5	2%	Acceptable					5	-100%	Fails		(±15)	45
RDX	7.93	366	4.6040<	5	-8%	Acceptable					5	-100%	Fails		(±15)	45
Picric ACID	**9.33**	**4284**	**51.9000**	~~50~~ 10	**419%**	**Fails**	+40%	9.33	**6310**	**51.9400<**	**10**	**419%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.47	743	4.9900<	5	0%	Acceptable					5	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.69	735	5.1450<	5	3%	Acceptable					5	-100%	Fails		(±15)	45
TETRYL	14.81	446	4.9190<	5	-2%	Acceptable					5	-100%	Fails		(±15)	45
Nitrobenzene	15.70	339	5.2200<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.18	478	5.3580<	5	7%	Acceptable					5	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.17	347	5.2960<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.32	400	5.3510<	5	7%	Acceptable					5	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.18	283	5.3900<	5	8%	Acceptable					5	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.95	440	5.1530<	5	3%	Acceptable					5	-100%	Fails		(±15)	45
2-Nitrotoluene	25.93	192	5.2860<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
4-Nitrotoluene	27.85	239	5.4440<	5	9%	Acceptable					5	-100%	Fails		(±15)	45
3-Nitrotoluene	30.03	206	4.8600<	5	-3%	Acceptable					5	-100%	Fails		(±15)	45
Nitroglycerin				**5**	**-100%**	**Fails**		16.31	**1517**	**20.2200<**	20 5	**304%**	**Fails**	+10%	(±15)	45
PETN				**5**	**-100%**	**Fails**		31.93	**828**	**20.6800<**	20 5	**314%**	**Fails**	+30%	(±15)	45
3,5-Dinitroaniline				**5**	**-100%**	**Fails**						**5**	**-100%**	**Fails**	(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:45 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.267	4219	668	0.158	5.88		4 HMX
7.927	3479	366	0.105	3.22		5 RDX
9.333	61272	4284	0.070	37.88		6 Picric ACID
10.470	9790	743	0.076	6.54		7 1,3,5-Trinitrobenze
11.257	124	34	0.274	0.29		
13.687	13389	735	0.055	6.47		8 1,3-Dinitrobenzene
14.807	8483	446	0.053	3.93		9 TETRYL
15.697	7215	339	0.047	2.98		10 Nitrobenzene
17.177	10094	478	0.047	4.21		11 2,4,6-Trinitrotolue
18.166	6956	347	0.050	3.05		12 4-AM-2,6-DNT
18.710	20419	960	0.047	8.45	$	13 3,4-Dinitrotoluene
19.320	10101	400	0.040	3.52		14 2-AM-4,6-DNT
20.673	226	46	0.204	0.40		
21.180	6721	283	0.042	2.49		15 2,6-Dinitrotoluene
21.947	11060	440	0.040	3.87		16 2,4-Dinitrotoluene
25.277	504	39	0.077	0.34		
25.930	5499	192	0.035	1.69		17 2-Nitrotoluene
27.053	135	26	0.192	0.22		
27.853	8502	239	0.028	2.10		18 4-Nitrotoluene
29.097	297	31	0.104	0.27		
29.530	162	19	0.117	0.16		
30.033	5612	206	0.037	1.81		19 3-Nitrotoluene
31.597	130	27	0.208	0.23		
	194389	11348		100.000		

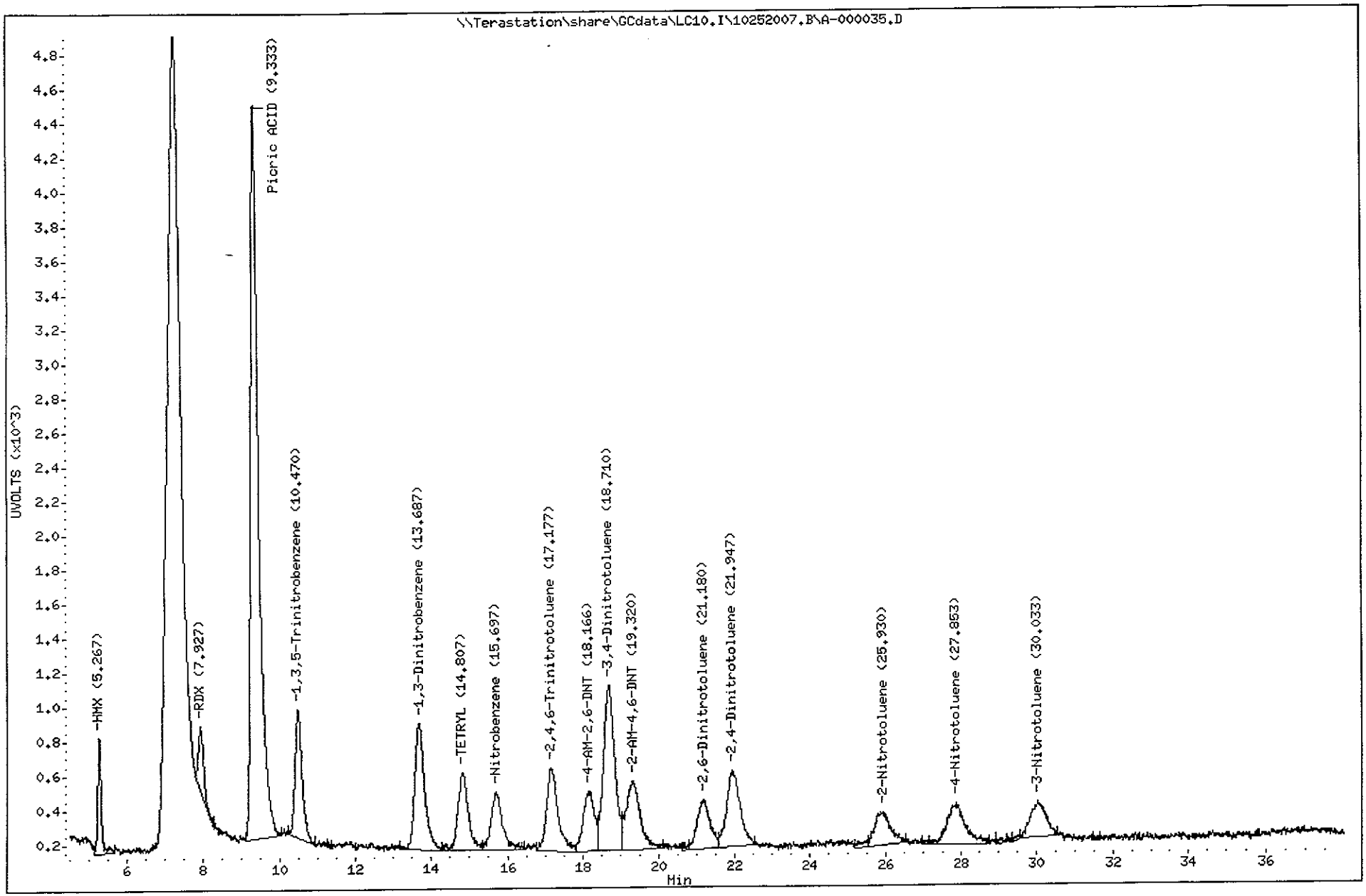
Total unknown % height = 1.910

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D
Date : 27-OCT-2007 00:05
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 00:05
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 00:54 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

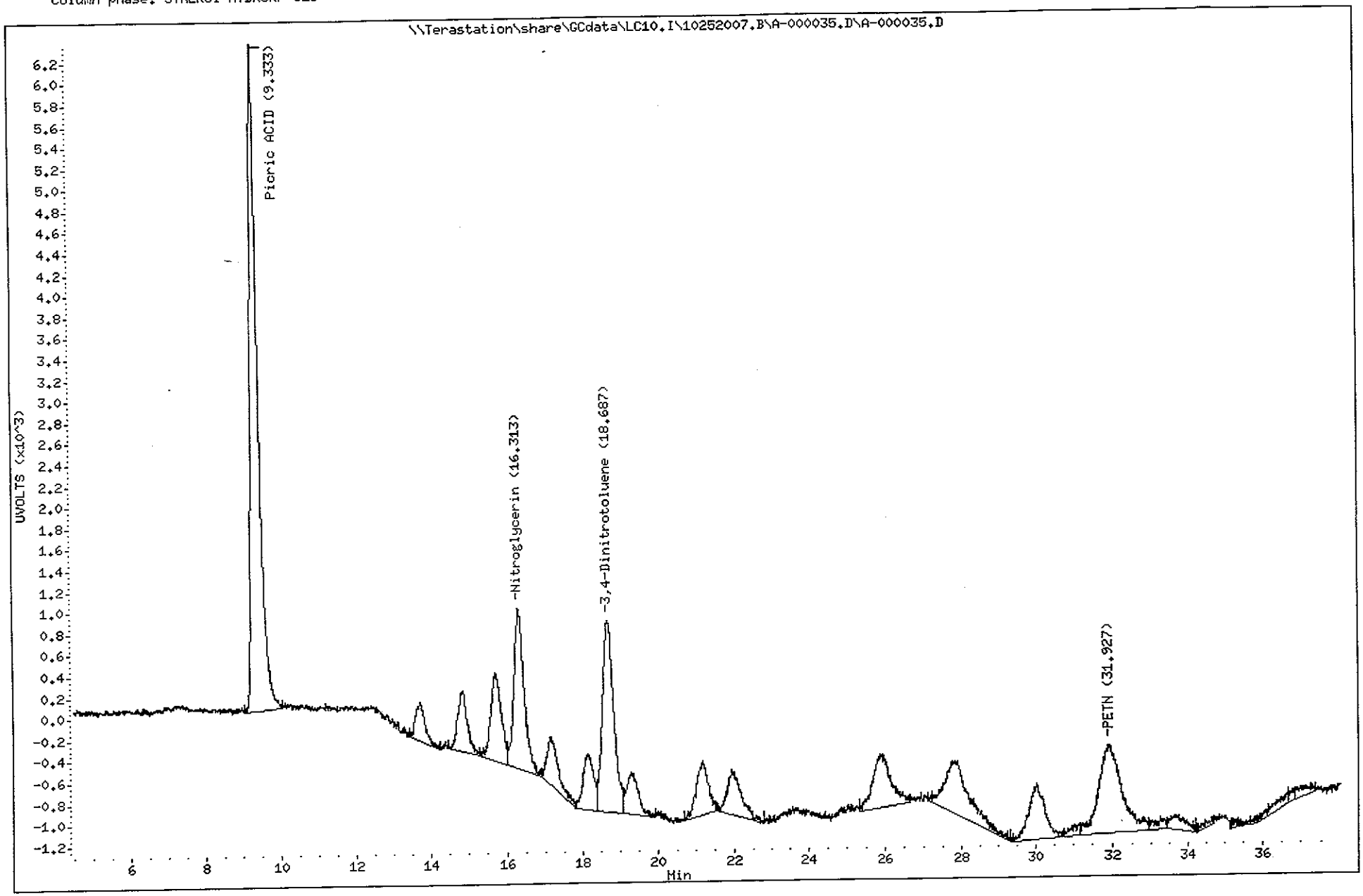
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
9.333	89466	6310	0.071	36.85		6 Picric ACID
13.700	6397	360	0.056	2.09		
14.843	10172	586	0.058	3.41		
15.707	16386	844	0.052	4.91		
16.313	28380	1517	0.053	8.83		1 Nitroglycerin
17.143	9725	454	0.047	2.64		
18.157	10530	529	0.050	3.07		
18.687	37270	1809	0.049	10.52	$	13 3,4-Dinitrotoluene
19.297	8761	394	0.045	2.29		
21.183	10998	511	0.046	2.97		
21.940	11015	423	0.038	2.46		
25.863	16562	500	0.030	2.91		
27.177	168	65	0.386	0.37		
27.820	22897	497	0.022	2.89		
30.040	16153	537	0.033	3.12		
31.023	1855	112	0.060	0.65		
31.927	33277	828	0.025	4.81		2 PETN
33.236	1980	116	0.059	0.67		
33.730	4062	142	0.035	0.82		
34.440	420	49	0.117	0.28		
34.663	606	71	0.117	0.41		
35.187	569	94	0.165	0.54		
35.640	501	47	0.094	0.27		
35.790	393	71	0.181	0.41		
36.627	3243	101	0.031	0.58		
36.823	806	106	0.131	0.61		
36.993	1911	107	0.056	0.62		
	344503	17180		100.000		

Total unknown % height = 38.99

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000035.D\A-000035.D
Date : 27-OCT-2007 00:05
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Chromatography Summary

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Matrix: NONE SubList: EXPWDNA.sub SpikeList:

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

Injection Date: 10/27/2007 8:04 Operator: KenneyF

DataFile: LC10.I\10252007.B\A-000044.D Vial Num: 6

Instrument ID: LC10

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.68	4811	97.0600<	100	-3%	Acceptable		18.68	9312	97.6700	100	-2%	Acceptable		(±15)	
HMX	5.27	13109	100.0000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
RDX	7.94	8195	103.1000<	100	3%	Acceptable					100	-100%	Fails		(±15)	45
Picric ACID	9.30	17078	206.9000	200	3%	Acceptable		9.30	25153	207.0000<	200	4%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.47	14926	100.2000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.67	14216	99.5000<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
TETRYL	14.82	8708	96.0400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitrobenzene	15.69	6285	96.7800<	100	-3%	Acceptable					100	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.17	8904	99.8000<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.15	6537	99.7600<	100	0%	Acceptable					100	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.30	7405	99.0700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.16	5175	98.5700<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.94	8489	99.4100<	100	-1%	Acceptable					100	-100%	Fails		(±15)	45
2-Nitrotoluene	25.86	3487	96.0000<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
4-Nitrotoluene	27.79	4222	96.1800<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
3-Nitrotoluene	30.01	4066	95.9400<	100	-4%	Acceptable					100	-100%	Fails		(±15)	45
Nitroglycerin				100	-100%	Fails		16.32	7628	101.7000<	100	2%	Acceptable		(±15)	45
PETN				100	-100%	Fails		31.88	4066	101.5000<	100	2%	Acceptable		(±15)	45
3,5-Dinitroaniline				100	-100%	Fails					100	-100%	Fails		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 08:52 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.265	81313	13109	0.161	9.66		4 HMX
6.219	480	39	0.081	0.02		
7.935	90605	8195	0.090	6.04		5 RDX
9.295	243490	17078	0.070	12.68		6 Picric ACID
10.469	203591	14926	0.073	11.00		7 1,3,5-Trinitrobenze
13.672	249006	14216	0.057	10.47		8 1,3-Dinitrobenzene
14.815	154270	8708	0.056	6.41		9 TETRYL
15.685	125279	6285	0.050	4.63		10 Nitrobenzene
17.169	177738	8904	0.050	6.56		11 2,4,6-Trinitrotolue
18.149	135374	6537	0.048	4.81		12 4-AM-2,6-DNT
18.682	100892	4811	0.048	3.54	$	13 3,4-Dinitrotoluene
19.302	180044	7405	0.041	5.45		14 2-AM-4,6-DNT
21.162	121144	5175	0.043	3.81		15 2,6-Dinitrotoluene
21.935	221681	8489	0.038	6.25		16 2,4-Dinitrotoluene
25.855	103452	3487	0.034	2.57		17 2-Nitrotoluene
27.789	134855	4222	0.031	3.11		18 4-Nitrotoluene
30.005	138871	4066	0.029	2.99		19 3-Nitrotoluene
	2462085	135652		100.000		

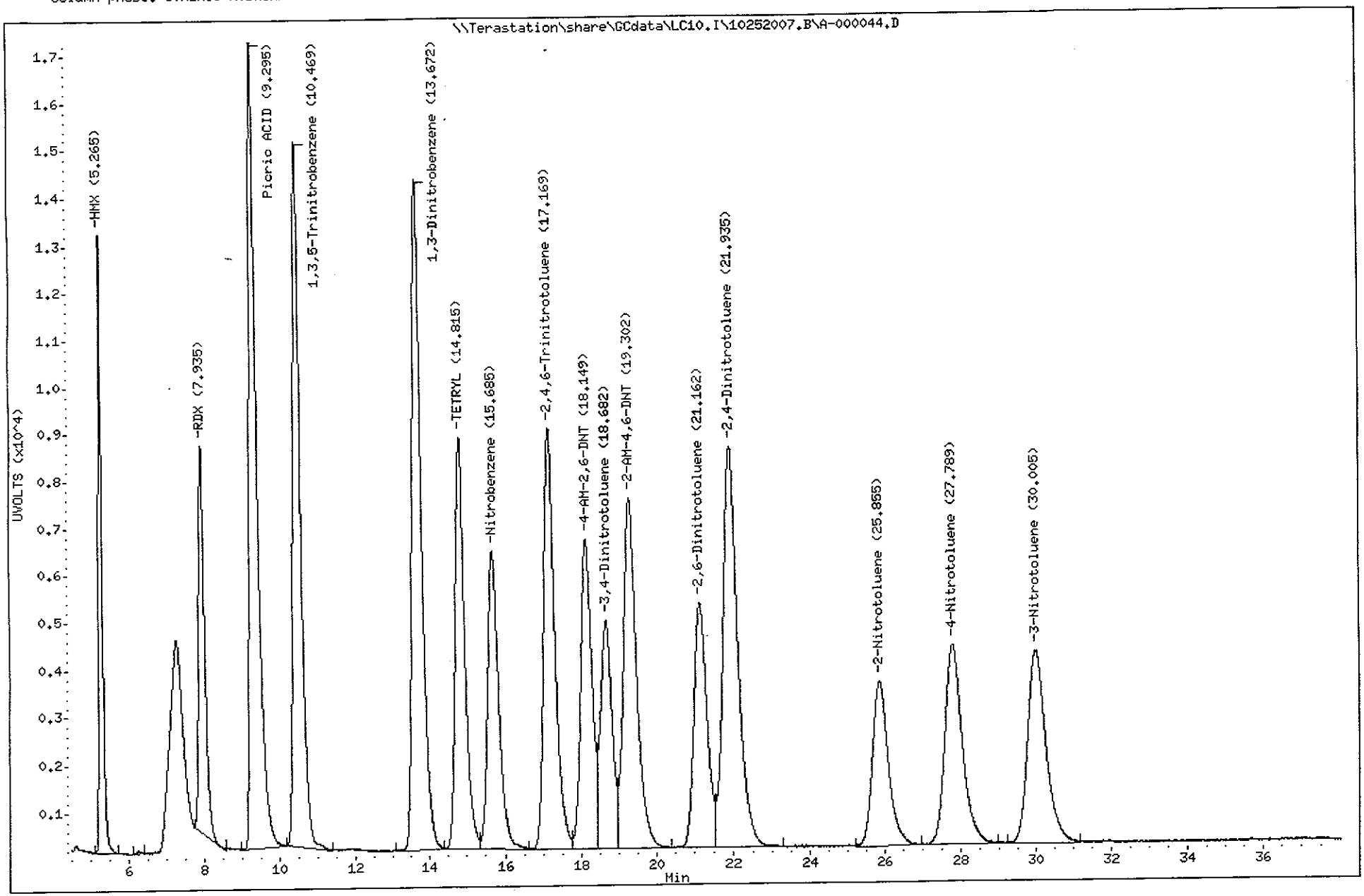
Total unknown % height = 0.02000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D
Date : 27-OCT-2007 08:04
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 08:04
Operator : KenneyF
Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 08:52 tap
Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59
Cal File: A-000011.d
Als bottle: 6
Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+
Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.295	359763	25153	0.070	17.13	6 Picric ACID
10.435	3718	239	0.064	0.16	
13.669	131197	7480	0.057	5.05	
14.819	199955	11366	0.057	7.68	
15.689	257393	13326	0.052	9.01	
16.319	144450	7628	0.053	5.15	1 Nitroglycerin
17.172	176840	9124	0.052	6.17	
18.149	209025	10395	0.050	7.03	
18.679	196447	9312	0.047	6.29	$ 13 3,4-Dinitrotoluene
19.302	197674	8117	0.041	5.49	
21.159	224613	9485	0.042	6.41	
21.929	185414	7078	0.038	4.78	
25.079	1082	85	0.079	0.05	
25.859	255275	8366	0.033	5.65	
27.782	265474	7602	0.029	5.14	
29.202	2522	318	0.126	0.21	
29.989	304755	8221	0.027	5.56	
31.882	153801	4066	0.026	2.75	2 PETN
33.915	790	79	0.100	0.05	
34.399	773	89	0.115	0.06	
35.009	222	50	0.226	0.03	
35.399	1022	67	0.066	0.04	
35.995	261	39	0.149	0.02	
36.355	650	55	0.085	0.03	
36.815	392	51	0.130	0.03	
37.242	480	52	0.108	0.03	
	3273988	147843		100.000	

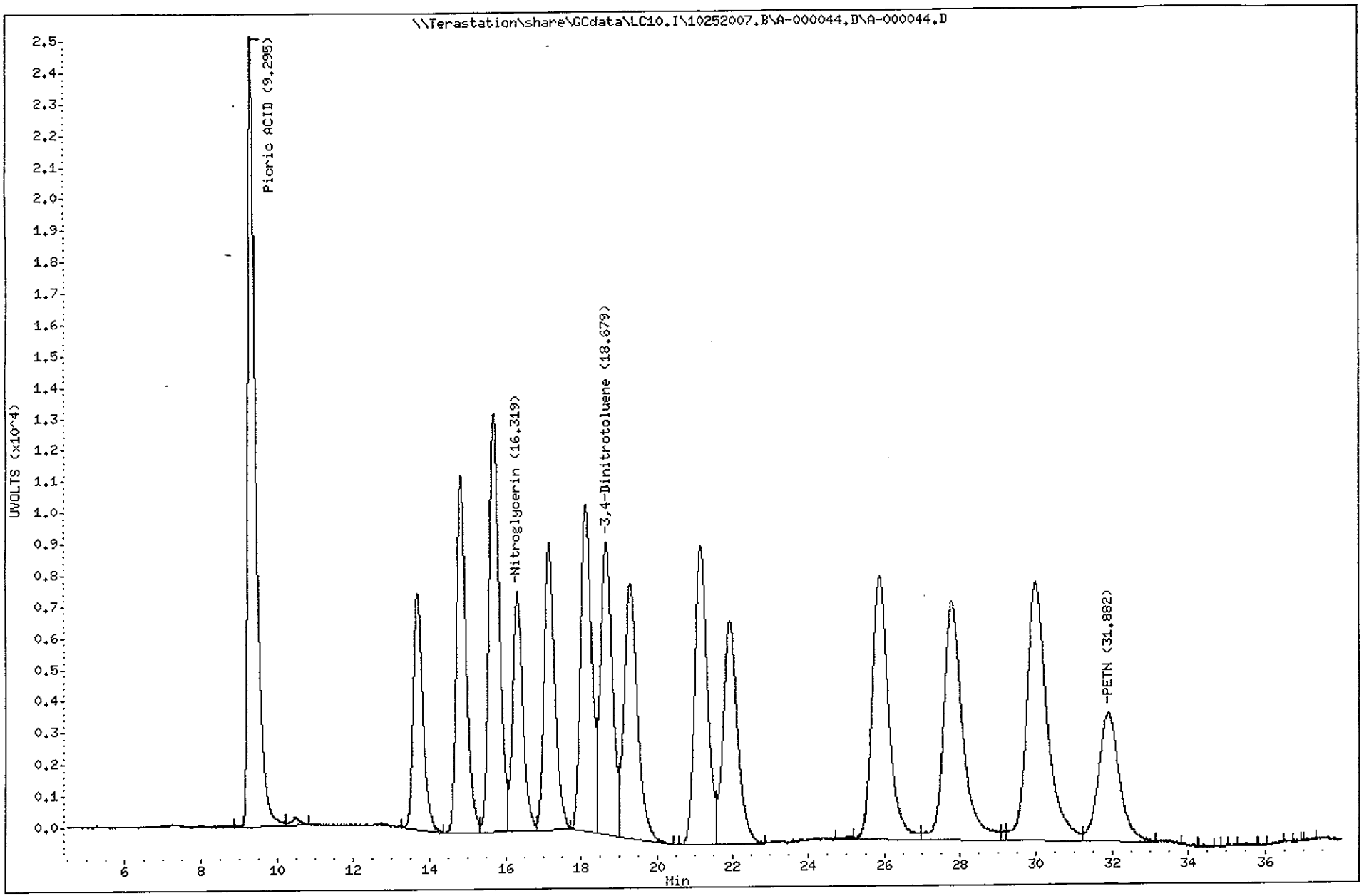
Total unknown % height = 68.68

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000044.D\A-000044.D
Date : 27-OCT-2007 08:04
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000045.D

Chromatography Summary

Injection Date: 10/27/2007 8:57 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000045.D **Vial Num:** 7

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.70	954	19.2500<	~~5~~ 20	285%	Fails	-40%	18.70	1857	19.4800	5	290%	Fails		(±15)	
HMX	5.27	653	4.9830<	5	0%	Acceptable					5	-100%	Fails		(±15)	45
RDX	7.93	349	4.3900<	5	-12%	Acceptable					5	-100%	Fails		(±15)	45
Picric ACID	9.33	4234	51.2900	~~10~~ 20	413%	Fails	+30%	9.33	6265	51.5700<	10	416%	Fails		(±15)	
1,3,5-Trinitrobenzene	10.47	763	5.1240<	5	2%	Acceptable					5	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.66	749	5.2430<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
TETRYL	14.80	460	5.0730<	5	1%	Acceptable					5	-100%	Fails		(±15)	45
Nitrobenzene	15.68	353	5.4360<	5	9%	Acceptable					5	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.14	475	5.3240<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.12	358	5.4640<	5	9%	Acceptable					5	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.32	408	5.4580<	5	9%	Acceptable					5	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.15	288	5.4860<	5	10%	Acceptable					5	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	21.93	469	5.4920<	5	10%	Acceptable					5	-100%	Fails		(±15)	45
2-Nitrotoluene	25.88	211	5.8090<	5	16%	Fails					5	-100%	Fails		(±15)	45
4-Nitrotoluene	27.79	247	5.6270<	5	13%	Acceptable					5	-100%	Fails		(±15)	45
3-Nitrotoluene	29.97	58	1.3680<	5	-73%	Fails					5	-100%	Fails		(±15)	45
Nitroglycerin				5	-100%	Fails		16.32	1539	20.5200<	20	310%	Fails +30%		(±15)	45
PETN				5	-100%	Fails		31.89	897	22.4000<	20	348%	Fails +120%		(±15)	45
3,5-Dinitroaniline				5	-100%	Fails					5	-100%	Fails		(±15)	

10/27/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/27/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57 Inst ID: LC10.i
Operator : KenneyF
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.269	3813	653	0.171	5.75		4 HMX
5.842	222	27	0.122	0.23		
7.926	3427	349	0.102	3.07		5 RDX
9.332	60399	4234	0.070	37.42		6 Picric ACID
10.466	10152	763	0.075	6.72		7 1,3,5-Trinitrobenze
11.492	207	33	0.160	0.29		
12.219	377	31	0.082	0.27		
13.662	13283	749	0.056	6.60		8 1,3-Dinitrobenzene
14.802	8356	460	0.055	4.05		9 TETRYL
15.682	7318	353	0.048	3.11		10 Nitrobenzene
16.542	529	40	0.076	0.35		
17.142	9963	475	0.048	4.18		11 2,4,6-Trinitrotolue
18.122	7030	358	0.051	3.15		12 4-AM-2,6-DNT
18.702	20732	954	0.046	8.40	$	13 3,4-Dinitrotoluene
19.319	10873	408	0.038	3.59		14 2-AM-4,6-DNT
20.402	725	39	0.054	0.34		
21.146	7419	288	0.039	2.53		15 2,6-Dinitrotoluene
21.932	13309	469	0.035	4.13		16 2,4-Dinitrotoluene
23.392	340	31	0.091	0.27		
25.876	5808	211	0.036	1.85		17 2-Nitrotoluene
27.026	564	36	0.064	0.31		
27.789	9273	247	0.027	2.17		18 4-Nitrotoluene
29.356	330	45	0.136	0.39		
29.969	728	58	0.080	0.51		19 3-Nitrotoluene
31.362	459	37	0.081	0.32		
	195635	11348		100.000		

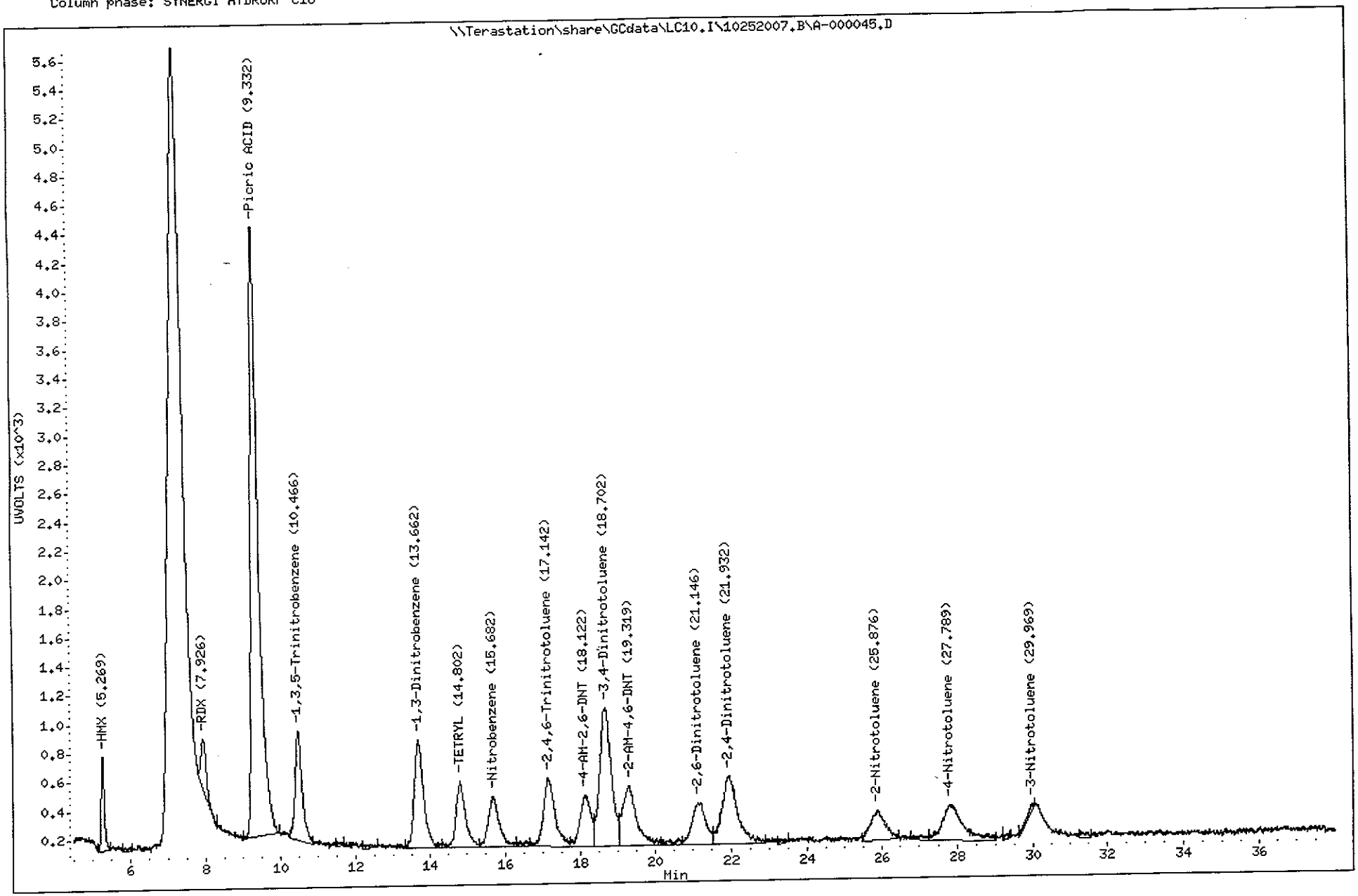
Total unknown % height = 2.770

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000045.D
Report Date: 27-Oct-2007 09:45

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 08:57 Inst ID: LC10.i
Operator : KenneyF
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 09:45 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

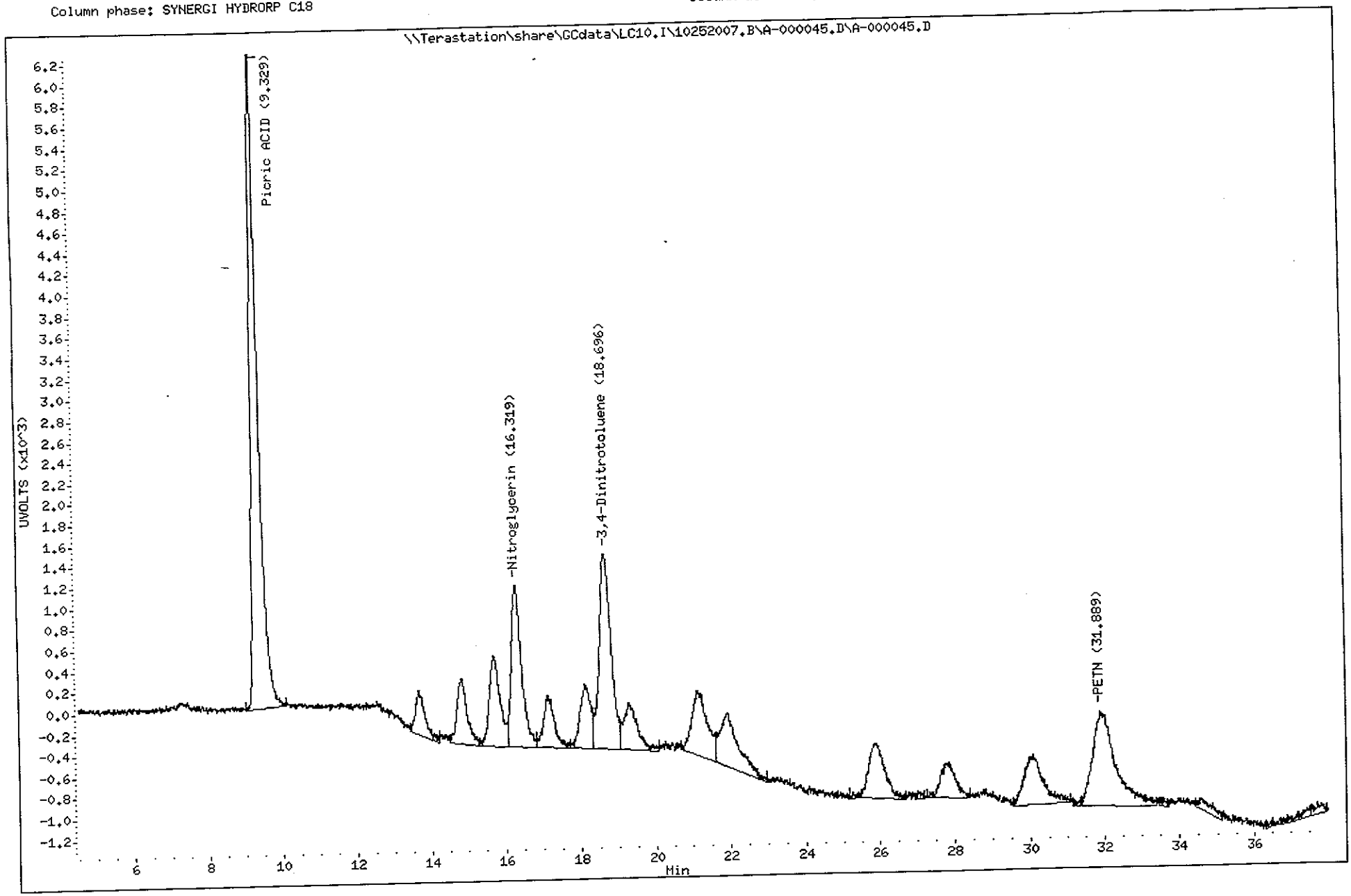
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.329	88602	6265	0.071	36.61	6 Picric ACID
13.656	7273	419	0.058	2.44	
14.826	11908	617	0.052	3.59	
15.702	18013	869	0.048	5.06	
16.319	29066	1539	0.053	8.96	1 Nitroglycerin
17.142	9628	495	0.051	2.88	
18.119	11296	602	0.053	3.50	
18.696	40081	1857	0.046	10.81	$ 13 3,4-Dinitrotoluene
19.282	10914	441	0.040	2.56	
21.132	17708	608	0.034	3.54	
21.949	17658	518	0.029	3.01	
25.412	406	46	0.113	0.26	
25.906	15992	521	0.033	3.03	
27.026	407	68	0.167	0.39	
27.869	9431	341	0.036	1.98	
30.059	16375	478	0.029	2.78	
31.889	38362	897	0.023	5.22	2 PETN
33.506	587	85	0.145	0.49	
34.542	2604	98	0.038	0.57	
36.456	358	50	0.140	0.29	
36.686	674	71	0.105	0.41	
37.176	706	78	0.111	0.45	
37.402	1118	87	0.078	0.50	
37.699	1478	116	0.079	0.67	
	350644	17166		100.000	

