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14. ABSTRACT

This Remedial Investigation (RI) Report presents the findings and conclusions of the RI field activities conducted at RVAAP-008-R-01 Load Line #1 Munitions Response Site (MRS) at the former Ravenna Army Ammunition Plant under the Military Munitions Response Program. The purpose of the RI was to determine whether the Load Line #1 MRS warranted further response action pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the National Oil and Hazardous Substances Pollution Contingency Plan. More specifically, the RI was intended to determine the nature and extent of munitions and explosives of concern (MEC) and munitions constituents (MC) and subsequently determine the hazards and risks posed to likely human and ecological receptors by MEC and MC. Additional data are also presented in this RI Report to support the identification and evaluation of alternatives in the Feasibility Study (FS), if required. This RI Report was prepared in accordance with the U.S. Army's Final Munitions Response RI/FS guidance dated November 2009.

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Final Remedial Investigation Report for RVAAP-008-R-01 Load Line #1 MRS Version 1.0

Former Ravenna Army Ammunition Plant
Ravenna, Ohio

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Acronyms and Abbreviations

AEDB-R	Army Environmental Data Base Restoration Module
AOC	area of concern
AMEC	AMEC Earth and Environmental, Inc.
amsl	above mean sea level
ARAR	applicable or relevant and appropriate requirement
ARNG	Army National Guard
ASR	*Final Archives Search Report*
ASTM	American Society of Testing and Materials
BERA	baseline ecological risk assessment
bgs	below ground surface
BSV	background screening value
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COC	chemical of concern
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CSM	conceptual site model
DERP	Defense Environmental Restoration Program
DoD	U.S. Department of Defense
DQO	data quality objective
e^2M	engineering-environmental Management, Inc.
ELAP	Environmental Laboratory Accreditation Program
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ESA	Endangered Species Act
ESV	ecological screening value
EU	exposure unit
FS	feasibility study
FWCUG	Facility-Wide Cleanup Goal
FWSAP	*Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the RVAAP*
HA	hazard assessment
HHRA	human health risk assessment
HHRAM	*RVAAP Facility-Wide Human Health Risk Assessor Manual*
HQ	hazard quotient
HRR	*Final Historical Records Review*
IDW	investigation derived waste
INRMP	*Integrated Natural Resources Management Plan*
IRP	Installation Restoration Program
ISM	incremental sampling methodology
LCS	laboratory control sample

Acronyms and Abbreviations (continued)

LOD	limit of detection
Pb	lead
MC	munitions constituents
MD	munitions debris
MDL	method detection limit
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
MMRP	Military Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
MRL	method reporting limit
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MS/MSD	matrix spike/matrix spike duplicate sample
NA	not applicable/not available
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NGT	National Guard Trainee
NIST	NIST Chemistry WebBook
NOAEL	no observed adverse effect level
ODNR	Ohio Department of Natural Resources
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PBT	persistent, bioaccumulative, and toxic
QA	quality assurance
QC	quality control
R(A)	Resident Receptor (Adult)
R(C)	Resident Receptor (Child)
RI	remedial investigation
RME	reasonable maximum exposure
RPD	relative percent difference
RSL	regional screening level
RVAAP	former Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
Shaw	Shaw Environmental & Infrastructure, Inc.
SI	site inspection
SLERA	screening-level ecological risk assessment
SMDP	scientific management decision point
SOP	standard operating procedure
SRC	site-related chemical
TBC	to be considered
TNT	2,4,6-trinitrotoluene
TOC	total organic carbon

Acronyms and Abbreviations (continued)

TRV	toxicity reference value
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USP&FO	U.S. Property and Fiscal Officer
UXO	unexploded ordnance
VQ	validation qualifier

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EXECUTIVE SUMMARY

This Remedial Investigation (RI) Report documents the findings and conclusions of the RI field activities for the Load Line #1 (RVAAP-008-R-01) Munitions Response Site (MRS) located at the former Ravenna Army Ammunition Plant (RVAAP) in Ravenna, Ohio. This RI Report was prepared by CB&I Federal Services LLC under Delivery Order 0002 for Military Munitions Response Program (MMRP) environmental services at the facility under the *Multiple Award Military Munitions Services Performance-Based Acquisition Contract* No. W912DR-09-D-0005. The Delivery Order was issued by the United States (U.S.) Army Corps of Engineers (USACE), Baltimore District on May 27, 2009.

The purpose of the RI was to determine whether the Load Line #1 MRS warranted further response action pursuant to the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980 (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan. More specifically, the RI was intended to determine the nature and extent of munitions and explosives of concern (MEC) and munitions constituents (MC) and to subsequently determine the potential hazards and risks posed to human health and the environment by MEC and MC.

ES.1 MRS Description

Whenever possible, existing information and data were incorporated into this RI Report. Background information related to the MRS was taken from the *Final Archival Search Report* (USACE, 2004); the *Final Military Munitions Response Program Historical Records Review* (engineering-environmental Management, Inc. [e^2M], 2007) hereafter referred to as the HRR; and the *Final Site Inspection Report* (e^2M, 2008), hereafter referred to as the SI Report. Data collected during previous sampling events at the MRS were also reviewed for applicability for evaluation in the RI. Historical records indicate no samples were collected within the current MRS boundary during past Installation Restoration Program (IRP) sampling events; therefore, evaluation and inclusion of IRP data was not applicable. The surface soil samples collected during the site inspection (SI) field activities were not included for evaluation in the RI since the RI data is considered to be representative of current conditions at the MRS in comparison to samples collected in 2007. The Load Line #1 MRS is a 0.41-acre area and is collocated with the 164-acre IRP Area of Concern Load Line #1 Army Environmental Data Base Restoration Module No. RVAAP-08. The MRS is located at the north end of the Load Line #1.

Prior to the HRR (e^2M, 2007), the MRS was considered as the entire 164-acre Load Line #1. It was determined in the HRR that the potential presence of MEC and/or MC was restricted to the areas associated with former buildings CB-13/CB-13B, the area near the former

elevated building foundation slab at CB-14, the former popping furnace, and areas where triple-base propellant have historically been found. It was recommended in the HRR that the MRS be reduced from 164 acres to 4.63 acres at the northern end of Load Line #1 where the propellants were identified.

The principle sources of MEC at the Load Line #1 MRS were reported to be accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC and munitions debris (MD), including propellants, to be present in surface soil at the Load Line #1 MRS (e^2M, 2008).

Three pieces of triple-base propellant were found on the ground surface during the SI survey. Lead was detected in surface soil collected using the incremental sampling methodology (ISM) and was considered an MC associated with propellants. Low concentrations of explosives consisting of 2,4,6-trinitrotoluene and nitrobenzene were also detected, but these explosives were not considered to be MC associated with propellants and were not present at concentrations that could result in an explosion. Based on the recommendations in the SI Report (e^2M, 2008), the MRS was reduced to a 0.41-acre area located near the northwest side of the former elevated building CB-14 where the SI field activities identified triple-base propellants on the ground surface and elevated lead concentrations in soil (e^2M, 2008).

Current activities at the Load Line #1 MRS include maintenance, remediation, and natural resource management activities. The Ohio Army National Guard (OHARNG) future land use at the MRS is military training.

ES.2 Summary of Remedial Investigation Activities

The preliminary MEC and MC conceptual site models (CSMs) were developed during the SI (e^2M, 2008) phase of the CERCLA process and were used to identify the data needs and the data quality objectives (DQOs) as outlined in the *Final Work Plan for Military Munitions Response Program Remedial Investigation Environmental Services* (Shaw Environmental & Infrastructure, Inc. [Shaw], 2011), hereafter referred to as the Work Plan. The data needs DQOs were determined at the planning stage and included characterization for MEC and/or MC associated with the former activities at the MRS. The DQOs were developed to ensure the reliability of field sampling, chemical analyses, and physical analyses; the collection of sufficient data; the acceptable quality of data generated for its intended use; and the inference of valid assumptions from the data. The DQOs for the Load Line #1 MRS identified the following decision rules that were implemented in evaluating the MRS:

- Perform a visual survey investigation to identify if a MEC source (triple-base propellant) was present on the ground surface.

- Collect ISM samples at two sampling units over the entire MRS to evaluate for MC.
- Collect additional discrete samples (surface and subsurface) in areas with concentrated MEC/MD, if any are identified during the field work, in order to evaluate for MC.
- Process the information to evaluate whether there were unacceptable risks to human health and the environment associated with MEC and/or MC and make a determination if further investigation is required under the CERCLA process.

Separate full coverage instrument-assisted nonintrusive visual surveys were conducted in April and May 2011, respectively, to identify potential surface MEC and/or MD at the Load Line #1 MRS. No MEC or MD was found on the ground or shallow surface soils during either survey.

Environmental samples for MC were collected at the Load Line #1 MRS following completion of the visual surveys. Two ISM surface soil samples, each comprising one half of the MRS acreage (0.2 acres), were collected at depths between 0 and 0.5 feet. Together, the two ISM sampling units represent 100 percent coverage of the MRS that is the decision unit and is considered the exposure unit area where human and ecological receptors potentially are exposed to the site-related chemicals (SRCs).

The DQOs stated that discrete samples (surface and subsurface soil) would be collected in areas with concentrated MEC or MD. Since no MEC or MD was identified at the Load Line #1 MRS during the RI field activities, additional sampling for MC was not performed.

ES.3 MEC Hazard Assessment

The *Interim Munitions and Explosives of Concern Hazard Assessment (MEC HA) Methodology* (U.S. Environmental Protection Agency [EPA], 2008) addresses human health and safety concerns associated with potential exposure to MEC at a MRS under a variety of site conditions, including various cleanup scenarios and land use assumptions. If an explosive hazard is identified for this RI, the MEC hazard assessment (HA) evaluation will include the information available for the MRS up to and including the RI field activities and provide a scoring summary for the current and future land use activities. If no explosive hazard is found at the MRS, then there is no need to calculate a MEC HA score since there are no human health safety concerns. No MEC or MD items were identified at the MRS during RI field activities, which indicates that no MEC source or explosive safety hazard is present at the MRS. Therefore, calculation of a MEC HA score was not warranted for the Load Line #1 MRS.

ES.4 MC Risk Assessment Summary

SRCs for the Load Line #1 MRS were determined for the surface soil samples collected during the RI field activities through the facility data screening process as presented in the *Final Facility-Wide Human Health Cleanup Goals for the RVAAP* (Science Applications International Corporation [SAIC], 2010). The SRCs identified in the environmental media samples collected during the RI were lead and nitroguanidine. The identified SRCs were then carried through the human health and ecological risk assessments process to evaluate for potential receptors. The risk assessments resulted in the following conclusions.

Human Health Risk Assessment

A human health risk assessment (HHRA) was conducted for surface soil samples collected at the Load Line #1 MRS to determine if the identified SRCs were chemicals of potential concern (COPCs) and/or chemicals of concern (COCs) that may pose a risk to future human receptors. The future land use for the Load Line #1 MRS is military training, and the Representative Receptor is the National Guard Trainee. The Representative Receptor for military training, in conjunction with the evaluation of the Resident Receptor (Adult and Child) for Unrestricted Land Use, was the basis for identifying COCs in the RI. Evaluation for Unrestricted (Residential) Land Use is performed to assess baseline conditions and the no action alternative under CERCLA, and as outlined in the *RVAAP Facility-Wide Human Health Risk Assessor Manual* (HHRAM) (USACE, 2005). Since the RI was initiated before the finalization of the U.S. Army's *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the Ravenna Army Ammunition Plant Installation Restoration Program* (Army National Guard, 2014), the Commercial Industrial Land Use using the Industrial Receptor was not included.

The facility has defined exposure scenarios for the identified receptors (USACE, 2005). Surface soil for the Resident Receptor (Adult and Child) is defined as 0 to 1 foot below ground surface (bgs). Because the National Guard Trainee is exposed more often to the upper 4 feet of soil during training activities, surface soil is defined as 0 to 4 feet bgs for this receptor. Sampling for MC under the MMRP is selective in general to evaluate identified munitions-related source areas and the potential that MC may have been released from the source areas. The data used in the HHRA are used to evaluate for the receptors at the depths that the samples were collected; however, the data are not intended to evaluate for predefined exposure depth scenarios, as is typically performed under the IRP. The presence of munitions-related source areas at an MRS is the primary driver for determining future actions under the MMRP; however, the HHRA is valuable in identifying potential releases of MC from the source areas and if the MC poses risks to likely human receptors.

The media of concern that was evaluated in the HHRA consists solely of surface soil that was biased by collecting samples across the entire MRS at a sample depth of 0 to 0.5 feet bgs. The 0.5-foot sample depth across the MRS is the focus of this HHRA since it is the maximum depth that MC associated with the propellants would be expected to vertically migrate in the soil column and is the deepest that MC has been detected at the MRS during the SI field activities (e^2M, 2008). This sampling methodology is consistent with the sample depth intervals recommended in the *Military Munitions Response Program Munitions Response Remedial Investigation/Feasibility Study Guidance* (U.S. Army, 2009). Therefore, for the RI, surface soil for the Resident Receptor (Adult and Child) and the National Guard Trainee is evaluated as 0 to 0.5 feet bgs, the depth at which the ISM surface soil samples were collected.

The two SRCs that consisted of lead or nitroguanidine were not identified as COPCs in the first screening step. Therefore, these SRCs were not further evaluated as COCs and are not likely to pose risks to human receptors. Since no COCs were identified for the Resident Receptor (Adult and Child), Unrestricted Land Use was achieved for MC.

Ecological Risk Assessment

Both of the SRCs, lead and nitroguanidine, were identified as chemicals of potential ecological concern (COPECs) in the soil samples collected at 0 to 0.5 feet for the RI at the Load Line #1 MRS. COPECs are determined in the ecological risk assessment and may differ from COPCs. Given the conservativeness of the ecological risk assessment and the low overall concentrations detected, the potential that exposure to the COPECs identified to adversely impact populations of ecological receptors at the Load Line #1 MRS is considered to be very low and not pose a concern to ecological receptors. Therefore, no further investigation or action is considered necessary at the Load Line #1 MRS for ecological purposes.

ES.5 Conceptual Site Model

The information collected during the RI field activities was used to update the MEC and MC CSMs for the Load Line #1 MRS as presented in the SI Report (e^2M, 2008). The purpose of the CSMs is to identify all complete, potentially complete, or incomplete source-receptor interactions for future land use activities at the MRS. An exposure pathway is the course a MEC item or MC takes from a source to a receptor. Each pathway includes a source, activity, access, and receptor.

Taking into consideration the historical activities that occurred at the MRS, it is expected that triple-base propellants that may be present at the MRS would be found primarily on the ground surface. Two nonintrusive visual surveys were performed over 100 percent of the

Load Line #1 MRS during the RI field activities. No MEC or MD items were observed on the ground surface of the MRS during the visual survey; therefore, the MEC exposure pathway for surface soil is considered incomplete for all receptors.

Since a MEC source was not found on the ground surface, a subsurface investigation was not warranted. Given the lack of a MEC source, the MEC exposure pathway for subsurface soil is considered incomplete for all receptors.

Sampling was performed at the Load Line #1 MRS to further characterize the nature and extent of contamination associated with previous activities at the MRS. The SRCs detected at the MRS consisted of the lead and nitroguanidine in surface soil. Although a MEC source was not found, the identified SRCs may have resulted from degradation due to exposure to the elements of the propellants previously encountered at the MRS. None of the SRC concentrations were determined to pose risks to human health or the environment. The MC CSM has been updated to reflect a lack of source and incomplete pathways for all the receptors at the MRS.

ES.6 Conclusions and Recommendations

The RI was prepared in accordance with the project DQOs and included evaluations for explosives hazards and potential sources of MC that may pose threats to likely receptors. The following statements can be made for the Load Line #1 MRS based on the results of the RI field activities:

- Instrument-assisted nonintrusive visual survey coverage was performed over the entire Load Line #1 MRS during the RI and no subsurface anomalies were detected.
- No physical evidence of MEC or MD was found on the ground surface during the RI and no explosive hazard is anticipated to be present at the MRS.
- Although no MEC source was found during the RI, ISM surface soil samples were analyzed for MC and represent 100 percent coverage of the MRS.
- Detected concentrations of SRCs in surface soil (0 to 0.5 feet) do not pose potential risks to human or ecological receptors; therefore, no further action is required for MC at this MRS.

Based on these conclusions, it is determined that the Load Line #1 MRS has been adequately characterized and that the DQOs presented in the Work Plan (Shaw, 2011) have been satisfied. Therefore, the next course of action for the Load Line #1 MRS will be to proceed to a No Further Action Record of Decision.

1.0 INTRODUCTION

This Remedial Investigation (RI) Report documents the findings and conclusions of the RI field activities for the Load Line #1 (RVAAP-008-R-01) Munitions Response Site (MRS) located at the former Ravenna Army Ammunition Plant (RVAAP) in Ravenna, Ohio. This RI Report was prepared by CB&I Federal Services LLC under Delivery Order 0002 for Military Munitions Response Program (MMRP) environmental services at the facility under the Multiple Award Military Munitions Services Performance-Based Acquisition Contract No. W912DR-09-D-0005. The Delivery Order was issued by the United States (U.S.) Army Corps of Engineers (USACE), Baltimore District on May 27, 2009.

This RI Report presents the results of the RI field activities that were conducted at the Load Line #1 MRS between April and May 2011. This report was developed in accordance with the *Final Work Plan for Military Munitions Response Program Remedial Investigation Environmental Services* (Shaw Environmental & Infrastructure, Inc. [Shaw], 2011) at the facility, hereafter referred to as the Work Plan, and the *Military Munitions Response Program Munitions Response Remedial Investigation/Feasibility Study Guidance* (U.S. Army, 2009).

1.1 Purpose

Environmental cleanup decision-making under the MMRP follows the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) prescribed sequence of RI, Feasibility Study (FS), Proposed Plan, and Record of Decision. The RI serves as the mechanism for collecting data to characterize MRS conditions, determining the nature and extent of the contamination, and assessing potential risks to human health and the environment from this contamination. While not all munitions and explosives of concern (MEC) or munitions constituents (MC) under the MMRP constitute CERCLA hazardous substances, pollutants or contaminants, the Defense Environmental Restoration Program (DERP) statute provides the U.S. Department of Defense (DoD) the authority to respond to releases of MEC/MC, and DoD policy states that such responses shall be conducted in accordance with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The purpose of the RI was to determine whether the Load Line #1 MRS warrants further response action pursuant to CERCLA and the NCP. More specifically, the RI was intended to determine the nature and extent of MEC and MC and to subsequently identify the potential hazards and risks posed to likely human and ecological receptors by MEC and MC. Additional data are also presented in this RI Report to support the identification and evaluation of alternatives in a FS, if required.

1.2 Problem Identification

The principle sources of MEC at the Load Line #1 MRS were reported to be accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC and munitions debris (MD), including propellants, to be present in surface soil at the Load Line #1 MRS (engineering-environmental Management, Inc. [e^{2}M], 2008). The MRS consists of a 0.41-acre area located near the northwest side of the former elevated building CB-14 where triple-base propellants were observed on the ground surface and MC results for elevated lead concentrations and low detects for explosives were detected in surface soil during the 2007 site inspection (SI) activities.

It was concluded in the *Final Site Inspection Report* (e^{2}M, 2008), hereafter referred to as the SI Report, that there was a potential for surface MEC (triple-base propellant nodules) and MC in concentrations in surface soil posing a risk to human and ecological receptors at the MRS. It was recommended in the SI Report that further characterization for MEC and MC be performed at the MRS under the MMRP.

1.3 Physical Setting

This section presents the physical characteristics of the facility, the Load Line #1 MRS and the surrounding environment that are factors in understanding fate and transport, receptors, and exposure scenarios for potential human health and ecological risks. The physiographic setting, hydrology, climate, and ecological characteristics of the facility were compiled primarily from information originally presented in the SI Report (e^{2}M, 2008), which included the Load Line #1 MRS, and the *Integrated Natural Resources Management Plan for the Ravenna Training and Logistics Sites* (INRMP) that was prepared for the Ohio Army National Guard (OHARNG) by AMEC Earth and Environmental, Inc. (AMEC) in 2008.

1.3.1 Location

The former RVAAP (Federal Facility ID No. OH213820736), now known as the Camp Ravenna Joint Military Training Center (Camp Ravenna), is located in northeastern Ohio within Portage and Trumbull Counties and is approximately 3 miles east-northeast of the city of Ravenna. The facility is approximately 11 miles long and 3.5 miles wide. The facility is bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad to the south; Garret, McCormick, and Berry Roads to the west; the Norfolk Southern Railroad to the north; and State Route 534 to the east. In addition, the facility is surrounded by the communities of Windham, Garrettsville, Newton Falls, Charlestown, and Wayland (**Figure 1-1**).

The Load Line #1 MRS is a 0.41-acre parcel located in the eastern portion of the facility within Portage County (**Figure 1-2**). The MRS is collocated with an Installation Restoration Program (IRP) Area of Concern (AOC) identified as Army Environmental Database-Restoration Module (AEDB-R) number RVAAP-08.

Administrative control of the 21,683-acre facility has been transferred to the U.S. Property and Fiscal Officer for Ohio and subsequently licensed to the OHARNG for use as a training site, Camp Ravenna. The restoration program involves cleanup of former production areas across the facility related to former operations under the former RVAAP.

The MRS is located on federal property that is managed by the Army National Guard (ARNG) and the OHARNG. **Table 1-1** summarizes the administrative description for the Load Line #1 MRS. The table includes the facility AEDB-R numerical designation for the MRS, the current MRS acreage, and the agencies responsible for the MRS.

Table 1-1
Administrative Description Summary of the Load Line #1 MRS

MRS Name	AEDB-R MRS Number	MRS Acreage (acres)	Property Owner	MRS Management Responsibility
Load Line #1	RVAAP-008-R-01	0.41	USP&FO	ARNG/OHARNG

AEDB-R denotes Army Environmental Database Restoration.
ARNG denotes Army National Guard.
MRS denotes Munitions Response Site.
OHARNG denotes Ohio Army National Guard.
USP&FO denotes United States Property and Fiscal Officer.

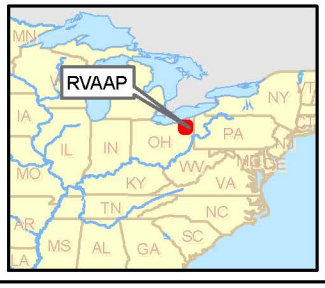
1.3.2 Current and Projected Land Use

This section presents the current and future land use for the Load Line #1 MRS. The future land use description for the MRS is based on information provided in the *RVAAP Facility-Wide Human Health Risk Assessor Manual* (HHRAM) (USACE, 2005) and information provided by the OHARNG during preparation of the Work Plan (Shaw, 2011).

Current activities at the Load Line #1 MRS include maintenance, remediation, and natural resource management activities. Possible users associated with the current activities at the MRS include facility personnel, contractors, and potential trespassers.



Note:
The Scale is for the Upper Map Only
Showing the RVAAP Location



U.S. ARMY
CORPS OF ENGINEERS
BALTIMORE DISTRICT

MILITARY MUNITIONS RESPONSE PROGRAM

RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Shaw Environmental & Infrastructure, Inc.
(A CB&I Company)

Project Number: 133616 Generated By: TJG Date: 03/20/13 File Path:\\crpbtrpgi01\arcgisprod3\MAMMS\Ravenna\GIS_Documents\Project_Maps\MMRP\RIFS\RIFS_LoadLine1\RVAAP_LL1_001_Fig1_1_RVAAPSiteLoc.mxd

FIGURE 1-1 RVAAP INSTALLATION LOCATION MAP



FIGURE 1-2 MRS LOCATION MAP

The OHARNG future use at the MRS is military training. The potential user for the future land use is the National Guard Trainee (USACE, 2005). Since the RI was completed prior to finalization of the U.S. Army's *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the Ravenna Army Ammunition Plant Installation Restoration Program* (ARNG, 2014) and Unrestricted Land Use was demonstrated, the Commercial Industrial Land Use was not evaluated in the RI.

1.3.3 Climate

The climate at the facility is classified as humid continental, and the region is characterized by warm, humid summers and cold winters. The National Weather Service identified the average annual precipitation for Ravenna, Ohio as 40.23 inches, with February as the driest month and July as the wettest month. **Table 1-2** reflects the annual climate and weather normally encountered at nearby Youngstown Municipal Airport.

Table 1-2
Climatic Information, Youngstown Municipal Airport, Ohio

Temperature Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Normal Max Temperature (°F)	32.4	36.0	46.3	58.2	69.0	77.1	81.0	79.3	72.1	60.7	48.4	37.3
Normal Min Temperature (°F)	17.4	19.3	27.1	36.5	46.2	54.6	58.7	57.5	50.9	40.9	33.0	23.4
Mean Precipitation (inches)	2.34	2.03	3.05	3.33	3.45	3.91	4.10	3.43	3.89	2.46	3.07	2.96
Mean Snowfall (inches)	13.1	9.6	10.4	2.2	0	0	0	0	Trace	0.6	4.5	12.3

Source: National Oceanic and Atmospheric Administration Climatography of the United States No. 81 1971–2000.
°F denotes degrees Fahrenheit.

1.3.4 Topography

The RVAAP is located within the Southern New York section of the Appalachian Plateaus physiographic province. Rolling topography containing incised streams and dendritic drainage patterns are prevalent in the province. Rounded ridges, filled major valleys, and areas covered with glacially derived unconsolidated deposits were the product of glaciation in the Southern New York section. In addition, bogs, kettle lakes, and kames are evidence of past glacial activity in the province; however, none are located at the MRS. Old stream drainage patterns were disturbed and wetlands were created within the province as a result of past glacial activity (e^2M, 2008).

Load Line #1 MRS Topography

Topography across the Load Line #1 MRS is relatively flat with little change in elevation. The MRS is in a slight depression related to its immediate surroundings. Based on topographical maps, local surface drainage is to the east. There are no natural streams or ponds located within the MRS and the MRS is not located within a flood plain. The ground surface elevation at the MRS is approximately 990 feet above mean sea level (amsl). The topography for the Load Line #1 MRS and the immediate vicinity is presented in **Figure 1-3**.

1.3.5 Hydrology and Hydrogeology

The facility is located within the Ohio River Basin. The major surface stream at the facility is the west branch of the Mahoning River, which flows adjacent to the western end of the facility, generally from north to south, before flowing into the Michael J. Kirwan Reservoir. After leaving the reservoir, the west branch joins the Mahoning River east of the facility.

Surface water features within the facility include a variety of streams, lakes, ponds, floodplains, and wetlands. Numerous streams drain the facility, including approximately 19 miles of perennial streams. The combined stream length at the facility is 212 linear miles (AMEC, 2008).

Three primary watercourses drain the facility: (1) the south fork of Eagle Creek, (2) Sand Creek, and (3) Hinkley Creek. Eagle Creek and its tributaries, including Sand Creek, are designated as State Resource Waters. With this designation, the stream and its tributaries fall under the state's antidegradation policy. These waters are protected from any action that would degrade the existing water quality.

Approximately 153 acres of ponds are found on the facility. Most of the ponds were created by beaver activity or small man-made dams and embankments. Some were constructed within natural drainage ways to function as settling ponds for effluent or runoff. No ponds are located at the Load Line #1 MRS (AMEC, 2008).

A planning-level survey (i.e., desktop review of wetlands data and resources [National Wetlands Inventory maps, aerials, etc.]) for wetlands was conducted for the entire facility, including the MRS. Wetlands located within the facility include seasonally saturated wetlands, wet fields, and forested wetlands. Sand and gravel aquifers are present within the buried-valley and outwash deposits in Portage County. In general, the aquifer is too thin and localized to provide large quantities of water; however, yields are sufficient for residential water supplies. Wells located on the facility were primarily located within the sandstone facies of the Sharon Member (MKM Engineers, Inc., 2007).



FIGURE 1-3 TOPOGRAPHY

Although groundwater recharge and discharge areas have not been delineated at the facility, it is assumed that the extensive uplands areas at the facility, primarily located at the western portion of the former RVAAP, are regional recharge zones. Sand Creek, Hinkley Creek, and Eagle Creek are presumed to be major groundwater discharge areas (e^2M, 2008). The Load Line #1 MRS is located at the eastern lowland portion of the facility that is not situated in the upland areas that are considered to be regional recharge zones.

Load Line #1 MRS Hydrology and Hydrogeology

No surface water features, wetlands, bogs, kettle lakes, or kames are located at the Load Line #1 MRS. The MRS is not located in a floodplain. The nearest surface water drainage is an unnamed drainage outlet at the northeast corner of Load Line #1 and is considered an intermittent surface water drainage channel.

Groundwater is present at the MRS at approximately 32 feet below ground surface (bgs) in unconsolidated sediments (MKM Engineers, Inc., 2007; Environmental Quality Management, Inc., 2012). Groundwater flow is generally to the northeast (Science Applications International Corporation [SAIC], 2003).

1.3.6 Geology and Soils

Based on regional geology, the facility consists of Mississippian- and Pennsylvanian-age bedrock strata, which dip to the south at approximately 5 to 10 feet per mile. The bedrock is overlain by unconsolidated glacial deposits of varying thickness.

Bedrock is overlain by deposits of Wisconsin-age Lavery Till and Hiram Till in the western and eastern portions of the facility, respectively. The thickness of the glacial deposits varies throughout the facility, ranging from ground surface in parts of the eastern portion of the facility to an estimated 150 feet in the south-central portion of the facility.

Bedrock is present near the ground surface in many locations at the facility, including Load Line #1 at the east end of the facility. Where glacial deposits are still present, their distribution and character are indicative of ground moraine origin. Laterally discontinuous groupings of yellow-brown, brown, and gray silty clays to clayey silts, with sand and rock fragments are present. Glacial-age standing-water-body deposits may be present at the facility, in the form of uniform light gray silt deposits over 50 feet thick.

At approximately 200 feet bgs, the Mississippian Cuyahoga Group is present throughout most of the facility. In the northeastern corner of the facility, the Meadville Shale Member of the Cuyahoga Group is present close to the surface. The Meadville Shale Member of the Cuyahoga Group is blue-gray silty shale characterized by alternating thin beds of sandstone and siltstone.

The Sharon Member of the Pennsylvanian Pottsville Formation unconformably overlies the Meadville Shale Member of the Mississippian Cuyahoga Group. A relief of as much as 200 feet exists in Portage County, which can be seen in the Sharon Member thickness variations. The Sharon Member is made up of shale and a conglomerate.

The Sharon Member conglomerate unit is identified as highly porous, permeable, cross-bedded, frequently fractured, and weathered quartzite sandstone, which is locally conglomeratic and has an average thickness of 100 feet. A thickness of as much as 250 feet exists in the Sharon Conglomerate where it was deposited in a broad channel cut into Mississippian rocks. In marginal areas of the channel, the conglomerate unit may thin out to approximately 20 feet; in some places, it may be missing owing to nondeposition on the uplands of the early Pennsylvanian erosional surface. Thin shale lenses occur intermittently within the upper part of the conglomerate unit.

The Sharon Member shale unit is identified as a light- to dark-gray fissile shale, which overlies the conglomerate in some locations; however, it has been eroded throughout the majority of the facility. The Sharon Member outcrops in many locations in the eastern half of the facility.

The remaining members of the Pottsville Formation overlie the Sharon Member in the western portion of the facility. Due to erosion and because the land surface was above the level of deposition, the Pottsville Formation is not found in the eastern half of the facility.

The Connoquenessing Sandstone Member, which is a sporadic, relatively thin channel of sandstone comprised of gray to white coarse-grained quartz with a higher percentage of feldspar and clay than the Sharon Conglomerate, unconformably overlies the Sharon Member. The Mercer Member, which is found above the Connoquenessing Sandstone Member, 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 Member and consists of the uppermost unit of the Pottsville Formation. The Homewood Sandstone Member ranges from well-sorted, coarse-grained, white quartz sandstone to a tan, poorly sorted, clay-bonded, micaceous, medium- to fine-grained sandstone. The Homewood Sandstone Member occurs as a caprock on bedrock highs in the subsurface (e^2M, 2008).

Geology and Soils at the Load Line #1 MRS

The Load Line #1 MRS is located over the Sharon Sandstone formation and the depth to bedrock is less than 3.5 feet bgs (U.S. Department of Agriculture [USDA], 1978). The approximate elevation of bedrock at the MRS is 987 feet amsl (AMEC, 2008). **Figure 1-4** illustrates the bedrock formation beneath the MRS.



FIGURE 1-4 BEDROCK MAP

The soils identified at the facility are generally derived from the Wisconsin-age silty clay glacial till. The major soil types found at the facility are silt or clay loams, ranging in permeability from 6.0×10^{-7} to 1.4×10^{-3} centimeters per second (USDA, 1978). The native soil type at the Load Line #1 MRS is the Mitiwanga silt loam with 0- to 2-percent slopes (AMEC, 2008). This is a nearly level soil type in wide flat areas such as the MRS. Permeability is very slow in the subsoil and underlying glacial till with an average rate of 1.04×10^{-7} centimeters per second. Runoff is slow and ponding is common after heavy rains or seasonally wet weather. **Figure 1-5** illustrates the soil types at and in the vicinity of the Load Line #1 MRS.

1.3.7 Vegetation

The facility has a diverse range of vegetation and habitat resources. Habitats present within the facility include large tracts of closed-canopy hardwood forest, scrub/shrub open areas, grasslands, wetlands, and open-water ponds and lakes. Vegetation at the facility can be grouped into three categories: (1) herb dominated, (2) shrub dominated, and (3) tree dominated. Tree-dominated areas are most abundant, covering approximately 13,000 acres of the facility. Shrub vegetation covers approximately 4,200 acres. A plant species survey identified 18 vegetation communities on the facility. The facility has seven forest formations, four shrub formations, eight herbaceous formations, and one nonvegetated formation (AMEC, 2008).

Vegetation at the Load Line #1 MRS

The vegetation community present at the Load Line #1 MRS is categorized as the "Dry Midsuccessional Cold-Deciduous Shrubland Alliance." This shrubland alliance is associated with relatively open areas characterized by shrub species covering more than 50 percent of the area, with relatively few large trees. This alliance often is found within previously disturbed areas, and is dominated by gray dogwood, northern arrowwood, blackberry, hawthorn, and multiflora rose (AMEC, 2008).

1.3.8 Endangered, Threatened, and Other Rare Species

Federal status as a threatened or endangered species is derived from the Endangered Species Act (ESA) (16 United States Code [USC] 1538, et seq.) and is administered by the U.S. Fish and Wildlife Service (USFWS). While there are species under federal review for listing, there are currently no federally listed species or critical habitats at the facility. State-listed plant and animal species are determined by the Ohio Department of Natural Resources (ODNR). Although biological inventories have not occurred within the MRS boundary and no confirmed sightings of state-listed species have been reported, there is the potential for state-listed or rare species to be within the MRS boundary. Information regarding endangered, threatened, and candidate species at the facility was obtained from the Camp

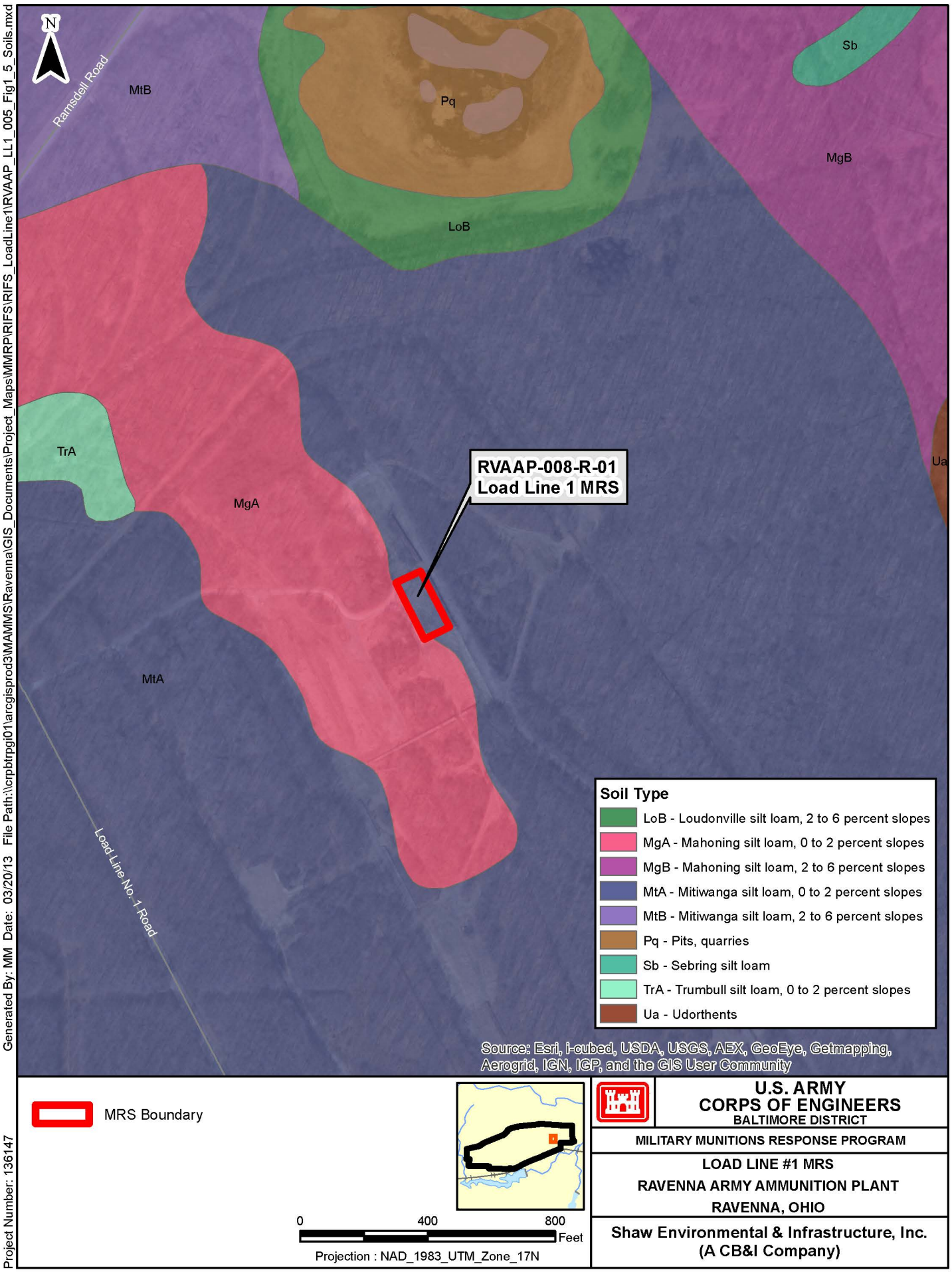


FIGURE 1-5 SOILS MAP

Ravenna Rare Species List (2010). **Table 1-3** presents state-listed species that have been identified to be on the facility by biological inventories and confirmed sightings.

Table 1-3
Camp Ravenna Rare Species List

Common Name	Scientific Name
State Endangered	
American bittern	*Botaurus lentiginosus*
Northern harrier	*Circus cyaneus*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Golden-winged warbler	*Vermivora chrysoptera*
Osprey	*Pandion haliaetus*
Trumpeter swan	*Cygnus buccinators*
Mountain brook lamprey	*Ichthyomyzon greeleyi*
Graceful underwing	*Catocala gracilis*
Bobcat	*Felis rufus*
Narrow-necked Pohl's moss	*Pohlia elongate var. Elongata*
Sandhill crane (probable nester)	*Grus canadensis*
Bald eagle (nesting pair)	*Haliaetus leucocephalus*
State Threatened	
Barn owl	*Tyto alba*
Dark-eyed junco (migrant)	*Junco hyemalis*
Hermit thrush (migrant)	*Catharus guttatus*
Least bittern	*Ixobrychus exilis*
Least flycatcher	*Empidonax minimus*
Caddisfly	*Psilotreta indecisa*
Simple willow-herb	*Epilobium strictum*
Woodland horsetail	*Equisetum sylvaticum*
Lurking leskea	*Plagiiothecium latebricola*
Pale sedge	*Carex pallescens*
State Potentially Threatened Plants	
Gray birch	*Betula populifolia*
Butternut	*Juglans cinerea*

Table 1-3 (continued)
Camp Ravenna Rare Species List

Common Name	Scientific Name
Northern rose azalea	*Rhododendron nudiflorum var. Roseum*
Hobblebush	*Viburnum alnifolium*
Long beech fern	*Phegopteris connectilis*
Straw sedge	*Carex straminea*
Tall St. John's wort	*Hypercium majus*
Water avens	*Geum rivale*
Shining ladies-tresses	*Spiranthes lucida*
Swamp oats	*Sphenopholis pensylvanica*
Arbor vitae	*Thuja occidentalis*
American chestnut	*Castanea dentate*
Tufted moisture-loving moss	*Philonotis fontana var. Caespitosa*
State Species of Concern	
Pygmy shrew	*Sorex hovi*
Woodland jumping mouse	*Napaeozapus insignis*
Star-nosed mole	*Condylura cristata*
Sharp-shinned hawk	*Accipiter striatus*
Marsh wren	*Cistothorus palustris*
Henslow's sparrow	*Ammodramus henslowii*
Cerulean warbler	*Dendroica cerulean*
Prothonotary warbler	*Protonotaria citrea*
Bobolink	*Dolichonyx oryzivorus*
Northern bobwhite	*Colinus virginianus*
Common moorhen	*Gallinula chlorpus*
Great egret (migrant)	*Ardea alba*
Sora	*Porzana carolina*
Virginia rail	*Rallus limicola*
Creek heelsplitter	*Lasmigona compressa*
Eastern box turtle	*Terrapene carolina*
Four-toed salamander	*Hemidactylium scutatum*
Mayfly	*Stenonema ithica*

Table 1-3 (continued)
Camp Ravenna Rare Species List

Common Name	Scientific Name
Coastal plain apamea	*Apamea mixta*
Willow peasant	*Brachylomia algens*
Sedge wren	*Cistothorus platensis*
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*

Source: Camp Ravenna Rare Species List, April 27, 2010.

1.3.9 Cultural and Archeological Resources

A number of archeological surveys have been conducted at the facility. Cultural and archeological resources have been identified at the facility during past surveys. The Load Line #1 MRS has not been previously surveyed for cultural and archeological resources

(AMEC, 2008). However, due to the disturbed nature of the area from former operations and remediation activities, it is unlikely that cultural and/or archeological resources are present at the MRS.

1.4 Facility History and Background

During operations as an ammunition plant, the former RVAAP was a government-owned and contractor-operated industrial facility. Industrial operations at the facility consisted of 12 munitions assembly facilities, referred to as "load lines." Load Lines 1 through 4 were used to melt and load 2,4,6-trinitrotoluene (TNT) and Composition B into large-caliber shells and bombs. The operations on the load lines produced explosive dust, spills, and vapors that collected on the floors and walls of each building. Periodically, the floors and walls were cleaned with water and steam. Following cleaning, the "pink water" waste water, which contained TNT and Composition B, was collected in concrete holding tanks, filtered, and pumped into unlined ditches for transport to earthen settling ponds. Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. Potential contaminants in these load lines include lead compounds, mercury compounds, and explosives. From 1946 to 1949, Load Line 12 was used to produce ammonium nitrate for explosives and fertilizers prior to use as a weapons demilitarization facility.

In 1950, the facility was placed in standby status and operations were limited to renovation, demilitarization, and normal maintenance of equipment, along with storage of munitions. Production activities were resumed from July 1954 to October 1957 and again from May 1968 to August 1972. In addition to production missions, various demilitarization activities were conducted at facilities constructed at Load Lines 1, 2, 3, and 12. Demilitarization activities included disassembly of munitions and explosives melt-out and recovery operations using hot water and steam processes. Periodic demilitarization of various munitions continued through 1992.

In addition to production and demilitarization activities at the load lines, other facilities at the former RVAAP include MRSs that were used for the burning, demolition, and testing of munitions. These burning and demolition grounds consist of large parcels of open space or abandoned quarries. Potential contaminants at these MRSs include explosives, propellants, metals, and waste oils. Other AOCs present at the facility include landfills, an aircraft fuel tank testing facility, and various general industrial support and maintenance facilities (SAIC, 2011).

Load Line #1 MRS History and Background

Load Line #1 is approximately 164 acres in area. It was used to melt and load TNT and Composition B explosives into large-caliber shells during World War II and the Korean War.

Explosive dust, spills, and vapors collected on the floors and walls of several buildings as a result of operations at the load line. The walls were periodically washed with water and steam. In 1971, the load line's freestanding equipment was removed.

Investigation and remediation activities under the IRP have been ongoing at the Load Line #1 AOC, in which the MRS is collocated, since 1996. From 1996 through 1998, salvage operations continued, with the removal of the overhead steam lines, major rail spurs and all telephone lines. The majority of the buildings were demolished and removed by 2000. The remainder of the floor slabs were demolished and removed in 2009.

The Load Line #1 MRS was originally a 4.63-acre area composed of several buildings associated with packing and shipping (CB-13/CB-13B), the location of the former popping furnace located adjacent to the former building CB-13B, and the area around the former propellant charge building (CB-14). Based on the recommendations in the SI Report (e^2M, 2008), the MRS was reduced to a 0.41-acre area located near the northwest side of the former propellant charge building (CB-14) where triple-base propellants were observed on the ground surface and elevated lead concentrations and low concentrations of explosives were detected in surface soil during the SI activities. The MRS is located at the north end of the load line. **Figure 1-6** presents the current MRS boundaries and associated features investigated for the RI.

The principle sources of MEC at the Load Line #1 MRS were reported to be accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC/MD, including propellants, to be present in surface soil at the Load Line #1 MRS (e^2M, 2008).

1.5 Previous Investigations and Actions

This section briefly summarizes the investigations and actions as they pertain to the Load Line #1 MRS. This information was obtained primarily from the *Final Historical Records Review* (e2M, 200), hereafter referred to as the HRR, and the SI Report (e^2M, 2008).

1.5.1 2004 USACE Archives Search Report

The USACE conducted an archives search in 2004 under the DERP as a historical records search and SI for the presence of MEC at the facility. The *Final Archives Search Report* (ASR) was prepared by the USACE in 2004 and identified 12 AOCs as well as 4 additional locations with the potential for MEC. Based on the ASR, Ramsdell Quarry Landfill, Erie Burning Grounds, Open Demolition Area #1, Load Line 12 and Dilution/Settling Pond, Building 1200 and Dilution/Settling Pond, Quarry Landfill/Former Fuze and Booster Burning Pits, 40 mm Firing Range, Building 1037—Laundry Waste Water Sump, Anchor



FIGURE 1-6 SITE FEATURES MAP

Test Area, Atlas Scrap Yard, Block D Igloo, and Tracer Burning Furnace were identified as potential MRSs containing MEC. Confirmed MEC was identified at Open Demolition Area #2, Landfill North of Winklepeck, Load Line #1 and Dilution/Settling Pond, and Load Line #3 and Dilution/Settling Pond (USACE, 2004).

1.5.2 2007 e^{2}M Historical Records Review

The HRR was completed by e^{2}M in January 2007. The primary objective of the HRR was to perform a limited-scope records search to document historical and other known information on MRSs identified at the facility, to supplement the U.S. Army Closed, Transferring, and Transferred Range/Site Inventory, and to support the technical project planning process designed to facilitate decisions on those areas where more information was needed to determine the next step(s) in the CERCLA process.

Of the 19 MMRP-eligible MRSs identified during the U.S. Army Closed, Transferring, and Transferred Range/Site Inventory, the HRR identified 18 MRSs that qualified for the MMRP due to the demolition and/or disposal activities that occurred. These activities may have resulted in the presence of MEC and/or MC at the MRSs where the releases occurred prior to September 2002 (e^{2}M, 2008). These 18 MRSs identified during the HRR included the following:

- Ramsdell Quarry Landfill (RVAAP-001-R-01)
- Erie Burning Grounds (RVAAP-002-R-01)
- Open Demolition Area #2 (RVAAP-004-R-01)
- Load Line #1 (RVAAP-008-R-01)
- Load Line 12 (RVAAP-012-R-01)
- Fuze and Booster Quarry (RVAAP-016-R-01)
- Landfill North of Winklepeck (RVAAP-019-R-01)
- 40 mm Firing Range (RVAAP-32-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) (now identified as "Group 8")
- Field at the Northeast Corner of the Intersection (RVAAP-064-R-01)

Following the HRR, the Field at the Northeast Corner of the Intersection (RVAAP-064-R-01), otherwise known as the Old Hayfield MRS, was classified as an operational range. This MRS was removed from eligibility under the MMRP, reducing the number of active MRSs at the facility to 17.

Prior to the HRR, the U.S. Army Closed, Transferring, and Transferred Range/Site Inventory considered the MRS as the entire 164-acre Load Line #1. During 1996 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. It was recommended in the HHR that the MRS acreage be reduced from 164 acres to 4.63 acres at the northern end of the load line where the propellants were identified. The resulting MRS boundaries following the recommendations in the HRR are presented in **Figure 1-7**.

1.5.3 2008 e^{2}M MMRP Site Inspection Report

In 2007, e^{2}M conducted a SI at each of the 17 MRSs under the MMRP. The primary objectives of the SI activities were to collect the appropriate amount of information to support recommendations of "no further action, immediate response, or further characterization" concerning the presence of MEC and/or MC at each of the MRSs. The SI also included a review of the HRR for each of the applicable MRSs. Out of the 17 MRSs evaluated during the SI phase, 14 were recommended for additional characterization under the MMRP, which included the Load Line #1 MRS (RVAAP-008-R-01). A summary of the SI Report (e^{2}M, 2008) recommendations for the Load Line #1 MRS is presented in **Table 1-4** and discussed below.

Table 1-4
Site Inspection Report Recommendations

MRS	MRSPP Priority	Recommendation	Basis for Recommendation	
			MEC	MC
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

MC denotes munitions constituent.
MEC denotes munitions and explosives of concern.
MRS denotes Munitions Response Site.
MRSPP denotes Munitions Response Site Prioritization Protocol.
RVAAP denotes former Ravenna Army Ammunitions Plant.

The Load Line #1 MRS was assigned a Munitions Response Site Prioritization Protocol (MRSPP) priority of 5. The MRSPP is a funding mechanism typically performed during the Preliminary Assessment/SI stage to prioritize funding for MRSs on a priority scale of 1 to 8 with a Priority 1 being the highest relative priority. Based on the MRSPP identified for the MRS in the SI Report (e^2M, 2008), the Load Line #1 MRS was selected for inclusion for "further characterization." The following paragraphs summarize the investigation activities performed at the Load Line #1 MRS during the 2007 SI and the conclusions and recommendations for the MRS as identified in the SI Report (e^2M, 2008).

The Load Line #1 MRS at the time of the SI was the 4.63 acres recommended in the HRR (e^2M, 2007) and the field activities consisted of a meandering path survey. Three pieces of triple-base propellant (1 inch by ¼ inch each) were found on the ground surface during the survey and were classified as MEC. One nodule was found on the northwestern side of the former elevated building CB-14 slab. The other two nodules were located along the rail bed adjacent to the northeast side of the building CB-14 slab. The areas investigated during the SI field activities are presented in **Figure 1-7**.

One surface soil sample (MC1) was collected using the incremental sampling methodology (ISM) during the SI field activities. The sample was collected at the northwest side of the former elevated building CB-14 slab where one of the pieces of triple-base propellants was found. Lead is considered an MC associated with propellants and was detected in the ISM sample. Low concentrations of explosives that consisted of TNT and nitrobenzene were also detected; however, neither of these explosives is considered to be MC associated with propellants. Additionally, the concentrations of TNT and nitrobenzene were found to be too low to pose an explosives hazard. The location of the ISM sample collected at the MRS during the SI field activities is presented in **Figure 1-7**.

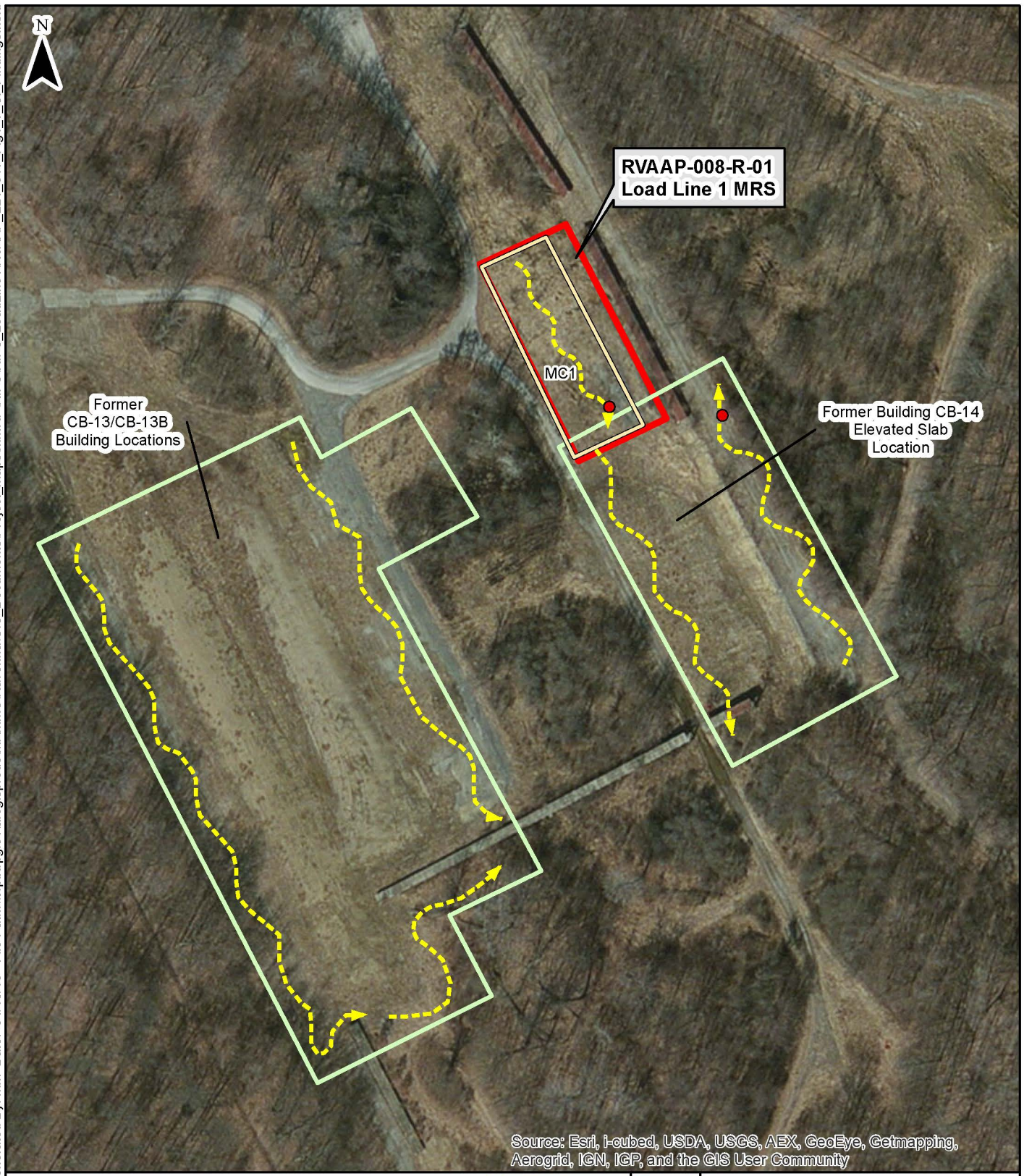


FIGURE 1-7 SI FIELD WORK AND FINDINGS

Based on the unexploded ordnance (UXO) survey and MC results for lead and low detects for explosives, the SI recommended further characterization to address MEC and MC concerns at the Load Line #1 MRS as the density of propellants at the MRS was not fully understood. The SI Report (e^2M, 2008) also recommended that the MRS footprint be reduced from the original 4.63 acres to the current 0.41 acres where the ISM sample with detected elevated lead concentrations was collected. The area adjacent to the northeast of the former elevated building CB-14 slab where the two propellants were found during the SI survey activities was not recommended for further characterization, since soil remediation activities were planned at the location by another contractor (Shaw) in late 2007.

1.6 Remedial Investigation Report Organization

The contents and order of presentation of this RI Report are based on the requirements of the *Military Munitions Response Program Munitions Response Remedial Investigation/Feasibility Study Guidance* (U.S. Army, 2009). Specifically, this RI Report includes the following sections:

- **Section 1.0**—Introduction
- **Section 2.0**—Project Objectives
- **Section 3.0**—Characterization of MEC and MC
- **Section 4.0**—Remedial Investigation Results
- **Section 5.0**—Fate and Transport
- **Section 6.0**—MEC Hazard Assessment
- **Section 7.0**—Human Health Risk Assessment
- **Section 8.0**—Ecological Risk Assessment
- **Section 9.0**—Revised Conceptual Site Model
- **Section 10.0**—Summary and Conclusions
- **Section 11.0**—References

Appendices included at the end of this RI Report are as follows:

- **Appendix A—**Field Documentation
- **Appendix B—**Data Validation Report
- **Appendix C—**Laboratory Analytical Data
- **Appendix D—**Investigation Derived Waste

- **Appendix E—**Photograph Documentation Log
- **Appendix F—**Ecological Risk Assessment Tables
- **Appendix G—**Munitions Response Site Prioritization Protocol Data Tables
- **Appendix H—**Responses to Ohio EPA Comments
- **Appendix I—**Ohio EPA Approval Letter

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2.0 PROJECT OBJECTIVES

This section presents the preliminary conceptual site models (CSMs) for MEC and MC for the Load Line #1 MRS based on historical information and identified data gaps associated with the preliminary CSMs and the data quality objectives (DQOs) necessary to achieve the project objectives.

A CSM for a MRS provides an analysis of potential exposures associated with MEC and/or MC and an evaluation of the potential transport pathways MEC and/or MC take from a source to a receptor. Each pathway includes a source, activity, access, and receptor component, with complete, potentially complete, or incomplete exposure pathways identified for each receptor. Each component of the CSM analysis is discussed below.

- **Sources—**Sources are those areas where MEC or MC have entered (or may enter) the physical system. A MEC source is the location where material potentially presenting an explosive hazard (MPPEH) or ordnance is situated or are expected to be found. A MC source is a location where MC has entered the environment.
- **Activity—**The hazard from MEC and/or MC arises from direct contact as a result of some human or ecological activity. Interactions associated with activities describe ways that receptors are exposed to a source. For MEC, movement is not typically significant, and interaction will occur only at the source area as described above, limited by access and activity. However, there can be some movement of MEC through natural processes such as frost heave, erosion, and stream conveyance. For MC, this can include physical transportation of the contaminant and transfer from one medium to another through various processes such that media other than the source area can become contaminated. Interactions also include exposure routes (ingestion, inhalation, and dermal contact) for each receptor. Ecological exposure can include coming into contact with MEC or MC lying on the ground surface or through disturbing buried MEC/MC while digging or performing other activities such as burrowing.
- **Access—**Access is the ease with which a receptor can be exposed to 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 and associated MC may also limit access by a receptor. Ease of entry for adjacent populations (i.e., lack of fencing) can facilitate trespassing at the MRS, either intentional or accidental.

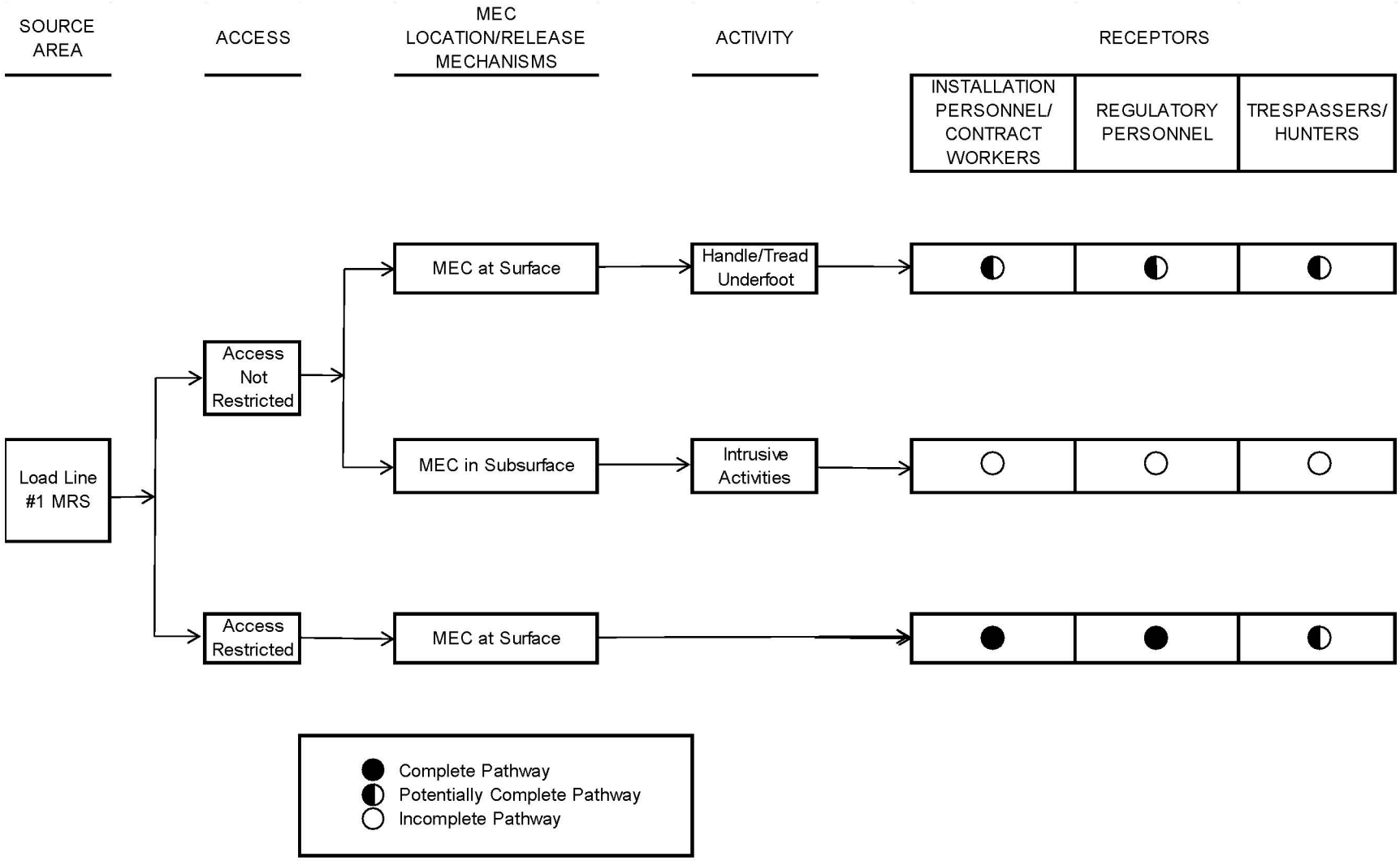
- **Receptors—**A receptor is an organism (human or ecological) that contacts a chemical or physical agent. The pathway evaluation must consider both current and reasonably anticipated future land use and activities, as receptors are determined on that basis. If present, MEC and/or MC on the ground surface and near the surface can be accessed by facility personnel, contractors, trespassers, and biota.

In general, the CSMs for each MRS are intended to assist in planning, interpreting data, and communicating MRS-specific information. The CSMs are used as a planning tool to integrate information from a variety of resources, to evaluate the information with respect to project objectives and data needs, and to evolve through an iterative process of further data collection or action. A discussion of the preliminary CSMs identified for the Load Line #1 MRS, as presented in the SI Report (e^2M, 2008), is presented in the following section. The data collected during the RI are incorporated into this model and is discussed in Section 4.0, "Remedial Investigation Results."

2.1 Preliminary CSMs and Project Approach

The preliminary CSMs for MEC and MC for the Load Line #1 MRS are based on MRS-specific data and general historical information including literature reviews, maps, training manuals, technical manuals, and field observations. The preliminary CSMs, which were originally developed during the SI process, are based on guidance from the USACE Engineer Manual 1110-1-1200, *Conceptual Site Models for Ordnance and Explosives and Hazardous, Toxic, and Radioactive Waste Projects* (USACE, 2003a). The preliminary MEC CSM and MC CSM are represented by the diagrams provided as **Figures 2-1** and **2-2**, respectively. A summary of each of the factors evaluated for the preliminary CSMs are discussed below.

- **Sources—**The potential presence of triple-base propellants on the ground surface was considered as the primary source of the potentially explosive MEC at the Load Line #1 MRS. Based on review of the archival records and available documentation, the principle sources of MEC at the Load Line #1 MRS were accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC/MD to be present in surface soil at the Load Line #1 MRS. Given the MRS history, the presence of MEC in the subsurface was not anticipated, as no burial activities were known to occur. The source of MC at the MRS also includes the potential residual contamination in soils as a result of the propellants on the ground surface.



Source: Final Site Inspection Report, Ravenna Army Ammunition Plant, Ohio (e^2M, 2008)

U.S. ARMY
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BALTIMORE DISTRICT

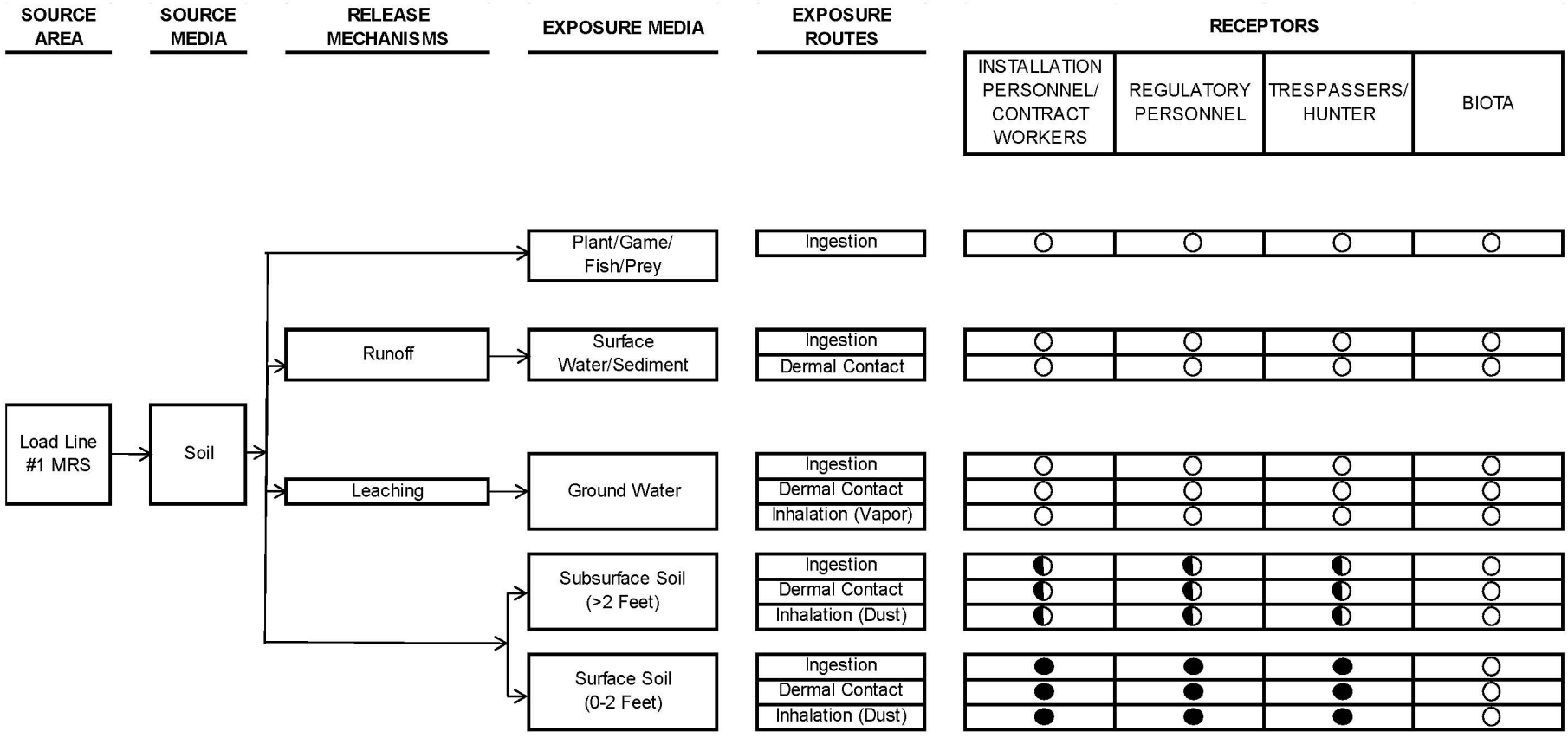
MILITARY MUNITIONS RESPONSE PROGRAM

LOAD LINE #1 MRS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Shaw Environmental & Infrastructure, Inc.
(A CB&I Company)

Project Number: 136147 Generated By: MM Date: 03/20/13 File Path:\\crpbtrpgi01\arcgisprod3\MAMMS\Ravenna\GIS Documents\Project Maps\MMRP\RIFS\RIFS LoadLine1\RVAAP LL1 007 Fig2 1 Prelim MECCSM.mxd

FIGURE 2-1 PRELIMINARY MEC CONCEPTUAL SITE MODEL



Source: Final Site Inspection Report, Ravenna Army Ammunition Plant, Ohio (e^2M, 2008)

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Project Number: 136147

FIGURE 2-2 PRELIMINARY MC CONCEPTUAL SITE MODEL

- **Activity—**Human activities considered for the preliminary CSM included maintenance of the grounds, environmental sampling under the IRP, natural resource management activities, and infrequent security checks.
- **Access—**Access to Load Line #1 at the time of the SI was controlled by a fenced perimeter; however, a section of fence was missing behind the former guard building. Once inside Load Line #1, the MRS is not physically restricted and is accessible. The SI Report (e^2M, 2008) identified future plans for the MRS as military training once the load line was remediated.
- **Receptors—**At the time of the SI, current and reasonably anticipated receptors included installation personnel, soldiers, contractors (including maintenance personnel), and possibly trespassers and hunters. The SI Report (e^2M, 2008) considered biota to be state-listed species identified as being present at the facility.

The SI Report concluded that the MEC source at the MRS was triple-base propellants lying on the ground surface. Considering this, the human receptor pathway was considered as contact with MEC in surface soils by handling or treading underfoot (e^2M, 2008). **Figure 2-1** presents the preliminary CSM for MEC at the Load Line #1 MRS as presented in the SI Report.

The SI field activities showed the presence of lead in surface soil on the northwestern side of the elevated building slab at CB-14. Complete pathways for MC were considered present for surface soil and potential pathways were considered present for subsurface soil. Exposures to MC were analyzed to include dermal contact and ingestion of contaminated soil. Transport of MC via groundwater, surface water, and sediments was also considered to be possible (e^2M, 2008). **Figure 2-2** presents the preliminary CSM for MC at the Load Line #1 MRS as presented in the SI Report.

2.2 Applicable or Relevant and Appropriate Requirements and TBC Information

Applicable or relevant and appropriate requirements (ARARs) and "to be considered" (TBC) guidance for future anticipated and reasonable remedial actions at the facility under the MMRP are currently under development. Once ARARs and/or TBC materials have been identified, preliminary remediation goals and remedial action objectives will also be developed. The ARARs, TBCs, and other developed guidance and objectives will be included in the follow-on documents for this MRS as required under the CERCLA process.

2.3 Data Quality Objectives and Data Needs

The DQOs and data needs were determined at the planning stage and are outlined in the Work Plan (Shaw, 2011). The data needs included characterization for MEC and/or MC associated with the former activities at the MRS. The DQOs were developed to ensure the reliability of field sampling, chemical analyses, and physical analyses; the collection of sufficient data; the acceptable quality of data generated for its intended use; and valid assumptions could be inferred from the data.

2.3.1 Data Quality Objectives

The DQOs were developed for MEC in accordance with data needs, the *Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the RVAAP* (SAIC, 2011); hereafter referred to as the FWSAP, and the U.S. Environmental Protection Agency (EPA) *Data Quality Objectives Process for Hazardous Waste Site Investigations, EPA QA/G-4HW* (2000). **Table 2-1** identifies the DQO process at the Load Line #1 MRS as presented in the Work Plan (Shaw, 2011).

Table 2-1
Data Quality Objectives Process at the Load Line #1 MRS

Step	Data Quality Objective
1. State the problem.	The MRS consists of a 0.41-acre area located near the northwest side of the former elevated building CB-14 where triple-base propellants were observed on the ground surface and MC results for elevated lead concentrations and low detects for explosives were detected in surface soil during the SI field activities. The principle sources of MEC at the Load Line #1 MRS were reported to be accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC and MD, including propellants, to be present in surface soil at the Load Line #1 MRS (e^2M, 2008). Based on the findings and conclusions presented in the SI Report (e^2M, 2008), there is a potential for MEC on the ground surface and a potential for environmental impacts from MC at the MRS.
2. Identify the decision.	The goal of the investigation at the Load Line #1 MRS is to identify the areas impacted with MEC. In addition, MC sampling will be predetermined in order to further characterize the nature and extent of contamination associated with previous activities at the MRS. The information obtained during the RI will be used to assess the potential risk and hazards posed to human health and the environment.
3. Identify inputs to the decision.	• Historical information • Instrument-assisted visual survey • Incremental environmental media sampling
4. Define the study boundaries.	The RI investigation will be performed in the Load Line #1 MRS boundaries as defined at the conclusion of the SI Report (e^2M, 2008).

Table 2-1 (continued)
Data Quality Objectives Process at the Load Line #1 MRS

Step	Data Quality Objective
5. Develop a decision rule.	In order to define the amount of MEC (triple-base propellant) at the Load Line #1 MRS, Shaw will perform a visual survey of the entire MRS. First, the visual survey will investigate the surface area. Then, the team will perform a visual survey with the slag removed. Two ISM surface soil samples are proposed at the MRS in the Work Plan stage. In addition, discrete samples (surface and subsurface) will be collected in areas where concentrated MEC/MD is identified. The final location and number of discrete samples, if any, would be proposed at the conclusion of the MEC investigation.
6. Specify limit of decision errors.	QC procedures are in place so that all field work was performed in accordance with all applicable standards. Further details on the QC process implemented during the RI are located in Section 4 of the Work Plan (Shaw, 2011).
7. Optimize the design for obtaining data.	The information gathered as part of the field investigation at the Load Line #1 MRS will be used to determine what risks, hazards, if any, were present at the MRS. Shaw will perform a MEC HA to identify potential MEC hazards. In addition, MRS-specific HHRA and ERA will be performed on the analytical results. If unacceptable risks or hazards to human health and the environment are determined to exist at the MRS at the conclusion of the investigation, then the MRS will be identified for further evaluation under the CERCLA process.

CERCLA denotes Comprehensive, Environmental Response, Compensation, and Liability Act of 1980.
ERA denotes ecological risk assessment.
HA denotes hazard assessment.
HHRA denotes human health risk assessment.
ISM denotes incremental sampling methodology.
MC denotes munitions constituents.
MD denotes munitions debris.
MEC denotes munitions and explosives of concern.
MRS denotes Munitions Response Site.
QC denotes quality control.
RI denotes remedial investigation.
SI denotes site inspection.

2.3.2 Data Needs

For MEC, data needs include determining the types, locations, condition, and quantity of MEC items present at the MRS so that the potential hazard to likely human and ecological receptors can be assessed and remedial decisions can be made. The DQOs were developed in accordance with the FWSAP (SAIC, 2011), the DQO Guidance (EPA, 2000), and experience with MRSs containing MEC. These data needs for MEC were evaluated using the most applicable methods and technologies that are discussed in following sections.

For MC, data needs include sufficient information to determine the nature and extent of MC, determine the fate and transport of MC, and characterize the risk of MC to potential receptors by performing a human health risk assessment (HHRA) and an ecological risk assessment (ERA). More specifically, the data needed are concentrations of MC associated with the MRS in surface soil that pose a potential unacceptable risk to human and ecological receptors. Data quality was assessed through the evaluation of sampling activities and field measurements associated with the chemical data in order to verify the reliability of the chemical analyses and the precision, accuracy, completeness, and sensitivity of information acquired from the laboratory. Representativeness and comparability were also evaluated with regard to the proper design of the sampling program and quality of the data set respectively. The reporting limits (a.k.a., method detection limits [MDLs] or method reporting limits [MRLs]) should be equal to or less than the screening criteria to support the HHRA and ERA in this RI Report whenever possible.

2.3.3 Data Incorporated into the RI

Whenever possible, existing data are incorporated into this RI Report. The following summarizes existing data and how that data were used:

- **Historical Records Review—**The HRR (e^2M, 2007) provides historical documentation regarding the MRS and identifies the types of activities previously conducted, the types of munitions used, and historical finds and incidents. These data were used to identify the expected baseline conditions and other hazards that may be present.
- **Installation Restoration Program Data—**Data collected under the IRP at various AOCs collocated with MRSs include analytes considered to be MC associated with previous activities at the MRS, although it should be noted that not all analytes are considered as MC. The IRP data set may be incorporated with sampling data collected during the RI on a MRS-specific basis in order to close data gaps. For the Load Line #1 MRS, the IRP data were reviewed and it was determined that incorporation of the data was not warranted, as no previous IRP samples were taken from within the current 0.41-acre MRS boundaries.
- **Site Inspection Data—**MC sampling was performed at the Load Line #1 MRS during the 2007 SI field activities. One ISM surface soil sample and a duplicate were collected at depths of 0 to 6 inches bgs from a sampling unit that consisted of the entire 0.41-acre MRS. The purpose of the predetermined ISM surface soil samples for the RI field activities were to further characterize the nature and extent of contamination associated with previous activities at the MRS. In addition, any samples collected during the RI field work would be considered more representative

of current conditions at the MRS in comparison to samples collected in 2007. This is applicable due to the demolition activities of the adjacent CB-14 building slab and remediation activities at locations near the MRS that occurred after 2007. These activities may have resulted in vehicle and heavy equipment traffic and the disturbance of surface soils. Therefore, the ISM sample result from the SI field activities was not used for the purposes of this RI Report.

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3.0 CHARACTERIZATION OF MEC AND MC

This section documents the approaches used to investigate MEC and MC at the Load Line #1 MRS in accordance with the DQOs presented in Section 2.0, "Project Objectives." The MEC and MC characterization activities were conducted in accordance with Section 3.0, "Field Investigation Plan" of the Work Plan (Shaw, 2011).

3.1 MEC Characterization

Based on observations of triple-base propellant nodules at the MRS during the 2007 SI field activities, it was determined that there is a potential for MEC on the ground surface. In order to fully characterize the amount of MEC, Shaw performed visual surveys at the Load Line #1 MRS on two separate occasions. The following section summarizes the processes used to implement the visual surveys that were performed at the Load Line #1 MRS. The results of the visual surveys are discussed in Section 4.0.

3.1.1 Visual Survey Activities

Nonintrusive visual surveys were performed at the Load Line #1 MRS on two occasions during the RI field activities. The first step of the RI field work at the Load Line #1 MRS was to perform an instrument-assisted visual survey over 100 percent of the MRS. The instrument-assisted visual survey, which occurred on April 29, 2011, was performed to investigate the ground surface for the presence of MEC. While performing the visual survey, any anomalies identified by the Schonstedt magnetometer were documented. Although subsurface MEC was not anticipated at the Load Line #1 MRS, the Schonstedt magnetometer was used to verify that ferrous items (i.e., potential MEC) were not present at the MRS.

Following the completion of the initial visual survey, the Work Plan (Shaw, 2011) specified that slag from the ground surface be removed and a second visual survey be performed. The goal of the second visual survey was to look solely for triple-base propellant nodules (approximately 1 by ¼ inch in size). Since the triple-base propellant nodules do not contain ferrous material, a magnetometer was not used for this survey. During the RI field activities, minimal slag was present at the MRS and removal of this material was not required. The second visual survey was conducted on May 20, 2011, and was performed over 100 percent of the MRS.

The surveys were performed by UXO-qualified personnel. The equipment used for the instrument-assisted survey consisted of a Schonstedt Model 52CX flux-gate magnetometer, which was used to locate ferrous items. All investigation activities were conducted in accordance with the Work Plan's Section 3.2.3, "Load Line #1 (RVAAP-008-R-01)" (Shaw, 2011).

3.1.2 Field Instrument Quality Control

Prior to the instrument-assisted visual survey operations at the Load Line #1 MRS, a brief test program was performed at the instrument verification strip established at Load Line #7 at the facility for field instrument quality control (QC) measures. The objectives of the test program were to validate the Schonstedt magnetometer handheld sensor meets the project objectives, ensure the instrument settings and survey parameters were optimized and the sensor was functioning properly on a daily basis, and certify the sweep personnel performing the magnetometer and dig and detector-aided visual survey tasks. This ensured that consistent data of known quality was being collected.

Prior to performing the visual surveys at the Load Line #1 MRS, inert seed items consisting of industry standard objects were buried at the depth and orientation indicated and separated along the analog test strip at intervals of approximately 5 to 10 feet. The industry standard objects consisted of 1- by 4-inch (small), 2- by 8-inch (medium), and 4- by 12-inch (large) pipe nipples made from Schedule 40 black carbon steel from McMaster Carr Hardware (or equivalent). After burial of the inert seed items, the UXOQC Specialist conducted a test program using experienced operators, whereby the handheld detector settings were optimized and documented for the soil conditions and reliable detection of the seed items. The results of the instrument verification strip indicate that the instrument functional test program would ensure the instruments used were of sufficient quantity and quality to meet the project objectives for the visual survey investigation.

3.2 MC Characterization

This section summarizes the MC characterization activities and decision making process at the Load Line #1 MRS. Sampling for MC was predetermined during the DQO decision-making process to further characterize the nature and extent of contamination associated with previous activities at the MRS. In accordance with the Work Plan (Shaw, 2011), ISM soil samples were proposed at two sampling units at the MRS. The determination as to whether additional MC characterization was required at the MRS was made based on historical evidence and the results of the MEC investigations. Additional discrete samples were proposed in areas identified with concentrated MEC/MD. The final location, type, and quantity for any additional samples required approval from the USACE and the Ohio Environmental Protection Agency (Ohio EPA) following the MEC investigation. All MC samples were collected in accordance with the *Final Sampling and Analysis Plan and Quality Assurance Project Plan* included in Appendix D of the Work Plan (Shaw, 2011); hereafter, referred to as the SAP. The results of the MC sampling activities are presented in Section 4.3, "Nature and Extent of SRCs."

3.2.1 Sampling Approach

The decision to collect ISM surface soil samples at predetermined sampling units was made during development of the DQOs in the Work Plan (Shaw, 2011) that stated that additional ISM and/or discrete samples may be required if locations at the MRS with concentrated areas of MEC/MD areas are identified during the RI field surveys. No MEC or MD was identified at the Load Line #1 MRS during the investigation activities; therefore, only the predetermined ISM samples were collected and additional sampling for MC was not warranted. The rationale for not collecting additional samples at the MRS is presented in the *Visual Survey Results and Proposed Munitions Constituents Sampling Locations for the Load Line #1 MRS (RVAAP-008-R-01)* technical memorandum included in **Appendix A**.