Total unknown % height = 38.40

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000045.D\A-000045.D
Date : 27-OCT-2007 08:57
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000051.D

Chromatography Summary

Injection Date: 10/27/2007 14:15 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000051.D **Vial Num:** 51

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **J8FKF1A4 7285667 A7J080104-1**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**

Samp. Info: J8FKF1A4 7285667 A7J080104-1;0

Misc. Info: ; ; ;2.02;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.73**	**-0.032**	**4660**	**1862.0000<**		**18.72**	**-0.035**	**9353**	**1942.0000**		**0.0000**	**0.00**	
HMX											29.7030	247.52	
RDX											39.6040	247.52	
Picric ACID											247.5248	990.10	
1,3,5-Trinitrobenzene											19.8020	247.52	
1,3-Dinitrobenzene											49.5050	247.52	
TETRYL											49.5050	247.52	
Nitrobenzene											49.5050	247.52	
2,4,6-Trinitrotoluene											19.8020	247.52	
4-AM-2,6-DNT											19.8020	247.52	
2-AM-4,6-DNT											99.0099	247.52	
2,6-Dinitrotoluene											29.7030	247.52	
2,4-Dinitrotoluene											19.8020	247.52	
2-Nitrotoluene											79.2079	247.52	
4-Nitrotoluene											79.2079	247.52	
3-Nitrotoluene											69.3069	247.52	
Nitroglycerin											128.7129	495.05	
PETN											158.4158	495.05	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**1980.1980**	**1862.0000**	**94**	**1980.1980**	**1942.0000**	**98**	**(84-127)**

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/30/2007 9:42 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000051.D
Lab Smp Id: J8FKF1A4 7285667 A7
Inj Date : 27-OCT-2007 14:15
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKF1A4 7285667 A7J080104-1;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 51
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

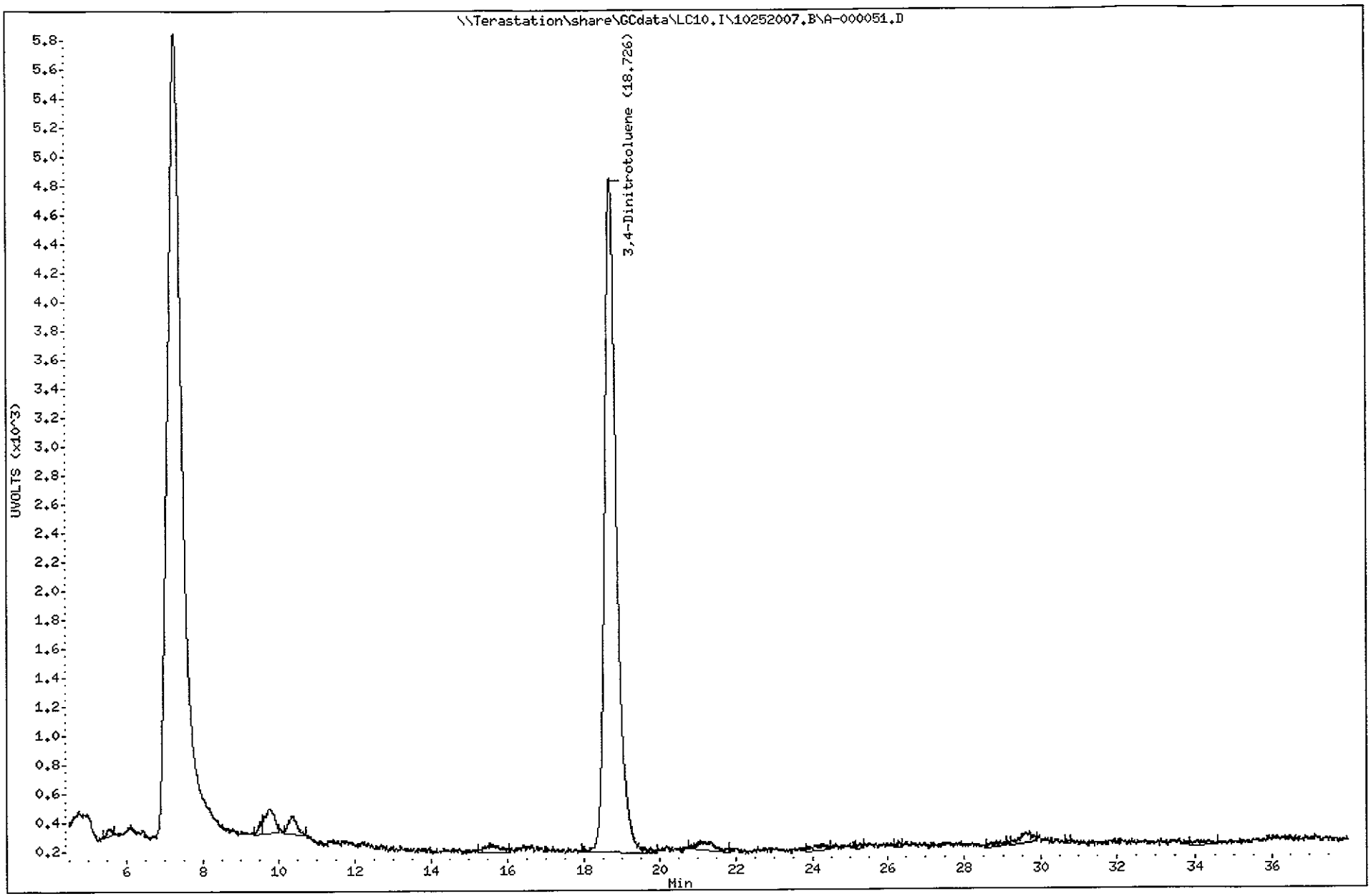
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.536	493	57	0.116	1.03	
9.552	543	84	0.155	1.52	
9.759	2929	169	0.058	3.07	
10.332	1997	122	0.061	2.21	
15.536	1695	65	0.038	1.18	
18.726	101769	4660	0.046	84.78	$ 13 3,4-Dinitrotoluene
21.072	1952	64	0.033	1.16	
24.092	893	42	0.047	0.76	
25.296	189	30	0.159	0.54	
26.296	216	40	0.186	0.72	
28.709	637	38	0.060	0.69	
29.586	1586	66	0.042	1.20	
30.676	117	25	0.213	0.45	
34.036	804	38	0.047	0.69	
	115820	5500		100.000	

Total unknown % height = 15.22

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000051.D
Date : 27-OCT-2007 14:15
Client ID:
Sample Info: J8FKF1A4 7285667 A7J080104-1;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000051.D\A-000051
Lab Smp Id: J8FKF1A4 7285667 A7
Inj Date : 27-OCT-2007 14:15
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKF1A4 7285667 A7J080104-1;0
Misc Info : ; ; ;2.02;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 51
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.020	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

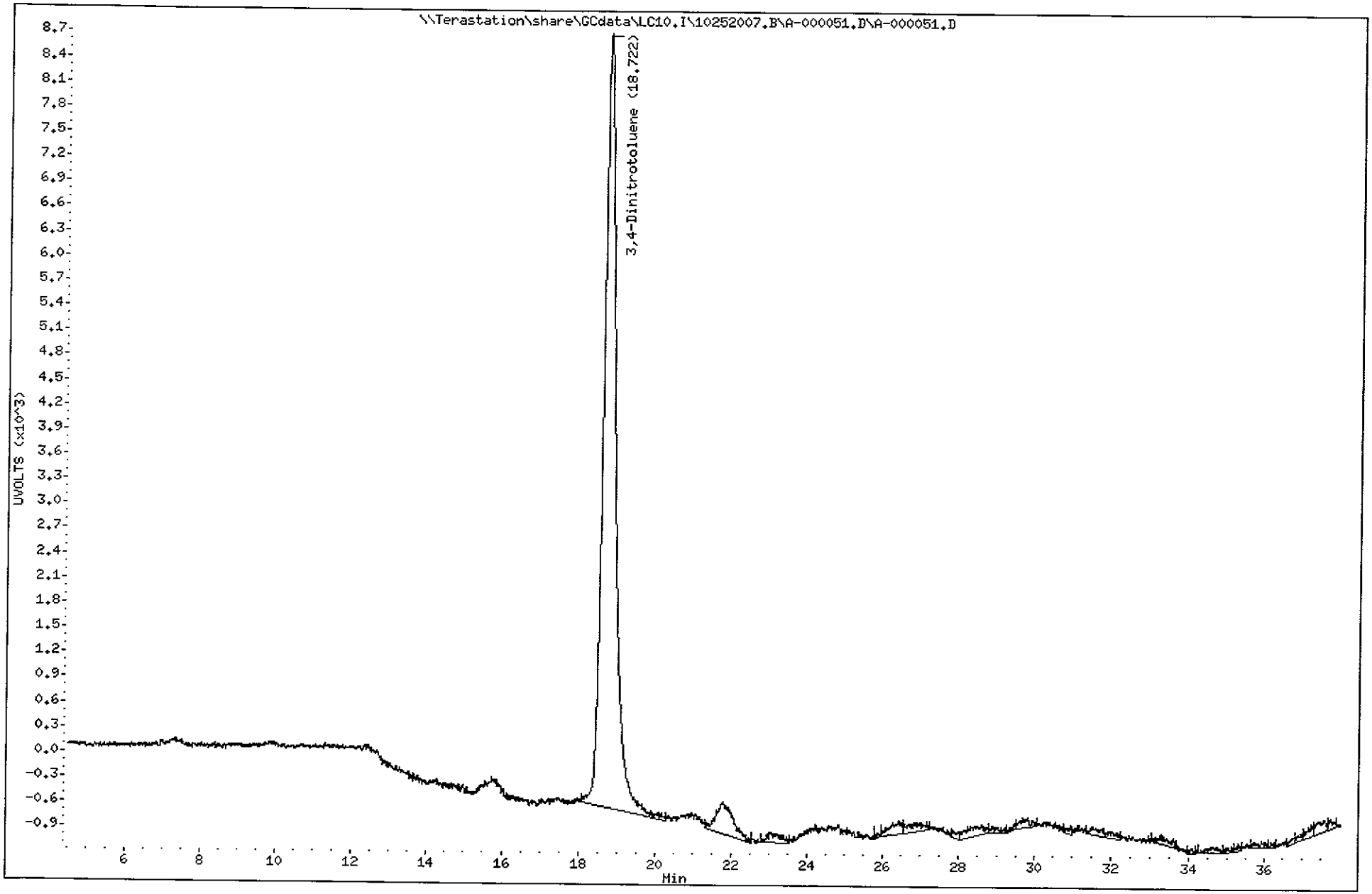
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.722	208472	9353	0.045	79.03	$ 13 3,4-Dinitrotoluene
21.792	11896	379	0.032	3.19	
23.026	2887	120	0.042	1.01	
25.979	339	46	0.136	0.38	
26.429	3728	153	0.041	1.29	
26.906	3032	112	0.037	0.94	
27.849	746	78	0.105	0.65	
28.489	3680	113	0.031	0.95	
28.876	1186	84	0.071	0.70	
29.476	540	70	0.130	0.59	
29.802	2320	119	0.051	1.00	
30.876	532	61	0.115	0.51	
31.509	3068	95	0.031	0.80	
33.266	2174	110	0.051	0.92	
34.079	346	59	0.171	0.49	
34.592	1162	71	0.061	0.59	
34.976	601	64	0.107	0.53	
35.289	494	87	0.176	0.73	
35.692	1257	71	0.057	0.59	
36.176	396	70	0.177	0.59	
36.749	542	74	0.137	0.62	
36.966	634	84	0.132	0.70	
37.239	1536	133	0.087	1.12	
37.492	2296	129	0.056	1.08	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
37.722	1024	119	0.116	1.00	
	254886	11854		100.000	

Total unknown % height = 20.97

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000051.D\A-000051.D
Date : 27-OCT-2007 14:15
Client ID:
Sample Info: J8FKF1A4 7285667 A7J080104-1;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

A-000052.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 15:08 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000052.D **Vial Num:** 52
Instrument ID: LC10

Sample : **J8FKG1AF 7285667 A7J080104-2**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J8FKG1AF7285667 A7J080104-2;0
Misc. Info: ; ; ;2.08;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.72**	**-0.017**	**4621**	**1793.0000<**		**18.72**	**-0.040**	**9153**	**1846.0000**		**0.0000**	**0.00**	
HMX											28.8462	240.38	
RDX											38.4615	240.38	
Picric ACID											240.3846	961.54	
1,3,5-Trinitrobenzene	10.36	-0.127	158	20.4100<							19.2308	240.38	45
1,3-Dinitrobenzene											48.0769	240.38	
TETRYL											48.0769	240.38	
Nitrobenzene											48.0769	240.38	
2,4,6-Trinitrotoluene											19.2308	240.38	
4-AM-2,6-DNT											19.2308	240.38	
2-AM-4,6-DNT											96.1538	240.38	
2,6-Dinitrotoluene											28.8462	240.38	
2,4-Dinitrotoluene											19.2308	240.38	
2-Nitrotoluene											76.9231	240.38	
4-Nitrotoluene											76.9231	240.38	
3-Nitrotoluene											67.3077	240.38	
Nitroglycerin											125.0000	480.77	
PETN											153.8462	480.77	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1923.0769**	**1793.0000**	**93**	**1923.0769**	**1846.0000**	**96**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000052.D
Lab Smp Id: J8FKG1AF 7285667 A7
Inj Date : 27-OCT-2007 15:08
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKG1AF 7285667 A7J080104-2;0
Misc Info : ; ; ;2.08;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 52
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

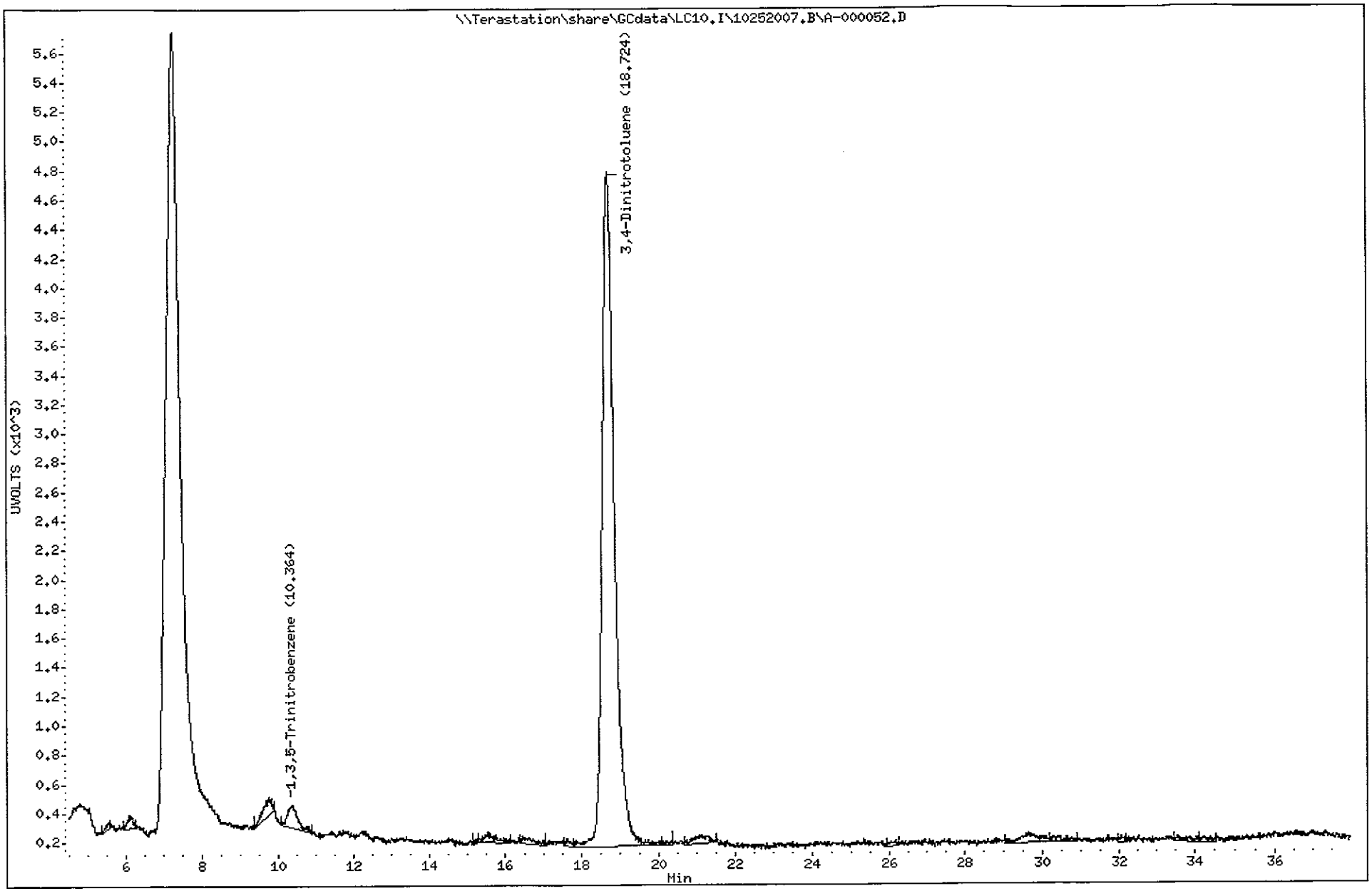
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.524	288	44	0.153	0.78	
6.087	829	86	0.104	1.53	
9.687	1707	114	0.067	2.04	
10.364	2955	158	0.053	2.82	7 1,3,5-Trinitrobenze
15.231	89	26	0.291	0.46	
15.534	1224	67	0.055	1.19	
16.447	1055	53	0.050	0.94	
17.644	401	51	0.127	0.91	
18.724	101338	4621	0.046	82.81	$ 13 3,4-Dinitrotoluene
20.371	284	40	0.141	0.71	
21.134	1491	56	0.038	1.00	
26.031	376	36	0.096	0.64	
29.644	2205	76	0.034	1.36	
30.391	797	40	0.050	0.71	
32.047	299	45	0.151	0.80	
33.544	674	35	0.052	0.62	
34.224	519	38	0.073	0.68	
	116532	5586		100.000	

Total unknown % height = 14.37

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000052.D
Date : 27-OCT-2007 15:08
Client ID:
Sample Info: J8FKG1AF 7285667 A7J080104-2:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000052.D\A-000052
Lab Smp Id: J8FKG1AF 7285667 A7
Inj Date : 27-OCT-2007 15:08
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKG1AF 7285667 A7J080104-2;0
Misc Info : ; ; ;2.08;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 52
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.080	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
18.717	195887	9153	0.047	83.38	$ 13 3,4-Dinitrotoluene
21.754	4593	226	0.049	2.05	
25.031	527	56	0.106	0.50	
25.237	304	75	0.247	0.68	
25.601	1047	64	0.061	0.58	
26.171	333	52	0.156	0.47	
26.344	316	54	0.171	0.49	
27.607	701	92	0.131	0.83	
29.351	275	56	0.203	0.50	
29.587	521	91	0.175	0.82	
30.037	473	95	0.201	0.86	
30.281	574	70	0.122	0.63	
30.714	2371	99	0.042	0.90	
31.527	638	51	0.080	0.46	
31.677	1577	92	0.058	0.83	
32.407	582	62	0.106	0.56	
32.877	903	54	0.060	0.49	
34.084	179	84	0.470	0.76	
34.374	1883	104	0.055	0.94	
35.417	678	72	0.106	0.65	
35.801	906	71	0.078	0.64	
36.221	162	40	0.247	0.36	
36.447	385	53	0.138	0.48	
36.637	558	73	0.131	0.66	

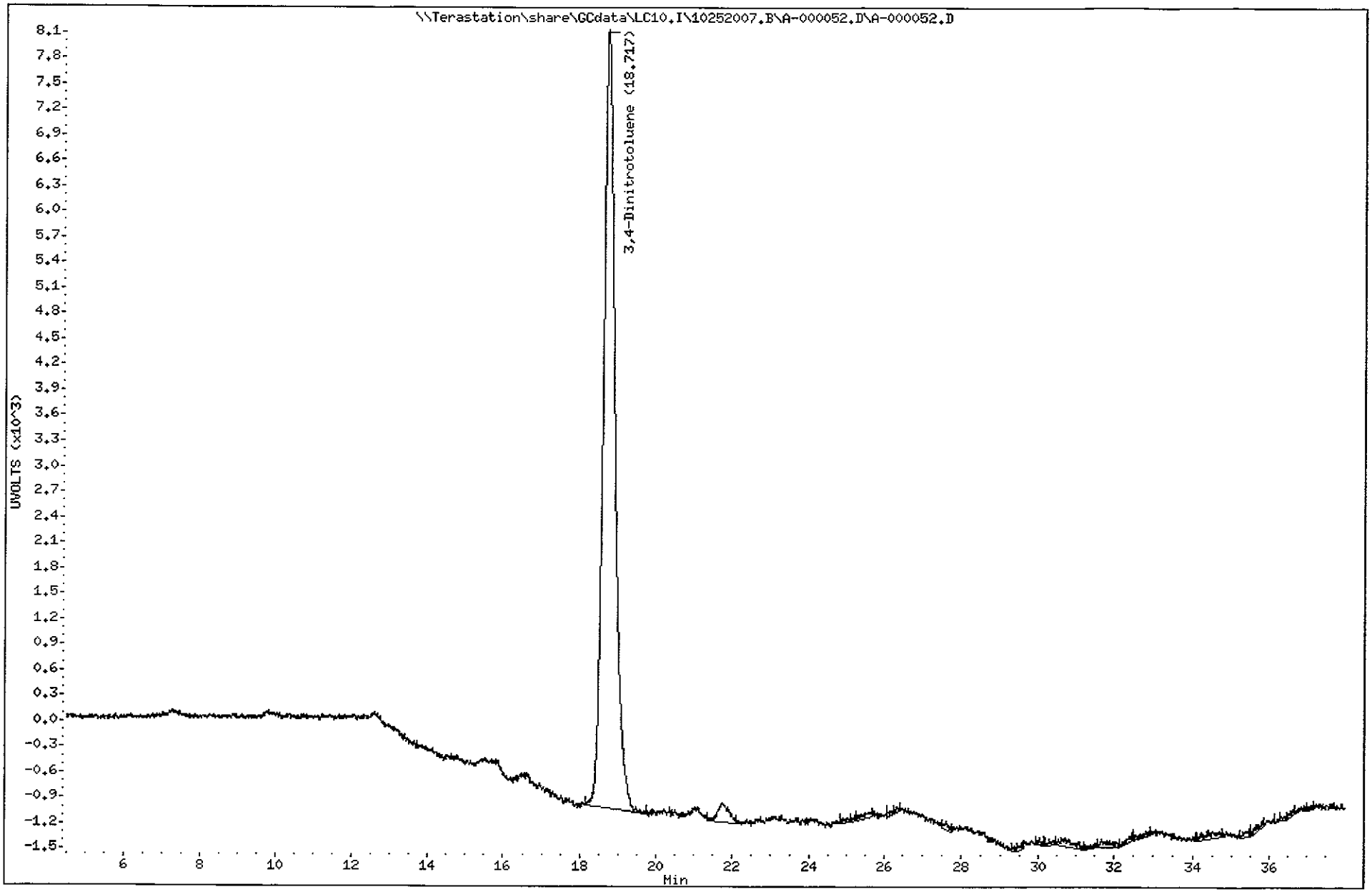
Data File: A-000052.D
Report Date: 27-Oct-2007 15:57

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
37.117	344	53	0.154	0.48	
	216718	10992		100.000	

Total unknown % height = 16.62

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000052.D\A-000052.D
Date : 27-OCT-2007 15:08
Client ID:
Sample Info: J8FKG1AF 7285667 A7J080104-2;0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000053.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/27/2007 16:01 **Operator:** KenneyF
DataFile: LC10.I\10252007.B\A-000053.D **Vial Num:** 53
Instrument ID: LC10

Sample : **J8FKH1AF 7285667 A7J080104-3**

Method File: LC10.I\10252007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	40 mL	0 mL	2 g

Matrix: SOIL **SubList:** EXPS.sub **SpikeList:**
Samp. Info: J8FKH1AF 7285667 A7J080104-3;0
Misc. Info: ; ; ;2.04;40;2;EXPS.sub; ;0;1;0

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**RT**	**Diff**	**Response**	**Conc (ug/Kg)**	**Flag**	**MDL**	**RL**	**Flag**
3,4-Dinitrotoluene	**18.75**	**0.011**	**4588**	**1815.0000<**		**18.75**	**-0.006**	**9225**	**1897.0000**		**0.0000**	**0.00**	
HMX											29.4118	245.10	
RDX											39.2157	245.10	
Picric ACID											245.0980	980.39	
1,3,5-Trinitrobenzene	10.38	-0.113	259	34.1100<							19.6078	245.10	45
1,3-Dinitrobenzene											49.0196	245.10	
TETRYL											49.0196	245.10	
Nitrobenzene											49.0196	245.10	
2,4,6-Trinitrotoluene											19.6078	245.10	
4-AM-2,6-DNT											19.6078	245.10	
2-AM-4,6-DNT											98.0392	245.10	
2,6-Dinitrotoluene	21.36	0.121	124	46.3100<							29.4118	245.10	45
2,4-Dinitrotoluene											19.6078	245.10	
2-Nitrotoluene											78.4314	245.10	
4-Nitrotoluene											78.4314	245.10	
3-Nitrotoluene											68.6275	245.10	
Nitroglycerin											127.4510	490.20	
PETN											156.8627	490.20	

Surrogates:	**Spiked**	**Recovered**	**%Rec**	**Spiked**	**Recovered**	**%Rec**	**Limits**
3,4-Dinitrotoluene	**1960.7843**	**1815.0000**	**93**	**1960.7843**	**1897.0000**	**97**	**(84-127)**

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000053.D
Lab Smp Id: J8FKH1AF 7285667 A7
Inj Date : 27-OCT-2007 16:01
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKH1AF 7285667 A7J080104-3;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 53
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

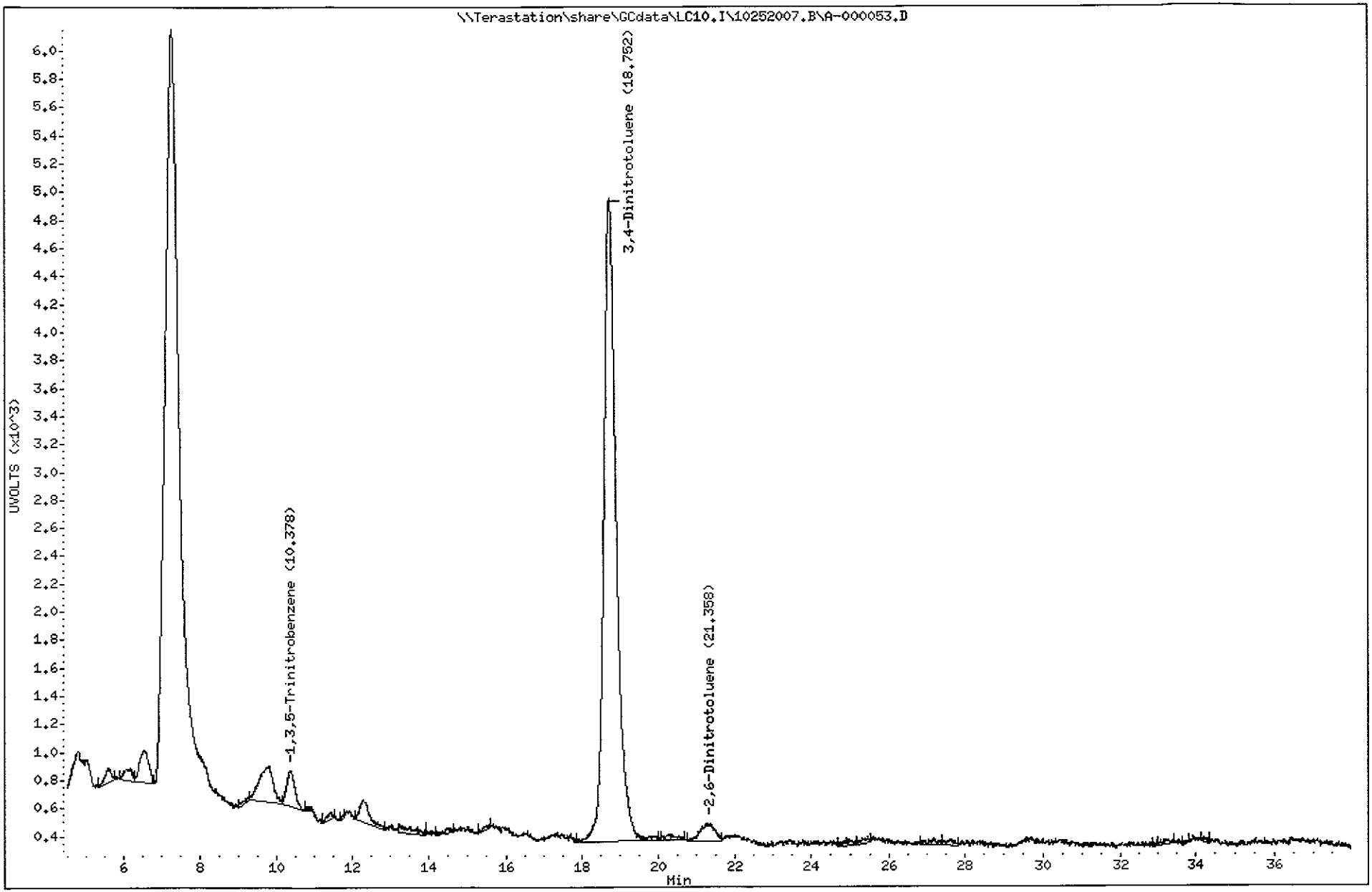
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.578	1210	101	0.083	1.59		
6.068	1280	81	0.063	1.27		
6.518	3821	231	0.060	3.63		
9.228	333	25	0.075	0.39		
9.795	6328	249	0.039	3.92		
10.378	3916	259	0.066	4.08	7	1,3,5-Trinitrobenze
11.335	530	49	0.092	0.77		
11.748	93	29	0.310	0.45		
12.272	2874	156	0.054	2.45		
13.245	1163	53	0.046	0.83		
14.555	437	32	0.073	0.50		
15.505	366	30	0.082	0.47		
18.752	102385	4588	0.045	72.40	$ 13	3,4-Dinitrotoluene
20.305	860	41	0.048	0.64		
21.358	3222	124	0.038	1.95	15	2,6-Dinitrotoluene
24.912	586	49	0.084	0.77		
25.358	417	38	0.091	0.59		
27.182	748	49	0.065	0.77		
27.605	742	45	0.061	0.70		
32.955	123	36	0.292	0.56		
33.145	473	34	0.072	0.53		
33.805	149	17	0.114	0.26		
34.192	211	31	0.147	0.48		
	132269	6347		100.000		

Total unknown % height = 21.57

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000053.D
Date : 27-OCT-2007 16:01
Client ID:
Sample Info: J8FKH1AF 7285667 A7J080104-3:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

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Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000053.D\A-000053
Lab Smp Id: J8FKH1AF 7285667 A7
Inj Date : 27-OCT-2007 16:01
Operator : KenneyF Inst ID: LC10.i
Smp Info : J8FKH1AF 7285667 A7J080104-3;0
Misc Info : ; ; ;2.04;40;2;EXPS.sub; ;0;1;0
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 12:45 kenneyf Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 53
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPS.sub
Target Version: 4.14
Processing Host: SACP307HPLC

Concentration Formula: Amt * DF * Uf*Vt / Ws * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Unit Correction Factor
Vt	40.000	Volume of final extract (mL)(1000 low, 2
Ws	2.040	Weight of sample extracted (g)
Cpnd Variable		Local Compound Variable