3.2.1.1 Surface Soil Sample Collection

The ISM surface soil samples were collected during the RI field activities in August 2011 to further characterize the nature and extent of contamination associated with previous activities at the MRS. There were no deviations from the Work Plan (Shaw, 2011) during the RI field activities. The combined proposed sampling units cover the entire MRS that is considered the decision unit. The sample depth was determined to be 0.5 feet bgs, which is the maximum depth that contamination from triple-base propellant on the ground surface would be expected to vertically migrate in the soil column. This sample interval is in accordance with the recommended sampling approach that is presented in the *Military Munitions Response Program Munitions Response Remedial Investigation/Feasibility Study Guidance* (U.S. Army, 2009). **Table 3-1** summarizes the media samples for the RI and the rationale for the sample strategy.

Table 3-1
Summary and Rationale for Surface Soil Sampling at the Load Line #1 MRS

Sample Medium	Sample Type	Sample Depth (feet bgs)	No. of Samples[1]	Sampling Rationale
Surface Soil	ISM	0–0.5	2	To further characterize the nature and extent of contamination associated with previous activities at the MRS.

[1] *Number of samples does not include duplicate or other quality control samples.*
bgs denotes below ground surface.
ISM denotes incremental sampling methodology.
MRS denotes Munitions Response Site.

Detailed presentation of the procedures used to collect ISM samples are presented in the SAP (Shaw, 2011) and are based upon the procedures presented in the *Interim Guidance 09-02, Implementation of Incremental Sampling (IS) of Soil for the Military Munitions Response Program* (USACE, 2009). The methods used for the collection of the ISM surface soil samples during the RI are summarized below.

Each ISM surface soil sample consisted of 30 increments collected from locations selected in a systematic random pattern throughout the designated grid area (i.e., sampling unit). The 0.41-acre MRS is considered the ISM decision unit and was split into two predetermined sampling units (approximately 0.2 acres each) that are equally considered areas of anticipated use by potential receptors. Splitting the decision unit into multiple sampling units resulted in more frequent increments than collected during the SI Report (e^2M, 2008) that were used to further evaluate the nature and extent of contamination associated with previous activities at the MRS (**Figure 3-1**). The three key steps for collection of a systematic increment were: (1) subdivide the sampling unit into a uniform grid (i.e., pace out the area and divide into at least 30 grids for a 30-increment sample), (2) randomly select a single increment location in the first grid, and (3) collect increments from the same relative location within each of the other grids.

The sampling units were established by placing pin flags at the corners of each unit. The ISM samples were collected from the predetermined number of increment sample locations using a $^7/_8$-inch-diameter stainless steel step probe sample collection device. The increments of soil were placed into a plastic lined bucket and combined to make a single sample weighing between 1 to 2 kilograms.

The QC samples included a field duplicate sample, which was also designated as the matrix spike/matrix spike duplicate sample (MS/MSD). The collection of the QC samples required similar increments of soil as the original sample. Therefore, at the ISM sampling unit where a QC sample was required, an additional ISM sample was collected from within the same sampling unit consisting of at least 30 increments of soil. The field duplicate was labeled with a different sample number and submitted to the laboratory for processing as a blind field duplicate. All data and observations at each sample location were recorded in the sampling field logs included in **Appendix A**.

3.2.2 Sample Analysis

Analytical services for chemical samples were provided by the DoD Environmental Laboratory Accreditation Program (ELAP) and the National Environmental Laboratory Accreditation Conference accredited laboratory CT Laboratories, Inc. of Baraboo, Wisconsin. The selection of chemical analyses for the Load Line #1 MRS was based on the types of munitions historically identified at the MRS and the potential MC associated with those munitions. The only munitions identified for the Load Line #1 MRS were bulk triple-base propellants. Based on this information, the proposed analytical suites and methods were presented in the *MC Sampling Rationale* included in the SAP (Shaw, 2011) and included the following:



FIGURE 3-1 SURFACE SOIL SAMPLING UNIT LOCATIONS

- Lead, EPA Method SW846 6010B
- Explosives, EPA Method SW846 8330B
- Nitrocellulose, EPA Method SW846 9056
- Total organic carbon (TOC), Lloyd Kahn Method
- pH, EPA Method SW846 9045D

In addition to the above analyses, the surface soils samples were also analyzed for geochemical parameters via EPA Method 6010B in order to potentially evaluate naturally high inorganic concentrations and distinguish them from potential contamination. The geochemical parameters analyzed for the Load Line #1 MRS include aluminum, calcium, magnesium, and manganese.

Each 1- to 2-kilogram sample was submitted to the contracted laboratory for processing and analysis. Processing consisted of drying out the sample and sieving the sample through a #10 sieve. Any material larger than the #10 sieve was discarded. The remaining air-dried, sieved material was then ground using a puck mill to reduce the particle size as sampling splitting and particle size reduction is necessary to reduce fundamental error. The final reduced portions of the ISM field samples were analyzed for lead, explosives, and nitrocellulose. The ISM field samples were analyzed for TOC and pH following processing of the sample and prior to grinding. The surface soil sampling units at the MRS are presented in **Figure 3-1**. A summary of the number and types of samples collected is presented in **Table 3-2**.

Table 3-2
Summary of Field Samples Collected and Required Analytical Parameters

Sample Name	Sample Type	Depth (ft bgs)	Analytical Parameters	No. of Samples	Field Duplicate
LL1SS-715(I)-0001-SS	ISM	0–0.5	• Lead • Geochemical Parameters[1] • Explosives • Nitrocellulose • TOC • pH	1	
LL1SS-716(I)-0001-SS				1	1

[1] *Geochemical metals include analyses for aluminum, calcium, magnesium, and manganese.*

ft bgs denotes feet below ground surface.

ISM denotes incremental sampling methodology.

TOC denotes total organic carbon.

The collected samples were properly packaged for shipment and dispatched to the contracted analytical laboratory, CT Laboratories in accordance with the SAP (Shaw, 2011). A separate signed custody record with sample numbers and locations listed was enclosed with each shipment. When transferring the possession of samples, the individuals relinquishing and

receiving signed, dated, and noted the time on the record. All shipments complied with applicable U.S. Department of Transportation regulations for environmental samples.

3.2.3 Laboratory Analyses

The surface soil samples were collected and analyzed according to the FWSAP (SAIC, 2011) and the SAP (Shaw, 2011). The FWSAP and associated addenda were prepared in accordance with USACE and EPA guidance, and outline the organization, objectives, intended data uses, and quality assurance (QA)/QC activities to achieve the desired DQOs and to maintain the defensibility of the data. Project DQOs were established in accordance with EPA DQO Guidance (2000). Requirements for sample collection, handling, analysis criteria, target analytes, laboratory criteria, and data validation criteria for the RI are consistent with EPA requirements for National Priorities List sites. The DQOs for this project included analytical precision, accuracy, representativeness, completeness, comparability, and sensitivity for the measurement data.

Strict adherence to the requirements set forth in the FWSAP (SAIC, 2011) and the SAP (Shaw, 2011) was required of the analytical laboratory so that conditions adverse to quality would not arise. The laboratory was required to perform all analyses in compliance with EPA SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Analytical Protocols* (EPA, 2007). SW-846 chemical analytical procedures were followed for the analyses of metals, explosives, and nitrocellulose. The contracted laboratory was required to comply with all methods as written; recommendations were considered requirements.

The QA/QC samples for this project included field blanks, laboratory method blanks, laboratory control samples (LCSs), laboratory duplicates, and MS/MSDs. An equipment rinsate sample was submitted for analysis, along with a field duplicate sample, to provide a means to assess the quality of the data resulting from the field sampling program. **Table 3-3** presents a summary of QA/QC samples utilized during the RI field activities for the Load Line #1 MRS.

Table 3-3
Summary of Quality Assurance/Quality Control Samples

Sample Type	Rationale
Field Duplicate	Analyzed to determine sample heterogeneity and sampling methodology reproducibility
Equipment Rinsate	Analyzed to assess the adequacy of the equipment decontamination processes for soil
Laboratory Method Blanks	Analyzed to determine the accuracy and precision of the analytical method as implemented by the laboratory

Table 3-3 (continued)
Summary of Quality Assurance/Quality Control Samples

Sample Type	Rationale
Laboratory Duplicate Samples	Analyzed to assist in determining the analytical reproducibility and precision of the analysis for the samples of interest and provide information about the effect of the sample matrix on the measurement methodology
Matrix Spike/Matrix Spike Duplicate	

Shaw is the custodian of the project file and will maintain the contents of the files for this investigation, including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports, correspondence, and chain-of-custody forms. These files will remain in a secure area under the custody of Shaw until they are transferred to the USACE, Baltimore District and the ARNG. CT Laboratories retain all original raw data in a secure area under the custody of the laboratory project manager.

CT Laboratories performed in-house analytical data reduction under the direction of the laboratory project manager and QA officer. These individuals were responsible for assessing data quality and informing Shaw of any data that are considered "unacceptable" or required caution on the part of the data user in terms of its reliability. Data were reduced, reviewed, and reported as described in the laboratory QA manual and the laboratory standard operation procedures in the SAP (Shaw, 2011). Data reduction, review, and reporting by the laboratory were conducted as follows:

- Raw data produced by the analyst were turned over to the respective area supervisor.
- The area supervisor reviewed the data for attainment of QC criteria, as outlined in the established methods and for overall reasonableness.
- Upon acceptance of the raw data by the area supervisor, a report was generated and sent to the laboratory project manager.
- The laboratory project manager completed a thorough review of all reports.
- Final reports were generated by the laboratory project manager.

Data were then delivered to Shaw for data validation. CT Laboratories prepared and retained full analytical and QC documentation for the project in electronic storage media (i.e., compact disc), as directed by the analytical methods employed. CT Laboratories provided the following information to Shaw in each analytical data package submitted:

- Cover sheets listing the samples included in the report and narrative comments describing problems encountered in analysis.
- Tabulated results of inorganic and organic compounds identified and quantified.
- Analytical results for QC sample spikes, sample duplicates, and initial and continuing calibration verifications of standards and blanks, method blanks, and LCS information.

3.2.4 Data Validation

Following receipt of the analytical data packages, Shaw performed data validation on all three surface soil ISM samples collected from the Load Line #1 MRS (including field duplicate and QC samples) to ensure that the precision and accuracy of the analytical data were adequate for their intended use. The review constituted comprehensive validation of 100 percent of the primary dataset and a comparison of primary sample and field duplicate sample. This validation also attempted to minimize the potential of using false-positive or false-negative results in the decision-making process (i.e., to ensure accurate identification of detected versus nondetected compounds). This approach was consistent with the DQOs for the project and with the analytical methods, and was appropriate for determining chemicals of concern and calculating risk.

Analytical results were reported by the laboratory in electronic format and were issued to Shaw on compact disc. Data validation was performed to ensure all requested data were received and complete. Data use qualifiers were assigned to each result based on laboratory QA review and verification criteria. Results were qualified as follows:

- "U"—Analyte was not detected or reported less than the level of detection.
- "J"—The reported result is an estimated value.

In addition to assigning qualifiers, the validation process also selected the appropriate result to use when reanalysis or dilutions were performed. Where laboratory surrogate recovery data or laboratory QC samples were outside of analytical method specifications, the validation chemist determined whether laboratory reanalysis should be used in place of an original reported result. If the laboratory results were reported for both diluted and undiluted samples, diluted sample results were used for those analytes that exceeded the calibration

range of the undiluted sample. A complete presentation of the validation process and results for the RI data is contained in the *Data Validation Report* in **Appendix B**.

3.2.5 Data Review and Quality Assessment

This section provides discussion of data review and the results of the data validation process and evaluates usability of data collected for this sampling event in accordance with the project QA program. Quality assurance is defined as the overall system for assuring the reliability of data produced. The system integrates the quality planning, assessment, and improvement efforts of various groups in the organization to provide the independent QA program necessary to establish and maintain an effective system for collection and analysis of environmental samples and related activities. The program also encompasses the generation of useable and complete data, as well as its review and documentation.

The QA program was designed to achieve the DQOs for the RI. The program was developed in accordance with the project specifications and the data were produced, reviewed, and reported by the laboratory in accordance with specifications outlined in the SAP (Shaw, 2011), FWSAP (SAIC, 2011), the *Quality Systems Manual, Version 4.2* (DoD, 2010) and the laboratory's QA manual. Laboratory reports included documentation verifying analytical holding time compliance. The DQOs were developed concurrently with the Work Plan (Shaw, 2011) to ensure the following:

- The reliability of field sampling, chemical analyses, and physical analyses
- The sufficiency of collected data
- The applicability of data for intended use
- The validity of assumptions inferred from the data

Attainment of the DQOs was assessed throughout the evaluation of all data collected using data quality indicators that are discussed in detail in this section. For this RI Report, a full data validation effort was performed to assess laboratory performance, including a review of the following:

- Completeness
- Chain-of-custody records
- Sample holding times
- QC results reported on summary forms as applicable to the analysis performed (i.e., initial and continuing calibrations; method, calibration, equipment, and trip

blanks; LCS/MS/MSD; performance and interference check samples and instrument tunes; surrogates; internal standards; and serial dilutions)

- Detection and reporting limits
- Other contractual items

Criteria for QC results were compared to laboratory established criteria in accordance with the method and work plan requirements. Further details and discussion are provided in the *Data Validation Report* in **Appendix B**.

Data were qualified during the validation process from predetermined criteria for QC nonconformances. The quality of data collected in support of the RI sampling activities as noted in data tables is considered acceptable with qualifications, unless qualified as rejected (and denoted with "R" qualifier) during the validation process. Results were assessed for accuracy and precision of laboratory analyses to identify the limitations and quality of data. A QA review of the data was performed and the following data quality indicators were measured:

- **General Review—**The EPA Guidance, *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A, Interim Final* (EPA, 1989), states that the data qualified during the validation process as estimated "J" or "UJ" may be included in quantitative assessments indicating the associated numerical value is an estimated quantity, i.e., the guidance states to "use J-qualified concentrations the same way as positive data that do not have this qualifier." In review of analytical information, the sample results qualified as "J" (i.e., estimated or nondetect estimated values) during the validation process are considered usable data points (EPA, 1989), and are included in the data summary tables of this report. The majority of the "J" qualified samples were the result of analytical column confirmation or accuracy recoveries outside criteria. There were no data rejections (i.e., R-flagged results) resulting from the data validation reviews.
- **Precision—**Laboratory duplicate pairs and/or laboratory spiked duplicate pairs were analyzed as per method requirements for each parameter and/or compound on a batch and matrix specific basis. Field duplicates were collected on the basis of 10-percent frequency per matrix to identify the cumulative precision of the sampling and analytical process and were sent on a blind basis to the laboratory. Field duplicates are evaluated at less than or equal to a 50-percent relative percent difference (RPD) for organic parameters and less than or equal to a 25-percent RPD for inorganic parameters. Field duplicate pairs, laboratory duplicate pairs, and/or laboratory MSDs were evaluated for the surface soil samples.

The MS/MSD pair was outside RPD criteria for target compound 1,3,5-trinitrobenzene for the spiked sample LL1SS-715(I)-0001-SS; therefore, the spiked sample was qualified estimated "J" based upon this outlier. All laboratories duplicates and other MSD pairs were within RPD criteria limits; therefore, did not warrant further qualification. A blind field duplicate sample pair LL1SS-716(I)-0001-SS/LL1SS-017(I)-0001-SS was collected for all parameter groups. For the field duplicate pair, explosive compound nitroguanidine was detected at low levels in the parent sample and nondetect in the associated duplicate pair. The nitroguanidine detection did not pass method confirmation criteria; therefore, it was qualified estimated "J" based upon this outlier. For all other parameter groups, all criteria were met for the field duplicate. Although these results have been qualified as estimated due to the outliers noted, the data are still considered useable (EPA, 1989). Further discussion is provided in the *Data Validation Report* in **Appendix B**.

- **Accuracy—**Accuracy was evaluated for each matrix by reviewing the recovery results of the LCS, MS/MSD, and surrogate, as applicable, for each analytical method performed. The LCS, MS/MSD, and surrogate QC samples were analyzed as per method requirements for each parameter and/or compound on a batch and matrix specific basis.

  The MS/MSD recoveries for spiked sample LL1SS-715(I)-0001-SS exceeded recovery limits for lead, magnesium, and manganese. The associated serial dilution and/or post-digestion spike recoveries were within acceptable limits for these metals as well as the high sample concentrations related to the amount spiked; therefore, their results were reported without qualification in the parent sample. MS/MSD recoveries for sample LL1SS-715(I)-0001-SS were below the recovery limits for nitrocellulose; therefore, the parent sample result was qualified estimated nondetect with a "UJ" flag based upon this outlier. All other MS/MSD recoveries were within criteria.

  The rinsate blank sample LL1-718-RB had a surrogate recovery that was more than double the spiked surrogate amount. The method and laboratory blanks, as well as the LCS, had acceptable surrogate recoveries. The sample was reanalyzed on the confirmation column and the surrogate recovery was within the acceptable range. All other surrogates were within criteria for the surface soil samples.

  All LCS recoveries were within criteria limits for all parameter groups; therefore, did not warrant qualification. As a result, no further actions were required. Although some data results have been qualified as estimated due to the outliers

noted, the data are still considered useable (EPA, 1989). Further discussion is presented in the *Data Validation Report* in **Appendix B**.

- **QC Blanks—**Method blanks, calibration blanks, and rinsate blanks were evaluated to identify potential non-site-related contamination from sample collection through laboratory analyses. Analytical results found within the "5 times" and "10 times" rules were qualified "B" and considered nondetect at the limit of detection (LOD) or level of contamination, whichever was greater. From EPA Guidance (1989), the definitions of the "5 times" and "10 times" rules are as follows:

  > "If the blank contains detectable levels of one or more organic or inorganic chemicals, then consider site sample results as positive only if the concentration of the chemical in the site sample exceeds five times the maximum amount detected in any blank for compounds that are not considered by EPA to be common laboratory contaminants. Consider ten times the maximum amount for common laboratory contaminants acetone, 2-butanone (methyl ethyl ketone), methylene chloride, toluene, and the phthalate esters. Treat samples containing less than five times (ten times for common laboratory contaminants) the amount in any blank as nondetects and consider the blank-related chemical concentration to be the quantitation limit for the chemical in that sample."

  All laboratory calibration blanks and rinsate blank (LL1-718-RB) were nondetect (less than or equal to the limit of detection) for all target analytes, and therefore, did not warrant qualification. Trace amounts of calcium, magnesium, and manganese were detected in the laboratory method blank (less than or equal to LOD); however, these concentrations were well below detected sample concentrations and did not warrant qualification. As a result, no further actions were required. Further discussion is provided in the *Data Validation Report* in **Appendix B**.

- **Representativeness—**Representativeness is a measure of the degree to which the measured results accurately reflect the medium being sampled. It is a qualitative parameter that is addressed through the proper design of the sampling program in terms of sample location, number of samples, and actual material collected as a "sample" of the whole. Representativeness applies to both sampling and analytical evaluations and should be 100 percent. Analytical representativeness is inferred from associated documentation (i.e., data validation reports, field records, etc.) for holding times, QC blanks, accuracy, and precision, as well as from the

completeness evaluations. Sampling protocols were developed to assure that samples collected are representative of the media. Field handling protocols (i.e., storage, handling in the field, and shipping) were designed to protect the representativeness of the collected samples.

A QC field inspection was conducted for field sampling activities at the facility in accordance with the Work Plan (Shaw, 2011). The inspection was activity-based and covered ISM surface soil sample collection conducted at the Group 8 MRS in February 2012. Although, the inspection was not conducted at the Load Line #1 MRS, it is considered applicable to the representatives of the ISM surface soil samples collected at the MRS. The *Quality Surveillance Summary Report* conducted at the Group 8 MRS is presented along with the field documentation in **Appendix A**.

Several nonconformances were observed during the QA field inspection by the Shaw UXOQC Specialist. The noncomformances included not having the sampling standard operating procedures (SOPs) on-site during the beginning of field sampling activities and the potential for cross-contaminating equipment with used sampling gloves. These noncomformances were remedied in the field and the corrective action included retrieving the sampling SOPs from the field office and ensuring that new sampling gloves were donned after handling used equipment. The primary nonconformance that had the potential to affect the data was the handling of decontaminated equipment with used gloves. This incident was observed by the UXOQC Specialist prior to actual sampling activities and during the removal of the sampling equipment and materials from the vehicle. There was no contact with used gloves on the end of the step probe used to collect the ISM samples and the handle and stem of the step probe was recleaned prior to sample collection. Results of the rinsate blank (GR8-RB-01) for the sampling equipment step probes provide supporting evidence that equipment was properly decontaminated during field activities.

An additional nonconformance was identified by the UXOQC Specialist and was considered to be more of a recommendation. The recommendation was to ensure the separation of the step probes from other equipment in the vehicle. The step probes were properly protected at the time of the observance as noted in the audit and did not affect the data.

- **Completeness—**Completeness is a measure of the amount of information that must be collected during the field investigation to allow for successful achievement of the objectives of the program and valid conclusions. Completeness is defined as the percentage of measurements that are judged to be usable. The

percent completeness criterion is 90. In this data validation review, three categories of completeness quotients are calculated: (1) the overall sampling completeness, (2) the overall analytical completeness, and (3) the analytical completeness by parameter group.

The sampling percent completeness is determined by taking the number of planned samples (including QC samples) and dividing that number by the number of samples actually collected during the current round of sampling. Three surface soil samples (including one field duplicate sample) and one rinsate blank were collected and sent to the laboratory for analysis. Three surface soil samples (including one field duplicate sample) and one rinsate blank were proposed in the Work Plan (Shaw, 2011) for this sampling event. Excluding rinsate blanks, the overall sampling completeness was 100 percent (or three surface soil samples collected divided by three planned surface soil samples).

The overall analytical percent completeness is calculated from the number of usable data inputs divided by the number of analyzed data inputs. The evaluation of completeness for the surface soil samples resulted in 72 useable data points of possible 72 data points, resulting in an overall analytical completeness quotient of 100 percent for all parameter groups. The completeness statistics were computed as follows:

- 72 represents the number of accepted analytes as usable data points (no analytes were rejected)
- 72 represents the number of analyzed inputs, which is equal to the number of analytes for all field samples

There were no rejected data points for any of the parameters explosives, metals, or nitrocellulose for this event; therefore, their analytical completeness quotients were each 100 percent. All of the overall and parameter-specific analytical completeness and soil sampling completeness quotients were above the predefined completeness goal of 90 percent. Further discussion is presented in the *Data Validation Report* in **Appendix B**.

- **Comparability—**Comparability is the confidence with which one data set can be compared to another. Comparability was controlled using SOPs that have been developed to standardize the collection of measurements, samples, and approved analytical techniques with defined QC criteria. The laboratory chemical analyses were performed by an ELAP-accredited laboratory in accordance with the approved SAP (Shaw, 2011) using cited EPA methodology. Where applicable, the EPA-approved methods and DoD *Quality Systems Manual* provided the QC

criteria guidelines for the analytical methods and the ELAP accrediting body provided the QA oversight (DoD, 2010). The laboratory adapted its processes accordingly into an applicable working SOP specific to their laboratory capabilities (i.e., instrumentation, prep method, sample volumes, etc.) in applying the EPA methods. The SOPs were followed throughout the process by the laboratory, as reviewed by the ELAP accrediting body. Furthermore, laboratory data were validated in accordance with established SOPs, and the validation qualifiers were applied when QC nonconformances were identified (as applicable). The consistent use of the laboratory SOPs provides confidence with which one data set could be compared to another previous data set.

Established field SOPs that were preapproved in the SAP (Shaw, 2011) for the RI program were applied to on-site work during this surface soil sampling round. The field SOPs were followed, as established in the SAP (Shaw, 2011) to ensure that protocols meet project DQOs. The recorded field documentation provided verification that proper field procedures were followed. The consistent application of field SOPs over the course of the RI program from sampling event to sampling event lends confidence in the comparison of field data sets.

- **Sensitivity—**The sensitivities are dependent on the analytical method, the sample volumes, and percent moistures (solid matrix) used in laboratory determinative analysis. For each analyte, the method sensitivities (i.e., MDLs, MRLs, LODs, etc.) and analyte detections presented in the analytical data were compared to the screening criteria for the each of the samples collected. The analytical laboratory updated their sensitivity reporting convention from MDLs/MRLs to MDLs/LODs/MRLs during the sampling and analysis phase for this RI. Upon comparing the soil sample results to the minimum project screening criteria, the method sensitivity requirements were met. All MDLs, LODs, or MRLs were less than the project screening criteria presented in Attachment F, *Table 12 Proposed Human Health and Ecological Screening Level for Ravenna AAP MRSs* of the Work Plan (Shaw, 2011). Data summary tables and the laboratory data package for the samples collected at the Load Line #1 MRS during the RI field activities are presented in **Appendix C**.

The Load Line #1 MRS data were determined to be of sufficient quality to make informed decisions for the surface soil samples collected. Further discussions of data qualifications are provided in the *Data Validation Report* in **Appendix B**.

3.3 Decontamination Procedures

Decontamination of dedicated sampling equipment was performed in accordance with the procedures presented in the SAP (Shaw, 2011) with the exception that the hydrochloric acid step was eliminated due to previous observations of surface corrosion on the sampling equipment when applied. The sampling equipment consisted of individual $^{7}/_{8}$-inch-diameter stainless steel step probes used to collect each of the ISM and the field duplicate surface soil samples. The step probes were decontaminated following the collection of an ISM sample at each sampling unit. All sampling decontamination procedures were performed at Building 1036, the facility contractors' building. In summary, the decontamination procedures consisted of the following:

- Wet the equipment with an American Society of Testing and Materials (ASTM) Type 1 water and phosphate free detergent (Liquinox) solution to remove residual particulate matter and surface film from the equipment.
- Rinse the equipment with ASTM Type 1 water.
- Rinse the equipment with methanol.
- Rinse with ASTM Type 1 water.
- Allow equipment to air dry.

Once dry, the sampling equipment was wrapped in aluminum foil to prevent cross contamination while in storage or transport to an MRS for sampling. In order to minimize waste, the liquids used in the decontamination process were applied using hand-held spray bottles.

Following the equipment decontamination process, an equipment rinsate sample was collected by running distilled water through the sampling equipment for the identical analytical parameters as the environmental samples. The purpose of the equipment rinsate sample was to assess the adequacy of the equipment decontamination process.

The results of the equipment blank analysis did not identify any interference or anomalies in the laboratory data and supports the adequacy of the equipment decontamination process. Evaluation of the equipment rinsate sample analytical data to assess the adequacy of the equipment decontamination process is further discussed in Section 3.2.5, "Data Review and Quality Assessment." A summary of the results for the equipment rinsate sample is presented in **Appendix C**.

3.4 Investigation Derived Waste

The investigation derived waste (IDW) generated during the field activities at the Load Line #1 MRS consisted of solid waste that included personal protective equipment and equipment decontamination materials. Due to the minimal number of sampling equipment used and an effort to minimize waste generation, the decontamination liquids were applied using hand-held spray bottles and the spray and excess liquid was collected on absorbent pads. No free liquid wastes were generated.

The disposal of IDW was performed in accordance with the procedures presented in the Work Plan (Shaw, 2011). The IDW generated was containerized separately along with similar materials generated from other MRSs and were staged at Building 1036 in accordance with the FWSAP (SAIC, 2011). IDW management, which describes the waste characterization analyses performed, waste characterization screening, and IDW transport and disposal, is presented in **Appendix D**.

4.0 REMEDIAL INVESTIGATION RESULTS

This section presents a discussion of the results of the RI data that were collected for MEC and MC at the Load Line #1 MRS in accordance with the procedures discussed in Section 3.0, "Characterization of MEC and MC." These results will be used to determine the nature and extent of MEC and associated MC, and subsequently determine the potential hazards and risks posed to likely human and environmental receptors. Once the risks are determined, they will then be integrated into the preliminary CSMs developed during the SI (e^2M, 2008) that were presented in Section 2.0. Photographs of the RI activities performed at the MRS are presented in **Appendix E**.

4.1 MEC Investigation Results

The following sections present the results of the RI field efforts that were performed to achieve the DQOs defined in Section 2.3.1, "Data Quality Objectives," and define the nature and extent of MEC at the Load Line #1 MRS. These efforts included visual surveys of the ground surface for triple-base propellant that was performed in accordance with the Work Plan (Shaw, 2011).

4.1.1 Visual Survey Results

A full coverage nonintrusive visual survey was performed at the Load Line #1 MRS on two separate occasions. No MEC or MD was found on the ground or shallow surface soils during the visual surveys.

4.2 MC Data Evaluation

This section presents the results of the RI data screening process for MC that may be indicative of impacts from triple-base propellants previously observed on the ground surface at the Load Line #1 MRS and to evaluate the occurrence and distribution of the site-related chemicals (SRCs) in surface soil. The data evaluated for the Load Line #1 MRS are inclusive of the results of the RI sampling event only. Analytical data from a previous sample collected during the 2007 SI field activities were not included in this evaluation since the data collected for the RI are considered more representative of current conditions at the MRS as summarized in Section 2.3.3, "Data Incorporated into the RI."

The data reduction and screening process presented herein describes the statistical methods and facility-wide background screening criteria used to distinguish constituents present at ambient concentrations from those present at concentrations that indicate potential impacts related to historical operations within the MRS. The nature and extent of identified SRCs within the sampled environmental media (surface soil) established for this RI Report are also presented below. A summary of the complete laboratory analytical results for the RI data and the laboratory data packages are in **Appendix C**.

4.2.1 Data Evaluation Methods

Data evaluation methods for the Load Line #1 MRS are consistent with those established in the *Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (SAIC, 2010); hereafter, referred to as the FWCUG Report. These methods consist of three general steps: (1) define data aggregate; (2) data verification, reduction, and screening; and (3) data presentation.

4.2.1.1 Definition of Aggregate

The data aggregate at the Load Line #1 MRS consists of surface soils collected over the lateral extent of the MRS using ISM. The 0- to 0.5-foot sample depth is the maximum anticipated depth that MC would be found within the likely area of release. The surface soil aggregate consists of sampling units of similar sizes and depth over the likely area of release and are considered comparable for screening for the evaluation of the nature and extent of SRCs associated with previous activities at the MRS.

For consideration of the MC exposure analysis, the surface soil aggregate encompasses only areas of equally probable anticipated use by receptors and the decision unit, which is the entire extent of the MRS, is the defined exposure unit (EU) for surface soil to a depth of 0.5 feet. The surface soil aggregate will be used to define human health and ecological exposure in the risk assessments as discussed in Section 7.0, "Human Health Risk Assessment" and Section 8.0, "Ecological Risk Assessment."

4.2.1.2 Data Validation

Data validation was performed on all three surface soil ISMs collected from the Load Line #1 MRS (including field duplicates and QC samples) during the RI field activities to ensure that the precision and accuracy of the analytical data were adequate for their intended use. The review constituted comprehensive validation of 100 percent of the primary dataset as discussed in Section 3.2.4, "Data Validation," of this report.

4.2.1.3 Data Reduction and Screening

The data reduction process implemented to identify SRCs involves identifying frequency of detection summary statistics, comparison to facility-wide background screening values (BSVs) for inorganics only, and evaluation of essential nutrients. QC and field duplicates were excluded from the screening data sets. All analytes having at least one detected value were included in the data reduction process. Summary statistics calculated for each data aggregate included the minimum, maximum, and average (mean) detected values and the proportion of detected results to the number of samples collected. For calculation of mean detected values, nondetected results were included by using one half of the reported detection limit as a surrogate value during calculation of the mean result for each compound. Following data reduction, the data was screened to identify SRCs using the processes outlined in the following sections. **Figure 4-1** shows the facility data screening process to

identify chemicals as SRCs and perform selection for chemicals of potential concern (COPCs) and chemicals of concern (COCs) as necessary. The determination of COPCs and COCs is for human health evaluation only.

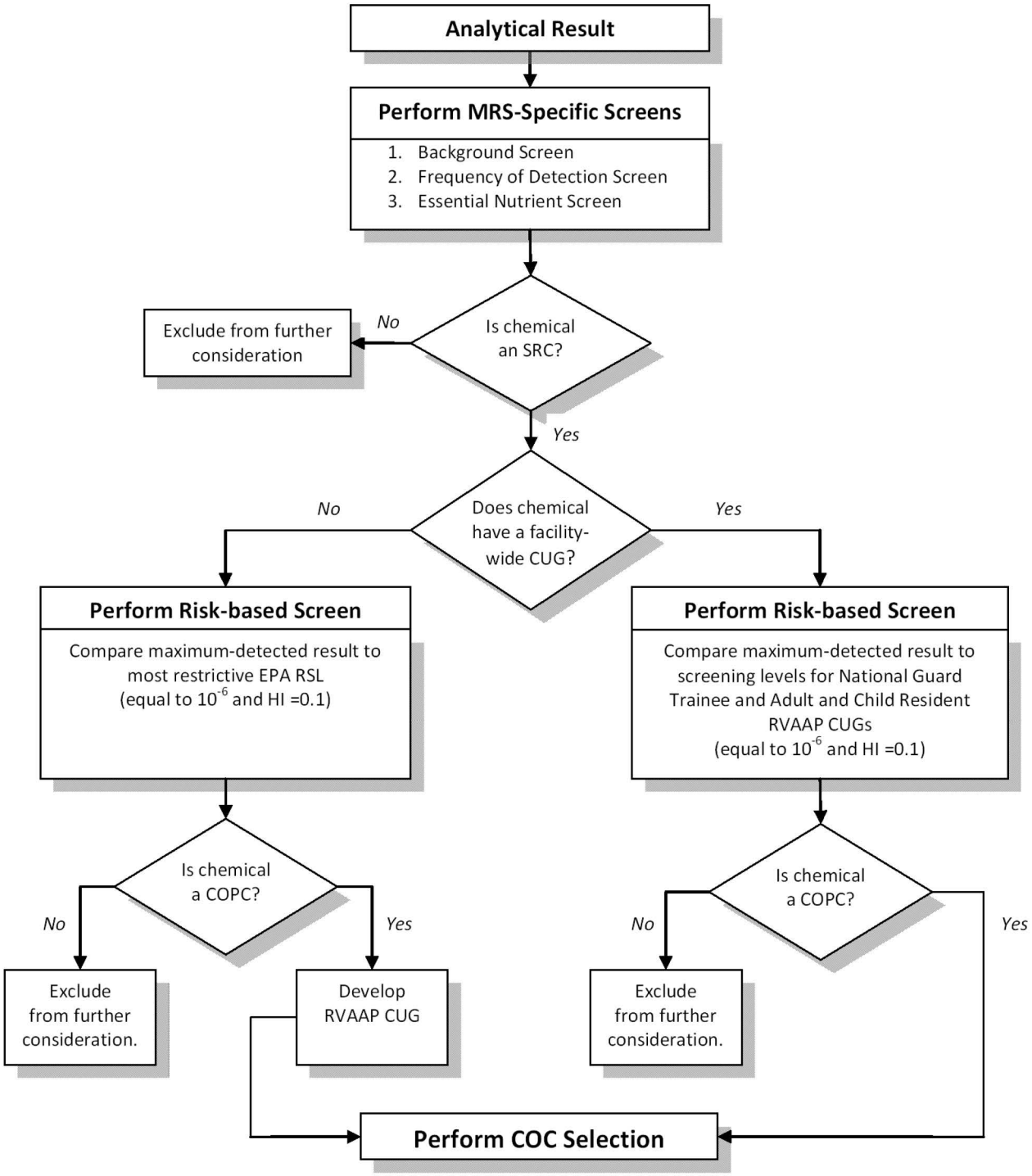
Frequency of Detection

Chemicals that are detected infrequently, except explosives and propellants, may be artifacts in the data due to sampling, analytical, or other problems, and therefore may not be related to the MRS activities or disposal practices. For sample aggregations, except for explosives and propellants, with at least 20 samples and frequency of detection of less than 5 percent, a weight of evidence approach may be used to determine if the chemical is MRS-related. Since surface soil samples were collected at only two locations (two ISM sampling units), frequency of detection was not utilized to support a weight of evidence approach for the Load Line #1 MRS data set.

Facility-Wide Background Screen

For inorganic constituents, if the maximum detected concentration exceeded its respective BSV, it was considered to be an SRC. It should be noted that not all inorganic compounds analyzed as part of the RI sampling event have established screening levels or BSVs. Therefore, in the event an inorganic constituent was not detected in the background data set, the BSV was set to zero, and any detected result for that constituent was considered above background. This conservative process ensures that detected constituents are not eliminated as SRCs simply because they are not detected in the background data set. All detected organic compounds were considered to be above background because these classes of compounds do not occur naturally.

For the RI field efforts across the facility, MRSs being investigated under the MMRP, analyses were conducted for calcium, magnesium, and manganese to be potentially used for geochemical analysis. Aluminum was also analyzed for geochemical purposes at the Load Line #1 MRS where it is not considered an MC related to triple-base propellant. Geochemical analysis is typically used when metals are found to be only slightly elevated above background levels and risk assessment identifies potential risk to receptors due to metals. A geochemical analysis is then used to determine if MEC metals are background related or actually elevated due to site history. Use of the geochemical evaluation in this manner requires approval from the USACE and Ohio EPA prior to implementing geochemical evaluation results as a comparison tool for background results. A geochemical analysis was not required for the Load Line #1 MRS based on the evaluation of the metal results in Section 4.0, and the HHRA and ERA conclusions in Section 7.0 and Section 8.0, respectively.



COC = Chemical of Concern
COPC = Chemical of Potential Concern
CUG = Cleanup Goal
EPA = Environmental Protection Agency
HI = Hazard Index
MRS = Munitions Response Site
RSL = Regional Screening Level
SRC = Site Related Chemical

Note: The determination of COCs and COPCs is for human health and evaluation only.

U.S. ARMY
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BALTIMORE DISTRICT

MILITARY MUNITIONS RESPONSE PROGRAM

LOAD LINE #1 MRS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Shaw Environmental & Infrastructure, Inc.
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Project Number: 136147

FIGURE 4-1 RVAAP DATA SCREENING PROCESS

Essential Nutrient Screen

Chemicals that are considered essential nutrients (calcium, chloride, iodine, iron, magnesium, potassium, phosphorus, and sodium) are an integral part of the food supply and are often added to foods as supplements. The EPA recommends that these chemicals not be evaluated as COPCs as long as they are present at low concentrations (i.e., only slightly elevated above naturally occurring levels) and toxic at very high doses (i.e., much higher than those that could be associated with contact at the MRS). Recommended daily allowance and recommended daily intake values are available for most of the metals identified as essential nutrients. A screen for essential nutrients was not required for the RI since no essential nutrients were analyzed for MC associated with the MRS (USACE, 2005).

4.2.1.4 Data Presentation

Data summary statistics and screening results for SRCs in surface soil collected at the Load Line #1 MRS are presented in the following sections. The designated use for the Load Line #1 MRS samples for evaluation of fate and transport, human health risk, and ecological risk are presented in **Table 4-1**. A summary of the laboratory analytical results are presented in **Table 4-2**. The SRCs that were identified for the MRS following the data screening process are presented in **Table 4-3**. Analytical results for the Load Line #1 MRS inorganic and organic SRCs are presented by sample location in **Figures 4-2** and **4-3**, respectively, and indicate the extent and magnitude of contamination by highlighting SRCs that exceed the facility BSVs. Data summary tables and the laboratory data package for the samples collected at the Load Line #1 MRS during the RI field activities are presented in **Appendix C**.

4.2.2 Data Use Evaluation

During the RI field effort, surface soil samples were collected at two predetermined ISM sampling units to evaluate the nature and extent of SRCs associated with previous activities at the MRS. Available sample data were evaluated to determine suitability for use in the various key RI data screens, which includes evaluation of nature and extent of SRCs, fate and transport, and human and ecological risk assessments. Evaluation of data suitability for use in this RI Report involved two primary considerations: (1) representativeness with respect to current MRS conditions and (2) the sample collection method (i.e., ISM).

The RI surface soil samples were collected using ISM and all data were incorporated into contaminant nature and extent evaluation. These samples are considered to be representative of current MRS conditions, were screened for SRCs, and carried forward into the HHRA and the ERA. An ISM surface soil sample and a duplicate soil sample were collected over the entire MRS as part of the 2007 SI field activities in order to confirm the presence or absence

Table 4-1
Data Use Summary and Collection Rationale

Sample Location ID	Collection Date	Depth (feet bgs)	Sample Type	Data Use Type	Rationale
Surface Soil					
LL1SS-715(I)-0001-SS	8/15/11	0–0.5	ISM	N&E, F&T, R	Northern half of Load Line #1 MRS (100- by 90-foot ISM grid)
LL1SS-716(I)-0001-SS	8/15/11	0–0.5	ISM	N&E, F&T, R	Southern half of Load Line #1 MRS (100- by 90-foot ISM grid)

bgs denotes feet below ground surface.
F&T denotes fate and transport.
ISM denotes incremental sampling methodology.
MEC denotes munitions and explosives of concern.
MRS denotes Munitions Response Site.
N&E denotes nature and extent.
R denotes risk assessment data use.
TOC denotes total organic carbon.

Table 4-2
Summary of Surface Soil Results

Detected Analyte	Location ID:	LL1SS-715		LL1SS-716	
	Sample ID:	LL1SS-715(I)-0001-SS		LL1SS-716(I)-0001-SS	
	Sample Date:	8/15/11		8/15/11	
	Depth (feet bgs):	0–0.5		0–0.5	
	Background[1]	Result	VQ	Result	VQ
Explosives (mg/kg)					
1,3,5-Trinitrobenzene	*NA*	<0.25	UJ	<0.25	U
1,3-Dinitrobenzene	*NA*	<0.2	U	<0.2	U
2,4,6-Trinitrotoluene	*NA*	<0.2	U	<0.2	U
2,4-Dinitrotoluene	*NA*	<0.25	U	<0.25	U
2,6-Dinitrotoluene	*NA*	<0.25	U	<0.25	U
2-Amino-4,6-Dinitrotoluene	*NA*	<0.2	U	<0.2	U
3,5-Dinitroaniline	*NA*	<0.2	U	<0.2	U
4-Amino-2,6-Dinitrotoluene	*NA*	<0.2	U	<0.2	U
HMX	*NA*	<0.2	U	<0.2	U
m-Nitrotoluene	*NA*	<0.2	U	<0.2	U
Nitrobenzene	*NA*	<0.2	U	<0.2	U
Nitroglycerin	*NA*	<1	U	<1	U
Nitroguanidine	*NA*	**0.25**	**J**	**0.22**	**J**
o-Nitrotoluene	*NA*	<0.25	U	<0.25	U
PETN	*NA*	<1	U	<1	U
p-Nitrotoluene	*NA*	<0.2	U	<0.2	U
RDX	*NA*	<0.25	U	<0.25	U
Tetryl	*NA*	<0.2	U	<0.2	U

Table 4-2 (continued)
Summary of Surface Soil Results

Detected Analyte	Location ID:	LL1SS-715		LL1SS-716	
	Sample ID:	LL1SS-715(I)-0001-SS		LL1SS-716(I)-0001-SS	
	Sample Date:	8/15/11		8/15/11	
	Depth (feet bgs):	0–0.5		0–0.5	
	Background[1]	Result	VQ	Result	VQ
Metals (mg/kg)					
Lead	*26.1*	**109**		**70.9**	
Aluminum	17,700	10,300		12,000	
Calcium	15,800	9,560		**63,800**	
Magnesium	3,030	2,270		**4,830**	
Manganese	1,450	963		1,010	
General Chemistry					
Nitrocellulose	*NA*	<50	UJ	<50	U
Total Organic Carbon	*NA*	30,000		36,000	
pH (pH Units)	*NA*	7.68		8.61	

[1]*Background values as presented in the Final Facility-Wide Human Health Cleanup Goals at the RVAAP, Ravenna, Ohio (SAIC, 2010).*
For metals bold numbering indicates concentration is greater than the RVAAP background value. For organics, bold numbering indicates a detected value.
< denotes less than.
bgs denotes below ground surface.
BSV denotes background screening value.
ID denotes identification.
J denotes the result is less than the reporting limit but greater than or equal to the method detection limit.
mg/kg denotes milligrams per kilogram.
NA denotes that a BSV is not available.
U denotes result is not detected or the concentration is below the detection limit.
UJ denotes result is not detected. The detection limits and quantitation limits are approximate.
VQ denotes validation qualifier.

Table 4-3
SRC Screening Summary in Surface Soil Samples

Analyte	Chemical Abstract Service Number	Frequency of Detection	Minimum Detect (mg/kg)	Maximum Detect (mg/kg)	Mean Result (mg/kg)	BSV (mg/kg)	SRC?	SRC Justification
Explosives and Propellants								
Nitroguanidine	556-88-7	2/2	0.22	0.25	0.24	NA	Yes	Detected organic MC
Metals								
Lead	7439-92-1	2/2	70.9	109	89.9	26.1	Yes	MC above BSV
Calcium	7789-78-8	2/2	9,560	63,800	36,680	15,800	No	Not an MC
Magnesium	7439-95-4	2/2	2,270	4,830	3,550	3,030	No	Not an MC

BSV denotes background screening value.
MC denotes munitions constituents associated with triple-base propellant.
mg/kg denotes milligrams per kilogram.
MRS denotes Munitions Response Site.
NA denotes not applicable.
SRC denotes site-related chemical.



FIGURE 4-2 INORGANIC SITE-RELATED CHEMICALS



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Project Number: 136147

MRS Boundary

ISM Soil Sample Unit

Notes:
1) mg/kg = milligrams per kilogram
2) J = the reported result is an estimated concentration
3) ft = foot

0 50 100 Feet

Projection : NAD_1983_UTM_Zone_17N

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FIGURE 4-3 ORGANIC SITE-RELATED CHEMICALS

of MC. As discussed in Section 2.3.3, the RI sample results are intended to further characterize the nature and extent of contamination associated with previous activities at the MRS.

4.3 Nature and Extent of SRCs

This section presents a summary of the nature and extent of SRCs for the environmental media samples collected during the RI field activities at the Load Line #1 MRS. Data from the ISM surface soil samples collected during the RI were screened in accordance with the facility data screening process to identify SRCs representing current conditions at the Load Line #1 MRS. The SRC screening data for surface soils (not including field duplicates or QC samples) included samples LL1SS-715(I)-0001-SS and LL1SS-716(I)-0001-SS, where ISM surface soil samples were taken from 0 to 0.5 feet bgs. The SRCs identified in surface soil following the data screening process are presented in **Table 4-3**.

The ISM samples were collected from two same-sized sampling units (approximately 0.2 acres each) and at the same sample depth (0 to 0.5 feet) within the 0.41-acre MRS that constitutes the decision unit to further characterize the nature and extent of SRCs associated with previous activities at the MRS. All ISM surface soil samples collected during the RI sampling event were submitted for laboratory analyses for lead, explosives, nitrocellulose, TOC, and pH.

The samples were also submitted for geochemical parameters that included aluminum, calcium, magnesium and manganese for the rationale discussed in Section 4.2.1.3, "Data Reduction and Screening." However, since a geochemical analysis was not performed for the MRS, the geochemical parameters are not evaluated further.

4.3.1 Inorganics

Lead exceeded the BSV of 26.1 milligrams per kilogram (mg/kg) in both RI samples and was retained as an SRC. The maximum concentration (109 mg/kg) detected was from sampling unit LL1SS-715(I)-0001-SS. **Figure 4-2** presents the distribution of the lead in surface soils.

4.3.2 Explosives and Propellants

Evaluation of the RI data results indicates that the propellant nitroguanidine was detected in both ISM sampling unit locations and is retained as an SRC. The maximum concentration detected was 0.25 mg/kg at sample LL1SS-715(I)-0001-SS. No other explosives or propellants were detected at either of the ISM sample locations. The sample distribution for the detected nitroguanidine results are shown in **Figure 4-3**.

5.0 FATE AND TRANSPORT

This section describes the fate of contaminants in the environment and potential transport mechanisms. Contaminant fate refers to the expected final state that an element, compound, or group of compounds will achieve following release to the environment. Contaminant transport refers to migration mechanisms away from the source area. Section 5.1 and Section 5.2 discuss fate and transport associated with MEC and MC at the MRS, respectively.

5.1 Fate and Transport of MEC

Transport of MEC at a MRS is dependent on many factors, including precipitation, soil erosion, and freeze/thaw events. These natural processes, in addition to human activity, may result in some movement (primarily vertical) of MEC if present at the MRS. The result of these mechanisms and processes is a potentially different distribution of MEC than the one that may have existed at the time of original release. In addition, MEC items may corrode or degrade based on weather and climate conditions and thereby release MC into the environment.

Three triple-base propellant nodules (1 by ¼ inch each) that constitute MEC were identified at the MRS during the SI; however, no MEC was found at the MRS during the RI field activities. It is expected that any propellants at the MRS were on the ground surface only and were not buried. The propellants found during the SI were not found during RI activities, and no record of removal is documented for these propellants. Since no propellants were identified during the RI, an explosive safety hazard is not considered to be present at the MRS. Therefore, a discussion of the fate and transport of MEC at the MRS is not warranted.

5.2 Fate and Transport of MC

This section describes the fate and transport of the MC identified as SRCs in the environment and potential transport mechanisms. A MEC source was not observed at the Load Line #1 MRS during the RI field activities; however, surface soil samples were collected during the RI for MC at locations predetermined in the Work Plan (Shaw, 2011). The sample locations were chosen to further evaluation the nature and extent of SRCs associated with previous activities at the MRS. The SRCs detected are consistent with the chemical constituents associated with the triple-base propellants that have been historically observed on the ground surface at the MRS. Therefore, for the purposes of this fate and transport discussion, the SRCs will be conservatively evaluated as MC associated with the previously observed propellants. A discussion of the fate and transport mechanisms is presented herein.

The release of MC is a process unique to the military. The sources and magnitude are distinctly different from the release of chemicals from industrial processes typically

investigated under the IRP (Strategic Environmental Research and Development Program and Environmental Security Technology Certification Program, 2012). Once a MC released from MEC enters an environmental medium, the fate and transport of MC are dependent on a wide variety of factors. Migration pathways often include air, water, soil, and the interfaces between the phases of the contaminant (i.e., solid, liquid, or gas). The fate and transport of contaminants occur in all three environments: (1) terrestrial, (2) aquatic, and (3) atmospheric. Terrestrial environments are comprised of soil and groundwater, aquatic environments are comprised of surface water and sediment, and air is the only component of the atmospheric environment.

Several important physical and chemical properties of environmental media govern the distribution and behavior of contaminants in these media. Depending upon the specific contaminant and soil conditions, a contaminant may migrate from surface soil to subsurface soil, stream/wetland sediments, or surface water. A contaminant may also migrate from each of the aforementioned medium to the air. The propensity for a contaminant to attain equilibrium conditions in the environment and migrate from one medium to another is an important factor in determining the mobility of a contaminant.

In the terrestrial environment, if the contaminant is released to soil, the contaminant may volatilize, adhere to the soil by sorption, leach into the surface water bodies or groundwater, or degrade because of chemical (abiotic) or biological (biotic) processes. If the contaminant is volatilized, it may be released to the atmosphere. Contaminants that are dissolved may eventually be transported to an aquatic environment.

Once a contaminant is released to the aquatic environment, it can either volatilize or remain in the aquatic environment. In the aquatic environment, contaminants may be dissolved in the surface water or sorbed to the sediment. Contaminants may move between dissolved and sorbed states depending on a variety of physical and chemical factors. However, no aquatic environments are present within the MRS boundary to be impacted by the presence of MC.

In the atmospheric environment, contaminants may exist as vapors or as particulate matter. The transport of contaminants relies mostly on wind currents and continues until the contaminants are returned to the earth by wet or dry deposition. Degradation of organic chemicals in the atmosphere can occur due to direct photolysis, reaction with other chemicals, or reaction with photochemically generated hydroxyl radicals.

5.2.1 Contaminant Sources

This section presents a discussion of the detected lead and nitroguanidine concentrations that are identified as SRCs in the environmental media at the Load Line #1 MRS. The physical

and chemical properties and potential release mechanisms and routes of migration for each of these SRCs are discussed below.

- **Lead** is a naturally occurring metal found in small amounts in the earth's crust. Lead salts were used as a ballistic modifying agent in triple-base propellants to modify the general laws of combustion (Folly and Mader, 2004). The use of lead in the manufacture of propellants has been phased out over the years due to its toxicity. The most common form of lead (Pb) found in nature is Pb^{+2}, although lead also exists to a lesser extent as Pb^{+4} and in the organic form with up to four lead-carbon bonds (Kabata-Pendias, 2001). Most lead deposited on surface soil is retained and eventually becomes mixed into the surface layer. However, lead can migrate into subsurface environments. The migration of lead in the subsurface environment is controlled by the solubility of lead complexes and adsorption to aquifer materials. Adsorption to soil and aquifer material greatly limits the mobility of lead in the subsurface environment. The capacity of soil to adsorb lead increases with pH, cation exchange capacity, organic carbon content, redox potential, and phosphate levels. At pH values above 6, lead adsorbs on clay surfaces or forms lead carbonate. Lead exhibits a high degree of adsorption in clay-rich soil (Kabata-Pendias, 2001).
- **Nitroguanidine** (also called 1-nitroguanidine) is used as an explosive propellant notably in triple-base propellant smokeless powder. The nitroguanidine reduces the propellant's flash and flame temperature without sacrificing chamber pressure. Nitroguanidine is manufactured from guanine, a naturally occurring substance typically found in the excrement of bats and birds (guano). It is not flammable and is an extremely low sensitivity explosive; however, its detonation velocity is high. Nitroguanidine is expected to have high mobility in soil and volatilization from soils is not anticipated to be a primary fate process given an estimated Henry's law constant of 4.45×10^{-16} atmospheric cubic meters per mole based upon its vapor pressure and water solubility (Gorontzy et al., 1994). In aquatic environments, nitroguanidine is not expected to adsorb to suspended solids or sediment. Volatilization is also not anticipated (Gorontzy et al., 1994). The aquatic fate of nitroguanidine is dominated by photolysis and is not anticipated to bioconcentrate (Haag et al., 1990). In the atmosphere, nitroguanidine is expected to exist solely in the particular phase and be removed from the atmosphere through either wet or dry deposition. As it absorbs light at approximately 260 nanometers and above, nitroguanidine is susceptible to direct photolysis (NIST Chemistry WebBook, 2010).

5.2.2 Summary of Fate and Transport

Based on current soil conditions at the facility, which consisted primarily of silty clay loam with low permeability and an MRS-specific pH of approximately 8.4, it is expected that lead would tend to bind to the soil and is considered relatively immobile. Therefore, any MC would be expected to be found in the top several inches where it was deposited and subsurface has mostly likely not been impacted. Nitroguanidine is considered mobile in soil; however, the impact to subsurface soils at the MRS has not been evaluated. The low permeability of the soil and the low concentrations detected suggest that significant sources of nitroguanidine were not deposited on or leached into the ground surface as a result of either dumping of triple-base propellants at the MRS or other activities (i.e., munitions loading operations) conducted at this portion of Load Line #1 when the facility was in operation.

The most recent groundwater elevations and sampling data were evaluated for fate and transport (Environmental Quality Management, Inc., 2012). The depth to groundwater at the nearest well location to the MRS (approximately 400 feet to the southeast) is 32 feet bgs. Several inorganics were detected exceeding the screening criteria at Load Line #1; however, lead was not identified as a SRC indicating that groundwater has not been impacted by the presence of elevated lead concentrations in surface soil at the MRS. Although, the impact of nitroguanidine on the groundwater directly beneath the MRS has not been evaluated, groundwater results from the July 2011 sampling event that included samples at Load Line #1, exhibited elevated concentrations of explosives but no propellants. Although mobile in soil, it does not appear that nitroguanidine in surface soil at the MRS has impacted groundwater at Load Line #1.

6.0 MEC HAZARD ASSESSMENT

In accordance with the Work Plan (Shaw, 2011), an evaluation of the MEC hazard at the Load Line #1 MRS was to be prepared in accordance with the *Interim Munitions of Concern Hazard Assessment (MEC HA) Methodology* (EPA, 2008); herein referred to as the MEC HA. The MEC HA process was developed to evaluate the potential explosive hazard associated with conventional MEC present at a MRS under a variety of MRS-specific conditions, including various cleanup scenarios and land use assumptions. The MEC HA addresses human health and safety concerns associated with potential exposure to MEC at a MRS. No MEC or MD items were identified at the MRS during RI field activities, which has been interpreted to indicate that no MEC source or explosive safety hazard is present at the MRS. Based on the findings of the RI field work, the calculation of a MEC HA score was not warranted for the Load Line #1 MRS.

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7.0 HUMAN HEALTH RISK ASSESSMENT

The purpose of this HHRA is to document whether SRCs identified at the Load Line #1 MRS may pose a risk to current or future human receptors, and to identify which, if any, MRS conditions need to be addressed further under the CERCLA process. This risk assessment was prepared in accordance with the Work Plan (Shaw, 2011) using the streamlined approach to risk decision-making, as described in the FWCUG Report (SAIC, 2011). In particular, the *RVAAP Position Paper for the Application and Use of Facility-Wide Cleanup Goals* (USACE, 2012); hereafter referred to as the Position Paper, describes the use of the Facility-Wide Cleanup Goals (FWCUGs) in the following steps:

- Identify COPCs at the 1×10^{-6} (one in a million) excess cancer risk level or noncarcinogenic hazard quotient (HQ) of 0.1 (most stringent value) for the MRS by comparing concentrations to BSVs, eliminating essential nutrients, and comparing the concentrations of SRCs to the final FWCUGs.
- Identify COCs at the 1×10^{-5} (one in one hundred thousand) excess cancer risk level or noncarcinogenic HQ risk value of 1 by comparing concentrations to specific final FWCUGs, and using a "sum of ratios" approach to account for cumulative effects. This method sums the ratios of the SRC concentrations to the final FWCUG for all COPCs. A sum of ratios greater than 1 represents an unacceptable risk, and cancer and noncancer effects are considered separately.

The following sections discuss the HHRA approach, the data used in the HHRA, and the COPC and COC evaluation for the samples collected at the Load Line #1 MRS during the RI field activities. This HHRA was initiated before the finalization of the U.S. Army's technical memorandum (ARNG, 2014); therefore, evaluation for the Commercial Industrial Land Use using the Regional Screening Levels (RSLs) for industrial exposure (EPA, 2012) was not included.

7.1 Data Used in the HHRA

The available data set used in this HHRA consisted of two ISM surface soil samples (LL1SS-715(I)-0001-SS and LL1SS-716(I)-0001-SS) collected as part of the RI field effort, which are considered to be representative of current conditions. A third sample (LL1SS-717(I)-0001-SS) was collected as a field duplicate and is; therefore, excluded from the risk evaluation process. The Load Line #1 MRS is considered as a single EU based on the future land use that is discussed in the following sections. The samples included in the HHRA data set are identified in **Table 7-1**.

Table 7-1
Summary of Data Used in the Human Health Risk Assessment

Sample ID	Sample Date	Depth (feet bgs)	Sample Type	Analyses
LL1SS-715(I)-0001-SS	8/15/11	0–0.5	ISM	• Lead • Explosives • Nitrocellulose • TOC • pH
LL1SS-716(I)-0001-SS	8/15/11	0–0.5	ISM	

bgs denotes below ground surface.
ID denotes identification
TOC denotes total organic carbon.

7.2 Human Receptors

The future land use for the Load Line #1 MRS is military training, and the Representative Receptor is the National Guard Trainee. The Representative Receptor for military training, in conjunction with the evaluation of the Resident Receptor (Adult and Child) for Unrestricted Land Use, forms the basis for identifying COCs in the RI. Evaluation for Unrestricted (Residential) Land Use is performed to assess for baseline conditions and the no action alternative under CERCLA, and as outlined in the HHRAM (USACE, 2005).

The facility has defined exposure depth scenarios for the identified receptors that are presented in the FWCUG Report (SAIC, 2010). Surface soil for the Resident Receptor (Adult and Child) is defined as 0 to 1 foot bgs. Surface soil for the National Guard Trainee is defined as 0 to 4 feet bgs. Sampling for MC under the MMRP is selective in general to evaluate identified munitions-related source areas and the potential that MC may have been released from the source areas. The data used in the HHRA are used to evaluate for the receptors at the depths that the samples were collected; however, the data are not intended to evaluate for predefined exposure depth scenarios as is typically performed under the IRP. The presence of munitions-related source areas at an MRS is the primary driver for determining future actions under the MMRP; however, the HHRA is valuable in identifying potential releases of MC from the source areas and if the MC poses risks to likely human receptors.

The media of concern that was evaluated in the HHRA consists solely of surface soil that was biased by collecting samples across the entire MRS at a sample depth of 0 to 0.5 feet bgs. The 0.5-foot sample depth across the MRS is the focus of this HHRA since it is the maximum depth that MC associated with the propellants would be expected to vertically migrate in the soil column and is the deepest that MC has been detected at the MRS during the SI field activities (e^2M, 2008). This sampling method is consistent with the sample depth intervals recommended in the U.S. Army's guidance (U.S. Army, 2009). Therefore, for the

RI, surface soil for the Resident Receptor (Adult and Child) and the National Guard Trainee is evaluated as 0 to 0.5 feet bgs, the depth at which the ISM surface soil samples were collected.

7.3 COPC Identification

This section presents the evaluation of the MRS data and the identification of COPCs for the intended receptors based on the future land use as military training. The data for this RI Report were evaluated in accordance with the initial evaluation step presented in the Position Paper (USACE, 2012) to identify SRCs as presented in Section 4.2, "MC Data Evaluation." The evaluation incorporates the same criteria described in Section 4.2.1.3 to eliminate chemicals that are not SRCs (i.e., infrequently detected chemicals, background comparisons, and essential nutrients). Some chemicals were analyzed for a specific purpose other than for identifying MC (i.e., the collection of magnesium concentrations for the purposes of performing a geochemical analysis on chemical concentration ratio data), and are not known or suspected MC at the MRS. The chemicals that had not been eliminated to this point were lead and nitroguanidine and were evaluated to establish if they were COPCs using the following steps:

- The final FWCUGs developed for the Resident Receptor (Adult and Child) and the National Guard Trainee for each chemical were used. If there were no final FWCUGs developed for a particular chemical, then the RSLs for residential exposure (EPA, 2012) were used. If neither a final FWCUG nor an RSL is available, then a cleanup goal can be developed in concurrence with the USACE and the Ohio EPA. Final FWCUGs or RSLs were available for all chemicals not previously eliminated.
- The final FWCUGs at the 1×10^{-6} (one in a million) excess cancer risk level and noncarcinogenic risk HQ using the 0.1 risk value for each of the receptors will be selected.
- A comparison of the selected final FWCUG to the exposure point concentration (EPC) was completed. The EPCs used in this screening step were the maximum detected concentrations.
- The chemical was retained as a COPC if the EPC exceeded the most stringent risk value for the Resident Receptor (Adult and Child) or the National Guard Trainee for either one of the 1×10^{-6} excess cancer risk values and the noncarcinogenic HQ using the 0.1 risk value.

The Work Plan (Shaw, 2011) specifies that in addition to screening for the Resident Receptor (Adult and Child) and the National Guard Trainee, evaluation will also be made against the

remaining OHARNG receptors in order to ensure that the most stringent receptor is identified. Based on this consideration, the Representative Receptors identified for COPC evaluation included the Resident Receptor (Adult and Child) and the National Guard Trainee.

Table 7-2 presents the screening results for COPCs for the Resident Receptor (Adult and Child) and the National Guard Trainee in accordance with the FWCUG Report (SAIC, 2010). For both lead and nitroguanidine, no FWCUGs are available and the RSLs were used. The RSLs are based on the lower of values derived considering excess cancer risk of 1×10^{-6} (one in a million) and noncancer hazard considering an HQ of 1. The RSLs derived based on noncancer hazard were adjusted to an HQ of 0.1 in order to be consistent with the noncancer final FWCUGs. The RSL for lead, however, was not adjusted in this manner, since it was not derived using the hazard index approach. The RSL for lead in soil is based on the value recommended by the EPA as generally safe for residential settings.

To establish COPCs, the maximum detected concentrations for the SRCs were compared to the applicable screening criteria. Substances that are considered SRCs, and for which the maximum detected concentration is greater than the RSL since no final FWCUGs are available, were considered COPCs. The entire MRS was adequately characterized to the anticipated depth that MC, if any, would be expected to be found (0 to 0.5 feet bgs) and no COPCs were identified for either the Resident Receptor (Adult and Child) or the National Guard Trainee. Therefore, an evaluation for COCs was not required.

7.4 Uncertainty Analysis

There are various sources of uncertainty in the evaluation of exposure and risk that are common to all risk assessments. These general sources of uncertainty are not described here. However, those specific to this assessment are discussed in the following sections. These uncertainties generally relate to sampling considerations, the determination of EPCs, and the selection of appropriate receptors. There are numerous uncertainties related to the final FWCUGs, including exposure assumptions and toxicity values. These uncertainties are inherent to the use of these values, and are similar for all assessments using them. Therefore, these uncertainties are not discussed here unless there is a particular issue relevant to this evaluation.

Uncertainty can arise from sampling techniques or approaches. In this assessment, surface soil was sampled using the ISM technique. This technique provides good representation of average concentrations over the area sampled. While it may not identify small areas of higher concentrations, this approach is useful for estimating exposure, which is expected to occur over an area and not at discrete locations.

Table 7-2
Summary of Screening Results for COPCs in Surface Soil (0 to 0.5 feet)

Chemical	Range of Values, mg/kg						Location of MDC	R(A) FWCUG[1] (mg/kg)	R(C) FWCUG[1] (mg/kg)	NGT FWCUG[1] (mg/kg)	RSL[2] (mg/kg)	COPC?	COPC Justification
	Detected Concentrations				Reporting Limits								
	Minimum	VQ	Maximum	VQ	Minimum	Maximum							
Metals													
Lead	70.9		109		0.25	0.25	LL1SS-715	-	-	-	400	No	Below risk screening criteria
Explosives													
Nitroguanidine	0.22	J	0.25	J	0.25	0.26	LL1SS-715	-	-	-	610	No	Below risk screening criteria

[1] *FWCUG is lower of noncarcinogenic FWCUG at a hazard index of 0.1 and excess carcinogenic FWCUG risk of 10^{-6}.*
[2] *RSL is for residential soil and is based on noncancer risk adjusted to a hazard index of 0.1 (as opposed to published value based on a hazard index of 1), except lead.*
- denotes that no value is available for this criterion.
COPC denotes chemical of potential concern.
EPA denotes U.S. Environmental Protection Agency.
FWCUG denotes Final Facility-Wide Cleanup Goal.
J denotes result should be considered estimated.
MDC denotes maximum detected concentration.
mg/kg denotes milligrams per kilogram.
NGT denotes National Guard Trainee.
R(A) denotes Resident Receptor (Adult).
R(C) denotes Resident Receptor (Child).
RSL denotes Regional Screening Level (2012).
U.S. denotes United States.
VQ denotes validation qualifier.

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No final FWCUGs were available for the SRCs (lead and nitroguanidine) detected at the MRS. In these cases, the RSLs were used as the screening values for these receptors. This provides a conservative evaluation, since the RSLs used are based on residential exposure.

The selection of the maximum detected concentration as the EPC for the ISM samples provides a conservative evaluation of potential exposures in the area with the greatest concentrations. The selection of receptors also represents an uncertainty to the risk assessment. The Resident Receptor (Adult and Child) is assumed to be the future receptor in the COPC evaluation, representing a conservative evaluation of possible future exposures. Therefore, risks are not expected to be underestimated for other future uses.

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8.0 ECOLOGICAL RISK ASSESSMENT

This ERA evaluates the potential for adverse effects posed to ecological receptors from potential releases at the Load Line #1 MRS. This ERA is consistent with the process described in the EPA *Ecological Risk Assessment Guidance for Superfund* (1997) and the *Ohio EPA Ecological Risk Assessment Guidance Document* (2008); hereafter referred to as the EPA Guidance and Ohio EPA Guidance, respectively. Other supporting documents used in the preparation of this ERA include the *RVAAP Facility-Wide Ecological Risk Assessment Work Plan* (USACE, 2003b) and the *Risk Assessment Handbook Volume II: Environmental Evaluation* (USACE, 2010). The ERA also follows the facility Unified Approach (USACE, 2011) to ERAs established at sites under environmental investigation at the facility.

Consistent with the RVAAP Unified Approach for performing ERAs, a screening-level ERA (SLERA) was performed on the Load Line #1 MRS. The SLERA is an initial screening step in the ERA 8-step approach as described in EPA (1997) guidance. The SLERA comprises Steps 1, 2, and the first part of Step 3 (often referred to as Step 3a), in which a refinement of the chemicals initially selected as chemicals of potential ecological concern (COPECs) is performed prior to determining whether additional investigation is necessary. If the SLERA indicates that additional investigation is warranted, it is followed by a more comprehensive baseline ERA (BERA) by completing the second part of Step 3 (i.e., "Step 3b") through Step 7. Step 8 is a risk management step that occurs after information presented in the previous steps of the ERA has been fully considered. The Ohio EPA Guidance (2008) presents a similar "tiered" approach that allows for a progression through four levels of the ERA as required by the findings and conclusions of each level: Level I Scoping, Level II Screen, Level III Baseline, and Level IV Field Baseline. Levels I and II are approximately equivalent to Steps 1 and 2 of a SLERA. Level III includes food chain modeling using exposure dose and toxicity estimates for generic receptors using conservative assumptions, and is incorporated as part of Step 3a in the SLERA if it is considered necessary to refine COPECs. The Level IV Field Baseline is equivalent to the BERA (Steps 3b through 7), where conservative assumptions used in the Level III Baseline are modified using MRS-specific information.

As stated previously, the SLERA includes Steps 1 through 3a of the 8-step process for ERAs (EPA, 1997). This is equivalent to a Level I and II evaluation according to the Ohio EPA process, and is also consistent with the ERA approach described in USACE guidance (2003b and 2010) and the facility Unified Approach (USACE, 2011). Because the conclusion of the Load Line #1 MRS SLERA was that no chemicals require additional evaluation, a BERA is not considered necessary for this MRS, and the ERA process is terminated following the completion of the SLERA.

8.1 Scope and Objectives

The goal of the SLERA was to evaluate the potential for adverse effects to ecological receptors from MC at the Load Line #1 MRS. This objective was met by characterizing the ecological communities in the vicinity of the MRS, determining the particular contaminants present, identifying pathways for receptor exposure, and estimating the magnitude of the likelihood of potential adverse effects to identified receptors. The SLERA addressed the potential for adverse effects to the wildlife, threatened and endangered species, and wetlands or other sensitive habitats that may be associated with the MRS.

The objective of this SLERA was to provide an estimate of the potential for adverse ecological effects associated with contamination resulting from former activities at the Load Line #1 MRS. The results of the SLERA contribute to the overall characterization of the MRS and may be used to determine the need for additional investigations or to develop, evaluate, and select appropriate remedial alternatives.

The SLERA used MRS-specific analyte concentration data for surface soil from the Load Line #1 MRS. Risks to ecological receptors were evaluated by performing a multistep screening process in which, after each step, the detected analytes in soil were either deemed to pose negligible risk and eliminated from further consideration or carried forward to the next step in the screening process to a final conclusion of being a COPEC. COPECs are analytes whose concentrations are great enough to pose potential adverse effects to ecological receptors. Following the determination of COPECs, an ecological CSM was developed that described the selection of receptors, exposure pathways, and assessment and measurement endpoints.

8.2 Level I Scoping

The scoping step of the SLERA included descriptions of habitats; biota; and threatened, endangered, and other rare species; selection of an EU; and identification of COPECs at the MRS. If a potential threat to ecological receptors was suspected, the SLERA proceeded to Level II.

8.2.1 Site Description and Land Use

The Load Line #1 MRS a 0.41-acre area that is located at the north end of the 164-acre Load Line #1. The MRS is located near the northwest side of the former elevated building CB-14 where triple-base propellants were observed on the ground surface and elevated lead concentrations and low concentrations of explosives were detected in surface soil during the 2007 SI field activities.

Current activities at the Load Line #1 MRS include security patrols, maintenance, environmental sampling, remediation, and natural resource management activities. The OHARNG projected future use at the MRS is military training.

8.2.2 Ecological Significance

Topography across the Load Line #1 MRS is relatively flat with little change in elevation. The MRS is in a slight depression related to its immediate surroundings. Based on topographical maps, local surface drainage is to the east. There are no natural streams or ponds located within the MRS and the MRS is not located within a flood plain (AMEC, 2008).

The vegetation community present at the Load Line #1 MRS is categorized as the "Dry Midsuccessional Cold-Deciduous Shrubland Alliance" (AMEC, 2008). This shrubland alliance is associated with relatively open areas characterized by shrub species covering more than 50 percent of the area, with relatively few large trees. This alliance often is found within previously disturbed areas, and is dominated by gray dogwood, northern arrowwood, blackberry, hawthorn, and multiflora rose. Additional details pertaining to the ecological setting are provided in the following sections.

8.2.3 Facility Management Goals

The INRMP (AMEC, 2008) was developed for the OHARNG as the primary guidance document and tool for managing natural resources at the facility (AMEC, 2008). Several of these management goals have relevance to the SLERA because they articulate overarching objectives regarding ecological resources that should be considered when identifying whether adverse impacts associated with a release have occurred. Specifically, the following goals listed in the INRMP are pertinent to the Load Line #1 MRS SLERA:

- Protect and maintain populations of rare plant and animal species on the facility in compliance with federal and state laws and regulations.
- Manage wildlife resources in a manner compatible with the military mission and within the limits of the natural habitat.
- Manage wetlands and other surface waters in accordance with applicable federal, state, and local regulations and to protect water quality and ecological function while facilitating the military mission.
- Manage soil to maintain productivity, and prevent and repair erosion in accordance with state and federal laws and regulations.

8.2.4 Terrestrial and Aquatic Resources

This section summarizes the terrestrial and aquatic resources identified for the Load Line #1 MRS that is evaluated in the ERA.

8.2.4.1 Special Interest Areas

Special interest areas are ecosystems that are not federally protected and have no legal standing, but are areas that host state-listed species, are representative of historic ecosystems, or are otherwise noteworthy. The ODNR and the USFWS did not identify any special interest areas on or near the Load Line #1 MRS during their natural heritage data searches (AMEC, 2008).

8.2.4.2 Wetlands

A planning-level survey (i.e., desktop review of wetlands data and resources [National Wetlands Inventory maps, aerials etc.]) for wetlands was conducted for the entire facility, including the Load Line #1. A jurisdictional wetlands delineation has not been completed at the MRS. No wetlands have been identified at the Load Line #1 MRS (AMEC, 2008).

8.2.4.3 Animal Populations

The plant communities at the facility provide diverse habitats that support many species of animals. Through casual observations and various studies, the following number of species have been identified at the facility: 35 land mammals, 214 birds, 34 reptiles and amphibians, 46 fish (including 2 hybrids), 4 crayfish, 17 mollusks (clams), 12 aquatic snails, 45 terrestrial snails, 64 damselflies and dragonflies, 64 butterflies, 793 moths, and 800 beetles (AMEC, 2008).

Nearly the entire load line is covered by open shrubland habitat. Common bird species that could be expected to use the habitat include the song sparrow (*Melospiza melodia*), gray catbird (*Dumetella carolinensis*), and rufous-sided towhee (*Pipilo erythrophthalmus*). Common large mammals include white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), and woodchuck (*Marmota monax*), while the eastern cottontail (*Sylvilagus floridanus*), white-footed mouse (*Peromyscus leucopus*), and short-tailed shrew (*Blarina brevicauda*) are common small mammals present at the RVAAP (ODNR, 1997) that may use the habitat present at the Load Line #1 that includes the MRS.

8.2.4.4 Threatened, Endangered, and Other Rare Species Information

The relative isolation of the facility that helps to protect habitat at the facility has created an important area of refuge for a number of plant and animal species considered rare by the State of Ohio. No federally listed species are known to reside at the facility. To date, 77 state-listed species are confirmed to be on the facility and are listed in **Table 1-3**. The Load

Line #1 MRS has not been specifically surveyed for threatened or endangered species; however, none are known to exist at the MRS (CRJMTC, 2010).

8.2.5 Level I Conclusions and Recommendations

Based on the presence of ecological resources at the facility, and the potential presence of detected SRCs associated with historical activities at the MRS that could adversely affect these resources, proceeding to a Level II Screening step is recommended for this SLERA. This Level II Screening is presented in Section 8.3.

8.3 Level II Screening

A Level II Screening was performed at the MRS to compare MRS-specific data to appropriate ecological screening values (ESVs) and other criteria to determine the need for further evaluation. An ecological CSM was developed to identify the potential ecological receptors at risk and the exposure pathways by which these receptors could be exposed to contamination in site media. Specific assessment and measurement endpoints are identified based on the CSM to describe ecological features targeted for protection. Then, a COPEC identification step is performed to determine what chemicals, if any, potentially represent a threat to the ecological receptors present at the MRS.

8.3.1 Ecological Conceptual Site Model

The ecological CSM depicts and describes the known and expected relationships among the stressors, pathways, and assessment endpoints that are considered in the risk assessment, along with a rationale for their inclusion. Two ecological CSMs are presented for this Level II Screen. One ecological CSM is associated with the media screening conducted during the Level II Screen (**Figure 8-1**). The other ecological CSM (**Figure 8-2**) represents a preliminary CSM for a Level III Baseline, should one be considered necessary. The ecological CSMs for the Load Line #1 MRS were developed using the available MRS-specific information and professional judgment. The contamination mechanism, source media, transport mechanisms, exposure media, exposure routes, and ecological receptors for the ecological CSMs are described below.

8.3.1.1 Chemical Source

The chemical source includes releases of triple-base propellant onto the ground surface at the northern portion of Load Line #1 where munitions loading activities occurred when Load Line #1 was in operation.

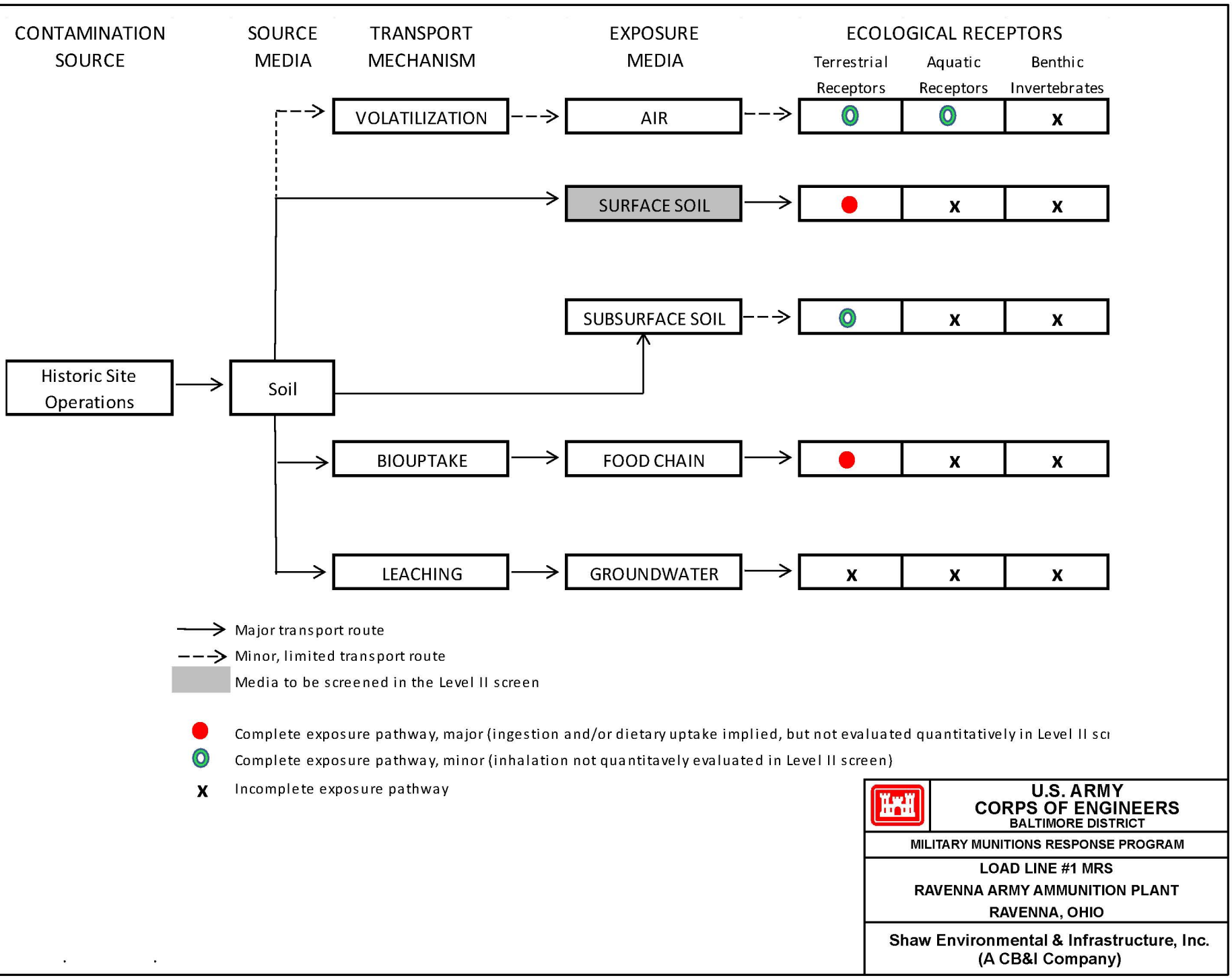

FIGURE 8-1 ECOLOGICAL CSM FOR LEVEL II SCREEN

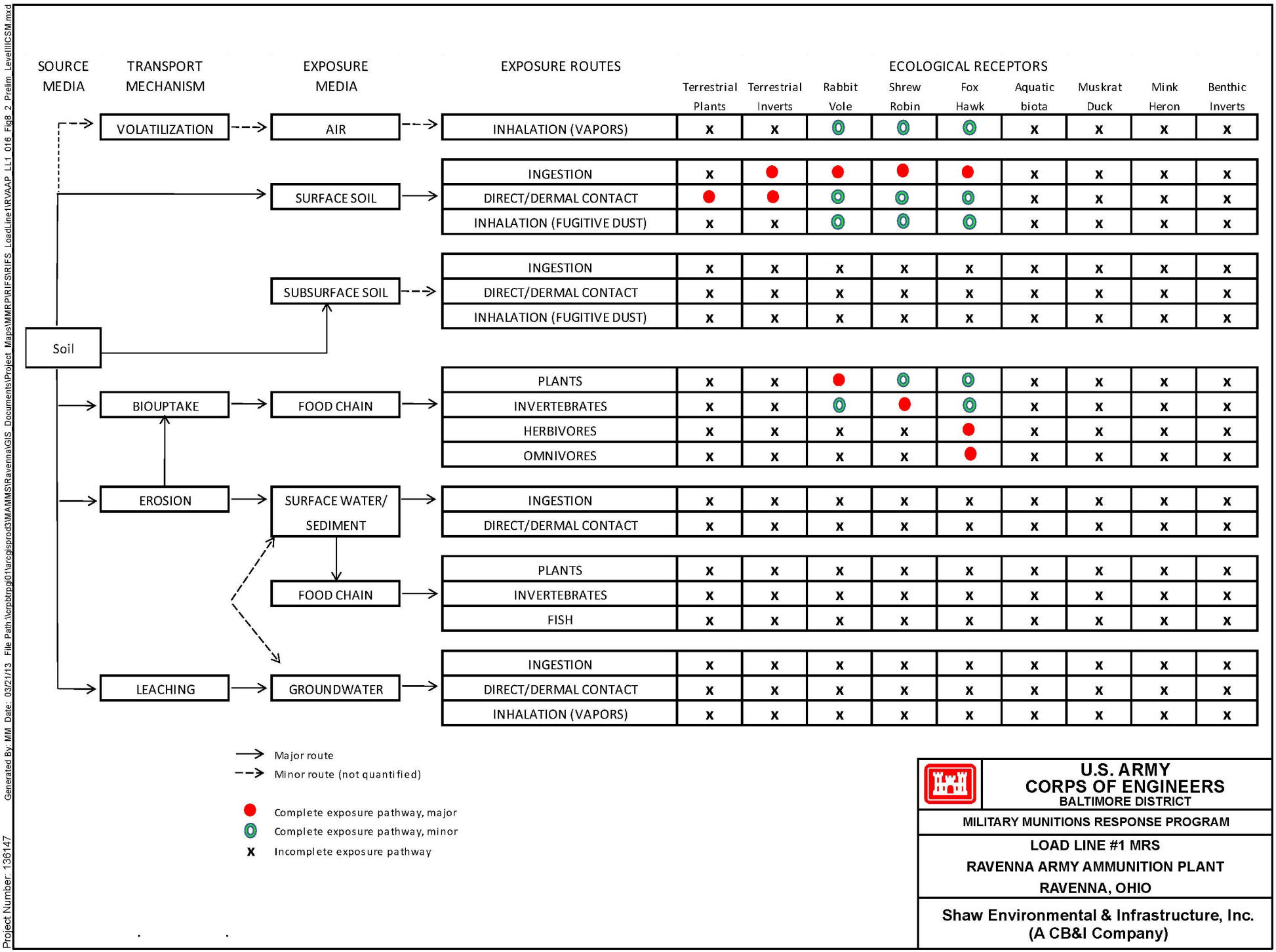

FIGURE 8-2 ECOLOGICAL CSM FOR LEVEL III BASELINE

8.3.1.2 Source Medium

The source medium is surface soil within the identified MRS boundaries where triple-base propellants have been historically found on the ground surface. For this ERA, surface soil is defined as 0 to 0.5 feet bgs and is the depth that concentrated MC associated with triple-base propellants on the ground surface would be expected to vertically migrate in the soil column.