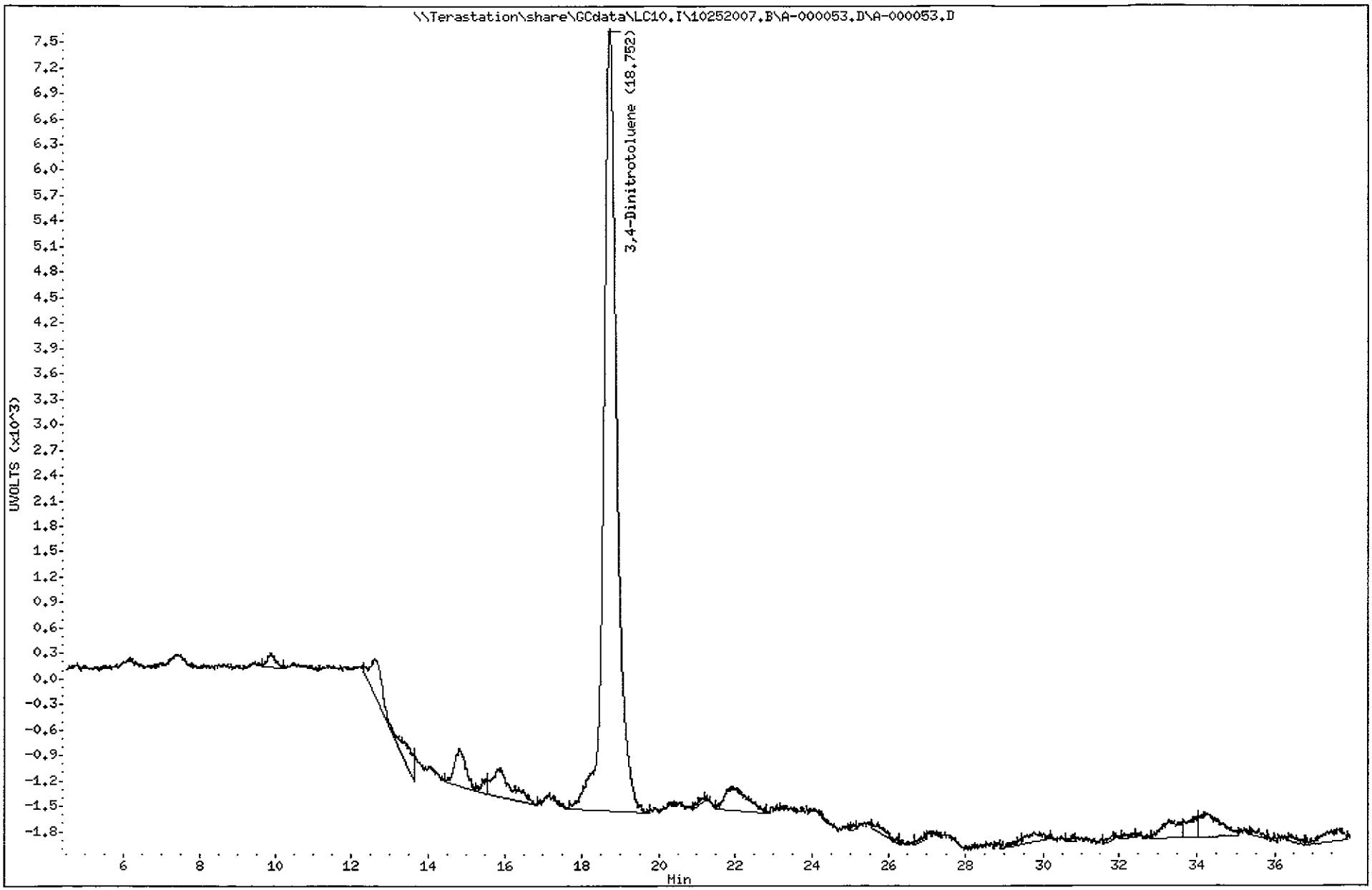
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.858	2472	174	0.070	1.33	
12.608	15304	439	0.029	3.36	
14.785	9391	448	0.048	3.43	
15.495	1705	178	0.104	1.36	
15.895	12217	342	0.028	2.62	
18.752	217273	9225	0.042	70.85	$ 13 3,4-Dinitrotoluene
21.108	927	82	0.088	0.62	
21.922	10804	274	0.025	2.10	
25.078	384	69	0.180	0.52	
25.708	2246	114	0.051	0.87	
26.938	529	82	0.155	0.62	
29.228	720	52	0.072	0.39	
29.418	441	108	0.245	0.82	
29.735	3167	122	0.039	0.93	
30.758	592	92	0.155	0.70	
31.822	528	54	0.102	0.41	
32.395	730	53	0.073	0.40	
33.285	6739	216	0.032	1.65	
33.992	4772	250	0.052	1.91	
34.188	9814	289	0.029	2.21	
35.352	1111	78	0.070	0.59	
35.992	214	68	0.318	0.52	
36.408	1258	95	0.075	0.72	
37.478	5048	140	0.028	1.07	

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
	308386	13044		100.000	

Total unknown % height = 29.15

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000053.D\A-000053.D
Date : 27-OCT-2007 16:01
Client ID:
Sample Info: J8FKH1AF 7285667 A7J080104-3:0
Volume Injected (uL): 500.0
Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000054.D

Chromatography Summary

Injection Date: 10/27/2007 16:55 **Operator:** KenneyF

DataFile: LC10.I\10252007.B\A-000054.D **Vial Num:** 8

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_5 E070821M 100/200/100/100ng/mL**

Method File: LC10.I\10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: STD_5 E070821M 100/200/100/100ng/mL;2

Misc. Info: ;5; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**RT**	**Response**	**PPB**	**Spike Level**	**%D**	**Result**	**Flag**	**Limits(%)**	**Flag**
3,4-Dinitrotoluene	18.74	4775	96.3300<	100	-4%	Acceptable		18.74	9264	97.1700	100	-3%	Acceptable		(±15)	
HMX	5.27	13159	100.4000<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
RDX	7.95	8116	102.1000<	100	2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Picric ACID	9.32	17024	206.2000	200	3%	Acceptable		9.32	25089	206.5000<	200	3%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.49	14834	99.6300<	100	0%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
1,3-Dinitrobenzene	13.70	14119	98.8300<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
TETRYL	14.86	8712	96.0800<	100	-4%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitrobenzene	15.73	6384	98.3100<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4,6-Trinitrotoluene	17.22	8836	99.0400<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-AM-2,6-DNT	18.22	6442	98.3100<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-AM-4,6-DNT	19.38	7333	98.1100<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,6-Dinitrotoluene	21.24	5141	97.9200<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2,4-Dinitrotoluene	22.02	8413	98.5200<	100	-1%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
2-Nitrotoluene	25.97	3539	97.4300<	100	-3%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
4-Nitrotoluene	27.89	4266	97.1800<	100	-3%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
3-Nitrotoluene	30.11	4150	97.9200<	100	-2%	Acceptable					**100**	**-100%**	**Fails**		(±15)	45
Nitroglycerin				**100**	**-100%**	**Fails**		16.37	7569	100.9000<	100	1%	Acceptable		(±15)	45
PETN				**100**	**-100%**	**Fails**		31.98	4100	102.4000<	100	2%	Acceptable		(±15)	45
3,5-Dinitroaniline				**100**	**-100%**	**Fails**					**100**	**-100%**	**Fails**		(±15)	

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/30/2007 10:15 AM

Test America West Sacramento

Method 8330

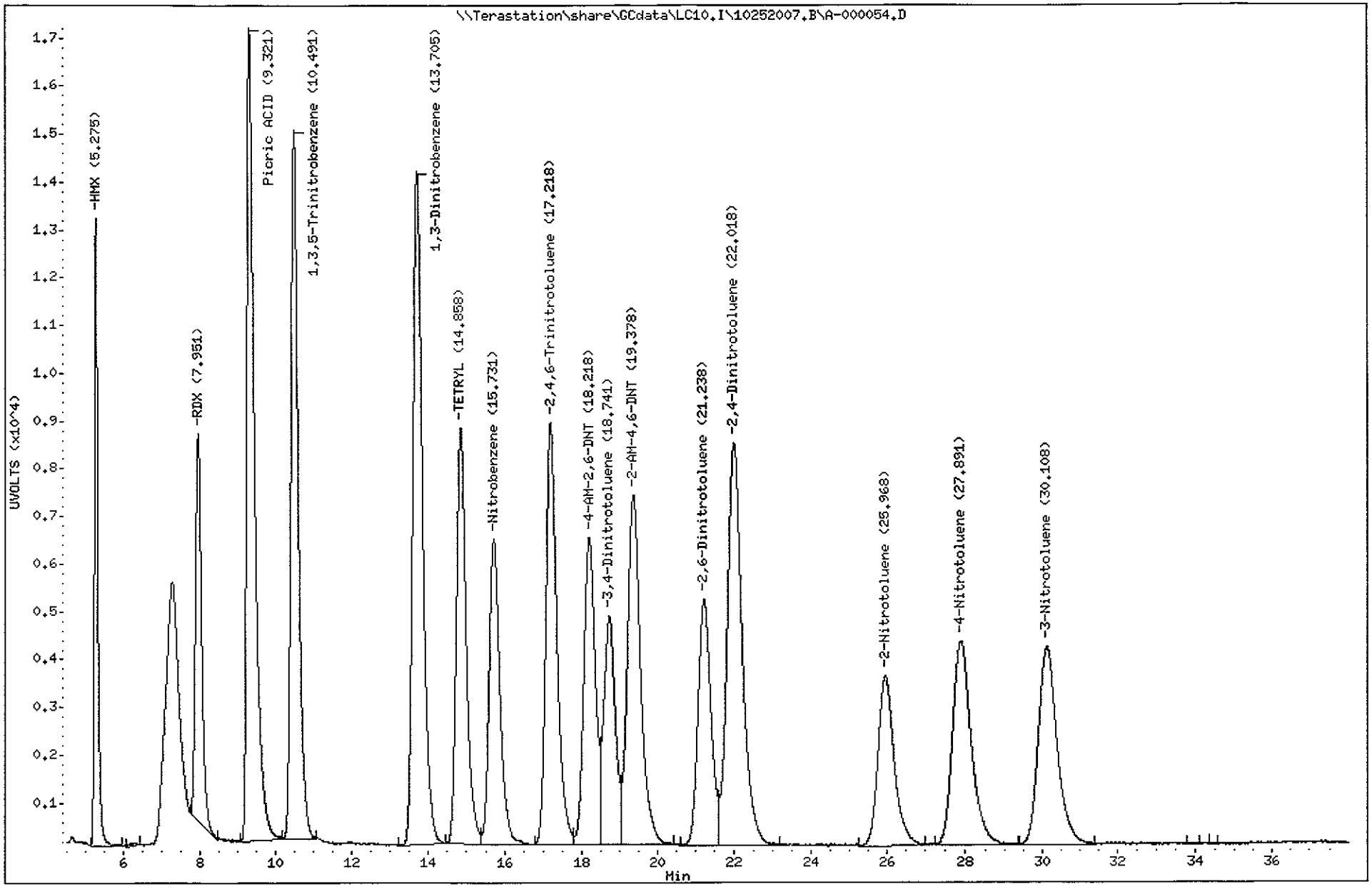
Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 16:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 17:43 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 8 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.275	81976	13159	0.161	9.72		4	HMX
6.248	610	44	0.072	0.03			
7.951	89742	8116	0.090	5.99		5	RDX
9.321	242496	17024	0.070	12.68		6	Picric ACID
10.491	200180	14834	0.074	10.95		7	1,3,5-Trinitrobenze
13.705	248325	14119	0.057	10.43		8	1,3-Dinitrobenzene
14.858	154881	8712	0.056	6.43		9	TETRYL
15.731	128642	6384	0.050	4.71		10	Nitrobenzene
17.218	177347	8836	0.050	6.52		11	2,4,6-Trinitrotolue
18.218	134355	6442	0.048	4.75		12	4-AM-2,6-DNT
18.741	100956	4775	0.047	3.52	$	13	3,4-Dinitrotoluene
19.378	180117	7333	0.041	5.41		14	2-AM-4,6-DNT
21.238	121416	5141	0.042	3.79		15	2,6-Dinitrotoluene
22.018	221118	8413	0.038	6.21		16	2,4-Dinitrotoluene
25.968	105842	3539	0.033	2.61		17	2-Nitrotoluene
27.891	137091	4266	0.031	3.15		18	4-Nitrotoluene
30.108	143880	4150	0.029	3.06		19	3-Nitrotoluene
33.915	253	32	0.127	0.02			
34.428	280	39	0.139	0.02			
	2469507	135358		100.000			

Total unknown % height = 0.07000

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D
Date : 27-OCT-2007 16:55
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL:2

Instrument: LC10.i
Operator: KenneyF
Column phase: SYNERGI HYDRORP C18
Column diameter: 4.60



TestAmerica North Canton

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D\A-000054
Lab Smp Id: STD_5 E070821M 100/
Inj Date : 27-OCT-2007 16:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E070821M 100/200/100/100ng/mL;2
Misc Info : ;5; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 17:43 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 8 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

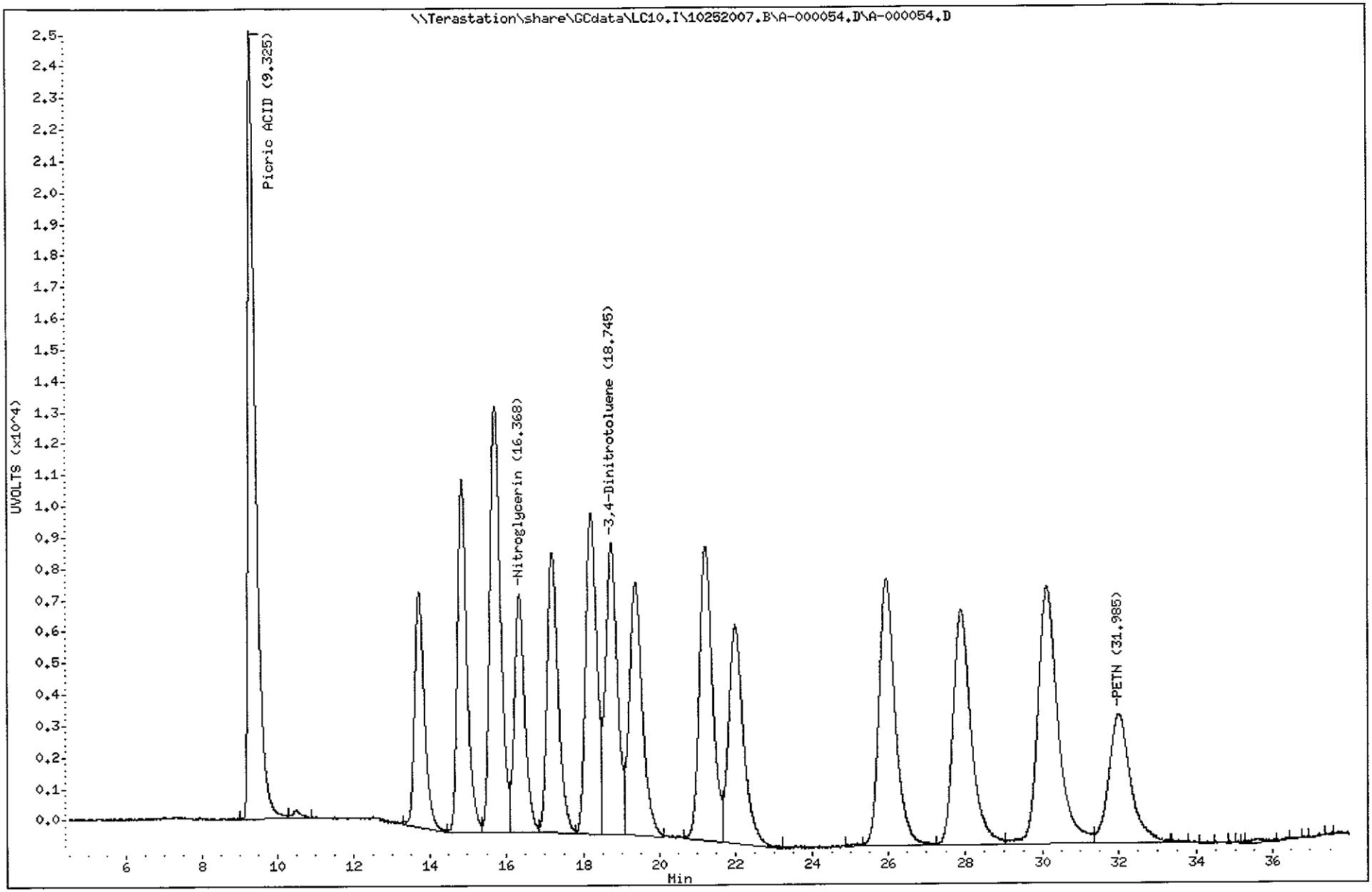
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.325	359704	25089	0.070	17.21	6 Picric ACID
10.495	4079	252	0.062	0.17	
13.705	132920	7500	0.056	5.10	
14.858	198845	11264	0.057	7.66	
15.731	264193	13565	0.051	9.22	
16.368	143156	7569	0.053	5.14	1 Nitroglycerin
17.218	174917	8933	0.051	6.07	
18.225	208795	10241	0.049	6.96	
18.745	198322	9264	0.047	6.30	$ 13 3,4-Dinitrotoluene
19.371	194494	8065	0.041	5.48	
21.238	224155	9366	0.042	6.37	
22.015	185078	6938	0.037	4.71	
25.191	1237	81	0.065	0.05	
25.971	254910	8493	0.033	5.77	
27.895	244082	7489	0.031	5.09	
30.115	300802	8194	0.027	5.57	
31.985	162714	4100	0.025	2.78	2 PETN
33.365	1095	79	0.072	0.05	
34.258	761	56	0.074	0.03	
34.851	291	53	0.182	0.03	
35.191	190	85	0.447	0.05	
35.625	3212	101	0.031	0.06	
36.381	714	70	0.098	0.04	
36.738	459	40	0.087	0.02	
37.238	670	71	0.106	0.04	
37.558	287	49	0.171	0.03	
	3260082	147007		100.000	

Total unknown % height = 68.57

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000054.D\A-000054.D
Date : 27-OCT-2007 16:55
Client ID:
Sample Info: STD_5 E070821M 100/200/100/100ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000055.D

Chromatography Summary

Injection Date: 10/27/2007 17:48 **Operator:** KenneyF

DataFile: LC10.M10252007.B\A-000055.D **Vial Num:** 7

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **MRL_1 E070926A 5/50/20/20ng/mL**

Method File: LC10.M10252007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPWDNA.sub **SpikeList:**

Samp. Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Misc. Info: ;1; ; ; ;3;EXPWDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	**18.76**	**955**	**19.2700<**	5	**285%**	**Fails**		**18.76**	**1683**	**17.6500**	**5**	**253%**	**Fails**		(±15)	
HMX	5.28	647	4.9370<	5	-1%	Acceptable					5	-100%	Fails		(±15)	45
RDX	7.96	370	4.6540<	5	-7%	Acceptable					5	-100%	Fails		(±15)	45
Picric ACID	**9.36**	**4260**	**51.6100**	10	**416%**	**Fails**		**9.37**	**6273**	**51.6400<**	**10**	**416%**	**Fails**		(±15)	
1,3,5-Trinitrobenzene	10.49	751	5.0440<	5	1%	Acceptable					5	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.71	731	5.1170<	5	2%	Acceptable					5	-100%	Fails		(±15)	45
TETRYL	14.85	453	4.9960<	5	0%	Acceptable					5	-100%	Fails		(±15)	45
Nitrobenzene	15.73	342	5.2660<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.22	472	5.2900<	5	6%	Acceptable					5	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.24	340	5.1890<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.37	391	5.2310<	5	5%	Acceptable					5	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	**21.23**	**302**	**5.7520<**	5	**15%**	**Fails**					5	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	22.03	457	5.3520<	5	7%	Acceptable					5	-100%	Fails		(±15)	45
2-Nitrotoluene	25.98	188	5.1760<	5	4%	Acceptable					5	-100%	Fails		(±15)	45
4-Nitrotoluene	**27.88**	**254**	**5.7860<**	5	**16%**	**Fails**					5	-100%	Fails		(±15)	45
3-Nitrotoluene	30.09	228	5.3800<	5	8%	Acceptable					5	-100%	Fails		(±15)	45
Nitroglycerin				5	**-100%**	**Fails**		16.38	1529	20.3800<	5	**308%**	**Fails**		(±15)	45
PETN				5	**-100%**	**Fails**		32.02	770	19.2300<	5	**285%**	**Fails**		(±15)	45
3,5-Dinitroaniline				5	**-100%**	**Fails**					5	-100%	Fails		(±15)	

10/30/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/30/2007 10:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 17:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.b\8330AB.m
Meth Date : 27-Oct-2007 18:36 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

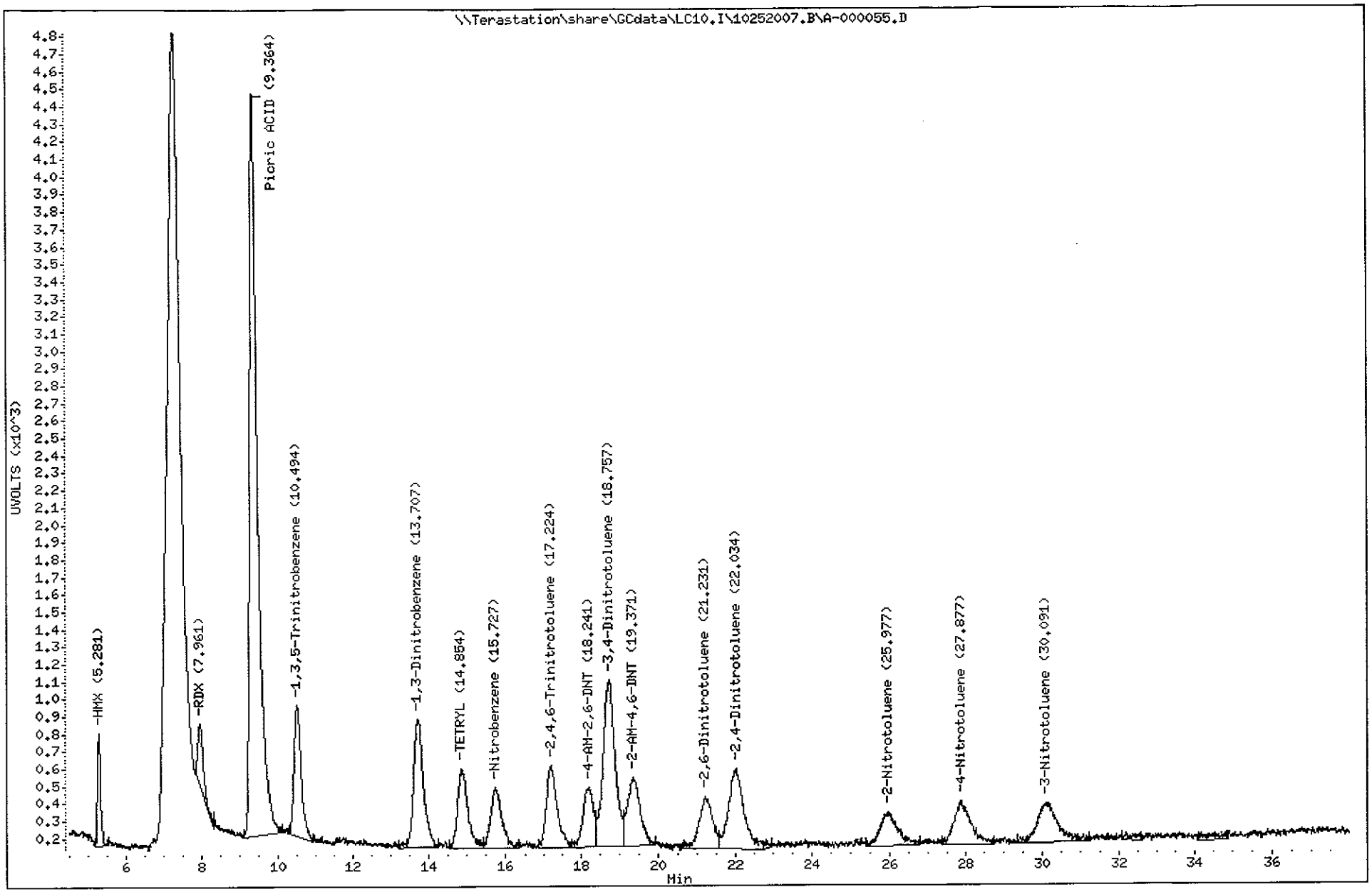
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.281	3769	647	0.172	5.72		4 HMX
7.961	3538	370	0.105	3.27		5 RDX
9.364	62256	4260	0.068	37.81		6 Picric ACID
10.494	10090	751	0.074	6.64		7 1,3,5-Trinitrobenze
13.301	207	32	0.154	0.28		
13.707	12955	731	0.056	6.47		8 1,3-Dinitrobenzene
14.854	8352	453	0.054	4.00		9 TETRYL
15.727	6832	342	0.050	3.02		10 Nitrobenzene
17.224	9625	472	0.049	4.17		11 2,4,6-Trinitrotolue
18.241	6629	340	0.051	3.00		12 4-AM-2,6-DNT
18.757	20434	955	0.047	8.45	$	13 3,4-Dinitrotoluene
19.371	9055	391	0.043	3.46		14 2-AM-4,6-DNT
21.231	7102	302	0.043	2.67		15 2,6-Dinitrotoluene
22.034	12737	457	0.036	4.04		16 2,4-Dinitrotoluene
22.844	263	44	0.168	0.38		
25.977	5899	188	0.032	1.66		17 2-Nitrotoluene
27.877	8058	254	0.032	2.24		18 4-Nitrotoluene
30.091	8623	228	0.026	2.01		19 3-Nitrotoluene
32.177	669	40	0.060	0.35		
34.537	1257	41	0.033	0.36		
	198352	11298		100.000		

Total unknown % height = 1.370

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D
Date : 27-OCT-2007 17:48
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D\A-000055
Lab Smp Id: MRL_1 E070926A 5/50
Inj Date : 27-OCT-2007 17:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : MRL_1 E070926A 5/50/20/20ng/mL;2
Misc Info : ;1; ; ; ;3;EXPWDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10252007.B\8330AB.M\83302.m
Meth Date : 27-Oct-2007 18:36 tap Quant Type: AREA%
Cal Date : 20-OCT-2007 22:59 Cal File: A-000011.d
Als bottle: 7 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPWDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

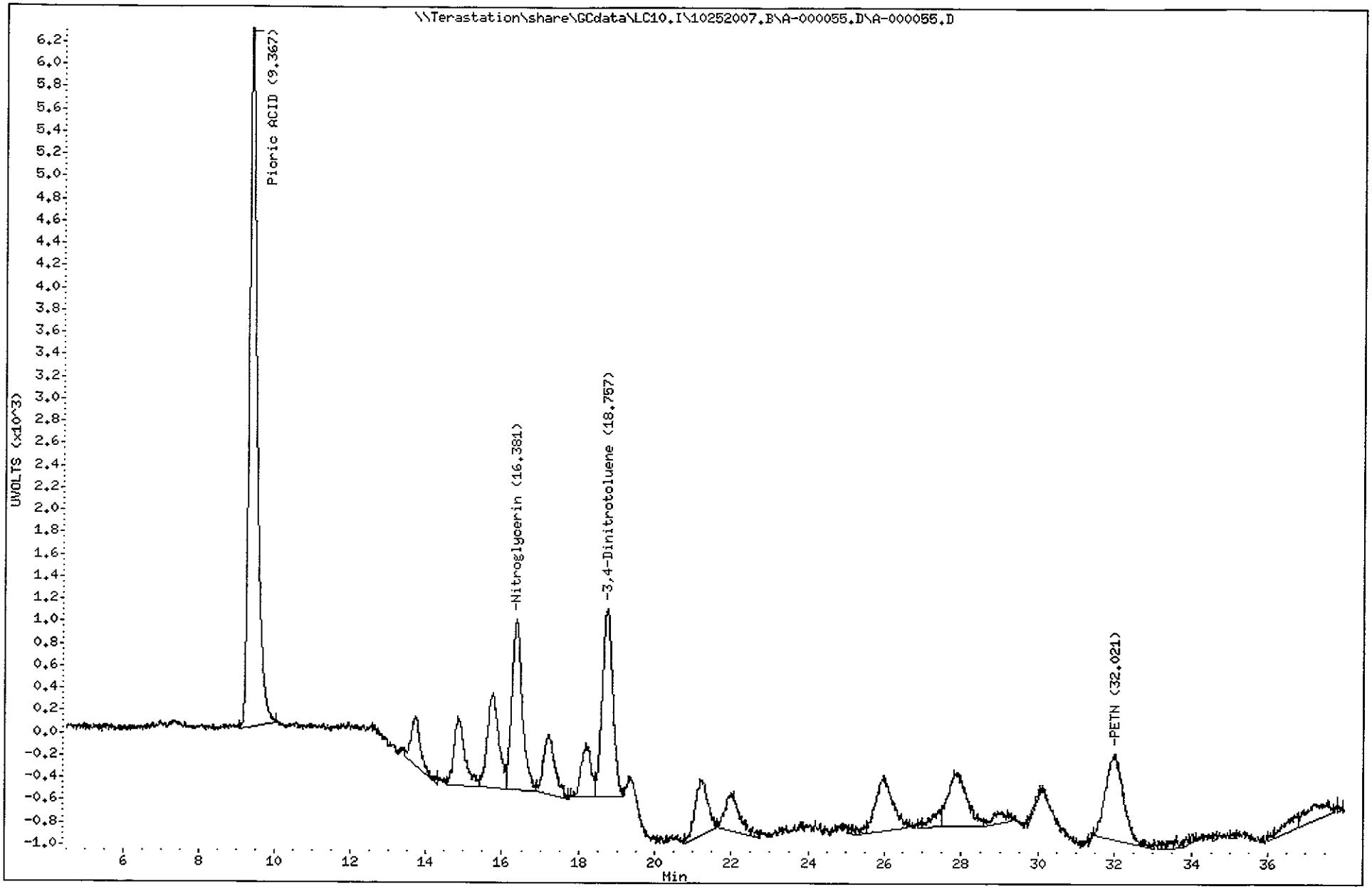
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.367	88668	6273	0.071	38.13	6 Picric ACID
13.701	8199	445	0.054	2.69	
14.851	12293	625	0.051	3.78	
15.774	17632	843	0.048	5.10	
16.381	28196	1529	0.054	9.26	1 Nitroglycerin
17.204	11081	534	0.048	3.23	
18.201	8438	482	0.057	2.91	
18.757	31796	1683	0.053	10.19	$ 13 3,4-Dinitrotoluene
21.204	11277	500	0.044	3.02	
22.071	9013	352	0.039	2.13	
25.164	406	82	0.202	0.49	
25.481	703	68	0.097	0.41	
25.987	14889	488	0.033	2.95	
26.984	264	68	0.258	0.41	
27.421	2291	147	0.064	0.89	
27.831	16298	502	0.031	3.04	
28.917	2396	106	0.044	0.64	
30.024	848	81	0.095	0.49	
31.401	241	63	0.262	0.38	
32.021	24904	770	0.031	4.66	2 PETN
33.254	424	68	0.160	0.41	
33.594	1218	106	0.087	0.64	
33.851	334	74	0.222	0.44	
34.007	415	77	0.185	0.46	
34.534	283	64	0.226	0.38	
35.147	313	46	0.147	0.27	
36.151	478	84	0.176	0.50	
36.781	3402	134	0.039	0.81	
37.234	5536	149	0.027	0.90	
37.801	214	66	0.308	0.39	
	302450	16509		100.000	

Total unknown % height = 37.76

Data File: \\Terastation\share\GCdata\LC10.I\10252007.B\A-000055.D\A-000055.D
Date : 27-OCT-2007 17:48
Client ID:
Sample Info: MRL_1 E070926A 5/50/20/20ng/mL;2

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Initial Calibration

Includes (as applicable):

runlog

standard raw data

statistical summary

ms tune data

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
1 Nitroglycerin	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
2 PETN	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
3 3,5-Dinitroaniline	102	103	104	100	94.22000	95.69500		
	96.51400	97.04200					99	3.684
4 HMX	131	132	129	132	132	131		
	132	131					131	0.627
5 RDX	74.60000	74.10000	75.25000	80.50000	81.80000	82.05000		
	83.96600	83.71100					79.49712	5.245
6 Picric ACID	+++++	+++++	86.90000	85.54000	86.58500	84.38800		
	79.62500	72.23700					82.54583	6.905
7 1,3,5-Trinitrobenzene	149	150	147	149	149	149		
	150	150					149	0.574
8 1,3-Dinitrobenzene	147	145	141	141	142	142		
	143	143					143	1.343

JAK 10/23/07

ICAL passes criteria ± 20%
No Manual Integrations

reviewed by ICMason

date 10-23-07

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Last Edit : 23-Oct-2007 11:01 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
9 TETRYL	91.20000	93.90000	91.75000	89.26000	89.88000	89.73000	90.67488	1.708
	89.97400	89.70500						
10 Nitrobenzene	67.20000	66.90000	65.10000	62.68000	64.39000	64.30000	64.93800	2.273
	64.54000	64.39400						
11 2,4,6-Trinitrotoluene	93.60000	91.00000	89.55000	88.42000	87.84000	87.84500	89.21725	2.369
	87.73400	87.74900						
12 4-AM-2,6-DNT	69.60000	67.40000	65.35000	64.42000	64.45000	64.27000	65.52512	2.988
	64.35600	64.35500						
14 2-AM-4,6-DNT	79.80000	77.10000	73.95000	73.60000	73.47000	73.46000	74.74550	3.220
	73.34400	73.24000						
15 2,6-Dinitrotoluene	57.20000	54.30000	52.15000	51.00000	51.54000	51.35000	52.49888	4.148
	51.20400	51.24700						
16 2,4-Dinitrotoluene	89.80000	87.20000	84.60000	83.80000	84.47000	84.35500	85.39200	2.406
	84.39000	84.52100						
17 2-Nitrotoluene	39.20000	38.40000	35.95000	35.52000	35.52000	35.48000	36.32175	4.294
	35.24000	35.26400						
18 4-Nitrotoluene	50.00000	45.00000	42.65000	42.52000	42.86000	42.84000	43.89763	5.915
	42.66800	42.64300						
19 3-Nitrotoluene	45.60000	44.80000	41.45000	41.36000	41.55000	41.58500	42.38200	4.141
	41.43800	41.27300						
$ 13 3,4-Dinitrotoluene	+++++	51.70000	49.90000	48.92000	47.23000	48.13500	49.56833	3.160
	50.22333	50.87000						

Report Date: 23-Oct-2007 11:03

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Calibration File Names:
Level 1: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000004.d\A-00
Level 2: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000005.d\A-00
Level 3: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000006.d\A-00
Level 4: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000007.d\A-00
Level 5: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000008.d\A-00
Level 6: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000009.d\A-00
Level 7: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000010.d\A-00
Level 8: \\Terastation\share\GCdata\GCdata\LC10.I\10202007.B\A-000011.d\A-00

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	RRF	% RSD
	500.000 Level 7	1000.000 Level 8						
1 Nitroglycerin	+++++	+++++	76.05000	73.76000	76.17000	73.20500		
	74.38600	76.48400					75.00917	1.867
2 PETN	+++++	+++++	44.40000	38.02000	41.10000	39.51500		
	38.49600	38.75300					40.04733	5.965
3 3,5-Dinitroaniline	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
4 HMX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
5 RDX	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
6 Picric ACID	+++++	+++++	128	126	128	124		
	117	106					121	6.966
7 1,3,5-Trinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
8 1,3-Dinitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++

TestAmerica West Sacramento

INITIAL CALIBRATION DATA

Start Cal Date : 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Quant Method : ESTD
Origin : Disabled
Target Version : 4.14
Integrator : Falcon
Method file : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\8330
Last Edit : 23-Oct-2007 12:09 kenneyf
Curve Type : Average

Compound	5.000 Level 1	10.000 Level 2	20.000 Level 3	50.000 Level 4	100.000 Level 5	200.000 Level 6	500.000 Level 7	1000.000 Level 8	RRF	% RSD
9 TETRYL	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
10 Nitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
11 2,4,6-Trinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
12 4-AM-2,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
14 2-AM-4,6-DNT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
15 2,6-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
16 2,4-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
17 2-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
18 4-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
19 3-Nitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 13 3,4-Dinitrotoluene	+++++	97.90000	94.10000	94.22000	91.61000	93.67500	96.60667	99	95.34024	2.811

Report Date: 23-Oct-2007 12:10

Calibration History

Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.M
Start Cal Date: 20-OCT-2007 16:48
End Cal Date : 20-OCT-2007 22:59
Last Cal Level: 8
Last Cal Type : Initial Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 5.00000		
20-OCT-2007 16:48	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.d\A-000004.d
Cal Level: 2 , Cal Amount: 10.00000		
20-OCT-2007 17:41	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.d\A-000005.d
Cal Level: 3 , Cal Amount: 20.00000		
20-OCT-2007 18:34	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.d\A-000006.d
Cal Level: 4 , Cal Amount: 50.00000		
20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d
Cal Level: 5 , Cal Amount: 100.00000		
20-OCT-2007 20:20	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.d\A-000008.d
Cal Level: 6 , Cal Amount: 200.00000		
20-OCT-2007 21:13	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.d\A-000009.d
Cal Level: 7 , Cal Amount: 500.00000		
20-OCT-2007 22:06	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.d\A-000010.d
Cal Level: 8 , Cal Amount: 1000.00000		

20-OCT-2007 22:59	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.d\A-000011.d

Continuing Calibration
Ccal Level Mode: BY SAMPLE

20-OCT-2007 19:27	EXPSDNA	\\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.d\A-000007.d

TestAmerica West Sacramento
GC/LC INSTRUMENT LOG

Page# 43
Book# 3029

GC/LC SEMI-VOLATILES

Standard ID's

CCV1 10202007.B

Inst ID : LC10.I
Batch ID : 10202007.B
Ical Date: See Calibration Report
Methods : Method 8330
Test : SOP SAC-LC-0009

Date	Time	Operator	Sample ID	File ID	Vol or Wt	Extract Vol	Diln	Comments
20-OCT-2007	14:09	KenneyF	CCV_5 PRIMER	A-000001.	0 g	0 mL	1	
20-OCT-2007	15:02	KenneyF	CCV_5 PRIMER	A-000002.	0 g	0 mL	1	
20-OCT-2007	15:55	KenneyF	Blank	A-000003.	0 g	0 mL	1	
20-OCT-2007	16:48	KenneyF	STD_1 E070927A 5.0/0/0/0ng/mL	A-000004.	0 g	0 mL	1	
20-OCT-2007	17:41	KenneyF	STD_2 E070927B 10/20/10/10ng/m	A-000005.	0 g	0 mL	1	
20-OCT-2007	18:34	KenneyF	STD_3 E070927C 20/50/20/20ng/m	A-000006.	0 g	0 mL	1	
20-OCT-2007	19:27	KenneyF	STD_4 E070927D 50/100/50/50ng/	A-000007.	0 g	0 mL	1	
20-OCT-2007	20:20	KenneyF	STD_5 E071007D 100/200/100/100	A-000008.	0 g	0 mL	1	
20-OCT-2007	21:13	KenneyF	STD_6 E071007E 200/500/200/200	A-000009.	0 g	0 mL	1	
20-OCT-2007	22:06	KenneyF	STD_7 E071007F 500/1000/500/30	A-000010.	0 g	0 mL	1	
20-OCT-2007	22:59	KenneyF	STD_8 E071007G 1000/2000/1000/	A-000011.	0 g	0 mL	1	
20-OCT-2007	23:52	KenneyF	Blank	A-000012.	0 g	0 mL	1	
21-OCT-2007	00:45	KenneyF	ICV_6 E071007C 200/500/200/500	A-000013.	0 g	0 mL	1	
21-OCT-2007	01:38	KenneyF	STD_5 E071007D 100/200/100/100	A-000014.	0 g	0 mL	1	
21-OCT-2007	02:31	KenneyF	8330-H2O-MDL-MB	A-000015.	1000 mL	20 mL	1	
21-OCT-2007	03:24	KenneyF	8330-H2O-MDL-1	A-000016.	1000 mL	20 mL	1	
21-OCT-2007	04:18	KenneyF	8330-H2O-MDL-2	A-000017.	1000 mL	20 mL	1	
21-OCT-2007	05:11	KenneyF	8330-H2O-MDL-3	A-000018.	1000 mL	20 mL	1	
21-OCT-2007	06:04	KenneyF	8330-H2O-MDL-4	A-000019.	1000 mL	20 mL	1	
21-OCT-2007	06:57	KenneyF	8330-H2O-MDL-5	A-000020.	1000 mL	20 mL	1	
21-OCT-2007	07:50	KenneyF	8330-H2O-MDL-6	A-000021.	1000 mL	20 mL	1	
21-OCT-2007	08:43	KenneyF	8330-H2O-MDL-7	A-000022.	1000 mL	20 mL	1	
21-OCT-2007	09:36	KenneyF	8330-H2O-MDL-CHECK	A-000023.	1000 mL	20 mL	1	
21-OCT-2007	10:29	KenneyF	STD_5 E071007D 100/200/100/100	A-000024.	0 g	0 mL	1	
21-OCT-2007	11:22	KenneyF	8330-SOIL-MDL-MB	A-000025.	2 g	40 mL	1	
21-OCT-2007	12:15	KenneyF	8330-SOIL-MDL-1	A-000026.	2 g	40 mL	1	
21-OCT-2007	13:08	KenneyF	8330-SOIL-MDL-2	A-000027.	2 g	40 mL	1	
21-OCT-2007	14:01	KenneyF	8330-SOIL-MDL-3	A-000028.	2 g	40 mL	1	
21-OCT-2007	14:54	KenneyF	8330-SOIL-MDL-4	A-000029.	2 g	40 mL	1	
21-OCT-2007	15:47	KenneyF	8330-SOIL-MDL-5	A-000030.	2 g	40 mL	1	
21-OCT-2007	16:40	KenneyF	8330-SOIL-MDL-6	A-000031.	2 g	40 mL	1	
21-OCT-2007	17:33	KenneyF	8330-SOIL-MDL-7	A-000032.	2 g	40 mL	1	
21-OCT-2007	18:26	KenneyF	8330-SOIL-MDL-CHECK	A-000033.	2 g	40 mL	1	
21-OCT-2007	19:19	KenneyF	STD_5 E071007D 100/200/100/100	A-000034.	0 g	0 mL	1	
21-OCT-2007	20:12	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000035.	0 g	0 mL	1	
21-OCT-2007	21:05	KenneyF	J8AT51AD 7285666 A7J050117 50X	A-000036.	2 g	40 mL	50	
21-OCT-2007	21:58	KenneyF	J7E161AA 7275532 G7I210330-9 R	A-000037.	2.03 g	40 mL	1	
21-OCT-2007	22:51	KenneyF	J7E2A1AA 7275532 G7I210330-10	A-000038.	2 g	40 mL	1	
21-OCT-2007	23:44	KenneyF	J7E271AA 7275532 G7I210330-21	A-000039.	2 g	40 mL	1	
22-OCT-2007	00:37	KenneyF	STD_5 E070821L 100/200/100/100	A-000040.	0 g	0 mL	1	
22-OCT-2007	01:30	KenneyF	STD_1 E070926A 5/50/20/20ng/mL	A-000041.	0 g	0 mL	1	

TestAmerica West Sacramento

A-000013.D

Chromatography Summary

Injection Date: 10/21/2007 0:45 **Operator:** KenneyF

DataFile: LC10.R\10202007.B\A-000013.D **Vial Num:** 20

Instrument ID: LC10

Method 8330 Target Analyte Results

Method File: LC10.R\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Sample : **ICV_6 E071007C 200/500/200/500ng/ml**

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265							Signal 2 UV 358-205								
Compound Name	RT	Response	PPB	Spike Level	%D	Result	Flag	RT	Response	PPB	Spike Level	%D	Result	Flag	Limits(%)	Flag
3,4-Dinitrotoluene	18.83	9566	193.0000<	200	-4%	Acceptable		18.83	18642	195.5000	200	-2%	Acceptable		(±15)	
HMX	5.28	28071	214.2000<	200	7%	Acceptable					200	-100%	Fails		(±15)	45
RDX	7.98	17241	216.9000<	200	8%	Acceptable					200	-100%	Fails		(±15)	45
Picric ACID	9.31	41167	498.7000	500	0%	Acceptable		9.31	60647	510.5000<	500	2%	Acceptable		(±15)	
1,3,5-Trinitrobenzene	10.54	30578	205.4000<	200	3%	Acceptable					200	-100%	Fails		(±15)	45
1,3-Dinitrobenzene	13.76	29042	203.3000<	200	2%	Acceptable					200	-100%	Fails		(±15)	45
TETRYL	14.92	17697	195.2000<	200	-2%	Acceptable	✓				200	-100%	Fails		(±15)	45
Nitrobenzene	15.79	12874	198.2000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
2,4,6-Trinitrotoluene	17.30	17619	197.5000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
4-AM-2,6-DNT	18.29	12738	194.4000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
2-AM-4,6-DNT	19.45	14705	196.7000<	200	-2%	Acceptable					200	-100%	Fails		(±15)	45
2,6-Dinitrotoluene	21.34	10415	198.4000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45
2,4-Dinitrotoluene	22.11	16602	194.4000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
2-Nitrotoluene	26.08	7065	194.5000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
4-Nitrotoluene	28.04	8476	193.1000<	200	-3%	Acceptable					200	-100%	Fails		(±15)	45
3-Nitrotoluene	30.27	8300	195.8000<	200	-2%	Acceptable					200	-100%	Fails		(±15)	45
Nitroglycerin				200	-100%	Fails		16.45	15681	209.0000<	200	5%	Acceptable		(±15)	45
PETN				200	-100%	Fails		32.21	8123	202.8000<	200	1%	Acceptable		(±15)	45
3,5-Dinitroaniline	14.54	19614	198.0000<	200	-1%	Acceptable					200	-100%	Fails		(±15)	45

ICV passes criteria ±15%

10/23/07

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

✓ ILM 10-23-07

Printed: 10/23/2007 11:15 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.282	171401	28071	0.164	9.29		4	HMX
7.976	185452	17241	0.093	5.70		5	RDX
9.306	589232	41167	0.070	13.75		6	Picric ACID
10.536	408314	30578	0.075	10.12		7	1,3,5-Trinitrobenze
11.912	2043	128	0.063	0.04			
12.666	848	47	0.055	0.01			
13.756	497411	29042	0.058	9.61		8	1,3-Dinitrobenzene
14.542	325796	19614	0.060	6.49		3	3,5-Dinitroaniline
14.919	326376	17697	0.054	5.86		9	TETRYL
15.792	253065	12874	0.051	4.26		10	Nitrobenzene
17.299	349591	17619	0.050	5.83		11	2,4,6-Trinitrotolue
18.289	261026	12738	0.049	4.21		12	4-AM-2,6-DNT
18.826	200938	9566	0.048	3.16	$	13	3,4-Dinitrotoluene
19.452	353275	14705	0.042	4.86		14	2-AM-4,6-DNT
21.336	242901	10415	0.043	3.44		15	2,6-Dinitrotoluene
22.112	427638	16602	0.039	5.49		16	2,4-Dinitrotoluene
26.079	207484	7065	0.034	2.33		17	2-Nitrotoluene
28.036	267174	8476	0.032	2.80		18	4-Nitrotoluene
30.266	283743	8300	0.029	2.74		19	3-Nitrotoluene
32.199	799	44	0.055	0.01			
	5354507	301989		100.000			

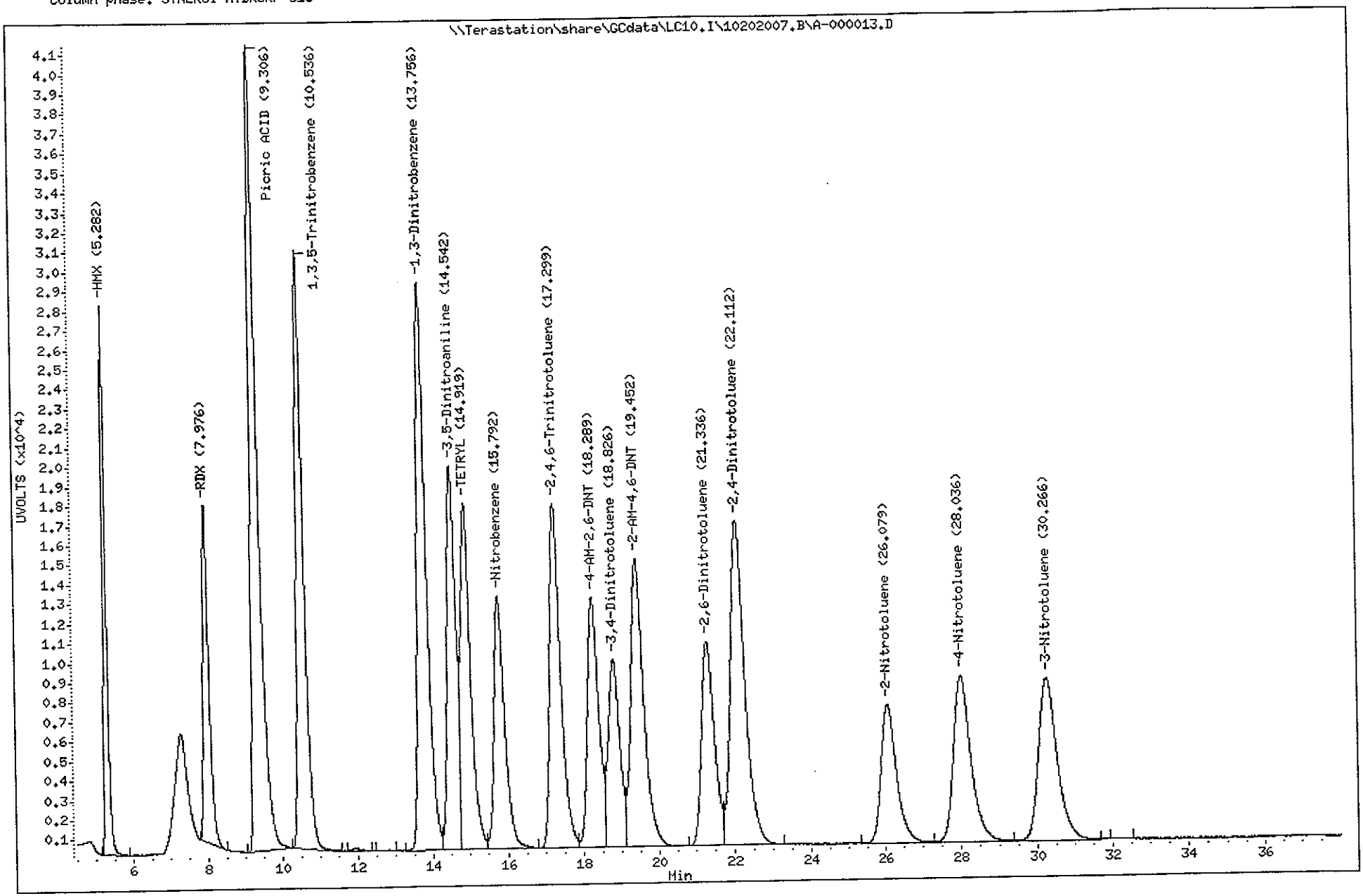
Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml;2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000013.D
Report Date: 21-Oct-2007 01:34

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013
Lab Smp Id: ICV_6 E071007C 200/
Inj Date : 21-OCT-2007 00:45
Operator : KenneyF Inst ID: LC10.i
Smp Info : ICV_6 E071007C 200/500/200/500ng/ml;2
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 21-Oct-2007 01:34 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 20 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.306	875369	60647	0.069	19.11	6 Picric ACID
10.539	8528	536	0.063	0.16	
13.756	250568	15065	0.060	4.71	
14.542	251461	15839	0.063	4.96	
14.922	391688	21923	0.056	6.86	
15.792	499029	26746	0.054	8.37	
16.449	284217	15681	0.055	4.91	1 Nitroglycerin
17.299	338122	17755	0.053	5.56	
18.286	413216	20407	0.049	6.39	
18.829	390451	18642	0.048	5.83	$ 13 3,4-Dinitrotoluene
19.449	390149	16155	0.041	5.06	
21.336	451228	19071	0.042	5.97	
22.112	366490	13802	0.038	4.32	
25.262	3273	176	0.054	0.05	
26.082	508527	16945	0.033	5.30	
27.299	1179	194	0.165	0.06	
28.032	483515	15023	0.031	4.70	
30.249	541720	16038	0.030	5.02	
32.212	300262	8123	0.027	2.54	2 PETN
34.192	1413	64	0.045	0.02	
35.156	678	80	0.118	0.02	
35.599	1357	74	0.055	0.02	
35.879	442	52	0.118	0.01	
36.956	810	44	0.054	0.01	
37.215	520	57	0.110	0.01	
37.452	1429	100	0.070	0.03	
	6755641	319239		100.000	

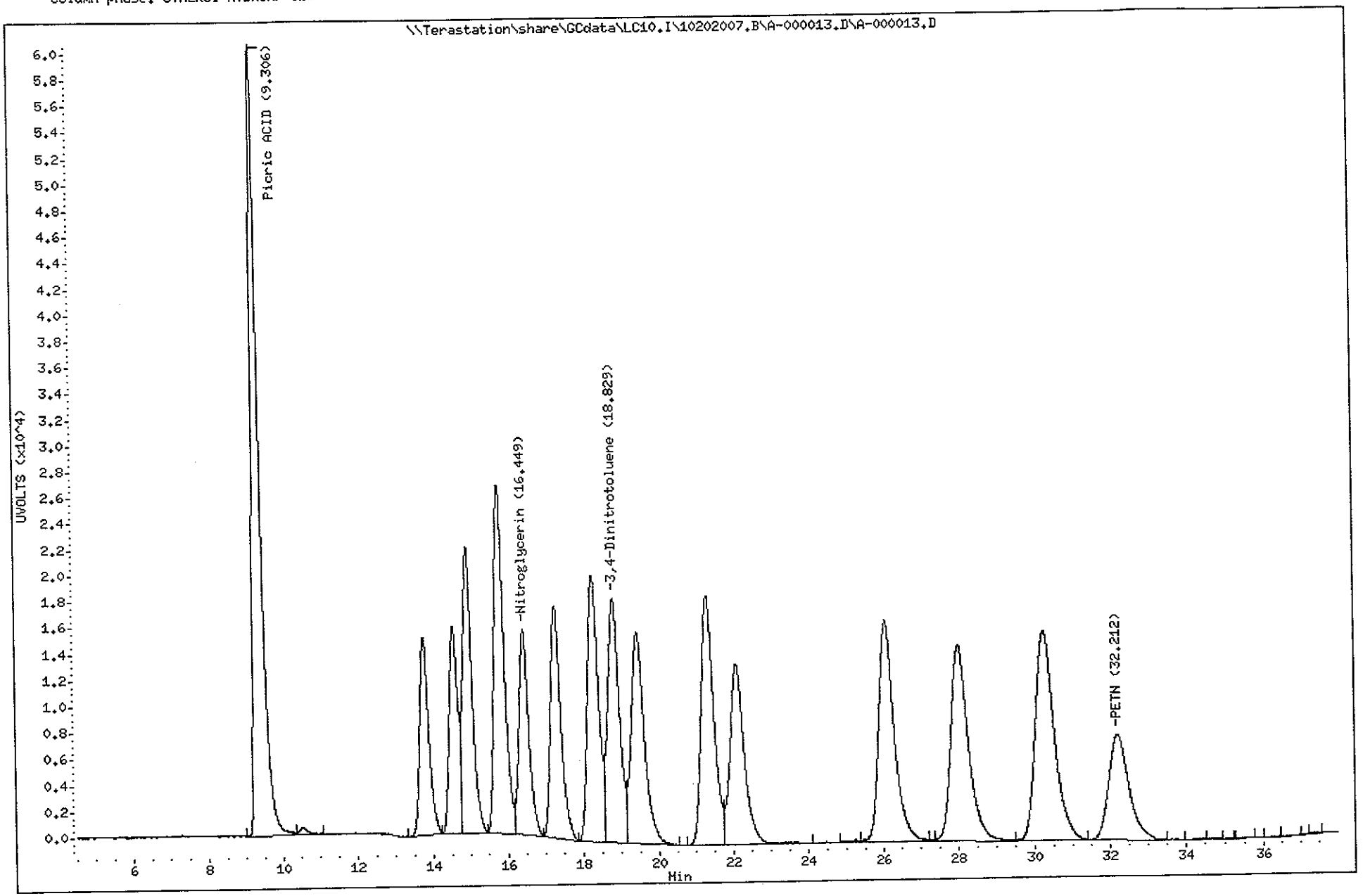
Total unknown % height = 67.61

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000013.D\A-000013.D
Date : 21-OCT-2007 00:45
Client ID:
Sample Info: ICV_6 E071007C 200/500/200/500ng/ml:2

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

TestAmerica West Sacramento

A-000003.D

Chromatography Summary

Injection Date: 10/20/2007 15:55 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000003.D **Vial Num:** 11

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **Blank**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: Blank;0

Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	PPB	Flag	RT	Diff	Response	PPB	Flag	MDL	RL	Flag
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	
4-AM-2,6-DNT	**18.40**	**0.132**		**40**	**0.6104<**						0.0000	0.00	45
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN											0.0000	0.00	
3,5-Dinitroaniline											0.0000	0.00	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	**2000.0000**		**0**	**2000.0000**		**0**	0--1.#QNAN

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 15:53 kenneyf Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
6.396	218	38	0.174	7.43	
9.566	204	31	0.152	6.06	
10.162	208	27	0.130	5.28	
16.862	376	30	0.080	5.87	
18.396	268	40	0.149	7.82	12 4-AM-2,6-DNT
19.799	237	27	0.114	5.28	
20.152	777	51	0.066	10.03	
23.479	118	30	0.254	5.87	
24.842	604	44	0.073	8.61	
26.642	514	43	0.084	8.41	
27.392	643	40	0.062	7.82	
28.876	174	39	0.224	7.63	
29.992	147	34	0.231	6.65	
34.769	356	37	0.104	7.24	
	4845	511		100.000	

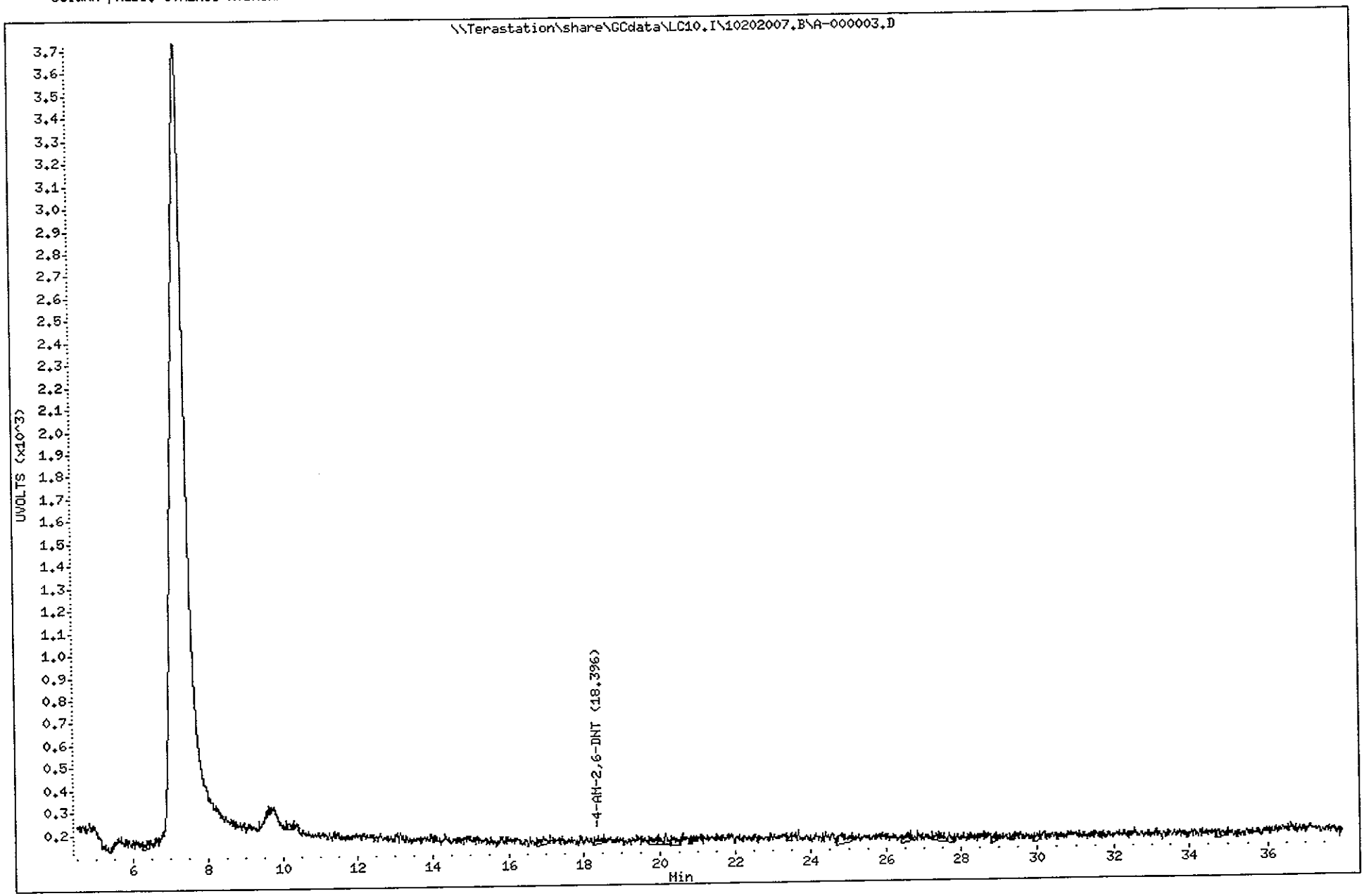
Total unknown % height = 92.18

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 15:55
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 15:51 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
15.892	6885	257	0.037	11.19	
24.529	756	38	0.050	1.63	
25.752	971	70	0.072	3.01	
26.582	1061	63	0.059	2.71	
27.326	483	61	0.126	2.62	
28.356	1332	86	0.065	3.70	
29.109	551	50	0.091	2.15	
29.696	318	56	0.176	2.41	
30.029	1432	89	0.062	3.83	
30.662	908	55	0.061	2.37	
31.006	652	85	0.130	3.66	
31.406	2226	98	0.044	4.22	
31.872	993	102	0.103	4.39	
32.552	459	73	0.159	3.14	
33.509	666	75	0.113	3.23	
33.886	2619	115	0.044	4.95	
34.866	1166	90	0.077	3.87	
35.349	1569	85	0.054	3.66	
35.959	976	96	0.098	4.13	
36.162	1107	116	0.105	5.00	
36.526	3579	162	0.045	6.98	
36.842	1474	171	0.116	7.37	
37.246	4847	227	0.047	9.78	
	37030	2320		100.000	

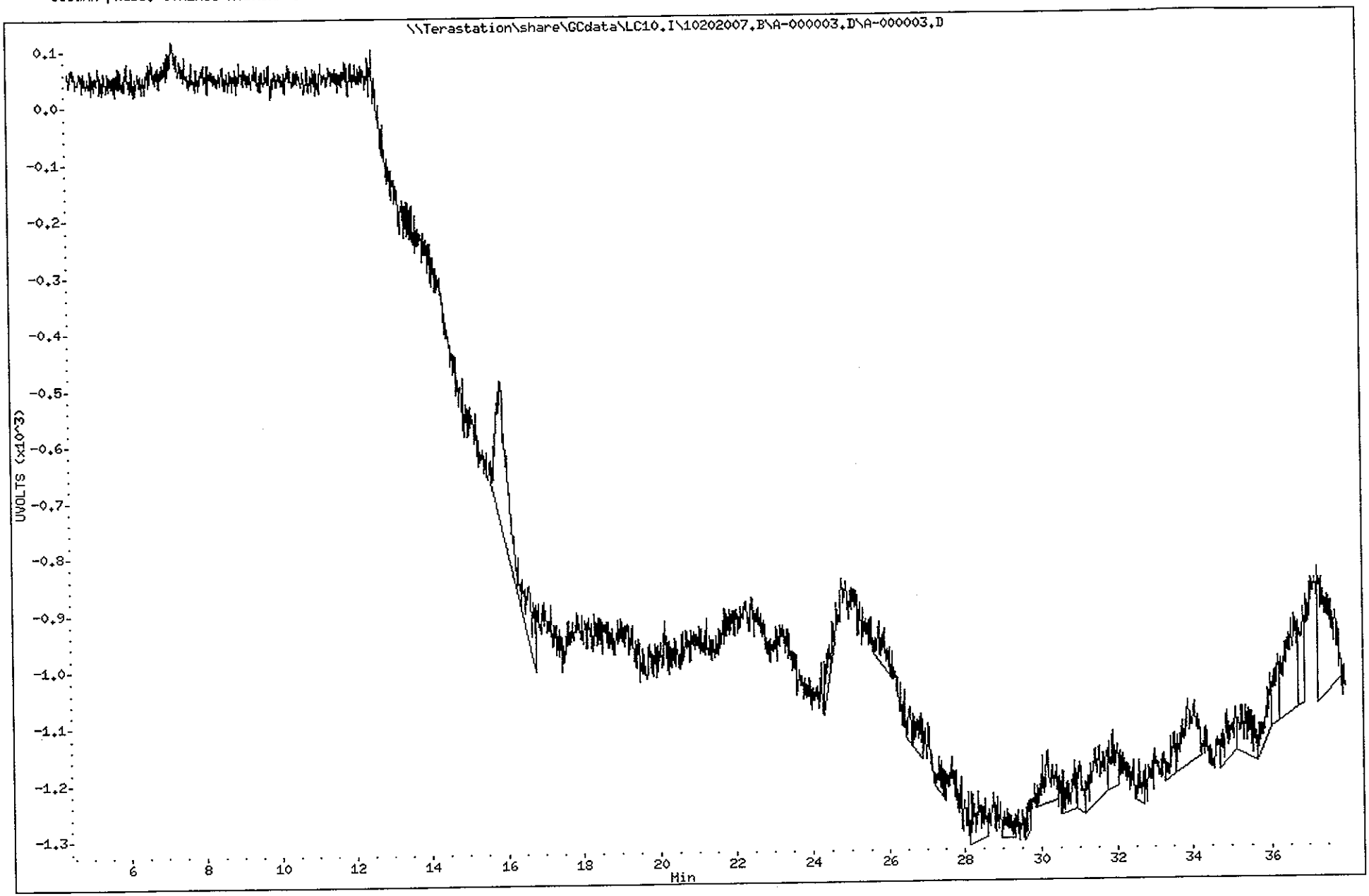
Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000003.D\A-000003.D
Date : 20-OCT-2007 15:55
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000004.D

Chromatography Summary

Injection Date: 10/20/2007 16:48 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000004.D **Vial Num:** 12

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_1 E070927A 5.0/0/0/0ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 16:48

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Misc. Info: ;1; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene			5		0			5		0
HMX	5.28	657	5		131.4			5		0
RDX	7.96	373	5		74.6			5		0
Picric ACID	9.36	22	10		2.2			10		0
1,3,5-Trinitrobenzene	10.51	744	5		148.8			5		0
1,3-Dinitrobenzene	13.74	734	5		146.8			5		0
TETRYL	14.89	456	5		91.2			5		0
Nitrobenzene	15.77	336	5		67.2			5		0
2,4,6-Trinitrotoluene	17.27	468	5		93.6			5		0
4-AM-2,6-DNT	18.31	348	5		69.6			5		0
2-AM-4,6-DNT	19.46	399	5		79.8			5		0
2,6-Dinitrotoluene	21.34	286	5		57.2			5		0
2,4-Dinitrotoluene	22.14	449	5		89.8			5		0
2-Nitrotoluene	26.07	196	5		39.2			5		0
4-Nitrotoluene	28.00	250	5		50			5		0
3-Nitrotoluene	30.28	228	5		45.6			5		0
Nitroglycerin			5		0			5		0
PETN			5		0	32.15	53	5		10.6
3,5-Dinitroaniline	14.56	511	5		102.2			5		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 17:36 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.277	3840	657	0.171	9.80	4 HMX
7.957	3706	373	0.101	5.56	5 RDX
9.361	54	22	0.407	0.32	6 Picric ACID
10.511	10375	744	0.072	11.22	7 1,3,5-Trinitrobenze
13.737	12995	734	0.056	10.95	8 1,3-Dinitrobenzene
14.564	8731	511	0.059	7.62	3 3,5-Dinitroaniline
14.887	8211	456	0.056	6.80	9 TETRYL
15.774	6171	336	0.054	5.01	10 Nitrobenzene
17.267	9681	468	0.048	6.98	11 2,4,6-Trinitrotolue
18.311	7897	348	0.044	5.19	12 4-AM-2,6-DNT
19.457	9921	399	0.040	5.95	14 2-AM-4,6-DNT
21.344	6691	286	0.043	4.26	15 2,6-Dinitrotoluene
22.144	12238	449	0.037	6.70	16 2,4-Dinitrotoluene
25.231	354	39	0.110	0.58	
26.067	6537	196	0.030	2.92	17 2-Nitrotoluene
28.004	7702	250	0.032	3.73	18 4-Nitrotoluene
29.774	177	39	0.221	0.58	
30.277	7902	228	0.029	3.40	19 3-Nitrotoluene
32.151	153	36	0.235	0.53	
32.887	903	39	0.043	0.58	
33.557	723	46	0.064	0.68	
34.801	798	43	0.054	0.64	
	125760	6699		100.000	