8.3.1.3 Selection of Exposure Units

From the ecological assessment viewpoint, an EU is the area where ecological receptors potentially are exposed to the SRCs. Although some ecological receptors are likely to gather food, seek shelter, reproduce, and move around, spatial boundaries of the ecological EUs are the same as the spatial boundaries of aggregates defined for historical use, nature and extent, fate and transport, and the HHRA. Surface soil to a maximum depth of 0.5 feet is considered to be representative of the terrestrial EU at the Load Line #1 MRS. No other EUs are identified for this MRS.

8.3.1.4 Transport Mechanisms

Potential transport mechanisms at the MRS include volatilization into the air, biota uptake, erosion to surface water and sediment, and leaching to groundwater. Biota uptake is a transport mechanism because some of the MRS contaminants are known to accumulate in biota, which may act as a vehicle to spatially disperse contaminants, as well as representing a secondary exposure medium for upper trophic-level receptors that prey on the biota.

8.3.1.5 Exposure Media

Sufficient time has elapsed for contaminants in the source medium to have migrated to potential exposure media, resulting in possible exposure of receptors that come into contact with these media. Potential exposure media include air, surface soil, and the food chain. Surface soil (typically 0 to 1 foot bgs for the facility) was not collected greater than 0.5 feet bgs at the MRS since most MC would be expected to have concentrated in the top several inches of soil. Subsurface soil includes soil at depths that ecological receptors typically do not come into contact with (greater than 1 foot bgs), and is not being evaluated at the Load Line #1 MRS. Groundwater is not considered an exposure medium because ecological receptors are unlikely to contact groundwater. Therefore, surface soil (0 to 0.5 feet bgs) and biota comprising of prey items for higher-trophic-level receptors are the two principal exposure media for the Load Line #1 MRS.

8.3.1.6 Exposure Routes

Exposure routes are functions of the characteristics of the media in which the sources occur, and reflect how both the released chemicals and receptors interact with those media. For example, for MRSs with aquatic habitat, chemicals in surface water may be dissolved or suspended as particulates and be highly mobile, whereas those same constituents in soil may

be much more stationary. The ecology of the receptors is important because it dictates their home range, whether the organism is mobile or immobile, local or migratory, burrowing or above ground, plant eating, animal eating, or omnivorous.

For the Level II Screen CSM (**Figure 8-1**), specific exposure routes were not identified because the screen is not receptor specific and only focuses on comparison of maximum detected concentrations of chemicals in the exposure media against published ecological toxicological benchmark concentrations derived for those media. However, the preliminary Level III Baseline ecological CSM (**Figure 8-2**) identifies specific exposure routes and indicates whether the exposure routes from the exposure media to the ecological receptors are major or minor. Major exposure routes are evaluated quantitatively, whereas minor routes are evaluated qualitatively. The preliminary Level III Baseline ecological CSM (**Figure 8-2**) shows major exposure routes of soil to ecological receptors and an incomplete exposure route of groundwater.

The major exposure routes for chemical toxicity from surface soil include ingestion (for terrestrial invertebrates, voles, shrews, American robins, foxes, and hawks) and direct contact (for terrestrial invertebrates). The ingestion exposure routes for voles, shrews, American robins, foxes, and hawks include soil, as well as plant and/or animal food items (i.e., food chain transfer) that were also exposed to the surface soil. Minor exposure routes for surface soil include direct contact and inhalation of fugitive dust. Inhalation and dermal contact, however, are typically not assessed in terrestrial ERAs because these routes are not well studied for wildlife. Additionally, since most wildlife have protective features such as fur or feathers, dermal contact is typically a negligible exposure pathway (though dermal contact with soil is a potentially significant exposure route for soil-dependent terrestrial animals such as invertebrates) (USACE, 2010).

Exposure to groundwater is an incomplete pathway for all ecological receptors because receptors typically do not come into direct contact with groundwater. If the groundwater outcrops via seeps or springs into wetlands or ditches, it becomes treated as surface water and would be evaluated as such in the ERA.

8.3.1.7 Ecological Receptors

For the Level II Screen, specific ecological receptors were not identified; rather, terrestrial biota is considered as a whole. However, for the Level III Baseline evaluation, specific terrestrial ecological receptors are identified as part of the ecological CSM (**Figure 8-2**). The terrestrial receptors include terrestrial invertebrates (earthworms), voles, shrews, American robins, foxes, and hawks (USACE, 2003b). These receptors are discussed in more detail in the following sections.

8.3.1.8 Selection of MRS-Specific Ecological Receptor Species

The selection of ecological receptors for the MRS-specific analysis screen was based on animal species that are likely to occur in the terrestrial habitat at the MRS. Three criteria were used to identify the MRS-specific receptors (USACE, 2003b):

1. **Ecological Relevance**—The receptor has or represents a role in an important function such as nutrient cycling (i.e., earthworms), and population regulation (i.e., hawks). Receptor species were chosen to include representatives of all applicable trophic levels identified by the ecological CSM for the MRS. These species were selected to be predictive of assessment endpoints (including protected species/species of special concern and recreational species).
2. **Susceptibility**—The receptor is known to be sensitive to the chemicals detected at the MRS, and given their food and habitat preferences, their exposure is expected to be high. The species have a likely potential for exposure based upon their residency status, home range size, sedentary nature of the organism, habitat compatibility, exposure to contaminated media, exposure route, and/or exposure mechanism compatibility. Ecological receptor species were also selected based on the availability of toxicological effects and exposure information.
3. **Management Goals**—The receptor represents a valued component of the MRS's ecological significance. Furthermore, as a significant natural resource, its presence should be managed in a manner that is compatible with the military mission at the RVAAP (AMEC, 2008).

At the Load Line #1 MRS, the following types of ecological receptors are likely to be present: terrestrial invertebrates, meadow voles (*Microtus pennsylvanicus*), short-tailed shrews (*Blarina brevicauda*), American robins (*Turdus migratoris*), red foxes (*Vulpes vulpes*), and red-tailed hawks (*Buteo jamaicensis*). Each of these receptors is described in the following paragraphs.

Terrestrial Invertebrate Exposure to Soil

Terrestrial invertebrate exposure to soil is applicable to soils for the Load Line #1 MRS. Earthworms represent the receptor for the terrestrial invertebrate class, and there is sufficient habitat present for them on site. Earthworms have ecological relevance because they are important for decomposition of detritus and for energy and nutrient cycling in soil (Efroymson et al., 1997b), and as prey items for other species. Earthworms are probably the most important of the terrestrial invertebrates for promoting soil fertility due to the volume of soil that they process.

Earthworms are susceptible to exposure to and toxicity from COPECs in soil. Earthworms are nearly always in contact with soil and ingest soil, which results in constant exposure. Earthworms are sensitive to various chemicals. Toxicity benchmarks are available for earthworms (Efroymson et al., 1997b). Although specific management goals for earthworms are not immediately obvious, the role of earthworms in soil fertility and as a food source is significant. Thus, there is sufficient justification to warrant earthworms as a representative receptor for the Load Line #1 MRS.

Mammalian Herbivore Exposure to Soil

Mammalian herbivore exposure to soil is applicable for the Load Line #1 MRS. Cottontail rabbits and meadow voles represent mammalian herbivore receptors, and there is suitable habitat present for them at the MRS. Both species have ecological relevance by consuming vegetation, which helps in the regulation of plant populations and in the dispersion of some plant seeds. Small herbivorous mammals such as cottontail rabbits and voles are prey items for top terrestrial predators.

Both cottontail rabbits and meadow voles are susceptible to exposure to and toxicity from COPECs in soil and vegetation. Herbivorous mammals are exposed primarily through ingestion of plant material and incidental ingestion of contaminated surface soil containing chemicals. Exposures by inhalation of COPECs in air or on suspended particulates, as well as exposures by direct contact with soil, were assumed to be negligible. Dietary toxicity benchmarks are available for many COPECs for mammals (Sample et al., 1996), and there are regulatory statutes for rabbits because they are an upland small game species protected under Ohio hunting regulations. There are no specific regulatory statutes for meadow voles at the Load Line #1 MRS. Meadow voles have smaller home ranges than rabbits, which make them potentially more susceptible to localized contamination. Therefore, they are a more conservative selection as a representative mammalian herbivore than rabbits, and are selected as representative receptors for this foraging guild at the Load Line #1 MRS.

Insectivorous Mammal and Bird Exposure to Soil

Insectivorous mammal and bird exposure to soil is applicable for the Load Line #1 MRS. Short-tailed shrews and American robins represent the receptors for the insectivorous mammal and bird terrestrial exposure classes, respectively. There is sufficient, suitable habitat present at the MRS for these receptors. Both species have ecological relevance because they help to control aboveground invertebrate community size by consuming large numbers of invertebrates. Shrews and robins are a prey item for terrestrial top predators.

Both short-tailed shrews and American robins are susceptible to exposure to and toxicity from COPECs in soil as well as contaminants in vegetation and terrestrial invertebrate. Insectivorous mammals, such as short-tailed shrews, and birds, such as American robins, are

primarily exposed by ingestion of contaminated prey (i.e., earthworms, insect larvae, and slugs), as well as ingestion of soil. In addition, shrews ingest a small amount of leafy vegetation, and half of a typical American robin's diet consists of seeds and fruit. Dietary toxicity benchmarks are available for mammals and birds (Sample et al., 1996). Both species are recommended as receptors because there can be different toxicological sensitivities between mammals and birds exposed to the same contaminants. There are regulatory statutes for American robins because they are federally protected under the *Migratory Bird Treaty Act of 1993*, as amended, and are consistent with the INRMP (AMEC, 2008) polices and management goals. There are no specific regulatory statutes for shrews at the MRS. Based on the management goals for American robins, plus the susceptibility to contamination and ecological relevance for both species, there is sufficient justification to warrant shrews and American robins as representative receptors for the Load Line #1 MRS.

Terrestrial Top Predators

Exposure of terrestrial top predators is applicable to the Load Line #1 MRS. Red foxes and red-tailed hawks represent the mammal and bird receptors for the terrestrial top predator exposure class, and there is a limited amount of suitable habitat available for them at the MRS. Both species have ecological relevance; as representatives of the top of the food chain for the MRS terrestrial EUs, they control populations of prey animals such as small mammals and birds.

Both red foxes and red-tailed hawks are susceptible to exposure to and toxicity from COPECs in soil, vegetation, and/or animal prey. Terrestrial top predators feed on small mammals and birds that may accumulate constituents in their tissues following exposure at the MRS. There is a potential difference in toxicological sensitivity between mammals and birds exposed to the same COPECs, so it is prudent to examine a species from both the *Mammalia* and *Aves* classes. Red foxes are primarily carnivorous but consume some plant material. The red-tailed hawk consumes only animal prey. The fox may incidentally consume soil. There are regulatory statutes for both species. Laws (Ohio Trapping Season Regulations for foxes and federal protection of raptors under the *Migratory Bird Treaty Act,* 16 USC 703-711 [1993, as amended]) and the INRMP (AMEC, 2008) policies and management goals also protect these species. In addition, both species are susceptible to contamination and have ecological relevance as top predators in the terrestrial ecosystem. Based on this justification, these two species were selected as representative receptors for the Load Line #1 MRS.

8.3.1.9 Relevant and Complete Exposure Pathways

Relevant and complete exposure pathways for the ecological receptors at the Load Line #1 MRS were described in the previous section. As previously discussed, there are relevant and complete exposure pathways for various ecological receptors including terrestrial

invertebrates, and terrestrial herbivores, insectivores, and carnivores. Thus, these types of receptors could be exposed to COPECs in surface soil at the Load Line #1 MRS.

8.3.2 Ecological Endpoint (Assessment and Measurement) Identification

The protection of ecological resources, such as habitats and species of animals, is a primary motivation for conducting SLERAs. Key aspects of ecological protection are presented as general management goals. These are non-site-specific goals established by legislation or agency policy that are based on societal concern for the protection of certain environmental resources. For example, environmental protection is mandated by a variety of legislation and government agency policies (i.e., CERCLA and the NCP). Other legislation includes the ESA; 16 USC 1531-1544 (1993, as amended); and the *Migratory Bird Treaty Act,* 16 USC 703-711 (1993, as amended). To evaluate whether a general management goal has been met, assessment endpoints, measures of effects, and decision rules were formulated. The general management goals, assessment endpoints, measures of effects, and decision rules are discussed below.

Because only terrestrial habitat is present at the Load Line #1 MRS, there is only one primary general management goal for this MRS. However, the assessment endpoints differ between the general screen and the MRS-specific analysis screen. The general management goal for the SLERA is to protect terrestrial animal populations from adverse effects due to the release—or the potential release—of chemical substances associated with past MRS activities.

Ecological assessment endpoints are selected to determine whether this general management goal is met at the unit. An ecological assessment endpoint is a characteristic of an ecological component that may be affected by exposure to a stressor (i.e., COPEC). Assessment endpoints are "explicit expressions of the actual environmental value that is to be protected" (EPA, 1992). Assessment endpoints often reflect environmental values that are protected by law, provide critical resources, or provide an ecological function that would be significantly impaired if the resource was altered. Unlike the HHRA process, which focuses on individual receptors, the SLERA focuses on populations or groups of interbreeding nonhuman, nondomesticated receptors. Population responses are also better defined and predictable than are community and ecosystem responses (USACE, 2010). In the SLERA process, risks to individuals are assessed only if they are protected under the ESA or other species-specific legislation, or if the species is a candidate for listing as threatened or endangered. Because threatened and endangered species are not a concern at the Load Line #1 MRS, potential impacts to populations are the appropriate criterions for consideration.

Due to the uniqueness of local flora and fauna communities, as well as varying societal values placed on these ecological features, a universally applicable list of assessment

endpoints does not exist. The Ohio EPA Guidance (2008) was used to select assessment endpoints for this SLERA.

For the Level II Screen, the assessment endpoints are any potential adverse effects on ecological receptors, where receptors are defined as any plant or animal populations, communities, habitats, and sensitive environments (Ohio EPA, 2008). Although the assessment endpoints for the Level II Screen are associated with the General Management Goal (protection of terrestrial receptors and communities), specific receptors are not identified with the assessment endpoints.

Table 8-1 presents the General Management Goal for terrestrial resources, associated assessment endpoints, measures of effect, and decision rule by assessment endpoint number. Furthermore, the table provides definitions of Assessment Endpoints 1, 2, 3, and 4 for terrestrial receptors. As stated, the assessment endpoint table includes a column describing the conditions for making a decision depending on whether the HQ is less than or greater than 1. If the HQ is greater than 1, the scientific management decision point options from the Ohio EPA Guidance (2008) are provided (i.e., no further action, risk management, monitoring, remediation, or further investigation).

For the Level III Baseline evaluation, the assessment endpoints are more specific and stated in terms of types of specific ecological receptors associated with the General Management Goal. Assessment Endpoints 1, 2, 3, and 4 entail the growth, survival, and reproduction of terrestrial receptors such as terrestrial invertebrates; herbivorous mammals; worm-eating/insectivorous mammals and birds; and carnivorous, top-predator mammals and birds, respectively. Assessment Endpoints 1 through 4 are associated with the General Management Goal (protection of terrestrial populations and communities).

The assessment endpoints are evaluated using measurement endpoints. The EPA defines measurement endpoints as ecological characteristics used to quantify and predict change in the assessment endpoints. They consist of measures of receptor and population characteristics, measures of exposure, and measures of effect. For example, measures of receptor characteristics include parameters such as home range, food intake rate, and dietary composition. Measurement endpoints should be selected to provide insights related to the specific assessment endpoint (USACE, 2010). Measures of exposure include attributes of the environment such as contaminant concentrations in soil, sediment, surface water, and biota. The measurement endpoints of effect for the Level II Screening evaluation consist of the comparison of the maximum detected concentrations of each contaminant in soil to ESV benchmarks.

Table 8-1
General Management Goal, Ecological Assessment Endpoints, Measures of Effect, and Decision Rules Identified for a Level II Screening

General Management Goal	Assessment Endpoint	Measures of Effect	Decision Rule
General Management Goal: The protection of terrestrial populations, communities, and ecosystems	**Assessment Endpoint 1:** Growth, survival, and reproduction of soil invertebrate communities and tissue concentrations of contaminants low enough such that higher trophic levels that consume them are not at risk Receptors: earthworms	**Measures of Effect 1:** Earthworm soil toxicity benchmarks and measured RME concentrations of constituents in soil	**Decision Rule for Assessment Endpoint 1:** If HQs, defined as the ratios of COPEC RME concentrations in surface soil to soil toxicity benchmarks for adverse effects on soil invertebrates, are less than or equal to 1, then Assessment Endpoint 1 has been met and soil-dwelling invertebrates are not at risk. If the HQs are greater than 1, a SMDP is reached, at which point it will be necessary to decide what is needed: no further action, risk management of ecological resources, monitoring of the environment, remediation of any site-usage-related COPECs and applicable media, or further investigation such as a Level III and Level IV Field Baseline.
	Assessment Endpoint 2: Growth, survival, and reproduction of herbivorous mammal populations and low enough concentrations of contaminants in their tissues so that higher trophic level animals that consume them are not at risk Receptor: meadow vole	**Measures of Effect 2:** Estimates of receptor home range area, body weights, feeding rates, and dietary composition based on published measurements of endpoint species or similar species; modeled COPEC concentrations in food chain based on measured concentrations in physical media; chronic dietary NOAELs applicable to wildlife receptors based on measured responses of similar species in laboratory studies	**Decision Rule for Assessment Endpoint 2:** If HQs, based on ratios of estimated exposure concentrations predicted from COPEC RME concentrations in surface soil to dietary limits corresponding to NOAEL TRV benchmarks for adverse effects on herbivorous mammals are less than or equal to 1, Assessment Endpoint 2 is met, and the receptors are not at risk. If the HQs are greater than 1, a SMDP is reached, at which point it will be necessary to decide what is needed: no further action, risk management of ecological resources, monitoring of the environment, remediation of any site-usage-related COPECs in applicable media, or further investigation such as a Level III and Level IV Field Baseline.
	Assessment Endpoint 3: Growth, survival, and reproduction of worm-eating and insectivorous mammal and bird populations and low enough concentrations of contaminants in their tissue so that predators that consume them are not at risk Receptors: shrews and robins	**Measures of Effect 3:** Estimates of receptor home range area, body weights, feeding rates, and dietary composition based on published measurements of endpoint species or similar species; modeled COPEC concentrations in food chain based on measured concentrations in physical media; chronic dietary NOAELs applicable to wildlife receptors based on measured responses of similar species in laboratory studies	**Decision Rule for Assessment Endpoint 3:** If HQs based on ratios of estimated exposure concentrations predicted from COPEC RME concentrations in surface soil to dietary limits corresponding to NOAEL TRV benchmarks for adverse effects on worm-eating and insectivorous mammals and birds is less than or equal to 1, then Assessment Endpoint 3 is met, and these receptors are not at risk. If the HQs are greater than 1, a SMDP is reached, at which point it will be necessary to decide what is needed: no further action, risk management of ecological resources, monitoring of the environment, remediation of any site-usage-related COPECs in applicable media, or further investigation such as a Level III and Level IV Field Baseline Decision Rule for Assessment Endpoint 4.
	Assessment Endpoint 4: Growth, survival, and reproduction of carnivorous mammal and bird populations Receptor: red-tailed hawk and red fox	**Measures of Effect 4:** Estimates of receptor home range area, body weights, feeding rates, and dietary composition based on published measurements of endpoint species or similar species; modeled COPEC concentrations in food chain based on measured concentrations in physical media; chronic dietary NOAELs applicable to wildlife receptors based on measured responses of similar species in laboratory studies	**Decision Rule for Assessment Endpoint 4:** If HQs based on ratios of estimated exposure concentrations predicted from COPEC RME concentrations in surface soil to dietary limits corresponding to NOAEL TRV benchmarks for adverse effects on carnivorous mammals and birds are less than or equal to 1, then Assessment Endpoint 4 is met, and the receptors are not at risk. If the HQs are greater than 1, a SMDP is reached, at which point it will be necessary to decide what is needed: no further action, risk management of ecological resources, monitoring of the environment, remediation of any site-usage-related COPECs in applicable media, or further investigation such as a Level III and Level IV Field Baseline.

COPEC denotes chemical of potential ecological concern.
HQ denotes hazard quotient.
NOAEL denotes no observed adverse effect level.
RME denotes reasonable maximum exposure.
SMDP denotes scientific management decision point.
TRV denotes toxicity reference value.

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Measurement endpoints for the Level III Baseline, if necessary, include the comparison of estimated doses of chemicals in various receptor animals such as voles, shrews, and American robins to toxicity reference values (TRVs).

In the Level II Screen, maximum detected concentrations in soil were used as the EPC for comparison to generic soil or sediment screening values that are expected not to cause harm to ecological populations. Any COPECs retained following the Level II Screen are potentially subject to a Level III Baseline analysis using EPCs that are more representative of the exposures expected for the representative receptors. The Level III Baseline analysis includes evaluation of exposure of a variety of receptors to the reasonable maximum exposure concentrations of COPECs at each EU, using default dietary and uptake factors. The representative ecological receptors may not all be present at each EU. However, all representative receptors are evaluated at this step.

For the Level III Baseline, decision rules for COPECs were obtained from Ohio EPA Guidance for chemicals (2008). Briefly, for COPECs, the first decision rule is based on the ratio (or HQ) of the dose to a given receptor species (i.e., a vole, representing herbivorous mammals) associated with a chemical's concentration in the environment (numerator) to the ecological effects or TRV (denominator) of the same chemical. A ratio of 1.0 or less means that ecological risk is negligible, while a ratio of greater than 1.0 means that ecological risk from that individual chemical is possible and that additional investigation should follow to confirm or refute this prediction.

The second decision rule is that if "no other observed significant adverse effects on the health or viability of the local individuals or populations of species are identified" and the HQ does not exceed 1, "the site is highly unlikely to present significant risks to endpoint species" (Ohio EPA, 2008). Potential outcomes for the Level III Baseline include the following: no significant risks to endpoint species so no further analysis is needed; conduct field baseline assessment to quantify adverse effects to populations of representative species that were shown to be potentially impacted based on hazard calculations in the Level III Baseline; and remedial action taken without further study.

8.3.3 Identification of COPECs

This section presents the screening of analytical data obtained from samples collected from the Load Line #1 MRS in surface soil. After the Level II Screen is complete, any COPECs identified are discussed in greater detail, and a recommendation is made as to whether the ERA should proceed to a Level III Baseline or Level IV Field Baseline.

8.3.3.1 Data Used in the SLERA

The available data set used in this SLERA consists of two ISM surface soil samples (LL1SS-715(I)-0001-SS and LL1SS-716(I)-0001-SS) collected as part of the RI field effort. A third sample (LL1SS-717(I)-0001-SS) was collected as a field duplicate and is therefore excluded from the risk evaluation process. An ISM sample was collected at the MRS during the SI, but was not included in this SLERA since the samples collected during the RI were intended to further delineate the extent of MC identified during the 2007 SI field activities and are considered to be representative of current conditions. The samples evaluated in the SLERA are presented in **Table 8-2**.

Table 8-2
Summary of Data Used in the Ecological Risk Assessment

Sample ID	Sample Date	Depth (feet bgs)	Sample Type	Analyses
LL1SS-715(I)-0001-SS	8/15/11	0–0.5	ISM	• Lead • Explosives • Nitrocellulose • TOC • pH
LL1SS-716(I)-0001-SS	8/15/11	0–0.5	ISM	

bgs denotes below ground surface.
ID denotes identification.
TOC denotes total organic carbon.

Surface soil at a depth of 0 to 0.5 feet from two ISM sampling units was identified as the only medium of concern at this MRS as described in the Work Plan (Shaw, 2011). The 0- to 0.5-foot sample depth was selected as the EU depth since it is the maximum depth of vertical migration expected of MC associated with triple-base propellant on the ground surface. Each ISM sample was comprised of 30 increments that were combined and homogenized. The ISM data are considered relevant for estimating ecological exposure because they provide the best representation of current MRS conditions, and because the ISM approach provides an accurate estimate of average concentrations that receptors would be exposed to at the MRS. Only surface soil (0- to 0.5-foot sampling interval) samples were used in the SLERA because surface soil had been previously identified as the only medium of concern at the Load Line #1 MRS (Shaw, 2011), and because most ecological exposure occurs within the top 1 foot of soil. No soil removal or remediation has been performed at the MRS specifically but demolition of the adjacent slab foundations may have resulted in heavy equipment traffic and disturbance of surface soil over the MRS, which would likely decrease the attractiveness to burrowing receptors. Therefore, the 0- to 0.5-foot interval is assumed to represent the zone of maximum exposure for most ecological receptors.

The MC analytical data were reviewed and evaluated for quality, usefulness, and uncertainty, as described in Section 4.2. From the MC chemical results of samples described above, a selection process was performed to develop a subset of chemicals that are identified as COPECs.

8.3.3.2 COPEC Selection Criteria

This section describes the selection criteria used to identify COPECs in the SLERA. The screen incorporates the same criteria described in Section 4.2.1.3 to eliminate chemicals that are not SRCs (i.e., infrequently detected chemicals, background comparisons, and essential nutrients). Lead and nitroguanidine are considered the only SRCs associated with the Load Line #1 MRS and are included in the COPEC screening step. The SRCs identified in surface soil following the facility data screening process are summarized in Section 4.2.1.3. The evaluation for process to identify SRCs as COPECs is presented in **Table 8-3**.

Comparison to Ecological Screening Values

The maximum detected concentrations of chemicals detected in various media were compared with ESVs for ecological endpoints following recommendations obtained from the Ohio EPA Guidance (2008). Chemicals that exceed the ESVs, or for which no ESVs are available, were retained as COPECs. The following ESV hierarchy was used for the ecological evaluation of soil:

- EPA: *Ecological Soil Screening Levels* (online updates from http://www.epa.gov/ecotox/ecossl/) (2010)
- Oak Ridge National Laboratory: *Preliminary Remediation Goals for Ecological Endpoints*, ES/ER/TM-162/R2 (Efroymson et al., 1997a)
- EPA: *Ecological Screening Levels, EPA Region 5* (August 2003)
- Los Alamos National Laboratory: *ECORISK Database, Release 2.5* (November 2010)
- Talmage et al.: *Nitroaromatic Munitions Compounds: Environmental Effects and Screening Values*, Rev. Environ. Contamin. Toxicol., 161:1–156 (1999)

Chemicals that were considered persistent, bioaccumulative, and toxic (PBT) were retained as COPECs even if they were detected at concentrations below their ESVs, unless the ESV was protective of food chain effects (Ohio EPA, 2008). PBT compounds include those chemicals listed in Ohio EPA Guidance (2008), including chemicals whose log octanol-water partition coefficient values are greater than or equal to 3, and chemicals listed as important bioaccumulative compounds in the EPA DQO Guidance (2000). The ESVs used for the SLERA are presented in **Appendix F**.

Essential Nutrients

Evaluating essential nutrients is a special form of risk-based screening applied to certain ubiquitous elements that are generally considered to be required nutrients. Essential nutrients such as calcium, iron, magnesium, potassium, and sodium are usually eliminated as COPECs because they are generally considered to be innocuous in environmental media. Other essential nutrients, including chloride, iodine, and phosphorus, may be eliminated as COPECs, provided that their presence in a particular medium is unlikely to cause adverse effects to biological health. A screen for essential nutrients was not required for the SLERA since no essential nutrients were evaluated as SRCs as part of the facility data screening process conducted (Section 4.2.1.3).

8.3.4 Summary of COPEC Selection

The results of the COPEC screening for surface soil are presented in **Table 8-3** for the ISM samples. The table presents the following information:

- Identified SRC
- Frequency of detection
- Range of detected concentrations
- Range of detection limits
- Arithmetic mean (average) of site concentrations
- ESV
- HQ
- Determination as to whether the chemical is a PBT pollutant
- Determination as to whether the chemical is a COPEC

The HQ is calculated as the detected concentration divided by the ESV. An HQ greater than 1 indicates that the concentration in the medium exceeds the conservative ESV, and may indicate that a potential ecological threat may exist. Chemicals with HQs less than 1 are considered to be of low concern, and are not carried forward as COPECs, unless the chemical is a PBT pollutant and its screening value is not protective of food chain effects. A description and summary of the COPECs identified in surface soil is presented in the following section.

Table 8-3
Statistical Summary and Ecological Screening of Surface Soil (0–0.5 feet bgs)

SRC	Range of Values, mg/kg						Mean (mg/kg)	Location of MDC	BSV	ESV[1] (mg/kg)	Below ESV?	HQ	PBT?[1]	COPEC?[2]
	Detected Concentrations				Reporting Limits									
	Minimum	VQ	Maximum	VQ	Minimum	Maximum								
Metals														
Lead	70.9		109		0.25	0.25	89.95	LL1SS-715	26.1	11	No	9.9	No	Yes
Explosives														
Nitroguanidine	0.22	J	0.25	J	0.25	0.26	0.235	LL1SS-715	NA	NA	NA	NA	No	Yes

[1] *See Appendix F.*
[2] *Selection of COPECs:*
Yes denotes MDC for COPEC exceeds the ESV, or the COPEC lacks an ESV.
bgs denotes below ground surface.
COPEC denotes chemical of potential ecological concern.
ESV denotes ecological screening value.
J denotes estimated concentration (difference in concentrations between the primary and confirmation column results exceeds 40%).
HQ denotes hazard quotient.
MDC denotes maximum detected concentration.
mg/kg denotes milligrams per kilogram.
NA denotes not applicable.
PBT denotes persistent, bioaccumulative, and toxic.
SRC denotes site-related chemical.
VQ denotes validation qualifier.

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8.3.4.1 Soil COPEC Selection

Lead exceeded its ESV, and nitroguanidine lacked an ESV. Following the initial COPEC screen, both SRCs were identified as COPECs. The results of the soil screening process used to evaluate for COPECs are presented in **Table 8-3**.

8.3.5 Refinement of COPECs (Step 3a)

Prior to making the determination as to whether a Level III Baseline is warranted, it is appropriate to evaluate various lines of evidence that might suggest whether or not additional ecological investigation is needed at this MRS. Of primary importance in a SLERA is determining whether any ecological threats exist, and if so, whether they are related to chemical contamination (USACE, 2010). To make this determination, additional factors should be considered in the Unified Approach ERA Process (USACE, 2012) for facility sites. Some of these factors are discussed in the following paragraphs.

Due to the highly conservative nature of the Level II Screen, the identification of COPECs does not necessarily indicate that the potential for adverse effects is realistic at this MRS. For example, HQs developed during the initial (screening) steps of a SLERA assume chemicals are 100-percent bioavailable.

Another source of uncertainty in the Level II Screen results from the fact that toxicity studies upon which the benchmark values are based are highly conservative. These studies typically use naive (i.e., laboratory) organisms comprised of a single genetic strain that have no inherent resistance to chemical insults. Nonlaboratory organisms have both a more diverse genetic makeup and exposure history to ambient levels of chemicals (both natural and anthropogenic in origin) that favor the development of resistances to chemical exposure in nature. Also, toxicity studies usually dose the test organisms with a chemical that is fully bioavailable (i.e., in solution) and that uses the most toxic chemical form. However, when a chemical is released to the environment, it reacts with other compounds and is affected by ambient conditions that often reduce the chemical's ability to be absorbed by and/or retained in an organism (i.e., metals released to terrestrial systems often sorb to soil, reducing their bioavailability). The form of the chemical may change in the natural environment as well, which often results in the reduction of its toxic properties. For example, under reducing conditions, hexavalent chromium is readily transformed to less toxic trivalent chromium in soil (however, it should be noted that conversion to a more toxic form in the environment is also possible, such as the conversion of inorganic mercury to methyl mercury by microorganisms under certain conditions).

Because of these factors, the correlation between the total concentration of a chemical in a given medium and its toxic effect is often quite poor, and predictions regarding potential toxicity must be used with caution. Although any chemical with an HQ greater than 1 must

be identified as a COPEC and is recognized as being a potential concern (Ohio EPA, 2008), the uncertainties associated with the HQs must be considered when making recommendations based on the results of the SLERA, particularly with regards to the interpretation of the HQ values. HQs are not measures of risk, are not population-based statistics, and are not linearly scaled statistics. Therefore, an HQ greater than 1, even exceedingly so, does not definitively indicate that there is even one individual expressing the toxicological effect associated with a given chemical to which it was exposed (Tannenbaum, 2005; Bartell, 1996). Furthermore, the spatial area affected and the magnitude of the HQ exceedance must be taken into account when considering the potential for local populations (rather than individuals) to experience adverse effects, because population-level effects are the endpoints of concern in the SLERA. To account for some of these uncertainties, HQs less than 10 are considered to represent a low potential for environmental effects, HQs greater than or equal to 10 but less than 100 are considered to represent a significant potential that effects could result from greater exposure, and HQs greater than 100 represent the highest potential for expected effects (Wentsel et al., 1996).

The findings of the Level II Screen are discussed in additional detail in this section to support final recommendations for this stage of the risk assessment process.

8.3.6 Level II Screen Weight of Evidence Discussion

As presented in Section 8.3.4.1, "Soil COPEC Selection," two COPECs were identified in the ISM soil samples, including one metal (lead) and one explosives compound (nitroguanidine). **Table 8-4** presents the concentrations of all COPECs by soil sample, and **Table 8-5** presents the HQs associated with each COPEC in the individual samples.

Table 8-4
Summary of COPECs in Surface Soil (0 to 0.5 feet)

			Sample Location:	**LL1SS-715**		**LL1SS-716**	
			Sample Number:	**LL1SS-715(I)-0001-SS**		**LL1SS-716(I)-0001-SS**	
			Sample Date:	**8/15/11**		**8/15/11**	
			Sample Depth (foot bgs):	**0–0.5**		**0–0.5**	
COPEC	**BSV**	**ESV**	**Units**	**Result**	**VQ**	**Result**	**VQ**
Metals							
Lead	26.1	11	mg/kg	***109***		***70.9***	
Explosives							
Nitroguanidine	-	-	mg/kg	*0.25*	J	*0.22*	J

Table 8-4 (continued)
Summary of COPECs in Surface Soil (0 to 0.5 feet)

Detects in bold exceed the ESV. Detects in italic exceed the BSV or indicate that a BSV is not available.
- denotes that a value is not available for this criterion.
bgs denotes below ground surface.
BSV denotes background screening value.
COPEC denotes chemical of potential ecological concern.
ESV denotes ecological screening value.
ISM denotes incremental sampling methodology.
J value denotes estimated value.
mg/kg denotes milligrams per kilogram.
VQ denotes validated qualifier.

Table 8-5
Summary of HQs for COPECs in Surface Soil (0 to 0.5 feet)

Sample Location:	LL1SS-715	LL1SS-716
Sample Number:	LL1SS-715(I)-0001-SS	LL1SS-716(I)-0001-SS
Sample Date:	August 15, 2011	August 15, 2011
Sample Depth (foot bgs):	0–0.5	0–0.5
COPEC	HQ[1]	HQ[1]
Metals		
Lead	9.9	6.4
Explosives		
Nitroguanidine	-	-

[1] *Only HQs greater than 1 are presented.*
- denotes no value is available for this criterion.
bgs denotes below ground surface.
COPEC denotes chemical of potential ecological concern.
HQ denotes hazard quotient.
ISM denotes incremental sampling methodology.

The HQ for lead was below 10 in both soil samples (range = 6.4 to 9.9; **Table 8-5**). The ESV for lead is an ecological soil screening level (EPA, 2008) that is based on the protection of a woodcock, an avian insectivore. Although woodcocks or other similar species in this feeding guild may occasionally visit the Load Line #1 MRS, the use of a screening value protective of this feeding guild is highly conservative because the MRS is too small (0.41 acres) to support populations of woodcocks, which have an average home range of over 50 acres (Sample et al., 1996), or other avian insectivores. The lead BSV of 26.1 mg/kg is greater than the ESV of 11 mg/kg, and the fact that naturally occurring concentrations of lead are more than double the risk-based screening value illustrates the highly conservative nature of the ESVs. Lead in the two ISM samples collected at the Load Line #1 MRS exceeded the BSV as well, by a factor of approximately four to five times. Therefore, lead in soil can be characterized as moderately elevated at the Load Line #1 MRS.

No ESV was identified for nitroguanidine; therefore, no HQs were calculated, and its potential toxicity to ecological receptors is unknown. However, this chemical was only detected in the two samples at estimated concentrations that approximate its reporting limit. Although an ESV is not available for nitroguanidine, a review of the ESVs for other explosives compounds reveals that its reported concentrations of 0.25 mg/kg and 0.26 mg/kg exceed the ESV of only one other explosives compound, 2,6-dinitrotoluene, which has an ESV of 0.0328 mg/kg. The fact that nitroguanidine was detected at a concentration that is not toxic for related compounds provides some limited assurance that its presence is not a significant threat to ecological receptors. Furthermore, explosives compounds typically are not bioaccumulative and this chemical was not identified as a PBT compound. Therefore, although the presence of this chemical represents a small uncertainty in this SLERA, nitroguanidine is unlikely to pose a significant threat to ecological receptors.

8.4 Level II Screen Conclusions and Recommendations

Most of the MC detected in the Load Line #1 MRS soil was detected at concentrations that are unlikely to be ecologically relevant. Lead in soil was present at concentrations that exceeded both its ESV and BSV; however, HQs for lead were below 10, which indicate that the potential for impacts is expected to be low. Furthermore, due to the very small size of the MRS (0.41 acres), and although individual ecological receptors may occasionally be exposed to the elevated lead, it is unlikely that populations would be regularly exposed to lead at the Load Line #1 MRS. Because the protection of populations of receptors is the appropriate assessment endpoints for this MRS (see **Table 8-1**), adverse ecological impacts associated with these endpoints are not expected. Nitroguanidine was detected in both ISM samples at estimated concentrations approximating its reporting limit. Although no ESV was available, its detected concentrations are below the ESVs for all other related (i.e., explosives) compounds except 2,6-dinitrotoluene.

In summary, slightly elevated concentrations of lead and trace amounts of one explosives compound were detected in the soil at the Load Line #1 MRS, and the potential for localized ecological impacts cannot be completely discounted. However, given the fact that the terrestrial area evaluated for the Load Line #1 MRS is less than 1 acre in size, and that the Phase II Screen uses highly conservative assumptions, it is unlikely that exposure to the surface soil COPECs identified in this SLERA would adversely impact populations of ecological receptors at the Load Line #1 MRS. Therefore, no further investigation (i.e., a Level III Baseline) or action is considered necessary at the Load Line #1 MRS for ecological purposes.

9.0 REVISED CONCEPTUAL SITE MODELS

This section presents the revised CSMs for MEC and MC at the Load Line #1 MRS based on the results of the data collected for the RI and previous information provided in the SI Report (e^2M, 2008) and the HRR (e^2M, 2007). The preliminary CSMs for MEC and MC were discussed in Section 2.0. The summary of the RI results were presented in Section 4.0. Potential human health and environmental risks were evaluated in Section 7.0 and Section 8.0, respectively. Following the integration of the RI results into the CSMs for MEC and MC, the MRSPP evaluation for the MRS was reevaluated to include the results of the RI and is discussed at the end this section.

9.1 MEC Exposure Analysis

This section summarizes the RI data results for the MEC exposure pathway analysis for the MRS. As discussed in Section 2.1, "Preliminary CSMs and Project Approach," each pathway includes a source, activity, access, and receptor, with complete, potentially complete, and incomplete exposure pathways identified for each receptor. A pathway is considered complete when a source (MEC) is known to exist and when receptors have access to the MRS while engaging in some activity that results in contact with the source. A pathway is considered potentially complete when a source (MEC) has not been confirmed, but is suspected to exist and when receptors have access to the MRS while engaging in some activity which results in contact with the source. Lastly, an incomplete pathway is any case where one of the four components (source, activity, access, or receptors) is missing from the MRS.

9.1.1 Source

A MEC source is the location where MPPEH or ordnance is situated or expected to be found. The principle sources of MEC at the Load Line #1 MRS were reported to be accidental releases during the loading of munitions during World War II and the Korean War. These activities resulted in the potential for MEC and MD, including propellants, to be present in surface soil at the Load Line #1 MRS (e^2M, 2008). The 2007 SI UXO survey activities resulted in the discovery of three pieces of triple-base propellant on the ground surface at the MRS. At the conclusion of the SI Report (e^2M, 2008), it was determined that the extent of MEC lying on the ground surface at the MRS was not fully understood. The propellants of interest are not ferrous or detectable using a magnetometer; therefore, minimal uncertainty exists regarding whether propellants are present below ground surface. However, based on historical operations at the MRS, the MEC source would be expected to be found on or very close to the ground surface only.

During the RI field activities, no MEC or MD was identified during the two 100-percent nonintrusive visual surveys. In addition, MEC clearance activities did not identify any subsurface anomalies. Therefore, a subsurface investigation was not warranted. Based on the RI survey results, a MEC source is not considered to be present at the Load Line #1 MRS.

9.1.2 Activity

Activity describes ways that receptors are exposed to a source. Current activities at the Load Line #1 MRS include maintenance, environmental sampling, remediation, and natural resource management. The OHARNG future land use at the MRS is military training. Biota activities at the MRS may include occasional meandering and occupation on the MRS by associated species and burrowing activities.

9.1.3 Access

Access describes the degree to which a MEC source or environment containing MEC is available to potential receptors. The facility boundary fence is well maintained to prevent unauthorized access into the installation and although access to Load Line #1 is intended to be controlled by a fenced perimeter; there is a section of fence missing behind the former guard building and various gaps and holes in the Load Line #1 perimeter fence exist. Therefore, once inside the facility, Load Line #1 can be accessed, including the MRS.

9.1.4 Receptors

A receptor is an organism (human or ecological) that comes into physical contact with MEC. Human receptors identified for the Load Line #1 MRS include both current and future potential users. Ecological receptors (biota) for the purposes of the revised MEC CSM are animal species that are likely to occur in the terrestrial habitats at the MRS. The terrestrial receptors identified include terrestrial invertebrates (represented by earthworms), voles, shrews, American robins, foxes, and hawks (USACE, 2003b).

Current potential users for the MRS include facility personnel, contractors, and potential trespassers. The National Guard Trainee has been identified as a potential user associated with military training, the future land use at the MRS, and is the most sensitive among the identified current and future potential users that may become exposed to MEC at the MRS (USACE, 2005).

9.1.5 MEC Exposure Conclusions

The information collected during the RI was used to update the preliminary MEC CSM for the Load Line #1 MRS and to identify all actual, potentially complete, or incomplete source-receptor interactions for the MRS for current and anticipated future land uses. Evaluation of the end use receptors for future land use in the revised CSM is consistent with the facility

HHRA approach (USACE, 2005). The revised MEC exposure pathway analysis is presented in **Figure 9-1**.

Taking into consideration the historical activities that occurred at the MRS, it is expected that triple-base propellants that may be present at the MRS would be found primarily on the ground surface. Two nonintrusive visual surveys were performed over 100 percent of the Load Line #1 MRS during the RI field activities. No MEC or MD items were observed on the ground surface of the MRS during the visual survey; therefore, the MEC exposure pathway for surface soil is considered incomplete for all receptors.

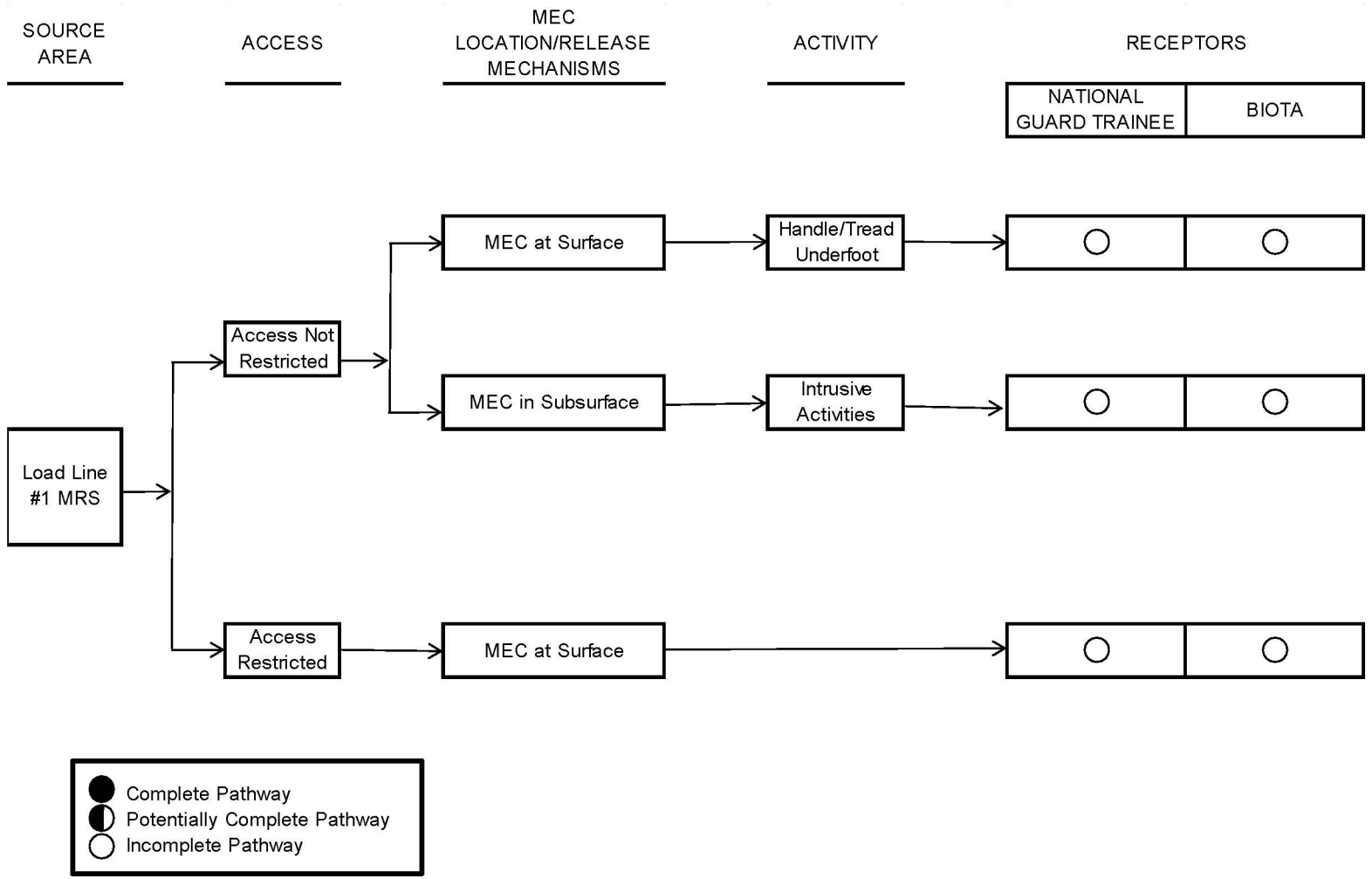
Since a MEC source was not found on the ground surface, a subsurface investigation was not warranted. Given the lack of a MEC source, the MEC exposure pathway for subsurface soil is considered incomplete for all receptors.

9.2 MC Exposure Analysis

A MC is defined as any material originating from MPPEH or munitions, or other military munitions including explosive and nonexplosive material, and emission degradation, or breakdown elements of such ordnance and munitions (10 USC 2710(e)(4)). The information collected during the RI was used to update the CSM for MC at the Load Line #1 MRS and identify all complete, potentially complete, or incomplete source-receptor interactions for the MRS for current and reasonably anticipated future land-use activities.

An MC source is an area where MC has entered (or may enter) the environment. MC contamination may result from a corrosion of munitions or from low-order detonation. Additionally, MC that is found at concentrations high enough to pose an explosive hazard is considered MEC. If MC was present at the MRS, it would mostly likely have resulted from the degradation of the propellants on the ground surface. No MEC source was identified at the MRS during the RI field activities that could have been a potential source of MC on the ground surface.

Sampling was performed at the Load Line #1 MRS to further characterize the nature and extent of contamination associated with previous activities at the MRS. The SRCs detected at the MRS consisted of lead and nitroguanidine in surface soil. Although a MEC source was not found, the identified SRCs may have resulted from degradation due to exposure to the elements for the propellants previously encountered at the MRS and were conservatively evaluated as such. None of the detected concentrations were determined to pose potential risks to human or ecological receptors at the MRS. The MC CSM has been updated to reflect a lack of source and incomplete pathways for the receptors in the terrestrial environment at the MRS. The revised MC exposure pathway analysis is presented in **Figure 9-2**.



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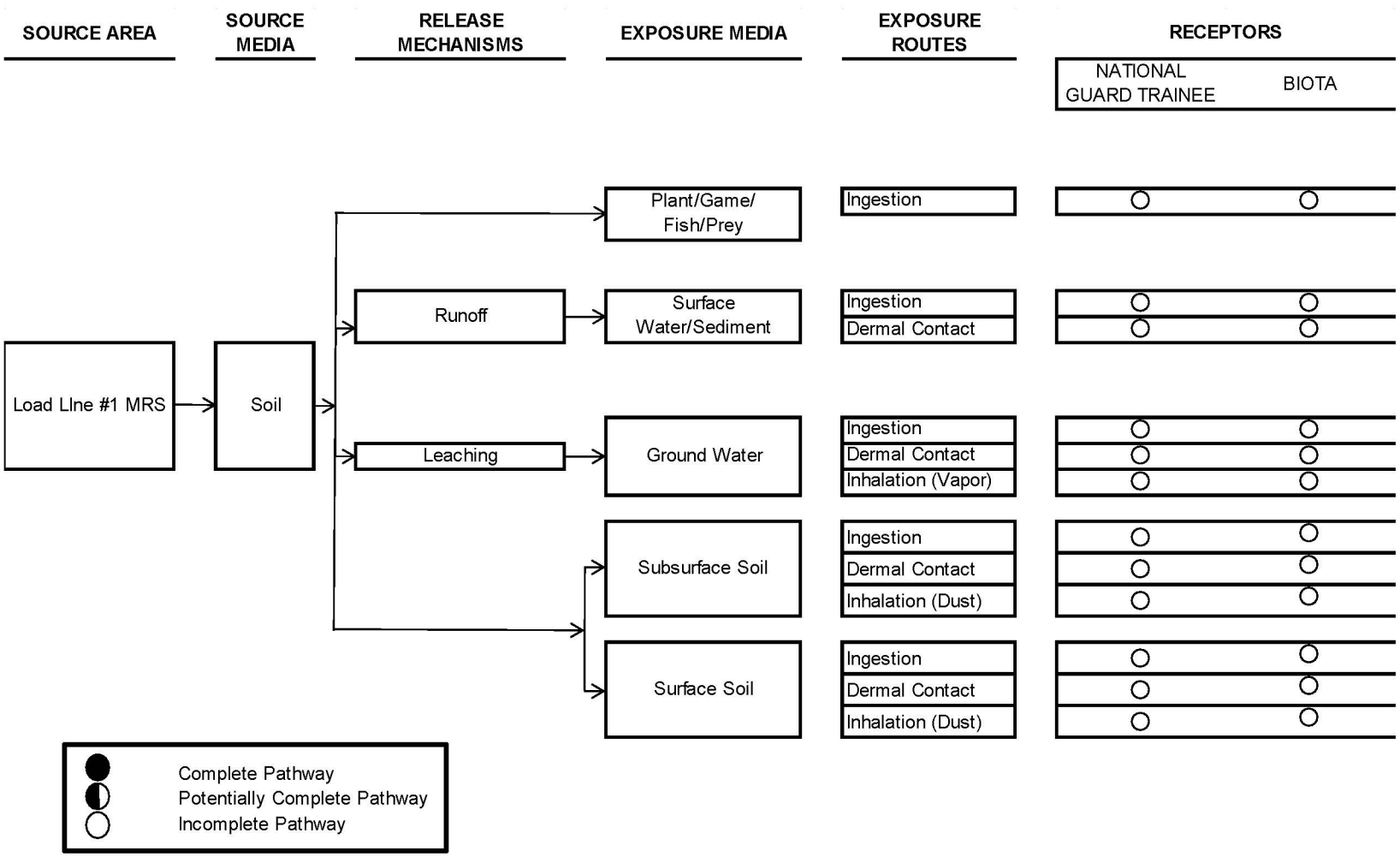
MILITARY MUNITIONS RESPONSE PROGRAM

LOAD LINE #1 MRS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Shaw Environmental & Infrastructure, Inc.
(A CB&I Company)

Project Number: 136147 Generated By: MM Date: 03/20/13 File Path:\\crpbtrpgl01\aregisprod3\MAMMS\Ravenna\GIS Documents\Project Maps\MMRP\RIFS\RIFS LoadLine1\RVAAP LL1 009 Fig9 1 Rev MECCSM.mxd

FIGURE 9-1 REVISED MEC CONCEPTUAL SITE MODEL



Receptor Exposure Scenarios			
Receptor	Surface Soil (ft bgs)	Deep Surface Soil (ft bgs)	Subsurface Soil (ft bgs)
National Guard Trainee	---	0-4	4-7
Biota	0-1	---	> 1

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Project Number: 136147 Generated By: MM Date: 04/15/13 File Path:\\crpbtmpgi01\arcgisprod3\MAMMS\Ravenna\GIS Documents\Project Maps\MMRP\RIFS\RIFS LoadLine1\RVAAP LL1 010 Fig9_2 Rev MCCSM.mxd

FIGURE 9-2 REVISED MC CONCEPTUAL SITE MODEL

9.3 Uncertainties

There are minimal levels of uncertainties associated with the MEC and MC results at the Load Line #1 MRS. The propellants of interest are not ferrous or detectable using a magnetometer; therefore, minimal uncertainty exists regarding whether propellants are present below ground surface. However, given the MRS history, the presence of MEC in the subsurface was not anticipated, as no burial activities were known to occur (e^2M, 2008). The nonintrusive instrument-assisted visual survey conducted during the RI field work did not find evidence of any surface propellants or other ferrous MEC/MD items, which satisfies the DQOs and reduces uncertainties associated with buried MEC at the MRS.

No MEC or MD was found during the RI field activities that would be considered a potential MC source. It is therefore uncertain whether the detected SRCs are actually associated with MEC previously identified directly on the ground surface at the MRS or are byproducts associated with the historical activities (munitions loading operations) conducted at this portion of the Load Line #1. Regardless of the uncertainty, evaluation of the detected SRCs indicates that the concentrations do not pose risks to likely receptors and there is no hazard associated with MC at the MRS.

9.4 Munitions Response Site Prioritization Protocol

The DoD proposed the MRSPP (32 Code of Federal Regulations Part 179) to assign a relative potential risk priority to each defense MRS in the MMRP Inventory for response activities. These response activities are to be based on the overall conditions at each location and taking into consideration various factors related to explosive safety and environmental hazards (68 Federal Regulations 50900 [32 Code of Federal Regulations 179.3]). The revised MRSPP document for the Load Line #1 MRS is being prepared separately from the RI and is included as **Appendix G** for reference only.

10.0 SUMMARY AND CONCLUSIONS

This section summarizes results of the RI field activities conducted at the Load Line #1 MRS. The purpose of the RI was to determine whether the Load Line #1 MRS warranted further response action pursuant to CERCLA and the NCP. More specifically, the RI was intended to determine the nature and extent of MEC and MC and subsequently determine the potential hazards and risks posed to likely human and ecological receptors by MEC and MC. Additional data are also presented in this RI Report to support the identification and evaluation of alternatives in a FS, if required. A summary of the RI results is presented in **Table 10-1**.

Table 10-1
Summary of Remedial Investigation Results

MRS Name	Proposed Investigation Area Size (Acres)	Actual Investigation Area Size (Acres)	MEC and/or MD Found?	MC Detected?	MC Risk Analysis
Load Line #1	0.41	0.41	No	Yes	No Further Action

MC denotes munitions constituents.
MD denotes munitions debris.
MEC denotes munitions and explosives of concern.
MRS denotes Munitions Response Site.

10.1 Summary of Remedial Investigation Activities

The information from the Load Line #1 MRS relating to the potential presence of MEC and MC is compiled and evaluated in this RI Report. The sources of this information were information obtained during previous investigations, including the ASR (USACE, 2004), the HRR (e^2M, 2007), and the SI Report (e^2M, 2008).

The preliminary MEC and MC CSMs were developed during the SI phase of the CERCLA process and were used to identify the data needs and the DQOs as outlined in the Work Plan (Shaw, 2011). The data needs were determined at the planning stage and included characterization for MEC and/or MC associated with the former activities at the MRS. The DQOs were developed to ensure the reliability of field sampling, chemical analyses, and physical analyses; the collection of sufficient data; the acceptable quality of data generated for its intended use; and valid assumptions could be inferred from the data. The DQOs for the Load Line #1 MRS identified the following four decision rules that were implemented in evaluating the MRS:

- Perform a visual survey investigation to identify if MEC source (triple-base propellant) was present on the ground surface.
- Collect ISM samples at two sampling units over the entire MRS to evaluate for MC.
- Collect additional discrete samples (surface and subsurface) in areas with concentrated MEC/MD, if any are identified during the field work, in order to evaluate for MC.
- Process the information to evaluate whether there are unacceptable risks to human health and the environment associated with MEC and/or MC and make a determination if further investigation was required under the CERCLA process.

Separate full coverage instrument-assisted nonintrusive visual surveys were conducted in April and May 2011, respectively, to identify potential surface MEC and/or MD at the Load Line #1 MRS. No MEC or MD was found on the ground or shallow surface soils during either survey.

Environmental samples for MC were collected at the Load Line #1 MRS following completion of the visual surveys. Two ISM surface soil samples, each comprising one half of the MRS acreage (0.2 acres), were collected at depths between 0 and 0.5 feet. Together, the two ISM sampling units represent 100-percent coverage of the MRS that is the decision unit and is considered the EU area where human and ecological receptors potentially are exposed to the SRCs.

The DQOs stated that discrete samples (surface and subsurface soil) would be collected in areas with concentrated MEC or MD. Since no MEC or MD was identified at the Load Line #1 MRS during the RI field activities, additional sampling for MC was not performed.

10.2 Nature and Extent of SRCs

The SRCs for the Load Line #1 MRS were determined for the surface soil samples collected during the RI field activities through the facility data screening process as presented in the FWCUG Report (SAIC, 2010). Lead exceeded the facility BSV in both surface soil samples collected for the RI and was retained as an SRC. The only explosive detected in the RI surface soil samples was nitroguanidine and was retained as an SRC.

10.3 Fate and Transport

No MEC or MD was observed at the Load Line #1 MRS during the RI field activities. Since no MEC source is present at the Load Line #1 MRS, MEC fate and transport is not a concern. Although a MEC source was not found during the RI, the identified SRCs were conservatively evaluated as MC associated with triple-base propellant previously

encountered at the MRS and fate and transport and potential transport mechanisms were evaluated.

The SRCs in the environmental media collected for the RI at the MRS were lead and nitroguanidine in surface soil (0 to 0.5 feet bgs). Based on current soil conditions at the facility, which consisted primarily of silty clay loam with low permeability and an MRS-specific pH of approximately 8.4, it is expected that lead would tend to bind to the soil and is considered relatively immobile. Therefore, any MC would be expected to be found in the top several inches where it was deposited and subsurface has mostly likely not been impacted. Nitroguanidine is considered mobile in soil; however, the impact to subsurface soils at the MRS has not been evaluated. The low permeability of the soil and the low concentrations detected suggest that significant sources of nitroguanidine were not deposited on or leached into the ground surface as a result of either dumping of triple-base propellants at the MRS or other activities (i.e., munitions loading operations) conducted at this portion of Load Line #1 when the facility was in operation.

10.4 MEC Hazard Assessment

The *Interim Munitions and Explosives of Concern (MEC HA) Methodology* (EPA, 2008) addresses human health and safety concerns associated with potential exposure to MEC at a MRS under a variety of site conditions, including various cleanup scenarios and land use assumptions. If an explosive hazard is identified for this RI, the MEC HA evaluation will include the information available for the MRS up to and including the RI field activities and provide a scoring summary for the current and future land use activities. If no explosive hazard is found at the MRS, then there is no need to calculate a MEC HA score since there are no human health safety concerns. No MEC or MD items were identified at the MRS during RI field activities, which indicates that no MEC source or explosive safety hazard is present at the MRS. Therefore, calculation of a MEC HA score was not warranted for the Load Line #1 MRS.

10.5 MC Risk Assessment Summary

Following the identification of the SRCs at the Load Line #1 MRS through the facility data screening process, the SRCs (lead and nitroguanidine) were then carried through the HHRA and ERA processes to evaluate for potential receptors. The risk assessments resulted in the following conclusions.

10.5.1 Human Health Risk Assessment

A HHRA was conducted for surface soil samples collected at the Load Line #1 MRS to determine if the identified SRCs were COPCs and/or COCs that may pose a risk to current or future human receptors. The future land use for the Load Line #1 MRS is military training,

and the Representative Receptor is the National Guard Trainee. The Representative Receptor for military training, in conjunction with the evaluation of the Resident Receptor (Adult and Child) for Unrestricted Land Use, was the basis for identifying COCs in the RI. Evaluation for Unrestricted (Residential) Land Use is performed to assess baseline conditions and the no action alternative under CERCLA, and as outlined in the HHRAM (USACE, 2005).

The two SRCs that consisted of lead or nitroguanidine were not identified as COPCs in the first screening step. Therefore, these SRCs were not further evaluated as COCs and are not likely to pose risks to human receptors. Since no COCs were identified for the Resident Receptor (Adult and Child), Unrestricted Land Use was achieved for MC.

10.5.2 Ecological Risk Assessment

Both of the SRCs, lead and nitroguanidine, were identified as COPECs in the soil samples collected at 0 to 0.5 feet for the RI at the Load Line #1 MRS. COPECs are determined in the ERA and may differ from COPCs. Given the conservativeness of the ERA and the low overall concentrations detected, the potential that exposure to the COPECs identified to adversely impact populations of ecological receptors at the Load Line #1 MRS is considered to be very low and not pose a concern to ecological receptors. Therefore, no further investigation or action is considered necessary at the Load Line #1 MRS for ecological purposes.

10.6 Conceptual Site Model

The information collected during the RI field activities was used to update the MEC and MC CSMs for the Load Line #1 MRS as presented in the SI Report (e^2M, 2008). The purpose of the CSMs is to identify all complete, potentially complete, or incomplete source-receptor interactions for future land use activities at the MRS. An exposure pathway is the course a MEC item or MC takes from a source to a receptor. Each pathway includes a source, activity, access, and receptor.

Taking into consideration the historical activities that occurred at the MRS, it is expected that triple-base propellants that may be present at the MRS would be found primarily on the ground surface. Two nonintrusive visual surveys were performed over 100 percent of the Load Line #1 MRS during the RI field activities. No MEC or MD items were observed on the ground surface of the MRS during the visual survey; therefore, the MEC exposure pathway for surface soil is considered incomplete for all receptors.

Since a MEC source was not found on the ground surface, a subsurface investigation was not warranted. Given the lack of a MEC source, the MEC exposure pathway for subsurface soil is considered incomplete for all receptors.

Sampling was performed at the Load Line #1 MRS to further characterize the nature and extent of contamination associated with previous activities at the MRS. The SRCs detected at the MRS consisted of the lead and nitroguanidine in surface soil. Although a MEC source was not found, the identified SRCs may have resulted from degradation due to exposure to the elements of the propellants previously encountered at the MRS. None of the SRC concentrations were determined to pose a hazard to human health or the environment. The MC CSM has been updated to reflect a lack of source and incomplete pathways for all the receptors at the MRS.

10.7 Uncertainties

There are minimal levels of uncertainties associated with the MEC and MC results at the Load Line #1 MRS. The propellants of interest are not ferrous or detectable using a magnetometer; therefore, minimal uncertainty exists regarding whether propellants are present below the ground surface. However, given the MRS history, the presence of MEC in the subsurface was not anticipated, as no burial activities were known to occur (e^2M, 2008). The nonintrusive instrument-assisted visual survey conducted during the RI field work did not find evidence of any surface propellants or other ferrous MEC/MD items, which satisfies the DQOs and reduces uncertainties associated with buried MEC at the MRS.

No MEC or MD was found during the RI field activities that would be considered a potential MC source. It is therefore uncertain whether the detected SRCs are actually associated with MEC previously identified directly on the ground surface at the MRS or are byproducts associated with the historical activities (munitions loading operations) conducted at this portion of the Load Line #1. Regardless of the uncertainty, evaluation of the detected SRCs indicates that the concentrations do not pose risks to likely receptors and there is no hazard associated with MC at the MRS.

10.8 Conclusions and Recommendations

The RI was prepared in accordance with the project DQOs and included evaluations for explosives hazards and potential sources of MC that may pose threats to likely receptors. The following statements can be made for the Load Line #1 MRS based on the results of the RI field activities:

- Instrument-assisted nonintrusive visual survey coverage was performed over the entire Load Line #1 MRS during the RI and no subsurface anomalies were detected.
- No physical evidence of MEC or MD was found on the ground surface during the RI and no explosive hazard is anticipated to be present at the MRS.

- Although no MEC source was found during the RI, ISM surface soil samples were analyzed for MC and represent 100-percent coverage of the MRS.
- Detected concentrations of SRCs in surface soil (0 to 0.5 feet) do not pose potential risks to human or ecological receptors; therefore, no further action is required for MC at this MRS.

Based on these conclusions, it is determined that the Load Line #1 MRS has been adequately characterized and that the DQOs presented in the Work Plan (Shaw, 2011) have been satisfied. The next course of action for the Load Line #1 MRS will be to proceed to a No Further Action Record of Decision. Since the RI was initiated before the finalization of the U.S. Army's *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the Ravenna Army Ammunition Plant Installation Restoration Program* (Army National Guard, 2014), the Commercial Industrial Land Use using the Industrial Receptor was not included. However, this since the Unrestricted (Residential) Land Use was identified and the MRS will proceed to a No Further Action Record of Decision, an evaluation of the Commercial Industrial Land Use would not be needed according to the technical memorandum.

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Appendix A
Field Documentation

Technical Memorandum for Field Work

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Shaw Environmental & Infrastructure, Inc.

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Memorandum

From: Dave Cobb, Shaw Project Manager

To: Ms. Eileen Mohr, Ohio EPA Project Manager

cc: Todd Fisher, Ohio EPA
Travis McCoun, USACE, Baltimore
Greg Moore, USACE Louisville
Mark Patterson, BRAC
Kim Harriz, NGB
Katie Tait, OHARNG/Camp Ravenna

Date: June 7, 2011

Re: **Visual Survey Results and Proposed Munitions Constituents Sampling Locations for the Load Line 1 MRS (RVAAP-008-R-01)**

Introduction

The purpose of this memorandum is to present the results of the visual survey performed at the Load Line 1 MRS (RVAAP-008-R-01) at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio by Shaw Environmental & Infrastructure, Inc. (Shaw) and present proposed munitions constituents (MC) sampling based on those results. The survey activities were conducted in accordance with the *Final Work Plan for Military Munitions Response Program Remedial Investigation Environmental Services* (Shaw, 2011); hereafter referred to as the "work plan". Shaw's recommendations for proposed sample locations for MC are presented below and will require approval from the Ohio EPA prior to implementation in the field.

Summary of Work

Between April 28 and May 24, 2011, Shaw performed two 100% instrument assisted visual surveys at the Load Line 1 MRS to verify that no remaining triple-based propellant nodules (approximately 1-inch by ¼-inch in size) exists at the northwest side of former Building CB-14. The surveys also included an inspection for any other munitions and explosives of concern (MEC) and munitions debris (MD) items. The initial inspection was performed during inclement weather on April 28, 2011 and it was determined that a second survey would be required due to areas of standing water in the survey area. The second survey was conducted on May 24th. The area surveyed was based on the 0.41 acre area identified in the *Final Site Inspection Report* (e^2M, 2008). Due to the relatively small size of the MRS, the entire 0.41 acre area was inspected. The work plan originally stated that slag associated with the former use of this location as a former railcar loading area would be removed in order to inspect the ground surface below the slag; however, inspection of the area prior to the visual survey revealed that minimal slag was present in the MRS area and no slag removal was required. **Figure 1** presents the Load Line 1 MRS where a 100% visual survey was performed.

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The UXO Team that performed the visual surveys consisted of a three-man crew that included a UXO Technician III that was the Team Leader, a UXO Technician II and a global positioning system (GPS) operator. Although, propellant nodules cannot be detected using metal detection instrumentation, a Schonstedt Model GA-52Cx magnetometer was used for MEC avoidance and to confirm that no other MEC/MD items were present at the MRS. The instrumentation used for detecting and logging the locations of any MEC/MD identified consisted of a GPS Trimble GeoXH Handheld.

The surveys consisted of linear sweeps along the length of the MRS with each UXO Team member responsible for five-foot lanes until 100% of the MRS was inspected. Rope lines were laid along the MRS transects in order to ensure that the sweep lanes were straight and accurate. The inspection included members of the UXO Team inspecting thick grass areas on their hands and knees.

Summary of Results

No propellant nodules or other MEC items were observed at the MRS during the visual surveys. Following the second survey, the Unexploded Ordnance Quality Control (UXOQC) manager performed an 80% QC check of the area. No propellant nodules or other MEC items were identified during the QC check.

Proposed Munitions Constituents Sample Locations

In accordance with the work plan and the Sampling and Analysis Plan (SAP) in Appendix D of the work plan, MC sampling will be performed to include incremental sampling (IS) of surface soil. No discrete samples are proposed since no MEC/MD was identified during the visual surveys. The 0.41 acre MRS will be divided (approximately 0.2 acres each) and a total of two IS samples (not including the field duplicate) will be collected. **Figure 1** shows the proposed IS sample locations.

The sample design and parameters for the surface and subsurface discrete samples are presented in the SAP. Samples will be analyzed for potential MC that includes lead via USEPA Method 6010C, explosives using USEPA Method 8330B, nitrocellulose using USEPA Method 9056 and Total Organic Carbon and pH. The samples will also be submitted for geochemical parameters (aluminum, calcium, magnesium, and manganese) using USEPA 6010C. One field duplicate and matrix spike/matrix spike duplicate will be collected for the IS sample type. The samples will be submitted to CT Laboratories for IS processing and analysis in accordance with the SAP.

Reporting of Results

As specified in the work plan, the results of the MC sampling will be incorporated into the Remedial Investigation (RI) report for the Load Line 1 MRS. The RI will determine the nature and extent of MEC and MC at the MRS, determine the risk posed to human health and the environment by MEC and MC identified, if any, and identify if any additional information or data is required for the Feasibility Study to determination remediation alternatives, including evaluation of no action.

Figures

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MRS Boundary

Increment Sample Decision Unit

0 50 100 Feet

Projection : NAD_1983_UTM_Zone_17N

U.S. ARMY CORPS OF ENGINEERS
LOUISVILLE DISTRICT

MILITARY MUNITIONS RESPONSE PROGRAM

FIGURE NUMBER 1

LOAD LINE #1 PROPOSAL SAMPLE LOCATIONS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Shaw a world of Solutions

Generated By: JRL Date: 06/06/11 File Path:F:\GISDATA2\MAMS\Ravenna\GIS_Documents\Project_Maps\MMRP\Group1\Field\RVAAP_002_Fig1_LoadLine1_SamplLocsProp.mxd

Project Number: 136147

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Field Logs

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Shaw™ Shaw E & I

Soil / Sediment Field Logsheet

Site Name: LOAD LINE #1 Project #: 136147- MMRP

Sample ID: LL1SS-715(I)-0001-SS

Sample Type*: MI

*: SED=Sediment; SUR=Surface soil;
SUB=Subsurface Soil; OTH=Other.
grab=Grab; comp=Composite

Date Sampled: 8-15-11

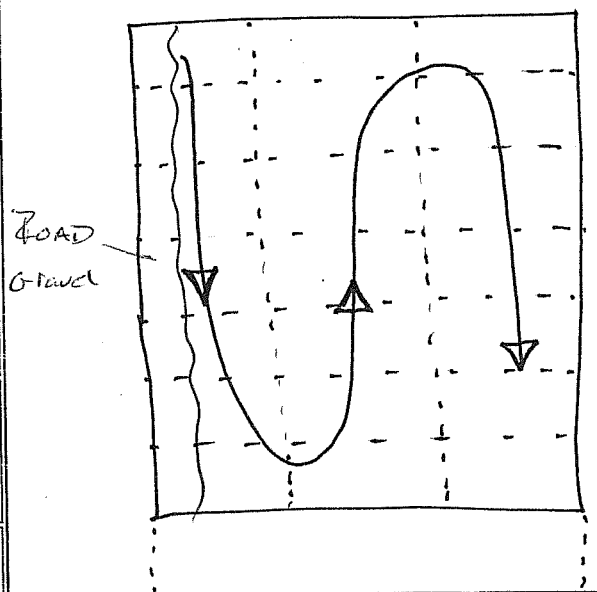
Time Sampled: 1315

Depth (ft bgs): 0 - 6 INCH

Physical description: ORGANICS, DARK BROWN. w/ dark & green/brown dense clay. Some gravel @ ROAD.

Analyses requested:
LEAD -NC
GEO METALS -TOC
EXPLOSIVES -PH

Sample Location Sketch:



Photograph Log #: NA

PID: NA Calibration Date: NA

O2/LEL: NA Calibration Date: NA

Weather: 81° PASSING THUNDERSTORMS

Temperature: 81°F

Sampling Equipment: STEP CORE PROBE

Equipment Decontamination Technique: GROSS WASH, LIQUINOX, WASH, METHANOL, DI

QC Samples: RINSE BLANK (RB) → LL1-718-RB

Analytical Laboratory: CT LAB

Comments:

Field Technician: (Print) C. JONES Date: 8-15-11

Shaw Shaw E&I

Soil / Sediment Field Logsheet

Site Name: LOAD LINE #1 Project #: 136147- MMRP

Sample ID: LL1SS-716(I)-0001-SS

Sample Type*: MI

*: SED=Sediment; SUR=Surface soil;
SUB=Subsurface Soil; OTH=Other.
grab=Grab; comp=Composite

Date Sampled: 8-15-11

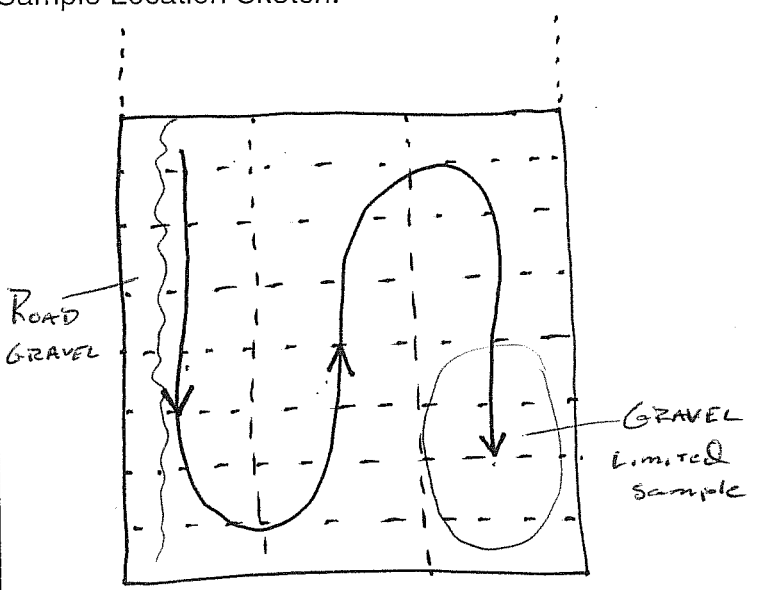
Time Sampled: 1330

Depth (ft bgs): 0 - 6 INCH

Physical description: GRAVEL NEAR ROAD AND IN SE corner. Organics and clay over central part.

Analyses requested:
LEAD -NC
GEO METALS -TOC
EXPLOSIVES -PH

Sample Location Sketch:



Photograph Log #: NA

PID: NA Calibration Date: NA

O2/LEL: NA Calibration Date: NA

Weather: PASSING THUNDERSTORM

Temperature: 81 °F

Sampling Equipment: STEP CORE PROBE

Equipment Decontamination Technique: GROSS WASH, LIQUINOX, WASH, METHANOL, DI

QC Samples: DUP WILL BE LL1SS-717(1)-0001-SS

Analytical Laboratory: CT LAB

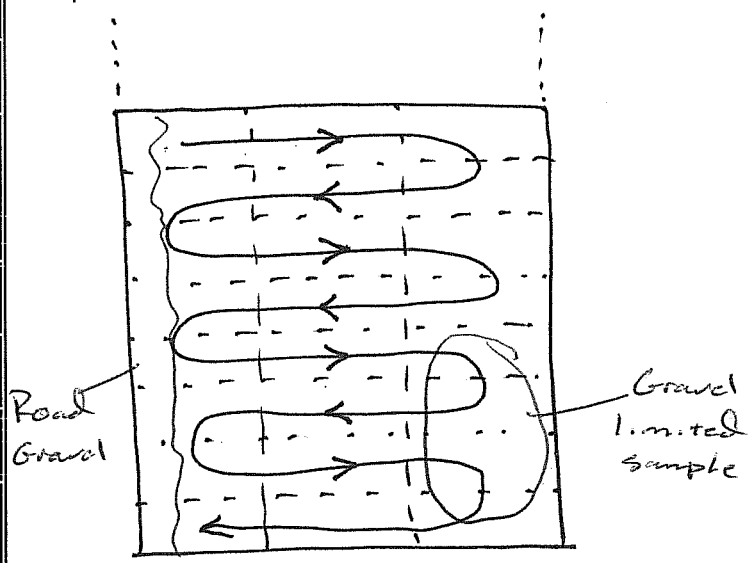
Comments:

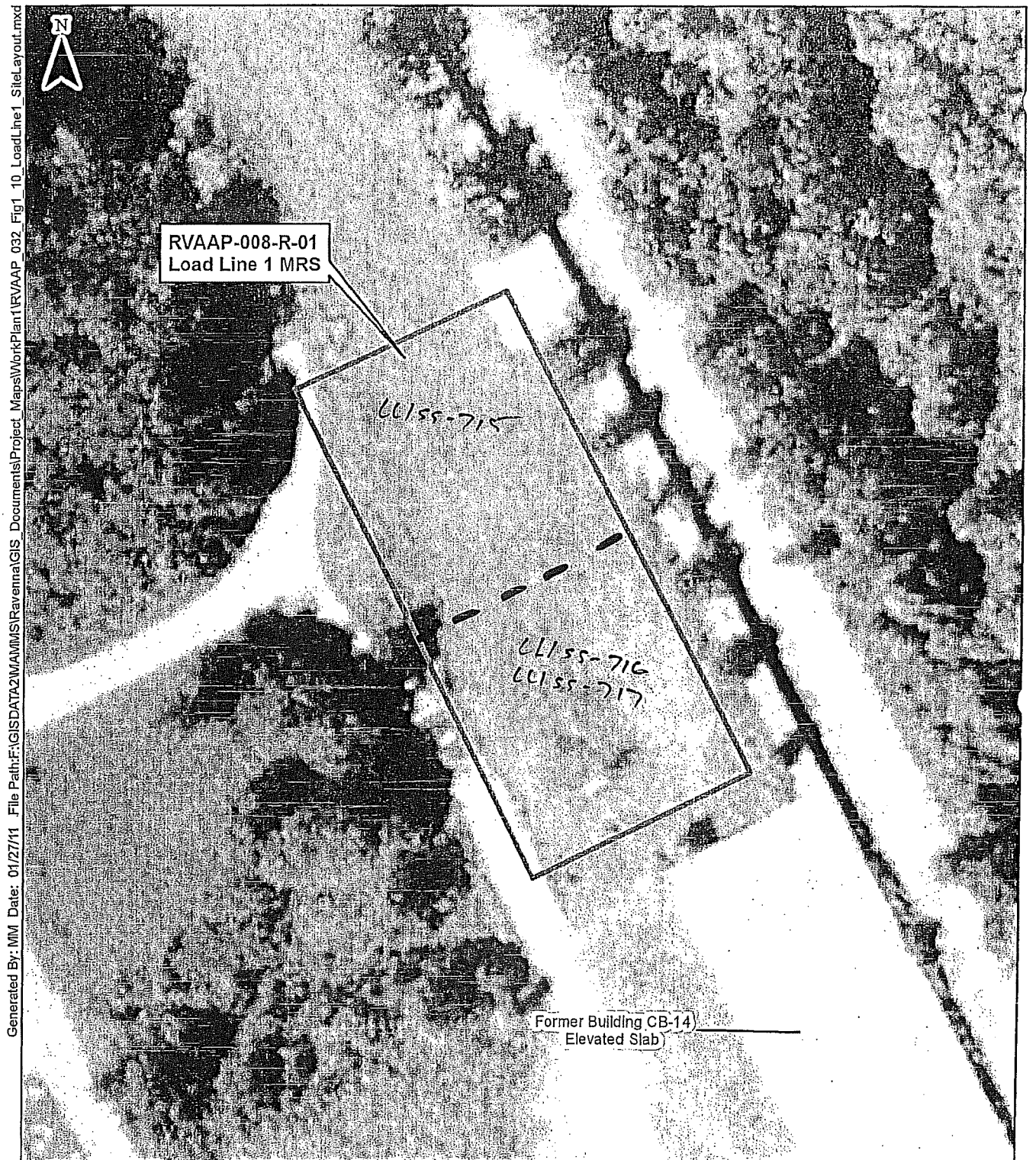
Field Technician: (Print) C. JONES Date: 8-15-11

Shaw Shaw E & I

Soil / Sediment Field Logsheet

Site Name: LOAD LINE #1 Project #: 136147- MMRP

Sample ID: LL1SS-717(I)-0001-SS	Sample Location Sketch: 
Sample Type*: MI	
*: SED=Sediment; SUR=Surface soil; SUB=Subsurface Soil; OTH=Other. grab=Grab; comp=Composite	
Date Sampled: 8-15-11	
Time Sampled: 1350	
Depth (ft bgs): 0-6 INCH	
Physical description: Gravel near road and in SE corner. Organics and clay over central portion	
Analyses requested: LEAD -NC; GEO METALS -TOC; EXPLOSIVES -PH	Photograph Log #: NA
PID: NA	Calibration Date: NA
O2/LEL: NA	Calibration Date: NA
Weather: PASSING THUNDERSTORMS	
Temperature: 81 °F	
Sampling Equipment: STEP CORE PROBE	
Equipment Decontamination Technique: GROSS WASH, LIQUINOX WASH, METHANOL, DI	
QC Samples: DUP OF LL1 SS-716(I)-0001-SS	
Analytical Laboratory: CT LAB	
Comments:	
Field Technician: (Print) C. JONES	Date: 8-15-11


N
RVAAP-008-R-01
Load Line 1 MRS
LL155-715
LL155-716
LL155-717
Former Building CB-14
Elevated Slab
MRS Boundary
0
50
100
Feet
Projection : NAD_1983_UTM_Zone_17N
U.S. ARMY
CORPS OF ENGINEERS
LOUISVILLE DISTRICT
MILITARY MUNITIONS RESPONSE PROGRAM
FIGURE NUMBER
1-10
LOAD LINE #1 SITE LAYOUT
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO
Shaw Environmental, Inc.
Generated By: MM Date: 01/27/11 File Path:F:\GISDATA2\MMMS\Ravenna\GIS_Documents\Project_Maps\WorkPlan1\RVAAP_032_Fig1_10_LoadLine1_SiteLayout.mxd
Project Number: 136147

Chain of Custody

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Rev. 9/2009

CHAIN OF CUSTODY

Page 5 of

Company: Shaw E&I
Project Contact: David Crispo
Telephone: 617.589.8146
Project Name: RVAAP MMRP
Project #: 136147
Location: Ravenna, OH
Sampled By: Christyn Jones

[redacted]
Folder #: 86608
Company: SHAW E&I INC
Project: RVAAP MMRP
Logged By: JLS PM: ET

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other MMRP

PO #

Report To: David Crispo
EMAIL: david.crispo@shawgrp.com
Company: Shaw E&I
Address: 100 Technology Ctr Dr Stoughton MA 02072

Invoice To:*
EMAIL:
Company: per Shaw P.O.
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions
Geochem samples include Ca, Mn, Mg

Matrix:
GW - groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed:

Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample ID Description	Filtered? Y/N	ANALYSES REQUESTED: Lead	Geochem Metals	Explosives	Nitrocellulose	TOC	pH	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
						Fill in Spaces with Bottles per Test								
8-15	1315	S	DSM	LL155-715(I)-0001-SS	NA	X	X	X	X	X	X	1	X	962085
8-15	1330	S	DSM	LL155-716(I)-0001-SS	"	X	X	X	X	X	X	1		962086
8-15	1350	S	DSM	LL155-717(I)-0001-SS	"	X	X	X	X	X	X	1		962087
8-15	1245	W	G	LL1-718-RB	N	X		X	X		X	3		962088

Relinquished by: [signature]
Date/Time: 8-15-11 1600
Received By: UPS
Date/Time:

Received by:
Date/Time
Received for Laboratory by: [signature]
Date/Time: 8/16/11 0919

Lab Use Only
Ice Present (Yes) No
Temperature 3.3
Cooler # 3610

MOS 8/16/11 8:30

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Field Sampling Audit

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FIELD SAMPLING AUDIT CHECKLIST

Shaw Audit No.:	136147-01	Audited Organization:	Shaw Sampling Crew (Crispo/Mallory/Harrison)
Shaw Project No.:	136147	Location:	Group 8 MRS, RVAAP
Date of Evaluation:	2/8/12	Name/Position of Evaluator:	Braden Livingstone, UXOQC/SSHO
Audited Activity:	Multi-increment surface soil sampling at the Group 8 MRS		

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
Part 1: Sampling and Analysis Plan (SAP)				
1.1 General Information				
Is there a SAP?	X			
Are there procedures for transportation, handling, protection, storage, retention, and/or disposal of samples, including all provisions necessary to protect the integrity of the sample?	X			
Is there a documented system for uniquely identifying all samples and subsamples to ensure that there can be no confusion regarding the identity of such samples at any time?	X			
Does the sampling process address the factors to be controlled to ensure the validity of the environmental test and calibration results	X			No equipment requiring calibration
Is there a process for documenting corrective actions taken in the field?	X			
1.2 Standard Operating Procedures				
Are there SOPs for field activities available at the location where sampling is taking place and are they accessible to all sample collectors?		X		Not originally on site at beginning of sampling activities.
Have the SOPs been approved for the project?	X			
Part 2: Organization, Management and Personnel (not checked onsite)				
Are the sampling personnel's qualifications and/or training certifications adequate for the tasks performed?	X			
Are names of all sampling personnel recorded?	X			In daily JSA reports
Do sampling personnel meet minimum qualifications specified in the contract?	X			
Are staff training records maintained and up to date?	X			
Part 3: Equipment				
3.1 General Equipment Information				
Is the type of equipment sufficient for the sampling project?	X			Step probe samplers
Is the quantity of equipment sufficient for the sampling project?	X			

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
Is the following information recorded for each piece of equipment that will be used for sampling project:			X	
Maintenance and repair procedures for equipment or instrument?			X	
Routine cleaning procedures?			X	
Filling solution replacement for probes?			X	
Parts replacement for instruments or probes?			X	
Calendar date for each procedure performed?			X	
Names of personnel performing maintenance and repair tasks?			X	
Description of malfunctions associated with any maintenance and repair?			X	
Vendor service records?			X	
Inclusive rental dates, types and unique descriptions of rental equipment?			X	
Is the equipment storage procedure acceptable?	X			Bldg 1036
Is there an existing QC check on sampling equipment?			X	
3.2 Field Calibration				
Is information about all calibration standards and reagents used for field testing linked to the calibration information associated with the field testing measurements for the project?			X	
Are field instruments properly calibrated and calibrations recorded in a bound field log book?			X	
For each instrument unit used for the sampling project, is the following information recorded for all calibrations:			X	
Unique identification (designation code) for the instrument?			X	
Date and time of each calibration and calibration verification?			X	
Instrument reading or result (display value) for all calibration verifications, with appropriate measurement units?			X	
Names of analyst performing each calibration of verification?			X	
Designation of each calibration standard used linked to the associated records for the calibration standard?			X	
The acceptance criteria for each calibration and verification standard used?			X	
The assay specifications or acceptance criteria for any QC standard or sample used to independently verify the calibration of the standard?			X	

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
Are all corrective actions performed on the instrument prior to attempting reverification or recalibration of the instrument linked to the records required for preventive maintenance?			X	
Does the field instrumentation documentation include the standard concentrations used for calibration?			X	
Did all field-testing equipment and instrumentation brought to the field appear to function properly?			X	
Are manufacturer's suggested maintenance activities and any repairs performed and documented for all applicable equipment and instruments?			X	
3.3 Containers				
Are sample containers well organized, properly prepared, protected from contamination, and ready for use?	X			Large zip-loc baggies used to collect MI samples
Are proper sample containers and sizes used for each type of sample?			X	
Are certificates of analysis for pre-cleaned bottles maintained on file?			X	
Are all containers and container caps free of cracks, chips, discolorations and other features that might affect the integrity of the collected samples?			X	
3.4 Sampling Equipment				
Is the appropriate equipment used for the sampling project? Check all relevant equipment used for sample collection, handling, storage and transport.	X			
Is equipment constructed of materials appropriate for the analytes of interest?	X			
Is equipment brought to the field precleaned?	X			
For equipment decontaminated on-site in the field, are the date and time of the cleaning procedure recorded in the field records or referenced in an internal SOP?		X		Step probes are cleaned after each sampling event and stored at Bldg 1036
Are cleaning steps in all procedures used for decontamination documented either by description or reference to an SOP?	X			
Are there current maintenance records for all field equipment?			X	
Part 4: Sampling Event Information				
For all samples, is the following information recorded and maintained in the project files?				
Site name and address?	X			
Date and time of sample collection?	X			
Name of sampler responsible for sample transmittal?	X			

Item to be Evaluated	Y	N	N/A	Comments
Unique field identification code for each sample container or group of containers?	X			
Total number of samples collected?	X			
Required analyses for each sample container or group of containers?			X	
Sample preservation used for each container or group of containers?			X	
Comments about samples, sample sources or other relevant field conditions?	X			
Identification of common carrier used to transport the samples, when applicable?			X	
Are shipping invoices and related records from common carriers archived with the field records, when applicable?	X			
Are sampling locations adequately documented in a bound field log book using indelible ink?	X			Documented in field logs and maintained in project files.
Are photos taken and is a photo log maintained?	X			
4.1 Field QC				
Are trip blanks and/or field blanks collected as specified in the approved sampling plan?	X			
Are field blanks collected after equipment is decontaminated in the field	X			Equipment is cleaned at Bldg 1036
Are field blanks collected if no equipment was cleaned?		X		Equipment is cleaned same day as sampling
Are additional samples for matrix spike/matrix spike duplicate analyses collected?	X			
Are all QC samples collected in the same manner as the routine field samples?	X			
Part 5: Sample Management				
5.1 Collection				
Are the samples taken from a representative point of the source?	X			
Are the samples being collected in accordance with the SAP?	X			
Are samples for different analyte groups collected in the appropriate order?			X	All of sample is in baggie
Are samples collected for all required analyses?	X			
Are samples to be tested for dissolved metals filtered prior to preservation?			X	
Is every effort made to prevent cross-contamination of samples?	X			Some non-conformance observed
Are gloves worn by all samplers handling purging equipment, sampling equipment, measurement equipment, and sample containers?	X			
Are new, clean unpowdered gloves used for each glove change?	X			

Item to be Evaluated	Y	N	N/A	Comments
Is care taken to avoid contact with sample and sample container interiors?	X		X	AES 3/28/2013
Are VOC sample containers protected from any fuel sources and fuel-powered equipment?			X	No VOCs sampled
Do VOC sample containers remain capped until just prior to sample collection and do they remain capped after sample collection?			X	
Where applicable, are samples collected for measurement of dissolved components, filtered, preserved with acid, and placed on ice within 15 minutes of collection?			X	
5.2 Collection Devices				
Is sample collected using an intermediate collection device?			X	
Are intermediate collection devices rinsed with ample amounts of site water prior to collecting the sample?			X	
Is rinse water from intermediate devices discarded away from and downstream of the sampling location?			X	
Is the use of intermediate collection devices avoided when sampling for VOC's, oil and grease, or microbiologicals, where practical?			X	
Are any intermediate collection devices constructed of material appropriate for the analytes to be measured?			X	
Are sample containers submerged neck first, inverted into the oncoming direction of flow where applicable, slowly filled, and returned to the surface for preservation, if applicable?			X	
5.3 Sample Labeling				
Is each sample container or group of containers tagged or labeled with a unique field identification code that distinguishes the sample from all other samples?	X			
Are the unique identification codes for samples recorded in a manner that links the codes to all other field records associated with the samples?	X			
Is waterproof indelible ink used to label containers?	X			
5.4 Storage				
Are samples for different parameters segregated during storage?			X	
Are samples stored on ice?	X			
Is the cooler clearly labeled?	X			
Are samples properly preserved (if applicable)?	X		X	AES 3/28/2013
5.5 Preservation				

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
Do all sample preservation techniques conform to SOP or method requirements?	X			Placed on ice
Are all samples properly preserved within 15 minutes, as applicable?	X			
Are the preparation and dispensing of preservatives documented and traceable?			X	
Is preservation information and verification recorded for each sample, as applicable?			X	
Are samples placed on ice immediately after collection, if applicable?	X			
5.6 Delivery				
Are samples protected during delivery to prevent breakage?	X			
Are samples shipped in a timely manner?	X			
5.7 Disposal				
Are wastes generated as a result of the sampling project containerized and stored for proper disposal according to applicable local, state, and federal regulations?	X			Decontamination waste and PPE.
Are all sampling-derived waste containers properly labeled?	X			
Is all sampling-derived waste properly disposed of?			X	Not disposed yet. Stored at Bldg 1036
5.8 Documentation				
Is waterproof ink used for all paper documentation?	X			
Are the date and time of sample collection recorded for all samples?	X			
Are the ambient field conditions recorded for all samples?	X			
Is a specific description of each sampling location (source) recorded?	X			
Does the chain of custody/traffic report include the following: date, time, sample numbers, sampler names, shipping method, number of samples, matrix, and comments?	X			
Is preservation information recorded on the chain of custody/traffic report?	X			
Are copies of traffic reports or COC sent to the proper recipients?	X			
Are deviations, additions, or exclusions from the documented sampling procedure recorded in detail with the associated sampling information?	X			
Are these deviations included in all documents containing environmental test and/or calibration results?			X	
Are these deviations communicated to the appropriate personnel?	X			
Are all errors in documentation (if applicable) corrected and initiated without obliteration?	X			

Item to be Evaluated	Y	N	N/A	Comments
5.9 Field Reagents				
Are the concentration (or other assay value), the vendor catalog number and the description of the standard or reagent recorded for all preformulated solutions, neat liquids, powders, and blank water?			X	
Are certificates of assay, grade and other vendor specifications for all standards and reagents retained and recorded for the standards and reagents?			X	
Are the lot numbers and inclusive dates of use recorded for all reagents, detergents, solvents, and other chemicals used for decontamination and preservation of samples?			X	
Are the expiration dates for all calibration standards and reagents recorded?			X	
Are expired standards and reagents verified prior to use during sample collection?			X	
Are all steps used for preparation of standards or reagents in-house documented either by description or reference to an SOP?			X	
Part 6: Field Analyses				
6.1 General Field Test Information				
Are all field measurement tests and related data recorded and linked to the project, the date, and the sample source?			X	
Are all field measurements recorded with the appropriate units, the value of the test result, the parameter measured, the name of the analyst performing the test, the time of the measurement and the unique identification for the test instrument used?			X	
6.2 pH				
Are all samples requiring pH adjustment tested for proper pH preservation?			X	
Is at least one sample per analyte group requiring pH adjustment tested for proper preservation during repeat sampling?			X	
Is pH paper or a pH electrode inserted into sample containers?			X	
Do the pH meter and electrode system meet SOP specifications for accuracy, reproducibility and design?			X	
Are all measurements corrected for temperature (manual or automatic)?			X	
Is a pH 7 buffer used as the first calibration standard?			X	
For pH, do all calibration verifications meet the acceptance criteria?			X	

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
If the calibration and/or calibration verifications did not meet the acceptance criteria, is the calibration or verification identified as a failure and was this documented in the calibration log?			X	
Are all sample measurements associated with acceptable calibration verifications?			X	
Is the pH meter system checked on a weekly basis to ensure >90% theoretical electrode slope?			X	
Are the field instrument probes rinsed with deionized or distilled water between standard solutions and between sample measurements?			X	
Are instrument pH readings allowed to stabilize before pH values are recorded?			X	
6.3 Filtration				
Are samples collected for analysis of dissolved components filtered within 15 minutes of collection and before addition of chemical preservatives where appropriate?			X	
Unless otherwise specified, are applicable samples filtered using a 0.45-um pore size?			X	
6.4 Temperature				
Do the temperature measurement devices meet SOP and/or sampling event specifications for design and measurement resolution?			X	
Are all sample measurements associated with calibration verifications of the temperature measurement device at a minimum of two temperatures using a NISTtraceable thermometer?			X	
If the calibration and/or calibration verifications did not meet the acceptance criteria, is the calibration or verification identified as a failure and was this documented in the calibration log?			X	
Are all temperature measurements chronologically associated with acceptable calibration verifications?			X	
Are the temperature device readings allowed to stabilize before measurement values were recorded?			X	
6.5 Conductivity				
Do the specific conductance meter and electrode system meet the SOP and/or sampling event specifications for accuracy and reproducibility?			X	
Do all calibration verifications meet the acceptance criterion?			X	

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
If the calibration and/or calibration verifications did not meet the acceptance criteria, is the calibration or verification identified as a failure and was this documented in the calibration log			X	
Are all conductivity measurements chronologically associated with acceptable calibration verifications?			X	
Are all conductivity measurements corrected for temperature (manual or automatic)?			X	
Is the instrument allowed to stabilize before measurement values are recorded?			X	
6.6 Turbidity				
Does the turbidimeter meet the SOP and/or sampling event specifications for accuracy and reproducibility?			X	
Are all sample measurements associated with acceptable calibration verifications?			X	
If the calibration and/or calibration verifications did not meet the acceptance criteria, is the calibration or verification identified as a failure and was this documented in the calibration log?			X	
Are the sample cells (optical cuvettes) inspected for scratches and discarded or coated with a silicone oil mask, as necessary?			X	
Are the sample cells (optical cuvettes) optically matched for calibrations and sample measurements?			X	
Are the sample cells (optical cuvettes) cleaned with detergent and deionized or distilled water between standard solutions and between sample measurements, as applicable?			X	
Are the sample cells (optical cuvettes) rinsed with sample prior to filling with sample for measurement?			X	
Is the exterior of the sample cell (optical cuvette) kept free of fingerprints and dried with a lint-free wipe prior to insertion in the turbidimeter?			X	
6.7 Dissolved Oxygen				
Do the dissolved oxygen meter and electrode system meet the SOP and/or sampling event specifications for accuracy and reproducibility?			X	
Are all sample measurements associated with acceptable calibration verifications?			X	
If the calibration and/or calibration verifications did not meet the acceptance criteria, is the calibration or verification identified as a failure and was this documented in the calibration log?			X	

Item to be Evaluated	*Y*	*N*	*N/A*	*Comments*
Are all measurements corrected for temperature (manual or automatic)?			X	
Are all measurements corrected for salinity, where applicable (manual or automatic)?			X	
Is the salinity (conductivity) sensor calibration verified?			X	
Is the dissolved oxygen electrode stored in a water-saturated air environment when not in use?			X	
Are the dissolved oxygen readings allowed to stabilize before measurement values were recorded?			X	

Project: RVAAP MMRP **Date:** 2/8/12

Surveillance Title: Incremental Surface Soil Sampling **Location:** Group 8 MRS

Shaw Audit No.: 136147-1

Documents Applicable to Audit
• Final Work Plan Addendum for Military Munitions Response Program Remedial Investigation Environmental Services, Version 1.0 (December 2011), • Final SAP/QAPP Addendum (Appendix A of Work Plan Addendum), • Shaw SOPs (EI-FS-001, Field Logbook; EIF-FS-003, Chain of Custody; EI-FS-006, Sample Labeling; EI-FS-002, Shipping Packing Non-Hazardous, EI-FS-014, Equipment Decontamination; EI-FS-103, Soil Probe Core Sampling)

Non-Conformance Observed	Corrective Action	Opportunities for Improvement
Applicable Shaw SOPs were not onsite at the beginning of sampling activities.	The sampling crew retrieved the applicable Shaw SOPs from the field office prior to commencing sampling activities.	Having all applicable SOPs and work plan documents on site during sampling activities is useful in achieving project objectives.
Although sampling equipment is wrapped in tin foil to protect from contamination during travel to site, samplers should take greater effort to protect the equipment from sources that may contaminate it.	Sample crew will segregate the samplers from the rest of the equipment brought to the site (coolers, buckets, etc) to better protect the equipment from cross contamination.	Better care of samplers will be helpful to ensure no cross contamination occurs.
Periodic handling of decontaminated equipment with used gloves was observed.	Crew to ensure they use new gloves after each sample location and prior to handling clean sampling equipment.	Putting on new gloves after handling used equipment will be helpful to prevent cross contamination between samples.

Summary Of Audit Results
The purpose of this Audit Report is to determine the degree of conformance with project and external requirements for multi-increment surface soil sampling that are being performed at the Ravenna Army Ammunition Plant, Ravenna, Ohio under the Military Munitions Response Program. The sampling crew audited included Dave Crispo, Harry Harrison and Tom Mallory. In summary, the multi-increment soil sampling event followed the procedures established in the Work Plan Addendum, SAP and SOPs. Minor non-conformances were observed as noted above. These issues were discussed with the sampling crew and corrected in a timely manner. No follow up corrective actions are required. This report has been sent to Dave Cobb, Project Manager, to provide an overview of occurring field activities.

AUDIT COMPLETED BY: _____ DATE: 2/8/12

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Appendix B
Data Validation Report

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Acronyms and Abbreviations

CCV	continuing calibration verification
DL	detection limit
DoD	Department of Defense
EPA	United States Environmental Protection Agency
ICS	interelement check standard
ICP	inductively coupled plasma
ICV	initial calibration verification
LCG	Louisville Chemistry Guideline, Version V
LCS	laboratory control sample
LOQ	limit of quantitation
MS	matrix spike
MSD	matrix spike duplicate
MRS	munitions response site
QC	quality control
QSM	DoD Quality Systems Manual, Version 4.2
RI	Remedial Investigation
RVAAP	Ravenna Army Ammunition Plant
SA	spike added
Shaw	Shaw Environmental & Infrastructure, Inc.
SSR	spiked sample result
SR	sample result
TOC	total organic carbon
USACE	United States Army Corps of Engineers

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1.0 INTRODUCTION

This Data Validation Report presents the analytical data review and validation performed by Shaw Environmental & Infrastructure, Inc. (Shaw) in support of Military Munitions Response Program Phase I Remedial Investigation (RI) field activities for the Load Line #1 Munitions Response Site (MRS) located at the Ravenna Army Ammunition Plant (RVAAP) in Ravenna, Ohio. Shaw subcontracted CT Laboratories, Inc. of Baraboo, Wisconsin to perform chemical analysis of samples collected during this RI. CT Laboratories has current Environmental Laboratory Accreditation Program and National Environmental Laboratory Accreditation Conference accreditations and/or approvals. CT Laboratories also has Navy certification approvals that meet the Department of Defense (DoD) *Quality Systems Manual (QSM) Version 4.2* (DoD, 2010) requirements. The United States Environmental Protection Agency (EPA) publication SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (2007) and DoD QSM 4.2 (2010) provide primary analytical direction for these projects. The *Louisville Chemistry Guideline (LCG)*, Version V (United States Corps of Engineers [USACE], 2002) was used as a guidance document for data review and data validation.

Field sampling for munitions constituents during the RI at the Load Line #1 MRS was conducted on August 11, 2011. In all, Shaw collected three surface soil samples using the Incremental Sampling Method. The SW-846 chemical analytical procedures were followed for analyses of select Target Analyte List metals (lead, aluminum, calcium, magnesium, and manganese), explosives, nitrocellulose, total organic carbon (TOC), and pH parameters for the samples collected for the RI event. **Table 1-1** summarizes the samples collected, data type, associated sample data group and the parameters analyzed.

1.1 Data Review and Validation Steps

The following steps are involved in the data review, verification, and validation process:

- **Step 1, Laboratory Data Review—**The laboratory reviews its data before releasing data packages to Shaw. The purpose is to verify that project-specific reporting requirements have been satisfied.
- **Step 2, Data Validation by Shaw—**Shaw performs a detailed validation process as described in **Section 1.2** of this appendix. Shaw reviews all the analytical data packages for completeness, consistency, and compliance with the project quality assurance requirements presented in the RVAAP *Final Facility-Wide Sampling and Analysis Plan* (Science Applications and International Corporation, 2011) and the project-specific *Final Munitions Constituents Sampling and Analysis Plan/Quality Control Assurance Plan* (Shaw, 2011).

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Table 1-1
Sample Summary Table for RI Samples Collected at Load Line #1 MRS

Sample Location ID	Collection Date	Depth (ft bgs)	Laboratory SDG	Field Duplicates	Metals[1]	Explosives	Nitrocellulose	Total Organic Carbon	pH
LL1SS-715(I)-0001-SS	8/15/11	0–0.5	86608	---	X	X	X	X	X
LL1SS-716(I)-0001-SS	8/15/11	0–0.5	86608	LL1SS-017(I)-0001-SS	X	X	X	X	X

[1] *Metals include analysis for lead, aluminum, calcium, manganese, and magnesium.*

ft bgs denotes feet below ground surface.

SDG denotes sample data group.

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1.2 Data Validation Procedure

The following data elements were reviewed as part of the data validation process:

- **Sample Preservation—**Sample chain-of-custody and CT Laboratories sample receipt forms were examined to determine if the samples had been properly preserved.
- **Sample Holding Times—**Holding times were verified by comparing chain-of-custody sampling dates with analysis and/or extraction dates on the analytical data sheet.
- **Initial and Continuing Calibrations—**Analytical data packages were reviewed to confirm that DoD QSM 4.2 and/or CT Laboratories Standard Operation Procedures protocol were met prior to sample analysis. The evaluation process involved checking the number of standards, as well as calibration requirements. In addition, continuing calibration evaluation included the verification of percent difference.
- **Initial Calibration Verification (ICV)—**Data packages were reviewed to verify that an ICV was prepared from a second source and that the recoveries were within acceptable ranges.
- **Interelement Check Standards (ICSA and ICSB)—**Interelement and background correction factors were evaluated by recalculating one or more recoveries from the raw data and verifying that the recalculated values agreed with the laboratory report.
- **Blanks—**Blank results were assessed to determine the existence and magnitude of contamination problems. The evaluation process involved the following:
    a) Reviewing the results of all associated blanks, summary sheet, and raw data.
    b) Verifying that the method blank analysis had been reported per matrix, per concentration level, for each instrument used to analyze samples, and for each extraction batch.
- **Laboratory Control Sample (LCS)—**LCS results were evaluated by reviewing the data package to verify that the results were within the control limits.
- **Surrogates—**Recovery data evaluation involved the following:
    a) Verifying the recoveries were within limits.

b) Determining if the laboratory took appropriate corrective action when surrogate recoveries were outside the limits (i.e., evidence re-injection or re-extraction).

c) Verifying that blank results did not exhibit surrogates recoveries outside the limits.

- **Matrix Spike and Matrix Spike Duplicate (MS/MSD)—**The evaluation process involved the following:

  a) Verifying that the recoveries were within limits.

  b) Checking the data and recalculating *%R* using the following equation:

$$\%R = \frac{(SSR - SR)}{SA} \times 100$$

Where: SSR = spiked sample result
SR = sample result
SA = spike added

- **Inductively Coupled Plasma (ICP) Serial Dilution—**Data were reviewed to determine if dilution results were within 10 percent of sample results.

1.3 Documentation

Shaw has prepared validation checklists for methods addressed in the DoD QSM 4.2 and the CT Laboratories Standard Operation Procedures (explosives, metals, nitrocellulose, TOC, and pH). The checklists and format have been reviewed and approved by the USACE Project Chemist. Data validation checklists are presented in **Attachment 1** of this appendix for environmental and quality control (QC) samples collected at the Load Line #1 MRS.

2.0 DATA VALIDATION RESULTS

The data validation process described in **Section 1.0** of this appendix was completed for all analytical data provided by CT Laboratories. The data package was reviewed by the Shaw Project Chemist, Maqsud Rahman, PhD, a qualified individual. The data validation process ensured the following:

- Data generation and reduction were conducted in a technically correct manner in accordance with the methods used;
- Data were reported in the proper units and with the correct number of significant figures;
- Calculations were verified by a valid calculation program, a spot-check-verified calculation program, or a 100-percent check of all hand calibrations;
- All variances from an accepted method and their rationale were documented and approved;
- Data were reviewed for transcription errors;
- Data package was complete and included sample preparation/extraction records, analysis sequence list, raw data, calculations, calibration data, QC results, and test results;
- QC results were within program-specified limits, or qualified appropriately if outside the limits; and
- Holding times were met and exceptions documented.

Attachment 1 of this appendix presents the data validation documentation for all environmental and QC samples collected at the Load Line #1 MRS. The following subsections summarize significant findings from the data validation process.

2.1 Data Qualifiers

Data qualifiers are assigned based on data validation findings and flagging protocol. Validation qualifiers used are presented in **Table 2-1** through **Table 2-4** of this appendix.

Table 2-1 summarizes the validation qualifiers for explosives by EPA SW-846 Method 8330B. This method utilizes high-performance liquid chromatography.

Table 2-1
Validation Qualifiers for Explosives

Flag	Flagging Criteria
J	When any of the following have NOT been met: a. CCV requirements b. LCS recovery c. Results between primary and secondary column relative percent difference ≤ 40% d. MS recovery within allowable limit e. MSD recovery within allowable limit f. Sample contamination detected outside DL and LOQ result range g. Soil sample triplicate relative standard deviation ≤ 20%
B	Method blank contamination
U	Nondetects
N	Non-target analyte

CCV denotes continuing calibration verification.
DL denotes detection limit.
LCS denotes laboratory control sample.
LOQ denotes limit of quantitation.
MS denotes matrix spike.
MSD denotes matrix spike duplicate.

Table 2-2 summarizes the validation qualifiers for metals by EPA SW-846 Method 6010C. This method utilizes ICP-atomic emission spectrometry.

Table 2-2
Validation Qualifiers for Metals

Flag	Flagging Criteria
J	When any of the following have NOT been met: a. CCV requirements b. LCS recovery c. ICS requirements d. MS recovery within allowable limit e. MSD recovery within allowable limit f. Sample contamination detected outside DL and LOQ result range g. Post-digestion spike recovery within allowable limit
B	Method blank contamination
U	Nondetects

Table 2-2 (continued)
Validation Qualifiers for Metals

Flag	Flagging Criteria
N	Non-target analyte

CCV denotes continuing calibration verification.
DL denotes detection limit.
ICS denotes interelement check standard.
LCS denotes laboratory control sample.
LOQ denotes limit of quantitation.
MS denotes matrix spike.
MSD denotes matrix spike duplicate.

Table 2-3 summarizes the validation qualifiers for nitrocellulose by EPA SW-846 Method 9056M and TOC by L-Kahn/9060A.

Table 2-3
Validation Qualifiers for Nitrocellulose and TOC

Flag	Flagging Criteria
J	When any of the following have NOT been met: a. CCV requirements b. LCS recovery c. MS recovery within allowable limit d. MSD recovery within allowable limit
B	Method blank contamination
U	Nondetects
N	Non-target analyte

CCV denotes continuing calibration verification.
LCS denotes laboratory control sample.
MS denotes matrix spike.
MSD denotes matrix spike duplicate.

Table 2-4 defines data validation qualifiers used in this report.

Table 2-4
Validation Qualifier Definitions

Qualifier	Definitions
U	The analyte was analyzed for, but not detected above, the DL.
J	Estimated. The associated numerical value is the approximate concentration of the analyte in the sample[1].

Table 2-4 (continued)
Validation Qualifier Definitions

Qualifier	Definitions
UJ	Not detected. The detection limits and quantitation limits are approximate.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

According to DoD Quality Systems Manual, Version 4.2, analytes detected between DL and LOQ need to be "J" qualified.

DL denotes detection limit. *DoD denotes United States Department of Defense.*

LOQ denotes limit of quantitation. *QC denotes quality control.*

Table 2-5 defines qualifier reason codes.

Table 2-5
Validation Qualifier Reason Codes

Reason Code	Descriptions
DL-LOQ	Sample result between detection limit and level of quantitation
FB	Field blank contamination
FD	Field duplicate evaluation criteria not met
HT	Holding time requirement was not met
LCS	Laboratory control sample evaluation criteria not met
MB	Method blank or preparation blank contamination
RB	Rinsate blank contamination
TB	Trip blank contamination
SQL	Sample quantitation limit exceeds decision criteria (for nondetects)
	Inorganic Methods
CB	Calibration blank contamination
CCV	Continuing calibration verification evaluation criteria not met
D	Laboratory duplicate precision evaluation criteria not met
DL	Serial dilution results did not meet evaluation criteria
ICSA	ICSA evaluation criteria not met
ICSB	ICSB evaluation criteria not met
ICV	ICV evaluation criteria not met
MS	MS recovery outside acceptance range
MS/MSD	Both MS and MSD outside acceptable range

Table 2-5 (continued)
Validation Qualifier Reason Codes

Reason Code	Descriptions
PDS	Post-digestion spike recovery outside acceptance range
MSA	Method of standard additions correlation coefficient < 0.995
PB	Preparation blank
	Organic Methods
CCAL	Continuing calibration evaluation criteria not met
ICAL	Initial calibration evaluation criteria not met
ID	Target compound identification criteria not met
IS	Internal standard evaluation criteria not met
MS/SD	MS/MSD accuracy and/or precision criteria not met
SUR	Surrogate recovery outside acceptance range
TUNE	Instrument performance (tuning) criteria not met
P	The detected concentration difference between the primary and secondary column is greater than 40%

ICS denotes intrelement check standard.
ICV denotes initial calibration verification.
MS denotes matrix spike.
MSD denotes matrix spike duplicate.

2.2 Explosives

The explosives data were complete (i.e., all required data elements were reported) and all analyses were in compliance with SW-846 Method 8330B and DoD QSM 4.2 requirements. Data validation findings include the following:

- 1,3,5-Trinitrobenzene (135-TNB) relative percent difference failed due to a higher recovery in the MS and MSD samples. The parent sample (LL1SS-715(I)-0001-SS) was qualified with a "J".
- Sample LL1-718-RB had a surrogate recovery that was more than double the spiked surrogate amount. The method and laboratory blanks, as well as the LCS, had acceptable surrogate recoveries. The sample was re-analyzed on the confirmation column and the surrogate recovery was within the acceptable range, but several peaks were elsewhere in the chromatogram. This indicates that the sample matrix was interfering at the surrogate retention time on the primary column, but eluted elsewhere on the confirmation column.

2.3 Metals

The metals data were complete (i.e., all required data elements were reported) and all analyses were in compliance with SW-846 Method 6010B. The MS/MSD for sample LL1SS-715(I)-0001-SS exceeded recovery limits for lead, magnesium and manganese, but had either serial acceptable dilution and/or post-digestion spike recoveries. Subsequently, their results were reported without qualification in the parent sample.

2.4 Nitrocellulose

The nitrocellulose data were complete (i.e., all required data elements were reported) and all analyses were in compliance with SW-846 Method 9056M and DoD QSM 4.2 requirements. MS/MSD recoveries for sample LL1SS-715(I)-001-SS were 63 percent and 65 percent respectively, and were below the allowable range of 70 to 130 percent. The parent sample result was qualified with a "J" flag.

2.5 Total Organic Carbon

The TOC data were complete (i.e., all required data elements were reported) and all analyses were in compliance with SW-846 Method 9060A. There were no QC outliers.

2.6 pH

The pH data were complete (i.e., all required data elements were reported) and all analyses were performed following SW-846 Method 9040C and. There were no QC outliers.

2.7 Summary of Data Qualifications and Validation Findings

A summary of the sample data qualifications and validation findings for the results of the RI sample collected at the Load Line #1 MRS are presented in **Table 2-6**.

2.8 Completeness and Usability

The percent completeness of field- and laboratory-generated analytical data were assessed using the following formula:

$$= \frac{[(\text{usable samples}) * (\text{total analytes})] - \text{unusable analytes} - [(\text{unusable samples}) * (\text{total analytes})]}{[(\text{total samples}) * (\text{total analytes})]}$$

Since no data have been rejected, 100 percent of the data is usable.

Table 2-6
Summary of Sample Data Qualifications and Validation Findings

Sample ID	Parameter	Results (mg/kg)	Detection Limit (mg/kg)	Laboratory Qualifier	Validation Qualifier	Reason Code[1]
LL1SS-715(I)-0001-SS	1,3,5-Trinitrobenzene	0.13	0.13	UY	UJ	MS/SD
LL1SS-716(I)-0001-SS	Nitroguanidene	0.22	0.061	JP	J	DL-LOQ, P
LL1SS-715(I)-0001-SS	Nitrocellulose	13	13	UM	UJ	MS/MSD

[1] Refer to Table 2-5 for reason codes definitions.
mg/kg denotes milligrams per kilogram.

Laboratory Qualifier Definitions:
J denotes estimated.
M denotes matrix spike or matrix spike duplicate recovery are outside of acceptance limits.
P denotes concentration of analyte differs by more than 40 percent between primary and confirmation analysis.
U denotes analyte concentration was not above the detection limit.
Y denotes raised quantitation or reporting limit is due to limited sample amount or dilution for matrix background interference.

Validation Qualifier Definitions:
J denotes estimated. The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ denotes not detected. The detection limits and quantitation limits are approximate.

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3.0 REFERENCES

Science Applications International Corporation, 2011. *Final Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio*, March.

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Attachment 1
Data Validation Checklists

NITROAROMATICS AND NITRAMINE ANALYSIS
DATA VERIFICATION CHECKLIST
(USING DoD QSM 4.2)

U.S. ARMY CORPS OF ENGINEERS
RAVENNA ARMY AMMUNITION PLANT

Location: Load Line #1 MRS

Laboratory: CT Laboratories **Sampling Date:** Aug 15. 2011 **COC No.** N/A

Report No.: 86608 **Extraction Date:** Aug. 19, 2011 **Analysis Date:** Aug. 23 , 2011

Analytical Method: SW-846 8330B **Matrix:** Soil/Water

Analyte: Nitroaromatics and Nitramine **Sample IDs:** LL1SS-715(I)-0001-SS,

LL1SS-716(I)-0001-SS, LL1SS-717(i)-0001-SS, LL1-718-RB

SAMPLE PREPARATION

	Yes	No
1. Analytical Capability Was analytical capability demonstrated?	[x]	[ ]
2. Limit of Detection (LOD) Were LODs determined and verified?	[x]	[ ]
3. Limit of Quantitation (LOQ)		
a) Were LOQs determined and verified?	[x]	[ ]
b) Were the samples dried to a constant weight?	[x]	[ ]
c) Were the dates, times and ambient temperatures recorded on a daily basis?	[x]	[ ]
d) Were the samples sieved and ground?	[x]	[ ]
4. Soil Grinding Blank		
a) Was a grinding blank processed in-between samples?	[x]	[ ]
b) Were any target analyte present at >1/2 of the reporting limit (RL)?	[x]	[ ]
5. Soil Subsampling Process		
a) Was any subsampling process followed?		
6. Soil Sample Triplicate	[x]	[ ]
a) Was a triplicate analysis performed?		
b) Was the relative standard deviation (RSD) ≤20%?		
7. Aqueous Sample Preparation (when applicable) Was a SPE performed?	[x]	[ ]

SAMPLE ANALYSIS

8. Sample Holding Time Were samples analyzed within holding times?	[x]	[ ]
9. Initial Calibration	[x]	[ ]
a) Did the initial calibration consist of five or more standards?	[x]	[ ]

	Yes	No
b) Was the lowest standard concentration at or below the RL?	[x]	[ ]
c) Was r $\geq$0.995 (if using linear regression)?	[x]	[ ]
d) Was the lowest standard or a CCV reanalyzed after the generation of the calibration curve?	[x]	[ ]
10. Initial Calibration Verification (ICV)	[x]	[ ]
a) Was the ICV run immediately following the ICAL?	[x]	[ ]
b) Was the ICV made of a 2nd source?		
c) Was the mid-level (2nd source) recovery within 80-120%?		
11. Continuing Calibration Verification (CCV)/Mid-Point Calibration		
a) Was a CCV conducted prior to sample analysis?	[x]	[ ]
b) Was a CCV conducted after every ten samples or every 12 hours?	[x]	[ ]
c) Was a CCV conducted after the last sample of the day?	[x]	[ ]
d) Did the CCV meet the minimum requirements (D $\leq$20%)?	[x]	[ ]
12. Method Blank		
a) Was a method blank present in every preparatory batch?	[x]	[ ]
b) Were target analytes detected >1/2 the RL and >1/10 the amount measured in any sample or 1/10 the regulatory limit (whichever is greater)?	[ ]	[x]
c) Did the method blank fail the project-specific objectives (>1/2 the RL or > the RL)?	[ ]	[x]
13. Laboratory Control Sample (LCS)		
a) Was an LCS present in every preparatory batch?	[x]	[ ]
b) Did the LCS contain all analytes to be reported?	[x]	[ ]
c) LCS: Were the percent recoveries for LCS within the limits? (Enter out of control recoveries only)	[x]	[ ]

Identification of LCS Standard

Spiked Compound	LCS %R	Acceptable Range (%)
	.	
	.	

14. Matrix Spike/Matrix Spike Duplicate			
a) MS/MSD: were the percent recoveries within limits? (Enter out of control recoveries only)	[x]	[ ]	
b) Were the relative percent differences (RPDs) within control limits?	[ ]	[x]	

Identification of Original Sample Used for QC

Sample ID	Compound	Percent Recovery		RPD
		MS	MSD	
LL1SS-715(I)-SS	1,3,5-Trinitrobenzene	96 (75-122)	117 (75-122)	19 (18)

15. Confirmation Analysis		
a) Was the RPD <40% between the two column results?	[x]	[ ]

	Yes	No
16. Analyte Detection		
a) Were results reported between the DL and the LOQ?	[x]	[ ]
b) Were results reported between the DL and the LOQ flagged as estimated?	[x]	[ ]

Qualifier ands Reason Code

Sample ID	Results (mg/kg)	Detection Limit (mg/kg)	Laboratory Qualifier	Validation Qualifier	Reason Code
LL1SS-715(I)-0001-SS	0.13	0.13	UY	UJ	MS/MSD

Comments (attach additional sheets if necessary):

1. 1,3,5-Trinitrobenzene (135-TNB) RPD failed due to a higher recovery in the matrix spike (MS) and matrix spike duplicate (MSD) samples. The parent sample (LL1SS-715(I)-0001-SS) was qualified with a "J".

2. Sample LL1-718-RB had a surrogate recovery that was more than double the spiked surrogate amount. The method and laboratory blanks, as well as the laboratory control sample, had acceptable surrogate recoveries. The sample was re-analyzed on the confirmation column and the surrogate recovery was within the acceptable range, but several peaks were elsewhere in the chromatogram. This indicates that the sample matrix was interfering at the surrogate retention time on the primary column, but eluted elsewhere on the confirmation column.

Validated/Reviewed by:

Name of Reviewer: Maqsud Rahman, PhD **Date:** November 1, 2011

Signature: Maqsud Rahman

Overall Assessment of the Data Package: Complete

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ICP METALS ANALYSIS DATA VERIFICATION CHECKLIST
(USING DoD QSM 4.2)

U.S. ARMY CORPS OF ENGINEERS
RAVENNA ARMY AMMUNITION PLANT

Location:	Load Line #1 MRS	**SDG No.:**	86608	**Sampling Date:**	August 15, 2011
Laboratory:	CT Laboratories	**COC No.:**	N/A	**Matrix:**	Soil & water
Parameter:	MEC Metals & Geochem Metals			**Analytical Method:**	6010B
Extraction Dates:	August 24, 2011	**Analysis Dates:**	August 25, 2011		

Sample IDs: LL1SS-715(I)-0001-SS, LL1SS-716(I)-0001-SS, LL1SS-717(I)-0001-SS, LL1-718-RB

		Yes	No	N/A
1.	Analytical Capability			
	Was analytical capability demonstrated?	X		
2.	Limit of Detection (LOD)			
	Were LODs determined and verified?	X		
3.	Limit of Quantitation (LOQ)			
	Were LOQs determined and verified?	X		
4.	Instrument Detection Limit (IDL) study			
	Was an IDL study performed?	X		
5.	Sample Holding Time			
	Were samples analyzed within holding times?	X		
6.	Initial Calibration			
	Did the initial calibration consist of:			
	a) One high calibration standard and a blank?	X		
	b) Three or more standards and a blank?	X		
7.	Low Level Calibration Check Standard (daily after 1 point ICAL)			
	Was the percentage "D" $\leq$20%?			X

	Yes	No	N/A
8. Initial Calibration Verification (ICV)			
a) Was it analyzed after each ICAL and the beginning of each analytical run?	X		
b) Was the mid-level (2nd source) within 90-110?	X		
9. Initial Calibration Blank (ICB)			
Was the ICB analyzed immediately following the ICV?	X		
10. Linear Dynamic Range or High Level Check Standard (every 6 months)			
Was recovery within 90-110?	X		
11. Interelement Check Standard (ICS)			
a) Was ICS-A (interferents only) conducted at the beginning of the analytical sequence?	X		
b) Were concentrations (absolute values) of all non-spiked analytes <LOD?	X		
c) Was ICS-B (interferents and target analytes) within QC limits (80-120)?	X		
12. Continuing Calibration Blank (CCB)			
a) Was a CCB conducted at least every 10 samples?	X		
b) Was a CCB conducted at the end of the analytical sequence?	X		
c) Were all analyte concentrations >LOD?	X		
13. Continuing Calibration Verification (CCV)			
a) Was a CCV conducted at least every 10 samples?	X		
b) Was a CCV conducted at the end of the analytical sequence?	X		
c) Were recoveries between 90-110%?	X		
14. Sample Quality Control			
a) Method Blanks			
1) Was a method blank present in every preparatory batch?	X		
2) Were target analytes detected >1/2 reporting limit (RL), and >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater?		X	
3) Did the method blank fail project-specific objectives (>1/2 the RL or > the RL)?	X		
b) Laboratory Control Sample (LCS)			
1) Was an LCS present in every preparatory batch?	X		
2) Did the LCS contain all analytes to be reported?	X		

	Yes	No	N/A
3) Were percent recoveries for the LCS within the limits?			
(Enter out of control recoveries only)	X		

Identification of LCS Standard

Spiked Compound	LCS (%R)	LCSD (%R)	RPD

c) Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

	Yes	No	N/A
1) Were percent recoveries within limits (80-120)?			
(Enter out of control recoveries only)		X	
2) Were the relative percent differences (RPDs) within the acceptable limit (<20)?			
(Enter out of control recoveries in bold)	X		

Identification of Original Sample Used for QC

Sample ID	Analyte	Percent Recovery		RPD
		MS	MSD	
LL1SS-715(I)-0001-SS	Lead	75 (80-120)	110	7
	Magnesium		78 (80-120)	2
	Manganese		31 (80-120)	3

	Yes	No	N/A
15. Dilution Test			
a) Was a 5-fold serial dilution conducted (one per preparatory batch)?	X		
b) Was there an agreement between diluted and undiluted results (<10%)?		X	
16. Post Digestion Spike Addition			
a) Was a post-digestion spike addition necessary?	X		
b) Were recoveries within acceptable limits (75-125%)?	X		
17. Method of Standard Addition (MSA)			
Was MSA performed on samples when matrix interference is confirmed (where dilution test fails or when concentrations in all samples are <50 times the LOD)?			X

	Yes	No	N/A
18. Analyte Detection			
a) Were any results between the DL and the LOQ?		X	
b) Were any results between the DL and LOQ J flagged?			X
19. Sample Analysis			
Were samples with analyte concentrations higher than the calibration range (E), diluted and re-analyzed?	X		

Comments (attach additional sheets if necessary):

The MS and/or MSDs for sample LL1SS-715(I)-0001-SS exceeded recovery limits for lead, magnesium and manganese. The element in this sample had either acceptable serial dilution results or post digestion spike recoveries. Subsequently, their results were reported without qualification in the parent sample.

Validated/Reviewed by:

Name of Reviewer: Maqsud Rahman, PhD **Date:** November 2, 2011

Signature: Maqsud Rahman

Overall Assessment of the Data Package: Complete

NITROCELLULOSE ANALYSIS DATA VERIFICATION CHECKLIST
(USING CT LABORATORY SOP)

RAVENNA ARMY AMMUNITION PLANT
US ARMY CORPS OF ENGINEERS

Location:	Load Line #1 MRS	**SDG No.:**	86608	**COC No.:**	N/A
Laboratory:	CT Laboratories	**Sampling Date:**	August 15, 2011	**Matrix:**	Soil & Water
Parameter:	Nitrocellulose			**Analytical Method:**	SOP CC-NC
Extraction Dates:	Aug 22, 2011	**Analysis Dates:**	Aug 22, 2011		

Sample IDs: LL1SS-715(I)-0001-SS, LL1SS-716(I)-0001-SS, LL1SS-717(I)-0001-SS, LL1-718-RB

	Yes	No	N/A
1. Was the calibration performed using a minimum of three standards and a blank?	X		
2. Is the standard prep log number noted on the analytical report bench sheet?	X		
3. Was the correlation coefficient $\geq$ 0.995?	X		
4. Were the initial calibration verification (ICV) and initial calibration blank (ICB) run immediately after the calibration check standard?	X		
5. Was the ICV recovery 90-110%?	X		
6. Was the ICB result < limit of detection (LOD)?	X		
7. Were the continuing calibration verifications (CCV's) and the continuing calibration blanks (CCB's) analyzed at least once for every 10 samples?	X		
8. Were the CCV recoveries 90-110%?	X		
9. Were the CCB results <LOD?	X		
10. Was a method blank (MB) analyzed at least once for every 20 samples?	X		
11. Were the MB results <LOD?	X		
12. Was a laboratory control sample (LCS) run at least once for every 20 samples?	X		
13. Was the LCS recovery 80-120% (soil) or 70-130% (water)?	X		
14. Was the MS and/or MSD (when required) prepared at least once for every 20 samples per matrix?	X		

	Yes	No	N/A
15. Was the matrix spike (MS) (and/or matrix spike duplicate [MSD]) recovery 80-120% (soil) or 70-130% (water)?		X	
16. If applicable, was the relative percent difference (RPD) between the MS and MSD 15% (soil) or 20% (water)?	X		
17. Was a sample duplicate prepared at least once for every 20 samples?	X		
18. Was the duplicate within precision limits?	X		

Nitrocellulose Qualifier ands Reason Code

Sample ID	Results (mg/kg)	Detection Limit (mg/kg)	Laboratory Qualifier	Validation Qualifier	Reason Code
LL1SS-715(I)-0001-SS	13	13	UM	UJ	MS/MSD

Comments (attach additional sheets if necessary):

The MS and MSD recoveries for sample LL1SS-715(I)-001-SS were 63% and 65%, respectively, and were below the allow range of 70-130%. The parent sample result was qualified with a "J" flag.

Validated/Reviewed by:

Name of Reviewer: Maqsud Rahman, PhD **Date:** November 2, 2011

Signature: Maqsud Rahman

Overall Assessment of the Data Package: Complete

pH ANALSIS DATA VERIFICATION CHECKLIST
(USING CT LABORATORY SOP)

U.S. ARMY CORPS OF ENGINEERS
RAVENNA ARMY AMMUNITION PLANT

Location Name: Load Line #1 MRS

Laboratory: CT Laboratories **Sampling Date:** Aug 15, 2011 **COC No.** N/A

Report No.: 86608 **Extraction Date:** N/A **Analysis Date:** Aug. 24, 2011

Analytical Method: SOP CC-24B **Matrix:** Soil/Water

Analyte: pH **Analytical Method:** SOP CC-24B **Matrix:** Soil/Water

Sample IDs: **LL1SS-715(I)-0001-SS, LL1SS-716(I)-0001-SS,** LL1SS-717(I)-0001-SS, LL1-718-RB

		Yes	**No**
1.	Was a duplicate run at least once for every 20 samples of the same matrix?	X	
2.	Did the duplicates differ from the samples by ≤ 0.10 pH units?		X

Comments (attach additional sheets if necessary):

No QC outlier to report.

Validated/Reviewed by:

Name of Reviewer: Maqsud Rahman, PhD **Date:** November 2, 2011

Signature: Maqsud Rahman

Overall Assessment of the Data Package: Complete

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TOTAL ORGANIC CARBON ANALYSIS DATA VERIFICATION CHECKLIST
(USING CT LABORATORY SOP)

U.S. ARMY CORPS OF ENGINEERS
RAVENNA ARMY AMMUNITION PLANT

Location Name: Load Line #1 MRS

Laboratory: CT Laboratories **Sampling Date:** Aug 15, 2011 **COC No.** N/A

Report No.: 86608 **Extraction Date:** N/A **Analysis Date:** Aug 30, 2011

Analytical Method: SOP CC-TOC Solid **Matrix:** Soil and Water

Analyte: Total Organic Carbon

Sample IDs: LL1SS-715(I)-0001-SS, LL1SS-716(I)-0001-SS, LL1SS-717(I)-0001-SS, LL1-718-RB

		Yes	No
1.	Were the samples acidified prior to analysis?	X	
2.	Was a calibration curve performed using at least three standards and a blank?	X	
3.	Was the correlation coefficient >= 0.995?	X	
4.	Was the initial calibration verification (ICV) standard run at the beginning of the run prior to sample analysis?	X	
5.	Was the ICV recovery 90-110%?	X	
6.	Was the initial calibration blank (ICB) result < limit of detection (LOD)?	X	
7.	Were the continuing calibration verifications (CCV's) and the continuing calibration blanks (CCB's) analyzed at least once for every 10 samples?	X	
8.	Were the CCV recoveries 90-110%?	X	
9.	Were the CCB results < LOD?	X	
10.	Were all positive results that were reported within the calibration's range?	X	
11.	Was the laboratory control sample (LCS) recovery 80-120%?	X	
12.	Were the method blanks (MB) results < LOD?	X	
13.	Were at least one of every 20 samples analyzed in quadruplicate?	X	
14.	Was the percent relative standard deviation (%RSD) on the replicated sample ± 30%?	X	

Comments (attach additional sheets if necessary):

No QC outliers to report.

Validated/Reviewed by:

Name of Reviewer: Maqsud Rahman, PhD **Date:** November 2, 2011

Signature: Maqsud Rahman

Overall Assessment of the Data Package: Complete

Appendix C
Laboratory Analytical Data

Note: Data submitted on compact disc.

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ANALYTICAL RESULTS FOR:

DAVID CRISPO
SHAW ENVIRONMENTAL & INFRASTRUCTURE GROUP
100 TECHNOLOGY CENTER DRIVE
STOUGHTON, MA 02072

PROJECT SITE:	Ravenna Army Ammunition Depot MMRP Ravenna, OH
PROJECT LOCATION:	Load Line #1 (LL1) RVAAP-008-R-01
DOD CONTRACT #:	W912DR-09-D-0005
PROJECT #:	136147
SDG:	86608
PREPARED:	September 1, 2011
DOCUMENT PAGES:	983

The data contained in the following report have been reviewed by the appropriate CTLaboratories' staff members. In addition, CTLaboratories certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CTLaboratories.

APPROVED BY: _____ LABORATORY DIRECTOR

APPROVED BY: _____ QA OFFICER

APPROVED BY: _____ PROJECT MANAGER

Certifications: IL (NELAP 200046), KS (NELAP E-10368), KY (0023), PA (NELAP 68-04201), NJ (NELAP WI001), NC (674), WI (157066030), GA EDP Stipulation (Accreditor: ILNELAP, ACC#: 200465, Scope: Haz/solid water/Non-potable water, Effective : 11/19/2009, Expires: annually), DOD ELAP (ADE-1453)

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Case Narrative

Client: Shaw E&I
Project: Ravenna AAP MMRP LL1, Ravenna, OH
Sample Receipt Date: 08/16/2011
SDG #: ***86608***

Three multi-incremental soil samples and rinse blank sample were received for a variety of analyses, including: total organic carbon (soil only - TOC), pH, MEC metals (Pb only), geochemical metals (soil only - Ca, Mg, Mn), explosives, nitroguanidine (NQ), and nitrocellulose. The assigned sample ID number, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and at a temperature within method specified acceptance limits. A breakdown of sample receipt information can be found on the Sample Condition Report located in the last section of the data package and any exceptions are noted below. Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, Reason #(s) were included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

All of the multi-incremental soil samples were first air-dried, ground via puck mill, and then homogenized prior to analysis.

Sample Analysis and Quality Control

Explosives Analysis:

The samples were analyzed using US EPA Method 8330B. All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Explosives (8330B) Soil Analyses

Analytical Run # 78322

1,3,5-trinitrobenzene (135-TNB) relative percent difference (RPD) failed due to a higher recovery in the matrix spike duplicate (MSD) sample. The parent sample (#962085) was qualified with a "Y".

All three samples (962085, 962086, 962087) had high surrogates along with the duplicate and triplicate analyses of 962085. Sample 962085, the first prep, had a lower surrogate recovery than its duplicate preps. It appeared as though the surrogate interference was carryover from the previous sample, as there was interference with surrogate integration in the CCV immediately following the last sample in this analytical run. The interference affected surrogate integration in all of the samples. All samples were reanalyzed on the confirmation column to show that surrogate recoveries were in the normal range with normal integration. The confirmation analyses showed several extra peaks that were not apparent in the primary analyses. The MSD surrogate also failed high but MSD samples are not qualified.

Explosives (8330B) Water Analyses

Analytical Run #78273:

Sample 962088 had a surrogate recovery that was more than double the spiked surrogate amount. The method blank (MB) and laboratory control sample (LCS) had acceptable surrogate recoveries. The sample was re-analyzed on the confirmation column and the surrogate recovery was within the acceptable QC range but several other peaks were elsewhere in the chromatogram. This indicated that the sample matrix was interfering at the surrogate retention time on the primary column analysis but eluted elsewhere on the confirmation analysis. The primary value was reported and qualified with an "S".

Nitroguanidine (NQ) Soil Analyses (8330B)

Analytical Run # 78306

All analysis results for this SDG met the method/project specified quality control criteria.

Nitroguanidine (NQ) Water Analyses (8330B)

Analytical Run # 78272

All analysis results for this SDG met the method/project specified quality control criteria.

Metals:

The samples were analyzed using US EPA Method 6010C (ICP). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

ICP Metals (6010C) Soil Analysis

Continuing Calibration Verifications standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Analytical Run # 78472

Magnesium and manganese were detected above the LOD, and calcium was detected above ½ of the Reporting Limit (RL) in the Method Blank (MB). The results for these elements in the associated samples were all greater than 10 times the MB results and the data were not qualified.

The Serial Dilutions (L) for sample # 962085 exceeded RPD limits for calcium, magnesium, and manganese. The PDS for this sample had acceptable recoveries for these elements. They were reported without qualification in the parent sample.

The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) for sample # 962085 exceeded recovery limits for magnesium, manganese, and lead. The elements in this sample had either acceptable Serial Dilution results or PDS recoveries. They were reported without qualification in the parent sample.

ICP Metals (6010C) Water Analysis

Continuing Calibration Verifications standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Analytical Run # 78423

The Duplicate (DUP) for sample # 962088 was not applicable for lead because the parent sample result for this element was less than 5 times the Limit of Quantitation (LOQ). A Matrix Spike Duplicate (MSD) was analyzed to demonstrate precision and had an acceptable result.

The Serial Dilution for sample # 962088 was not applicable for lead because the parent sample result was less than 50 times the LOQ. A Post Digestion Spike (PDS) was analyzed with an acceptable recovery for lea. The data was reported without qualification in the parent sample.

Inorganic Analyses:

The samples were analyzed using US EPA Methods 9040C/9045D (pH), 9056M (nitrocellulose), and the Lloyd-Kahn Method (TOC soil). Soil samples were prepared with alkaline digestion method 3060A for hexavalent chromium analysis. All samples were analyzed within the holding time unless otherwise noted. The following summaries of quality control procedures are included:

Duplicate Analysis Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log

All analysis results for this SDG met the method/project specified quality control criteria with the following exceptions:

Nitrocellulose (9056M) Soil Analyses

Analytical Run # 78541

The Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) for sample # 962085 had a low recovery. The parent sample result was qualified with an "M" flag.

Nitrocellulose (9056M) Water Analyses

Analytical Run # 78280

All analysis results for this SDG met the method/project specified quality control criteria. An insufficient sample volume was provided and matrix spike analyses could not be performed.

Total Organic Carbon (Lloyd-Kahn TOC) Soil Analyses

Analytical Run # 78601

The Duplicate (DUP) replicates were performed on a sample from another SDG. The data and the forms for these were included with this data package.

pH (9045D) Soil Analyses

Analytical Run # 78480

All analysis results for this SDG met the method/project specified quality control criteria.

pH (9040C) Water Analyses

Analytical Run # 78438

All analysis results for this SDG met the method/project specified quality control criteria.

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Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

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MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

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Sample Delivery Group

86608

SHAW E&I INC
DAVID CRISPO
100 TECHNOLOGY CENTER DRIVE
STOUGHTON, MA 02072

Project Name: RVAAP MMRP LL1
Project #: 136147

CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
962085	86608		LL1SS-715(I)-0001-SS	SOIL	08/15/2011	08/16/2011
962086	86608		LL1SS-716(I)-0001-SS	SOIL	08/15/2011	08/16/2011
962087	86608		LL1SS-717(I)-0001-SS	SOIL	08/15/2011	08/16/2011
962088	86608		LL1-718-RB	GROUND WATER	08/15/2011	08/16/2011

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QC Batch Cross Reference Summary

SHAW E&I INC
DAVID CRISPO
100 TECHNOLOGY CENTER DRIVE
STOUGHTON, MA 02072

Copy: Maqsud.Rahman@shawgrp.com

Project Name:	RVAAP MMRP LL1
Project #:	136147
Report Date:	09/01/2011
Date Received:	08/16/2011
SDG #:	86608

Inorganic Parameters

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Solids, Percent	SOIL		78350
962086	Solids, Percent	SOIL		78350
962087	Solids, Percent	SOIL		78350

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	pH	SOIL		78480
962086	pH	SOIL		78480
962087	pH	SOIL		78480
962088	pH	GROUND WATER		78438

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Organic Carbon, Total QSM	SOIL		78601
962086	Organic Carbon, Total QSM	SOIL		78601
962087	Organic Carbon, Total QSM	SOIL		78601

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Nitrocellulose QSM	SOIL	38286	78541
962086	Nitrocellulose QSM	SOIL	38286	78541
962087	Nitrocellulose QSM	SOIL	38286	78541
962088	Nitrocellulose QSM	GROUND WATER	38218	78280

Metal Parameters

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	ICP Metals QSM	SOIL	38322	78472
962086	ICP Metals QSM	SOIL	38322	78472
962087	ICP Metals QSM	SOIL	38322	78472
962086	ICP Metals QSM	SOIL	38322	78472
962087	ICP Metals QSM	SOIL	38322	78472

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962088	ICP Metals, Total QSM	GROUND WATER	38309	78423

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Project Name: RVAAP MMRP LL1
Project #: 136147
SDG #: 86608

Organic Parameters

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Explosives by 8330	SOIL	38277	78306
962086	Explosives by 8330	SOIL	38277	78306
962087	Explosives by 8330	SOIL	38277	78306
962088	Explosives by 8330	GROUND WATER	38239	78272

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Explosives by 8330	SOIL	38276	78322
962086	Explosives by 8330	SOIL	38276	78322
962087	Explosives by 8330	SOIL	38276	78322
962088	Explosives by 8330	GROUND WATER	38235	78273

CTI LAB#:	Parameter	Matrix	Prep Batch #	Analytical Run #
962085	Homogenization/Multi Incremental Prep	SOIL		78485
962086	Homogenization/Multi Incremental Prep	SOIL		78485
962087	Homogenization/Multi Incremental Prep	SOIL		78485

NITROAROMATICS ANALYSIS
QUALITY CONTROL SUMMARY
DOCUMENTS

CT LABORATORIES
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1B

EXPLOSIVES ANALYSIS

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	5.03 (g/L)	CTL Sample ID:	962085
% Solids:	98.1	Date Received:	08/16/2011
Conc. Extract Vol:	10.0 (mL)	Date/Time Prepared:	08/19/2011 / 14:30
Analytical Method:	EPA 8330	Analytical Prep Batch #	38277
Analytical Run #:	78306	Dilution Factor:	1.00
Date & Time Analyzed:	08/20/2011 / 11:09	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
556-88-7	Nitroguanidine	0.25	P	0.060	0.099	0.25	0.25

CT LABORATORIES
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EXPLOSIVES ANALYSIS

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	10.00 (g/L)	CTL Sample ID:	962085
% Solids:	98.1	Date Received:	08/16/2011
Conc. Extract Vol:	20.0 (mL)	Date/Time Prepared:	08/19/2011 / 16:15
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38276
Analytical Run #:	78322	Dilution Factor:	1.00
Date & Time Analyzed:	08/23/2011 / 14:30	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
99-35-4	1,3,5-Trinitrobenzene	0.13	U Y	0.13	0.25	0.50	0.50
99-65-0	1,3-Dinitrobenzene	0.080	U	0.080	0.15	0.40	0.40
118-96-7	2,4,6-Trinitrotoluene	0.090	U	0.090	0.25	0.40	0.40
121-14-2	2,4-Dinitrotoluene	0.080	U	0.080	0.25	0.50	0.50
606-20-2	2,6-Dinitrotoluene	0.070	U	0.070	0.25	0.50	0.50
35572-78-2	2-Amino-4,6-dinitrotoluene	0.050	U	0.050	0.15	0.40	0.40
88-72-2	2-Nitrotoluene	0.090	U	0.090	0.25	0.50	0.50
618-87-1	3,5-Dinitroaniline	0.090	U	0.090	0.15	0.40	0.40
99-08-1	3-Nitrotoluene	0.070	U	0.070	0.15	0.40	0.40
19406-51-0	4-Amino-2,6-dinitrotoluene	0.070	U	0.070	0.15	0.40	0.40
99-99-0	4-Nitrotoluene	0.070	U	0.070	0.25	0.40	0.40
2691-41-0	HMX	0.12	U	0.12	0.15	0.40	0.40
98-95-3	Nitrobenzene	0.040	U	0.040	0.15	0.40	0.40
55-63-0	Nitroglycerin	0.50	U	0.50	1.0	2.0	2.0
78-11-5	PETN	0.50	U	0.50	1.0	2.0	2.0
121-82-4	RDX	0.14	U	0.14	0.15	0.50	0.50
479-45-8	Tetryl	0.090	U	0.090	0.25	0.40	0.40

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EXPLOSIVES ANALYSIS

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	4.90 (g/L)	CTL Sample ID:	962086
% Solids:	98.8	Date Received:	08/16/2011
Conc. Extract Vol:	10.0 (mL)	Date/Time Prepared:	08/19/2011 / 14:30
Analytical Method:	EPA 8330	Analytical Prep Batch #	38277
Analytical Run #:	78306	Dilution Factor:	1.00
Date & Time Analyzed:	08/20/2011 / 11:33	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
556-88-7	Nitroguanidine	0.22	J P	0.061	0.10	0.26	0.26

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EXPLOSIVES ANALYSIS

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	9.93 (g/L)	CTL Sample ID:	962086
% Solids:	98.8	Date Received:	08/16/2011
Conc. Extract Vol:	20.0 (mL)	Date/Time Prepared:	08/19/2011 / 16:15
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38276
Analytical Run #:	78322	Dilution Factor:	1.00
Date & Time Analyzed:	08/23/2011 / 15:25	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
99-35-4	1,3,5-Trinitrobenzene	0.13	U	0.13	0.25	0.50	0.50
99-65-0	1,3-Dinitrobenzene	0.081	U	0.081	0.15	0.40	0.40
118-96-7	2,4,6-Trinitrotoluene	0.091	U	0.091	0.25	0.40	0.40
121-14-2	2,4-Dinitrotoluene	0.081	U	0.081	0.25	0.50	0.50
606-20-2	2,6-Dinitrotoluene	0.070	U	0.070	0.25	0.50	0.50
35572-78-2	2-Amino-4,6-dinitrotoluene	0.050	U	0.050	0.15	0.40	0.40
88-72-2	2-Nitrotoluene	0.091	U	0.091	0.25	0.50	0.50
618-87-1	3,5-Dinitroaniline	0.091	U	0.091	0.15	0.40	0.40
99-08-1	3-Nitrotoluene	0.070	U	0.070	0.15	0.40	0.40
19406-51-0	4-Amino-2,6-dinitrotoluene	0.070	U	0.070	0.15	0.40	0.40
99-99-0	4-Nitrotoluene	0.070	U	0.070	0.25	0.40	0.40
2691-41-0	HMX	0.12	U	0.12	0.15	0.40	0.40
98-95-3	Nitrobenzene	0.040	U	0.040	0.15	0.40	0.40
55-63-0	Nitroglycerin	0.50	U	0.50	1.0	2.0	2.0
78-11-5	PETN	0.50	U	0.50	1.0	2.0	2.0
121-82-4	RDX	0.14	U	0.14	0.15	0.50	0.50
479-45-8	Tetryl	0.091	U	0.091	0.25	0.40	0.40

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1B

EXPLOSIVES ANALYSIS

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	4.93 (g/L)	CTL Sample ID:	962087
% Solids:	98.5	Date Received:	08/16/2011
Conc. Extract Vol:	10.0 (mL)	Date/Time Prepared:	08/19/2011 / 14:30
Analytical Method:	EPA 8330	Analytical Prep Batch #	38277
Analytical Run #:	78306	Dilution Factor:	1.00
Date & Time Analyzed:	08/20/2011 / 11:40	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
556-88-7	Nitroguanidine	0.061	U	0.061	0.10	0.25	0.25

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EXPLOSIVES ANALYSIS

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOIL	SDG No.:	86608
Sample wt/vol:	9.96 (g/L)	CTL Sample ID:	962087
% Solids:	98.5	Date Received:	08/16/2011
Conc. Extract Vol:	20.0 (mL)	Date/Time Prepared:	08/19/2011 / 16:15
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38276
Analytical Run #:	78322	Dilution Factor:	1.00
Date & Time Analyzed:	08/23/2011 / 15:43	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	mg/kg

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
99-35-4	1,3,5-Trinitrobenzene	0.13	U	0.13	0.25	0.50	0.50
99-65-0	1,3-Dinitrobenzene	0.080	U	0.080	0.15	0.40	0.40
118-96-7	2,4,6-Trinitrotoluene	0.090	U	0.090	0.25	0.40	0.40
121-14-2	2,4-Dinitrotoluene	0.080	U	0.080	0.25	0.50	0.50
606-20-2	2,6-Dinitrotoluene	0.070	U	0.070	0.25	0.50	0.50
35572-78-2	2-Amino-4,6-dinitrotoluene	0.050	U	0.050	0.15	0.40	0.40
88-72-2	2-Nitrotoluene	0.090	U	0.090	0.25	0.50	0.50
618-87-1	3,5-Dinitroaniline	0.090	U	0.090	0.15	0.40	0.40
99-08-1	3-Nitrotoluene	0.070	U	0.070	0.15	0.40	0.40
19406-51-0	4-Amino-2,6-dinitrotoluene	0.070	U	0.070	0.15	0.40	0.40
99-99-0	4-Nitrotoluene	0.070	U	0.070	0.25	0.40	0.40
2691-41-0	HMX	0.12	U	0.12	0.15	0.40	0.40
98-95-3	Nitrobenzene	0.040	U	0.040	0.15	0.40	0.40
55-63-0	Nitroglycerin	0.50	U	0.50	1.0	2.0	2.0
78-11-5	PETN	0.50	U	0.50	1.0	2.0	2.0
121-82-4	RDX	0.14	U	0.14	0.15	0.50	0.50
479-45-8	Tetryl	0.090	U	0.090	0.25	0.40	0.40

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1B

EXPLOSIVES ANALYSIS

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	GROUND WATER	SDG No.:	86608
Sample wt/vol:	0.005 (g/L)	CTL Sample ID:	962088
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	5.0 (mL)	Date/Time Prepared:	08/18/2011 / 14:45
Analytical Method:	EPA 8330	Analytical Prep Batch #	38239
Analytical Run #:	78272	Dilution Factor:	1.00
Date & Time Analyzed:	08/21/2011 / 14:38	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	ug/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
556-88-7	Nitroguanidine	32	U	32	50	120	120

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EXPLOSIVES ANALYSIS

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	GROUND WATER	SDG No.:	86608
Sample wt/vol:	0.500 (g/L)	CTL Sample ID:	962088
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	5.0 (mL)	Date/Time Prepared:	08/18/2011 / 14:00
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38235
Analytical Run #:	78273	Dilution Factor:	1.00
Date & Time Analyzed:	08/21/2011 / 18:01	GPC Cleanup Date/Time:	/
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	ug/L

CAS NO.	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
99-35-4	1,3,5-Trinitrobenzene	0.23	U	0.23	0.80	2.0	2.0
99-65-0	1,3-Dinitrobenzene	0.20	U	0.20	0.60	0.80	0.80
118-96-7	2,4,6-Trinitrotoluene	0.22	U	0.22	0.80	1.0	1.0
121-14-2	2,4-Dinitrotoluene	0.30	U	0.30	0.80	2.0	2.0
606-20-2	2,6-Dinitrotoluene	0.24	U	0.24	0.80	1.0	1.0
35572-78-2	2-Amino-4,6-dinitrotoluene	0.24	U	0.24	0.60	1.0	1.0
88-72-2	2-Nitrotoluene	0.40	U	0.40	0.80	2.0	2.0
618-87-1	3,5-Dinitroaniline	0.23	U	0.23	0.60	1.0	1.0
99-08-1	3-Nitrotoluene	0.23	U	0.23	0.60	0.80	0.80
19406-51-0	4-Amino-2,6-dinitrotoluene	0.28	U	0.28	0.60	1.0	1.0
99-99-0	4-Nitrotoluene	0.22	U	0.22	0.80	1.0	1.0
2691-41-0	HMX	0.25	U	0.25	0.60	1.0	1.0
98-95-3	Nitrobenzene	0.22	U	0.22	0.60	0.80	0.80
55-63-0	Nitroglycerin	2.2	U	2.2	3.2	8.0	8.0
78-11-5	PETN	3.0	U	3.0	4.0	12	12
121-82-4	RDX	0.18	U	0.18	0.60	0.80	0.80
479-45-8	Tetryl	0.21	U	0.21	0.60	2.0	2.0

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EXPLOSIVES ANALYSIS (MB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:		SDG No.:	86608
Sample wt/vol:	0.500 (g/L)	CTL Sample ID:	963300
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	5.0 (mL)	Date/Time Prepared:	08/18/2011 / 14:00
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38235
Analytical Run #:	78273	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	ug/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
99-35-4	1,3,5-Trinitrobenzene	08/21/2011	17:06	0.23	U	0.23	1.00	***0.50***
99-65-0	1,3-Dinitrobenzene	08/21/2011	17:06	0.20	U	0.20	0.80	***0.40***
118-96-7	2,4,6-Trinitrotoluene	08/21/2011	17:06	0.22	U	0.22	1.00	***0.50***
121-14-2	2,4-Dinitrotoluene	08/21/2011	17:06	0.3	U	0.3	2.0	***1.00***
606-20-2	2,6-Dinitrotoluene	08/21/2011	17:06	0.24	U	0.24	1.00	***0.50***
35572-78-2	2-Amino-4,6-dinitrotoluene	08/21/2011	17:06	0.24	U	0.24	1.00	***0.50***
88-72-2	2-Nitrotoluene	08/21/2011	17:06	0.4	U	0.4	2.0	***1.00***
618-87-1	3,5-Dinitroaniline	08/21/2011	17:06	0.23	U	0.23	1.00	***0.50***
99-08-1	3-Nitrotoluene	08/21/2011	17:06	0.23	U	0.23	0.80	***0.40***
19406-51-0	4-Amino-2,6-dinitrotoluene	08/21/2011	17:06	0.28	U	0.28	1.00	***0.50***
99-99-0	4-Nitrotoluene	08/21/2011	17:06	0.22	U	0.22	1.00	***0.50***
2691-41-0	HMX	08/21/2011	17:06	0.25	U	0.25	1.00	***0.50***
98-95-3	Nitrobenzene	08/21/2011	17:06	0.22	U	0.22	0.80	***0.40***
55-63-0	Nitroglycerin	08/21/2011	17:06	2.2	U	2.2	8.0	***4.0***
78-11-5	PETN	08/21/2011	17:06	3	U	3	12	***6***
121-82-4	RDX	08/21/2011	17:06	0.18	U	0.18	0.80	***0.40***
479-45-8	Tetryl	08/21/2011	17:06	0.21	U	0.21	2.00	***1.00***

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EXPLOSIVES ANALYSIS (MB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:		SDG No.:	86608
Sample wt/vol:	0.005 (g/L)	CTL Sample ID:	963325
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	5.0 (mL)	Date/Time Prepared:	08/18/2011 / 14:45
Analytical Method:	EPA 8330	Analytical Prep Batch #	38239
Analytical Run #:	78272	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	ug/L

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
556-88-7	Nitroguanidine	08/21/2011	14:15	32	U	32	120	***60***

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EXPLOSIVES ANALYSIS (MB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:		SDG No.:	86608
Sample wt/vol:	10.07 (g/L)	CTL Sample ID:	963946
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	20.0 (mL)	Date/Time Prepared:	08/19/2011 / 16:15
Analytical Method:	EPA 8330B	Analytical Prep Batch #	38276
Analytical Run #:	78322	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	082111expic-primary	Concentration Units:	mg/kg

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
99-35-4	1,3,5-Trinitrobenzene	08/23/2011	13:53	0.13	U	0.13	0.50	***0.25***
99-65-0	1,3-Dinitrobenzene	08/23/2011	13:53	0.08	U	0.08	0.40	***0.20***
118-96-7	2,4,6-Trinitrotoluene	08/23/2011	13:53	0.09	U	0.09	0.40	***0.20***
121-14-2	2,4-Dinitrotoluene	08/23/2011	13:53	0.08	U	0.08	0.50	***0.25***
606-20-2	2,6-Dinitrotoluene	08/23/2011	13:53	0.07	U	0.07	0.50	***0.25***
35572-78-2	2-Amino-4,6-dinitrotoluene	08/23/2011	13:53	0.05	U	0.05	0.40	***0.20***
88-72-2	2-Nitrotoluene	08/23/2011	13:53	0.09	U	0.09	0.50	***0.25***
618-87-1	3,5-Dinitroaniline	08/23/2011	13:53	0.09	U	0.09	0.40	***0.20***
99-08-1	3-Nitrotoluene	08/23/2011	13:53	0.07	U	0.07	0.40	***0.20***
19406-51-0	4-Amino-2,6-dinitrotoluene	08/23/2011	13:53	0.07	U	0.07	0.40	***0.20***
99-99-0	4-Nitrotoluene	08/23/2011	13:53	0.07	U	0.07	0.40	***0.20***
2691-41-0	HMX	08/23/2011	13:53	0.12	U	0.12	0.40	***0.20***
98-95-3	Nitrobenzene	08/23/2011	13:53	0.04	U	0.04	0.40	***0.20***
55-63-0	Nitroglycerin	08/23/2011	13:53	0.5	U	0.5	2.0	***1.0***
78-11-5	PETN	08/23/2011	13:53	0.5	U	0.5	2.0	***1.0***
121-82-4	RDX	08/23/2011	13:53	0.14	U	0.14	0.50	***0.25***
479-45-8	Tetryl	08/23/2011	13:53	0.09	U	0.09	0.40	***0.20***

CT LABORATORIES
delivering more than data from your environmental analyses

1B-2

EXPLOSIVES ANALYSIS (MB)

Sample Description

METHOD BLANK

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:		SDG No.:	86608
Sample wt/vol:	5.08 (g/L)	CTL Sample ID:	963950
% Solids:		Date Received:	08/16/2011
Conc. Extract Vol:	10.0 (mL)	Date/Time Prepared:	08/19/2011 / 14:30
Analytical Method:	EPA 8330	Analytical Prep Batch #	38277
Analytical Run #:	78306	Dilution Factor:	1.00
Cleanup Date/Time/Type:	. . ,		
TCLP / SPLP / MLP or ASTM Procedure Extraction Date (*if applicable*):			/
ICAL Calibration #:	NQ	Concentration Units:	mg/kg

CAS NO.	Analyte	Analysis Date/Time		Concentration	Qualifiers	DL/LOD	RL	*Control Limit*
556-88-7	Nitroguanidine	08/20/2011	10:54	0.06	U	0.06	0.25	***0.125***

CT LABORATORIES
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2G-2

WATER EXPLOSIVES SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Analytical Method:	EPA 8330	SDG:	86608
Analytical Run #:	78272	ICAL Calibration #:	NQ

CTLab #	961722				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	122	50	150	

CTLab #	962088				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	91	50	150	

CTLab #	963325	Sample Type:	Method Blank		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	98.1	50	150	

CTLab #	963326	Sample Type:	Lab Control Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	95.8	50	150	

CT LABORATORIES
delivering more than data from your environmental analyses

2G-2

WATER EXPLOSIVES SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Analytical Method:	EPA 8330B	SDG:	86608
Analytical Run #:	78273	ICAL Calibration #:	082111expic-primary

CTLab #	961722				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	246	65	135	*FAIL*
CTLab #	**962088**				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	227	65	135	*FAIL*
CTLab #	**963300**	Sample Type:	Method Blank		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene		111	65	135	
CTLab #	**963301**	Sample Type:	Lab Control Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	99.3	65	135	

CT LABORATORIES
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2H-2

SOIL EXPLOSIVES SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Analytical Method:	EPA 8330	SDG:	86608
Analytical Run #:	78306	ICAL Calibration #:	NQ

CTLab #	962085				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	88	50	150	

CTLab #	962086				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	71	50	150	

CTLab #	962087				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	70	50	150	

CTLab #	963950	Sample Type:	Method Blank		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	100	50	150	

CTLab #	963951	Sample Type:	Lab Control Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	73.4	50	150	

CTLab #	963953	Sample Type:	Matrix Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	87.4	50	150	

CTLab #	963954	Sample Type:	Matrix Spike Duplicate		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	79.2	50	150	

CT LABORATORIES
delivering more than data from your environmental analyses

2H-2

SOIL EXPLOSIVES SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Analytical Method:	EPA 8330B	SDG:	86608
Analytical Run #:	78322	ICAL Calibration #:	082111expic-primary

CTLab #	962085				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	112	74	128	