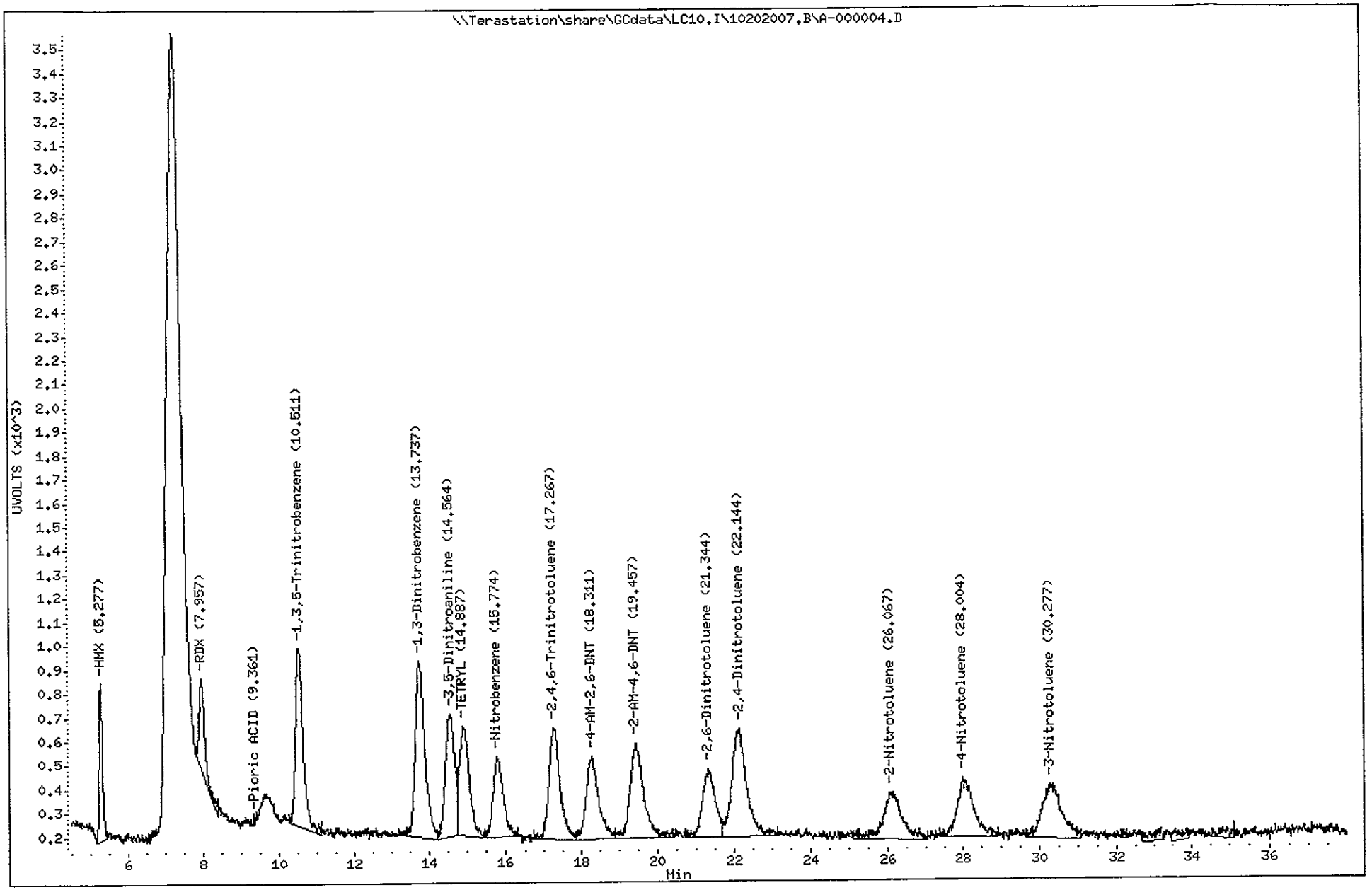
Total unknown % height = 3.590

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004
Lab Smp Id: STD_1 E070927A 5.0/
Inj Date : 20-OCT-2007 16:48
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_1 E070927A 5.0/0/0/0ng/mL;1
Misc Info : ;1; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 17:37 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 12 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
13.724	7411	408	0.055	5.82	
14.517	6980	419	0.060	5.98	
14.891	9147	545	0.060	7.78	
15.797	17953	808	0.045	11.67	
17.314	10811	515	0.048	7.35	
18.311	11134	539	0.048	7.69	
19.461	14207	452	0.032	6.45	
21.327	12918	530	0.041	7.57	
22.107	8295	358	0.043	5.11	
26.097	12999	440	0.034	6.28	
27.494	463	76	0.164	1.08	
28.091	14088	445	0.032	6.35	
29.214	756	83	0.110	1.18	
29.437	945	83	0.088	1.18	
30.321	17876	482	0.027	6.88	
31.671	344	53	0.154	0.75	
32.151	488	53	0.109	0.75	2 PETN
33.361	525	81	0.154	1.15	
33.814	1006	47	0.047	0.67	
34.097	707	83	0.117	1.18	
34.487	2600	120	0.046	1.71	
34.811	969	123	0.127	1.75	
35.057	2345	109	0.046	1.55	
35.834	733	90	0.123	1.28	
37.391	875	59	0.067	0.84	
	156573	7001		100.000	

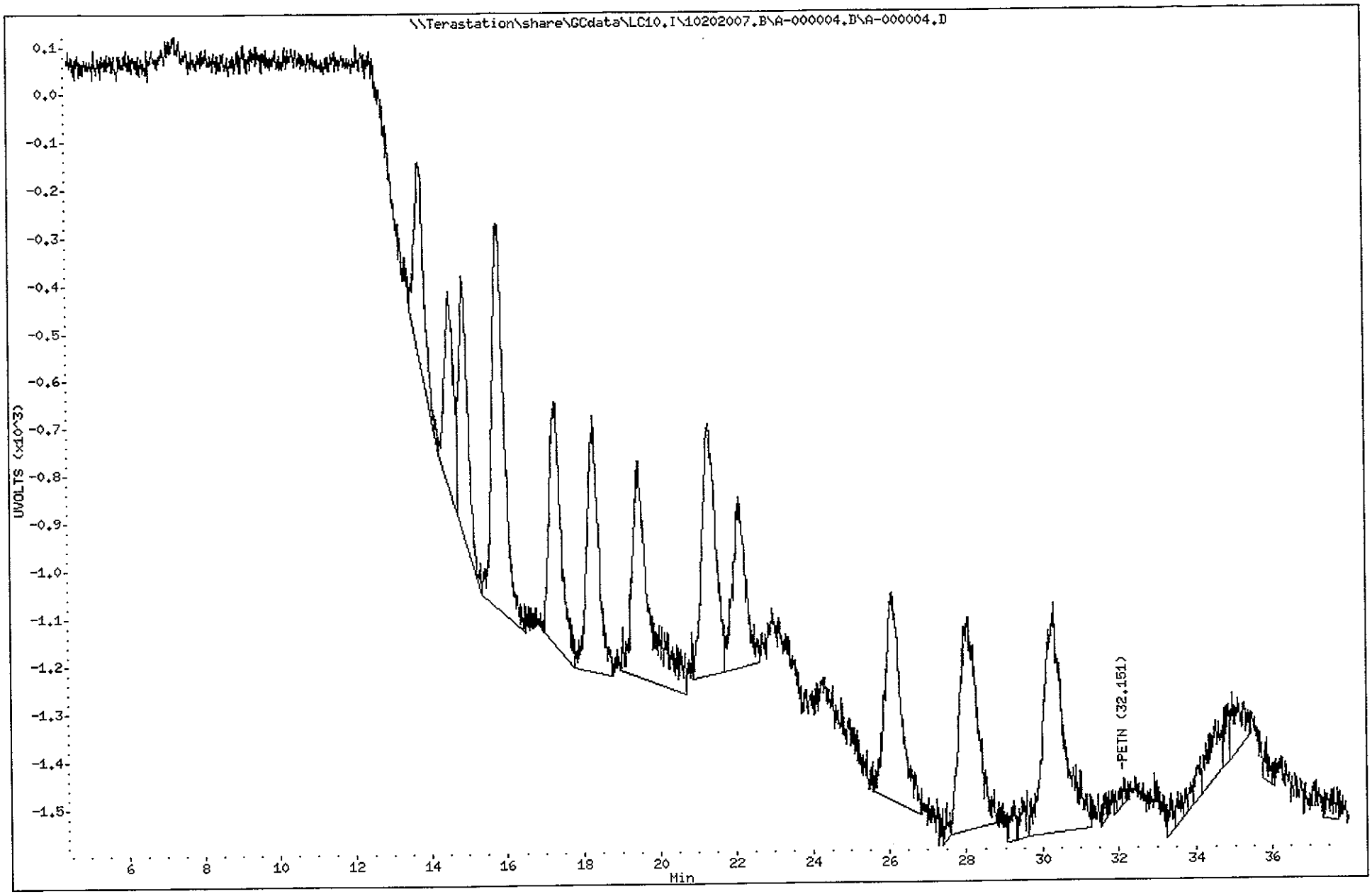
Total unknown % height = 99.25

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000004.D\A-000004.D
Date : 20-OCT-2007 16:48
Client ID:
Sample Info: STD_1 E070927A 5.0/0/0/0ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000005.D

Chromatography Summary

Injection Date: 10/20/2007 17:41 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000005.D **Vial Num:** 13

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_2 E070927B 10/20/10/10ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 17:41

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_2 E070927B 10/20/10/10ng/mL;1

Misc. Info: ;2; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	517	10		51.7	18.85	979	10		97.9
HMX	5.29	1315	10		131.5			10		0
RDX	7.98	741	10		74.1			10		0
Picric ACID	9.42	1664	20		83.2	9.42	2466	20		123.3
1,3,5-Trinitrobenzene	10.55	1496	10		149.6			10		0
1,3-Dinitrobenzene	13.79	1445	10		144.5			10		0
TETRYL	14.96	939	10		93.9			10		0
Nitrobenzene	15.80	669	10		66.9			10		0
2,4,6-Trinitrotoluene	17.32	910	10		91			10		0
4-AM-2,6-DNT	18.35	674	10		67.4			10		0
2-AM-4,6-DNT	19.51	771	10		77.1			10		0
2,6-Dinitrotoluene	21.35	543	10		54.3			10		0
2,4-Dinitrotoluene	22.15	872	10		87.2			10		0
2-Nitrotoluene	26.13	384	10		38.4			10		0
4-Nitrotoluene	28.08	450	10		45			10		0
3-Nitrotoluene	30.30	448	10		44.8			10		0
Nitroglycerin			10		0	16.47	775	10		77.5
PETN			10		0	32.21	396	10		39.6
3,5-Dinitroaniline	14.57	1032	10		103.2			10		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 18:29 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.291	8148	1315	0.161	8.76		4 HMX
7.981	7337	741	0.101	4.93		5 RDX
9.424	24887	1664	0.067	11.20		6 Picric ACID
10.551	20340	1496	0.074	9.96		7 1,3,5-Trinitrobenze
12.247	378	37	0.098	0.24		
13.021	479	34	0.071	0.22		
13.787	26093	1445	0.055	9.62		8 1,3-Dinitrobenzene
14.574	17279	1032	0.060	6.87		3 3,5-Dinitroaniline
14.957	18302	939	0.051	6.25		9 TETRYL
15.804	14899	669	0.045	4.45		10 Nitrobenzene
17.317	19161	910	0.047	6.06		11 2,4,6-Trinitrotolue
18.351	14095	674	0.048	4.49		12 4-AM-2,6-DNT
18.871	11527	517	0.045	3.44	$	13 3,4-Dinitrotoluene
19.514	18977	771	0.041	5.13		14 2-AM-4,6-DNT
21.351	13185	543	0.041	3.61		15 2,6-Dinitrotoluene
22.154	23851	872	0.037	5.80		16 2,4-Dinitrotoluene
24.737	323	30	0.093	0.19		
26.131	11530	384	0.033	2.55		17 2-Nitrotoluene
28.081	14722	450	0.031	2.99		18 4-Nitrotoluene
30.304	15967	448	0.028	2.98		19 3-Nitrotoluene
33.200	684	40	0.058	0.26		
	282164	15011		100.000		

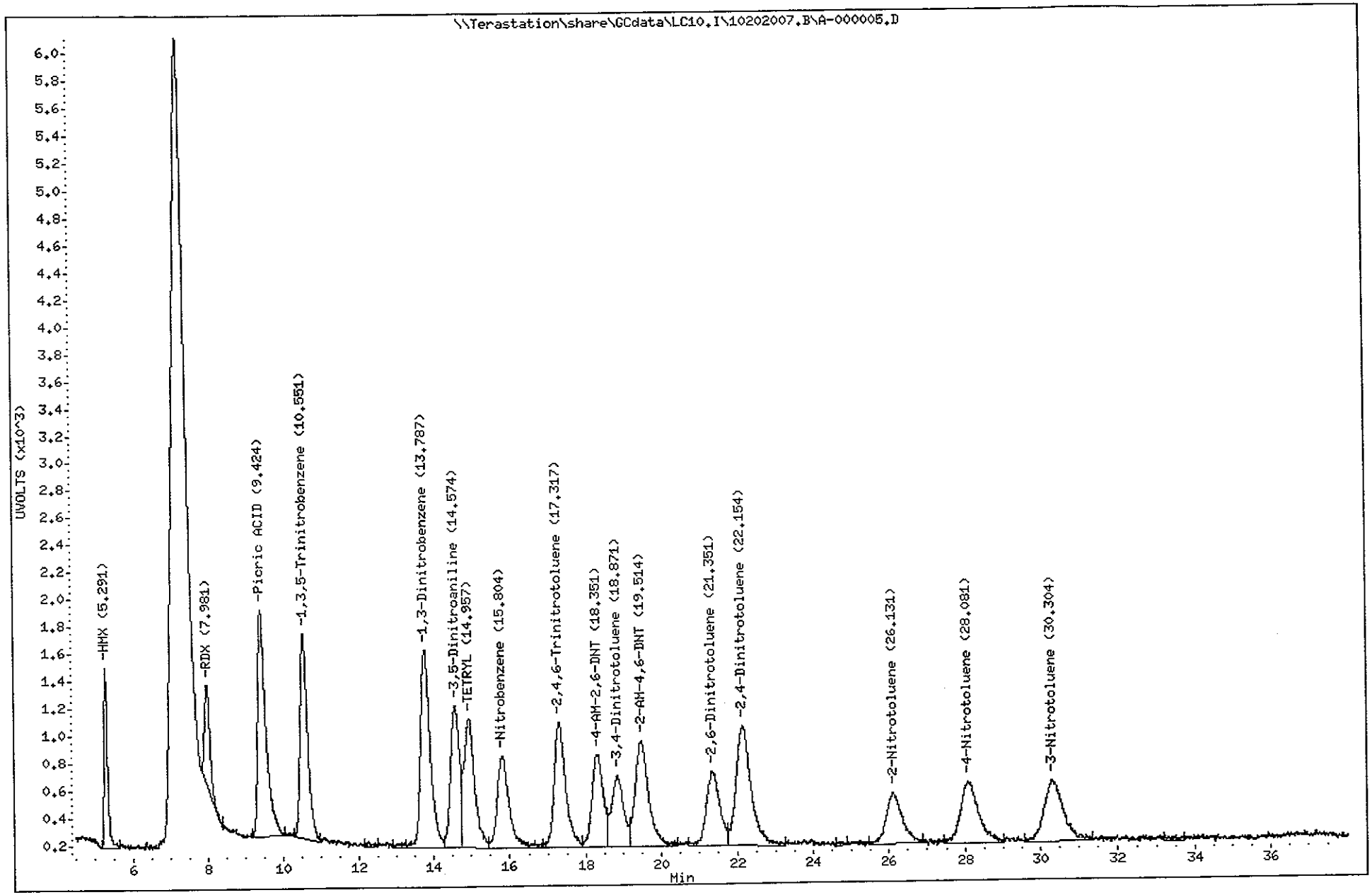
Total unknown % height = 0.9100

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Data File: A-000005.D
Report Date: 20-Oct-2007 18:30

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005
Lab Smp Id: STD_2 E070927B 10/2
Inj Date : 20-OCT-2007 17:41
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_2 E070927B 10/20/10/10ng/mL;1
Misc Info : ;2; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 18:30 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 13 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

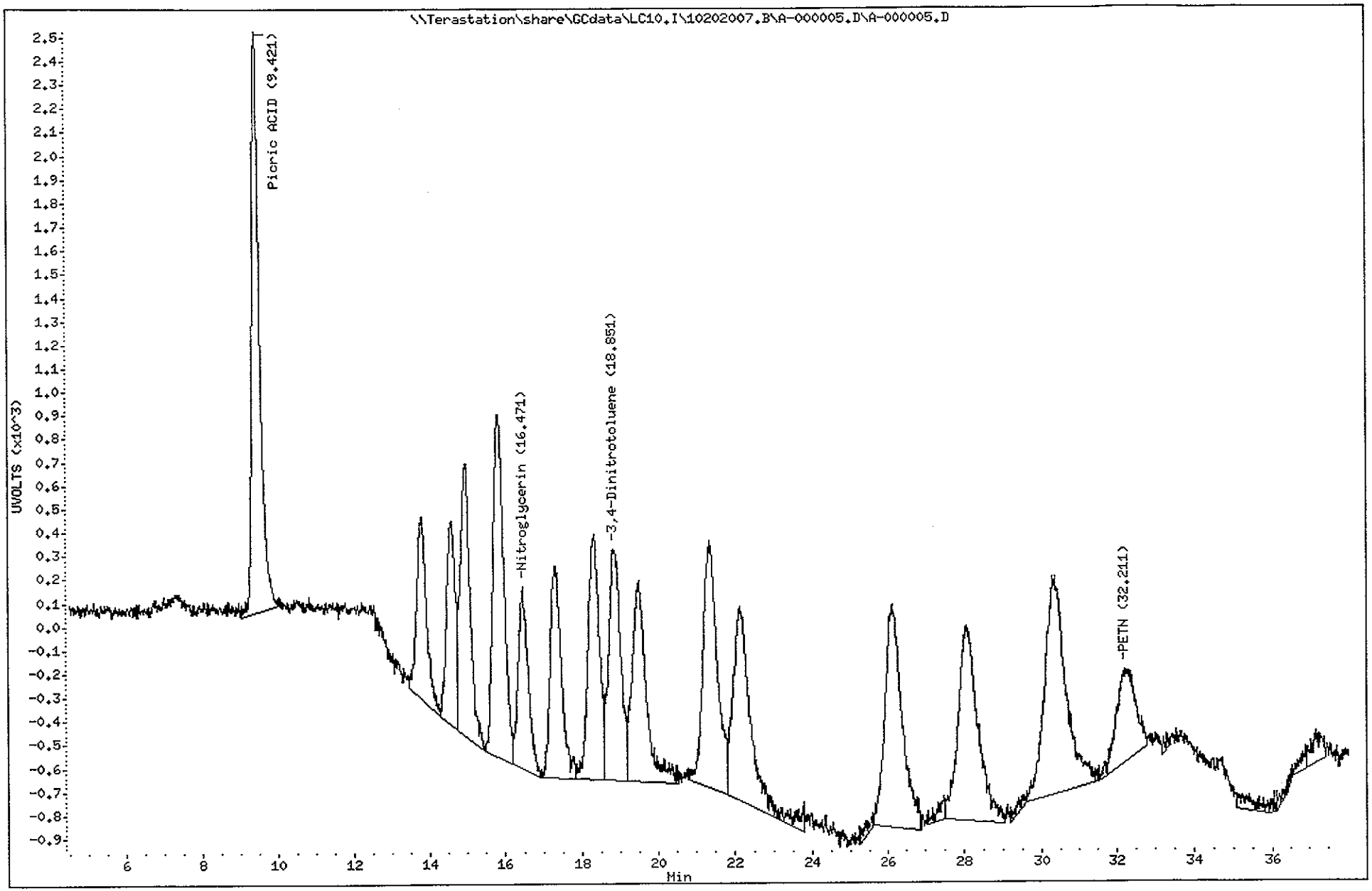
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.421	35582	2466	0.069	14.66	6 Picric ACID
13.791	13782	774	0.056	4.55	
14.574	14339	864	0.060	5.08	
14.967	21298	1161	0.055	6.82	
15.824	28665	1460	0.051	8.58	
16.471	14085	775	0.055	4.55	1 Nitroglycerin
17.347	17948	899	0.050	5.28	
18.337	21358	1040	0.049	6.11	
18.851	21837	979	0.045	5.75	$ 13 3,4-Dinitrotoluene
19.514	21993	851	0.039	5.00	
21.381	27121	1047	0.039	6.15	
22.140	25925	821	0.032	4.82	
25.531	764	38	0.050	0.22	
26.137	30757	948	0.031	5.57	
27.474	1172	99	0.084	0.58	
28.081	28945	831	0.029	4.88	
29.497	796	48	0.060	0.28	
30.351	36511	929	0.025	5.46	
31.671	345	64	0.186	0.37	
32.211	13411	396	0.030	2.32	2 PETN
33.291	409	68	0.166	0.39	
35.381	1725	64	0.037	0.37	
36.020	341	86	0.252	0.50	
36.317	431	28	0.065	0.16	
36.511	267	54	0.202	0.31	
36.881	1003	72	0.072	0.42	
37.174	2566	140	0.055	0.82	
	383379	17002		100.000	

Total unknown % height = 72.72

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000005.D\A-000005.D
Date : 20-OCT-2007 17:41
Client ID:
Sample Info: STD_2 E070927B 10/20/10/10ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 18:34 Operator: KenneyF

DataFile: LC10.I\10202007.B\A-000006.D Vial Num: 14

Instrument ID: LC10

Sample : **STD_3 E070927C 20/50/20/20ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 18:34

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE SubList: EXPSDNA.sub SpikeList:

Samp. Info: STD_3 E070927C 20/50/20/20ng/mL;1

Misc. Info: ;3; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	998	20		49.9	18.87	1882	20		94.1
HMX	5.29	2584	20		129.2			20		0
RDX	7.98	1505	20		75.25			20		0
Picric ACID	9.40	4345	50		86.9	9.41	6397	50		127.94
1,3,5-Trinitrobenzene	10.55	2940	20		147			20		0
1,3-Dinitrobenzene	13.79	2829	20		141.45			20		0
TETRYL	14.96	1835	20		91.75			20		0
Nitrobenzene	15.82	1302	20		65.1			20		0
2,4,6-Trinitrotoluene	17.32	1791	20		89.55			20		0
4-AM-2,6-DNT	18.34	1307	20		65.35			20		0
2-AM-4,6-DNT	19.48	1479	20		73.95			20		0
2,6-Dinitrotoluene	21.39	1043	20		52.15			20		0
2,4-Dinitrotoluene	22.15	1692	20		84.6			20		0
2-Nitrotoluene	26.15	719	20		35.95			20		0
4-Nitrotoluene	28.11	853	20		42.65			20		0
3-Nitrotoluene	30.31	829	20		41.45			20		0
Nitroglycerin			20		0	16.47	1521	20		76.05
PETN			20		0	32.29	888	20		44.4
3,5-Dinitroaniline	14.58	2071	20		103.55			20		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 19:23 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 14 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.288	15506	2584	0.167	8.53		4 HMX
7.982	15805	1505	0.095	4.97		5 RDX
9.402	61763	4345	0.070	14.48		6 Picric ACID
10.548	39417	2940	0.075	9.71		7 1,3,5-Trinitrobenze
13.785	51005	2829	0.055	9.34		8 1,3-Dinitrobenzene
14.575	34921	2071	0.059	6.84		3 3,5-Dinitroaniline
14.955	34678	1835	0.053	6.06		9 TETRYL
15.822	26759	1302	0.049	4.30		10 Nitrobenzene
17.322	35948	1791	0.050	5.91		11 2,4,6-Trinitrotolue
18.342	27623	1307	0.047	4.31		12 4-AM-2,6-DNT
18.878	21365	998	0.047	3.29	$	13 3,4-Dinitrotoluene
19.478	37009	1479	0.040	4.88		14 2-AM-4,6-DNT
21.392	25042	1043	0.042	3.44		15 2,6-Dinitrotoluene
22.152	45221	1692	0.037	5.59		16 2,4-Dinitrotoluene
24.102	541	45	0.083	0.14		
24.978	2374	93	0.039	0.30		
26.152	22587	719	0.032	2.37		17 2-Nitrotoluene
28.108	27852	853	0.031	2.81		18 4-Nitrotoluene
30.305	29152	829	0.028	2.73		19 3-Nitrotoluene
	554567	30260		100.000		

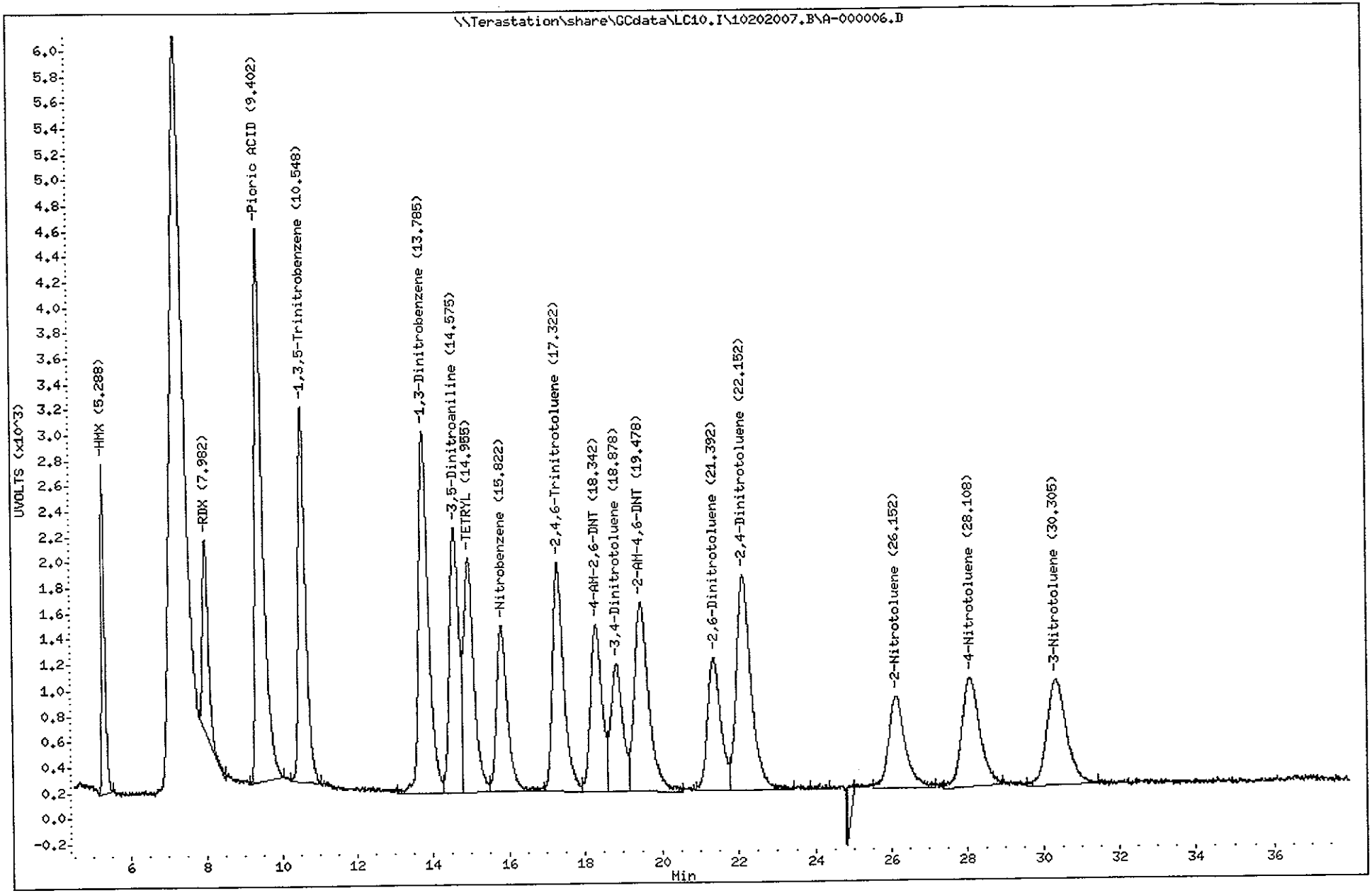
Total unknown % height = 0.4400

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006
Lab Smp Id: STD_3 E070927C 20/5
Inj Date : 20-OCT-2007 18:34
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_3 E070927C 20/50/20/20ng/mL;1
Misc Info : ;3; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 19:23 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 14 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.405	90361	6397	0.071	18.98	6 Picric ACID
13.785	26195	1501	0.057	4.42	
14.578	27652	1705	0.062	5.02	
14.948	40367	2243	0.056	6.61	
15.822	55667	2805	0.050	8.26	
16.468	28565	1521	0.053	4.48	1 Nitroglycerin
17.318	32499	1732	0.053	5.10	
18.345	43232	2059	0.048	6.07	
18.865	39547	1882	0.048	5.54	$ 13 3,4-Dinitrotoluene
19.505	42176	1637	0.039	4.82	
21.365	49944	2003	0.040	5.90	
22.158	41886	1454	0.035	4.28	
24.865	5112	411	0.080	1.21	
25.465	480	66	0.138	0.19	
26.152	47203	1647	0.035	4.85	
28.112	51464	1525	0.030	4.49	
29.402	800	99	0.124	0.29	
29.605	1192	136	0.114	0.40	
30.322	62540	1673	0.027	4.93	
32.292	39523	888	0.022	2.61	2 PETN
33.578	921	88	0.096	0.25	
35.552	1493	86	0.058	0.25	
36.398	332	58	0.174	0.17	
36.735	788	79	0.100	0.23	
36.998	3128	133	0.043	0.39	
37.638	586	91	0.155	0.26	
	733654	33919		100.000	

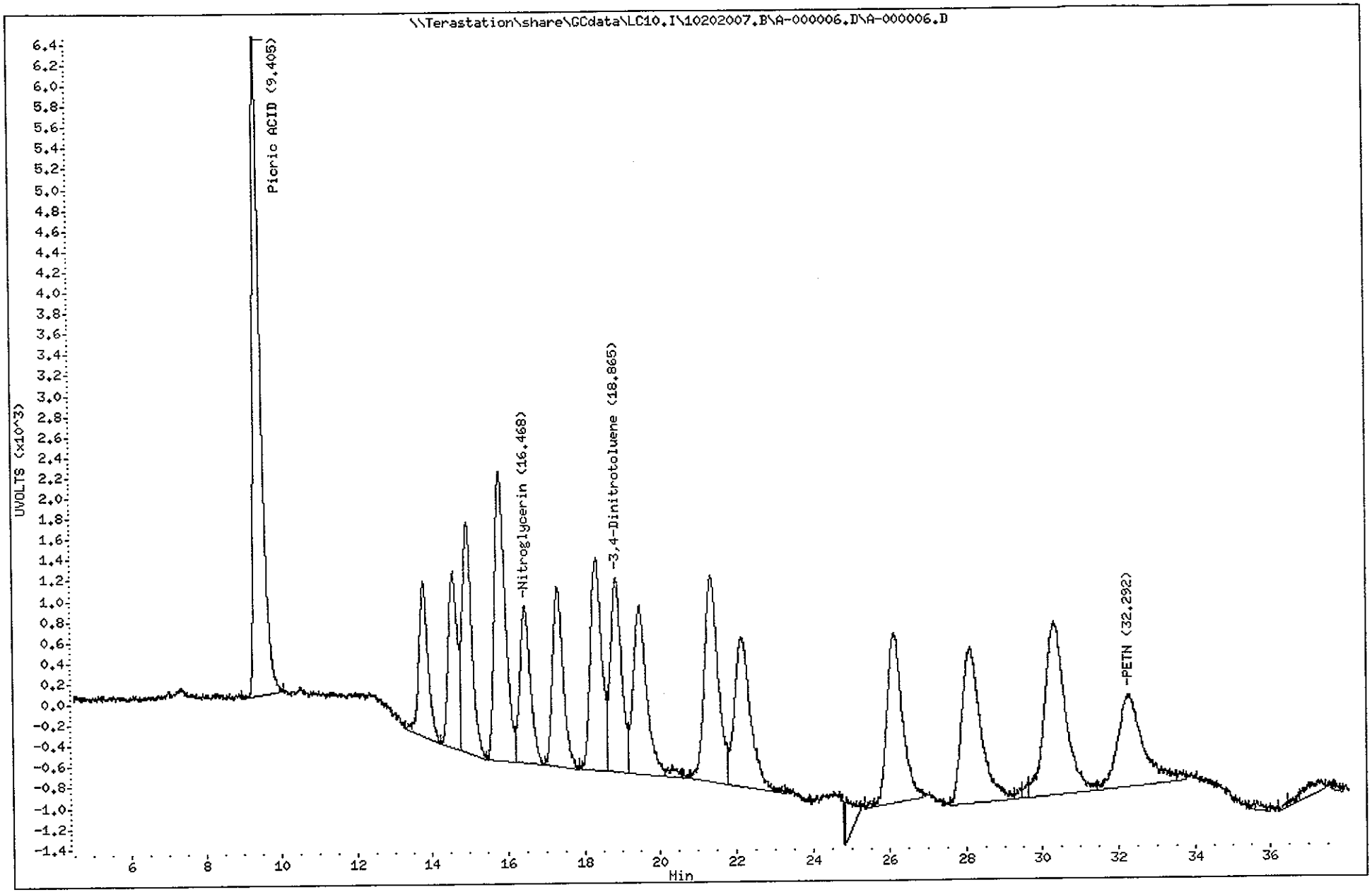
Total unknown % height = 68.39

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000006.D\A-000006.D
Date : 20-OCT-2007 18:34
Client ID:
Sample Info: STD_3 E070927C 20/50/20/20ng/mL;1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

TestAmerica West Sacramento

A-000007.D

Chromatography Summary

Injection Date: 10/20/2007 19:27 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000007.D **Vial Num:** 15

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_4 E070927D 50/100/50/50ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 19:27

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_4 E070927D 50/100/50/50ng/mL;1

Misc. Info: ;4; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.88	2446	50		48.92	18.88	4711	50		94.22
HMX	5.29	6576	50		131.52			50		0
RDX	7.99	4025	50		80.5			50		0
Picric ACID	9.39	8554	100		85.54	9.39	12576	100		125.76
1,3,5-Trinitrobenzene	10.55	7440	50		148.8			50		0
1,3-Dinitrobenzene	13.78	7048	50		140.96			50		0
TETRYL	14.96	4463	50		89.26			50		0
Nitrobenzene	15.82	3134	50		62.68			50		0
2,4,6-Trinitrotoluene	17.33	4421	50		88.42			50		0
4-AM-2,6-DNT	18.34	3221	50		64.42			50		0
2-AM-4,6-DNT	19.51	3680	50		73.6			50		0
2,6-Dinitrotoluene	21.39	2550	50		51			50		0
2,4-Dinitrotoluene	22.17	4190	50		83.8			50		0
2-Nitrotoluene	26.15	1776	50		35.52			50		0
4-Nitrotoluene	28.09	2126	50		42.52			50		0
3-Nitrotoluene	30.35	2068	50		41.36			50		0
Nitroglycerin			50		0	16.48	3688	50		73.76
PETN			50		0	32.30	1901	50		38.02
3,5-Dinitroaniline	14.58	4996	50		99.92			50		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:47 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.290	41171	6576	0.160	9.03		4	HMX
7.990	43387	4025	0.093	5.53		5	RDX
9.393	123968	8554	0.069	11.86		6	Picric ACID
10.553	100035	7440	0.074	10.22		7	1,3,5-Trinitrobenze
12.773	265	32	0.121	0.04			
13.780	123152	7048	0.057	9.68		8	1,3-Dinitrobenzene
14.580	84004	4996	0.059	6.86		3	3,5-Dinitroaniline
14.960	81009	4463	0.055	6.13		9	TETRYL
15.820	60573	3134	0.052	4.30		10	Nitrobenzene
17.333	88986	4421	0.050	6.07		11	2,4,6-Trinitrotolue
18.343	67148	3221	0.048	4.42		12	4-AM-2,6-DNT
18.877	52424	2446	0.047	3.36	$	13	3,4-Dinitrotoluene
19.507	90136	3680	0.041	5.05		14	2-AM-4,6-DNT
21.387	61040	2550	0.042	3.50		15	2,6-Dinitrotoluene
22.167	109998	4190	0.038	5.75		16	2,4-Dinitrotoluene
26.147	53033	1776	0.033	2.44		17	2-Nitrotoluene
28.093	69593	2126	0.031	2.92		18	4-Nitrotoluene
30.350	72866	2068	0.028	2.84		19	3-Nitrotoluene
	1322790	72746		100.000			

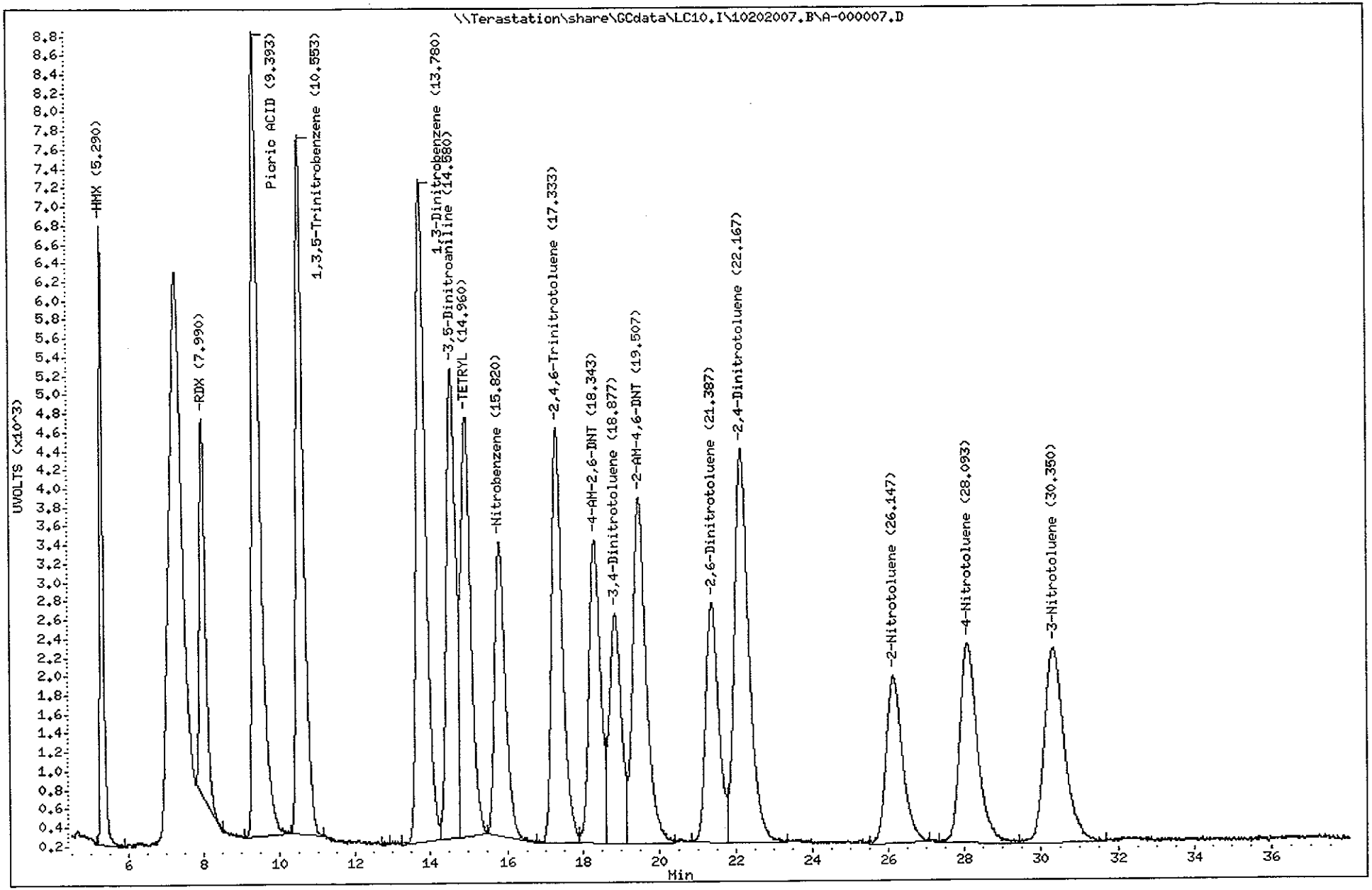
Total unknown % height = 0.04000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007
Lab Smp Id: STD_4 E070927D 50/1
Inj Date : 20-OCT-2007 19:27
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_4 E070927D 50/100/50/50ng/mL;1
Misc Info : ;4; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 20:16 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 15 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.393	179377	12576	0.070	16.30	6 Picric ACID
13.773	61726	3644	0.059	4.69	
14.580	68535	4110	0.060	5.29	
14.957	100107	5661	0.057	7.29	
15.823	129545	6781	0.052	8.73	
16.483	68273	3688	0.054	4.75	1 Nitroglycerin
17.333	84929	4447	0.052	5.72	
18.340	105334	5158	0.049	6.64	
18.877	101259	4711	0.047	6.06	$ 13 3,4-Dinitrotoluene
19.510	97523	4074	0.042	5.24	
21.370	117085	4776	0.041	6.15	
22.173	97888	3504	0.036	4.51	
25.300	1564	123	0.079	0.15	
26.143	135781	4319	0.032	5.56	
27.467	523	65	0.124	0.08	
28.100	116919	3682	0.031	4.74	
30.330	139582	4015	0.029	5.17	
32.297	69868	1901	0.027	2.44	2 PETN
34.787	454	67	0.148	0.08	
35.443	394	62	0.157	0.07	
35.947	1240	66	0.053	0.08	
37.183	1474	97	0.066	0.12	
37.380	1904	114	0.060	0.14	
	1681285	77641		100.000	

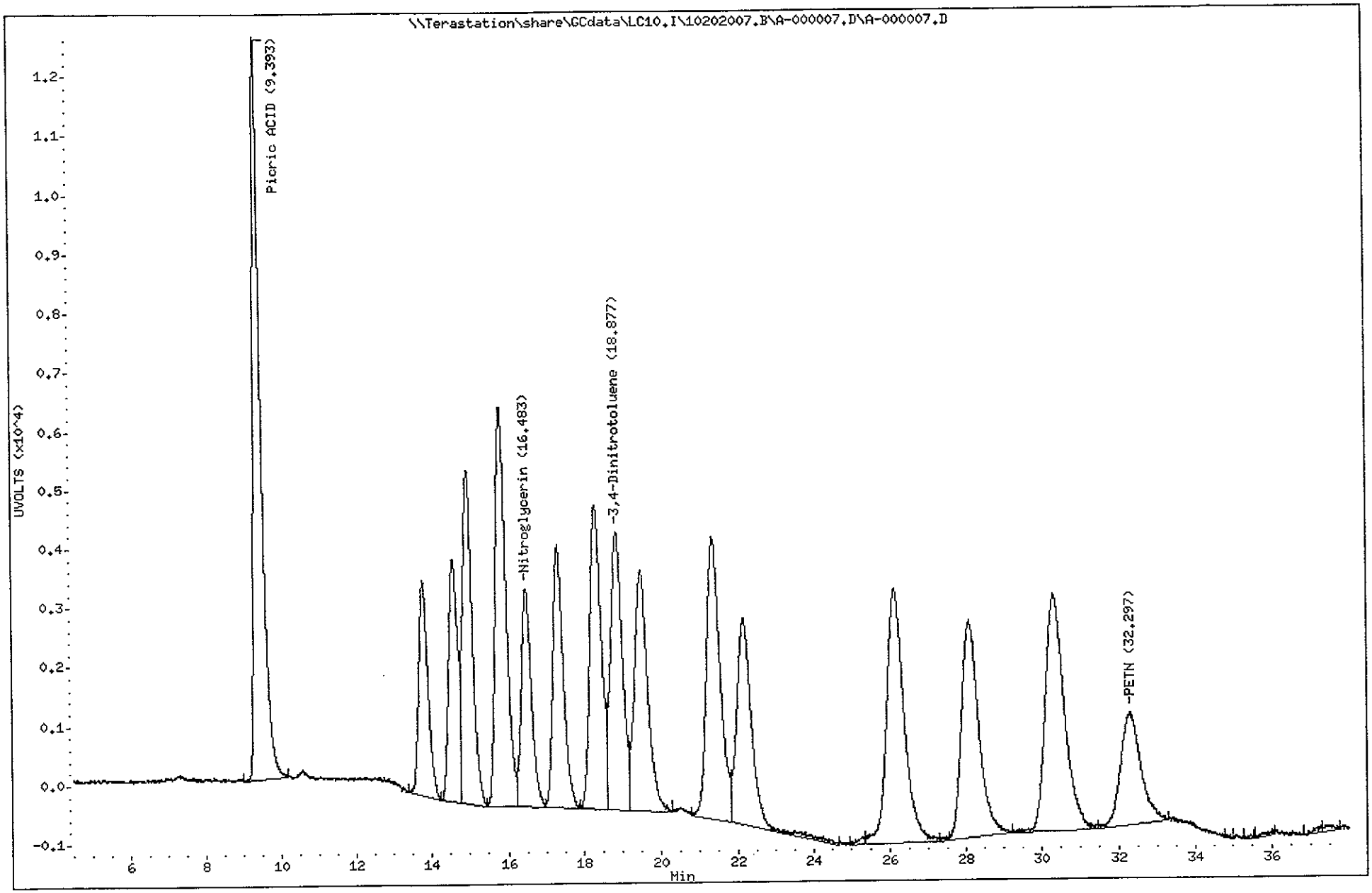
Total unknown % height = 70.45

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000007.D\A-000007.D
Date : 20-OCT-2007 19:27
Client ID:
Sample Info: STD_4 E070927D 50/100/50/50ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica North Canton

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 20:20 Operator: KenneyF

DataFile: LC10.I\10202007.B\A-000008.D Vial Num: 16

Instrument ID: LC10

Sample : **STD_5 E071007D 100/200/100/100ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 20:20

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE SubList: EXPSDNA.sub SpikeList:

Samp. Info: STD_5 E071007D 100/200/100/100ng/mL;1

Misc. Info: ;5; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.87	4723	100		47.23	18.87	9161	100		91.61
HMX	5.28	13153	100		131.53			100		0
RDX	7.98	8180	100		81.8			100		0
Picric ACID	9.37	17317	200		86.585	9.37	25508	200		127.54
1,3,5-Trinitrobenzene	10.55	14896	100		148.96			100		0
1,3-Dinitrobenzene	13.78	14209	100		142.09			100		0
TETRYL	14.95	8988	100		89.88			100		0
Nitrobenzene	15.82	6439	100		64.39			100		0
2,4,6-Trinitrotoluene	17.33	8784	100		87.84			100		0
4-AM-2,6-DNT	18.33	6445	100		64.45			100		0
2-AM-4,6-DNT	19.50	7347	100		73.47			100		0
2,6-Dinitrotoluene	21.37	5154	100		51.54			100		0
2,4-Dinitrotoluene	22.15	8447	100		84.47			100		0
2-Nitrotoluene	26.11	3552	100		35.52			100		0
4-Nitrotoluene	28.07	4286	100		42.86			100		0
3-Nitrotoluene	30.29	4155	100		41.55			100		0
Nitroglycerin			100		0	16.48	7617	100		76.17
PETN			100		0	32.23	4110	100		41.1
3,5-Dinitroaniline	14.58	9422	100		94.22			100		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

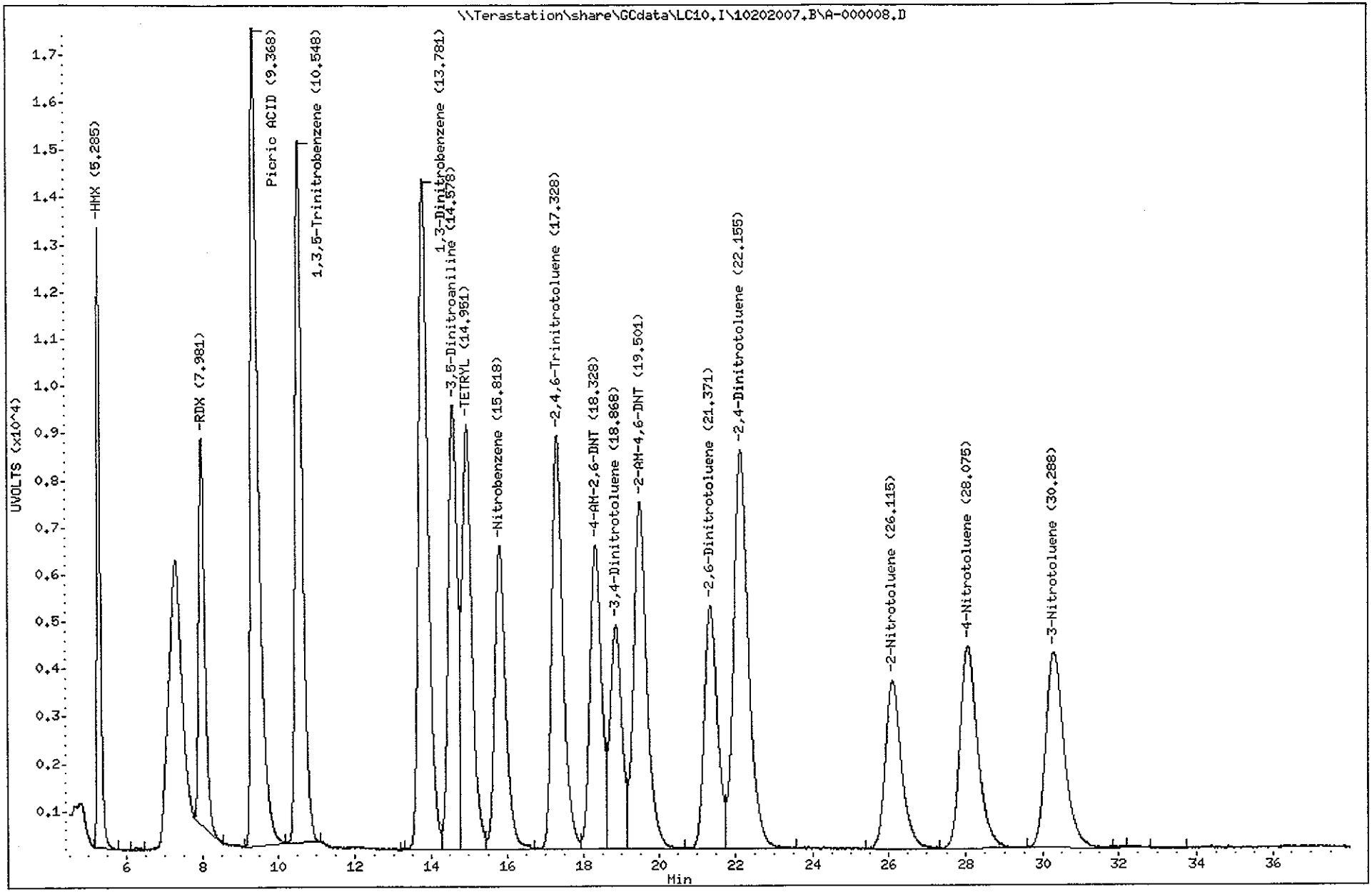
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.285	81462	13153	0.161	9.02		4 HMX
6.228	587	61	0.104	0.04		
7.981	90345	8180	0.091	5.61		5 RDX
9.368	250164	17317	0.069	11.99		6 Picric ACID
10.548	200917	14896	0.074	10.22		7 1,3,5-Trinitrobenze
13.231	127	27	0.213	0.01		
13.781	249537	14209	0.057	9.75		8 1,3-Dinitrobenzene
14.578	159490	9422	0.059	6.46		3 3,5-Dinitroaniline
14.951	166633	8988	0.054	6.17		9 TETRYL
15.818	130004	6439	0.050	4.42		10 Nitrobenzene
17.328	177433	8784	0.050	6.03		11 2,4,6-Trinitrotolue
18.328	134667	6445	0.048	4.42		12 4-AM-2,6-DNT
18.868	100998	4723	0.047	3.24	$	13 3,4-Dinitrotoluene
19.501	181043	7347	0.041	5.04		14 2-AM-4,6-DNT
21.371	122716	5154	0.042	3.53		15 2,6-Dinitrotoluene
22.155	222535	8447	0.038	5.79		16 2,4-Dinitrotoluene
26.115	106988	3552	0.033	2.43		17 2-Nitrotoluene
28.075	137833	4286	0.031	2.94		18 4-Nitrotoluene
30.288	144554	4155	0.029	2.85		19 3-Nitrotoluene
32.075	482	39	0.081	0.02		
33.138	1107	36	0.033	0.02		
	2659621	145660		100.000		

Total unknown % height = 0.09000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008
Lab Smp Id: STD_5 E071007D 100/
Inj Date : 20-OCT-2007 20:20
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_5 E071007D 100/200/100/100ng/mL;1
Misc Info : ;5; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 21:09 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 16 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.368	368386	25508	0.069	16.62	6 Picric ACID
10.505	4399	262	0.060	0.16	
13.778	124635	7299	0.059	4.72	
14.578	121667	7687	0.063	4.97	
14.955	203655	11124	0.055	7.20	
15.818	258138	13514	0.052	8.75	
16.478	140715	7617	0.054	4.93	1 Nitroglycerin
17.325	170577	8804	0.052	5.70	
18.328	208877	10306	0.049	6.67	
18.875	197871	9161	0.046	5.93	$ 13 3,4-Dinitrotoluene
19.498	199092	8078	0.041	5.23	
21.375	230580	9499	0.041	6.15	
22.148	188673	7034	0.037	4.55	
26.118	254477	8504	0.033	5.50	
28.051	236370	7411	0.031	4.79	
29.461	339	57	0.168	0.03	
30.288	283465	8129	0.029	5.26	
32.235	158155	4110	0.026	2.66	2 PETN
35.515	288	65	0.225	0.04	
35.958	1016	67	0.066	0.04	
36.725	274	76	0.278	0.04	
36.868	175	69	0.395	0.04	
37.301	263	42	0.159	0.02	
	3352087	154423		100.000	

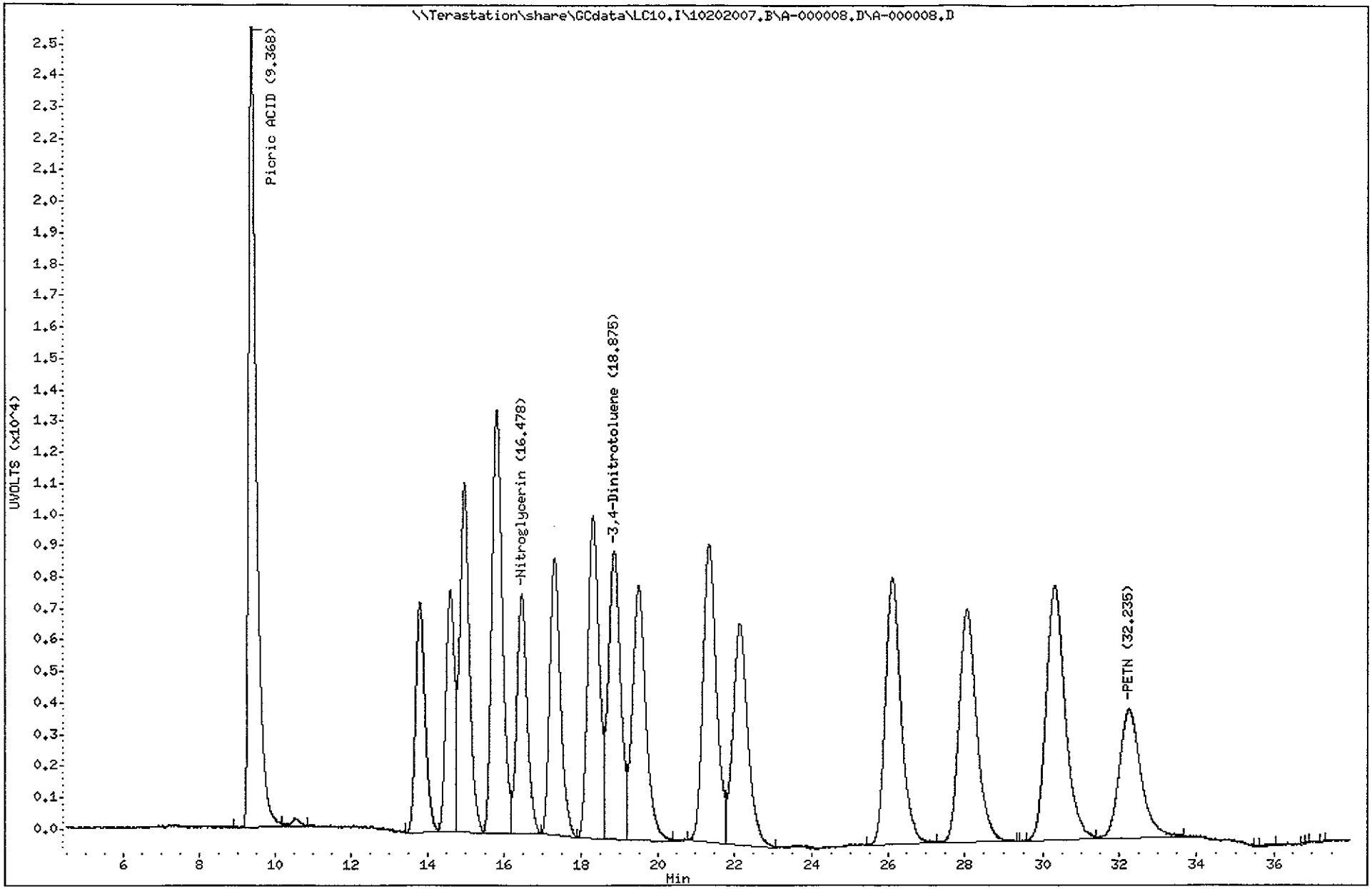
Total unknown % height = 69.86

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000008.D\A-000008.D
Date : 20-OCT-2007 20:20
Client ID:
Sample Info: STD_5 E071007D 100/200/100/100ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica North Canton

A-000009.D

Chromatography Summary

Method 8330 Target Analyte Results

Sample : **STD_6 E071007E 200/500/200/200ng/mL**

Matrix: NONE SubList: EXPSDNA.sub SpikeList:

Samp. Info: STD_6 E071007E 200/500/200/200ng/mL;1

Misc. Info: ;6; ; ; ;3;EXPSDNA.sub; ;0;1

Injection Date: 10/20/2007 21:13 Operator: KenneyF

DataFile: LC10.I\10202007.B\A-000009.D Vial Num: 17

Instrument ID: LC10

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 End Cal Date: 10/20/2007 21:13

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.85	9627	200		48.135	18.86	18735	200		93.675
HMX	5.29	26225	200		131.125			200		0
RDX	7.99	16410	200		82.05			200		0
Picric ACID	9.33	42194	500		84.388	9.33	62164	500		124.328
1,3,5-Trinitrobenzene	10.55	29758	200		148.79			200		0
1,3-Dinitrobenzene	13.77	28344	200		141.72			200		0
TETRYL	14.94	17946	200		89.73			200		0
Nitrobenzene	15.81	12860	200		64.3			200		0
2,4,6-Trinitrotoluene	17.32	17569	200		87.845			200		0
4-AM-2,6-DNT	18.32	12854	200		64.27			200		0
2-AM-4,6-DNT	19.49	14692	200		73.46			200		0
2,6-Dinitrotoluene	21.36	10270	200		51.35			200		0
2,4-Dinitrotoluene	22.14	16871	200		84.355			200		0
2-Nitrotoluene	26.11	7096	200		35.48			200		0
4-Nitrotoluene	28.05	8568	200		42.84			200		0
3-Nitrotoluene	30.28	8317	200		41.585			200		0
Nitroglycerin			200		0	16.47	14641	200		73.205
PETN			200		0	32.22	7903	200		39.515
3,5-Dinitroaniline	14.57	19139	200		95.695			200		0

Notes:

M = Manually Integrated

D = Operator Disabled Result

O = Over Calibration Range

< = Primary Value

4 = Signals Differ by More Than 40%

5 = Signals Differ by More Than 50%

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Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

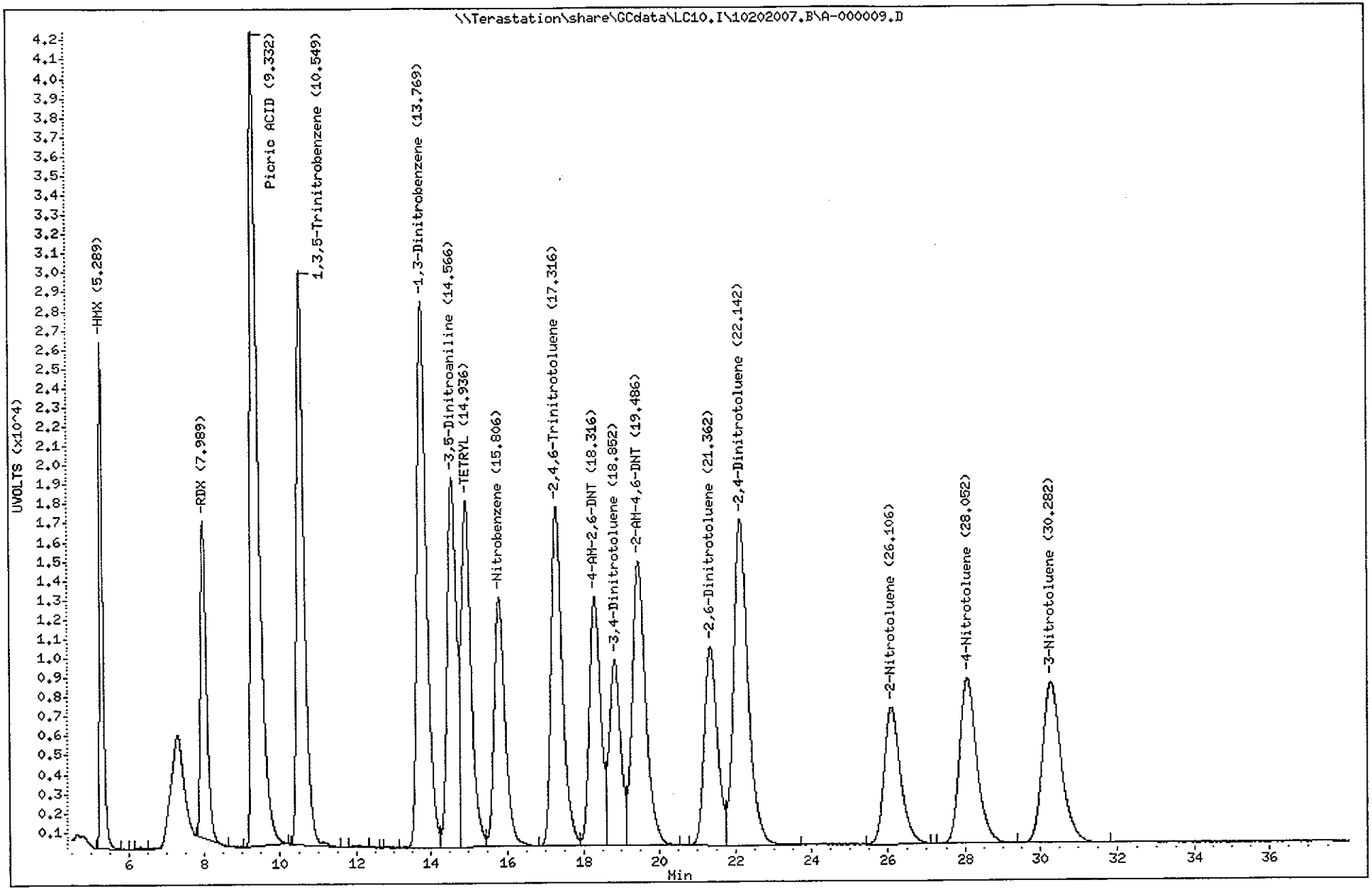
RT	AREA	HEIGHT	HT/AREA	% HEIGHT		COMPOUNDS
5.289	163008	26225	0.161	8.77		4 HMX
6.059	129	24	0.186	0.00		
6.279	1078	108	0.100	0.03		
7.989	183479	16410	0.089	5.48		5 RDX
9.332	615660	42194	0.069	14.21		6 Picric ACID
10.549	406166	29758	0.073	9.95		7 1,3,5-Trinitrobenze
11.966	1271	84	0.066	0.02		
12.686	80	23	0.287	0.00		
13.769	497180	28344	0.057	9.48		8 1,3-Dinitrobenzene
14.566	324925	19139	0.059	6.40		3 3,5-Dinitroaniline
14.936	333352	17946	0.054	6.00		9 TETRYL
15.806	258417	12860	0.050	4.30		10 Nitrobenzene
17.316	351675	17569	0.050	5.87		11 2,4,6-Trinitrotolue
18.316	268224	12854	0.048	4.29		12 4-AM-2,6-DNT
18.852	204311	9627	0.047	3.21	$	13 3,4-Dinitrotoluene
19.486	358173	14692	0.041	4.91		14 2-AM-4,6-DNT
21.362	242697	10270	0.042	3.43		15 2,6-Dinitrotoluene
22.142	441736	16871	0.038	5.64		16 2,4-Dinitrotoluene
26.106	210604	7096	0.034	2.37		17 2-Nitrotoluene
28.052	272856	8568	0.031	2.86		18 4-Nitrotoluene
30.282	285300	8317	0.029	2.78		19 3-Nitrotoluene
	5420322	298979		100.000		

Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL:1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009
Lab Smp Id: STD_6 E071007E 200/
Inj Date : 20-OCT-2007 21:13
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_6 E071007E 200/500/200/200ng/mL;1
Misc Info : ;6; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:02 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 17 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.289	883	102	0.116	0.03	
9.332	912724	62164	0.068	19.54	6 Picric ACID
10.546	7894	491	0.062	0.15	
13.769	251003	14729	0.059	4.60	
14.566	246725	15439	0.063	4.82	
14.942	403012	22223	0.055	6.94	
15.806	511259	26779	0.052	8.36	
16.466	268657	14641	0.054	4.57	1 Nitroglycerin
17.316	341261	17686	0.052	5.52	
18.316	421866	20584	0.049	6.43	
18.856	400001	18735	0.047	5.85	$ 13 3,4-Dinitrotoluene
19.482	393088	16204	0.041	5.06	
21.366	459888	18984	0.041	5.93	
22.142	384904	14200	0.037	4.43	
26.109	505043	16985	0.034	5.30	
28.049	481217	14978	0.031	4.68	
29.582	1125	115	0.102	0.03	
30.282	560830	16235	0.029	5.07	
32.219	324053	7903	0.024	2.46	2 PETN
34.269	8333	285	0.034	0.08	
34.829	8854	237	0.027	0.07	
36.056	857	66	0.077	0.02	
36.572	403	67	0.166	0.02	
36.902	727	83	0.114	0.02	
37.566	2545	80	0.031	0.02	
	6897152	319995		100.000	

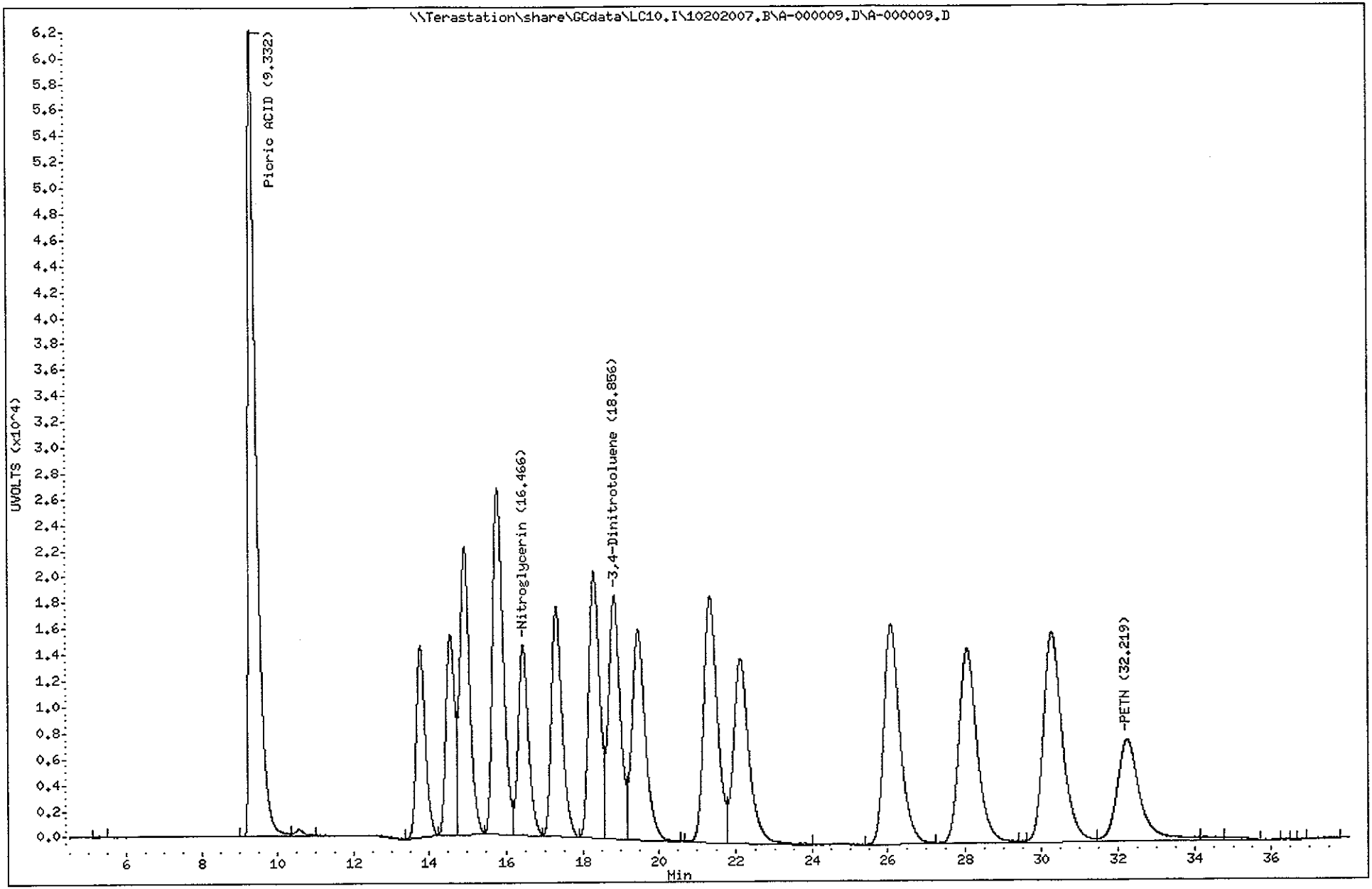
Total unknown % height = 67.58

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000009.D\A-000009.D
Date : 20-OCT-2007 21:13
Client ID:
Sample Info: STD_6 E071007E 200/500/200/200ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000010.D

Chromatography Summary

Injection Date: 10/20/2007 22:06 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000010.D **Vial Num:** 18

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_7 E071007F 500/1000/500/300ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:06

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Misc. Info: ;7; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.82	15067	300		50.22333333	18.82	28982	300		96.60666667
HMX	5.28	65773	500		131.546			500		0
RDX	7.97	41983	500		83.966			500		0
Picric ACID	9.26	79625	1000		79.625	9.26	117141	1000		117.141
1,3,5-Trinitrobenzene	10.53	74825	500		149.65			500		0
1,3-Dinitrobenzene	13.75	71394	500		142.788			500		0
TETRYL	14.91	44987	500		89.974			500		0
Nitrobenzene	15.78	32270	500		64.54			500		0
2,4,6-Trinitrotoluene	17.29	43867	500		87.734			500		0
4-AM-2,6-DNT	18.29	32178	500		64.356			500		0
2-AM-4,6-DNT	19.45	36672	500		73.344			500		0
2,6-Dinitrotoluene	21.32	25602	500		51.204			500		0
2,4-Dinitrotoluene	22.10	42195	500		84.39			500		0
2-Nitrotoluene	26.06	17620	500		35.24			500		0
4-Nitrotoluene	28.00	21334	500		42.668			500		0
3-Nitrotoluene	30.22	20719	500		41.438			500		0
Nitroglycerin			500		0	16.44	37193	500		74.386
PETN			500		0	32.16	19248	500		38.496
3,5-Dinitroaniline	14.55	48257	500		96.514			500		0