CTLab #	962086				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	122	74	128	

CTLab #	962087				
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	126	74	128	

CTLab #	963946	Sample Type:	Method Blank		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene		101	74	128	

CTLab #	963947	Sample Type:	Lab Control Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	108	74	128	

CTLab #	963948	Sample Type:	Matrix Spike		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	105	74	128	

CTLab #	963949	Sample Type:	Matrix Spike Duplicate		
Surrogate	**Spike Amount**	**% Recovery**	**Lower Limit**	**Upper Limit**	**Qualifier**
1,2-Dinitrobenzene	100	156	74	128	*FAIL*

CT LABORATORIES
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3G

Sample Description

LCS

WATER EXPLOSIVES LAB CONTROL SAMPLE

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Sample No.: 963301 SDG No.: 86608

Analytical Method: EPA 8330B Concentration Units: ug/L

Analytical Run #: 78273 Sample No.: 963301 Parent Sample No.: 0

Analytical Prep Batch #: 38235 Analytical Preparation Date/Time: 08/18/2011 14:00

ICAL Calibration #: 082111expic-primary

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,3,5-Trinitrobenzene	08/21/2011	17:24	64-130	8.62		10.0	86
1,3-Dinitrobenzene	08/21/2011	17:24	64-128	8.98		10.0	90
2,4,6-Trinitrotoluene	08/21/2011	17:24	53-134	8.90		10.0	89
2,4-Dinitrotoluene	08/21/2011	17:24	62-133	9.74		10.0	97
2,6-Dinitrotoluene	08/21/2011	17:24	60-133	9.74		10.0	97
2-Amino-4,6-dinitrotoluene	08/21/2011	17:24	70-121	9.00		10.0	90
2-Nitrotoluene	08/21/2011	17:24	54-128	7.64		10.0	76
3,5-Dinitroaniline	08/21/2011	17:24	71-115	9.24		10.0	92
3-Nitrotoluene	08/21/2011	17:24	59-126	8.06		10.0	81
4-Amino-2,6-dinitrotoluene	08/21/2011	17:24	62-129	8.56		10.0	86
4-Nitrotoluene	08/21/2011	17:24	59-129	8.42		10.0	84
HMX	08/21/2011	17:24	69-119	8.14		10.0	81
Nitrobenzene	08/21/2011	17:24	61-128	7.82		10.0	78
Nitroglycerin	08/21/2011	17:24	69-131	39.9		40.0	100
PETN	08/21/2011	17:24	63-136	39.9		40.0	100
RDX	08/21/2011	17:24	69-122	9.62		10.0	96
Tetryl	08/21/2011	17:24	51-126	9.14		10.0	91

Spike Recovery: 0 out of 17 outside limits

CT LABORATORIES
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3G

Sample Description

LCS

WATER EXPLOSIVES LAB CONTROL SAMPLE

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Sample No.: 963326 SDG No.: 86608

Analytical Method: EPA 8330 Concentration Units: ug/L

Analytical Run #: 78272 Sample No.: 963326 Parent Sample No.: 0

Analytical Prep Batch #: 38239 Analytical Preparation Date/Time: 08/18/2011 14:45

ICAL Calibration #: NQ

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Nitroguanidine	08/21/2011 14:23	50-150	852		1000	85

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
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3H

Sample Description

SOIL EXPLOSIVES MATRIX SPIKE RECOVERY

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOIL SDG No.: 86608

Analytical Method: EPA 8330 Concentration Units: mg/kg

Analytical Run #: 78306 Sample No.: 963953 Parent Sample No.: 962085

Analytical Prep Batch #: 38277 Analytical Preparation Date/Time: 08/19/2011 14:30

ICAL Calibration #: NQ

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Nitroguanidine	08/20/2011 11:48	50-150	2.04	0.25	2.02	89

Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
delivering more than data from your environmental analyses

3H

SOIL EXPLOSIVES MATRIX SPIKE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOIL SDG No.: 86608

Analytical Method: EPA 8330B Concentration Units: mg/kg

Analytical Run #: 78322 Sample No.: 963948 Parent Sample No.: 962085

Analytical Prep Batch #: 38276 Analytical Preparation Date/Time: 08/19/2011 16:15

ICAL Calibration #: 082111expic-primary

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,3,5-Trinitrobenzene	08/23/2011	16:01	75-122	1.92	BDL	1.99	96
1,3-Dinitrobenzene	08/23/2011	16:01	78-116	1.97	BDL	1.99	99
2,4,6-Trinitrotoluene	08/23/2011	16:01	68-126	2.17	BDL	1.99	109
2,4-Dinitrotoluene	08/23/2011	16:01	74-124	1.78	BDL	1.99	89
2,6-Dinitrotoluene	08/23/2011	16:01	71-122	1.88	BDL	1.99	94
2-Amino-4,6-dinitrotoluene	08/23/2011	16:01	74-118	2.21	BDL	1.99	111
2-Nitrotoluene	08/23/2011	16:01	76-117	1.78	BDL	1.99	89
3,5-Dinitroaniline	08/23/2011	16:01	64-124	1.84	BDL	1.99	92
3-Nitrotoluene	08/23/2011	16:01	76-119	1.85	BDL	1.99	93
4-Amino-2,6-dinitrotoluene	08/23/2011	16:01	69-125	2.01	BDL	1.99	101
4-Nitrotoluene	08/23/2011	16:01	75-120	1.78	BDL	1.99	89
HMX	08/23/2011	16:01	69-120	1.55	BDL	1.99	78
Nitrobenzene	08/23/2011	16:01	80-120	2.00	BDL	1.99	101
Nitroglycerin	08/23/2011	16:01	66-128	7.10	BDL	7.97	89
PETN	08/23/2011	16:01	68-128	6.42	BDL	7.97	81
RDX	08/23/2011	16:01	69-123	1.56	BDL	1.99	78
Tetryl	08/23/2011	16:01	1-157	1.27	BDL	1.99	64

Spike Recovery: 0 out of 17 outside QC limits

CT LABORATORIES
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3H

Sample Description

SOIL EXPLOSIVES MATRIX SPIKE DUPLICATE RECOVERY

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOIL SDG No.: 86608

Analytical Method: EPA 8330 Concentration Units: mg/kg

Analytical Run #: 78306 Sample No.: 963954 Parent Sample No.: 963953

Analytical Prep Batch #: 38277 Analytical Preparation Date/Time: 08/19/2011 14:30

ICAL Calibration #: NQ

Analyte	Analysis Date/Time	Spike Result	Spike Amount	%R	%RPD	Control Limits (%R)	Control Limits (%RPD)
Nitroguanidine	08/20/2011 11:56	2.07	2.00	91	3	50-150	30

RPD or Spike Recovery: 0 out of 1 outside QC limits

CT LABORATORIES
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3H

Sample Description

SOIL EXPLOSIVES MATRIX SPIKE DUPLICATE RECOVERY

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOIL SDG No.: 86608

Analytical Method: EPA 8330B Concentration Units: mg/kg

Analytical Run #: 78322 Sample No.: 963949 Parent Sample No.: 963948

Analytical Prep Batch #: 38276 Analytical Preparation Date/Time: 08/19/2011 16:15

ICAL Calibration #: 082111expic-primary

Analyte	Analysis Date/Time		Spike Result	Spike Amount	%R	%RPD	Control Limits (%R)	Control Limits (%RPD)	
1,3,5-Trinitrobenzene	08/23/2011	16:20	2.36	2.01	117	19	75-122	18	*FAIL*
1,3-Dinitrobenzene	08/23/2011	16:20	2.11	2.01	105	6	78-116	21	
2,4,6-Trinitrotoluene	08/23/2011	16:20	2.19	2.01	109	0	68-126	26	
2,4-Dinitrotoluene	08/23/2011	16:20	2.13	2.01	106	17	74-124	34	
2,6-Dinitrotoluene	08/23/2011	16:20	2.11	2.01	105	11	71-122	28	
2-Amino-4,6-dinitrotoluene	08/23/2011	16:20	2.15	2.01	107	4	74-118	19	
2-Nitrotoluene	08/23/2011	16:20	2.04	2.01	101	12	76-117	17	
3,5-Dinitroaniline	08/23/2011	16:20	1.96	2.01	98	5	64-124	24	
3-Nitrotoluene	08/23/2011	16:20	2.06	2.01	102	10	76-119	20	
4-Amino-2,6-dinitrotoluene	08/23/2011	16:20	1.96	2.01	98	3	69-125	25	
4-Nitrotoluene	08/23/2011	16:20	1.91	2.01	95	6	75-120	22	
HMX	08/23/2011	16:20	1.77	2.01	88	13	69-120	24	
Nitrobenzene	08/23/2011	16:20	2.09	2.01	104	3	80-120	21	
Nitroglycerin	08/23/2011	16:20	7.44	8.06	92	4	66-128	24	
PETN	08/23/2011	16:20	6.62	8.06	82	2	68-128	22	
RDX	08/23/2011	16:20	1.76	2.01	88	11	69-123	32	
Tetryl	08/23/2011	16:20	1.34	2.01	67	5	1-157	27	

RPD or Spike Recovery: 1 out of 17 outside QC limits

CT LABORATORIES
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3H

Sample Description

LCS

SOIL EXPLOSIVES LAB CONTROL SAMPLE

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Sample No.: 963947 SDG No.: 86608

Analytical Method: EPA 8330B Concentration Units: mg/kg

Analytical Run #: 78322 Sample No.: 963947 Parent Sample No.: 0

Analytical Prep Batch #: 38276 Analytical Preparation Date/Time: 08/19/2011 16:15

ICAL Calibration #: 082111expic-primary

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
1,3,5-Trinitrobenzene	08/23/2011	14:12	75-122	1.91		1.98	96
1,3-Dinitrobenzene	08/23/2011	14:12	78-116	2.14		1.98	108
2,4,6-Trinitrotoluene	08/23/2011	14:12	68-126	1.35		1.98	68
2,4-Dinitrotoluene	08/23/2011	14:12	74-124	2.14		1.98	108
2,6-Dinitrotoluene	08/23/2011	14:12	71-122	2.15		1.98	109
2-Amino-4,6-dinitrotoluene	08/23/2011	14:12	74-118	2.02		1.98	102
2-Nitrotoluene	08/23/2011	14:12	76-117	2.09		1.98	106
3,5-Dinitroaniline	08/23/2011	14:12	64-124	1.75		1.98	88
3-Nitrotoluene	08/23/2011	14:12	76-119	2.02		1.98	102
4-Amino-2,6-dinitrotoluene	08/23/2011	14:12	69-125	1.64		1.98	83
4-Nitrotoluene	08/23/2011	14:12	75-120	1.90		1.98	96
HMX	08/23/2011	14:12	69-120	2.28		1.98	115
Nitrobenzene	08/23/2011	14:12	80-120	2.15		1.98	109
Nitroglycerin	08/23/2011	14:12	66-128	3.50		3.96	88
PETN	08/23/2011	14:12	68-128	4.36		3.96	110
RDX	08/23/2011	14:12	69-123	2.09		1.98	106
Tetryl	08/23/2011	14:12	1-157	0.911		1.98	46

Spike Recovery: 0 out of 17 outside limits

CT LABORATORIES
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3H

Sample Description

SOIL EXPLOSIVES LAB CONTROL SAMPLE

LCS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Sample No.: 963951

SDG No.: 86608

Analytical Method: EPA 8330

Concentration Units: mg/kg

Analytical Run #: 78306

Sample No.: 963951

Parent Sample No.: 0

Analytical Prep Batch #: 38277

Analytical Preparation Date/Time: 08/19/2011 14:30

ICAL Calibration #: NQ

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	Parent Result	Spike Amount	%R
Nitroguanidine	08/20/2011 11:01	50-150	1.08		2.01	54

Spike Recovery: 0 out of 1 outside limits

CT LABORATORIES
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4B-1

EXPLOSIVES METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Sample ID:	963300	SDG No.:	86608
Matrix:	LIQUID	Date Extracted:	08/18/2011
Date Analyzed:	08/21/2011	Time Analyzed:	17:06
Analytical Method:	EPA 8330B	Extraction Method:	SW8330B
Analytical Run #:	78273	Extraction Batch #:	38235
		ICAL Calibration #:	082111expic-primary

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED
1	MBW	963300	08/21/2011 17:06
2	LCSW	963301	08/21/2011 17:24
3	LL1-718-RB	962088	08/21/2011 18:01

CT LABORATORIES
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4B-1

EXPLOSIVES METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Sample ID:	963325	SDG No.:	86608
Matrix:	LIQUID	Date Extracted:	08/18/2011
Date Analyzed:	08/21/2011	Time Analyzed:	14:15
Analytical Method:	EPA 8330	Extraction Method:	SW8330
Analytical Run #:	78272	Extraction Batch #:	38239
		ICAL Calibration #:	NQ

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED
1	MBW	963325	08/21/2011 14:15
2	LCSW	963326	08/21/2011 14:23
3	LL1-718-RB	962088	08/21/2011 14:38

CT LABORATORIES
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4B-1

EXPLOSIVES METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Sample ID:	963946	SDG No.:	86608
Matrix:	SOLID	Date Extracted:	08/19/2011
Date Analyzed:	08/23/2011	Time Analyzed:	13:53
Analytical Method:	EPA 8330B	Extraction Method:	SW8330B
Analytical Run #:	78322	Extraction Batch #:	38276
		ICAL Calibration #:	082111expic-primary

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED
1	MBS	963946	08/23/2011 13:53
2	LCSS	963947	08/23/2011 14:12
3	LL1SS-715(I)-0001-SS	962085	08/23/2011 14:30
4	LL1SS-716(I)-0001-SS	962086	08/23/2011 15:25
5	LL1SS-717(I)-0001-SS	962087	08/23/2011 15:43
6	LL1SS-715(I)-0001-SSMSS	963948	08/23/2011 16:01
7	LL1SS-715(I)-0001-SSMSDS	963949	08/23/2011 16:20

CT LABORATORIES
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4B-1

EXPLOSIVES METHOD BLANK SUMMARY

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Sample ID:	963950	SDG No.:	86608
Matrix:	SOLID	Date Extracted:	08/19/2011
Date Analyzed:	08/20/2011	Time Analyzed:	10:54
Analytical Method:	EPA 8330	Extraction Method:	SW8330
Analytical Run #:	78306	Extraction Batch #:	38277
		ICAL Calibration #:	NQ

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

SEQUENCE	SAMPLE DESCRIPTION	SAMPLE ID	DATE/TIME ANALYZED
1	MBS	963950	08/20/2011 10:54
2	LCSS	963951	08/20/2011 11:01
3	LL1SS-715(I)-0001-SS	962085	08/20/2011 11:09
4	LL1SS-716(I)-0001-SS	962086	08/20/2011 11:33
5	LL1SS-717(I)-0001-SS	962087	08/20/2011 11:40
6	LL1SS-715(I)-0001-SSMSS	963953	08/20/2011 11:48
7	LL1SS-715(I)-0001-SSMSDS	963954	08/20/2011 11:56

NITROAROMATICS ANALYSIS
SAMPLE DATA
DOCUMENTS

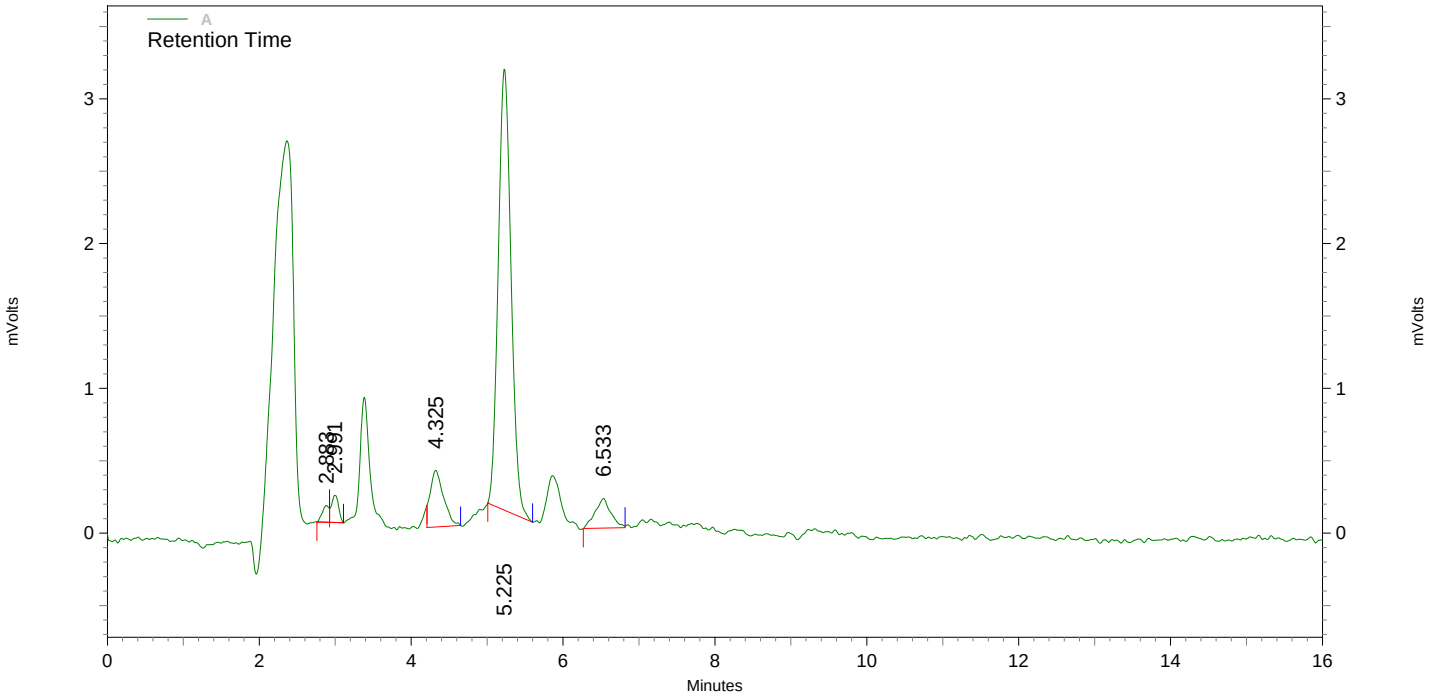
After Manual Integration

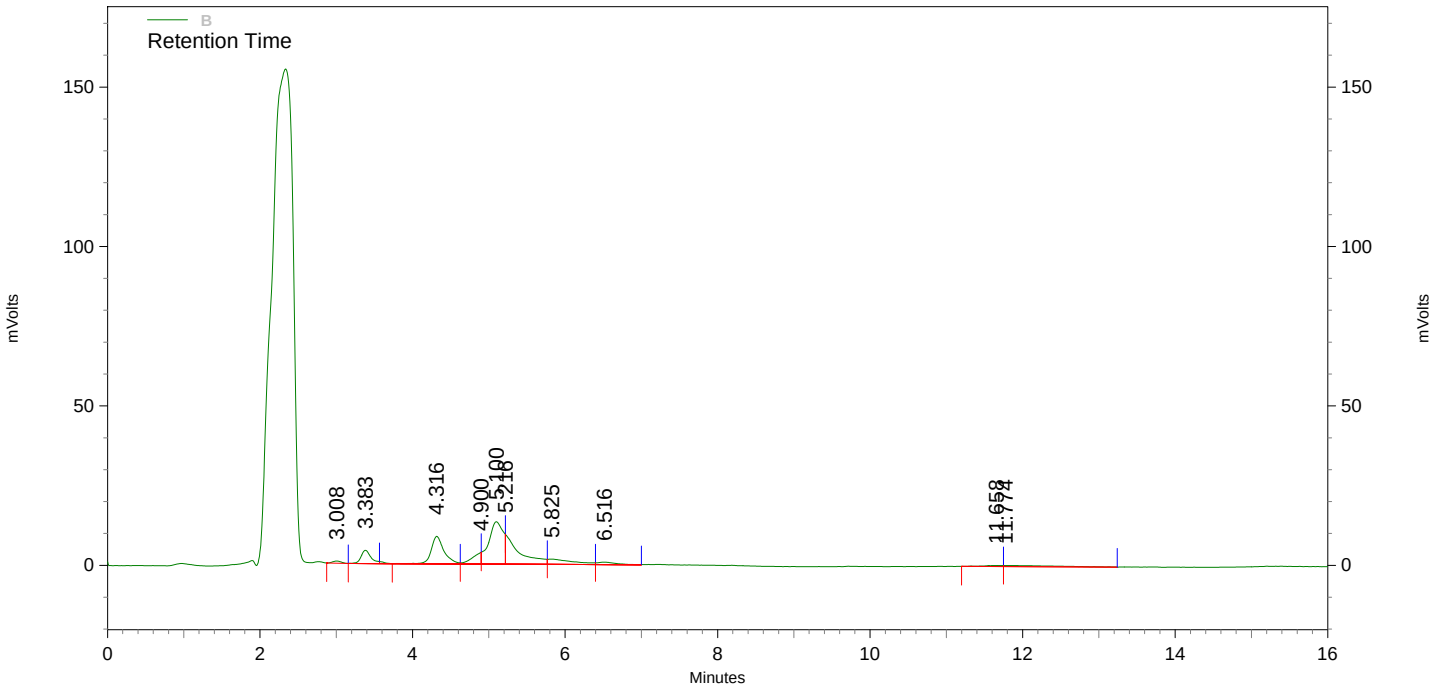
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\014.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 78273,962088,
Acquired: Aug 21, 2011 18:01:33
Data Summary: Reason #3 applies to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.883	698	**0.011**
RDX	4.325	4773	**0.147**
12-DNB (SSTD)	5.225	35816	**226.625**
135-TNB			**0.000 BDL**
13-DNB	6.533	2959	**0.024**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

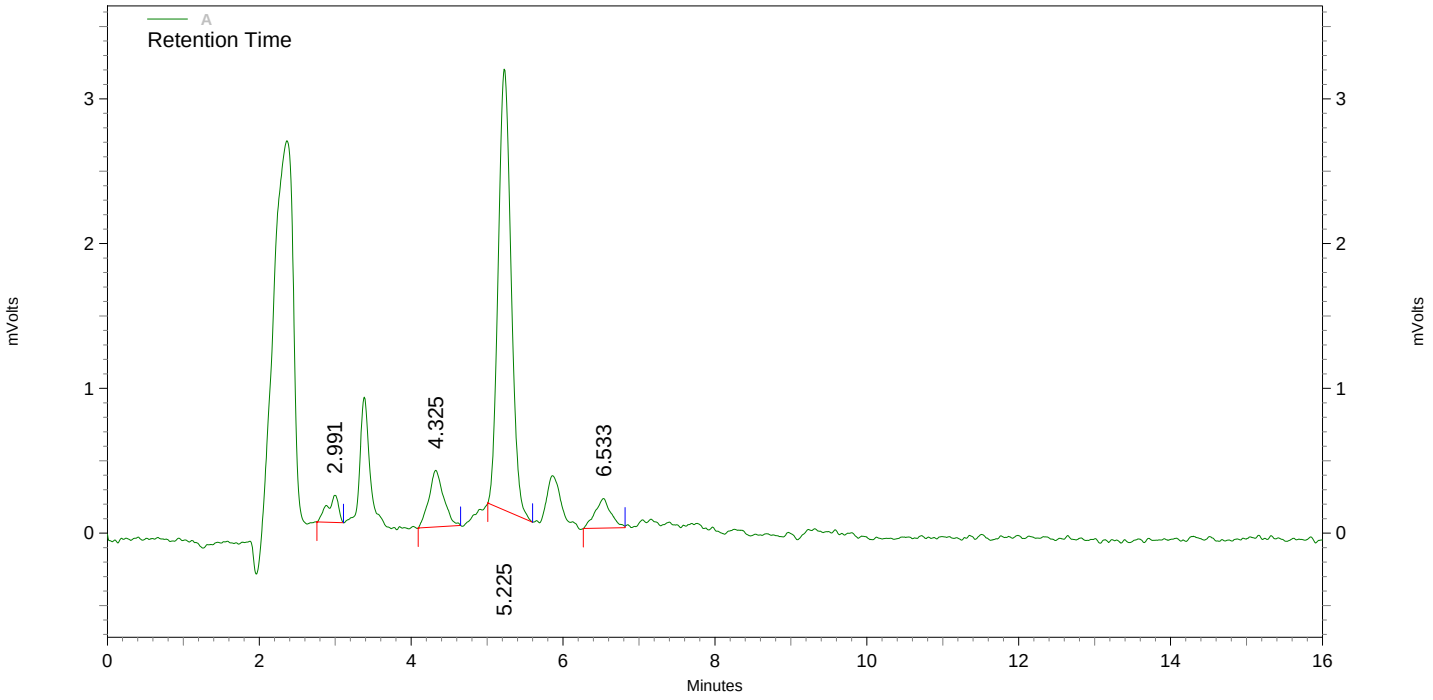
Before Manual Integration

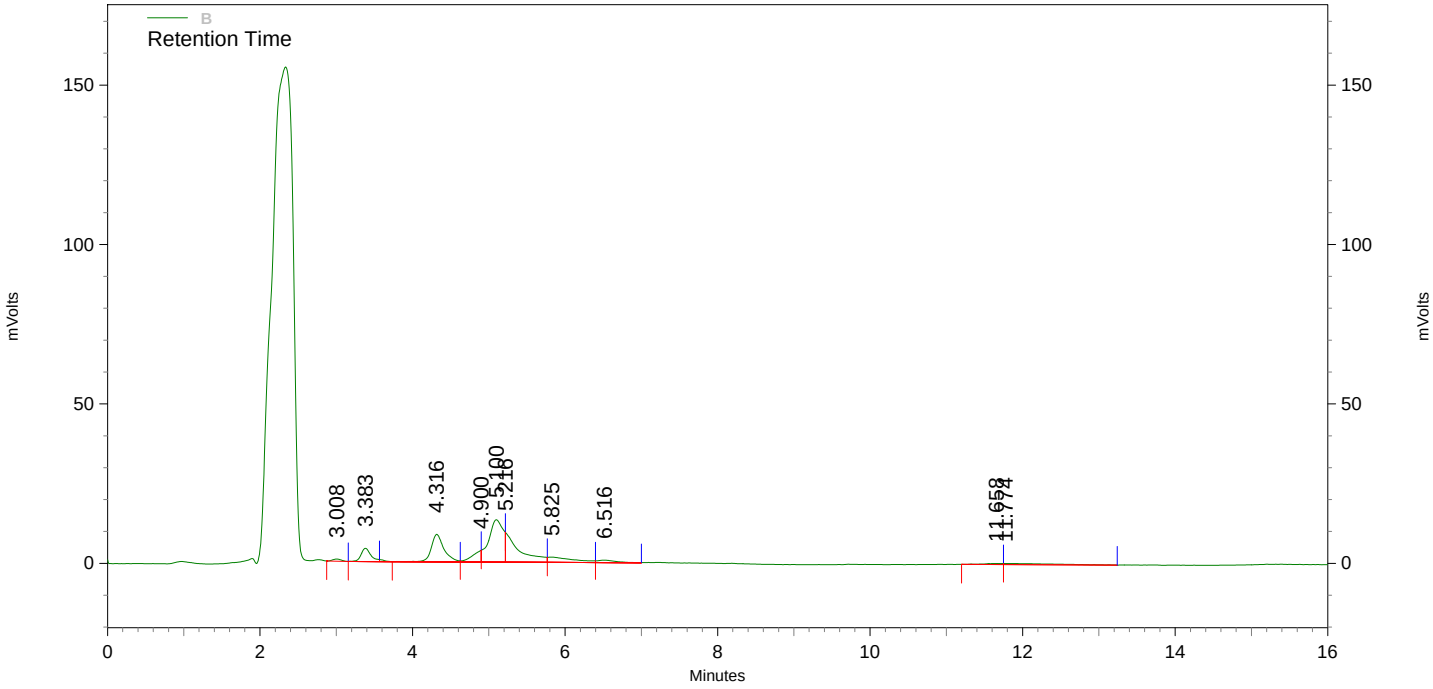
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\014.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 78273,962088,
Acquired: Aug 21, 2011 18:01:33
Data Summary: {Data Description}





A Results

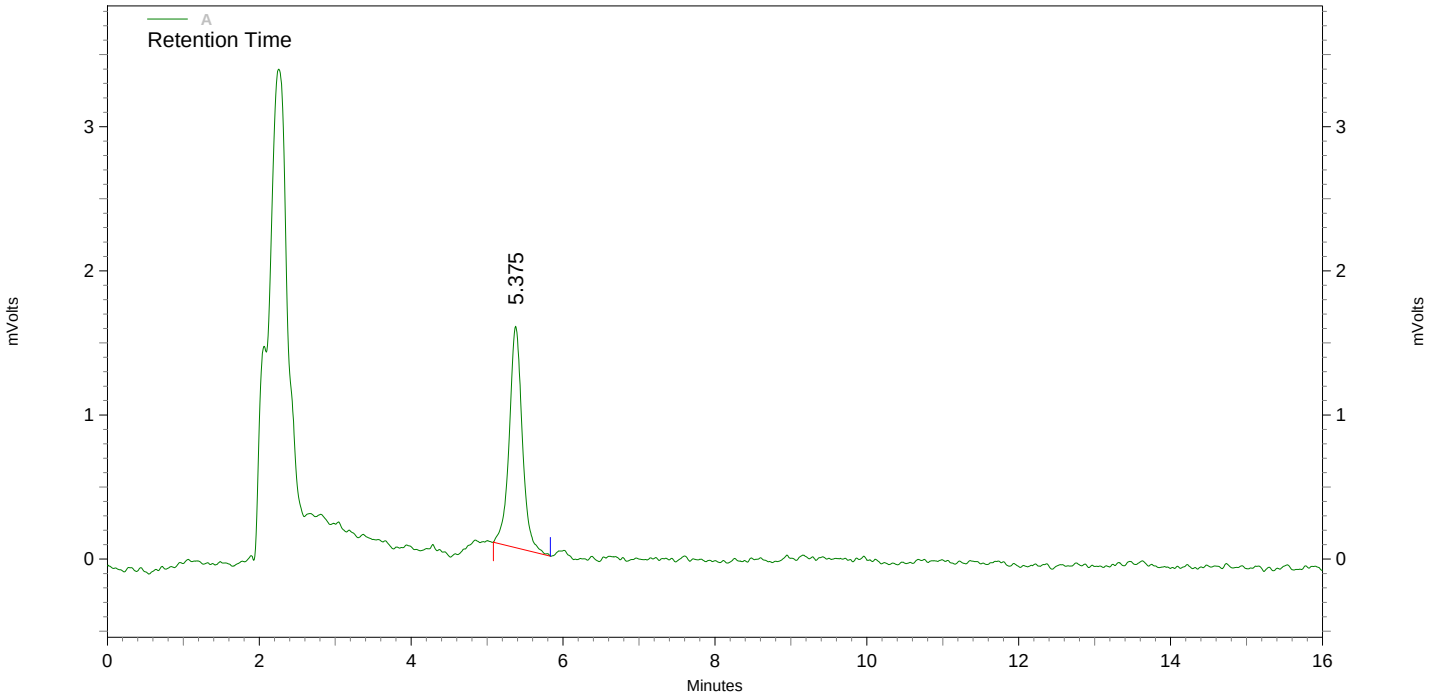
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX	4.325	5248	**0.166**
12-DNB (SSTD)	5.225	35816	**226.625**
135-TNB			**0.000 BDL**
13-DNB	6.533	2959	**0.024**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

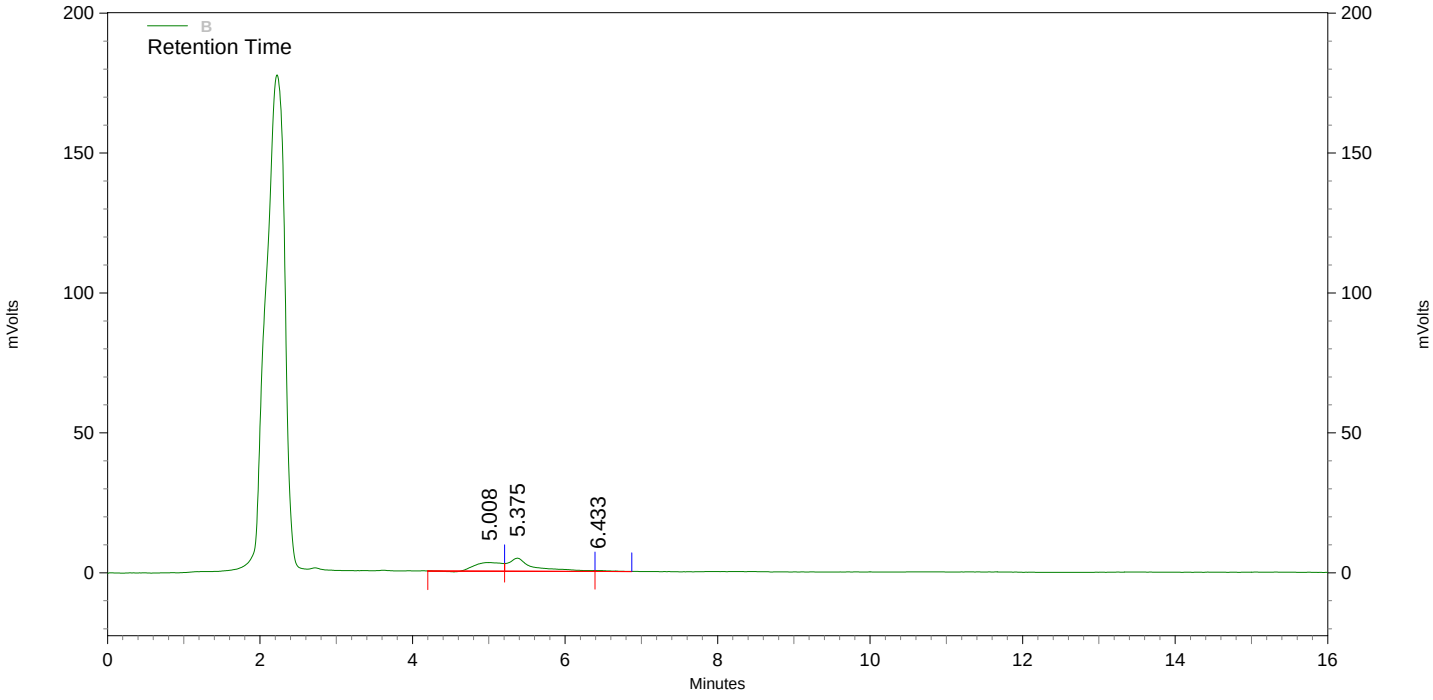
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\017.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,962085,
Acquired: Aug 23, 2011 14:30:17
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.375	18306	**112.433**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

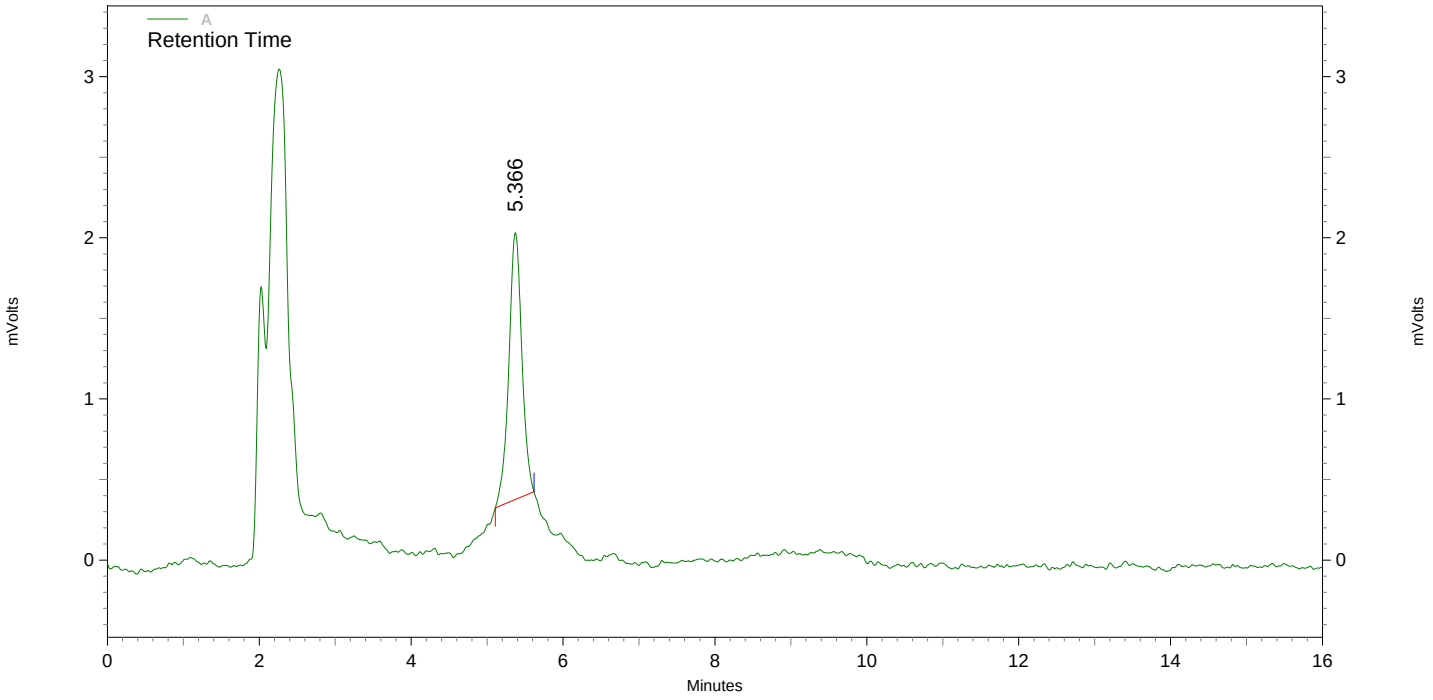
B Results

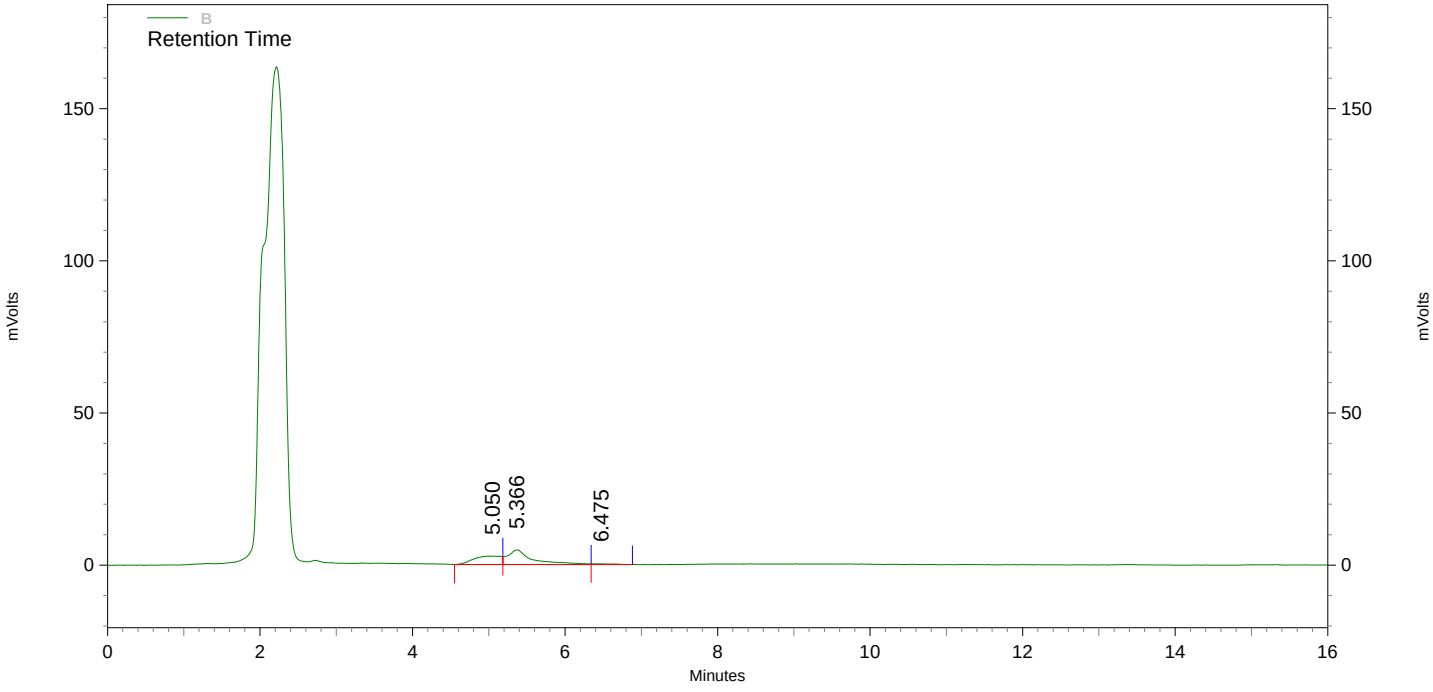
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\020.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,962086,
Acquired: Aug 23, 2011 15:25:14
Data Summary: Reason #4 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.366	19733	**121.739**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

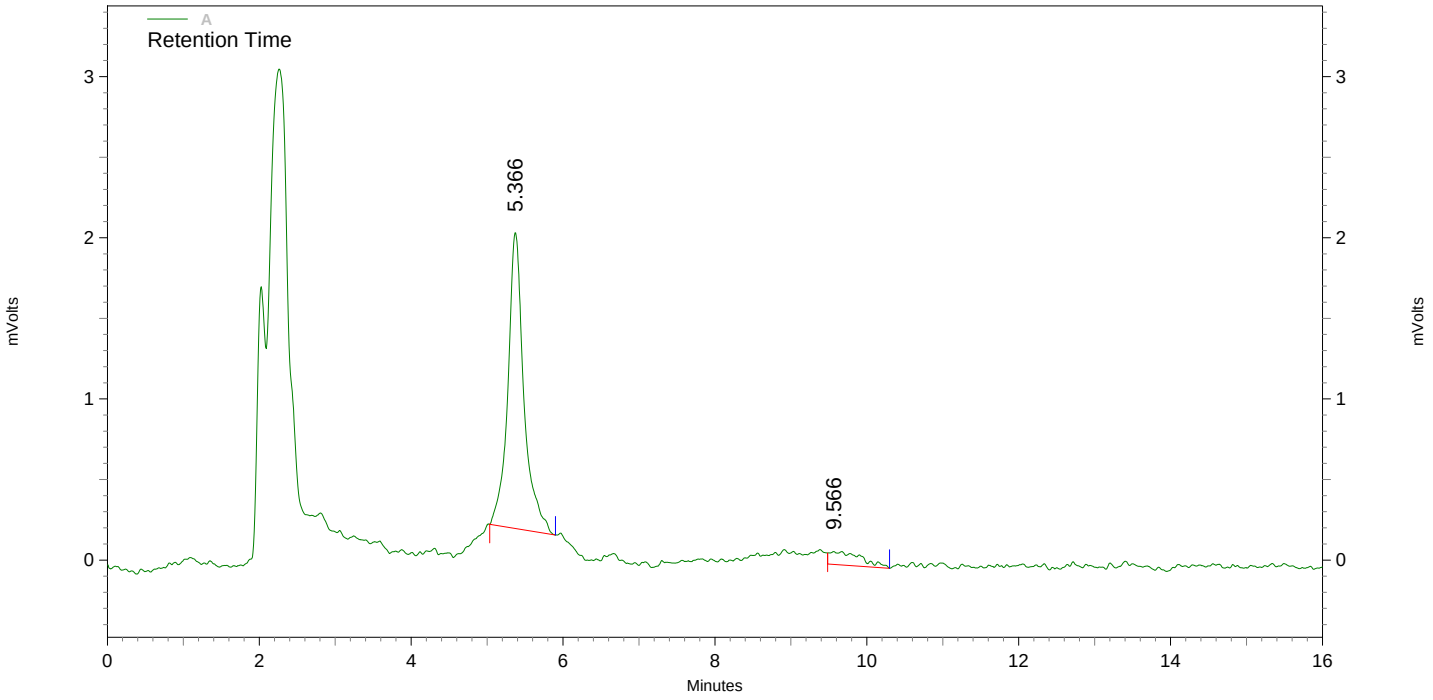
Before Manual Integration

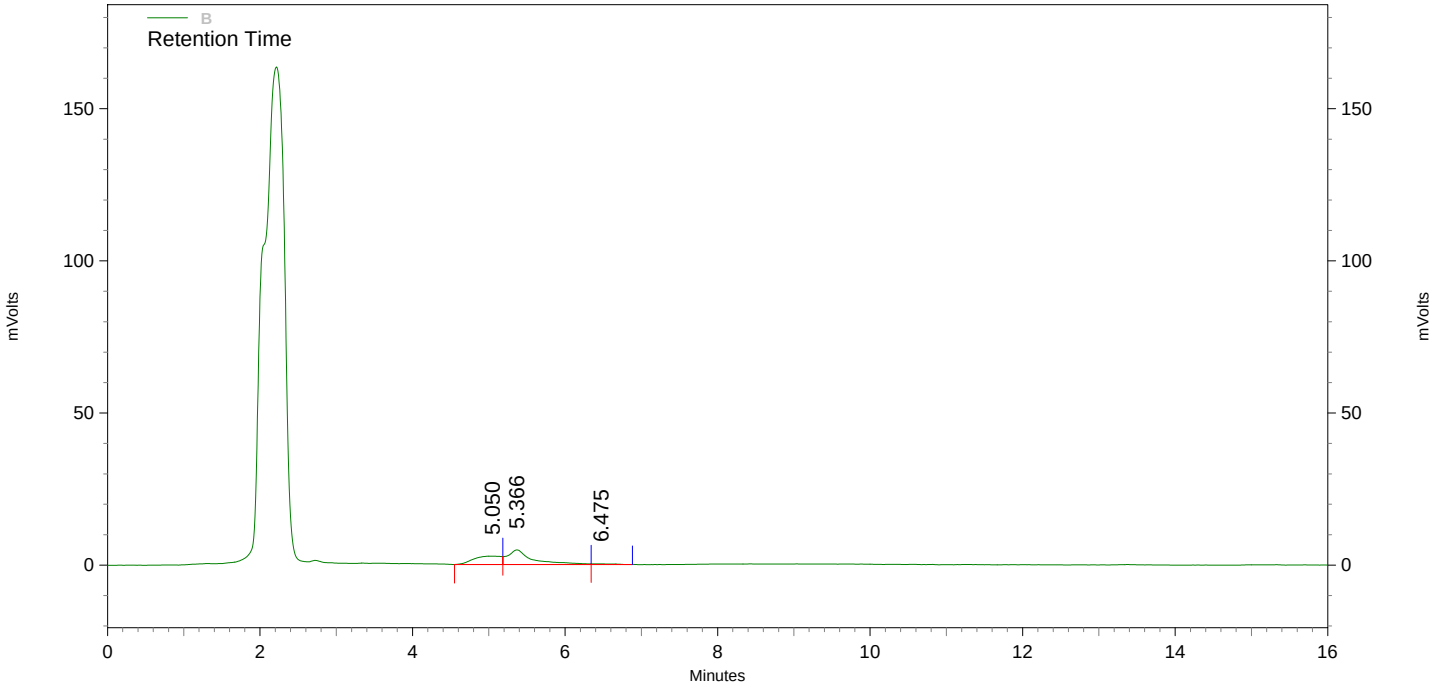
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\020.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,962086,
Acquired: Aug 23, 2011 15:25:14
Data Summary: {Data Description}





A Results

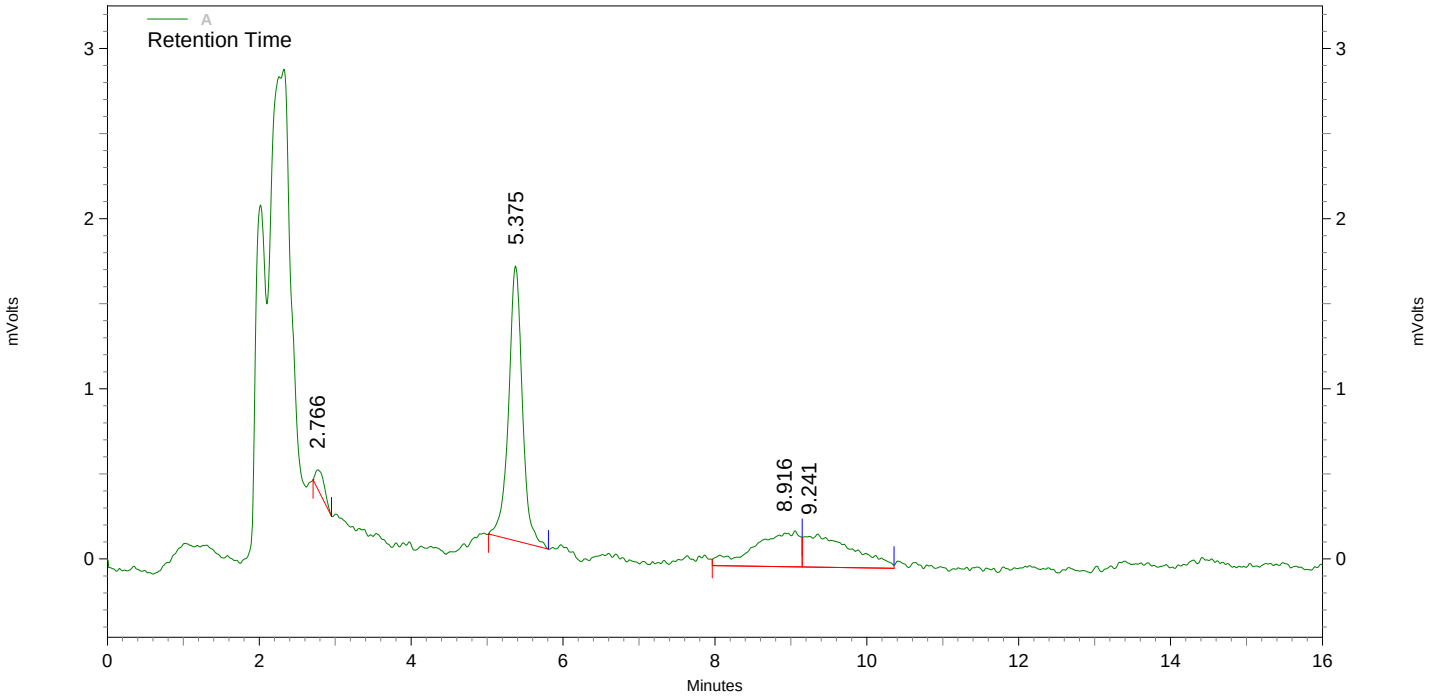
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.366	26944	**168.766**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT	9.566	2447	**0.028**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

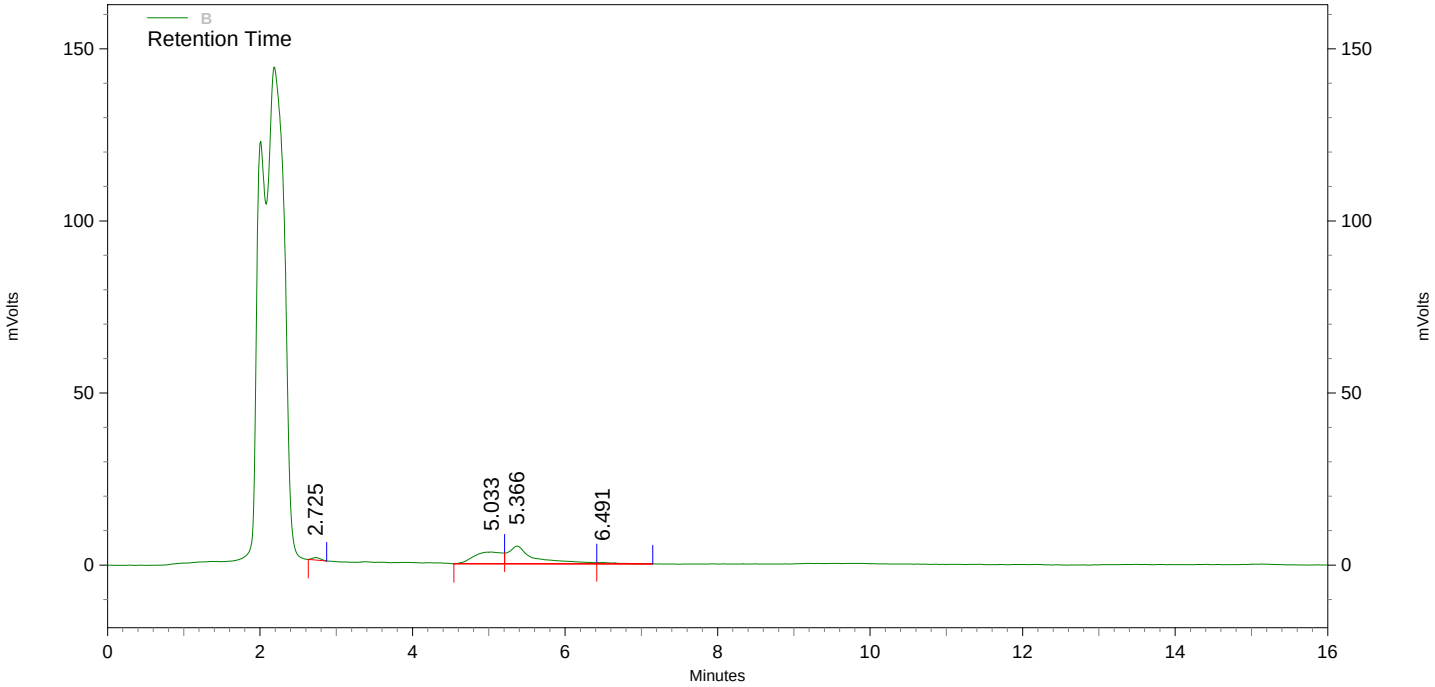
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\021.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,962087,
Acquired: Aug 23, 2011 15:43:32
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.766	1068	**0.030**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.375	20345	**125.730**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT	8.916	8572	**0.206**
2-AM-46-DNT	9.241	8454	**0.130**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

Relative Percent Difference (RPD) Calculation for P-qualified 8330B Analytes by Sample Number				
Sample #	**Analyte**	**Primary Value (ug/mL)**	**Confirmation Value (ug/mL)**	**RPD**
962085	NQ	0.064	0.015	124.0506
962085 dup	NQ	0.062	0.03	69.56522
962085 trip	NQ	0.054	0.019	95.89041
962086	NQ	0.054	0.028	63.41463

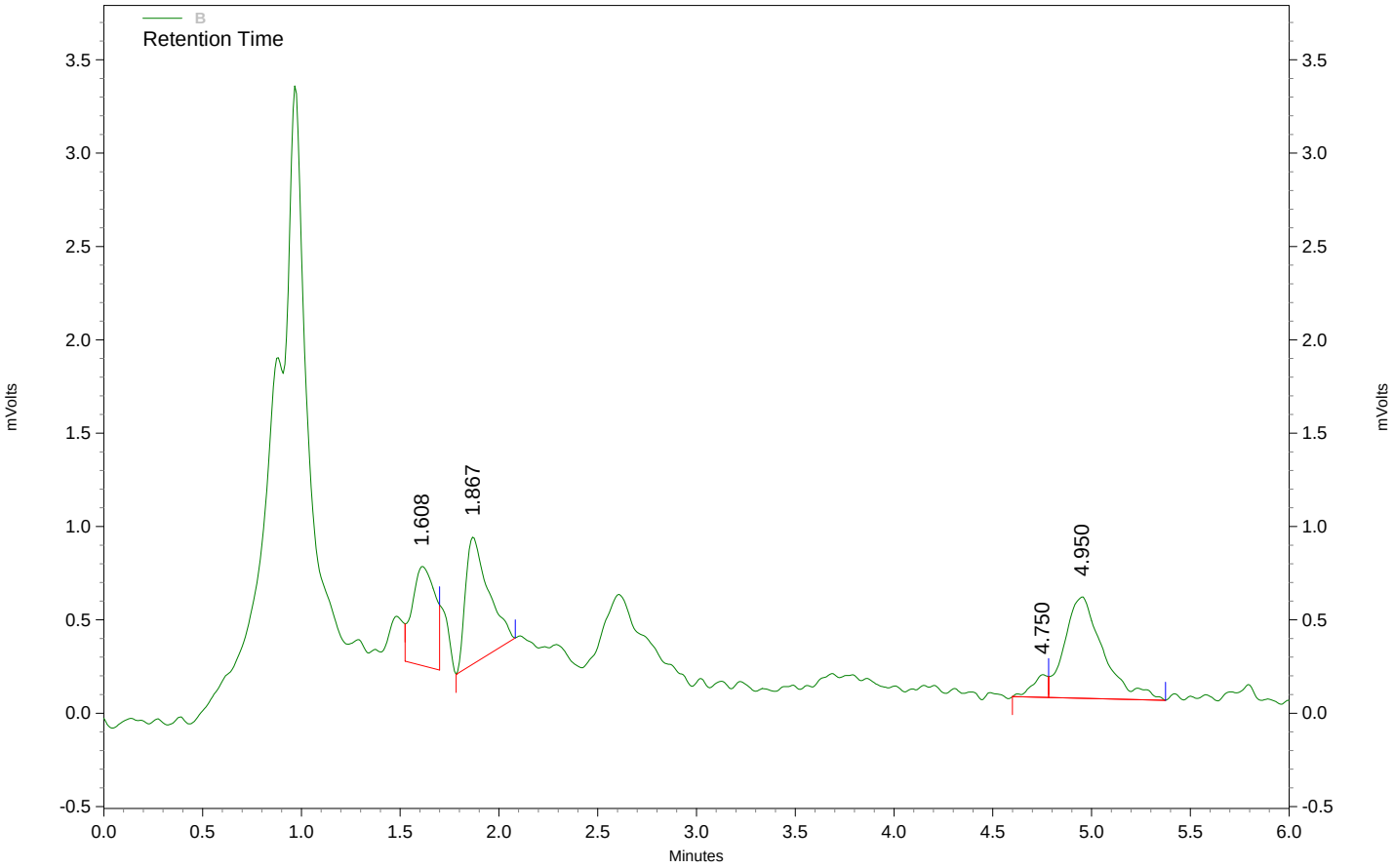
After Manual Integration

08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\092.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962085,
Acquired: Aug 20, 2011 11:09:38
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.608	4255	**0.064**
12-DNB (SSTD)	4.950	7347	**87.730**

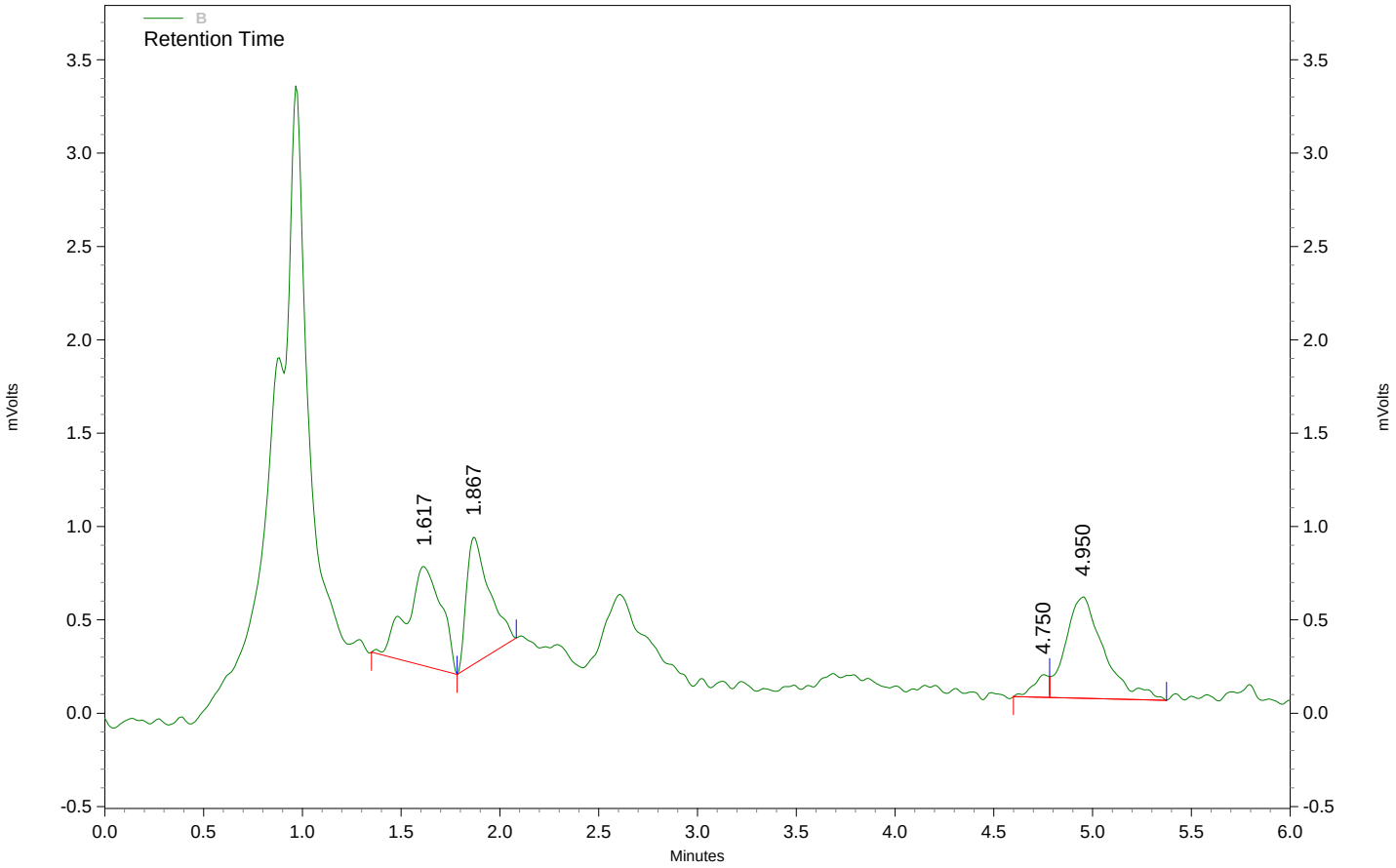
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\092.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962085,
Acquired: Aug 20, 2011 11:09:38
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	6451	**0.095**
12-DNB (SSTD)	4.950	7347	**87.730**

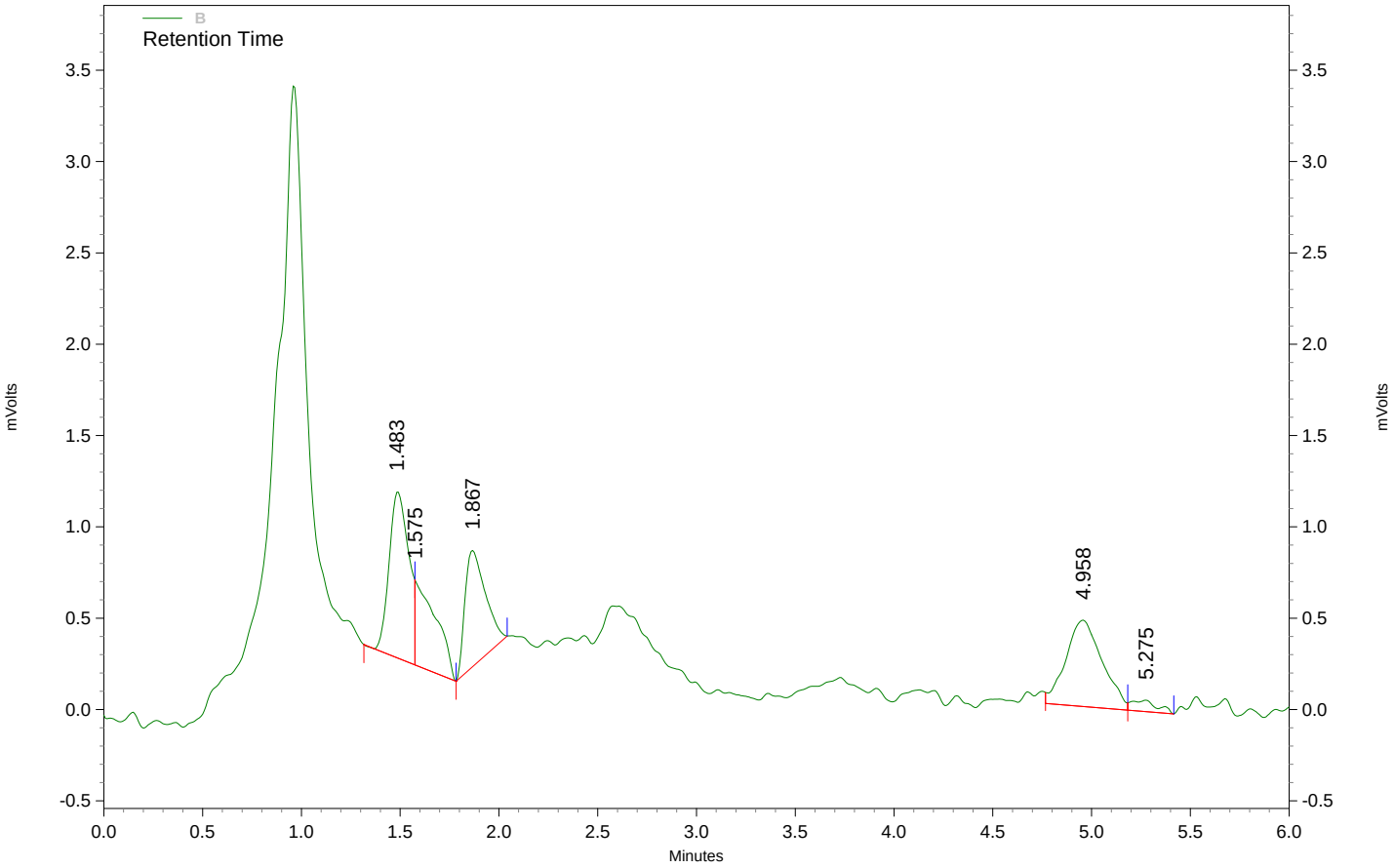
After Manual Integration

08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\095.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962086,
Acquired: Aug 20, 2011 11:33:00
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.575	3494	**0.054**
12-DNB (SSTD)	4.958	6071	**71.317**

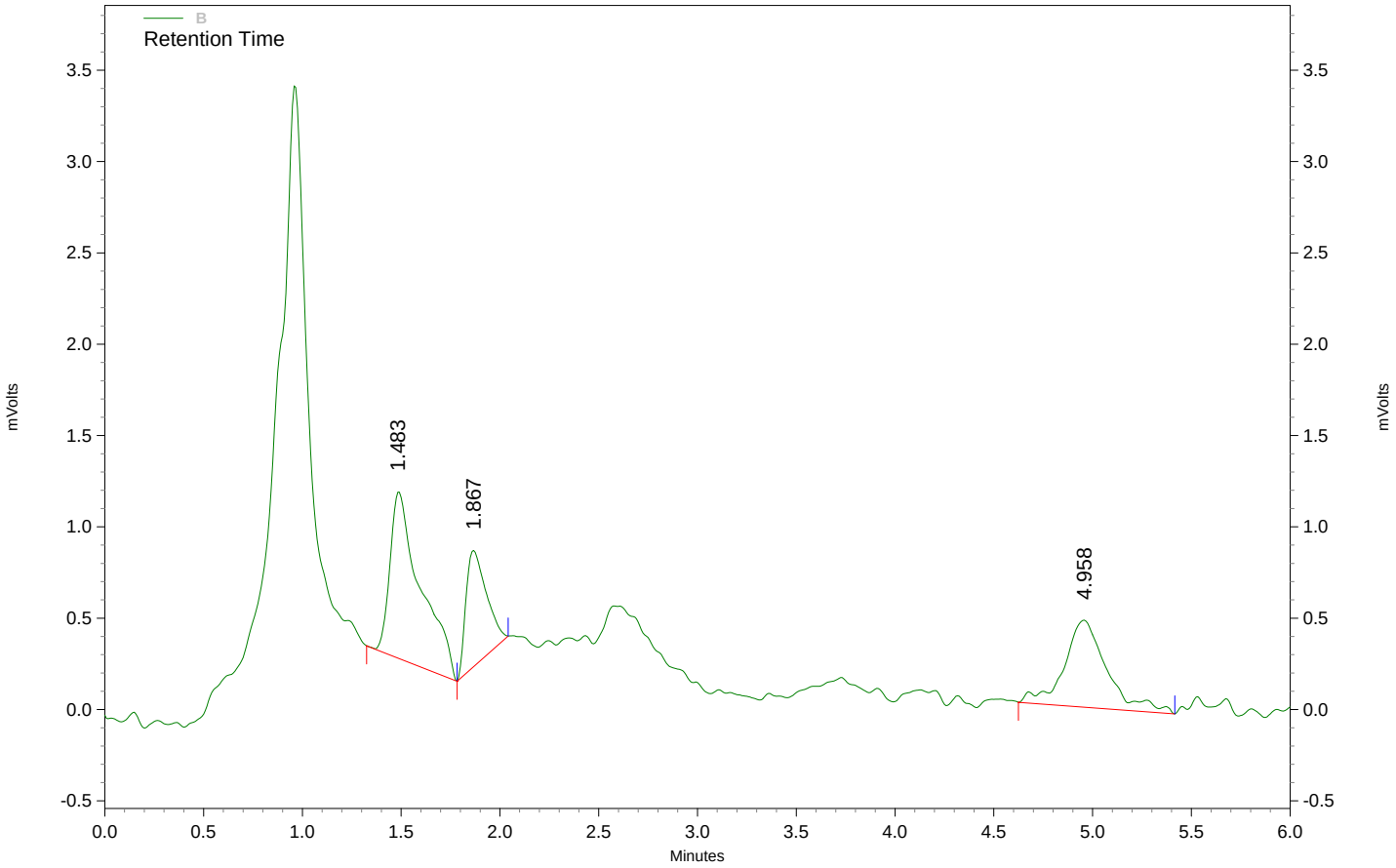
Before Manual Integration

08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\095.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962086,
Acquired: Aug 20, 2011 11:33:00
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.483	9853	**0.143**
12-DNB (SSTD)	4.958	7125	**84.874**

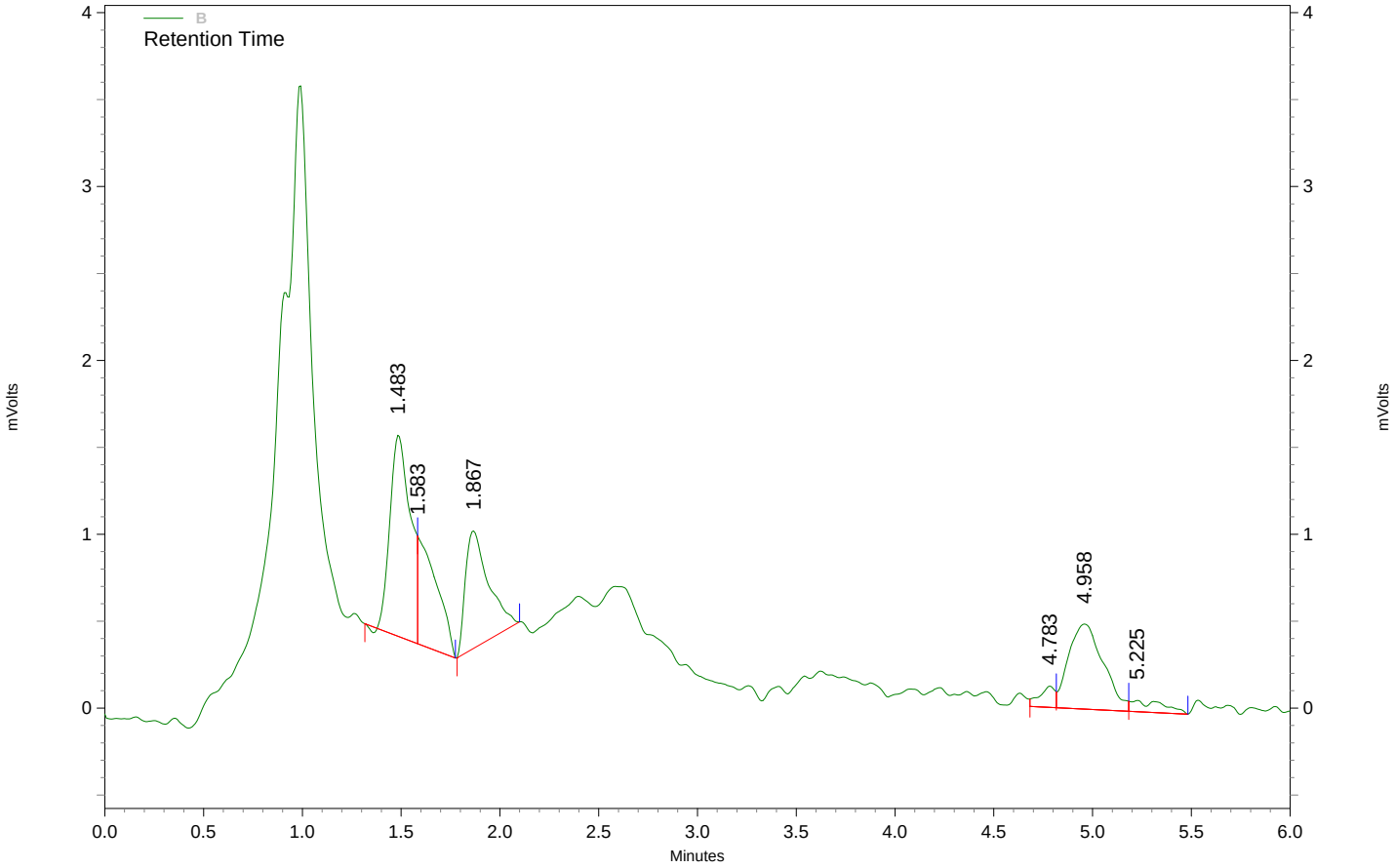
After Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\096.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962087,
Acquired: Aug 20, 2011 11:40:46
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.583	4215	**0.064**
12-DNB (SSTD)	4.958	5976	**70.095**

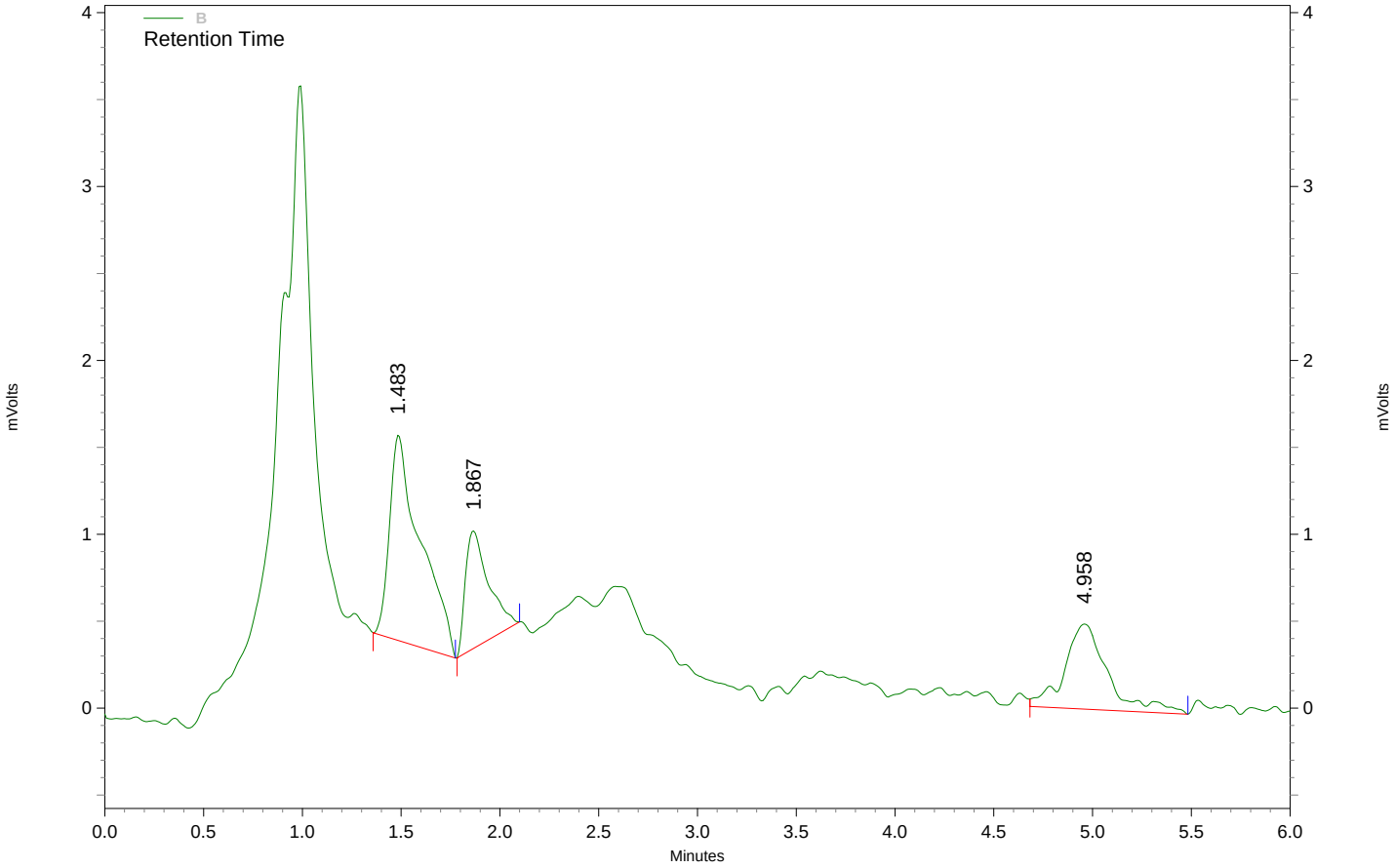
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\096.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,962087,
Acquired: Aug 20, 2011 11:40:46
Data Summary: {Data Description}

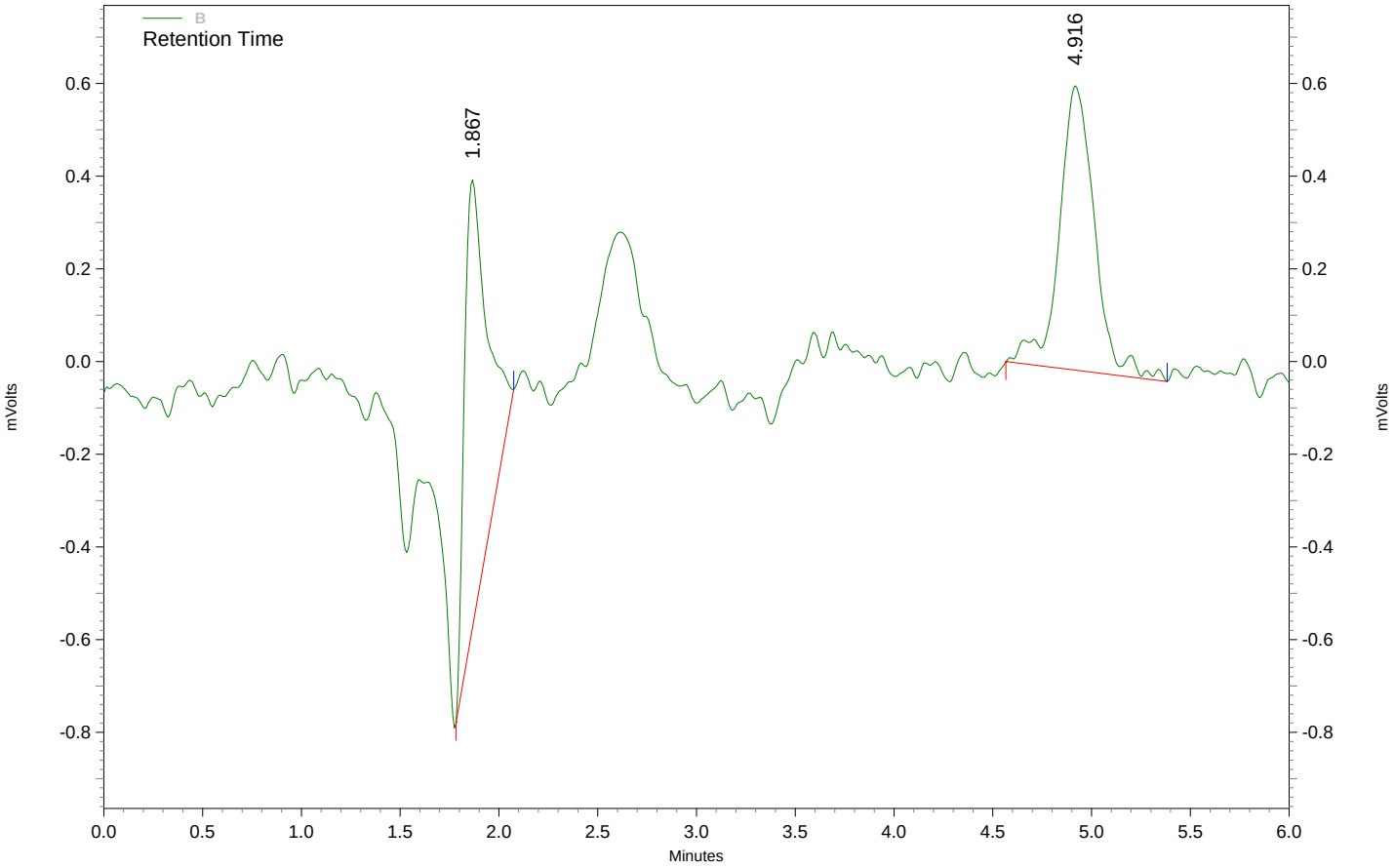


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.483	12968	**0.187**
12-DNB (SSTD)	4.958	7393	**88.322**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-primary\006.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\082111nq-primary.met
Sample ID: 78272,962088,
Acquired: Aug 21, 2011 14:38:36
Data Summary: {Data Description}