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

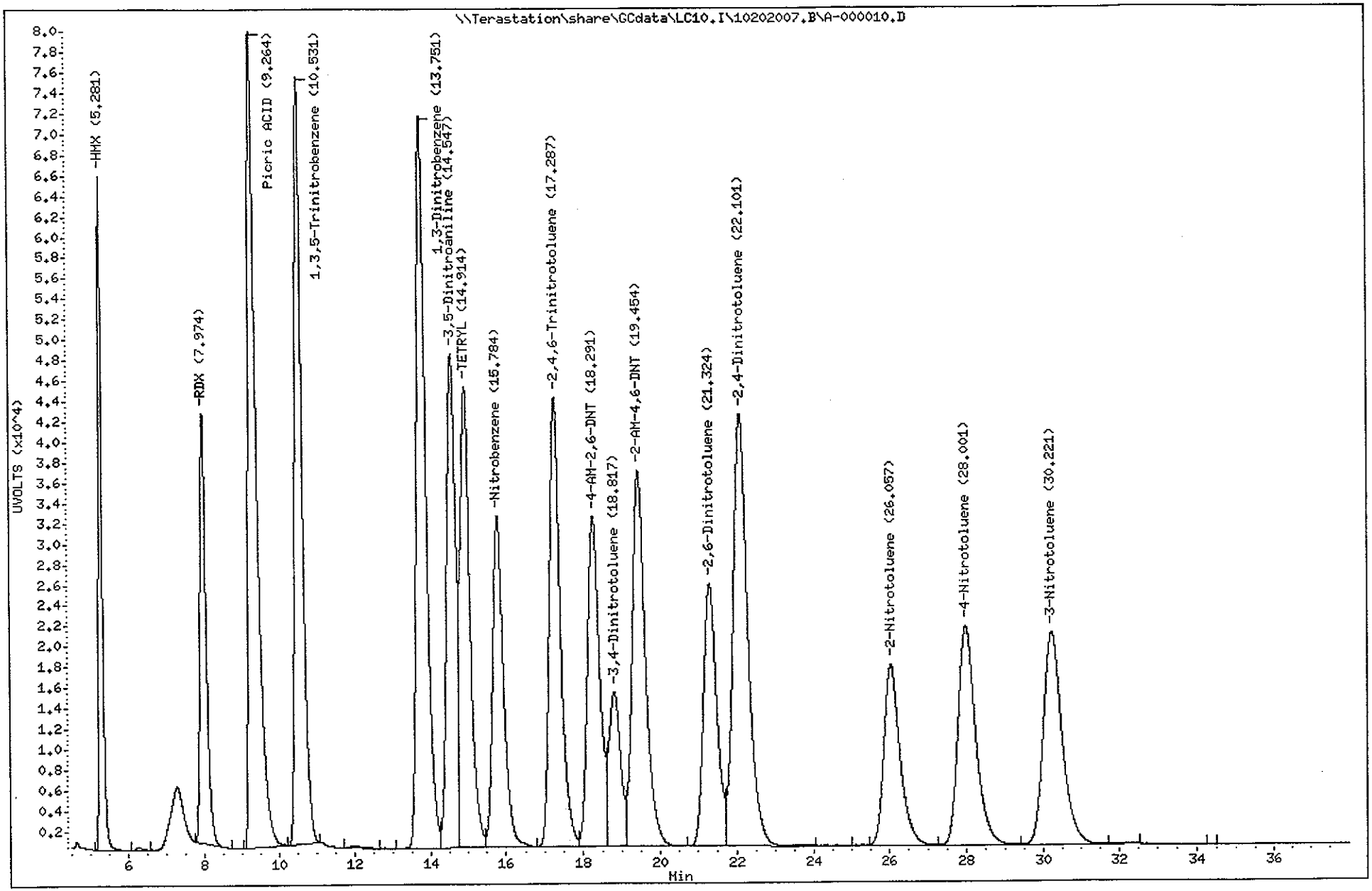
RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.281	410325	65773	0.160	9.19		4	HMX
6.281	2950	254	0.086	0.03			
7.974	465148	41983	0.090	5.87		5	RDX
9.264	1228542	79625	0.065	11.24		6	Picric ACID
10.531	1002306	74825	0.075	10.46		7	1,3,5-Trinitrobenze
11.941	3703	200	0.054	0.02			
13.751	1240420	71394	0.058	9.98		8	1,3-Dinitrobenzene
14.547	809193	48257	0.060	6.74		3	3,5-Dinitroaniline
14.914	834916	44987	0.054	6.29		9	TETRYL
15.784	643162	32270	0.050	4.51		10	Nitrobenzene
17.287	879213	43867	0.050	6.13		11	2,4,6-Trinitrotolue
18.291	677729	32178	0.047	4.50		12	4-AM-2,6-DNT
18.817	316217	15067	0.048	2.10	$	13	3,4-Dinitrotoluene
19.454	884689	36672	0.041	5.12		14	2-AM-4,6-DNT
21.324	603867	25602	0.042	3.58		15	2,6-Dinitrotoluene
22.101	1104143	42195	0.038	5.90		16	2,4-Dinitrotoluene
25.331	420	31	0.074	0.00			
26.057	521699	17620	0.034	2.46		17	2-Nitrotoluene
28.001	677190	21334	0.032	2.98		18	4-Nitrotoluene
30.221	707457	20719	0.029	2.89		19	3-Nitrotoluene
32.101	2194	82	0.037	0.01			
34.354	295	41	0.139	0.00			
	13015777	714976		100.000			

Total unknown % height = 0.06000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010
Lab Smp Id: STD_7 E071007F 500/
Inj Date : 20-OCT-2007 22:06
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_7 E071007F 500/1000/500/300ng/mL;1
Misc Info : ;7; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 22:55 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.294	1833	199	0.109	0.02	
7.964	1343	136	0.101	0.01	
9.264	1821347	117141	0.064	15.88	6 Picric ACID
10.527	20260	1218	0.060	0.16	
13.751	644528	37394	0.058	5.02	
14.547	635653	39676	0.062	5.33	
14.917	1043481	56362	0.054	7.58	
15.784	1306817	67971	0.052	9.14	
16.437	701571	37193	0.053	5.00	1 Nitroglycerin
17.287	869130	44560	0.051	5.99	
18.291	1061954	51459	0.048	6.92	
18.817	610675	28982	0.047	3.89	$ 13 3,4-Dinitrotoluene
19.454	965244	40106	0.042	5.39	
21.321	1122816	46976	0.042	6.31	
22.101	921502	34951	0.038	4.70	
26.057	1240736	42066	0.034	5.65	
28.001	1176921	37224	0.032	5.00	
30.224	1370990	40129	0.029	5.39	
32.160	722564	19248	0.027	2.58	2 PETN
33.964	301	50	0.166	0.00	
34.297	642	62	0.097	0.00	
34.621	1117	115	0.103	0.01	
35.054	2033	81	0.040	0.01	
35.717	1545	69	0.045	0.00	
36.467	1989	80	0.040	0.01	
37.124	905	78	0.086	0.01	
	16247898	743526		100.000	

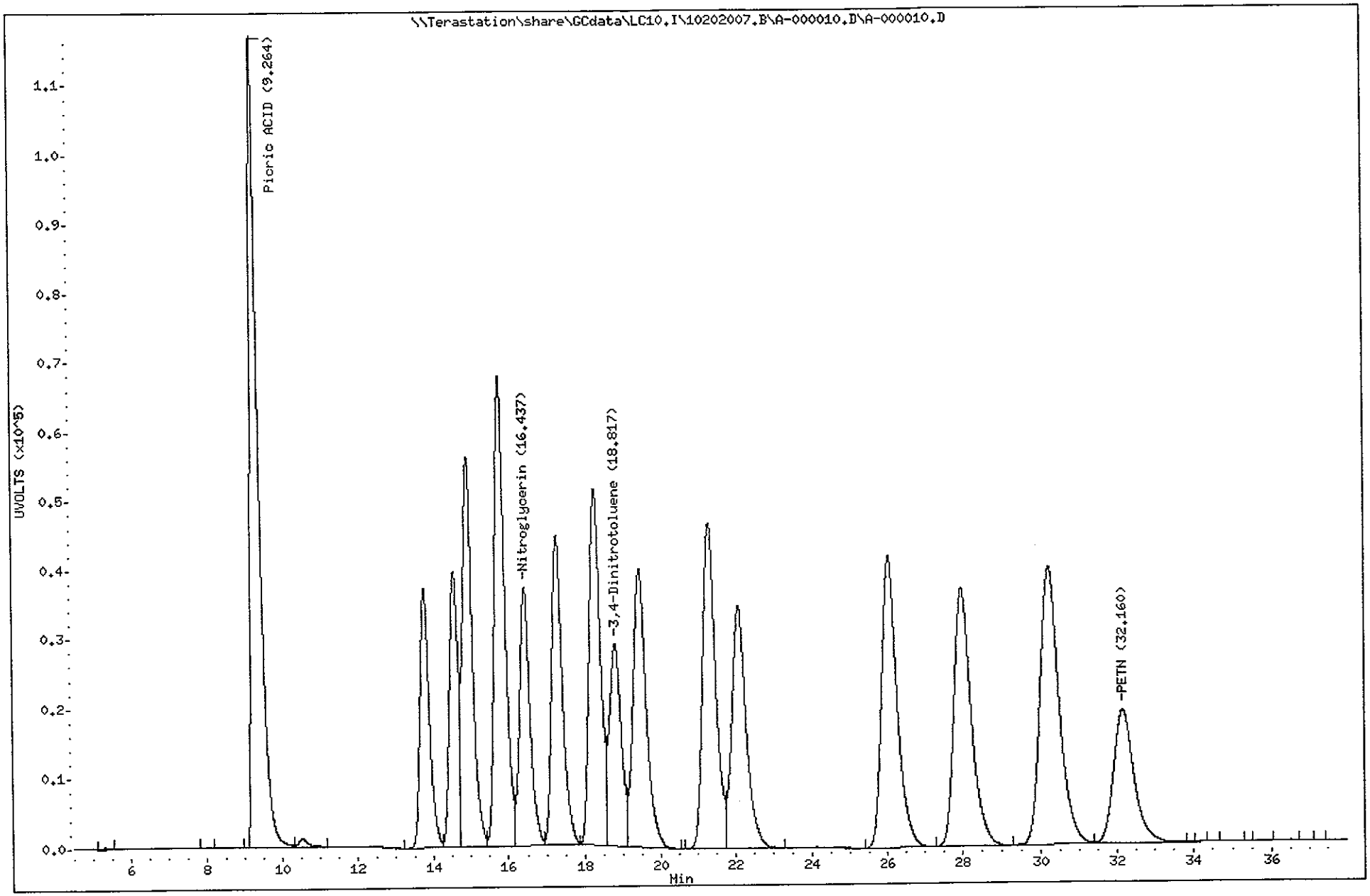
Total unknown % height = 72.65

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000010.D\A-000010.D
Date : 20-OCT-2007 22:06
Client ID:
Sample Info: STD_7 E071007F 500/1000/500/300ng/mL:1

Column phase: SYNERGI HYDRORP C18

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60



TestAmerica West Sacramento

A-000011.D

Chromatography Summary

Injection Date: 10/20/2007 22:59 **Operator:** KenneyF

DataFile: LC10.I\10202007.B\A-000011.D **Vial Num:** 19

Instrument ID: LC10

Method 8330 Target Analyte Results

Sample : **STD_8 E071007G 1000/2000/1000/500ng/mL**

Method File: LC10.I\10202007.B\8330AB.M

Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**

Samp. Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Misc. Info: ;8; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205				
Compound Name	RT	Response	Spike Level	Flag	Response Factor	RT	Response	Spike Level	Flag	Response Factor
3,4-Dinitrotoluene	18.80	25435	500	O	50.87	18.80	49635	500	O	99.27
HMX	5.28	130528	1000		130.528			1000		0
RDX	7.96	83711	1000	O	83.711			1000		0
Picric ACID	9.17	144474	2000		72.237	9.17	212345	2000		106.1725
1,3,5-Trinitrobenzene	10.52	149546	1000	O	149.546			1000		0
1,3-Dinitrobenzene	13.73	142622	1000		142.622			1000		0
TETRYL	14.90	89705	1000		89.705			1000		0
Nitrobenzene	15.77	64394	1000		64.394			1000		0
2,4,6-Trinitrotoluene	17.27	87749	1000		87.749			1000		0
4-AM-2,6-DNT	18.26	64355	1000		64.355			1000		0
2-AM-4,6-DNT	19.43	73240	1000		73.24			1000		0
2,6-Dinitrotoluene	21.31	51247	1000		51.247			1000		0
2,4-Dinitrotoluene	22.08	84521	1000		84.521			1000		0
2-Nitrotoluene	26.05	35264	1000		35.264			1000		0
4-Nitrotoluene	27.99	42643	1000		42.643			1000		0
3-Nitrotoluene	30.23	41273	1000		41.273			1000		0
Nitroglycerin			1000		0	16.42	76484	1000	O	76.484
PETN			1000		0	32.18	38753	1000		38.753
3,5-Dinitroaniline	14.52	97042	1000		97.042			1000		0

Notes:
- M = Manually Integrated
- D = Operator Disabled Result
- O = Over Calibration Range
- < = Primary Value
- 4 = Signals Differ by More Than 40%
- 5 = Signals Differ by More Than 50%

Printed: 10/23/2007 10:49 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT			COMPOUNDS
5.277	813735	130528	0.160	9.26		4	HMX
6.264	5963	553	0.093	0.03			
7.964	932373	83711	0.090	5.94		5	RDX
9.171	2457170	144474	0.059	10.25		6	Picric ACID
10.517	2031609	149546	0.074	10.74		7	1,3,5-Trinitrobenze
11.957	5975	351	0.059	0.02			
13.734	2469243	142622	0.058	10.12		8	1,3-Dinitrobenzene
14.524	1628874	97042	0.060	6.88		3	3,5-Dinitroaniline
14.897	1658970	89705	0.054	6.36		9	TETRYL
15.771	1279506	64394	0.050	4.57		10	Nitrobenzene
17.274	1747288	87749	0.050	6.22		11	2,4,6-Trinitrotolue
18.264	1360417	64355	0.047	4.56		12	4-AM-2,6-DNT
18.797	520428	25435	0.049	1.80	$	13	3,4-Dinitrotoluene
19.427	1758508	73240	0.042	5.19		14	2-AM-4,6-DNT
21.307	1202009	51247	0.043	3.63		15	2,6-Dinitrotoluene
22.084	2196247	84521	0.038	5.99		16	2,4-Dinitrotoluene
24.707	378	32	0.085	0.00			
26.051	1040936	35264	0.034	2.50		17	2-Nitrotoluene
27.994	1349165	42643	0.032	3.02		18	4-Nitrotoluene
30.231	1408843	41273	0.029	2.92		19	3-Nitrotoluene
32.090	558	49	0.088	0.00			
	25868196	1408734		100.000			

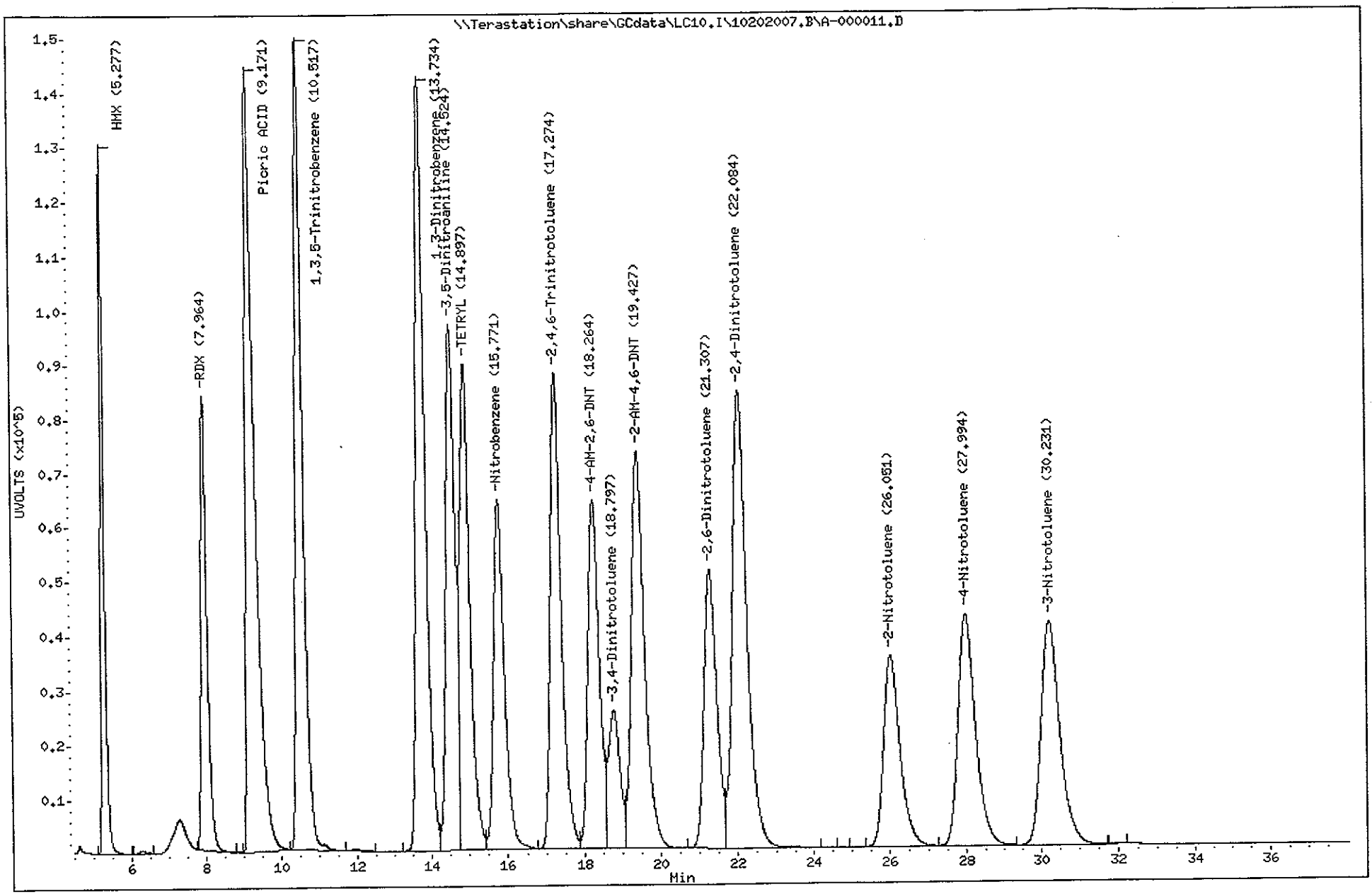
Total unknown % height = 0.05000

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011
Lab Smp Id: STD_8 E071007G 1000
Inj Date : 20-OCT-2007 22:59
Operator : KenneyF Inst ID: LC10.i
Smp Info : STD_8 E071007G 1000/2000/1000/500ng/mL;1
Misc Info : ;8; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 19 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

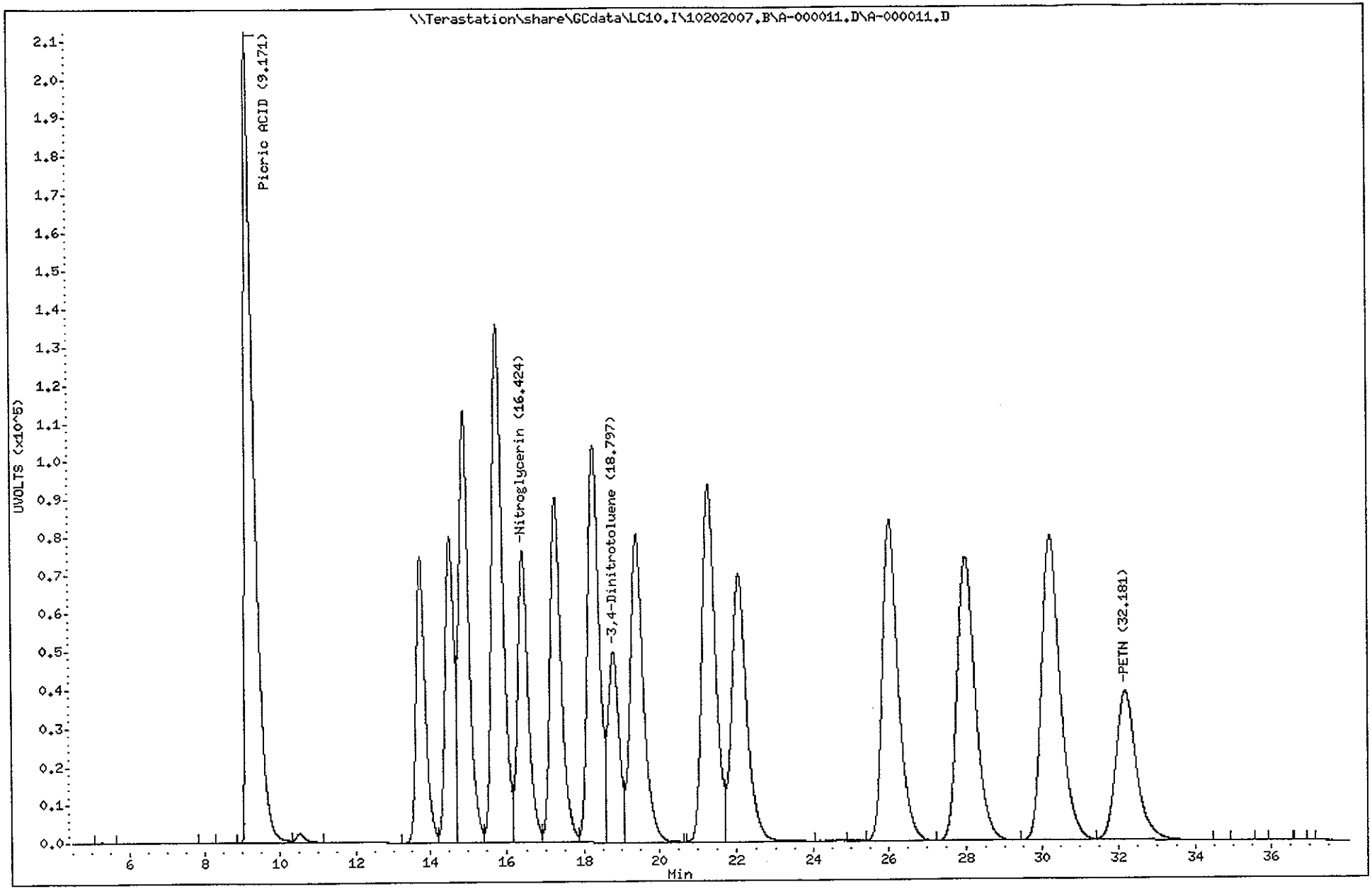
RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
5.267	2842	303	0.107	0.02	
7.957	1951	177	0.091	0.01	
9.171	3634124	212345	0.058	14.62	6 Picric ACID
10.517	35777	2280	0.064	0.15	
13.734	1303508	75093	0.058	5.13	
14.524	1298822	80294	0.062	5.48	
14.901	2108795	113352	0.054	7.74	
15.771	2630858	135938	0.052	9.29	
16.424	1468801	76484	0.052	5.22	1 Nitroglycerin
17.274	1810190	90599	0.050	6.19	
18.264	2181688	104340	0.048	7.13	
18.797	1048205	49635	0.047	3.39	$ 13 3,4-Dinitrotoluene
19.427	1951260	80724	0.041	5.51	
21.304	2230581	93908	0.042	6.41	
22.084	1849536	70033	0.038	4.78	
25.171	3681	185	0.050	0.01	
26.051	2480593	84166	0.034	5.75	
27.994	2348458	74345	0.032	5.08	
30.231	2716024	79877	0.029	5.45	
32.181	1439721	38753	0.027	2.64	2 PETN
35.214	1442	82	0.057	0.00	
36.137	1778	80	0.045	0.00	
36.721	888	66	0.074	0.00	
37.051	405	60	0.148	0.00	
	32549929	1463119		100.000	

Total unknown % height = 74.13

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000011.D\A-000011.D
Date : 20-OCT-2007 22:59
Client ID:
Sample Info: STD_8 E071007G 1000/2000/1000/500ng/mL;1

Instrument: LC10.i
Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



TestAmerica West Sacramento

A-000012.D

Chromatography Summary

Method 8330 Target Analyte Results

Injection Date: 10/20/2007 23:52 **Operator:** KenneyF
DataFile: LC10.I\10202007.B\A-000012.D **Vial Num:** 11
Instrument ID: LC10

Sample : **Blank**

Method File: LC10.I\10202007.B\8330AB.M
Start Cal Date: 10/20/2007 16:48 **End Cal Date:** 10/20/2007 22:59

Dilution Factor	Extract Volume	Sample Volume	Sample Weight
1X	0 mL	0 mL	0 g

Matrix: NONE **SubList:** EXPSDNA.sub **SpikeList:**
Samp. Info: Blank;0
Misc. Info: ; ; ; ; ;3;EXPSDNA.sub; ;0;1

	Signal 1 UV 250-265					Signal 2 UV 358-205							
Compound Name	RT	Diff	Response	PPB	Flag	RT	Diff	Response	PPB	Flag	MDL	RL	Flag
3,4-Dinitrotoluene											0.0000	0.00	
HMX											0.0000	0.00	
RDX											0.0000	0.00	
Picric ACID											0.0000	0.00	
1,3,5-Trinitrobenzene											0.0000	0.00	
1,3-Dinitrobenzene											0.0000	0.00	
TETRYL											0.0000	0.00	
Nitrobenzene											0.0000	0.00	
2,4,6-Trinitrotoluene											0.0000	0.00	
4-AM-2,6-DNT											0.0000	0.00	
2-AM-4,6-DNT											0.0000	0.00	
2,6-Dinitrotoluene											0.0000	0.00	
2,4-Dinitrotoluene											0.0000	0.00	
2-Nitrotoluene											0.0000	0.00	
4-Nitrotoluene											0.0000	0.00	
3-Nitrotoluene											0.0000	0.00	
Nitroglycerin											0.0000	0.00	
PETN						32.31	0.132	82	2.0480<		0.0000	0.00	45
3,5-Dinitroaniline											0.0000	0.00	

Surrogates:	Spiked	Recovered	%Rec	Spiked	Recovered	%Rec	Limits
3,4-Dinitrotoluene	2000.0000		0	2000.0000		0	0--1.#QNAN

Notes:
M = Manually Integrated
D = Operator Disabled Result
O = Over Calibration Range
< = Primary Value
4 = Signals Differ by More Than 40%
5 = Signals Differ by More Than 50%

Printed: 10/23/2007 11:12 AM

Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.b\8330AB.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
9.639	1558	92	0.059	28.70	
10.136	172	31	0.180	9.65	
17.519	400	36	0.090	11.21	
20.953	596	34	0.057	10.59	
21.879	145	29	0.200	9.03	
27.176	553	37	0.067	11.52	
30.679	868	32	0.037	9.96	
32.629	605	30	0.050	9.34	
	4896	321		100.000	

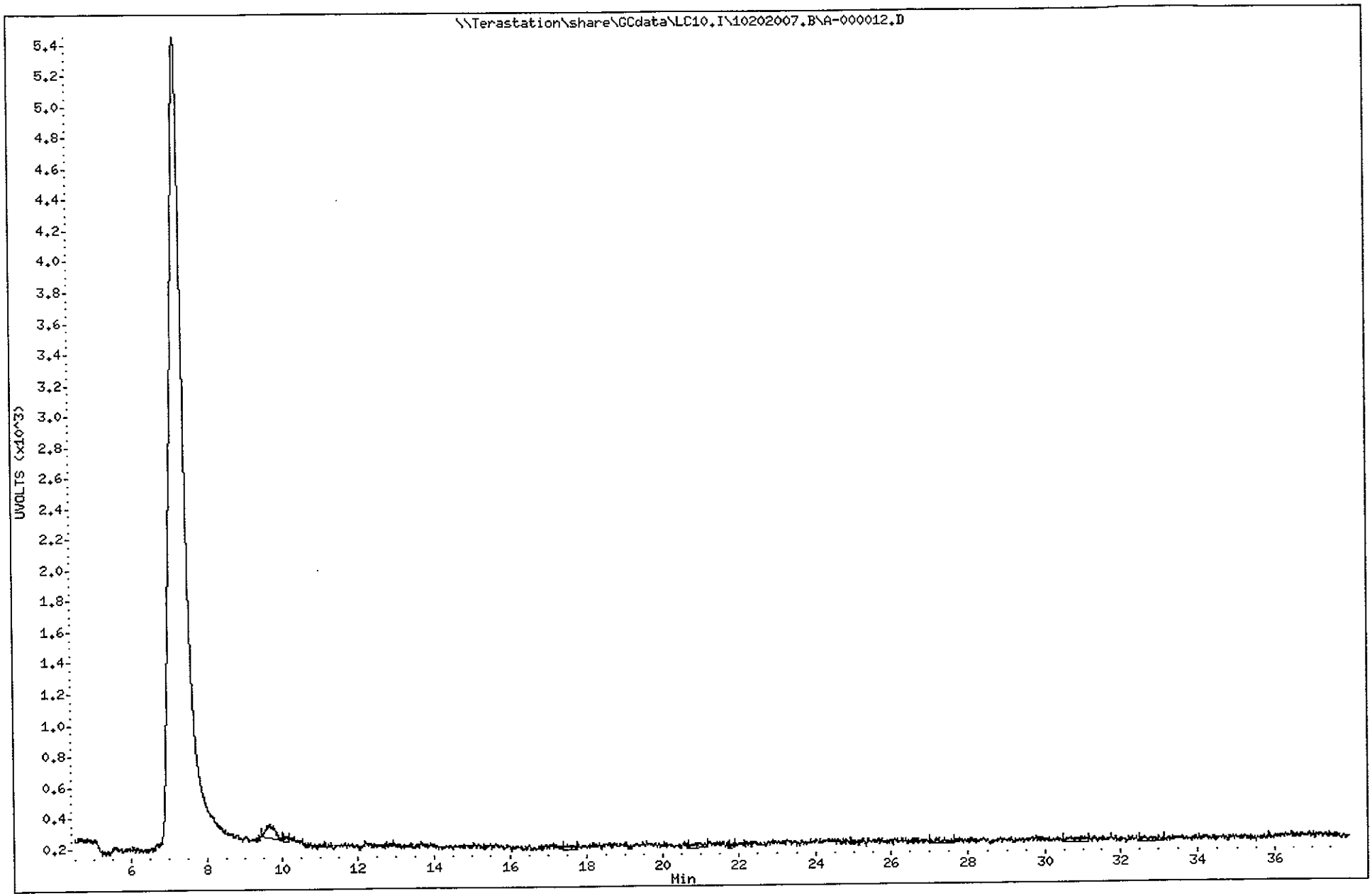
Total unknown % height = 100.0

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Test America West Sacramento

Method 8330

Data file : \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012
Lab Smp Id: Blank
Inj Date : 20-OCT-2007 23:52
Operator : KenneyF Inst ID: LC10.i
Smp Info : Blank;0
Misc Info : ; ; ; ; ;3;EXPSDNA.sub; ;0;1
Comment : SOP SAC-LC-0009
Method : \\Terastation\share\GCdata\LC10.I\10202007.B\8330AB.M\83302.m
Meth Date : 20-Oct-2007 23:48 tap Quant Type: AREA%
Cal Date : 28-SEP-2007 21:51 Cal File: A-000008.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: Falcon+ Compound Sublist: EXPSDNA.sub
Target Version: 4.14
Processing Host: SACP307HPLC

RT	AREA	HEIGHT	HT/AREA	% HEIGHT	COMPOUNDS
25.249	707	88	0.125	4.66	
25.549	2835	98	0.035	5.19	
28.276	2226	100	0.045	5.30	
29.033	721	79	0.110	4.18	
29.456	967	60	0.062	3.18	
29.753	1179	90	0.076	4.77	
30.313	806	73	0.091	3.87	
30.789	619	52	0.084	2.75	
31.066	634	60	0.095	3.18	
31.259	219	84	0.384	4.45	
31.763	1484	71	0.048	3.76	
32.313	407	82	0.202	4.34	2 PETN
32.616	354	56	0.158	2.96	
32.892	1438	90	0.063	4.77	
33.666	1560	94	0.060	4.98	
34.179	3836	113	0.029	6.11	
34.623	610	78	0.128	4.13	
34.956	1048	65	0.062	3.44	
35.519	370	71	0.192	3.76	
36.256	262	37	0.141	1.96	
36.453	951	86	0.090	4.55	
36.743	591	62	0.105	3.28	
37.396	844	45	0.053	2.38	
37.536	225	55	0.244	2.91	
37.672	437	97	0.222	5.14	
	25329	1886		100.000	

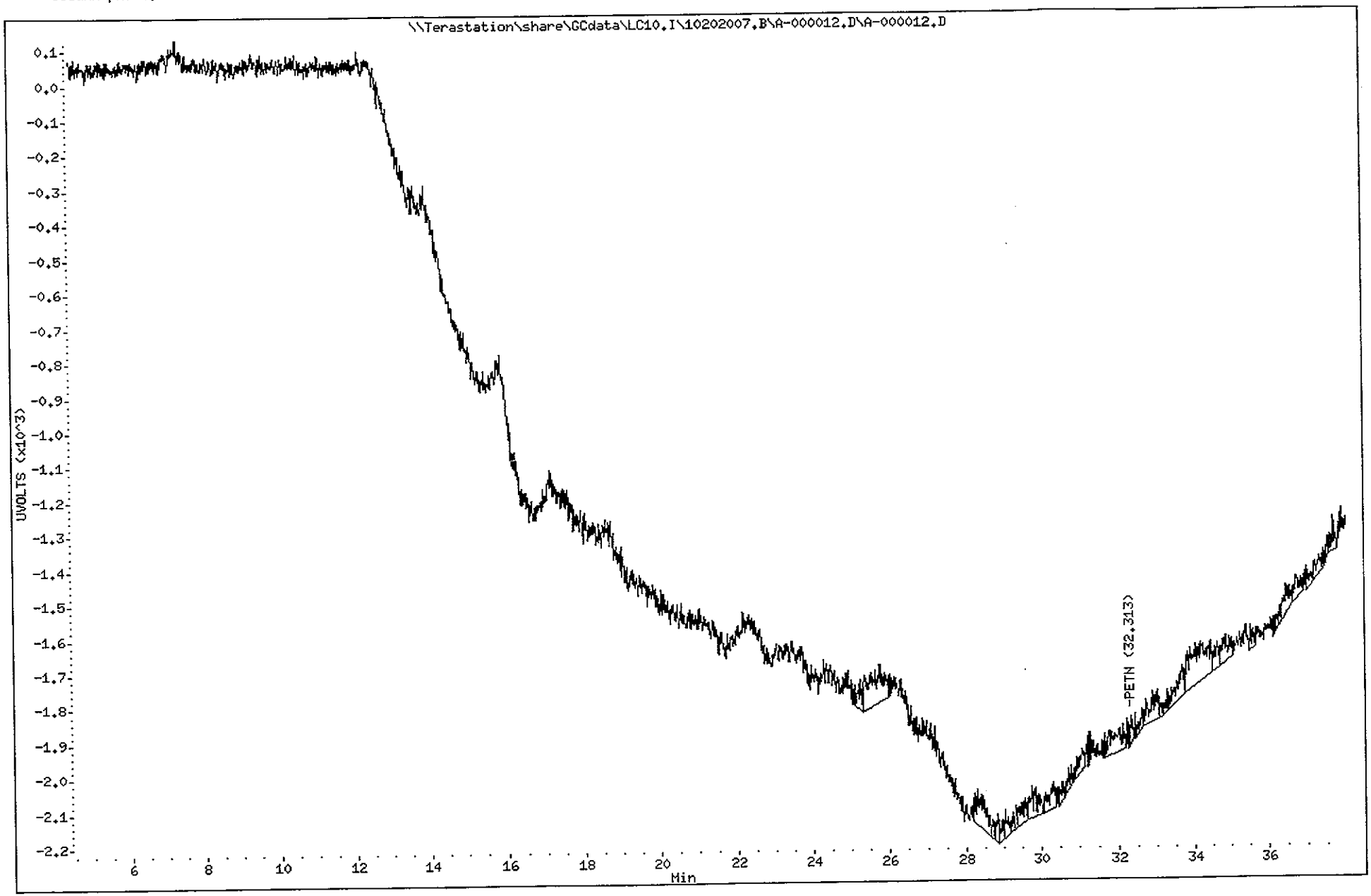
Total unknown % height = 95.66

Data File: \\Terastation\share\GCdata\LC10.I\10202007.B\A-000012.D\A-000012.D
Date : 20-OCT-2007 23:52
Client ID:
Sample Info: Blank;0

Instrument: LC10.i

Operator: KenneyF
Column diameter: 4.60

Column phase: SYNERGI HYDRORP C18



Sample Extraction/Preparation Log Copies and Checklists

STL Sacramento

GC/HPLC Data Review Checklist

SEVERN TRENT SERVICES

10/26

Lot ID: 47J080104 **Test:** 8330-5 **PM:** MJL

Prep Batch(es) 7285667

A. Calibration/Instrument Run QC	Analyst	Reviewer	N/A
1. ICAL or ICAL Summary and CCV included.			
2. ICAL, CCV Criteria met.			
3. Multiple-eluters (TPH-D, 8081A, 8082) ICAL/CCVs appropriate and within critiera.			
4. CCVs every 10 samples/12 hours, all samples bracketed front and back.			
5. PEM frequency and criteria met.			
6. Peaks correctly ID'd by data system.			
7. Copy of logbook for ICAL included			
8. Method Number is identified on data.			
B. QA/QC			
1. Method blank, LCS/LCSD and MS/SD frequencies met.			
2. LCS/LCSD and MB data is included.			
3. LCS/LCSD and MB data are within control limits. If not, NCM is present in Clouseau.			
4. MS/MSD data complete.			
5. Holding Times were met.			
C. Sample Analysis			
1. Logbook copies for all injections made, including ICV standards and ICAL.			
2. Logbooks/prep sheets properly filled out.			
3. Manual Integrations reviewed and appropriate.			
4. All raw data for samples is included (applies to unused data as well)			
5. All analytes correctly reported.			
6. Correct reporting limits used. (Based on client request, prep factors, and dilutions)			
D. Documentation			
1. Are all nonconformances documented appropriately?			
2. Quantims entry correct, including dates and times.			
3. Appropriate footnotes used.			
4. Report sheets included and error-free.			