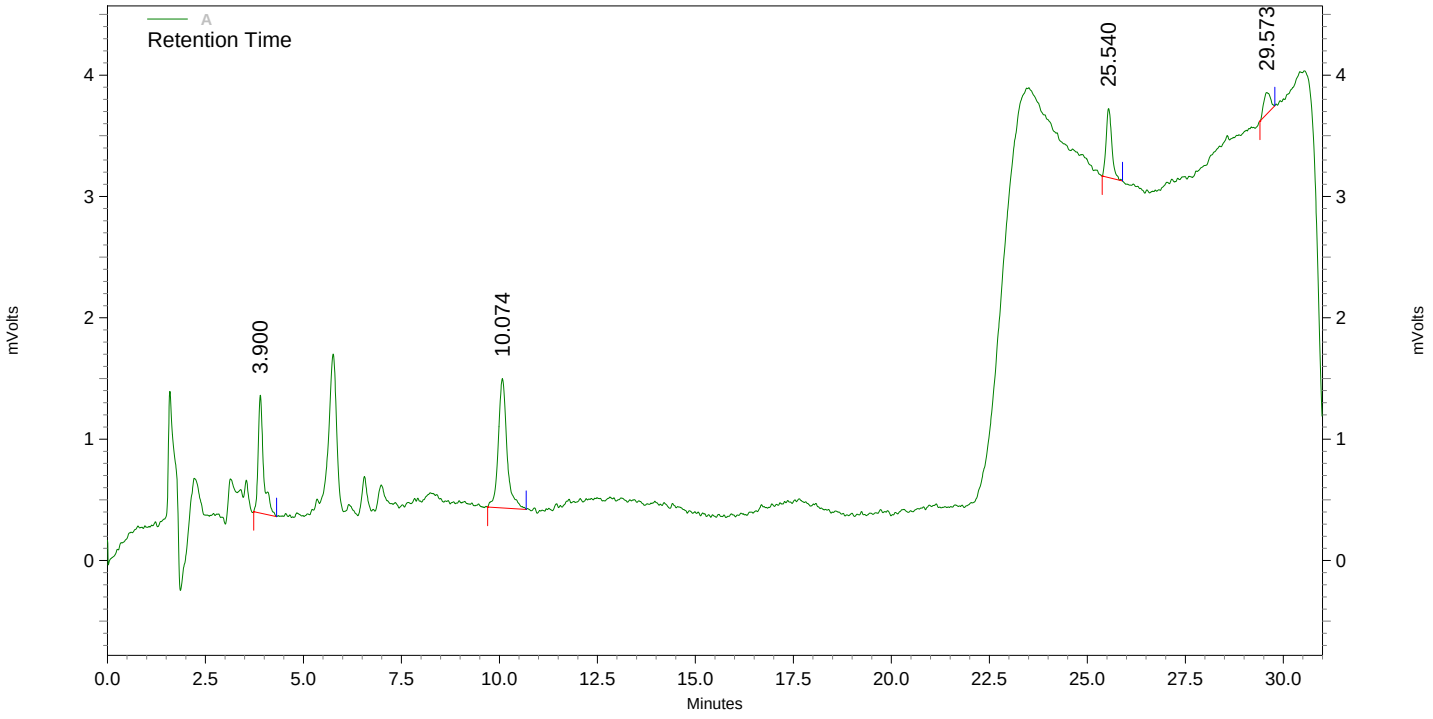
B Results

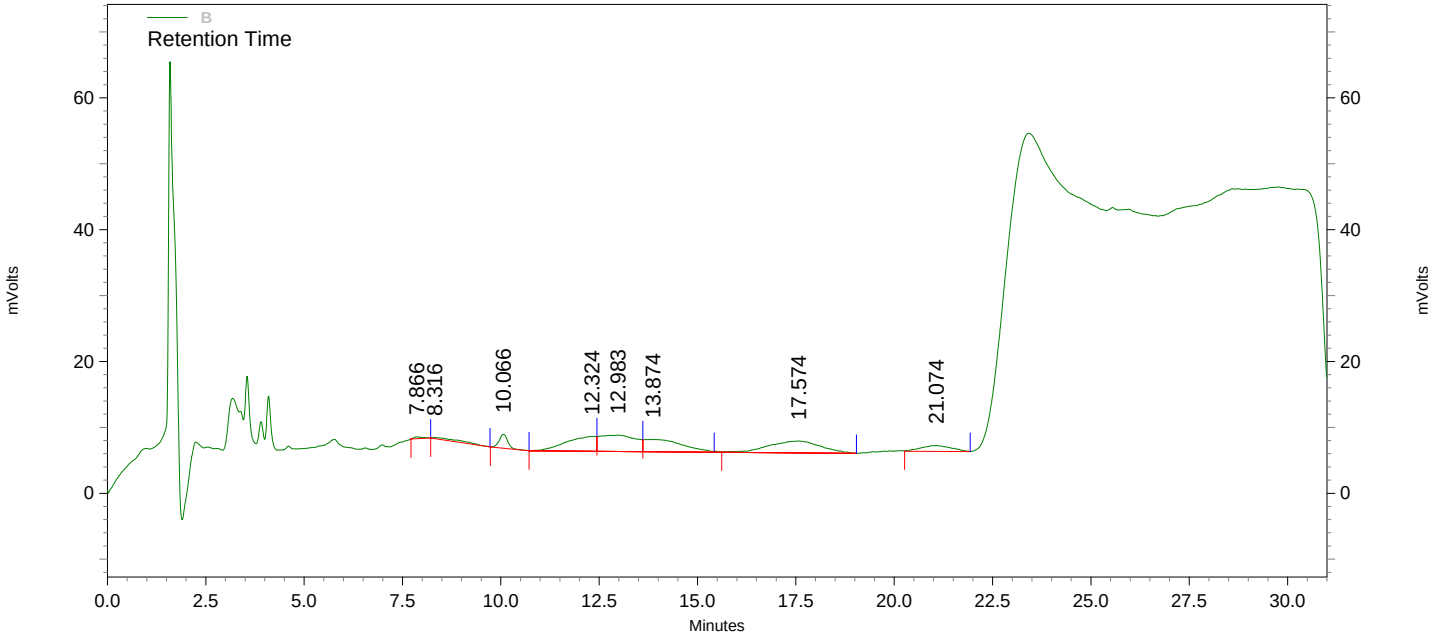
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ			**0.000 BDL**
12-DNB (SSTD)	4.916	7601	**90.997**

NITROAROMATICS ANALYSIS
CONFIRMATION
SAMPLE DATA
DOCUMENTS

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\005.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78273,962088,
Acquired: Aug 24, 2011 12:24:15
Data Summary: {Data Description}





78273,962088,

A Results

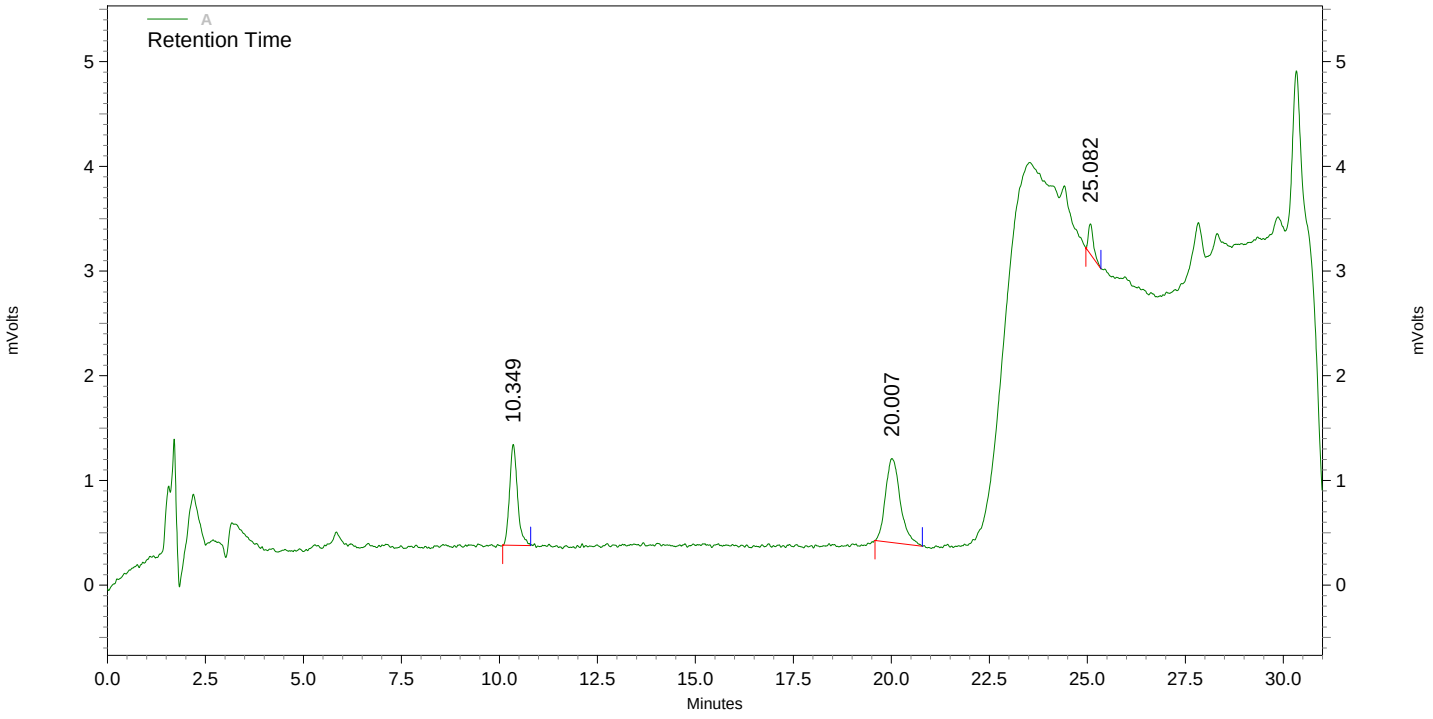
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.074	16397	**99.987**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm			**0.000 BDL**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.540	5670	**0.147**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm	29.573	2105	**0.000**

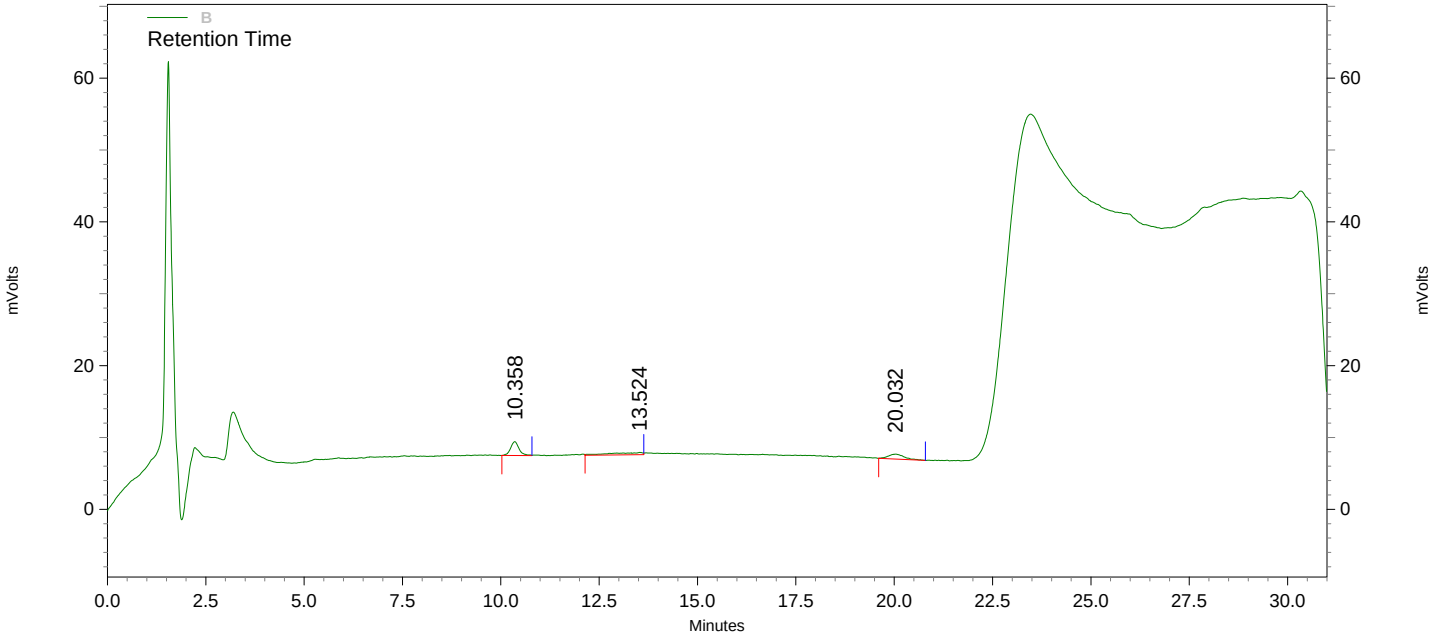
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	8.316	15132	**0.526**
PETN-confirm	17.574	168410	**7.357**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\048.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,962085,
Acquired: Aug 25, 2011 11:32:55
Data Summary: {Data Description}





78322,962085,

A Results

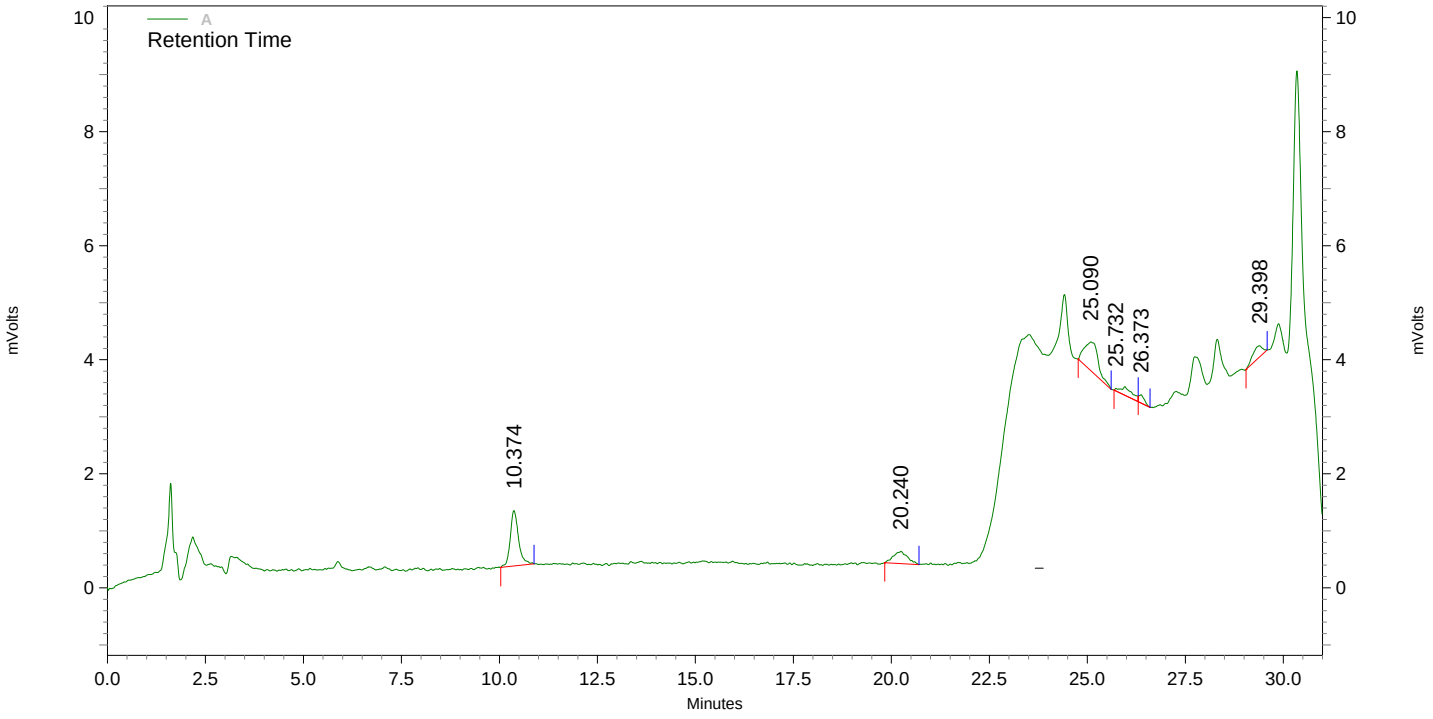
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.349	13545	**81.197**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm	20.007	21097	**0.318**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.082	2630	**0.050**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm			**0.000 BDL**

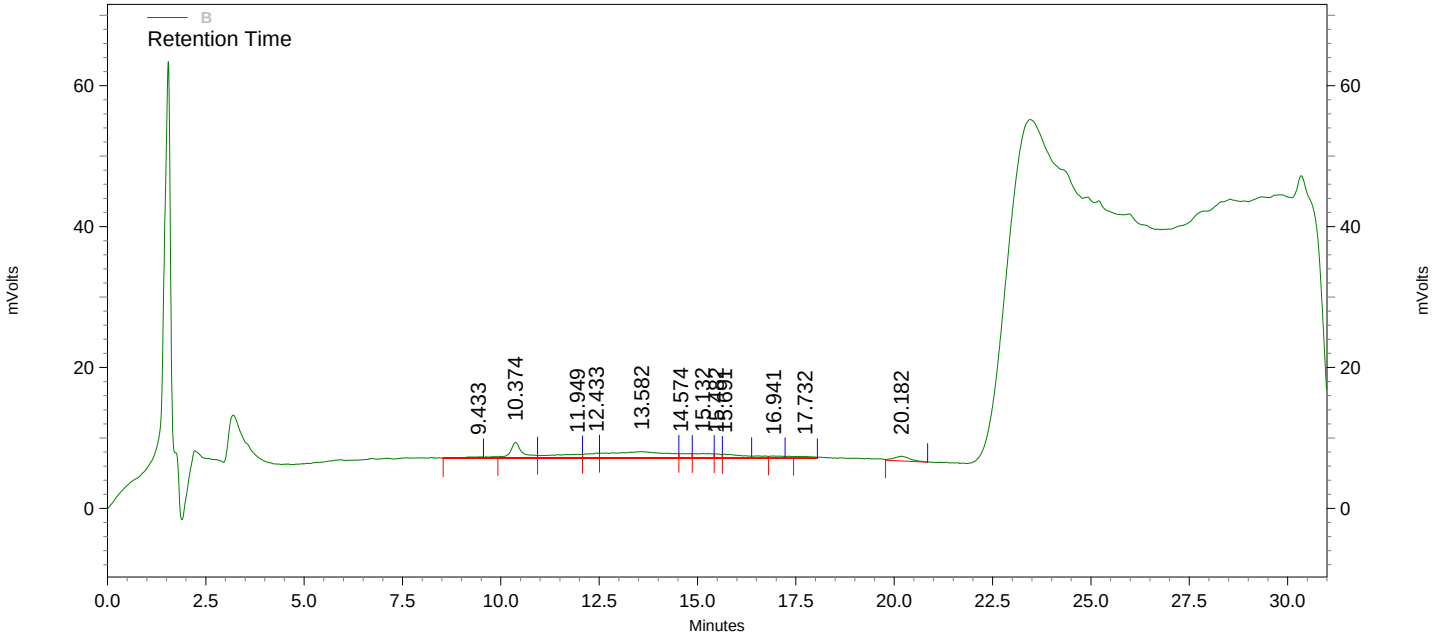
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\051.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,962086,
Acquired: Aug 25, 2011 13:09:50
Data Summary: {Data Description}





78322,962086,

A Results

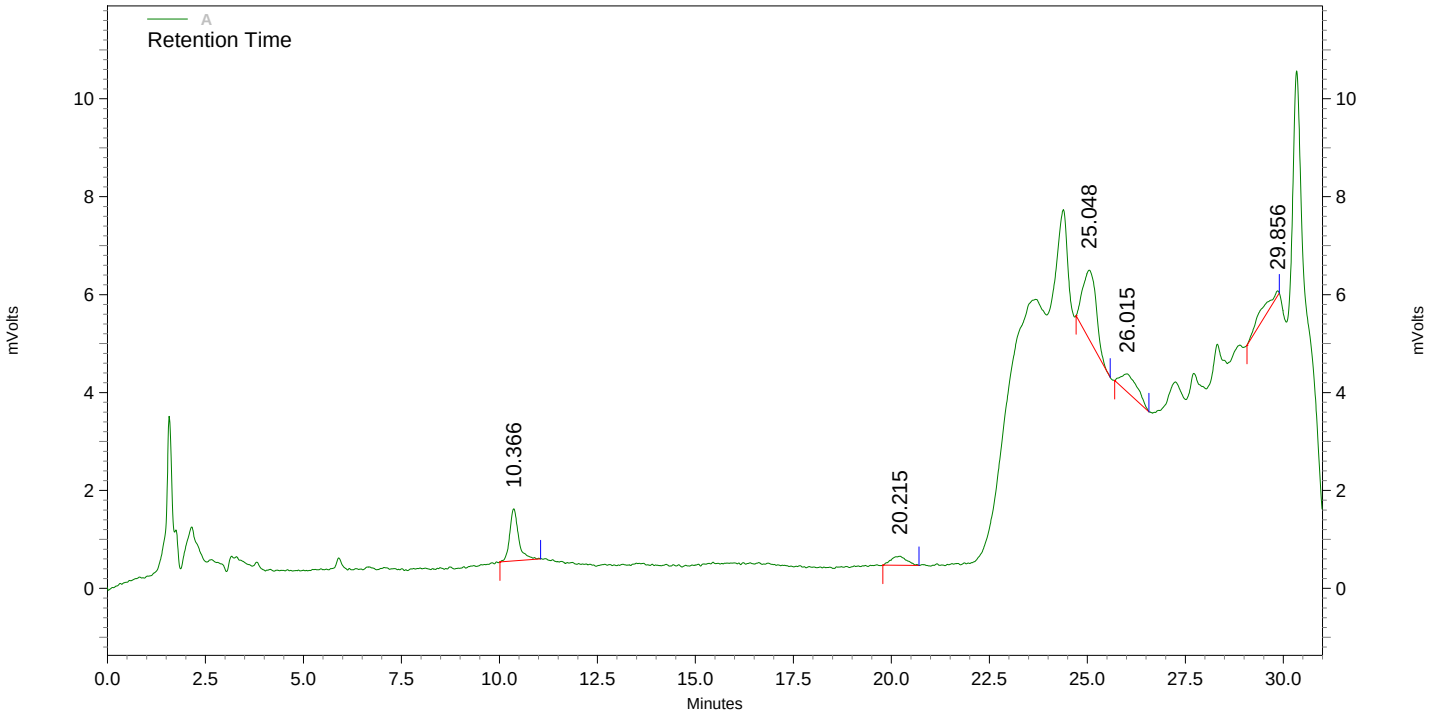
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.374	14316	**86.277**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm	20.240	5354	**0.065**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.090	12628	**0.368**
24-DNT-confirm	26.373	1418	**0.022**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm	29.398	3737	**0.023**

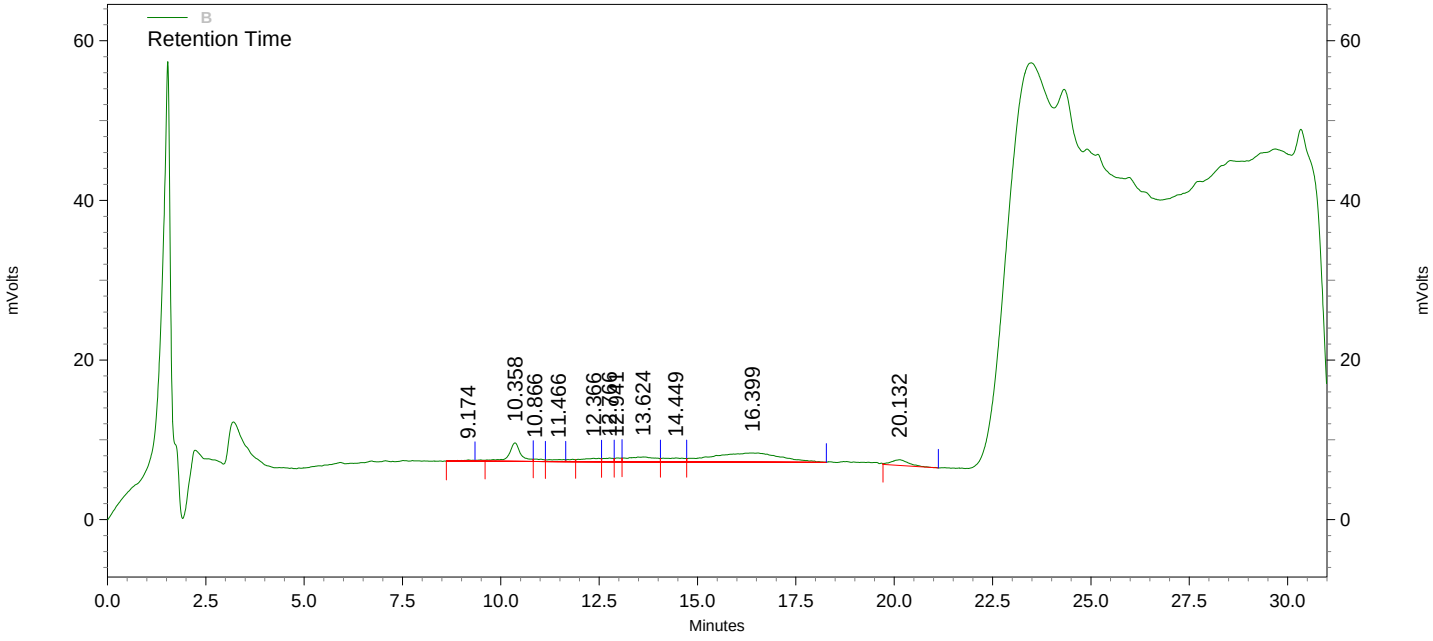
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm	17.732	8709	**0.129**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\052.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,962087,
Acquired: Aug 25, 2011 13:42:08
Data Summary: {Data Description}





78322,962087,

A Results

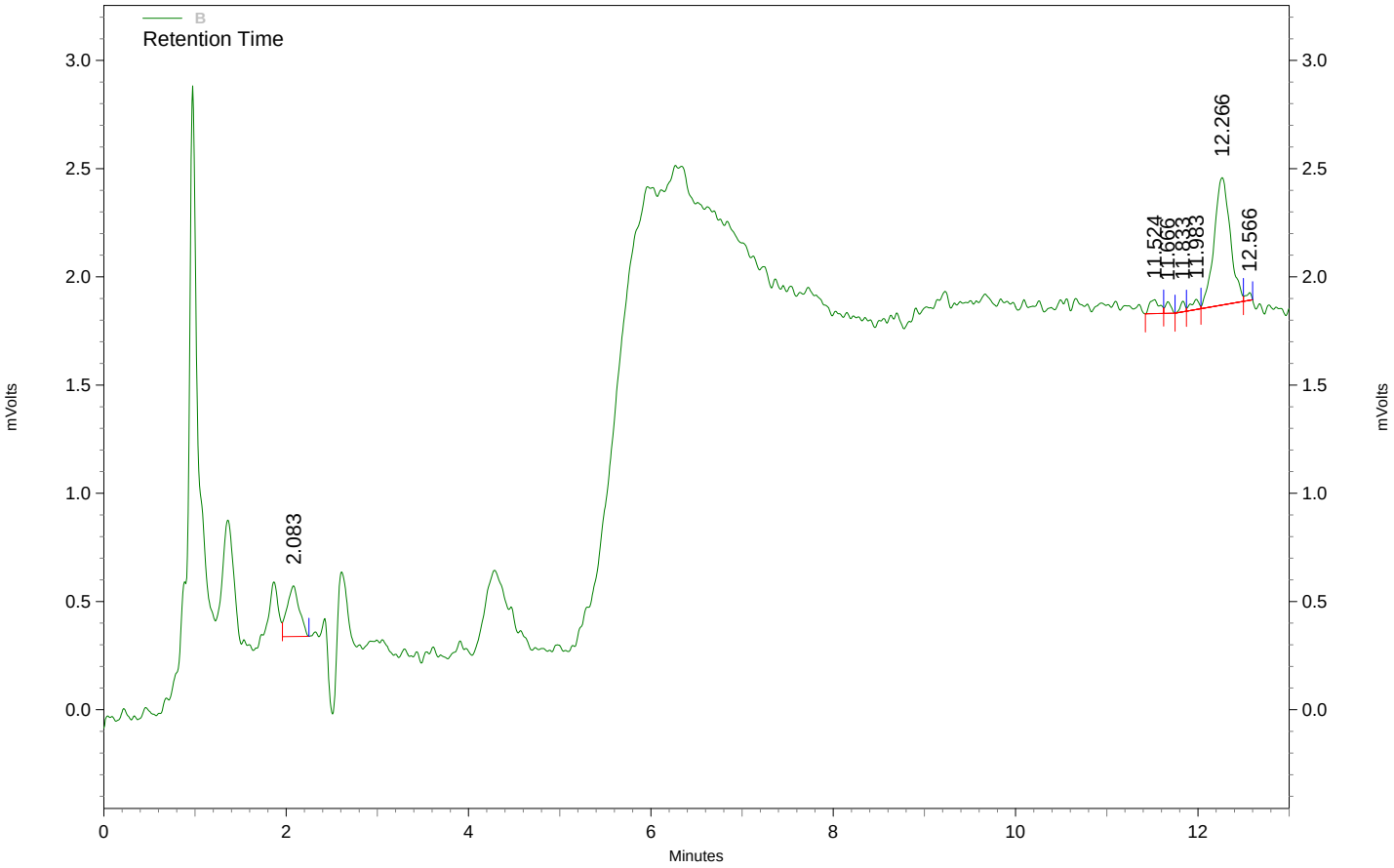
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.366	16802	**102.655**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm	20.215	5173	**0.062**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.048	33836	**1.043**
24-DNT-confirm	26.015	11398	**0.194**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm	29.856	7440	**0.105**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\004.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: 78306,962085,
Acquired: Aug 21, 2011 11:56:11
Data summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.083	2166	**0.015**
12-DNB (SSTD)	12.266	7256	**80.856**

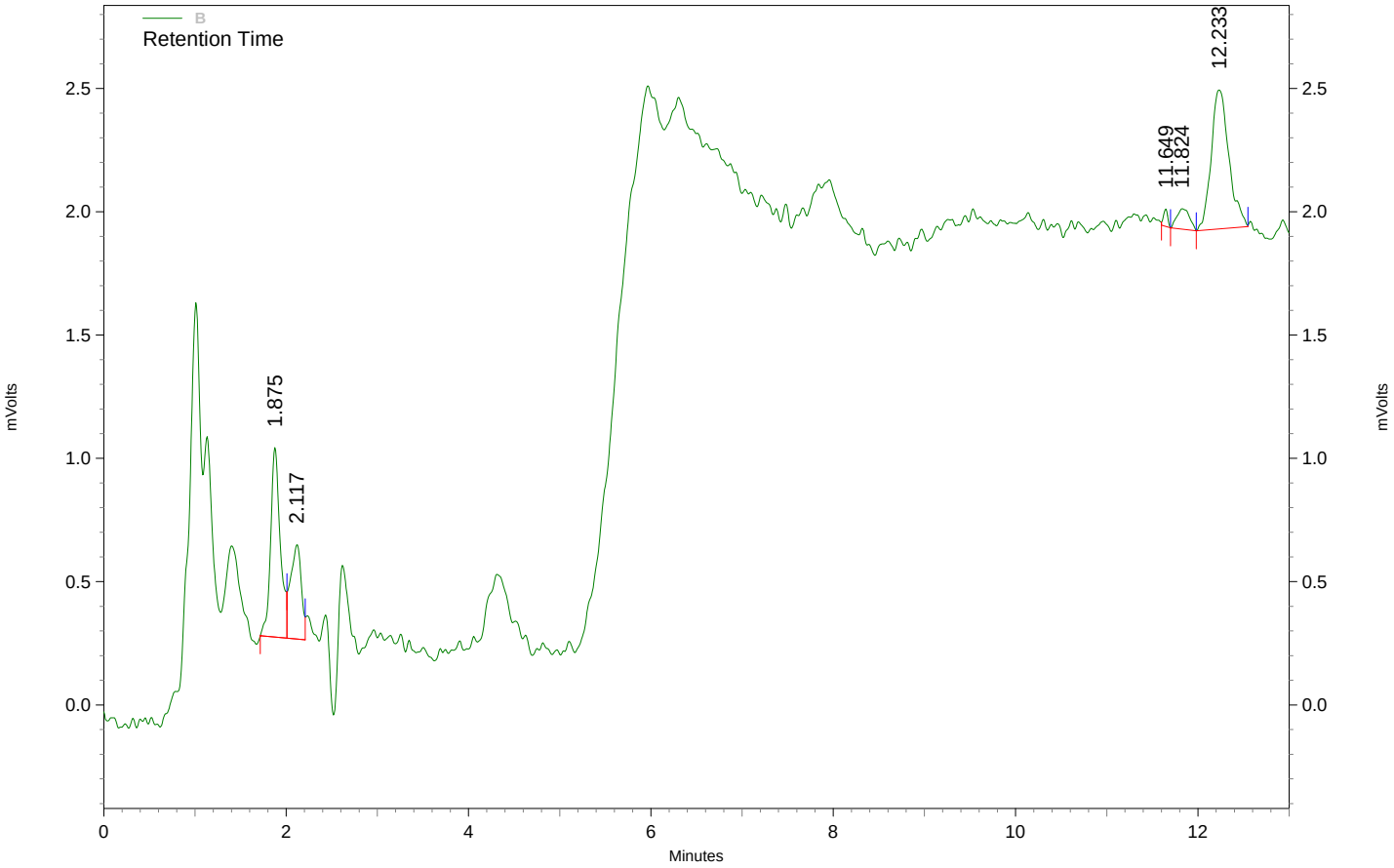
After Manual Integration

RED 08/26/2011

HHK 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\007.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: red
Sample ID: 78306,962086,
Acquired: Aug 21, 2011 12:47:42
Data summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.117	3147	**0.028**
12-DNB (SSTD)	12.233	7616	**84.853**

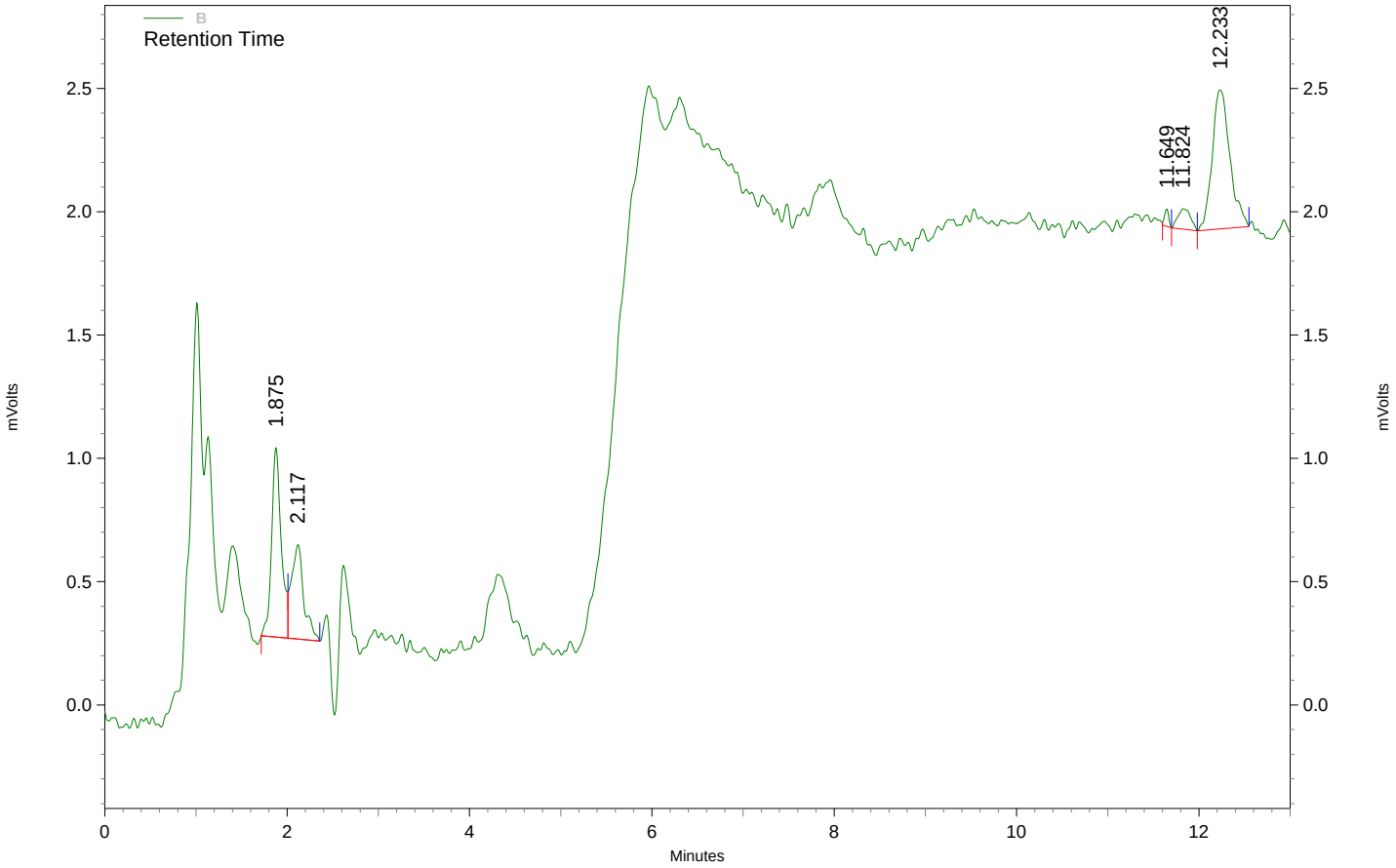
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\007.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: red
Sample ID: 78306,962086,
Acquired: Aug 21, 2011 12:47:42
Data summary: {Data Description}

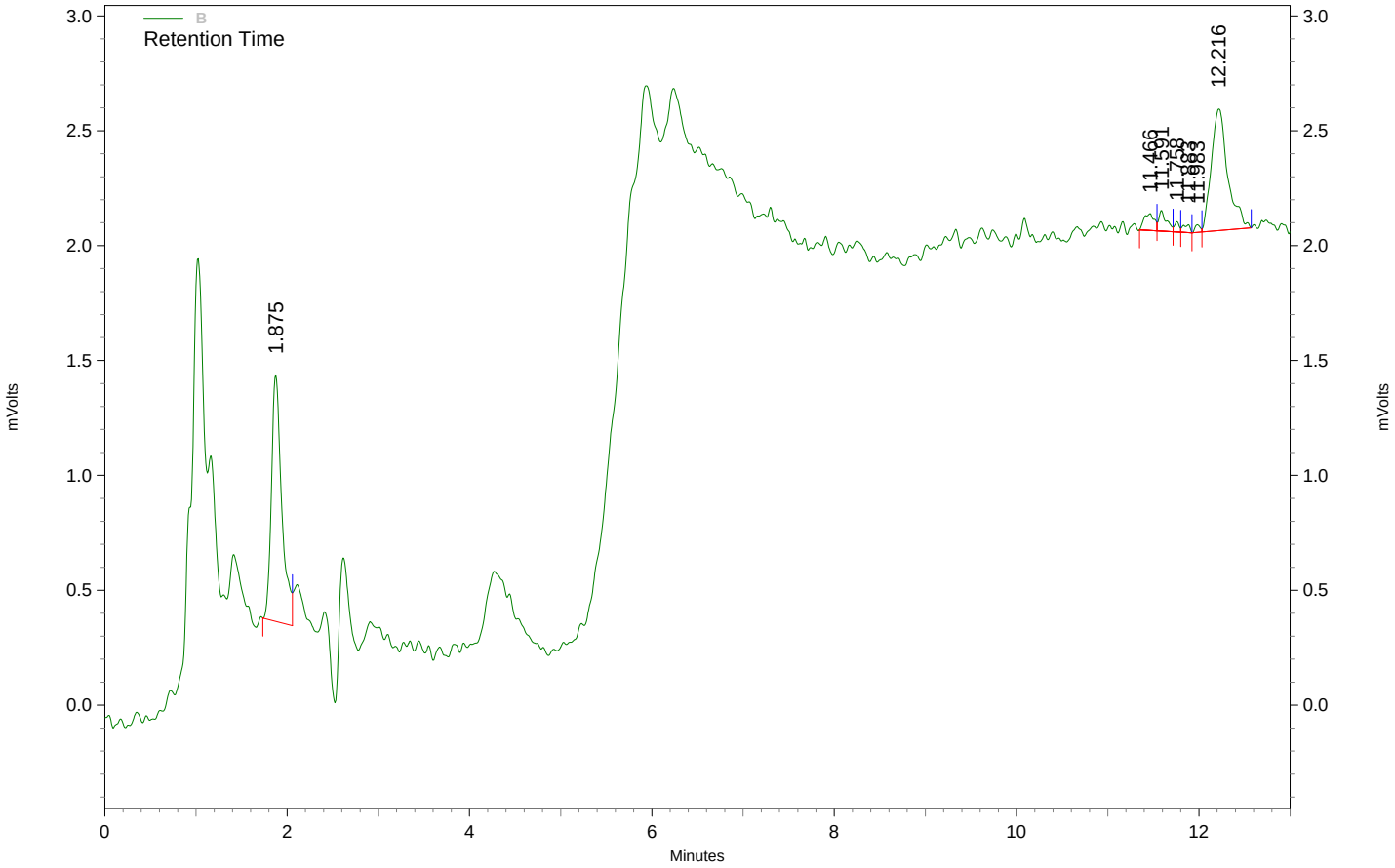


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.117	3626	**0.035**
12-DNB (SSTD)	12.233	7616	**84.853**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\008.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: 78306,962087,
Acquired: Aug 21, 2011 13:04:52
Data summary: {Data Description}



B Results

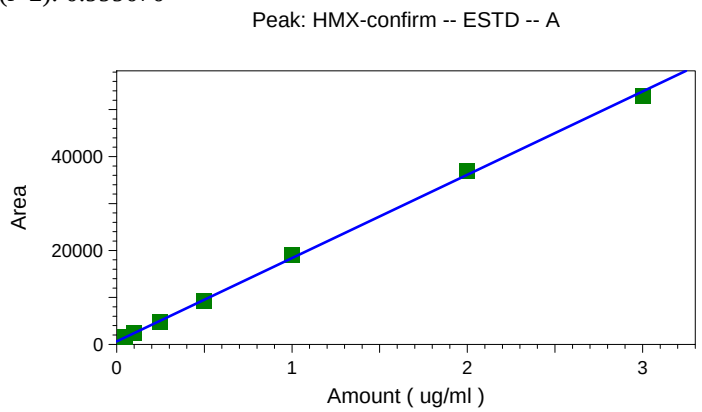
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ			**0.000 BDL**
12-DNB (SSTD)	12.216	6633	**73.940**

NITROAROMATICS ANALYSIS
INITIAL CALIBRATION
DOCUMENTS

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:47:56
User: red
Instrument: HPLC 2 (Offline)

HMX-confirm (A)
Average RF: 21279.7 RF StDev: 5347.37 RF %RSD: 25.1289
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 17748.2x + 630.364
Goodness of fit (r^2): 0.999070



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	1625	2383	4759	9216	18992
RF	32500	23830	19036	18432	18992
Last Area Residual	-0.00604164	0.00124969	0.0173766	0.0162519	-0.0345659
Rep StDev					
Rep %RSD					
Rep 1 Area	1625	2383	4759	9216	18992
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

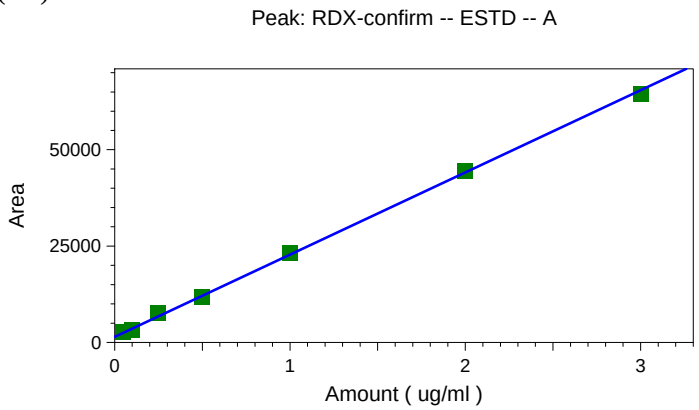
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:47:56
User: red
Instrument: HPLC 2 (Offline)

Area	37022	52971
RF	18511	17657
Last Area		
Residual	-0.0504462	0.0509251
Rep StDev		
Rep %RSD		
Rep 1 Area	37022	52971
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:47:59
User: red
Instrument: HPLC 2 (Offline)

RDX-confirm (A)
Average RF: 29232.7 RF StDev: 10960.2 RF %RSD: 37.4930
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 21338.9x + 1432.04
Goodness of fit (r^2): 0.999257



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2621	3114	7653	11672	23320
RF	52420	31140	30612	23344	23320
Last Area Residual	-0.00571802	0.0211786	-0.041532	0.0201261	-0.0257327
Rep StDev					
Rep %RSD					
Rep 1 Area	2621	3114	7653	11672	23320
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

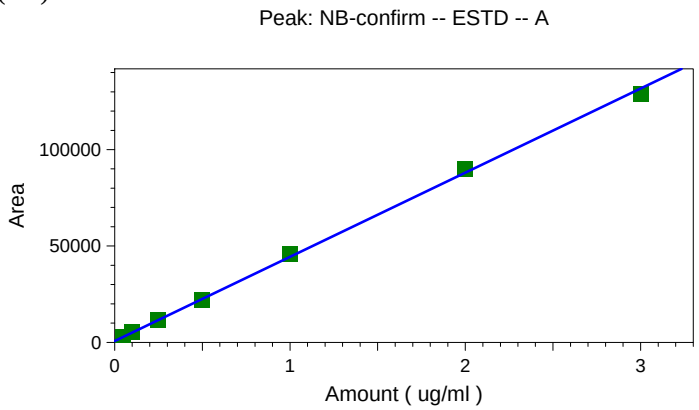
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:47:59
User: red
Instrument: HPLC 2 (Offline)

Area	44554	64548
RF	22277	21516
Last Area		
Residual	-0.020819	0.0422047
Rep StDev		
Rep %RSD		
Rep 1 Area	44554	64548
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:00
User: red
Instrument: HPLC 2 (Offline)

NB-confirm (A)
Average RF: 47825.2 RF StDev: 5417.64 RF %RSD: 11.3280
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 43655.6x + 761.412
Goodness of fit (r^2): 0.998948



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2747	5621	11462	21847	46053
RF	54940	56210	45848	43694	46053
Last Area Residual	0.00451703	-0.0113164	0.00488647	0.017002	-0.0374739
Rep StDev					
Rep %RSD					
Rep 1 Area	2747	5621	11462	21847	46053
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:00
User: red
Instrument: HPLC 2 (Offline)

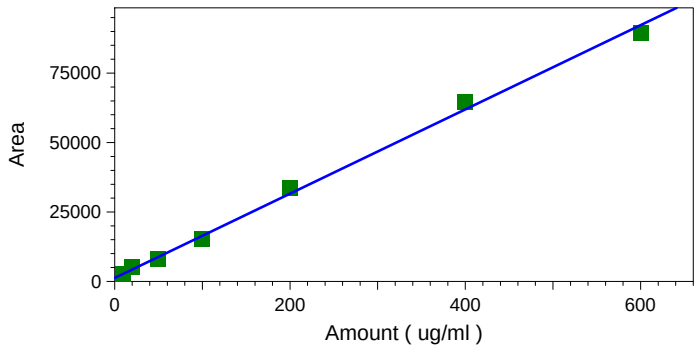
Area	90050	129019
RF	45025	43006.3333333333
Last Area		
Residual	-0.0452932	0.0620616
Rep StDev		
Rep %RSD		
Rep 1 Area	90050	129019
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:02
User: red
Instrument: HPLC 2 (Offline)

12-DNB (SSTD)-confirm (A)
Average RF: 186.291 RF StDev: 48.4502 RF %RSD: 26.0078
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 151.783x + 1220.72
Goodness of fit (r^2): 0.996969

Peak: 12-DNB (SSTD)-confirm -- ESTD -- A



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	10	20	50	100	200
Area	2619	5024	7981	15304	33500
RF	261.9	251.2	159.62	153.04	167.5
Last Area Residual	0.787596	-5.05743	5.46076	7.21414	-12.6678
Rep StDev					
Rep %RSD					
Rep 1 Area	2619	5024	7981	15304	33500
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	400	600

Calibration Report

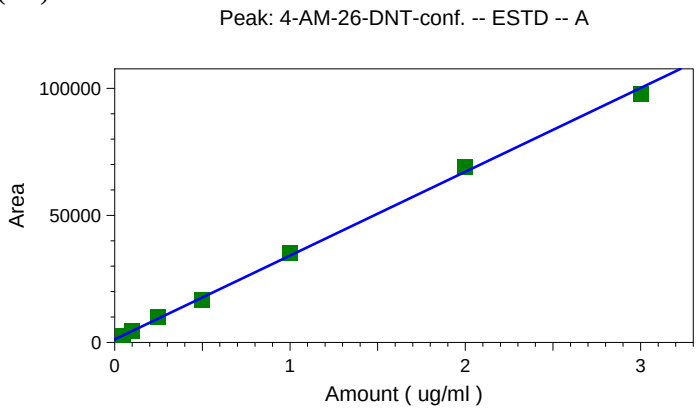
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:02
User: red
Instrument: HPLC 2 (Offline)

Area	64597	89570
RF	161.4925	149.283333333333
Last Area		
Residual	-17.5463	17.9223
Rep StDev		
Rep %RSD		
Rep 1 Area	64597	89570
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:03
User: red
Instrument: HPLC 2 (Offline)

4-AM-26-DNT-conf. (A)
Average RF: 39380.6 RF StDev: 7736.90 RF %RSD: 19.6465
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 32986.4x + 1192.93
Goodness of fit (r^2): 0.998585



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2636	4690	10094	16628	35276
RF	52720	46900	40376	33256	35276
Last Area Residual	0.00625274	-0.00601527	-0.0198402	0.0320785	-0.0332447
Rep StDev					
Rep %RSD					
Rep 1 Area	2636	4690	10094	16628	35276
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

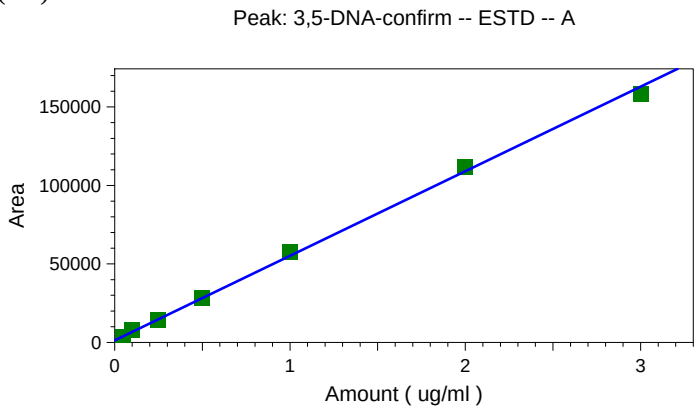
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:03
User: red
Instrument: HPLC 2 (Offline)

Area	69012	97891
RF	34506	32630.3333333333
Last Area		
Residual	-0.0559679	0.0685512
Rep StDev		
Rep %RSD		
Rep 1 Area	69012	97891
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:04
User: red
Instrument: HPLC 2 (Offline)

3,5-DNA-confirm (A)
Average RF: 61020.4 RF StDev: 9222.21 RF %RSD: 15.1133
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 53892.8x + 1286.03
Goodness of fit (r^2): 0.998333



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3529	7747	14133	28099	57660
RF	70580	77470	56532	56198	57660
Last Area Residual	0.00838094	-0.0198855	0.01162	0.00247587	-0.046039
Rep StDev					
Rep %RSD					
Rep 1 Area	3529	7747	14133	28099	57660
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

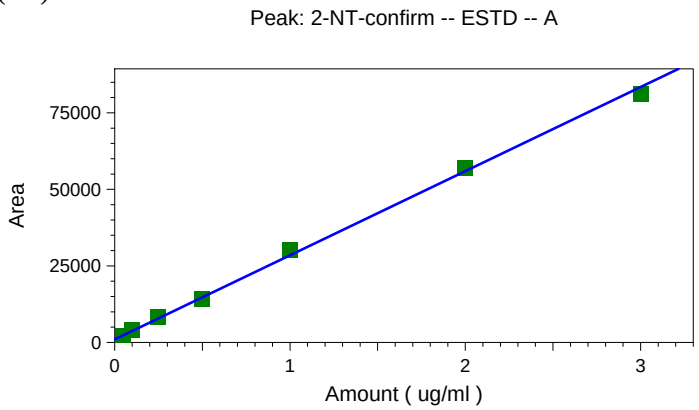
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:04
User: red
Instrument: HPLC 2 (Offline)

Area	111760	158468
RF	55880	52822.6666666667
Last Area		
Residual	-0.0498837	0.0834328
Rep StDev		
Rep %RSD		
Rep 1 Area	111760	158468
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:06
User: red
Instrument: HPLC 2 (Offline)

2-NT-confirm (A)
Average RF: 32788.0 RF StDev: 6116.60 RF %RSD: 18.6550
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 27483.3x + 996.898
Goodness of fit (r^2): 0.998443



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2128	4006	8165	14307	30100
RF	42560	40060	32660	28614	30100
Last Area Residual	0.00884397	-0.00948852	-0.010817	0.0157016	-0.058939
Rep StDev					
Rep %RSD					
Rep 1 Area	2128	4006	8165	14307	30100
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

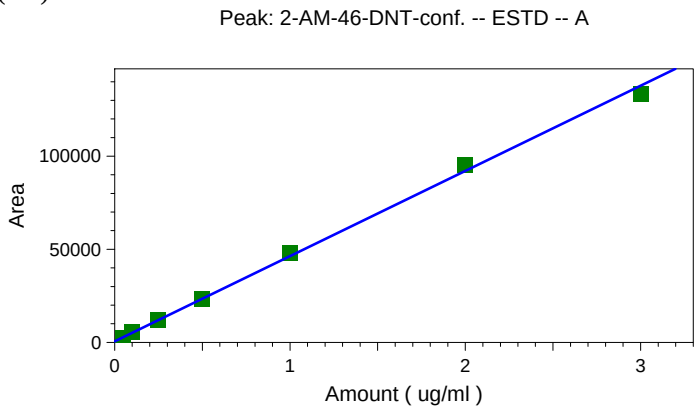
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:06
User: red
Instrument: HPLC 2 (Offline)

Area	56863	81272
RF	28431.5	27090.6666666667
Last Area Residual	-0.0327315	0.0791281
Rep StDev		
Rep %RSD		
Rep 1 Area	56863	81272
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:08
User: red
Instrument: HPLC 2 (Offline)

2-AM-46-DNT-conf. (A)
Average RF: 49032.8 RF StDev: 4163.91 RF %RSD: 8.49210
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 45760.0x + 590.906
Goodness of fit (r^2): 0.997966



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2589	5709	11950	23232	47942
RF	51780	57090	47800	46464	47942
Last Area Residual	0.00633534	-0.0118465	0.0017679	0.00522053	-0.0347711
Rep StDev					
Rep %RSD					
Rep 1 Area	2589	5709	11950	23232	47942
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

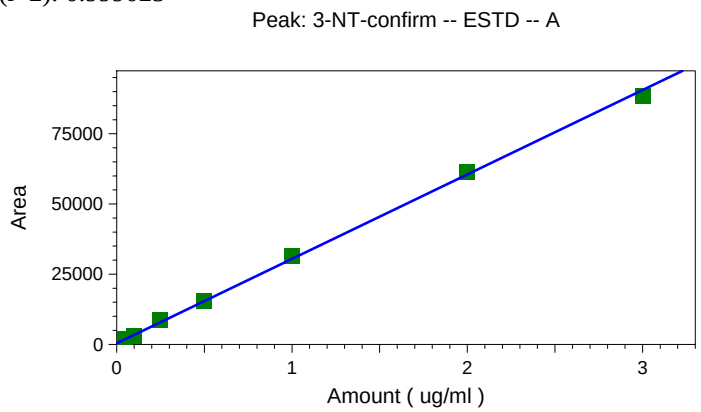
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:08
User: red
Instrument: HPLC 2 (Offline)

Area	95245	133593
RF	47622.5	44531
Last Area		
Residual	-0.0684912	0.0934838
Rep StDev		
Rep %RSD		
Rep 1 Area	95245	133593
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:09
User: red
Instrument: HPLC 2 (Offline)

3-NT-confirm (A)
Average RF: 32342.8 RF StDev: 3287.34 RF %RSD: 10.1640
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 30064.3x + 404.004
Goodness of fit (r^2): 0.999025



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	1928	2997	8771	15634	31388
RF	38560	29970	35084	31268	31388
Last Area					
Residual	-0.000691145	0.0137518	-0.028303	-0.00658	-0.0305894
Rep StDev					
Rep %RSD					
Rep 1 Area	1928	2997	8771	15634	31388
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

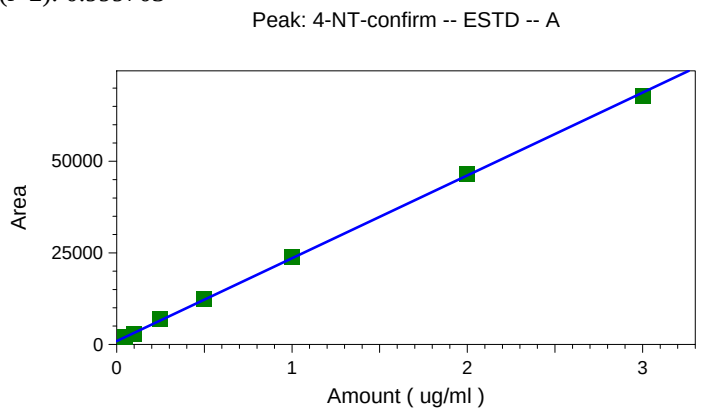
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:09
User: red
Instrument: HPLC 2 (Offline)

Area	61221	88557
RF	30610.5	29519
Last Area		
Residual	-0.0228944	0.0678558
Rep StDev		
Rep %RSD		
Rep 1 Area	61221	88557
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:11
User: red
Instrument: HPLC 2 (Offline)

4-NT-confirm (A)
Average RF: 27454.8 RF StDev: 6566.65 RF %RSD: 23.9181
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 22632.1x + 888.159
Goodness of fit (r^2): 0.999703



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2073	2885	6815	12444	23875
RF	41460	28850	27260	24888	23875
Last Area Residual	-0.00235232	0.0117694	-0.011878	-0.0105959	-0.0156757
Rep StDev					
Rep %RSD					
Rep 1 Area	2073	2885	6815	12444	23875
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

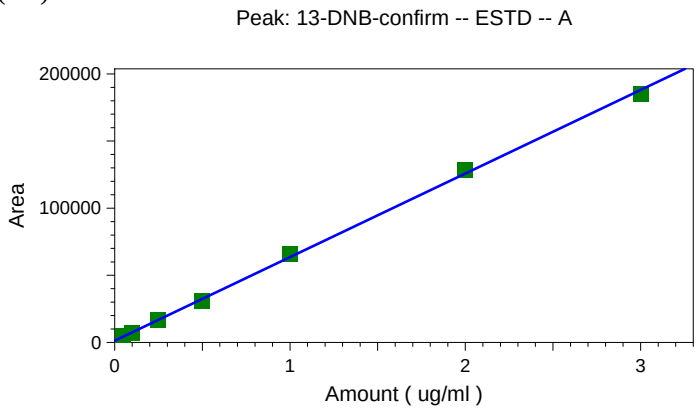
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:11
User: red
Instrument: HPLC 2 (Offline)

Area	46413	67932
RF	23206.5	22644
Last Area		
Residual	-0.0115192	0.0376618
Rep StDev		
Rep %RSD		
Rep 1 Area	46413	67932
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:12
User: red
Instrument: HPLC 2 (Offline)

13-DNB-confirm (A)
Average RF: 69560.1 RF StDev: 11722.1 RF %RSD: 16.8518
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 62266.1x + 1294.64
Goodness of fit (r^2): 0.999179



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	4747	7158	16787	30653	65976
RF	94940	71580	67148	61306	65976
Last Area					
Residual	-0.00544532	0.00583377	0.00119103	0.0285016	-0.0387894
Rep StDev					
Rep %RSD					
Rep 1 Area	4747	7158	16787	30653	65976
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

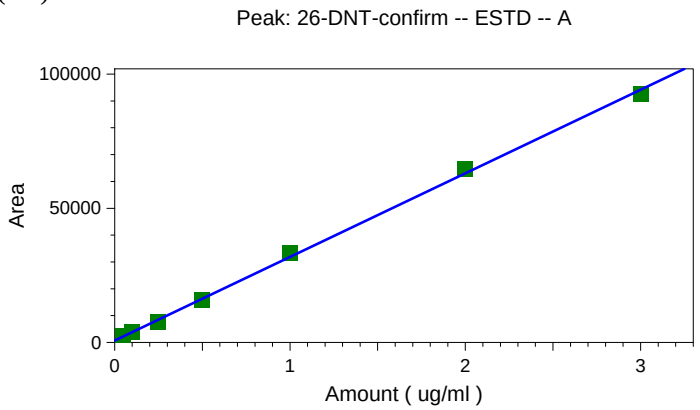
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:12
User: red
Instrument: HPLC 2 (Offline)

Area	128412	185294
RF	64206	61764.6666666667
Last Area		
Residual	-0.0415181	0.0449511
Rep StDev		
Rep %RSD		
Rep 1 Area	128412	185294
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:14
User: red
Instrument: HPLC 2 (Offline)

26-DNT-confirm (A)
Average RF: 35122.0 RF StDev: 6787.50 RF %RSD: 19.3255
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 31174.1x + 680.718
Goodness of fit (r^2): 0.998957



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2471	3800	7673	15638	33303
RF	49420	38000	30692	31276	33303
Last Area Residual	-0.00742845	-5.99537e-005	0.0257024	0.0202021	-0.0464537
Rep StDev					
Rep %RSD					
Rep 1 Area	2471	3800	7673	15638	33303
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

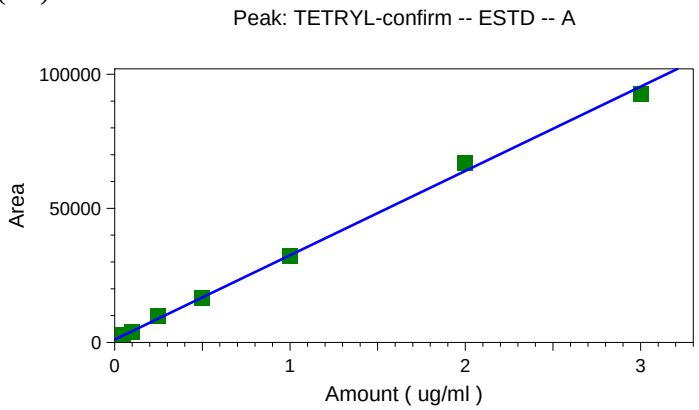
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:14
User: red
Instrument: HPLC 2 (Offline)

Area	64512	92721
RF	32256	30907
Last Area		
Residual	-0.0475723	0.0475427
Rep StDev		
Rep %RSD		
Rep 1 Area	64512	92721
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:15
User: red
Instrument: HPLC 2 (Offline)

TETRYL-confirm (A)
Average RF: 37070.6 RF StDev: 7027.64 RF %RSD: 18.9575
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 31453.0x + 1045.41
Goodness of fit (r^2): 0.997834



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2550	3985	9759	16501	32299
RF	51000	39850	39036	33002	32299
Last Area Residual	0.00216378	0.0065402	-0.0270351	0.00861355	0.00634085
Rep StDev					
Rep %RSD					
Rep 1 Area	2550	3985	9759	16501	32299
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

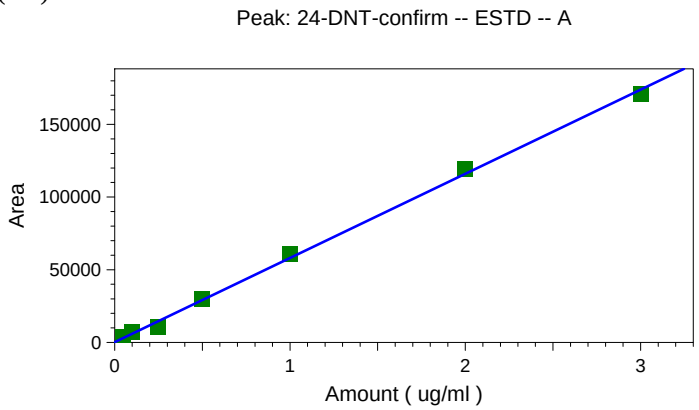
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:15
User: red
Instrument: HPLC 2 (Offline)

Area	66770	92766
RF	33385	30922
Last Area		
Residual	-0.0896107	0.0838871
Rep StDev		
Rep %RSD		
Rep 1 Area	66770	92766
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:17
User: red
Instrument: HPLC 2 (Offline)

24-DNT-confirm (A)
Average RF: 59967.5 RF StDev: 8714.07 RF %RSD: 14.5313
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 57917.2x + 165.196
Goodness of fit (r^2): 0.998302



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3499	6895	10918	29843	60646
RF	69980	68950	43672	59686	60646
Last Area					
Residual	-0.00756152	-0.0161969	0.0643419	-0.0124174	-0.0442625
Rep StDev					
Rep %RSD					
Rep 1 Area	3499	6895	10918	29843	60646
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

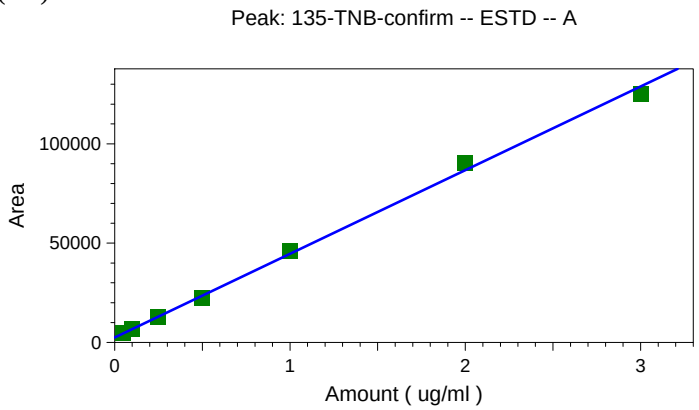
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:17
User: red
Instrument: HPLC 2 (Offline)

Area	119594	171124
RF	59797	57041.3333333333
Last Area		
Residual	-0.0620596	0.0482226
Rep StDev		
Rep %RSD		
Rep 1 Area	119594	171124
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:18
User: red
Instrument: HPLC 2 (Offline)

135-TNB-confirm (A)
Average RF: 55702.0 RF StDev: 18389.1 RF %RSD: 33.0134
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 42135.3x + 2491.37
Goodness of fit (r^2): 0.997698



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	4596	6921	12639	22515	46269
RF	91920	69210	50556	45030	46269
Last Area Residual	5.07875e-005	-0.00512855	0.00916587	0.0247783	-0.0389766
Rep StDev					
Rep %RSD					
Rep 1 Area	4596	6921	12639	22515	46269
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

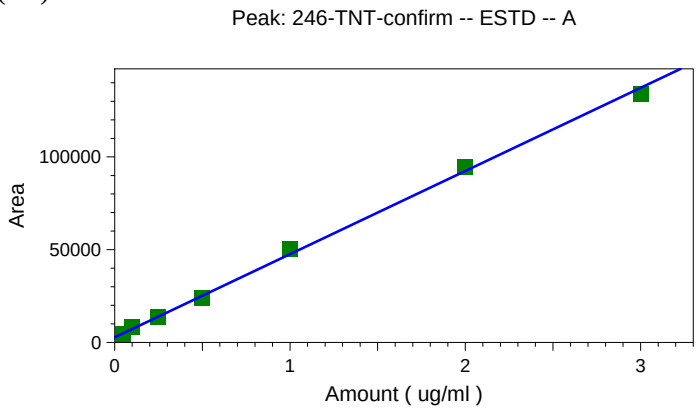
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:18
User: red
Instrument: HPLC 2 (Offline)

Area	90358	125250
RF	45179	41750
Last Area		
Residual	-0.085343	0.0865634
Rep StDev		
Rep %RSD		
Rep 1 Area	90358	125250
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:20
User: red
Instrument: HPLC 2 (Offline)

246-TNT-confirm (A)
Average RF: 59516.9 RF StDev: 18661.6 RF %RSD: 31.3551
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 44861.0x + 2712.55
Goodness of fit (r^2): 0.998432



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	4562	8111	13498	24100	50147
RF	91240	81110	53992	48200	50147
Last Area					
Residual	0.00877386	-0.0203372	0.00958078	0.0232508	-0.057365
Rep StDev					
Rep %RSD					
Rep 1 Area	4562	8111	13498	24100	50147
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	2	3

Calibration Report

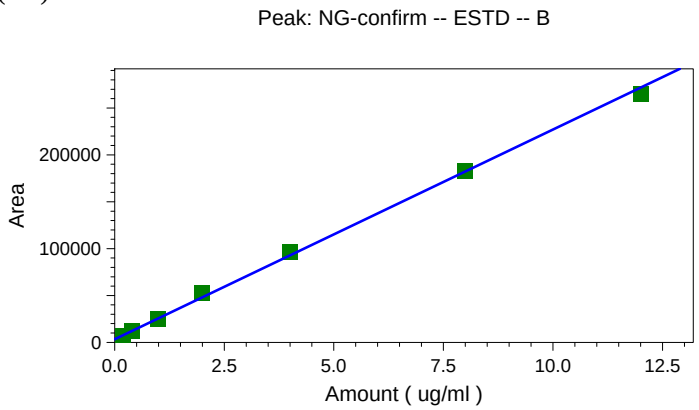
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:20
User: red
Instrument: HPLC 2 (Offline)

Area	94461	134097
RF	47230.5	44699
Last Area		
Residual	-0.0451718	0.071299
Rep StDev		
Rep %RSD		
Rep 1 Area	94461	134097
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:26
User: red
Instrument: HPLC 2 (Offline)

NG-confirm (B)
Average RF: 26817.2 RF StDev: 5136.79 RF %RSD: 19.1548
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 22367.1x + 3362.05
Goodness of fit (r^2): 0.998667



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.2	0.4	1	2	4
Area	7235	12564	24787	52545	96529
RF	36175	31410	24787	26272.5	24132.25
Last Area Residual	0.0268462	-0.0114052	0.0421232	-0.198894	-0.165351
Rep StDev					
Rep %RSD					
Rep 1 Area	7235	12564	24787	52545	96529
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	8	12

Calibration Report

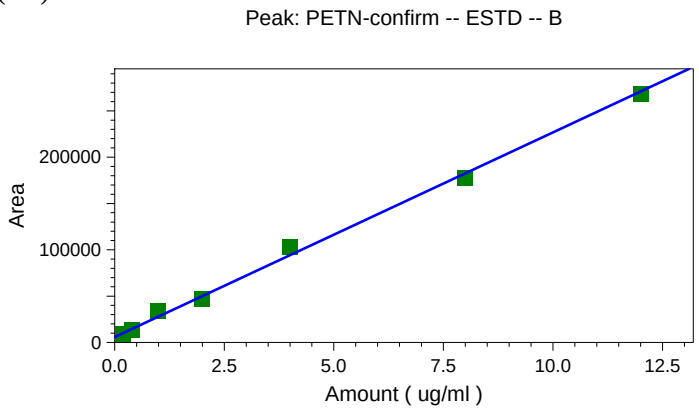
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:26
User: red
Instrument: HPLC 2 (Offline)

Area	182700	265276
RF	22837.5	22106.3333333333
Last Area		
Residual	-0.0179246	0.290229
Rep StDev		
Rep %RSD		
Rep 1 Area	182700	265276
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:28
User: red
Instrument: HPLC 2 (Offline)

PETN-confirm (B)
Average RF: 29927.6 RF StDev: 9339.01 RF %RSD: 31.2053
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 22093.3x + 5861.99
Goodness of fit (r^2): 0.997392



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.2	0.4	1	2	4
Area	9510	13656	34150	46787	102580
RF	47550	34140	34150	23393.5	25645
Last Area Residual	0.0348811	0.0472221	-0.280391	0.147625	-0.377715
Rep StDev					
Rep %RSD					
Rep 1 Area	9510	13656	34150	46787	102580
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4404	8330 Pt 2 EXP 4405	8330 Pt 3 EXP 4406	8330 Pt 4 EXP 4407	8330 Pt 5 EXP 4408
Rep 1 Calib. Time	Jun 22, 2011 09:32:26	Jun 22, 2011 09:28:05	Jun 22, 2011 09:28:22	Jun 22, 2011 09:28:31	Jun 22, 2011 09:29:03

	Level 6	Level 7
Amount	8	12

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Print Time: Jun 24, 2011 10:48:28
User: red
Instrument: HPLC 2 (Offline)

Area	177865	268580
RF	22233.125	22381.6666666667
Last Area Residual	0.214685	0.108682
Rep StDev		
Rep %RSD		
Rep 1 Area	177865	268580
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat	C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4409	8330 Pt 7 EXP 4410
Rep 1 Calib. Time	Jun 22, 2011 09:29:16	Jun 22, 2011 09:29:29

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\062111expic-confirm.seq
User : red
Printed : Jun 24, 2011 10:22:24

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat	8330 Pt 1 EXP 4404	Jun 24, 2011 10:22:24

A

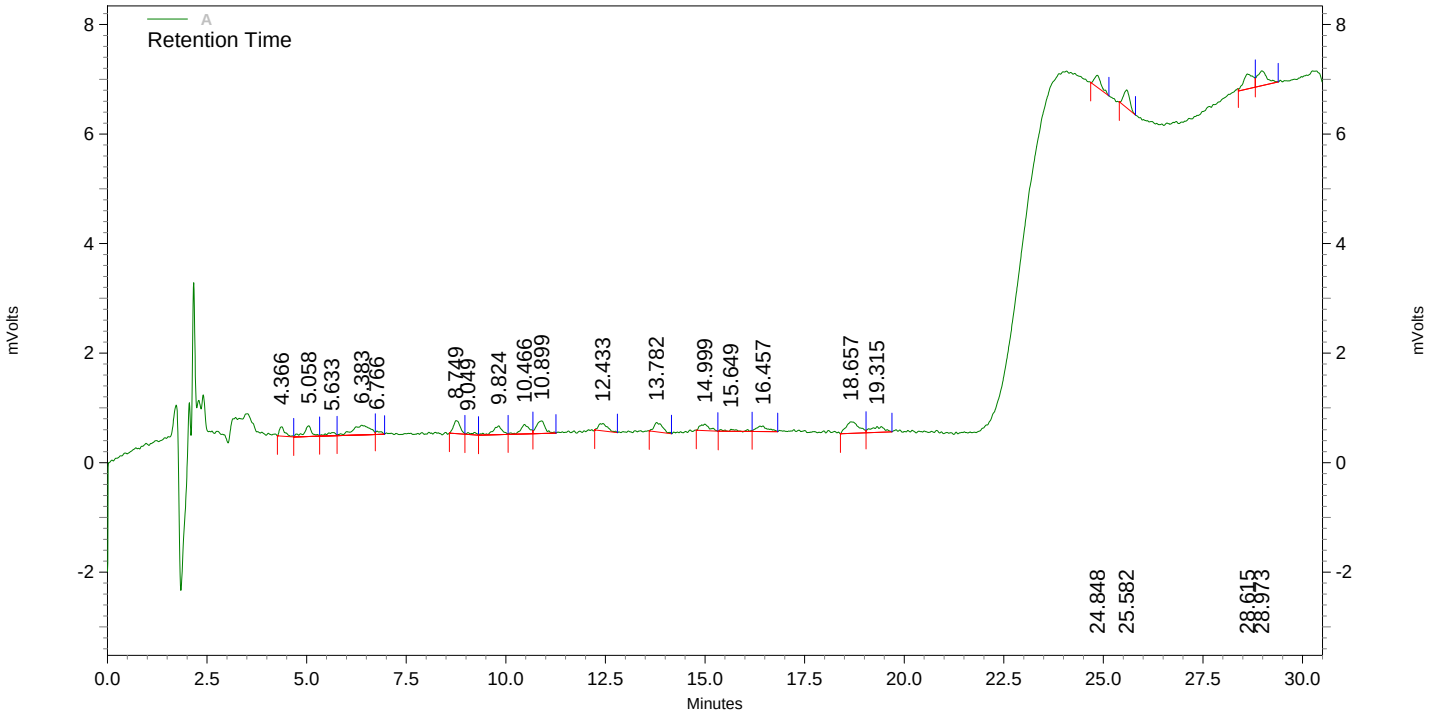
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.050	0.056	12.083	20.000	Passed
RDX-confirm	0.050	0.056	11.436	20.000	Passed
NB-confirm	0.050	0.045	9.034	20.000	Passed
12-DNB (SSTD)-confirm	10.000	9.212	7.876	20.000	Passed
4-AM-26-DNT-conf.	0.050	0.044	12.505	20.000	Passed
3,5-DNA-confirm	0.050	0.042	16.762	20.000	Passed
2-NT-confirm	0.050	0.041	17.688	20.000	Passed
2-AM-46-DNT-conf.	0.050	0.044	12.671	20.000	Passed
3-NT-confirm	0.050	0.051	1.382	20.000	Passed
4-NT-confirm	0.050	0.052	4.705	20.000	Passed
13-DNB-confirm	0.050	0.055	10.891	20.000	Passed
26-DNT-confirm	0.050	0.057	14.857	0.000	Passed
TETRYL-confirm	0.050	0.048	4.328	20.000	Passed
24-DNT-confirm	0.050	0.058	15.123	0.000	Passed
135-TNB-confirm	0.050	0.050	0.102	20.000	Passed
246-TNT-confirm	0.050	0.041	17.548	20.000	Passed

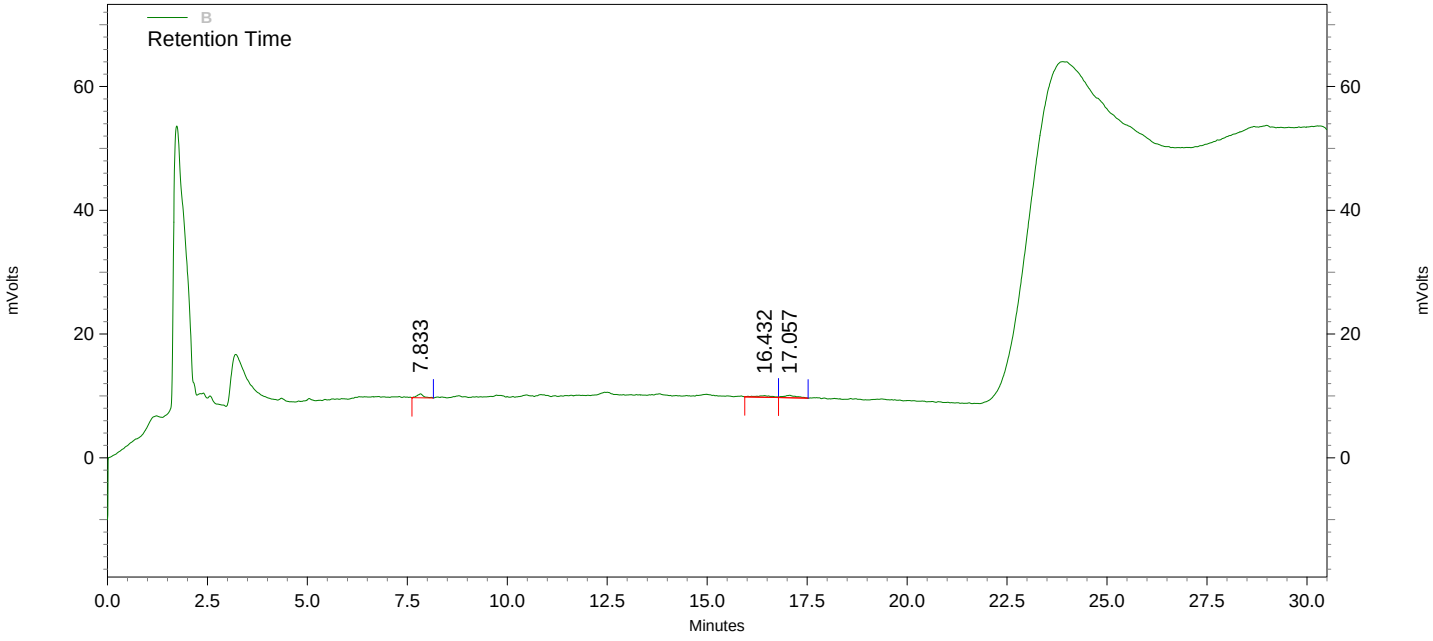
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	0.200	0.173	13.423	20.000	Passed
PETN-confirm	0.200	0.165	17.441	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\002.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 1 EXP 4404
Acquired: Jun 21, 2011 14:37:30
Data Summary: {Data Description}





8330 Pt 1 EXP 4404

A Results

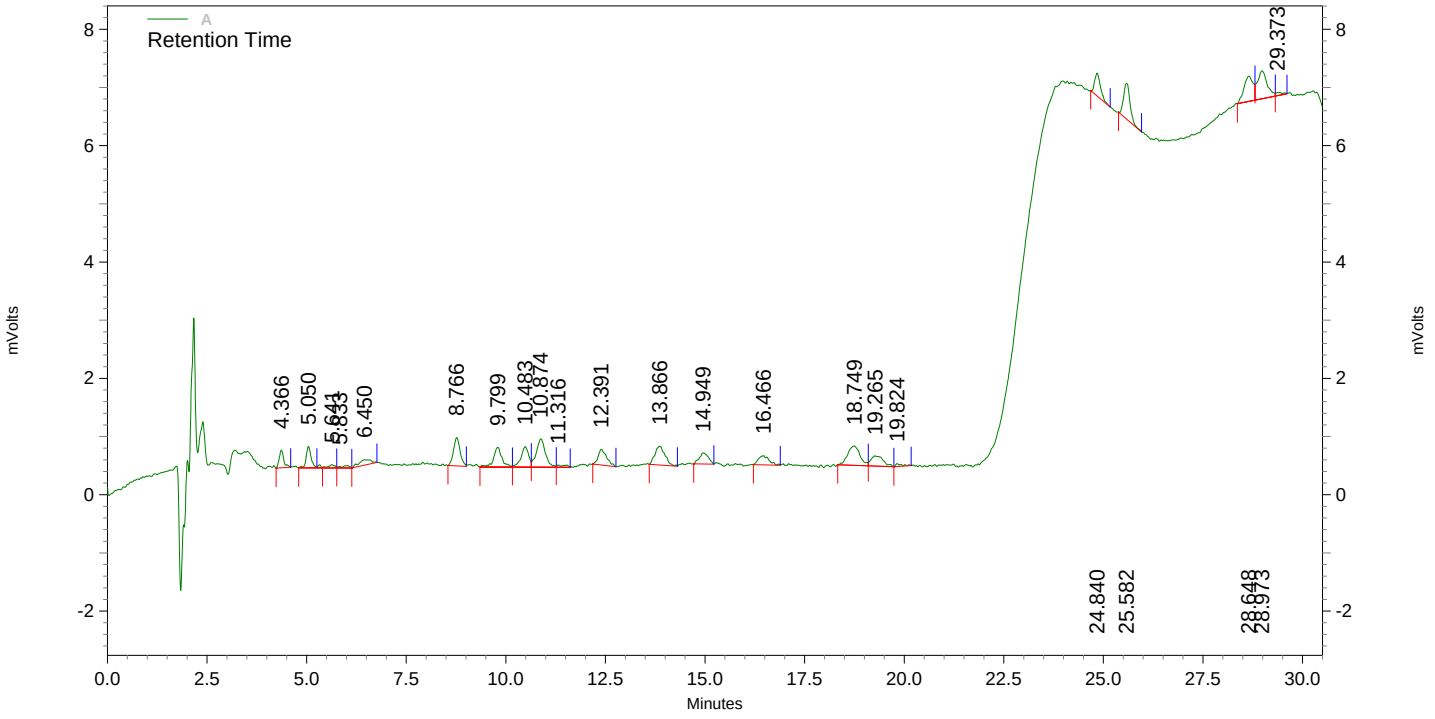
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.366	1625	**0.056**
RDX-confirm	5.058	2621	**0.056**
NB-confirm	8.749	2747	**0.045**
12-DNB (SSTD)-confirm	9.824	2619	**9.212**
4-AM-26-DNT-conf.	10.466	2636	**0.044**
3,5-DNA-confirm	10.899	3529	**0.042**
2-NT-confirm	12.433	2128	**0.041**
2-AM-46-DNT-conf.	13.782	2589	**0.044**
3-NT-confirm	14.999	1928	**0.051**
4-NT-confirm	16.457	2073	**0.052**
13-DNB-confirm	18.657	4747	**0.055**
26-DNT-confirm	19.315	2471	**0.057**
TETRYL-confirm	24.848	2550	**0.048**
24-DNT-confirm	25.582	3499	**0.058**
135-TNB-confirm	28.615	4596	**0.050**
246-TNT-confirm	28.973	4562	**0.041**