Analyst: _____ Date: 10/30/07

2nd Level Reviewer: _____ Date: 11/1/07

Comments:

q:\forms\qa-507_gc_review.doc

QA-508 GC Review
3/4/02 ERS

TestAmerica West Sacramento
ESC-Extraction Master Sheet

Holding Time Due: 10/15/07
BATCH #: 7285667
Test #: 8330-S

Project Due:
Initiated By: [signature] Date: 10/14/07
Extn Comp'd By: [signature] Date: 10/26/07

QC Code	Lab ID	Sample Size / Initial Mass	Final Volume / Final Mass	Difference in Mass
-B	-MB	2.00g	40.00ml	
-C	-LCS	2.00g	40.00ml	
	A7J030104-1	2.05g	40.00ml	
-S	-1MS	1.99g	40.00ml	
-D	-1MSD	2.08g	40.00ml	
	-2	2.03	40.00ml	
	-3	2.06g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.06g	40.00ml	
	-6	2.02g	40.00ml	
	-7	2.05g	40.00ml	
	-8	2.02g	40.00ml	
	-9	1.95g	40.00ml	
	A7J040354-1	1.97g	40.00ml	
	-2	2.05g	40.00ml	
	-3	1.99g	40.00ml	
	-4	1.99g	40.00ml	
	-5	2.02g	40.00ml	
	-6	2.04g	40.00ml	
	-7	2.04g	40.00ml	
	-8	1.99g	40.00ml	
	A7J080104-1	2.02g	40.00ml	
	-2	2.08g	40.00ml	
	-3	2.04g	40.00ml	

SOP No.: SAC-LC-0009

EXTRACTION COMMENTS:

Samples Seized / weighed out 10/14/07 [initials]
Fortified as below / extracted as per
SOP 10/14/07
Extracts filtered / diluted / filtered and
Vialed up for Analysis 10/26/07 [initials]

QC Codes	Standard Information				
	Volume	STD ID	Exp. Date	STD Name/Conc.	ppm/ppb
All	80.0µl	E071007B	4/07/08	3,4-DNT 50.0µg/ml	2.0
C,S,D	40.0µl	E070821A	2/21/08	8330 mix 50.0µg/ml	1.0
C,S,D	200µl	E071007A	4/07/08	NG/PETN 50.0µg/ml	5.0

Spiked By / Date: [signature] 10/14/07 Witnessed By / Date: 10-14-07

QC Codes: B = MB, C = LCS, L = LCSD, S = MS, D = SD, FB = Filter Blank

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

LEV 1	LEV 2		LEV 1	LEV 2	
Y		Blank	Y		Weights/Volumes
Y	–	Check	Y	–	Spike & Surrogate Worksheet
Y	–	MS/MSD	Y	–	Vial contains correct volume
			Y	–	Labels, greenbars, worksheets
				–	computer batch: correct & all match
					Anomalies to Extraction Method
			–	–	

– Expanded Deliverable
– COC Completed
Y Bench Sheet Copied
– Package Submitted to AnalyticalGroup
– Bench Sheet Copied per COC

Extractionist: 002531 Jonathan Reed

Concentrationist: 002531 Jonathan Reed

Reviewer/Date: REEDJ / 10/26/07

****
*** QC BATCH: 7285667 ***
****

PREP DATE: 10/14/07
COMP DATE: 10/26/07

Nitroaromatics & Nitramines: Explosives (8330)
SONICATION - Low Level

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/15/07	10/17/07	A7J030104-001 **J748R-1-A4**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DRS**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-001 **J748R-1-DTD**	7285372 D	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-200 E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-002 **J748X-1-AF**	7285372 D	13	A0	SOLID	**2.03g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-003 **J7481-1-AF**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	10/17/07	A7J030104-004 **J7483-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-005 **J7484-1-A4**	7285372 D	13	A0	SOLID	**2.06g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
10/16/07	10/17/07	A7J030104-006 **J7488-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-007 **J749C-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-008 **J749D-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/16/07	10/17/07	A7J030104-009 **J749E-1-AF**	7285372 D	13	A0	SOLID	**1.95g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-001 **J7914-1-A4**	7285372 D	13	A0	SOLID	**1.97g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-002 **J792M-1-AF**	7285372 D	13	A0	SOLID	**2.05g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-003 **J792N-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-004 **J792R-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-005 **J792W-1-AF**	7285372 D	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-006 **J7920-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 10/26/07
Time: 17:44:21

QC BATCH: 7285667

PREP DATE: 10/14/07
COMP DATE: 10/26/07

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH"S INIT	PH"S ADJ1	PH"S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
10/17/07	10/17/07	A7J040354-007 **J7923-1-AF**	7285372 D	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/17/07	10/17/07	A7J040354-008 **J7927-1-AF**	7285372 D	13	A0	SOLID	**1.99g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-001 **J8FKF-1-A4**	7285372 DR	13	A0	SOLID	**2.02g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-002 **J8FKG-1-AF**	7285372 DR	13	A0	SOLID	**2.08g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/19/07	10/19/07	A7J080104-003 **J8FKH-1-AF**	7285372 DR	13	A0	SOLID	**2.04g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-AAB**		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E071007B-80
COMMENTS:															
10/15/07	0/00/00	G7J120000-667 **J8W2J-1-ACC**		13	A0	SOLID	**2.00g** 40.00mL	NA	NA	NA	HOAC/ACN	10.0	NA	.0	E070821A-40/E071007A-20(E071007B-80
COMMENTS:															

FILTERS:MILLIPORE:R7KN80394 0.1%HOAC IN ACN:RP5-27B
1.3G/L CACL2 SOLUTION:RP5-24A

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 24

Appendix

Includes (as applicable):

retention time windows

MDL summaries

calculation explanation sheets

standard raw data

statistical summary

STL Sacramento

Retention Time Window

INSTRUMENT ID: LC10-C18
COLUMN ID: Synergi Hydro-RP
COLUMN SN: 389480-1
DATE: 11-Sep-07
date - time
STANDARD 1: 9/6/07 736
STANDARD 2: 9/7/07 1603
STANDARD 3: 9/8/07 1928

METHOD ID: 8330M
Isocratic run 5:90:5
Flow rate 1.0 mL/min
Column Temperature 29 degrees
Injection volume 500 uL
SOP # SAC-LC-0009

	ANALYTE	RETENTION TIME 1	RETENTION TIME 2	RETENTION TIME 3	STANDARD DEVIATION	+/- 3X STD Deviation	RTW	
Channel 109; 250/265 nm								
1	HMX	5.380	5.370	5.380	0.006	0.018	0.15	*
2	RDX	8.210	8.200	8.210	0.006	0.018	0.15	*
3	Picric Acid	9.660	9.620	9.680	0.031	0.093	0.15	*
3	1,3,5-Trinitrobenzene	10.850	10.840	10.860	0.010	0.030	0.15	*
4	1,3-Dinitrobenzene	14.290	14.270	14.290	0.012	0.036	0.15	*
5	TETRYL	15.590	15.570	15.600	0.015	0.045	0.15	*
6	Nitrobenzene	16.410	16.400	16.420	0.010	0.030	0.15	*
7	2,4,6-Trinitrotoluene	18.010	17.990	18.010	0.012	0.036	0.15	*
9	4-AM-2,6-Dinitrotoluene	19.160	19.130	19.170	0.021	0.063	0.15	*
8	3,4-Dinitrotoluene (surr)	19.720	19.680	19.720	0.023	0.069	0.15	*
10	2-AM-4,6-Dinitrotoluene	20.390	20.360	20.400	0.021	0.063	0.15	*
11	2,6-Dinitrotoluene	22.350	22.310	22.360	0.026	0.078	0.15	*
12	2,4-Dinitrotoluene	23.160	23.130	23.170	0.021	0.063	0.15	*
13	2-Nitrotoluene	27.330	27.290	27.340	0.026	0.078	0.15	*
14	4-Nitrotoluene	29.370	29.330	29.400	0.035	0.105	0.15	*
15	3-Nitrotoluene	31.740	31.710	31.770	0.030	0.090	0.15	*
Channel 110; 200 nm								
17	Nitroglycerin	17.140	17.120	17.140	0.012	0.036	0.15	*
18	PETN	33.990	33.950	34.000	0.026	0.078	0.15	*

Note: The retention time window is the retention time +/- 0.15 minute, or 3X the standard deviation, whichever is greater. A * indicates that 3X the standard deviation is less than 0.15 minute, and that 0.15 minute was substituted in the 3X standard deviation column.

Prepared by: Frank Kenney 11-Sep-07

TestAmerica North Canton

TestAmerica Laboratories, Inc.

SAMPLE ANALYSIS REQUISTION

Laboratory **TestAmerica West Sacramento**
880 Riverside Parkway
West Sacramento, CA 95605

Lab Request SR096898

Report Package: **Expanded Deliverables**

Need Analytical Report 2007-10-19

Client Code: 397466

Project Manager: MARK LOEB

Sample I.D.	Work Order Number	Client Sample ID	Sampling Date	Analysis Required
A7J080104-1	J8FKF	RVAAP-SMITH-SS-1	2007-10-05 9:42	SOLID, 8330, Explosives
A7J080104-2	J8FKG	RVAAP-SMITH-SS-2	2007-10-05 9:42	SOLID, 8330, Explosives
A7J080104-3	J8FKH	RVAAP-DEETS-SS-1	2007-10-05 11:45	SOLID, 8330, Explosives

1X60

1

Please use Client Sample ID for report

Call MARK LOEB with questions at 330-497-9396

Shipping Method: FED EX

Need detection limit and analysis date included in report.

Please send a signed copy of this form with the report at completion of analysis.

Relinquished by: _____ Date/Time: 10/10/07 1545

Relinquished by: _____ Date/Time: _____

Received for lab by: Cheng Vue Date/Time: 10/11/07 - 1025

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

LOT RECEIPT CHECKLIST
TestAmerica West Sacramento

CLIENT TAL N. Canton PM KD LOG # 48202

LOT# (QUANTIMS ID) A7J0801O4 QUOTE# NA LOCATION W/A

	Initials	Date
DATE RECEIVED 10/11/07 TIME RECEIVED 0850	CV	10/11/07

DELIVERED BY
- ☑ FEDEX
- ☐ CA OVERNIGHT
- ☐ CLIENT
- ☐ AIRBORNE
- ☐ GOLDENSTATE
- ☐ DHL
- ☐ UPS
- ☐ BAX GLOBAL
- ☐ GO-GETTERS
- ☐ TAL COURIER
- ☐ VALLEY LOGISTICS
- ☐ MORGAN HILL COURIER
- ☐ OTHER

CUSTODY SEAL STATUS ☑ INTACT ☐ BROKEN ☐ N/A

CUSTODY SEAL #(S) Seal

SHIPPPING CONTAINER(S) ☐ TAL ☑ CLIENT ☐ N/A

TEMPERTURE RECORD (IN °C) IR 4 ☐ 5 ☐ ☐ OTHER N/C

COC #(S)

TEMPERATURE BLANK Observed:_____ Corrected:_____

SAMPLE TEMPERATURE

Observed: Ambient Average:_____ Corrected Average:_____

COLLECTOR'S NAME: ☐ Verified from COC ☑ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☑ N/A

LABELED BY.....

LABELS CHECKED BY.....

PEER REVIEW _____ ☑ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING
- WETCHEM ☑ N/A
- VOA-ENCORES ☑ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☑ N/A

☐ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☑ N/A

☑ CLOUSEAU ☑ TEMPERATURE EXCEEDED (2 °C – 6 °C)*1 ☐ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☑ NO COOLING AGENTS USED ☑ PM NOTIFIED

Notes:_____

*1 Acceptable temperature range for State of Wisconsin samples is≤4°C.

LEAVE NO SPACES BLANK. USE "N/A" IF NOT APPLICABLE.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

END OF REPORT

FINAL
SITE INSPECTION REPORT
LABORATORY ANALYTICAL DATA
RAVENNA ARMY AMMUNITION PLANT, OHIO

MILITARY MUNITIONS RESPONSE PROGRAM
SITE INSPECTION
MUNITIONS RESPONSE SITES

Submitted To:

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CENWO-PM-HA
106 S. 15th STREET
OMAHA, NE 68102-1618

Prepared By:

engineering-environmental Management, Inc.
2751 Prosperity Avenue, Suite 200
Fairfax, VA 22031

Contract Number DACA-63-03-D0009
Task Order Number DK01

MAY 2008

ORGANIC DATA QUALITY REVIEW REPORT
EXPLOSIVES and NITROGUANIDINE SW-846 METHOD 8330

SDG: A7J030104

PROJECT Ravenna, MMRP for e2m, VA

LABORATORY: STL Laboratories (now Test America), Denver

SAMPLE MATRIX: Soil SAMPLING DATE (Month/Year) 10/07

NO. OF SAMPLES 9 (S)

ANALYSES REQUESTED: SW846 8330 (Explosives)

SAMPLE NO. See attached

DATA REVIEWER: Richard Kulp INITIALS/DATE:

QA REVIEWER: Diane Short & Associates, Inc.

Telephone Logs included Yes____ No __X_

Contractual Violations Yes____ No __X_

The project QC, the EPA Contract Laboratory Program National Functional Guidelines for Organic Review, 1999 (SOP), the EPA SW 846 Methods for Evaluating Solid Waste, Physical/ Chemical Methods Third Edition, (SW-846) current updates and the modified method SOPs sent by the laboratory, have been referenced by the reviewer to perform this data validation review. The EPA qualifiers have been expanded to include a descriptor code and value to define QC violations and their values, per the approval of the Project Manager and EPA. The review has been tasked for review of all calibrations, QC for all samples and ten percent review of chromatograms. General comments regarding the data/analytical quality are part of the review when raw data are submitted.

I. DELIVERABLES

All deliverables were present as specified in the Statement of Work (SOW), SW-846, or in the project contract.

Yes __X__ No____

Full raw data packages were only required and provided for one data set, A7J030104. Only results, custody information and summary QC are provided for the other 2 SDGs.

Samples for explosives are analyzed by Method 8330. A modified Method 8330 is used for nitroguanidine.

II. ANALYTICAL REPORT FORMS

The Analytical Report or Data Sheets are present and complete for all requested analyses.

Yes __X__ No_____

III. HOLDING TIMES

A. The contract holding times were met for all analyses (Time of sample receipt to time of extraction and from extraction to analysis)

Yes ___X__ No _____

B. The Clean Water Act (40 CFR 136) or method holding times were met for all analyses (From time of sample collection to extraction and from extraction to analysis).

Yes __X__ No _____

Method holding times are met. These are soils.

C. All chains of custody are complete with signatures, dates and times.

Yes __X__ No ____ NA____

There are 2 relinquish and 2 received signatures and times. Both have gaps. First one is only 7 minutes, but hand off times should be same as receipt. There is about a day gap for 2nd hand off. The courier is noted on the log in form as Test America. We do not qualify data for this, but the chain is not complete unless there is a continuity in the times.

D. Samples were received in proper condition (temperature, preservation)

Yes __X__ No____

IV. INSTRUMENT CALIBRATION (IC) AND CONTINUING CALIBRATION (CC) VERIFICATION

A. The HPLC standards were analyzed at the required frequency (every 72 hours at a minimum).

Yes ___X___ No_____

Calibration data are only provided and required for one data set.

B. The chromatographic resolution and separation criteria were met.

Yes __X__ No_____

C. The suggested columns were used and the PQL's were met.

Yes __X__ No_____
Note that only one column is reported or appears to have been used for analysis. Method 8330 for explosives routinely requires a second verification in the form of second column or PDA (photo diode array). The project manager will determine if 2nd source verification is required per the contract.
No second column would be required for the nitroguanidine as no detected data have been reported.

D. Calibration factors for IC met the 20% RSD limit or the linear regression r > 0.995.
Yes __X____ No _____

E. %D's for Continuing Calibration Factors and retention times (RT) were within the 25%D limits.
Yes __X_ No ____

V. BLANKS
A. Laboratory blanks
1. Laboratory blanks were analyzed for every sample set and for each matrix type or once in every twenty samples, whichever is more frequent.
Yes _X____ No_____

2. No blank contamination was found in the method blank.
Yes __X_ No____

3. Instrument blank analysis was performed following most samples that contained analytes at high concentrations.
Yes _____ No____ NA __X___
No samples contained high concentrations.

B. Field Blanks
If field blanks were identified, no blank contamination was found.
Yes ____ No ____ NA __X__
No field blanks were identified.

VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)
A. Matrix spike (MS) and matrix duplicate or matrix spike duplicate (MSD) were analyzed for every analysis performed and for every 20 samples or for every matrix whichever is more frequent.
Yes _X__ No ____
Only matrix spikes were reported or required. The MS is LN-WBG-SS-1.

B. The MS and MSD percent recoveries (%R) were within the limits defined by the laboratory or in the contract.
Yes __X___ No _____ NA___
The laboratory limits are 50 – 140%. The actual recoveries were in the range of 75 – 101%.

C. The MSD relative percent differences (RPD) were within the defined contract or laboratory limits.
Yes ____ No ___ NA_X__
A matrix duplicate has been reported and is acceptable.

D. The MS/MSD are client samples.
Yes __X__ No ___ NA___

VII. LABORATORY CONTROL SAMPLE AND DUPLICATE (LCS/LCSD)
A. Laboratory Control Sample (LCS) and LCS duplicate were analyzed for every analysis performed and for every 20 samples or for every matrix whichever is more frequent.
Yes __X_ No _____

No LCS duplicate is required as there is an MS and a MD.

B. The LCS percent recoveries (%R) are within the limits defined by the laboratory or in the contract.
Yes __X_ No ____

VIII. SURROGATE RECOVERY
A. The Surrogate spike was analyzed with every sample.
Yes __X___ No_____
Note that there is no surrogate for the nitroguanidine.

B. And met the recovery limits defined in the current contract. If recovery limits were exceeded, the sample was re-extracted and re-analyzed.
Yes __X_ No____

IX. FIELD QC
If Field Duplicates or Performance Check Compounds were identified, they met the RPD or % recovery criteria for the project. An RPD of 50% is used for soils. If the value of either duplicate is less than (5 x RL), a guidance of $\pm$ 4 x RL between the sample values is used.
Yes ___X_ No ____ NA ____
The samples WW4-SS-1 and WW4-SS-2 are duplicates of each other.

X. COMPOUND IDENTIFICATION
A. All raw data chromatograms and data system printouts were evaluated for all detected compounds and the identification is accurate.
Yes __X__ No_____
Per the review of the one raw data package, neither method has reported a second column verification. There is a scan at a second wavelength range, but this is only to detect several compounds that do not respond at the 254 nm scan. This is not a second wavelength that detects or verifies the client compounds. This is not a violation of the method, but a second source is recommended for any GC or HPLC analysis.

B. Retention time limits or peak pattern identifications are met.
Yes __X___ No____ NA_____

C. Two column or two detector confirmation was performed for all detected values.
Yes ____ No__X__

D. And the two values agreed within 25%. For data < 5 x RL, no %D is calculated as the difference is statistically insignificant.
Yes ____ No_____ NA___X__
No second source supplied.

XI. COMPOUND QUANTITATION AND REPORTED CRQLS
A. Raw data examination verified that all sample results were correctly calculated.
Yes ____ No ____ NA _____
Per the raw data review.

B. The chromatograms and general system performance were acceptable for all instruments and analytical systems.
Yes __X___ No ____

XII. OVERALL ASSESSMENT OF THE CASE
Data comply with the required methods. Data are fully usable for project purposes and no qualifications have been required. The following is noted for clarification.

Summary: Full raw data packages were only required and provided for one data set, A7J030104. Only results, custody information and summary QC are provided for the other 2 SDGs. Samples for explosives are analyzed by Method 8330. A modified Method 8330 is used for nitroguanidine.

Chains of Custody
As noted, there are no log-in forms, but the chains have the temperatures written at the top and initialed. The chain notes that samples are shipped via FedEx. The airbill number should be included either on the chain or log-in forms should be provided with this information.

Matrix Spikes
Only matrix spikes were reported or required. The MS is LN-WBG-SS-1. A matrix duplicate was also reported and was acceptable.

Result Verification
Per the review of the one raw data package, neither method has reported a second column verification. There is a scan at a second wavelength range, but this is only to detect several compounds that do not respond at the 254 nm scan. This is not a second wavelength that detects or verifies the client compounds. This is not a violation of the method, but a second source is recommended for any GC or HPLC analysis.

INORGANIC DATA QUALITY REVIEW REPORT
METALS BY ICP SW-846 METHOD 6010B
NITROCELLULOSE-N METHOD MCAWW 353.2

SDG: A7J030104, A7J040354, and A7J080104

PROJECT Ravenna, MMRP for e2m, VA

LABORATORY: STL Laboratories (now Test America), Denver

SAMPLE MATRIX: Soil SAMPLING DATE (Month/Year) 10/07

NO. OF SAMPLES 29 (S)

ANALYSES REQUESTED: SW846 6010B (22 ICP, Hg) and MCAWW 353.2

SAMPLE NO. See attachment

DATA REVIEWER: Richard Kulp INITIALS/DATE:

QA REVIEWER: Diane Short and Associates Inc. INITIALS/DATE:

Telephone Logs included Yes____ No _X___

Contractual Violations Yes____ No _X___

The project QC, the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Review, 2002 and the SW-846 Methods and the laboratory SOPs have been referenced by the reviewer to perform this data validation review. The EPA qualifiers have been expanded to include a descriptor code and value to define QC violations and their values, per the approval of the Project Manager. Per the Scope of Work, the review includes validation of all calibrations, chains of custody, and QC forms referencing the above documents. All of the data are also further reviewed for the calculation algorithms and submitted continuing calibration blanks as determined by the project manager. General comments regarding the data/ analytical quality are part of the review when raw data are submitted.

I. DELIVERABLES
All deliverables were present as specified in the Statement of Work or project contract.
Yes __X__ No___
The following is noted for clarification:
The laboratory has not submitted log-in forms. Most of the necessary data can be gathered from other items in the data package. There were 20 metal samples and 9 Nitrocellulose-N samples.
Only one data package was required or provided with raw data deliverables. This SDG A7J030104 has been used for the full raw data reviews noted below.

II. CALIBRATIONS
A. All initial instrument calibrations were performed as defined in the contract or Statement of Work (SOW). All correlation coefficients of the 3 point curve were > 0.995.
Yes __X__ No____ NA___

B. The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were analyzed at the required frequency.
Yes __X__ No____
Sequencing was not required, but sufficient calibrations were present to verify that the frequencies were met for client samples.

C. And the ICV and CCV standard percent recovery results were within the required control limits of 90 – 110% (Mercury 80 – 120%).
Yes __X_ No____

III. CRDL STANDARDS
The 2 x CRDL standards were analyzed as required in the SOW.
Yes _X__ No____ NA___

IV. BLANKS
Note: the highest blank associated with any particular analyte is used for the qualification process and is the value entered after the "B" blank descriptor.

A. The initial calibration blanks (ICB) and continuing calibration blanks (CCB) were analyzed at the required frequency.
Yes ___X_ No____ NA____
Sequencing was not required, but sufficient calibration blanks were present to verify that the frequencies were met for client samples.

B. And the ICB and CCB results were within the required control limits.
Yes ____ No__X_ NA_____
Calibration blank sequencing was performed in order to bracket client samples. As calibration blanks are reported in ug/l and these are soil samples, a units correction factor of 10 is applied. Potassium was reported at 16.3 mg/kg. No data are < 5 x blank and no qualification is applied. Sodium is reported at -89 mg/kg. Undetected data and data less than 5 x absolute value of the blank are qualified JK-89 to indicate potential low bias or the reported of false undetected data at very low levels.

C. And all analytes in the Leach Blank were less than the CRDL, or less than 2x the instrument detection limit (IDL), whichever is lower.
Yes____ No____ NA__X__
No TCLP analysis was performed.

V. PREPARATION BLANKS
A. Preparation blanks were prepared and analyzed at the required frequency.
Yes __X__ No ____

B. And all analytes in the preparation blank were less than the CRDL, or less than the instrument detection limit (IDL), whichever is lower.
Yes ___ No__X__
Potassium is reported in the prep blanks, but at levels below the reported values for client samples. No qualification is required.

C. Field, trip, decon rinse or other field blanks are contained and identified in the package.
Yes ____ No __X__ NA____
No field blanks were identified.

D. And the reported results are less than the CRDL or less than the IDL, whichever is lower.
Yes ____ No ____ NA__X__

VIA. ICP INTERFERENCE CHECK SAMPLE
A. The Interference check sample (ICS) was analyzed as required in the SOW or contract.
Yes __X__ No____ NA____
For the one raw data package.

B. And the ICS percent recovery results were reported for all required ICS analytes and were within required control limits of 80% to 120%.
Yes __X__ No____ NA____

C. ICP analysis results for analytes not required to be present in a given ICS standard were within acceptable limits.
Yes ____ No____ NA__X__

VIB. INTERELEMENT CORRECTION FACTORS
The Interelement Correction Factors are included and complete for all possible interferent analytes.
Yes ____ No____ NA__X__
Not required.

VII. SPIKE SAMPLE RECOVERY
A. A matrix (pre-digestion) spike sample was analyzed for each digestion group and/or matrix or as required in the SOW.
Yes __X__ No____

B. And the Matrix spike percent recoveries were within the required control limits of 75 – 125%.
Yes ____ No __X__ NA___
Antimony percent recovery in all three MS samples was 45%, 53%, and 34%, respectively. All samples were qualified JS#, where # is the percent recovery. Zinc in the MS for SDG A7J030104 had a recovery of 72%. All samples were qualified JS72.

SDG	Analyte	Recovery	Qualifier
A7J030104	Antimony	45%	JS45

	Zinc	72%	JS72
A7J040354	Antimony	53%	JS53
A7J080104	Antimony	34	JS34

B. A Post-digest spike was analyzed if required.
Yes ____No __X__ NA___
No post digest spike was reported for the outlier spike. There is no qualification for this, but it could have been a check on a possible spiking error.

C. The MS/MSD samples were client samples
Yes ___X__ No___ NA___

VIII. DUPLICATES
A. Matrix (pre-digestion) duplicate samples were analyzed at the required frequency
Yes ____ No _X__
Matrix duplicates were submitted.

B. And the Matrix duplicate relative percent differences (RPD) were within the required control limits (Water 20%, Soil 35%) or the RL limits were met if the duplicate values are < 5 x RL. If the either one of the duplicate results are < 5 X RL, the RPD is not used. The QC limit used is the difference between the original and the duplicate results (± the RL) for water and (± 2X the RL) for soils.
Yes __X___ No ____ NA____
Matrix duplicates had RPDs out of control per the QC summary, but all the results were < 5 x RL and the results were within the above noted limits.

IX. LABORATORY CONTROL SAMPLE
A. Laboratory control samples (LCS) were analyzed at the required frequency.
Yes _X___ No____

B. And LCS recoveries were within the required control limits of 80 to 120%.
Yes ___X___ No____

X. MSA RESULTS AND GRAPHITE FURNACE ANALYSIS (GFAA)
Duplicate injections were performed for all analyses and the RSDs were less than 20% for all reported results. (Method of Standard Additions (MSA) requires only a single injection).
Yes ____ No____ NA__X___
Graphite furnace was not done.

XI. ICP SERIAL DILUTION
A. ICP Serial Dilutions have been analyzed at the required frequency if the analyte concentrations are greater than 50 x IDL.
Yes ___X_ No____ NA_____

B. And the percent difference criteria of ± 10 % have been met.
Yes __X_ No ____ NA____

C. The serial dilution analyses were on client samples
Yes __X___ No_____

XII. INSTRUMENT DETECTION LIMITS

A. The Instrument Detection Limits have met the Quarterly reporting requirements.
Yes ___X_ No____ NA___
This was determined to be acceptable during the contractual process.

B. And all sample results have met the required detection limits (CRDL).
Yes __X__ No____ NA____

C. All sample results were compared to the project action limits as defined in the client SAP and no results are above the action limit.
Yes ____ No ____NA__X_
No project specific limits provided for this site.

XIII. PREPARATION AND ANALYSIS LOGS
A. All samples were prepared or analyzed within the required holding times referencing the SOW (time of sample receipt to preparation/distillation).
Yes ___X_ No____

B. All samples were analyzed within the 40 CFR 136 (Clean Water Act) or method recommended holding times (time of sample collection to date of analysis).
Yes __X__ No____
These are soils.

C. Chains of Custody (COC)
1. Chains of Custody (COC) were reviewed and all fields were complete, signatures were present and cross outs were clean and initialed.
Yes __X__ No____
The log-in forms have the temperatures and sample integrity information.
There are 2 relinquish and 2 received signatures and times. Both have gaps. First one is only 7 minutes, but hand off times should be same as receipt. There is about a day gap for 2nd hand off. The courier is noted on the log in form as Test America. We do not qualify data for this, but the chain is not complete unless there is a continuity in the times.

2. Samples were received at the required temperature and preservation.
Yes __X_ No____

XIV. FIELD QC
A. Field QC samples (duplicates, SRMs) were identified.
Yes _X___ No____
Field duplicates are identified as (all samples are RVAAP-):

SDG	SAMPLE	DUPLICATE
A7J030104	WW4-SS-1	WW4-SS-2
A7J040354	LL1-MC1	LL1-MC2
	FTF-MC1	FTF-MC2
A7J080104	SMITH-SS-1	SMITH-SS-2

B. Field duplicates were within a guidance limit of < 35% RPD limit for water or <50% RPD limit for soil. If values are < 5 x RL, the water limit is ± 2 x RL and the soil limit is ±4 x RL. Final determination will be made by the project manager.
Yes __X__ No____ NA___

XV. GENERAL COMMENTS
The laboratory has complied with the requested methods and the quality of the data is acceptable and usable with consideration of the following qualifications. Note that the following qualifiers are used:
Summary:
JS# is for matrix spike recoveries, where # is the analyte recovery. The bias to the data is considered to be low proportional to the analyte recovery.

Qualification or Comments in Detail

Chains-of-Custody
Hand off time issues are noted in the text as a note of information to the client

Matrix Spikes and Duplicates
Antimony was out of limits in all three MS samples. Zinc was out in SDG A7J030104. Data were qualified JS#, where # is the percent recovery. Data could be biased low proportional to the spike recovery.

SDG	Analyte	Recovery	Qualifier
A7J030104	Antimony	45%	JS45
	Zinc	72%	JS72
A7J040354	Antimony	53%	JS53
A7J080104	Antimony	34	JS34

Blanks
Potassium is reported in the prep blanks, but at levels below the reported values for client samples. No qualification is required.
Calibration blank sequencing was performed in order to bracket client samples. As calibration blanks are reported in ug/l and these are soil samples, a units correction factor of 10 is applied. Potassium was reported at 16.3 mg/kg. No data are < 5 x blank and no qualification is applied. Sodium is reported at -89 mg/kg. Undetected data and data less than 5 x absolute value of the blank are qualified JK-89 to indicate potential low bias or the reported of false undetected data at very low levels.

Deliverables
The laboratory has not submitted log-in forms. Most of the necessary data can be gathered from other items in the data package. There were 20 metal samples and 9 Nitrocellulose-N samples.
Only one data package was required or provided with raw data deliverables. This SDG A7J030104 has been used for the full raw data reviews noted below.

Please print or type.
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. OH4210020736 | Manifest Doc. No. 08594 | 2. Page 1 of 1

GENERATOR

3. Generator's Name and Mailing Address
RVAAP
8451 St. Rt. 5, Bldg 1037, Ravenna, Ohio 44266
4. Generator's Phone (330) 358-7312

5. Transporter 1 Company Name: Emerald Environmental Services, Inc.
6. US EPA ID Number: OHR000102053
A. Transporter's Phone: (330) 677-0785

7. Transporter 2 Company Name:
8. US EPA ID Number:
B. Transporter's Phone:

9. Designated Facility Name and Site Address
Hukill Chemical Corporation
7013 Krick Rd.
Bedford, Ohio 44146
10. US EPA ID Number: OHD001926740
C. Facility's Phone: (440) 232-9400

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Hazardous Non-DOT Regulated Material, Decon water	001	DF	00012	P
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
11a) Hukill Profile # 19174

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EMERGENCY PHONE # 330-677-9785 Job Number 08-0594EES

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: IRVING VENGER | Signature: Irving Venger | Month: 2 | Day: 1 | Year: 08

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: SHAUN HERSHBERGER | Signature: [signature] | Month: 02 | Day: 01 | Year: 08

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: | Signature: | Month: | Day: | Year:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: | Signature: | Month: | Day: | Year:

Printed by J. J. KELLER & ASSOCIATES, INC.
Neenah, WI 54957-0368

GENERATOR'S COPY

12-BLS-C5 Rev. 12/98