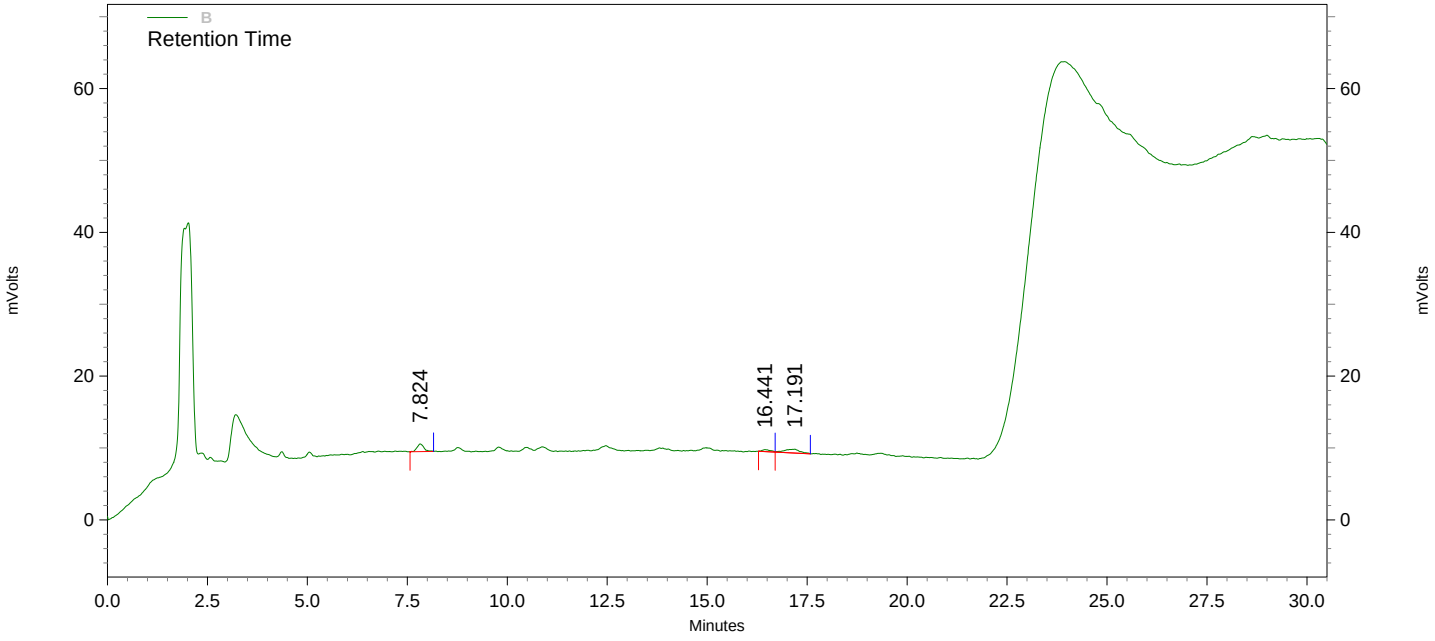
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.833	7235	**0.173**
PETN-confirm	17.057	9510	**0.165**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\003.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 2 EXP 4405
Acquired: Jun 21, 2011 15:09:48
Data Summary: {Data Description}





8330 Pt 2 EXP 4405

A Results

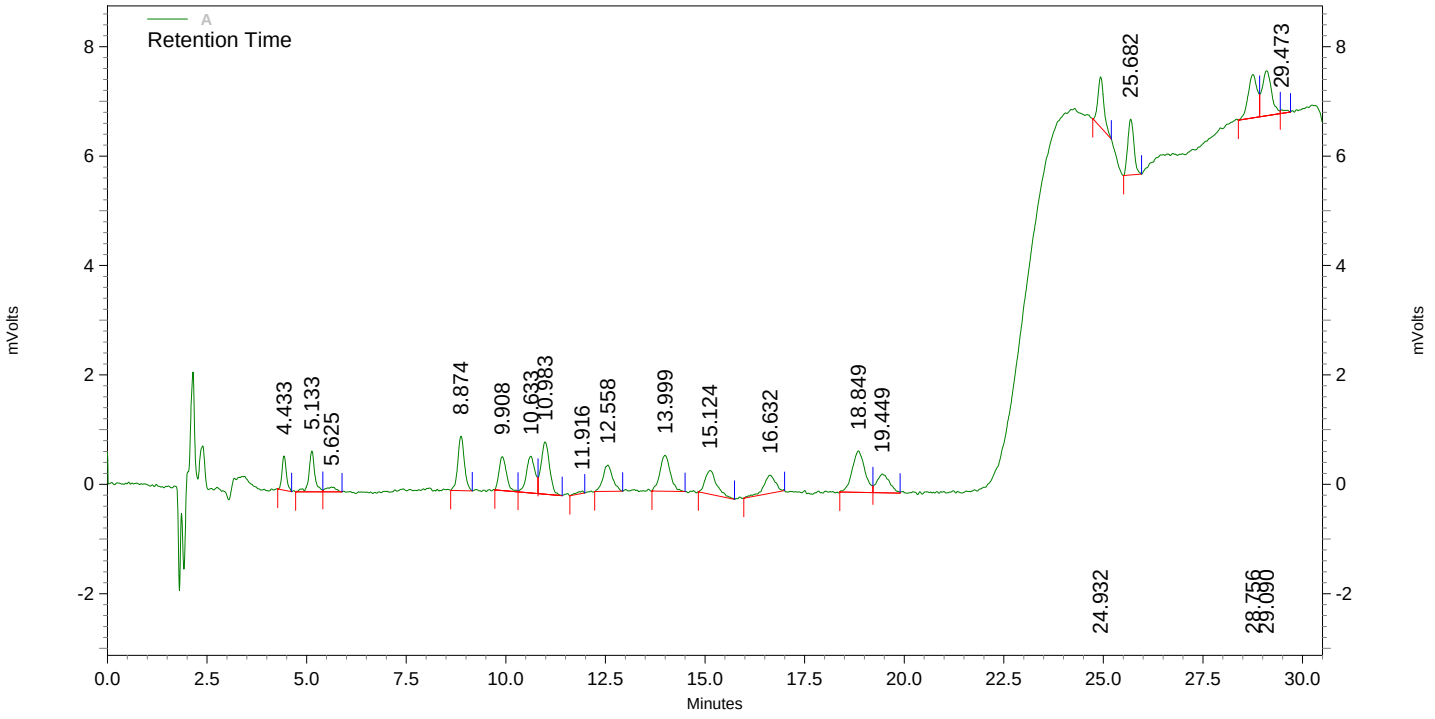
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.366	2383	**0.100 CAL**
RDX-confirm	5.050	3114	**0.100 CAL**
NB-confirm	8.766	5621	**0.100 CAL**
12-DNB (SSTD)-confirm	9.799	5024	**20.000 CAL**
4-AM-26-DNT-conf.	10.483	4690	**0.100 CAL**
3,5-DNA-confirm	10.874	7747	**0.100 CAL**
2-NT-confirm	12.391	4006	**0.100 CAL**
2-AM-46-DNT-conf.	13.866	5709	**0.100 CAL**
3-NT-confirm	14.949	2997	**0.100 CAL**
4-NT-confirm	16.466	2885	**0.100 CAL**
13-DNB-confirm	18.749	7158	**0.100 CAL**
26-DNT-confirm	19.265	3800	**0.100 CAL**
TETRYL-confirm	24.840	3985	**0.100 CAL**
24-DNT-confirm	25.582	6895	**0.100 CAL**
135-TNB-confirm	28.648	6921	**0.100 CAL**
246-TNT-confirm	28.973	8111	**0.100 CAL**

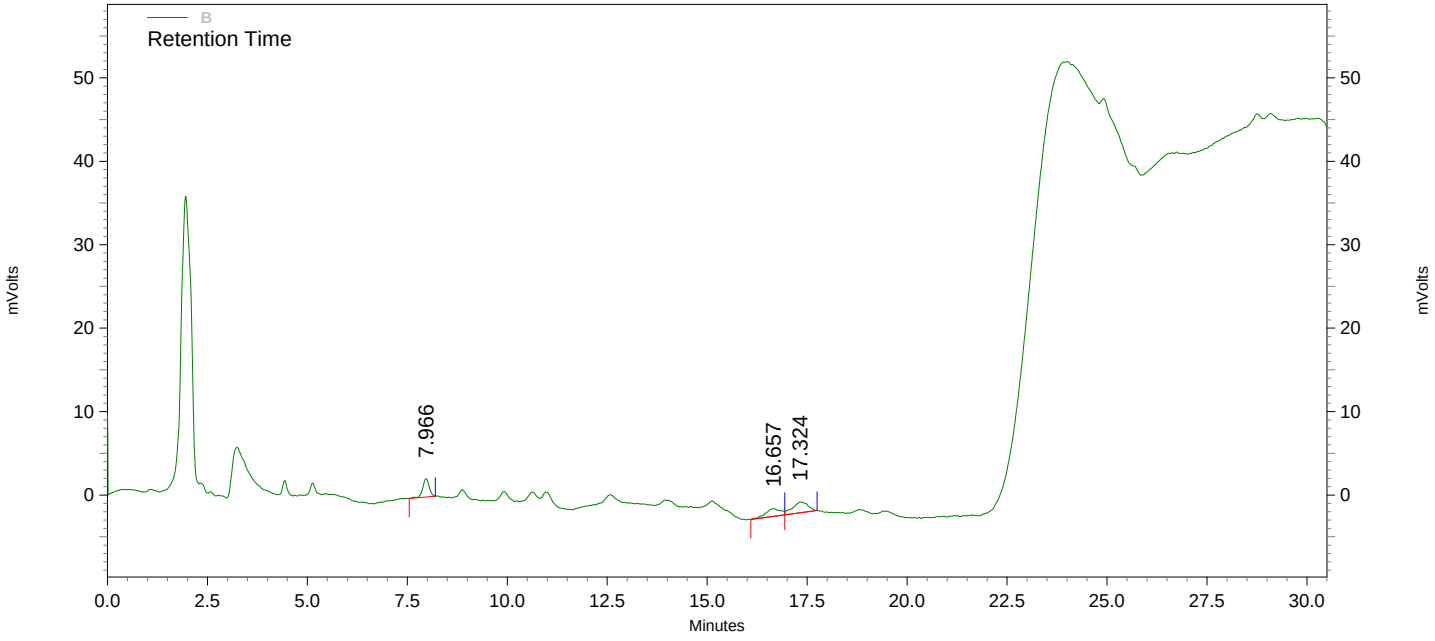
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.824	12564	**0.400 CAL**
PETN-confirm	17.191	13656	**0.400 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\004.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 3 EXP 4406
Acquired: Jun 21, 2011 15:48:53
Data Summary: {Data Description}





8330 Pt 3 EXP 4406

A Results

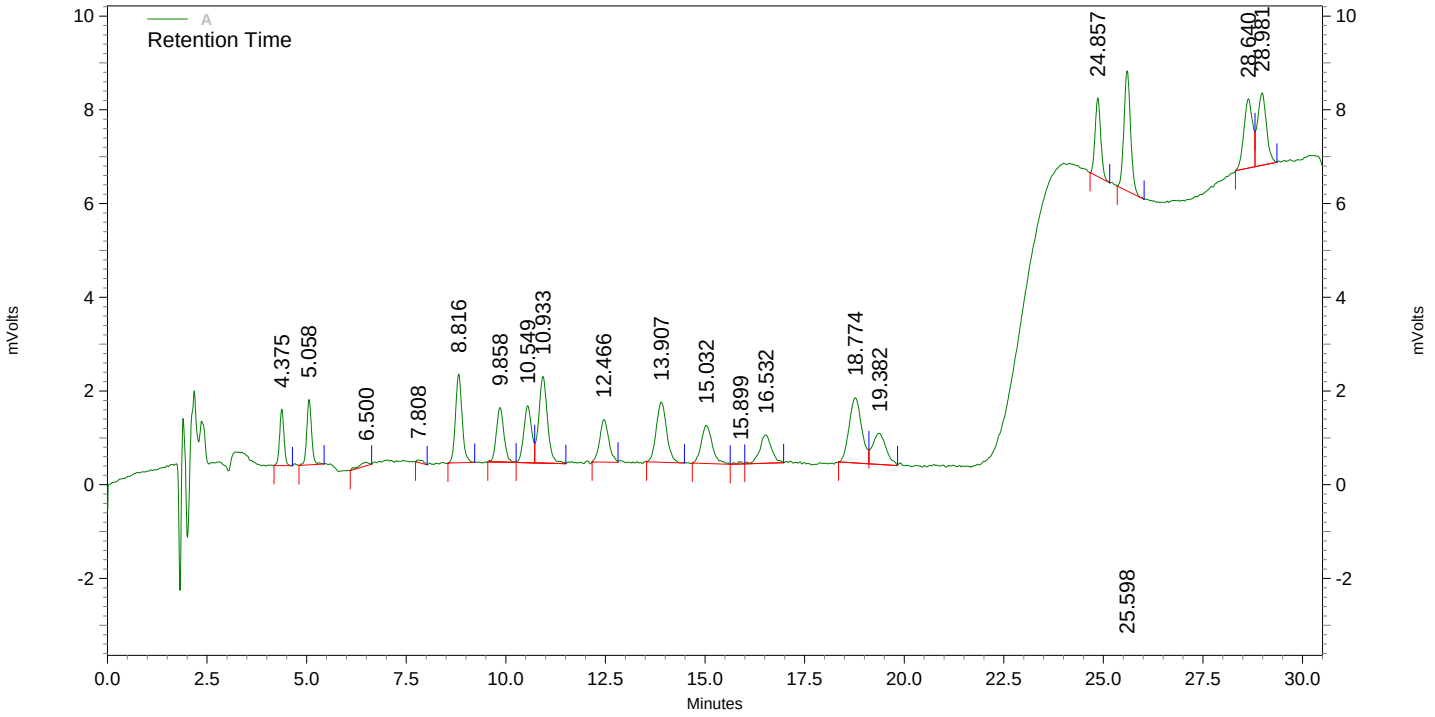
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.433	4759	**0.250 CAL**
RDX-confirm	5.133	7653	**0.250 CAL**
NB-confirm	8.874	11462	**0.250 CAL**
12-DNB (SSTD)-confirm	9.908	7981	**50.000 CAL**
4-AM-26-DNT-conf.	10.633	10094	**0.250 CAL**
3,5-DNA-confirm	10.983	14133	**0.250 CAL**
2-NT-confirm	12.558	8165	**0.250 CAL**
2-AM-46-DNT-conf.	13.999	11950	**0.250 CAL**
3-NT-confirm	15.124	8771	**0.250 CAL**
4-NT-confirm	16.632	6815	**0.250 CAL**
13-DNB-confirm	18.849	16787	**0.250 CAL**
26-DNT-confirm	19.449	7673	**0.250 CAL**
TETRYL-confirm	24.932	9759	**0.250 CAL**
24-DNT-confirm	25.682	10918	**0.250 CAL**
135-TNB-confirm	28.756	12639	**0.250 CAL**
246-TNT-confirm	29.090	13498	**0.250 CAL**

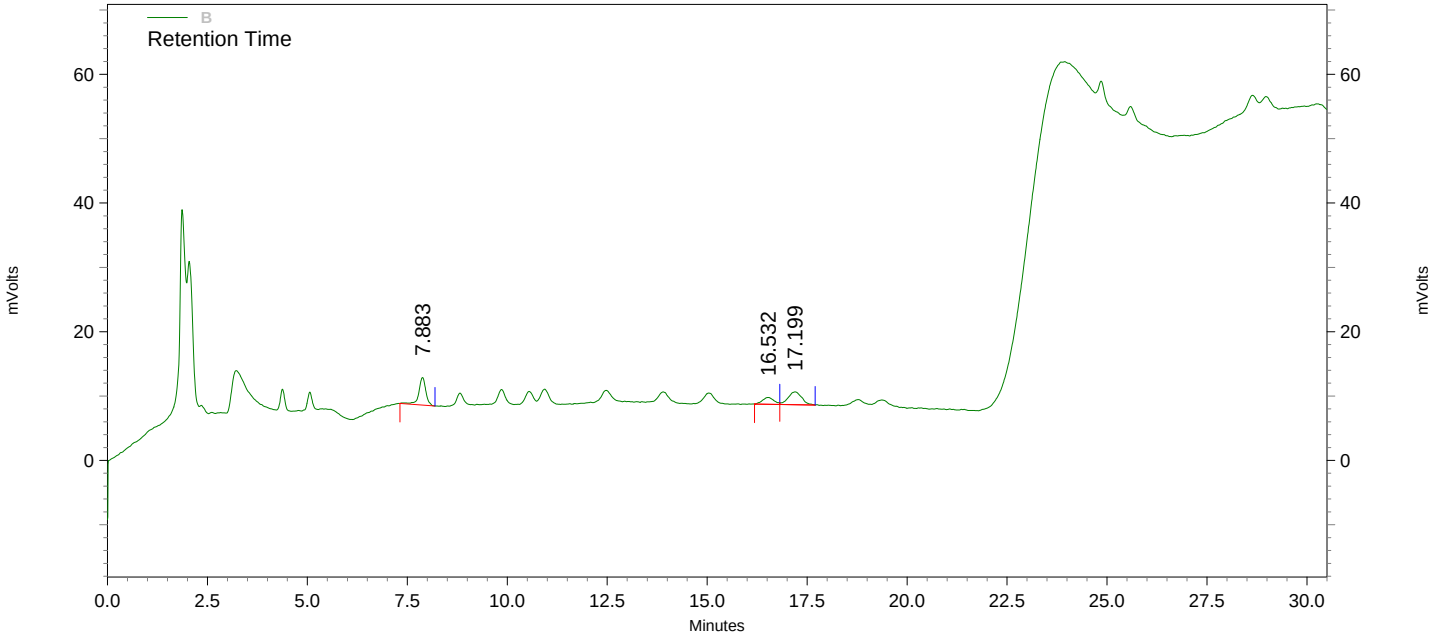
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.966	24787	**1.000 CAL**
PETN-confirm	17.324	34150	**1.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\005.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 4 EXP 4407
Acquired: Jun 21, 2011 16:21:09
Data Summary: {Data Description}





8330 Pt 4 EXP 4407

A Results

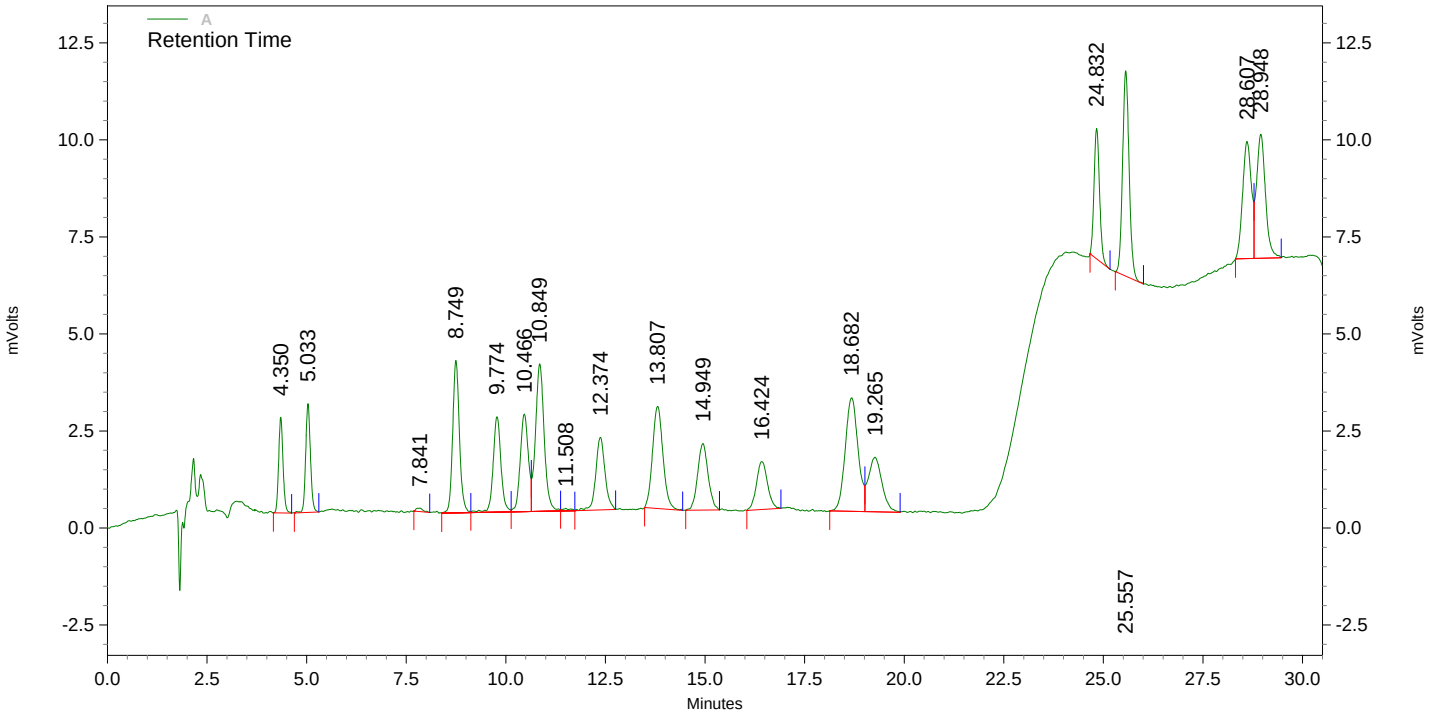
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.375	9216	**0.500 CAL**
RDX-confirm	5.058	11672	**0.500 CAL**
NB-confirm	8.816	21847	**0.500 CAL**
12-DNB (SSTD)-confirm	9.858	15304	**100.000 CAL**
4-AM-26-DNT-conf.	10.549	16628	**0.500 CAL**
3,5-DNA-confirm	10.933	28099	**0.500 CAL**
2-NT-confirm	12.466	14307	**0.500 CAL**
2-AM-46-DNT-conf.	13.907	23232	**0.500 CAL**
3-NT-confirm	15.032	15634	**0.500 CAL**
4-NT-confirm	16.532	12444	**0.500 CAL**
13-DNB-confirm	18.774	30653	**0.500 CAL**
26-DNT-confirm	19.382	15638	**0.500 CAL**
TETRYL-confirm	24.857	16501	**0.500 CAL**
24-DNT-confirm	25.598	29843	**0.500 CAL**
135-TNB-confirm	28.640	22515	**0.500 CAL**
246-TNT-confirm	28.981	24100	**0.500 CAL**

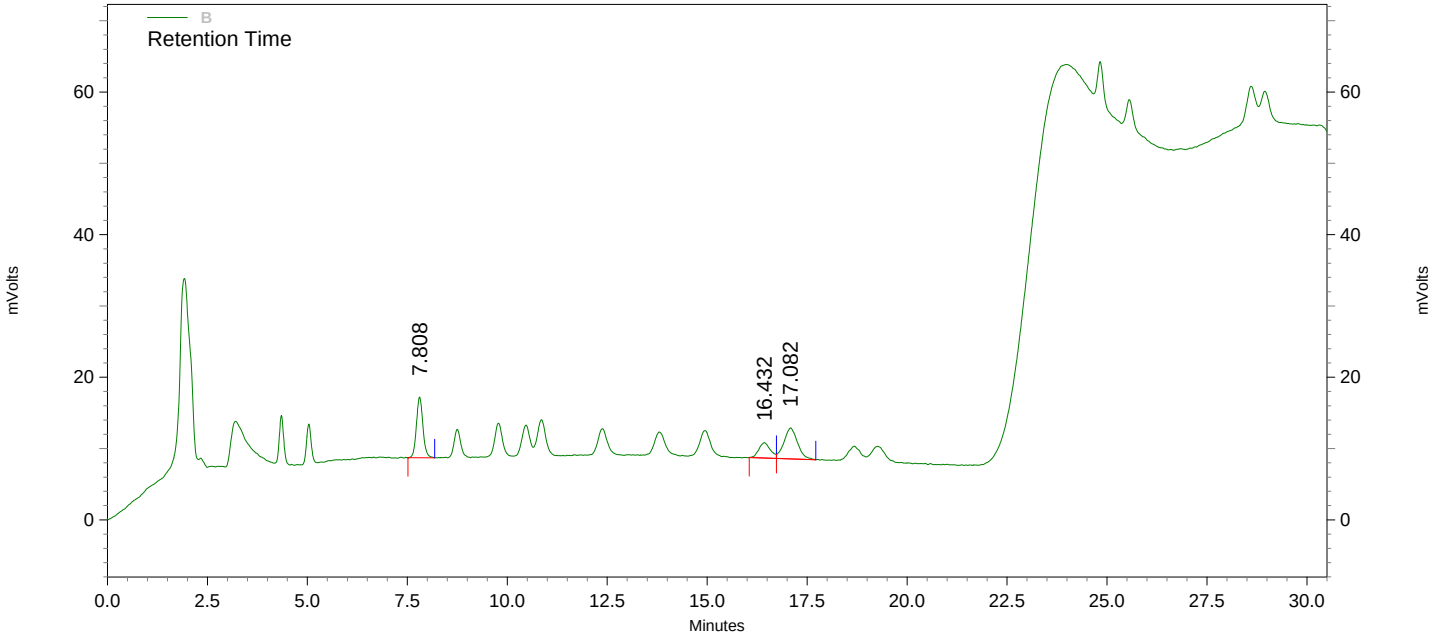
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.883	52545	**2.000 CAL**
PETN-confirm	17.199	46787	**2.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\006.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 5 EXP 4408
Acquired: Jun 21, 2011 16:53:27
Data Summary: {Data Description}





8330 Pt 5 EXP 4408

A Results

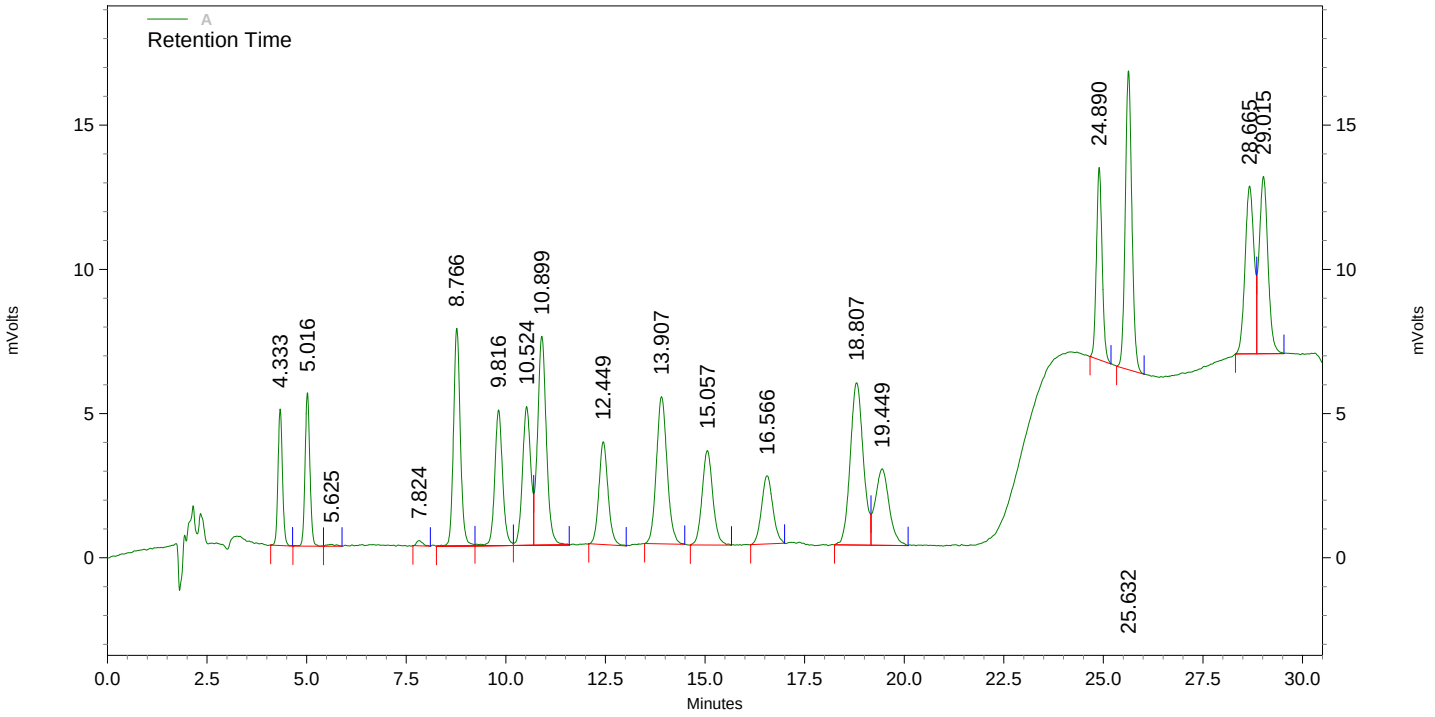
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.350	18992	**1.000 CAL**
RDX-confirm	5.033	23320	**1.000 CAL**
NB-confirm	8.749	46053	**1.000 CAL**
12-DNB (SSTD)-confirm	9.774	33500	**200.000 CAL**
4-AM-26-DNT-conf.	10.466	35276	**1.000 CAL**
3,5-DNA-confirm	10.849	57660	**1.000 CAL**
2-NT-confirm	12.374	30100	**1.000 CAL**
2-AM-46-DNT-conf.	13.807	47942	**1.000 CAL**
3-NT-confirm	14.949	31388	**1.000 CAL**
4-NT-confirm	16.424	23875	**1.000 CAL**
13-DNB-confirm	18.682	65976	**1.000 CAL**
26-DNT-confirm	19.265	33303	**1.000 CAL**
TETRYL-confirm	24.832	32299	**1.000 CAL**
24-DNT-confirm	25.557	60646	**1.000 CAL**
135-TNB-confirm	28.607	46269	**1.000 CAL**
246-TNT-confirm	28.948	50147	**1.000 CAL**

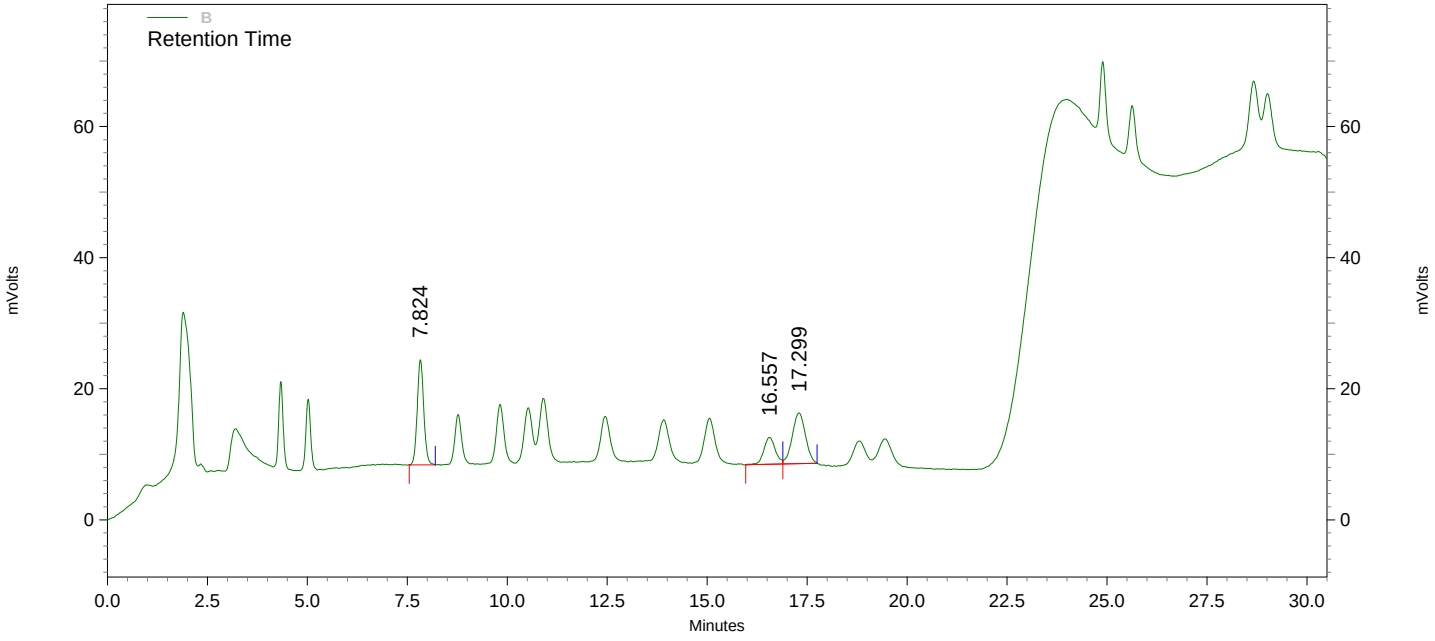
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.808	96529	**4.000 CAL**
PETN-confirm	17.082	102580	**4.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\007.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 6 EXP 4409
Acquired: Jun 21, 2011 17:25:44
Data Summary: {Data Description}





8330 Pt 6 EXP 4409

A Results

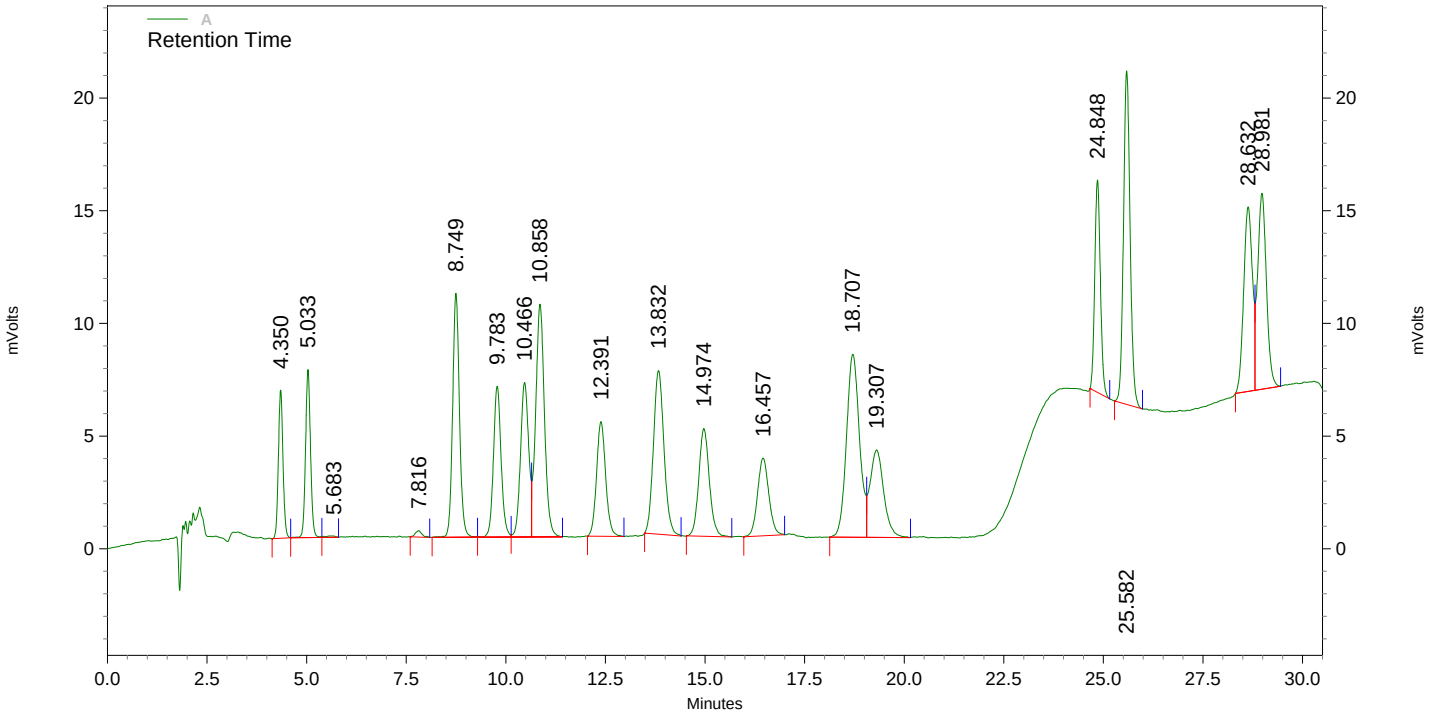
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.333	37022	**2.000 CAL**
RDX-confirm	5.016	44554	**2.000 CAL**
NB-confirm	8.766	90050	**2.000 CAL**
12-DNB (SSTD)-confirm	9.816	64597	**400.000 CAL**
4-AM-26-DNT-conf.	10.524	69012	**2.000 CAL**
3,5-DNA-confirm	10.899	111760	**2.000 CAL**
2-NT-confirm	12.449	56863	**2.000 CAL**
2-AM-46-DNT-conf.	13.907	95245	**2.000 CAL**
3-NT-confirm	15.057	61221	**2.000 CAL**
4-NT-confirm	16.566	46413	**2.000 CAL**
13-DNB-confirm	18.807	128412	**2.000 CAL**
26-DNT-confirm	19.449	64512	**2.000 CAL**
TETRYL-confirm	24.890	66770	**2.000 CAL**
24-DNT-confirm	25.632	119594	**2.000 CAL**
135-TNB-confirm	28.665	90358	**2.000 CAL**
246-TNT-confirm	29.015	94461	**2.000 CAL**

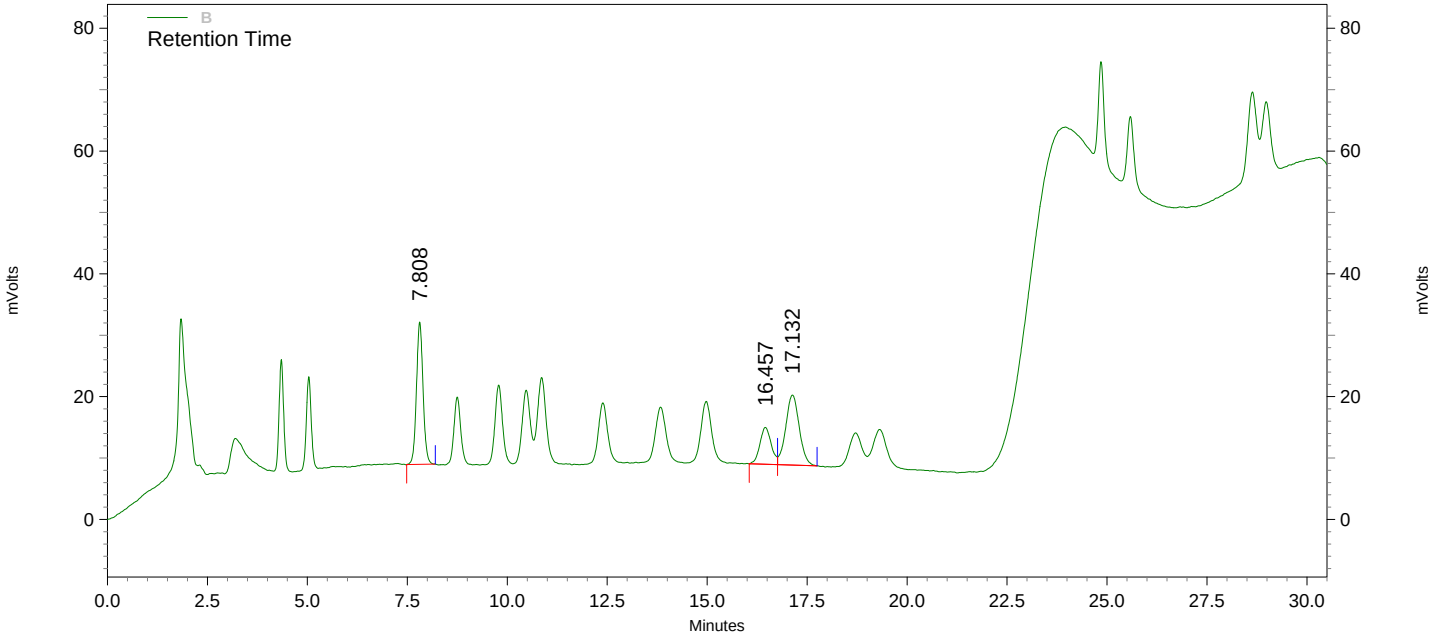
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.824	182700	**8.000 CAL**
PETN-confirm	17.299	177865	**8.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\008.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 Pt 7 EXP 4410
Acquired: Jun 21, 2011 17:58:00
Data Summary: {Data Description}





8330 Pt 7 EXP 4410

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.350	52971	**3.000 CAL**
RDX-confirm	5.033	64548	**3.000 CAL**
NB-confirm	8.749	129019	**3.000 CAL**
12-DNB (SSTD)-confirm	9.783	89570	**600.000 CAL**
4-AM-26-DNT-conf.	10.466	97891	**3.000 CAL**
3,5-DNA-confirm	10.858	158468	**3.000 CAL**
2-NT-confirm	12.391	81272	**3.000 CAL**
2-AM-46-DNT-conf.	13.832	133593	**3.000 CAL**
3-NT-confirm	14.974	88557	**3.000 CAL**
4-NT-confirm	16.457	67932	**3.000 CAL**
13-DNB-confirm	18.707	185294	**3.000 CAL**
26-DNT-confirm	19.307	92721	**3.000 CAL**
TETRYL-confirm	24.848	92766	**3.000 CAL**
24-DNT-confirm	25.582	171124	**3.000 CAL**
135-TNB-confirm	28.632	125250	**3.000 CAL**
246-TNT-confirm	28.981	134097	**3.000 CAL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.808	265276	**12.000 CAL**
PETN-confirm	17.132	268580	**12.000 CAL**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\062111expic-confirm.seq
User : red
Printed : Jun 24, 2011 10:22:40

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\062111expic-confirm\009.dat	8330 ICV EXP 4411	Jun 24, 2011 10:22:40

A

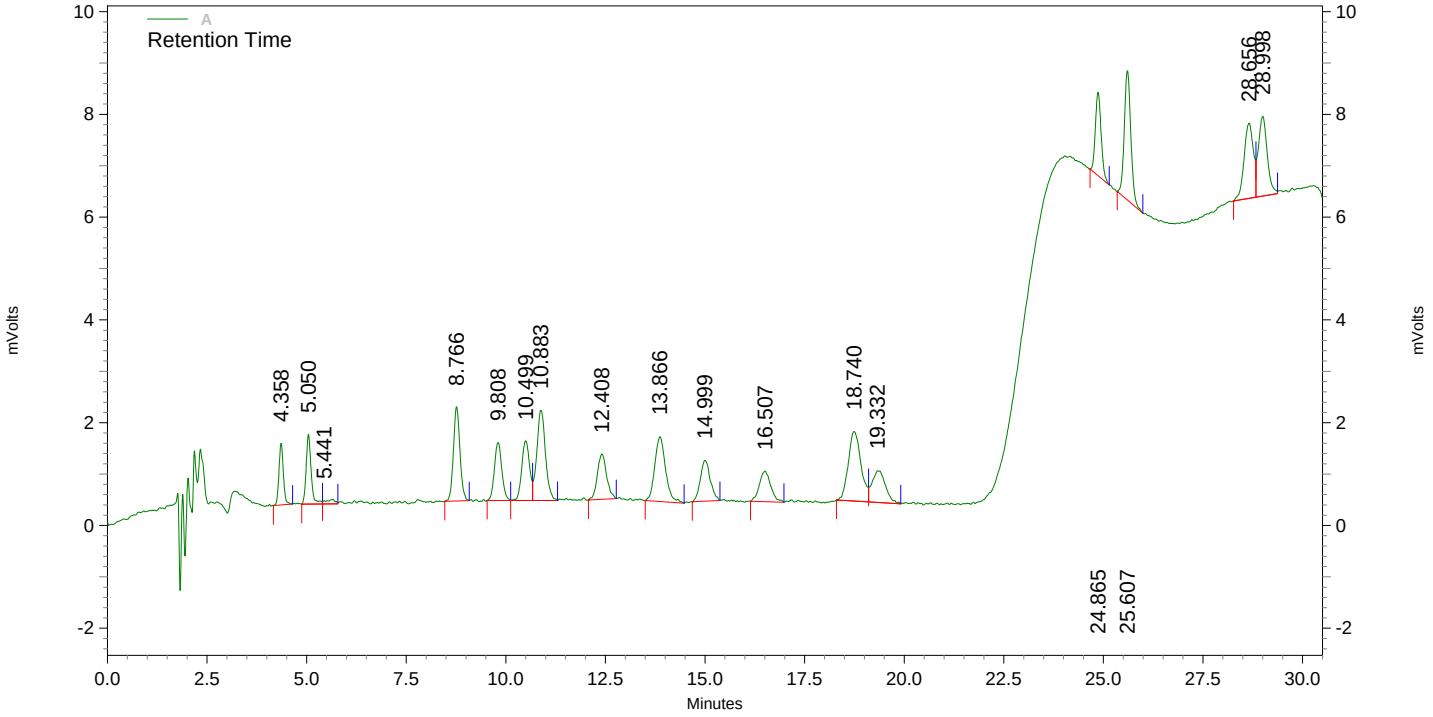
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.500	0.486	2.867	20.000	Passed
RDX-confirm	0.500	0.485	3.097	20.000	Passed
NB-confirm	0.500	0.463	7.478	20.000	Passed
12-DNB (SSTD)-confirm	100.000	88.134	11.866	20.000	Passed
4-AM-26-DNT-conf.	0.500	0.446	10.799	20.000	Passed
3,5-DNA-confirm	0.500	0.469	6.155	20.000	Passed
2-NT-confirm	0.500	0.483	3.410	20.000	Passed
2-AM-46-DNT-conf.	0.500	0.507	1.334	20.000	Passed
3-NT-confirm	0.500	0.446	10.791	20.000	Passed
4-NT-confirm	0.500	0.484	3.210	20.000	Passed
13-DNB-confirm	0.500	0.463	7.457	20.000	Passed
26-DNT-confirm	0.500	0.443	11.450	20.000	Passed
TETRYL-confirm	0.500	0.487	2.568	20.000	Passed
24-DNT-confirm	0.500	0.495	1.011	20.000	Passed
135-TNB-confirm	0.500	0.509	1.894	20.000	Passed
246-TNT-confirm	0.500	0.476	4.753	20.000	Passed

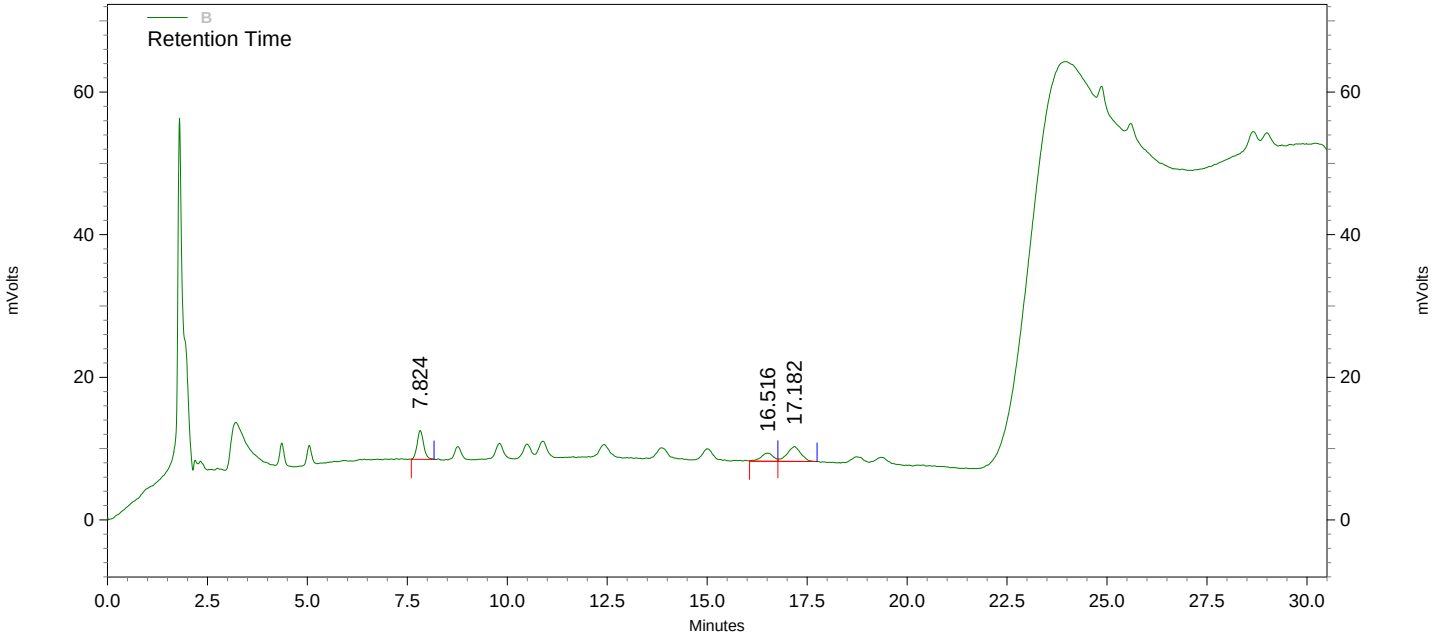
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	2.000	1.887	5.647	20.000	Passed
PETN-confirm	2.000	1.963	1.825	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\062111expic-confirm\009.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\062111expic-confirm.met
Sample ID: 8330 ICV EXP 4411
Acquired: Jun 21, 2011 18:30:17
Data Summary: {Data Description}





8330 ICV EXP 4411

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.358	9250	**0.486**
RDX-confirm	5.050	11771	**0.485**
NB-confirm	8.766	20957	**0.463**
12-DNB (SSTD)-confirm	9.808	14598	**88.134**
4-AM-26-DNT-conf.	10.499	15905	**0.446**
3,5-DNA-confirm	10.883	26574	**0.469**
2-NT-confirm	12.408	14270	**0.483**
2-AM-46-DNT-conf.	13.866	23776	**0.507**
3-NT-confirm	14.999	13814	**0.446**
4-NT-confirm	16.507	11841	**0.484**
13-DNB-confirm	18.740	30106	**0.463**
26-DNT-confirm	19.332	14483	**0.443**
TETRYL-confirm	24.865	16368	**0.487**
24-DNT-confirm	25.607	28831	**0.495**
135-TNB-confirm	28.656	23958	**0.509**
246-TNT-confirm	28.998	24077	**0.476**

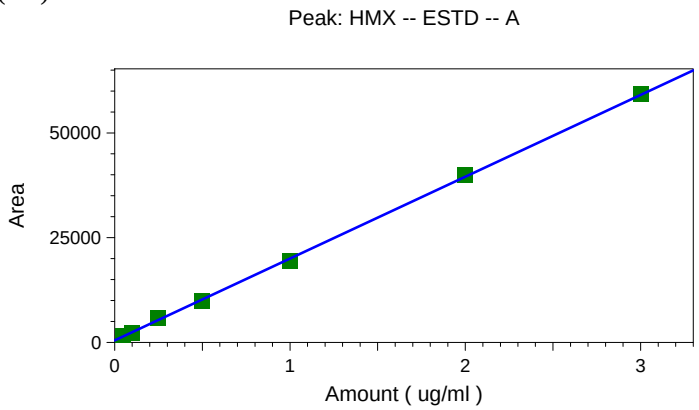
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.824	45570	**1.887**
PETN-confirm	17.182	49242	**1.963**

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 14:59:58
User: red
Instrument: HPLC 2 (Offline)

HMX (A)
Average RF: 22148.0 RF StDev: 3675.87 RF %RSD: 16.5968
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 19528.8x + 476.458
Goodness of fit (r^2): 0.999635



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	1477	2331	5824	9904	19324
RF	29540	23310	23296	19808	19324
Last Area					
Residual	-0.00123406	0.00503573	-0.023828	0.0172502	0.0348865
Rep StDev					
Rep %RSD					
Rep 1 Area	1477	2331	5824	9904	19324
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

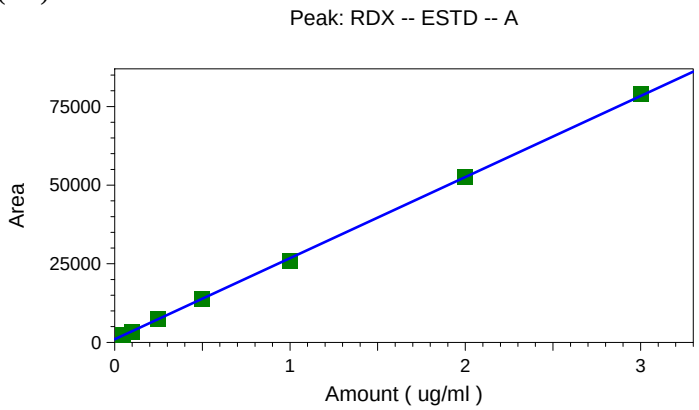
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 14:59:58
User: red
Instrument: HPLC 2 (Offline)

Area	39935	59372
RF	19967.5	19790.6666666667
Last Area		
Residual	-0.0205272	-0.0158247
Rep StDev		
Rep %RSD		
Rep 1 Area	39935	59372
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:02
User: red
Instrument: HPLC 2 (Offline)

RDX (A)
Average RF: 31312.8 RF StDev: 8562.15 RF %RSD: 27.3440
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 25791.7x + 977.135
Goodness of fit (r^2): 0.999746



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2497	3259	7539	13923	26020
RF	49940	32590	30156	27846	26020
Last Area					
Residual	-0.00892835	0.0115273	-0.00441729	-0.00193839	0.0290355
Rep StDev					
Rep %RSD					
Rep 1 Area	2497	3259	7539	13923	26020
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

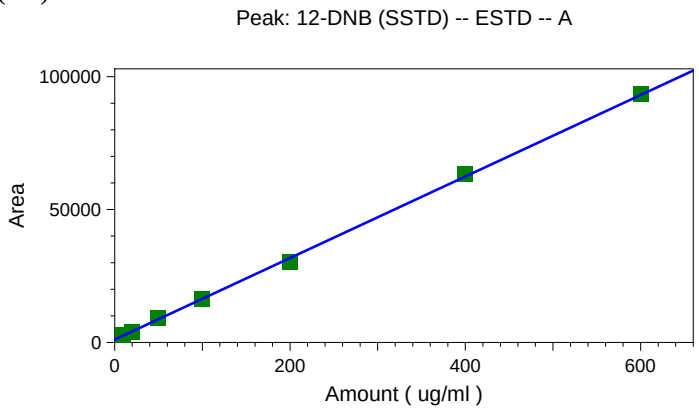
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:02
User: red
Instrument: HPLC 2 (Offline)

Area	52536	79108
RF	26268	26369.3333333333
Last Area Residual	0.000954424	-0.0292979
Rep StDev		
Rep %RSD		
Rep 1 Area	52536	79108
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:04
User: red
Instrument: HPLC 2 (Offline)

12-DNB (SSTD) (A)
Average RF: 183.448 RF StDev: 46.5184 RF %RSD: 25.3579
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 153.338x + 1065.71
Goodness of fit (r^2): 0.999455



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	10	20	50	100	200
Area	2840	3781	9120	16328	30196
RF	284	189.05	182.4	163.28	150.98
Last Area Residual	-1.57108	2.29217	-2.52624	0.466631	10.0262
Rep StDev					
Rep %RSD					
Rep 1 Area	2840	3781	9120	16328	30196
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	400	600

Calibration Report

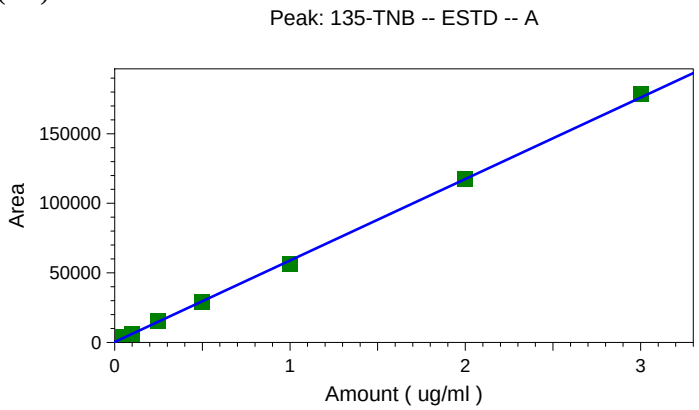
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:04
User: red
Instrument: HPLC 2 (Offline)

Area	63372	93596
RF	158.43	155.993333333333
Last Area		
Residual	-6.33185	-3.43834
Rep StDev		
Rep %RSD		
Rep 1 Area	63372	93596
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:05
User: red
Instrument: HPLC 2 (Offline)

135-TNB (A)
Average RF: 60627.3 RF StDev: 5172.05 RF %RSD: 8.53089
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 58547.7x + 349.573
Goodness of fit (r^2): 0.999465



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3599	5876	15181	28980	56540
RF	71980	58760	60724	57960	56540
Last Area					
Residual	-0.00550051	0.00560812	-0.00332214	0.0109897	0.0402623
Rep StDev					
Rep %RSD					
Rep 1 Area	3599	5876	15181	28980	56540
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

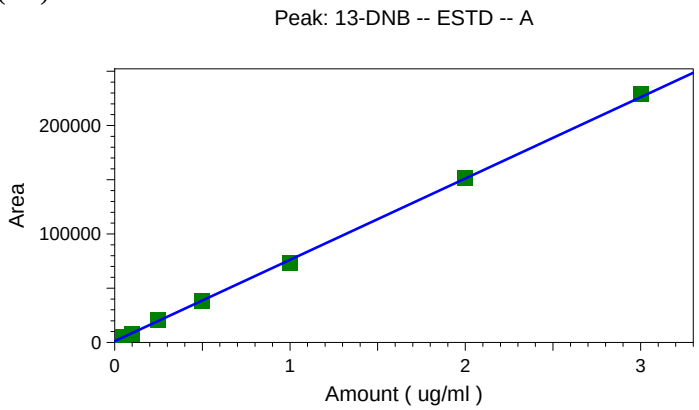
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:05
User: red
Instrument: HPLC 2 (Offline)

Area	117649	178808
RF	58824.5	59602.6666666667
Last Area Residual	-0.00348501	-0.0480864
Rep StDev		
Rep %RSD		
Rep 1 Area	117649	178808
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:07
User: red
Instrument: HPLC 2 (Offline)

13-DNB (A)
Average RF: 81688.4 RF StDev: 11816.7 RF %RSD: 14.4655
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 74970.9x + 1173.96
Goodness of fit (r^2): 0.999512



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	5374	8119	20540	37832	73164
RF	107480	81190	82160	75664	73164
Last Area Residual	-0.00602218	0.00736363	-0.00831389	0.0110367	0.0397608
Rep StDev					
Rep %RSD					
Rep 1 Area	5374	8119	20540	37832	73164
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

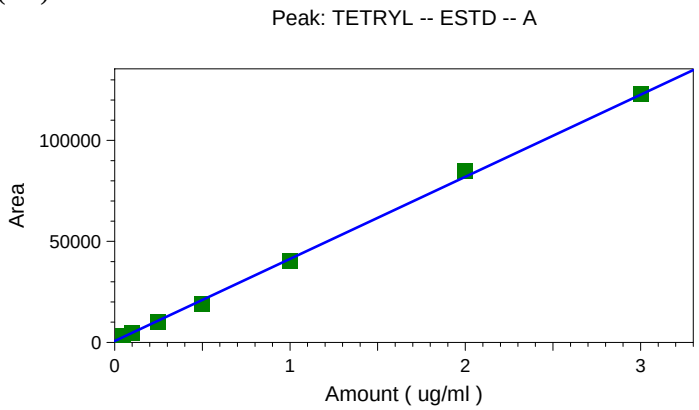
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:07
User: red
Instrument: HPLC 2 (Offline)

Area	151428	229341
RF	75714	76447
Last Area		
Residual	-0.00416363	-0.0434063
Rep StDev		
Rep %RSD		
Rep 1 Area	151428	229341
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:08
User: red
Instrument: HPLC 2 (Offline)

TETRYL (A)
Average RF: 44834.2 RF StDev: 7998.36 RF %RSD: 17.8399
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 40650.9x + 702.365
Goodness of fit (r^2): 0.998951



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3067	4896	10358	19192	40236
RF	61340	48960	41432	38384	40236
Last Area Residual	-0.00816936	-0.00316224	0.0124741	0.0451602	0.0274837
Rep StDev					
Rep %RSD					
Rep 1 Area	3067	4896	10358	19192	40236
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

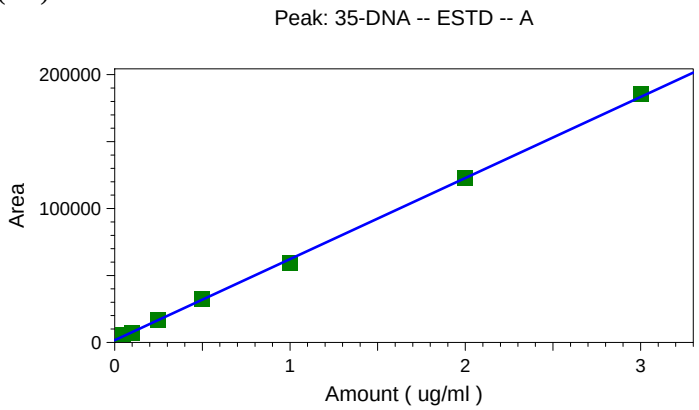
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:08
User: red
Instrument: HPLC 2 (Offline)

Area	84867	123161
RF	42433.5	41053.6666666667
Last Area		
Residual	-0.0704264	-0.012448
Rep StDev		
Rep %RSD		
Rep 1 Area	84867	123161
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:10
User: red
Instrument: HPLC 2 (Offline)

35-DNA (A)
Average RF: 69801.7 RF StDev: 15487.8 RF %RSD: 22.1883
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 60587.9x + 1598.54
Goodness of fit (r^2): 0.999457



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	5197	7011	16777	32325	59308
RF	103940	70110	67108	64650	59308
Last Area					
Residual	-0.00939235	0.0106677	-0.000519622	-0.00713852	0.0475085
Rep StDev					
Rep %RSD					
Rep 1 Area	5197	7011	16777	32325	59308
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

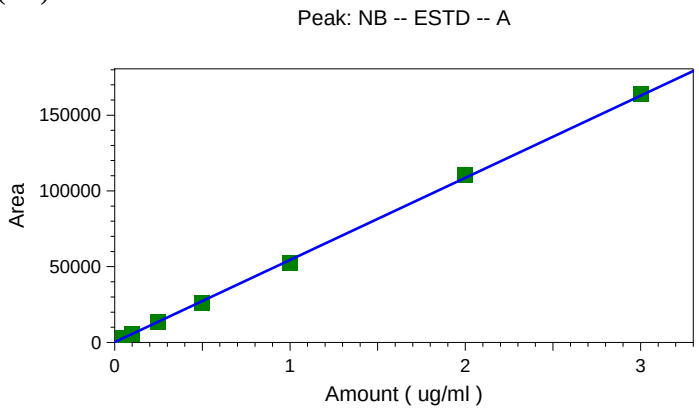
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:10
User: red
Instrument: HPLC 2 (Offline)

Area	123117	185812
RF	61558.5	61937.3333333333
Last Area		
Residual	-0.00565555	-0.0404331
Rep StDev		
Rep %RSD		
Rep 1 Area	123117	185812
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:12
User: red
Instrument: HPLC 2 (Offline)

NB (A)
Average RF: 55406.1 RF StDev: 3586.29 RF %RSD: 6.47274
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 54220.9x + 197.185
Goodness of fit (r^2): 0.999484



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3144	5569	13688	26014	52418
RF	62880	55690	54752	52028	52418
Last Area Residual	-0.00434837	0.000927138	0.0011877	0.0238582	0.0368869
Rep StDev					
Rep %RSD					
Rep 1 Area	3144	5569	13688	26014	52418
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

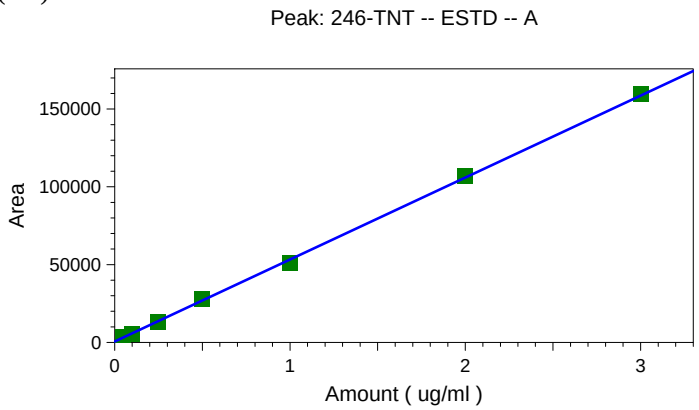
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:12
User: red
Instrument: HPLC 2 (Offline)

Area	110689	164190
RF	55344.5	54730
Last Area		
Residual	-0.0378104	-0.0245341
Rep StDev		
Rep %RSD		
Rep 1 Area	110689	164190
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:13
User: red
Instrument: HPLC 2 (Offline)

246-TNT (A)
Average RF: 56162.6 RF StDev: 7849.50 RF %RSD: 13.9764
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 52687.4x + 567.019
Goodness of fit (r^2): 0.999622



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3686	5323	13188	27800	51185
RF	73720	53230	52752	55600	51185
Last Area					
Residual	-0.00919781	0.00973216	0.0104556	-0.0168781	0.0392779
Rep StDev					
Rep %RSD					
Rep 1 Area	3686	5323	13188	27800	51185
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

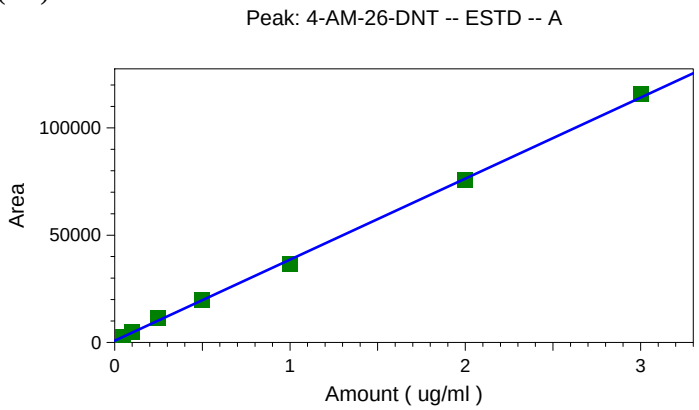
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:13
User: red
Instrument: HPLC 2 (Offline)

Area	106718	159876
RF	53359	53292
Last Area		
Residual	-0.0147307	-0.023662
Rep StDev		
Rep %RSD		
Rep 1 Area	106718	159876
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\08211expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:15
User: red
Instrument: HPLC 2 (Offline)

4-AM-26-DNT (A)
Average RF: 42127.0 RF StDev: 5187.85 RF %RSD: 12.3148
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 37787.5x + 797.956
Goodness of fit (r^2): 0.999196



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2469	4738	11430	19605	36696
RF	49380	47380	45720	39210	36696
Last Area					
Residual	0.00577786	-0.00426846	-0.0313641	0.00229451	0.050002
Rep StDev					
Rep %RSD					
Rep 1 Area	2469	4738	11430	19605	36696
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

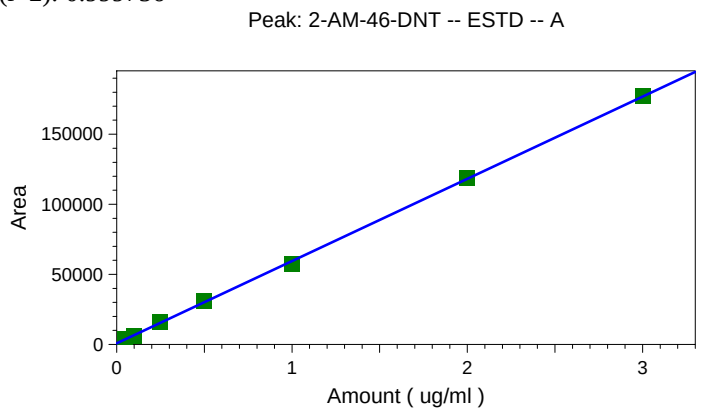
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:15
User: red
Instrument: HPLC 2 (Offline)

Area	75694	115967
RF	37847	38655.6666666667
Last Area		
Residual	0.0179675	-0.0478084
Rep StDev		
Rep %RSD		
Rep 1 Area	75694	115967
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:17
User: red
Instrument: HPLC 2 (Offline)

2-AM-46-DNT (A)
Average RF: 63294.1 RF StDev: 7827.73 RF %RSD: 12.3672
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 58706.7x + 806.128
Goodness of fit (r^2): 0.999756



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	4022	6063	15853	31274	57521
RF	80440	60630	63412	62548	57521
Last Area					
Residual	-0.00477861	0.0104554	-0.00630579	-0.0189844	0.0339288
Rep StDev					
Rep %RSD					
Rep 1 Area	4022	6063	15853	31274	57521
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

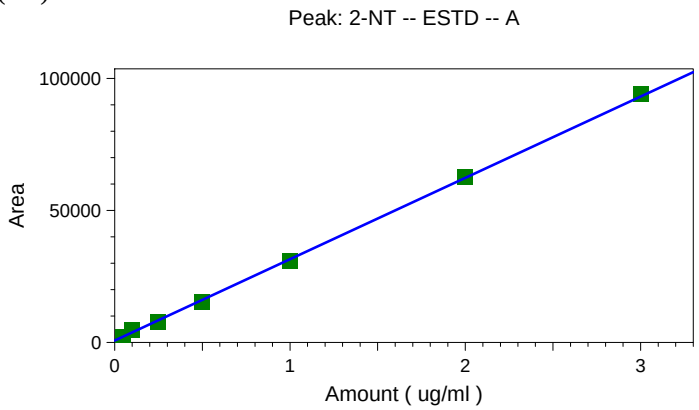
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:17
User: red
Instrument: HPLC 2 (Offline)

Area	118667	177522
RF	59333.5	59174
Last Area		
Residual	-0.00762144	-0.0101472
Rep StDev		
Rep %RSD		
Rep 1 Area	118667	177522
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:18
User: red
Instrument: HPLC 2 (Offline)

2-NT (A)
Average RF: 34762.6 RF StDev: 6120.31 RF %RSD: 17.6060
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 30825.0x + 683.146
Goodness of fit (r^2): 0.999583



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2091	4535	7929	15470	30765
RF	41820	45350	31716	30940	30765
Last Area Residual	0.00432759	-0.0249586	0.0149361	0.0202973	0.0241097
Rep StDev					
Rep %RSD					
Rep 1 Area	2091	4535	7929	15470	30765
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

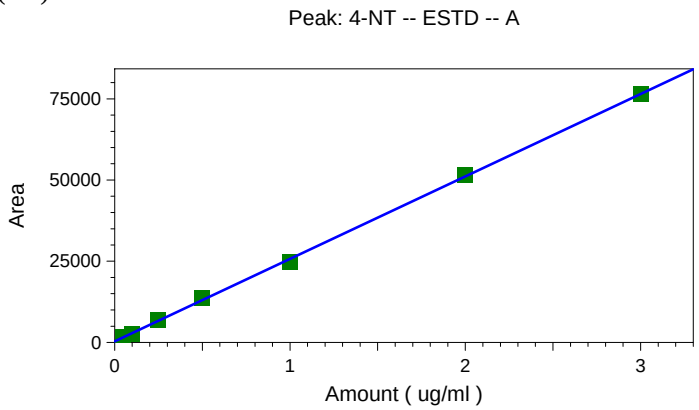
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:18
User: red
Instrument: HPLC 2 (Offline)

Area	62667	94241
RF	31333.5	31413.6666666667
Last Area		
Residual	-0.0108284	-0.0351257
Rep StDev		
Rep %RSD		
Rep 1 Area	62667	94241
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:20
User: red
Instrument: HPLC 2 (Offline)

4-NT (A)
Average RF: 27382.9 RF StDev: 3041.31 RF %RSD: 11.1066
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 25381.6x + 361.540
Goodness of fit (r^2): 0.999677



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	1695	2733	6806	13580	24734
RF	33900	27330	27224	27160	24734
Last Area Residual	-0.00253649	0.00656772	-0.00390293	-0.0207893	0.0397583
Rep StDev					
Rep %RSD					
Rep 1 Area	1695	2733	6806	13580	24734
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

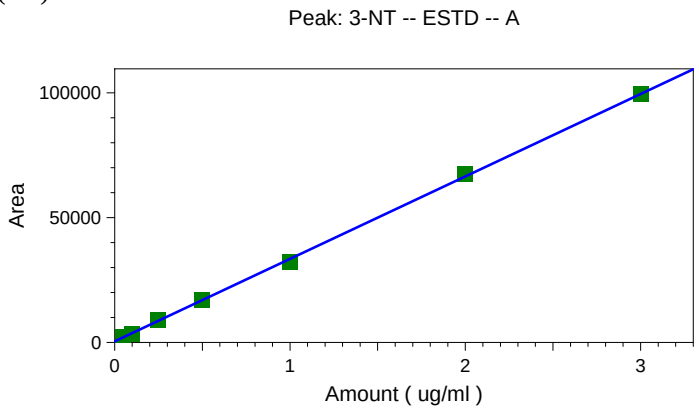
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:20
User: red
Instrument: HPLC 2 (Offline)

Area	51603	76593
RF	25801.5	25531
Last Area		
Residual	-0.0188437	-0.0034157
Rep StDev		
Rep %RSD		
Rep 1 Area	51603	76593
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:21
User: red
Instrument: HPLC 2 (Offline)

3-NT (A)
Average RF: 35416.0 RF StDev: 4270.43 RF %RSD: 12.0579
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 33030.9x + 414.565
Goodness of fit (r^2): 0.999683



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	2233	3364	9099	17063	32210
RF	44660	33640	36396	34126	32210
Last Area Residual	-0.00505259	0.0107067	-0.0129188	-0.00402657	0.0374024
Rep StDev					
Rep %RSD					
Rep 1 Area	2233	3364	9099	17063	32210
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

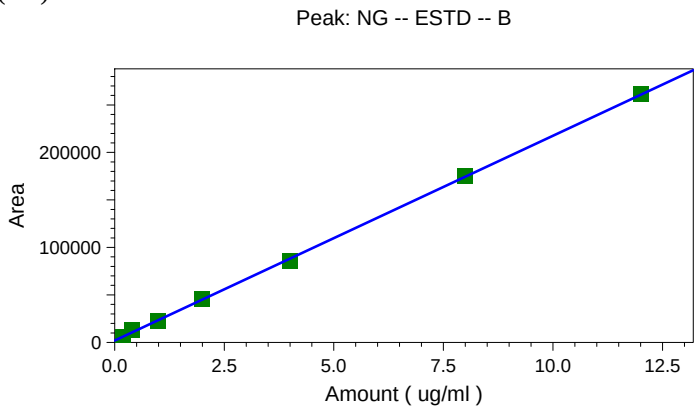
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:21
User: red
Instrument: HPLC 2 (Offline)

Area	67328	99647
RF	33664	33215.6666666667
Last Area Residual	-0.025785	-0.00423336
Rep StDev		
Rep %RSD		
Rep 1 Area	67328	99647
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:28
User: red
Instrument: HPLC 2 (Offline)

NG (B)
Average RF: 24392.7 RF StDev: 4193.31 RF %RSD: 17.1908
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 21555.3x + 1965.71
Goodness of fit (r^2): 0.999764



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.2	0.4	1	2	4
Area	5455	13114	22900	45188	86135
RF	27275	32785	22900	22594	21533.75
Last Area Residual	0.0381237	-0.117195	0.0288087	-0.00518467	0.0951866
Rep StDev					
Rep %RSD					
Rep 1 Area	5455	13114	22900	45188	86135
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	8	12

Calibration Report

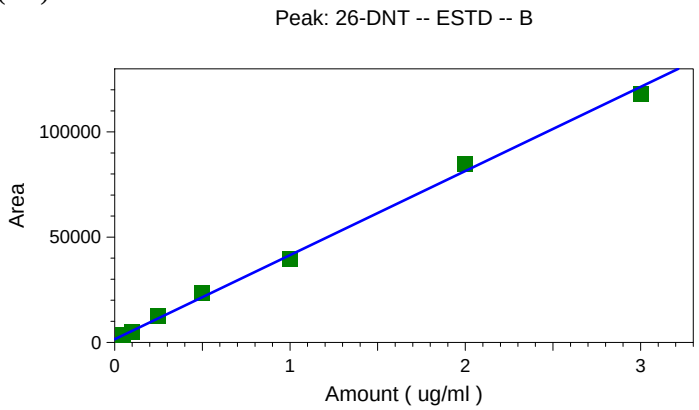
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:28
User: red
Instrument: HPLC 2 (Offline)

Area	174722	261854
RF	21840.25	21821.1666666667
Last Area		
Residual	-0.0145752	-0.056836
Rep StDev		
Rep %RSD		
Rep 1 Area	174722	261854
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:30
User: red
Instrument: HPLC 2 (Offline)

26-DNT (B)
Average RF: 48109.3 RF StDev: 9723.62 RF %RSD: 20.2115
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 39953.8x + 1522.37
Goodness of fit (r^2): 0.997422



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	3372	5035	12602	23654	39585
RF	67440	50350	50408	47308	39585
Last Area					
Residual	0.00370573	0.0120827	-0.027311	-0.0539304	0.0473342
Rep StDev					
Rep %RSD					
Rep 1 Area	3372	5035	12602	23654	39585
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

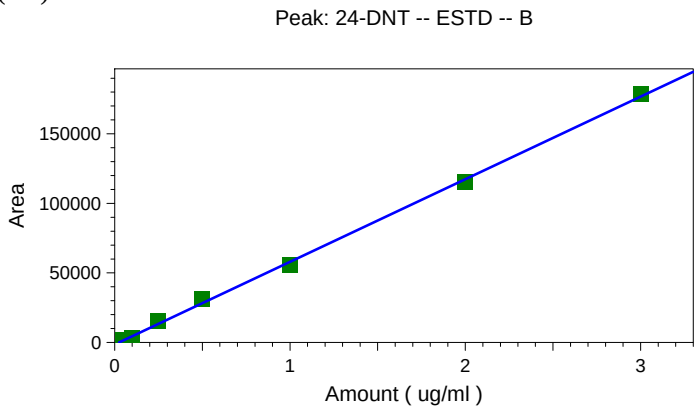
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:30
User: red
Instrument: HPLC 2 (Offline)

Area	84583	118147
RF	42291.5	39382.3333333333
Last Area Residual	-0.0789163	0.0810138
Rep StDev		
Rep %RSD		
Rep 1 Area	84583	118147
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:32
User: red
Instrument: HPLC 2 (Offline)

24-DNT (B)
Average RF: 52554.3 RF StDev: 11887.1 RF %RSD: 22.6187
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 59400.0x - 1448.98
Goodness of fit (r^2): 0.998838



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.05	0.1	0.25	0.5	1
Area	1963	3225	15364	31202	55361
RF	39260	32250	61456	62404	55361
Last Area Residual	-0.00744068	0.0213135	-0.0330466	-0.0496794	0.0436037
Rep StDev					
Rep %RSD					
Rep 1 Area	1963	3225	15364	31202	55361
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	2	3

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:32
User: red
Instrument: HPLC 2 (Offline)

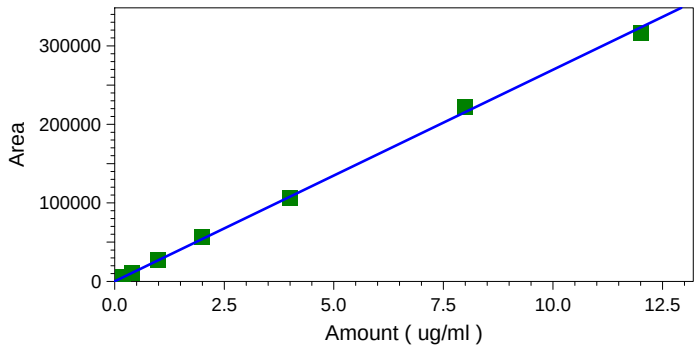
Area	115052	178869
RF	57526	59623
Last Area		
Residual	0.0387053	-0.0356543
Rep StDev		
Rep %RSD		
Rep 1 Area	115052	178869
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:33
User: red
Instrument: HPLC 2 (Offline)

PETN (B)
Average RF: 27105.8 RF StDev: 902.732 RF %RSD: 3.33041
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 26945.0x + 98.6554
Goodness of fit (r^2): 0.998804

Peak: PETN -- ESTD -- B



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.2	0.4	1	2	4
Area	5206	11078	26922	56977	105676
RF	26030	27695	26922	28488.5	26419
Last Area Residual	0.0104532	-0.00747185	0.00451638	-0.110902	0.0817519
Rep StDev					
Rep %RSD					
Rep 1 Area	5206	11078	26922	56977	105676
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
Rep 1 Sample ID	8330 Pt 1 EXP 4494	8330 Pt 2 EXP 4495	8330 Pt 3 EXP 4496	8330 Pt 4 EXP 4497	8330 Pt 5 EXP 4498
Rep 1 Calib. Time	Aug 22, 2011 12:02:06	Aug 22, 2011 11:28:49	Aug 22, 2011 12:00:47	Aug 22, 2011 11:58:55	Aug 22, 2011 11:57:35

	Level 6	Level 7
Amount	8	12

Calibration Report

Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Print Time: Aug 22, 2011 15:00:33
User: red
Instrument: HPLC 2 (Offline)

Area	222307	316769
RF	27788.375	26397.4166666667
Last Area Residual	-0.246726	0.247545
Rep StDev		
Rep %RSD		
Rep 1 Area	222307	316769
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat	C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
Rep 1 Sample ID	8330 Pt 6 EXP 4499	8330 Pt 7 EXP 4500
Rep 1 Calib. Time	Aug 22, 2011 11:57:22	Aug 22, 2011 11:57:10

After Manual Integration HHK 08/26/2011

RED 08/26/2011

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082111expic-primary.seq
User : red
Printed : Aug 22, 2011 14:54:22

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat	8330 Pt 1 EXP 4494	Aug 22, 2011 14:54:22

A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.050	0.051	2.468	20.000	Passed
RDX	0.050	0.059	17.857	20.000	Passed
12-DNB (SSTD)	10.000	11.571	15.711	20.000	Passed
135-TNB	0.050	0.056	11.001	20.000	Passed
13-DNB	0.050	0.056	12.044	20.000	Passed
TETRYL	0.050	0.058	16.339	20.000	Passed
35-DNA	0.050	0.059	18.785	20.000	Passed
NB	0.050	0.054	8.697	20.000	Passed
246-TNT	0.050	0.059	18.396	20.000	Passed
4-AM-26-DNT	0.050	0.044	11.556	20.000	Passed
2-AM-46-DNT	0.050	0.055	9.557	20.000	Passed
2-NT	0.050	0.046	8.655	20.000	Passed
4-NT	0.050	0.053	5.073	20.000	Passed
3-NT	0.050	0.055	10.105	20.000	Passed

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	0.200	0.162	19.062	20.000	Passed
26-DNT	0.050	0.046	7.411	20.000	Passed
24-DNT	0.050	0.057	14.881	20.000	Passed
PETN	0.200	0.190	5.227	20.000	Passed

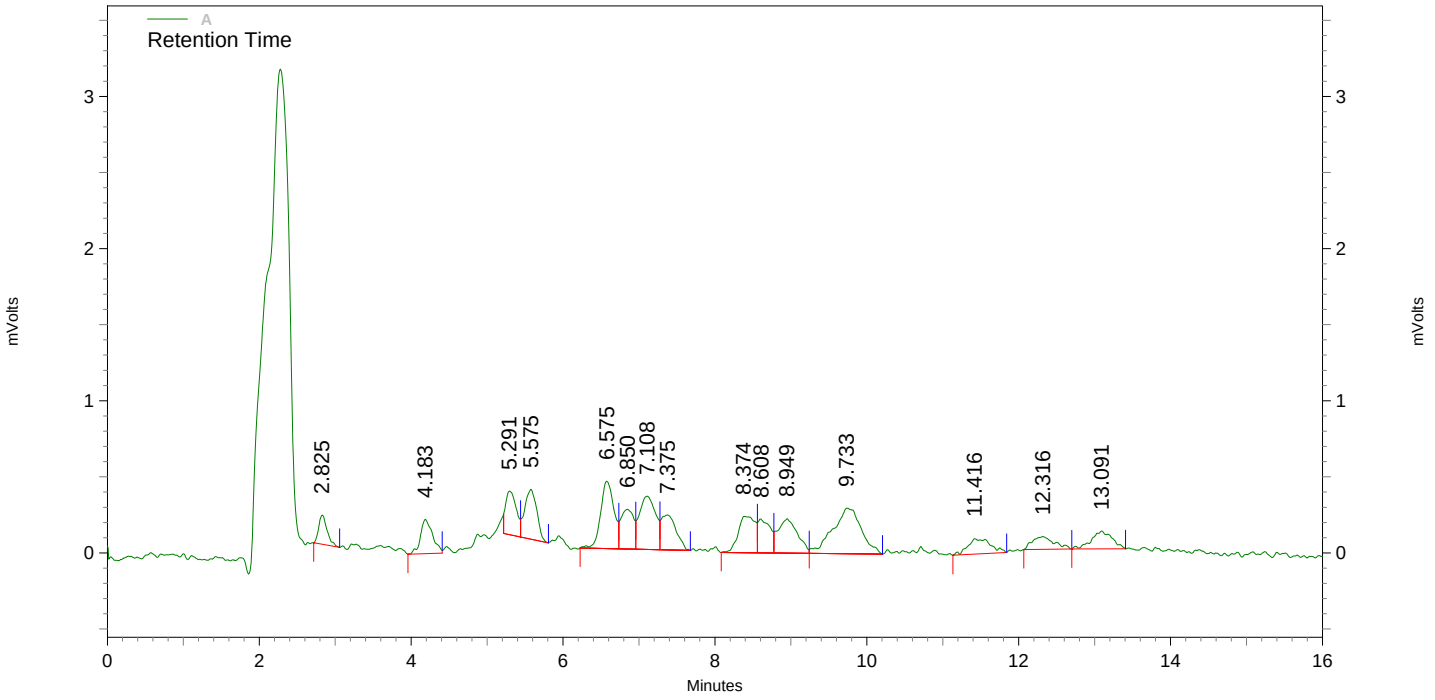
After Manual Integration

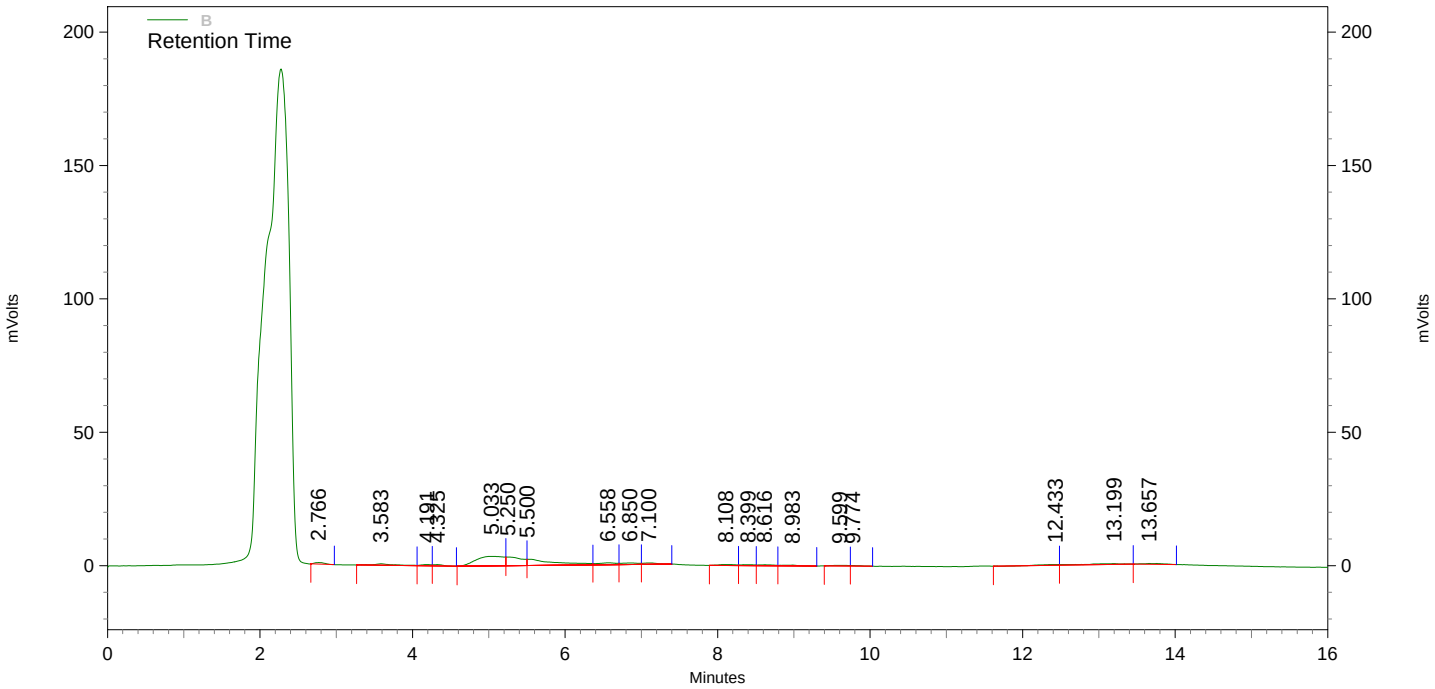
08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 1 EXP 4494
Acquired: Aug 21, 2011 14:21:57
Data Summary: Reasons #1,#3, and #4 apply to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	1477	**0.051**
RDX	4.183	2497	**0.059**
12-DNB (SSTD)	5.291	2840	**11.571**
135-TNB	5.575	3599	**0.056**
13-DNB	6.575	5374	**0.056**
TETRYL	6.850	3067	**0.058**
35-DNA	7.108	5197	**0.059**
NB	7.375	3144	**0.054**
246-TNT	8.374	3686	**0.059**
4-AM-26-DNT	8.608	2469	**0.044**
2-AM-46-DNT	8.949	4022	**0.055**
2-NT	11.416	2091	**0.046**
4-NT	12.316	1695	**0.053**
3-NT	13.091	2233	**0.055**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.108	5455	**0.162**
26-DNT	9.599	3372	**0.046**
24-DNT	9.774	1963	**0.057**
PETN	13.657	5206	**0.190**

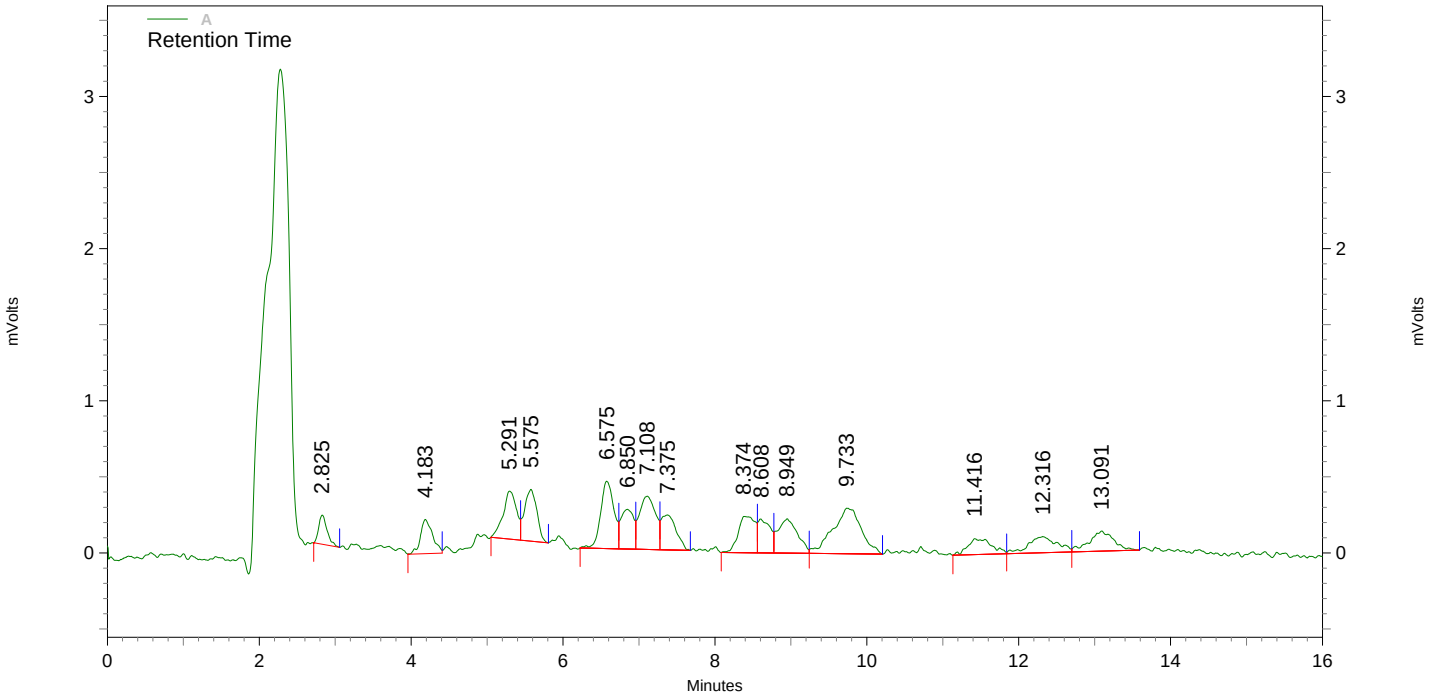
Before Manual Integration

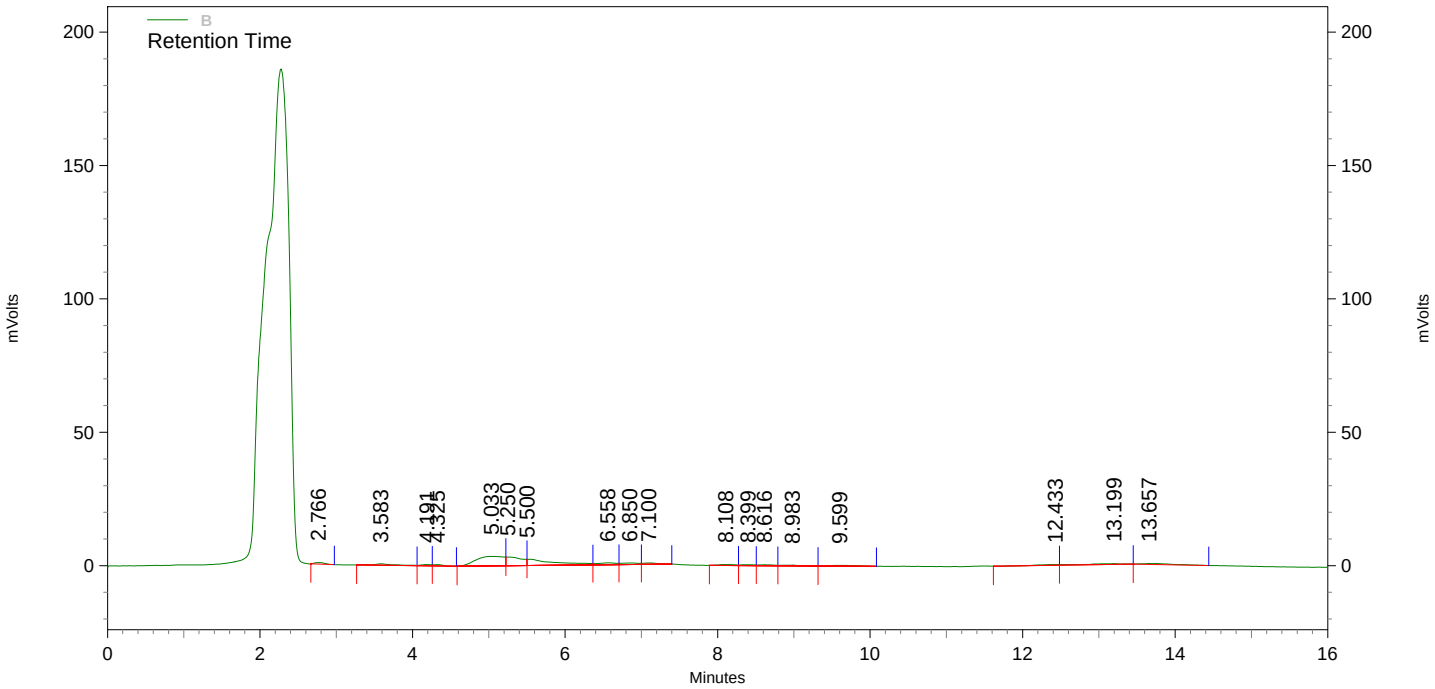
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\002.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 1 EXP 4494
Acquired: Aug 21, 2011 14:21:57
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	1477	**0.090**
RDX	4.183	2497	**0.074**
12-DNB (SSTD)	5.291	3905	**15.379**
135-TNB	5.575	3829	**0.058**
13-DNB	6.575	5374	**0.051**
TETRYL	6.850	3067	**0.053**
35-DNA	7.108	5197	**0.067**
NB	7.375	3144	**0.054**
246-TNT	8.374	3686	**0.067**
4-AM-26-DNT	8.608	2469	**0.065**
2-AM-46-DNT	8.949	4022	**0.079**
2-NT	11.416	2266	**0.062**
4-NT	12.316	2783	**0.110**
3-NT	13.091	2944	**0.070**

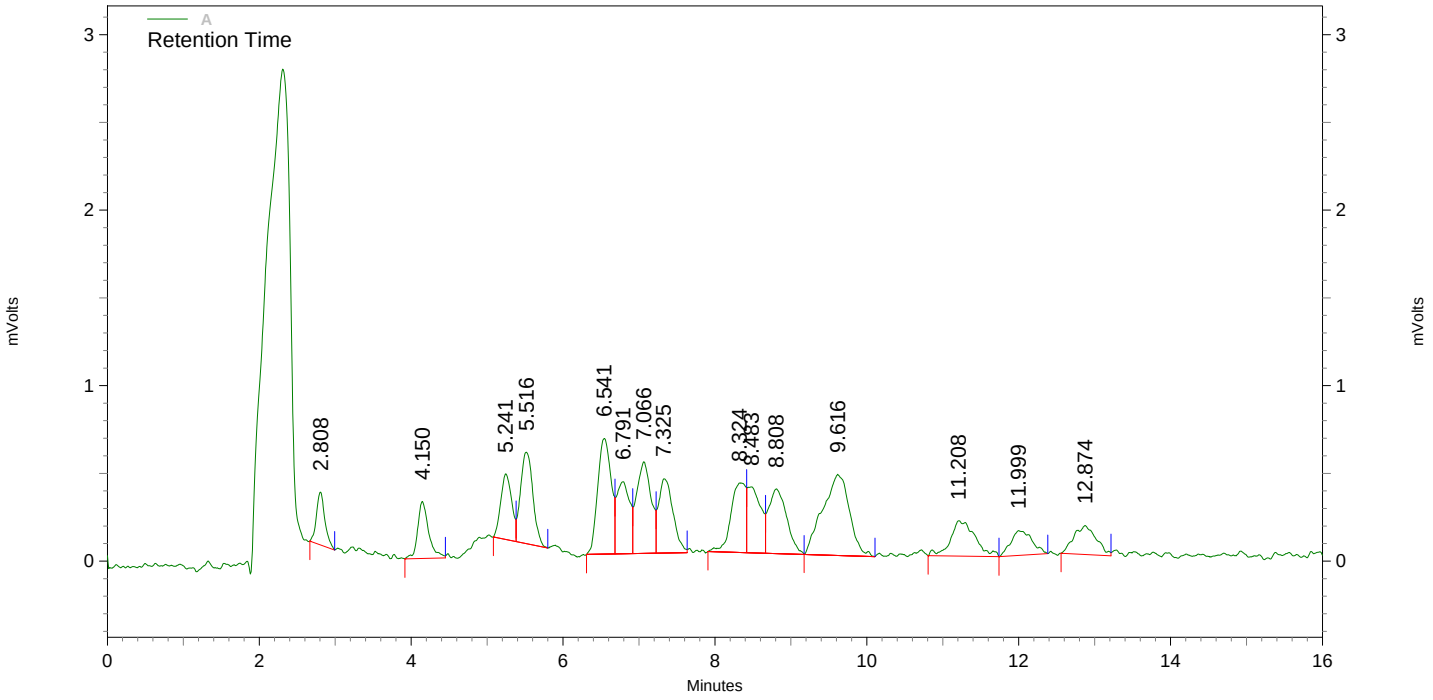
B Results

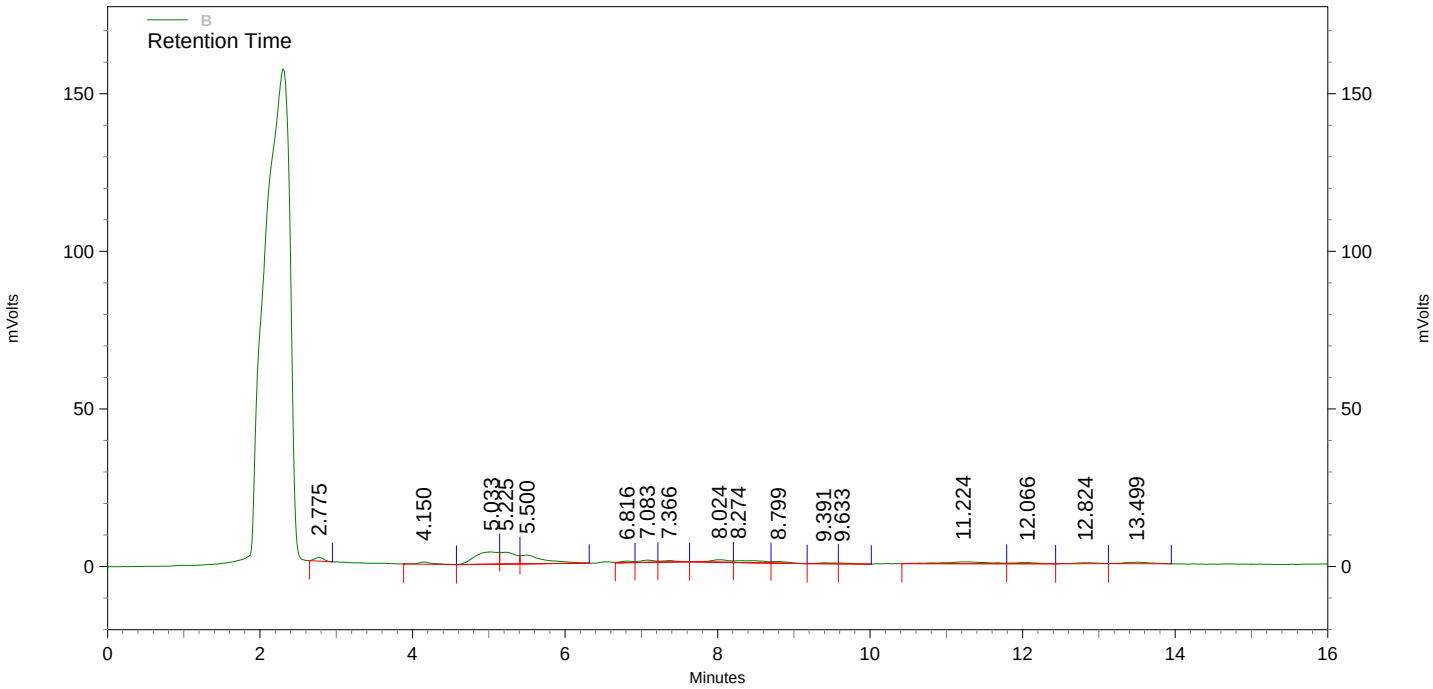
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.399	4156	**0.155**
26-DNT	9.599	9185	**0.137**
24-DNT			**0.000 BDL**
PETN	13.657	9882	**0.393**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 2 EXP 4495
Acquired: Aug 21, 2011 14:40:15
Data Summary: Reasons #3,#4 apply to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	2331	**0.100 CAL**
RDX	4.150	3259	**0.100 CAL**
12-DNB (SSTD)	5.241	3781	**20.000 CAL**
135-TNB	5.516	5876	**0.100 CAL**
13-DNB	6.541	8119	**0.100 CAL**
TETRYL	6.791	4896	**0.100 CAL**
35-DNA	7.066	7011	**0.100 CAL**
NB	7.325	5569	**0.100 CAL**
246-TNT	8.324	5323	**0.100 CAL**
4-AM-26-DNT	8.483	4738	**0.100 CAL**
2-AM-46-DNT	8.808	6063	**0.100 CAL**
2-NT	11.208	4535	**0.100 CAL**
4-NT	11.999	2733	**0.100 CAL**
3-NT	12.874	3364	**0.100 CAL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.024	13114	**0.400 CAL**
26-DNT	9.391	5035	**0.100 CAL**
24-DNT	9.633	3225	**0.100 CAL**
PETN	13.499	11078	**0.400 CAL**

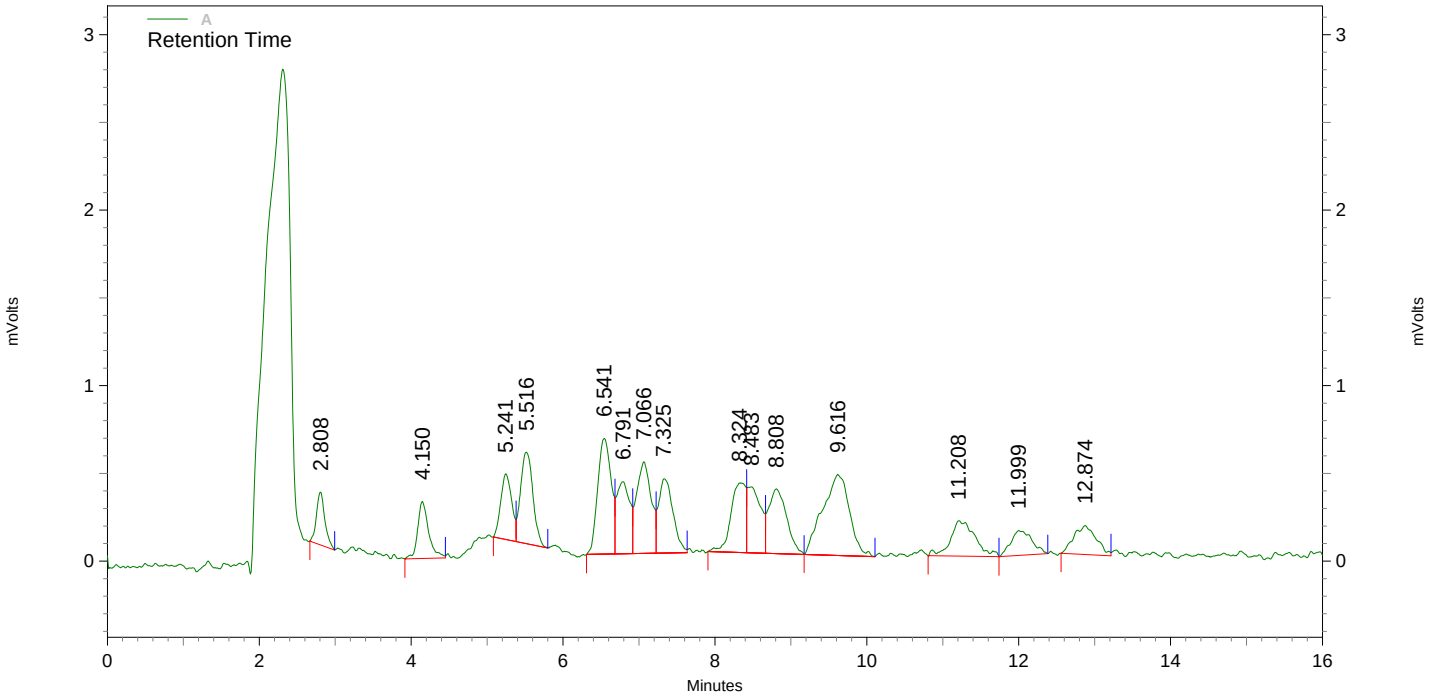
Before Manual Integration

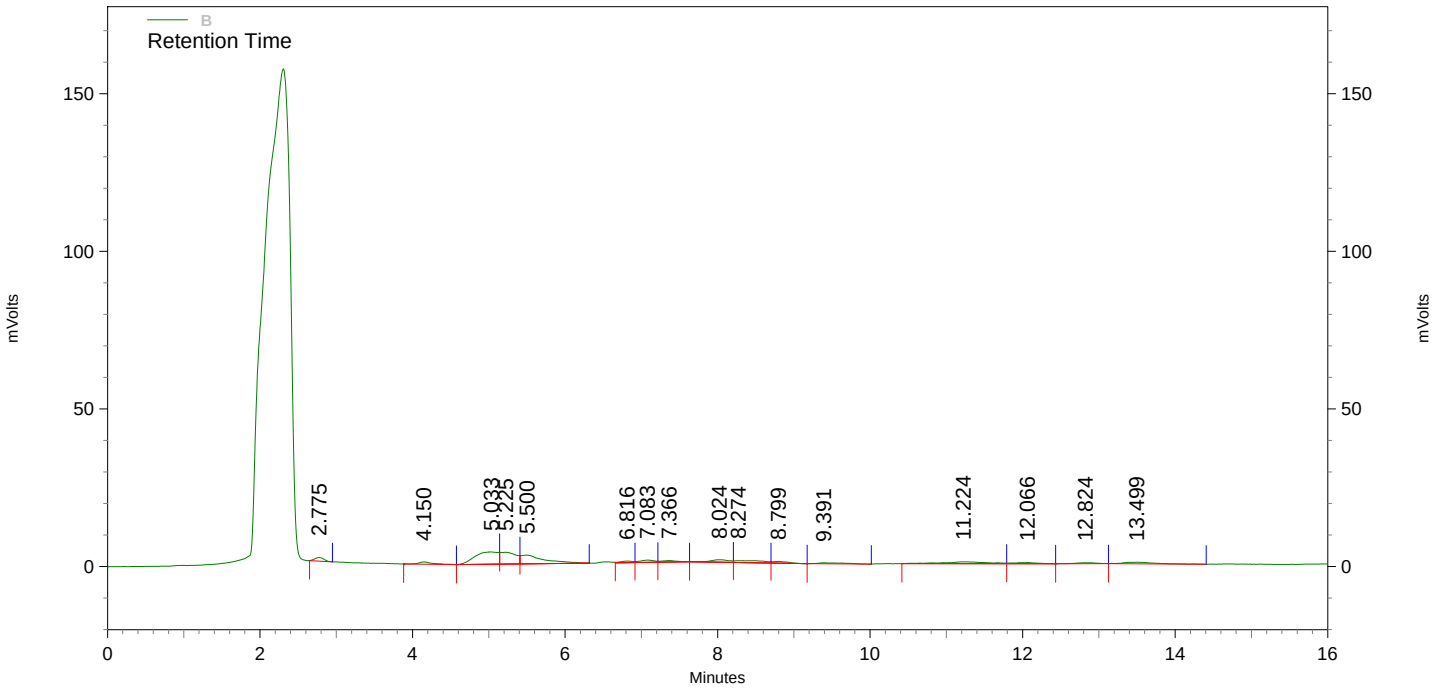
08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\003.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 2 EXP 4495
Acquired: Aug 21, 2011 14:40:15
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	2331	**0.000**
RDX	4.150	3259	**1.#IO**
12-DNB (SSTD)	5.241	3781	**1.#IO**
135-TNB	5.516	5876	**1.#IO**
13-DNB	6.541	8119	**1.#IO**
TETRYL	6.791	4896	**1.#IO**
35-DNA	7.066	7011	**1.#IO**
NB	7.325	5569	**1.#IO**
246-TNT	8.324	5323	**1.#IO**
4-AM-26-DNT	8.483	4738	**1.#IO**
2-AM-46-DNT	8.808	6063	**1.#IO**
2-NT	11.208	4535	**1.#IO**
4-NT	11.999	2733	**1.#IO**
3-NT	12.874	3364	**1.#IO**

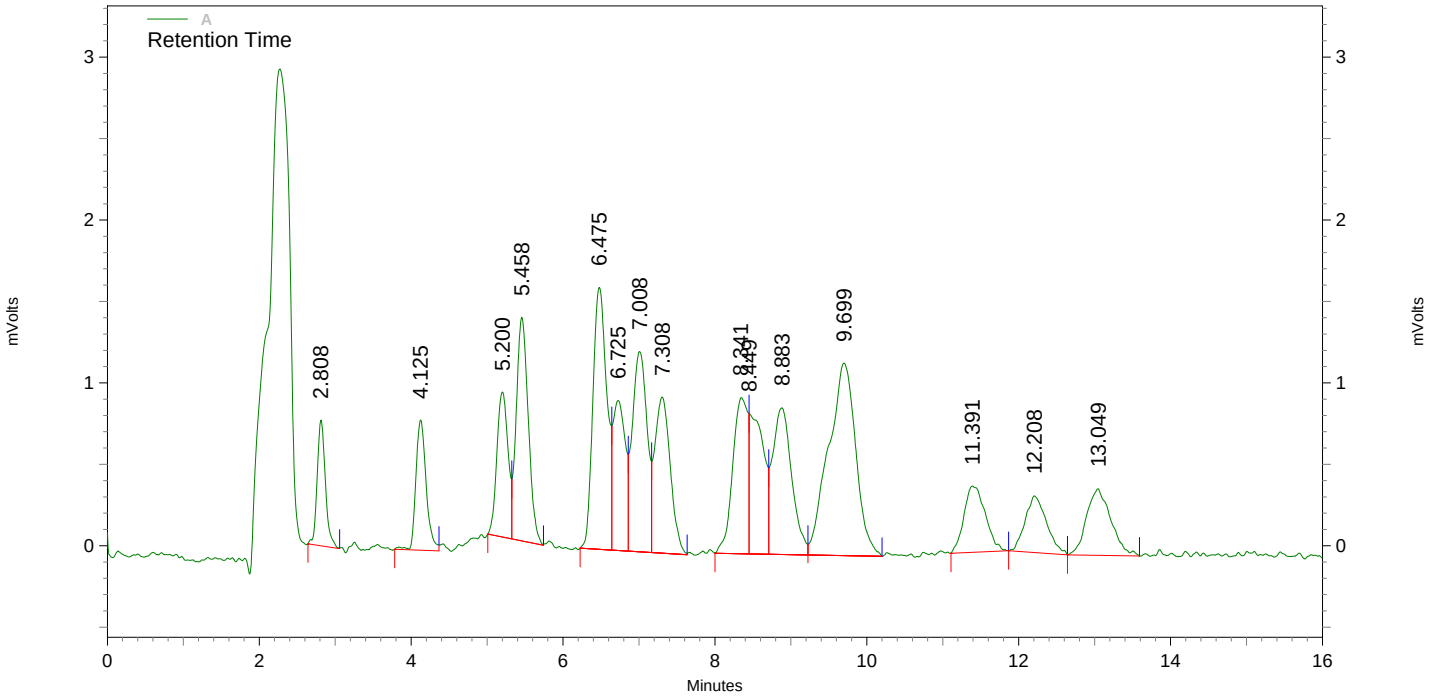
B Results

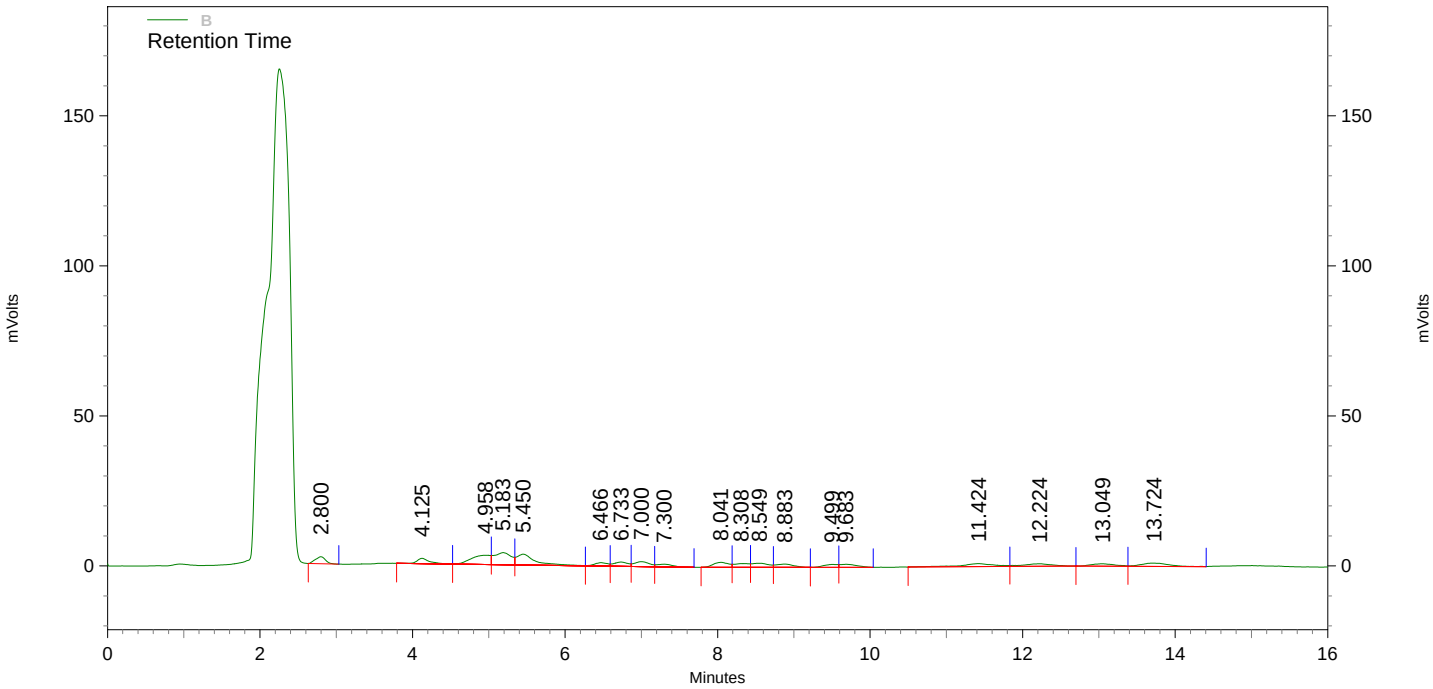
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.024	13114	**0.000**
26-DNT	9.391	8260	**1.#IO**
24-DNT			**0.000 BDL**
PETN	13.499	13693	**1.#IO**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 3 EXP 4496
Acquired: Aug 21, 2011 14:58:34
Data Summary: Reason #3 applies to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	5824	**0.250 CAL**
RDX	4.125	7539	**0.250 CAL**
12-DNB (SSTD)	5.200	9120	**50.000 CAL**
135-TNB	5.458	15181	**0.250 CAL**
13-DNB	6.475	20540	**0.250 CAL**
TETRYL	6.725	10358	**0.250 CAL**
35-DNA	7.008	16777	**0.250 CAL**
NB	7.308	13688	**0.250 CAL**
246-TNT	8.341	13188	**0.250 CAL**
4-AM-26-DNT	8.449	11430	**0.250 CAL**
2-AM-46-DNT	8.883	15853	**0.250 CAL**
2-NT	11.391	7929	**0.250 CAL**
4-NT	12.208	6806	**0.250 CAL**
3-NT	13.049	9099	**0.250 CAL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.041	22900	**1.000 CAL**
26-DNT	9.499	12602	**0.250 CAL**
24-DNT	9.683	15364	**0.250 CAL**
PETN	13.724	26922	**1.000 CAL**

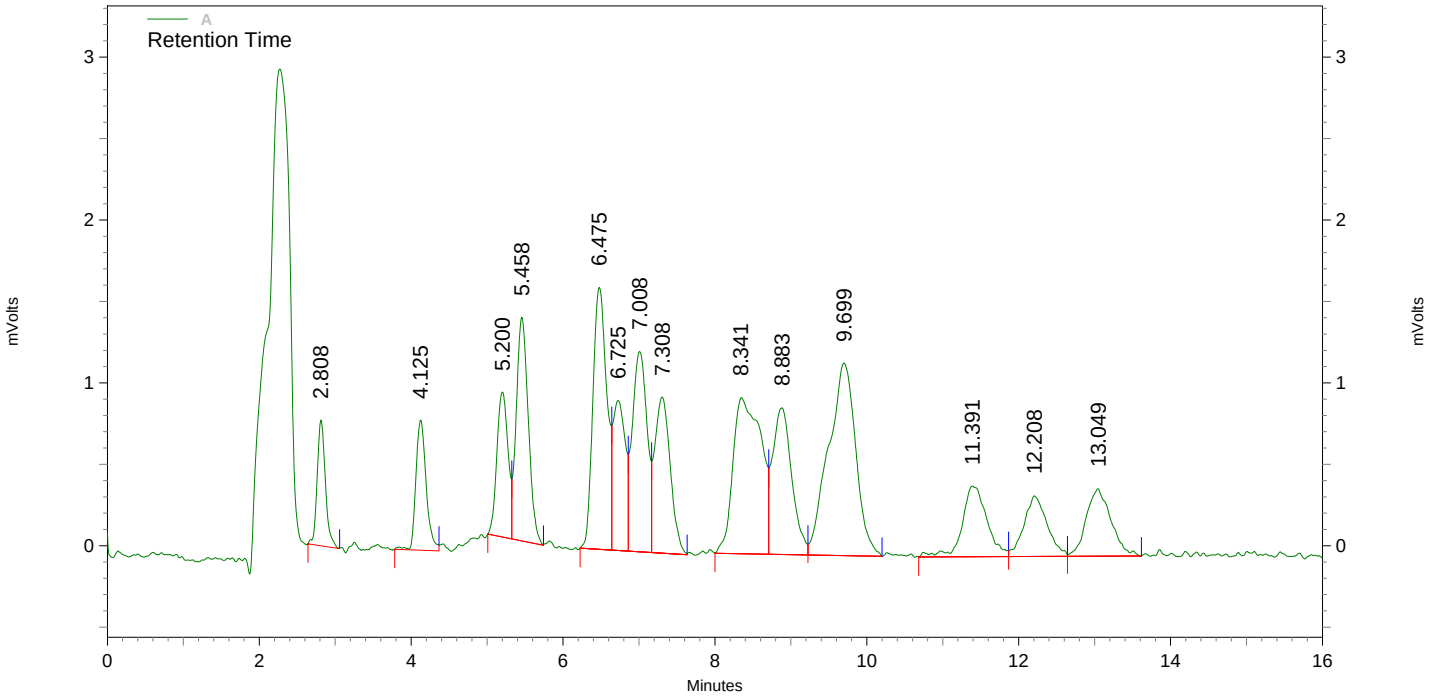
Before Manual Integration

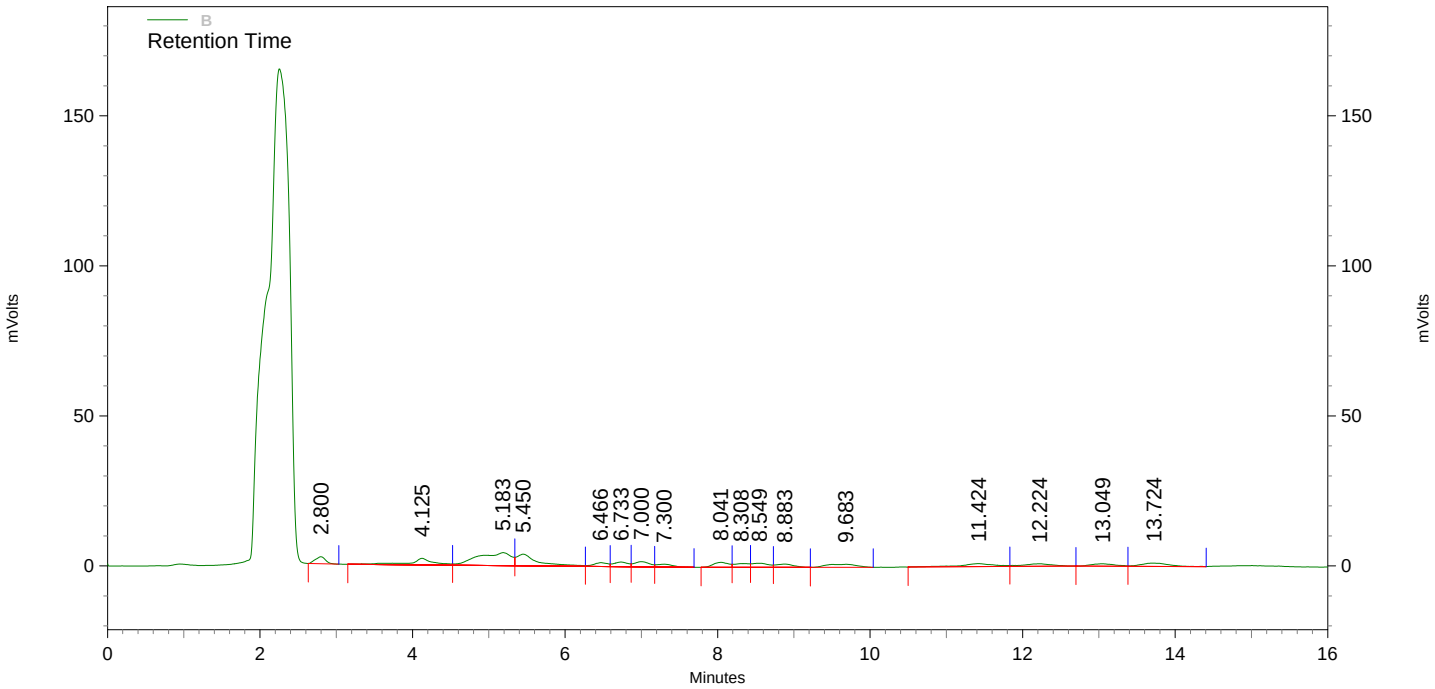
RED 08/26/2011

HHK 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\004.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 3 EXP 4496
Acquired: Aug 21, 2011 14:58:34
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	5824	**0.305**
RDX	4.125	7539	**0.381**
12-DNB (SSTD)	5.200	9120	**76.738**
135-TNB	5.458	15181	**0.304**
13-DNB	6.475	20540	**0.326**
TETRYL	6.725	10358	**0.249**
35-DNA	7.008	16777	**0.369**
NB	7.308	13688	**0.267**
246-TNT	8.341	24618	**0.689**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT	8.883	15853	**0.340**
2-NT	11.391	9833	**0.208**
4-NT	12.208	7866	**0.347**
3-NT	13.049	9356	**0.365**

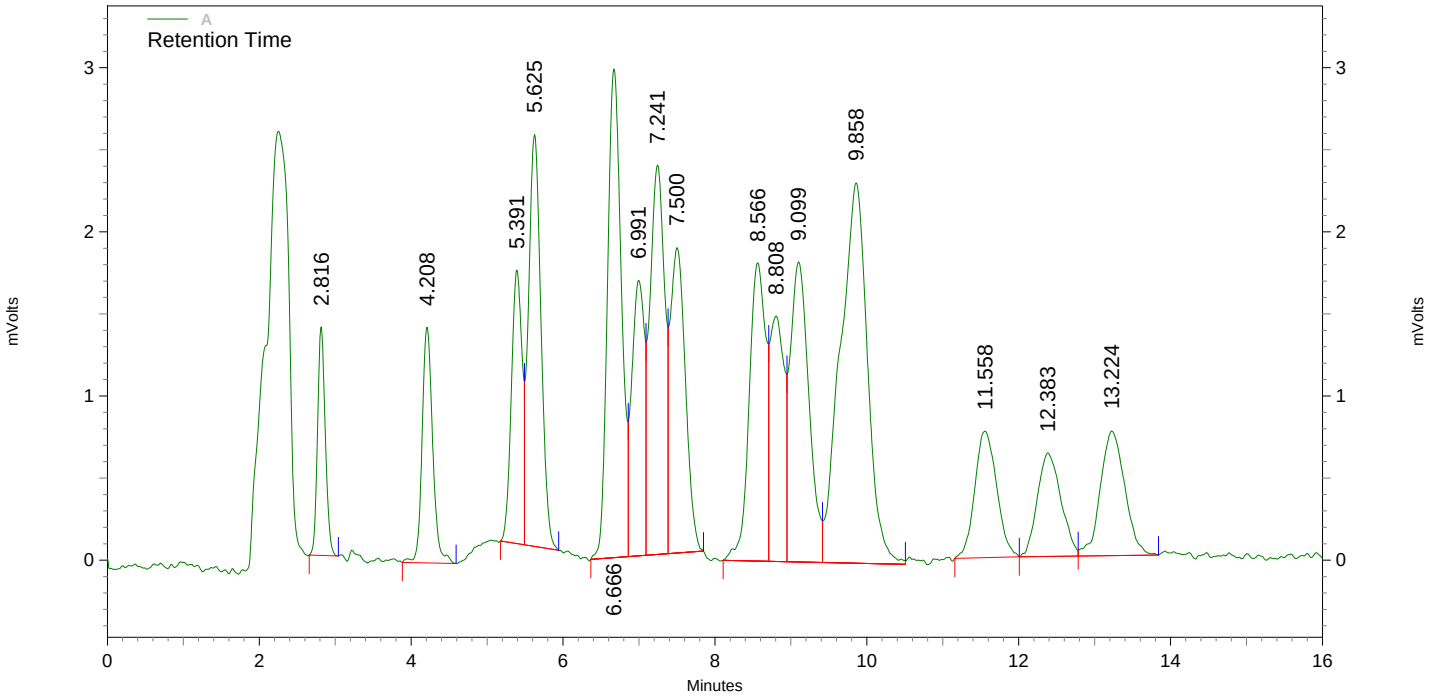
B Results

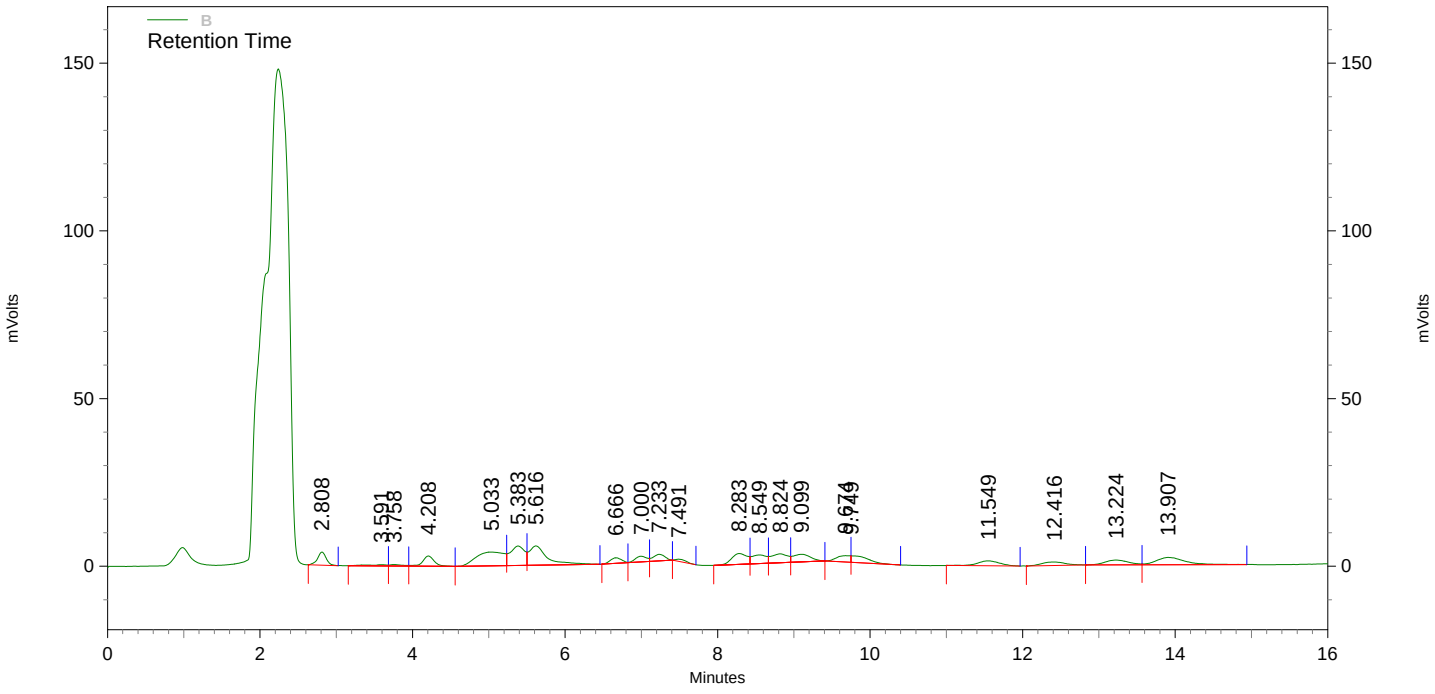
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.041	22900	**0.649**
26-DNT	9.683	27967	**0.789**
24-DNT			**0.000 BDL**
PETN	13.724	26922	**0.940**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 4 EXP 4497
Acquired: Aug 21, 2011 15:16:50
Data Summary: Reason #3,#4 applies to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	9904	**0.500 CAL**
RDX	4.208	13923	**0.500 CAL**
12-DNB (SSTD)	5.391	16328	**100.000 CAL**
135-TNB	5.625	28980	**0.500 CAL**
13-DNB	6.666	37832	**0.500 CAL**
TETRYL	6.991	19192	**0.500 CAL**
35-DNA	7.241	32325	**0.500 CAL**
NB	7.500	26014	**0.500 CAL**
246-TNT	8.566	27800	**0.500 CAL**
4-AM-26-DNT	8.808	19605	**0.500 CAL**
2-AM-46-DNT	9.099	31274	**0.500 CAL**
2-NT	11.558	15470	**0.500 CAL**
4-NT	12.383	13580	**0.500 CAL**
3-NT	13.224	17063	**0.500 CAL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.283	45188	**2.000 CAL**
26-DNT	9.674	23654	**0.500 CAL**
24-DNT	9.749	31202	**0.500 CAL**
PETN	13.907	56977	**2.000 CAL**

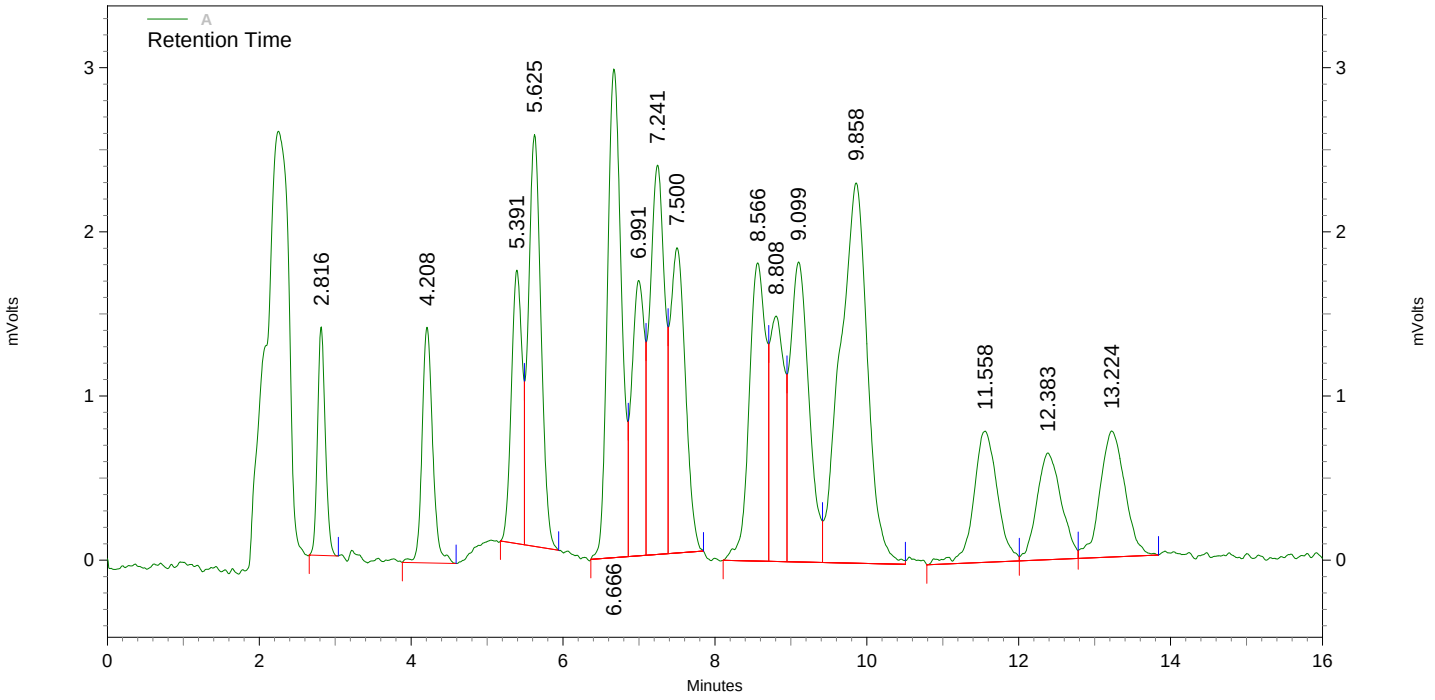
Before Manual Integration

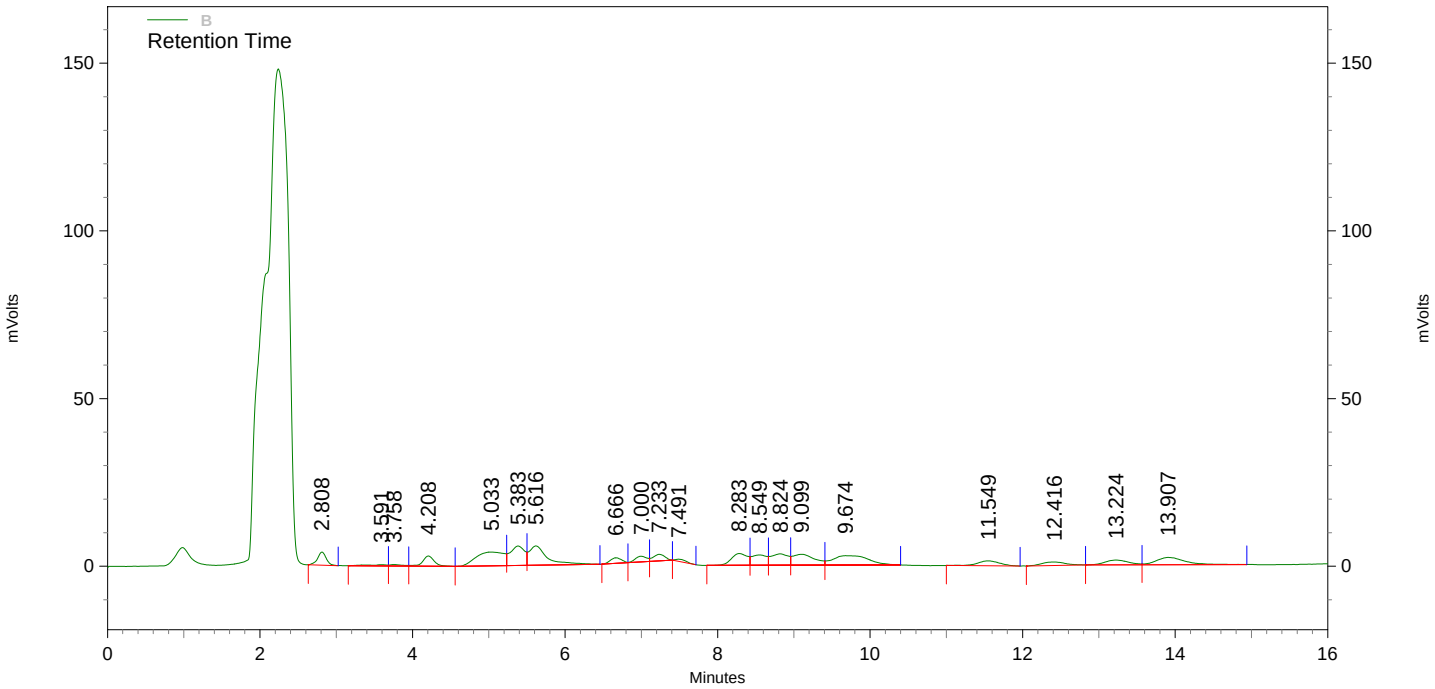
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\005.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 4 EXP 4497
Acquired: Aug 21, 2011 15:16:50
Data Summary: {Data Description}





A Results

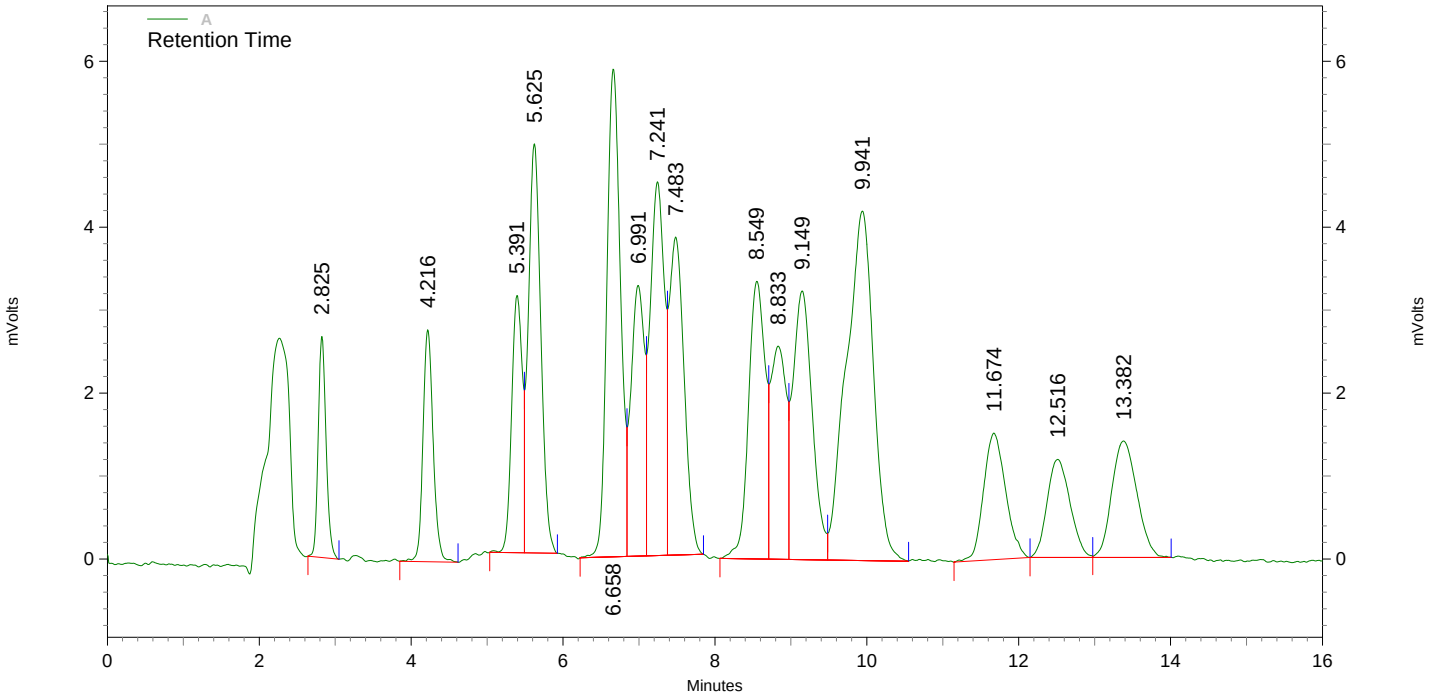
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	9904	**0.443**
RDX	4.208	13923	**0.511**
12-DNB (SSTD)	5.391	16328	**97.567**
135-TNB	5.625	28980	**0.494**
13-DNB	6.666	37832	**0.485**
TETRYL	6.991	19192	**0.492**
35-DNA	7.241	32325	**0.526**
NB	7.500	26014	**0.486**
246-TNT	8.566	27800	**0.565**
4-AM-26-DNT	8.808	19605	**0.432**
2-AM-46-DNT	9.099	31274	**0.519**
2-NT	11.558	17467	**0.440**
4-NT	12.383	14477	**0.475**
3-NT	13.224	17511	**0.490**

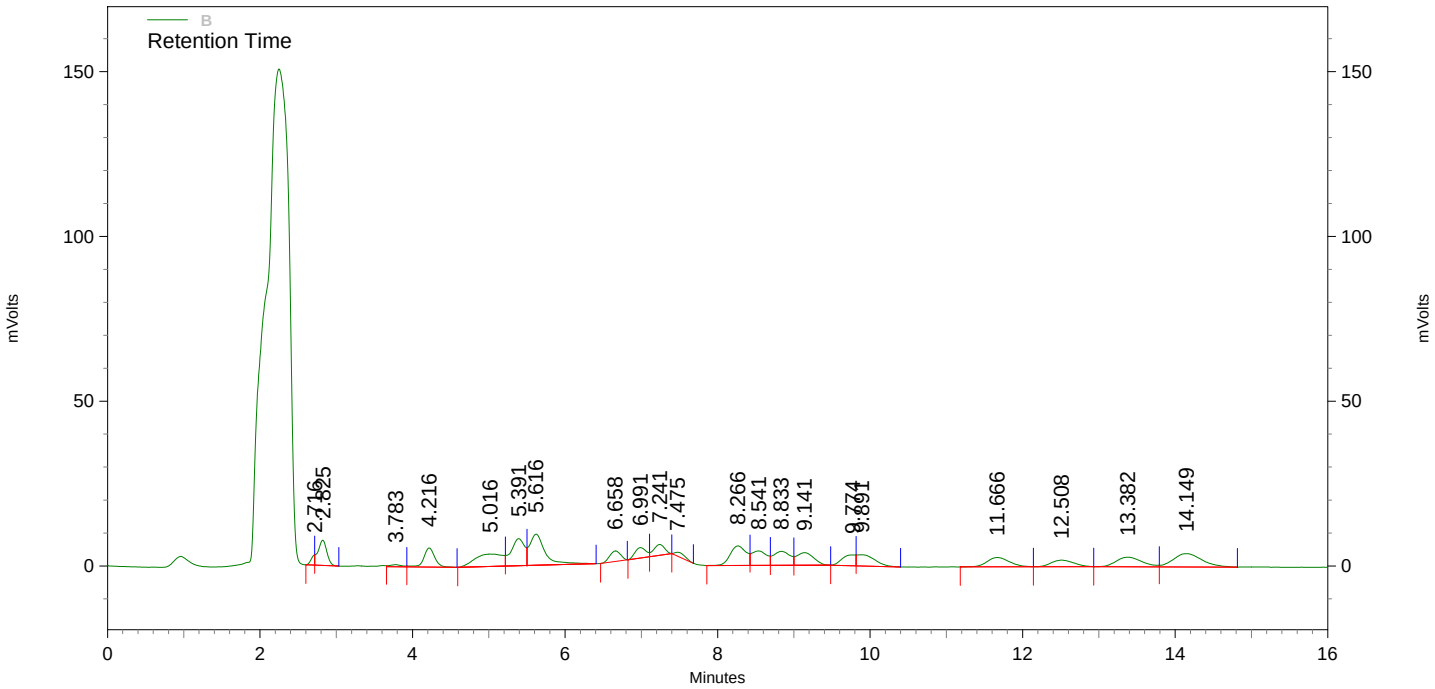
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.283	51460	**2.219**
26-DNT	9.674	91983	**1.986**
24-DNT			**0.000 BDL**
PETN	13.907	56977	**2.096**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\006.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 5 EXP 4498
Acquired: Aug 21, 2011 15:35:08
Data Summary: {Data Description}





A Results

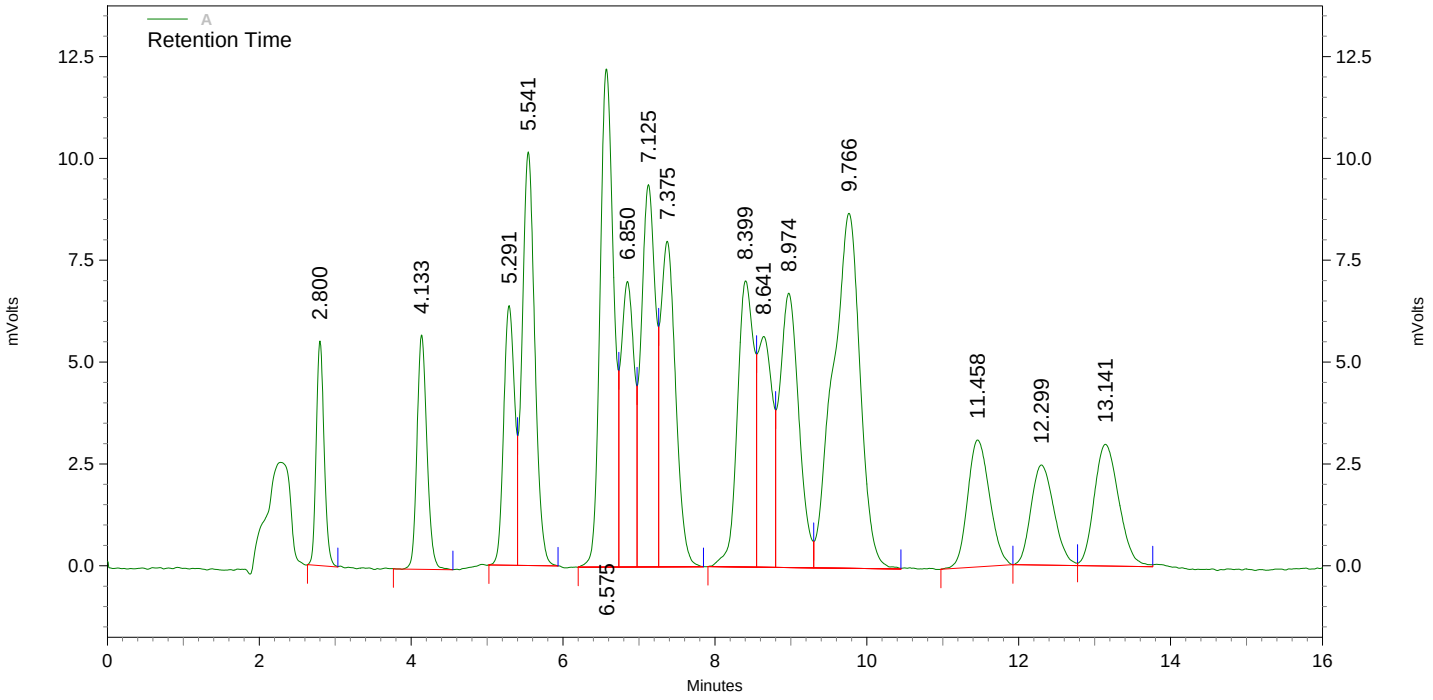
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	19324	**1.000 CAL**
RDX	4.216	26020	**1.000 CAL**
12-DNB (SSTD)	5.391	30196	**200.000 CAL**
135-TNB	5.625	56540	**1.000 CAL**
13-DNB	6.658	73164	**1.000 CAL**
TETRYL	6.991	40236	**1.000 CAL**
35-DNA	7.241	59308	**1.000 CAL**
NB	7.483	52418	**1.000 CAL**
246-TNT	8.549	51185	**1.000 CAL**
4-AM-26-DNT	8.833	36696	**1.000 CAL**
2-AM-46-DNT	9.149	57521	**1.000 CAL**
2-NT	11.674	30765	**1.000 CAL**
4-NT	12.516	24734	**1.000 CAL**
3-NT	13.382	32210	**1.000 CAL**

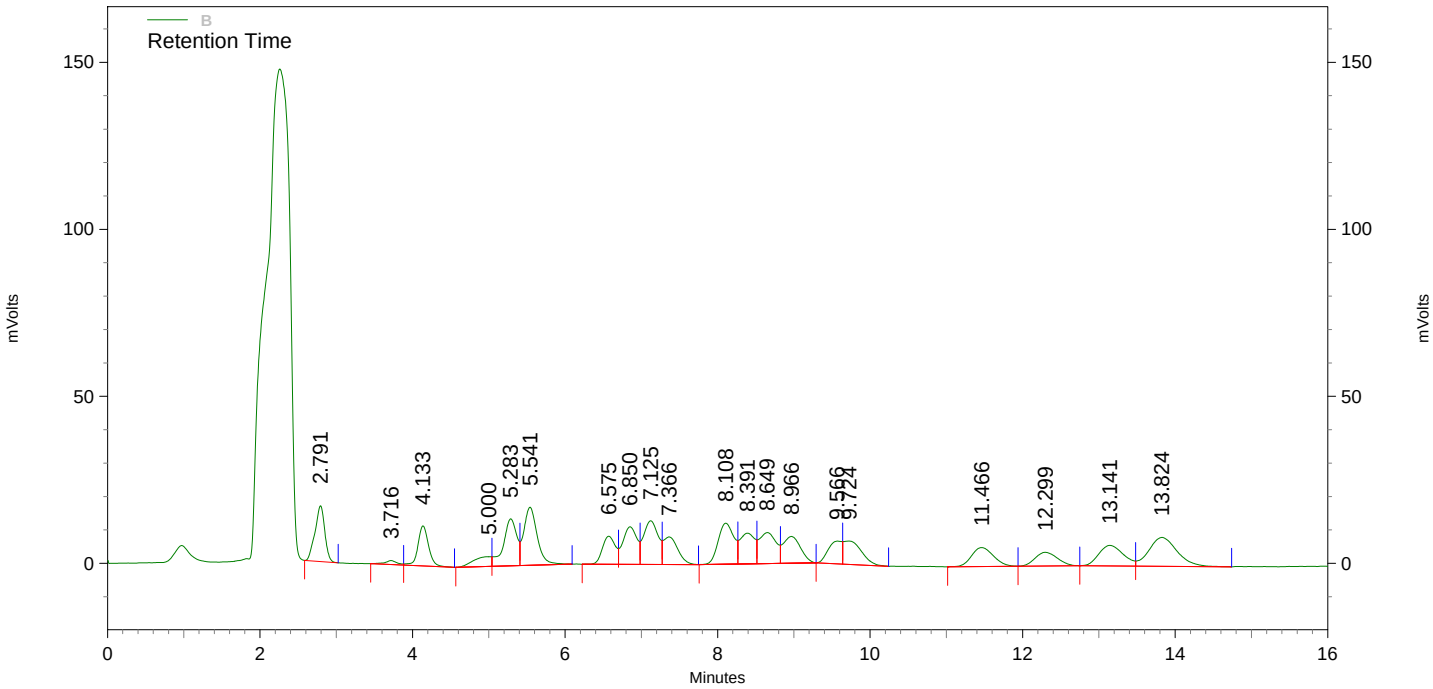
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.266	86135	**4.000 CAL**
26-DNT	9.774	39585	**1.000 CAL**
24-DNT	9.891	55361	**1.000 CAL**
PETN	14.149	105676	**4.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\007.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 6 EXP 4499
Acquired: Aug 21, 2011 15:53:25
Data Summary: {Data Description}





A Results

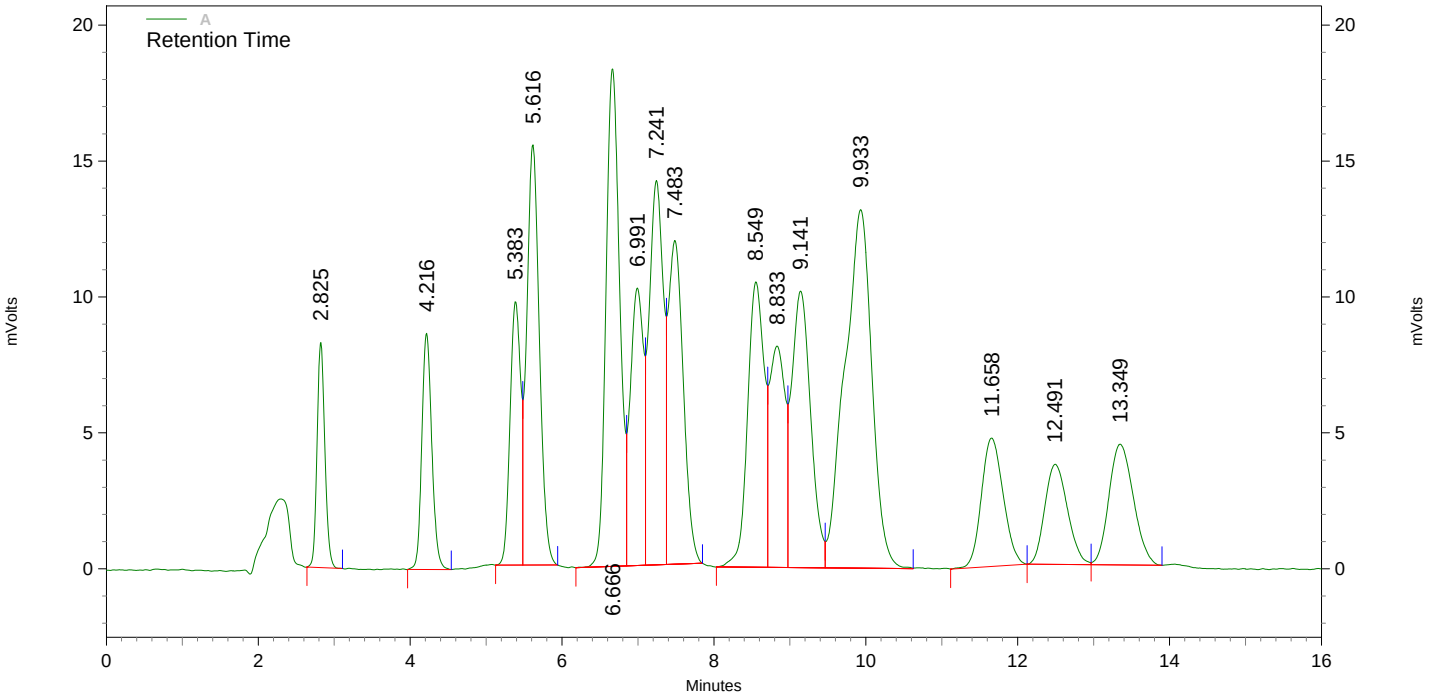
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.800	39935	**2.000 CAL**
RDX	4.133	52536	**2.000 CAL**
12-DNB (SSTD)	5.291	63372	**400.000 CAL**
135-TNB	5.541	117649	**2.000 CAL**
13-DNB	6.575	151428	**2.000 CAL**
TETRYL	6.850	84867	**2.000 CAL**
35-DNA	7.125	123117	**2.000 CAL**
NB	7.375	110689	**2.000 CAL**
246-TNT	8.399	106718	**2.000 CAL**
4-AM-26-DNT	8.641	75694	**2.000 CAL**
2-AM-46-DNT	8.974	118667	**2.000 CAL**
2-NT	11.458	62667	**2.000 CAL**
4-NT	12.299	51603	**2.000 CAL**
3-NT	13.141	67328	**2.000 CAL**

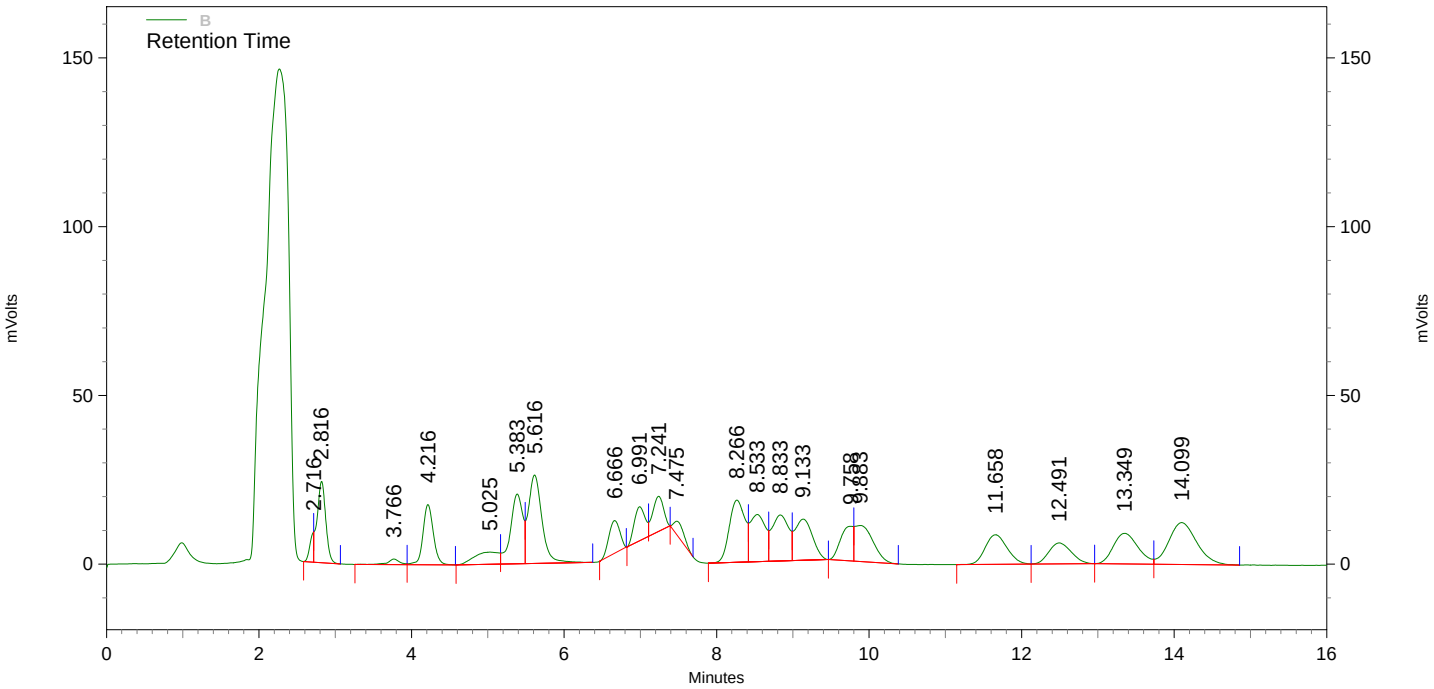
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.108	174722	**8.000 CAL**
26-DNT	9.566	84583	**2.000 CAL**
24-DNT	9.724	115052	**2.000 CAL**
PETN	13.824	222307	**8.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\008.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 Pt 7 EXP 4500
Acquired: Aug 21, 2011 16:11:43
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	59372	**3.000 CAL**
RDX	4.216	79108	**3.000 CAL**
12-DNB (SSTD)	5.383	93596	**600.000 CAL**
135-TNB	5.616	178808	**3.000 CAL**
13-DNB	6.666	229341	**3.000 CAL**
TETRYL	6.991	123161	**3.000 CAL**
35-DNA	7.241	185812	**3.000 CAL**
NB	7.483	164190	**3.000 CAL**
246-TNT	8.549	159876	**3.000 CAL**
4-AM-26-DNT	8.833	115967	**3.000 CAL**
2-AM-46-DNT	9.141	177522	**3.000 CAL**
2-NT	11.658	94241	**3.000 CAL**
4-NT	12.491	76593	**3.000 CAL**
3-NT	13.349	99647	**3.000 CAL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.266	261854	**12.000 CAL**
26-DNT	9.758	118147	**3.000 CAL**
24-DNT	9.883	178869	**3.000 CAL**
PETN	14.099	316769	**12.000 CAL**

After Manual Integration HHK RED 08/26/2011 08/26/2011

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082111expic-primary.seq
User : red
Printed : Aug 22, 2011 14:54:36

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082111expic-primary\009.dat	8330 ICV EXP 4501	Aug 22, 2011 14:54:35

A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.500	0.530	6.044	20.000	Passed
RDX	0.500	0.494	1.249	20.000	Passed
12-DNB (SSTD)	100.000	104.822	4.822	20.000	Passed
135-TNB	0.500	0.514	2.895	20.000	Passed
13-DNB	0.500	0.530	6.017	20.000	Passed
TETRYL	0.500	0.434	13.150	20.000	Passed
35-DNA	0.500	0.534	6.703	20.000	Passed
NB	0.500	0.530	5.940	20.000	Passed
246-TNT	0.500	0.516	3.193	20.000	Passed
4-AM-26-DNT	0.500	0.515	2.960	20.000	Passed
2-AM-46-DNT	0.500	0.552	10.324	20.000	Passed
2-NT	0.500	0.522	4.479	20.000	Passed
4-NT	0.500	0.554	10.895	20.000	Passed
3-NT	0.500	0.562	12.485	20.000	Passed

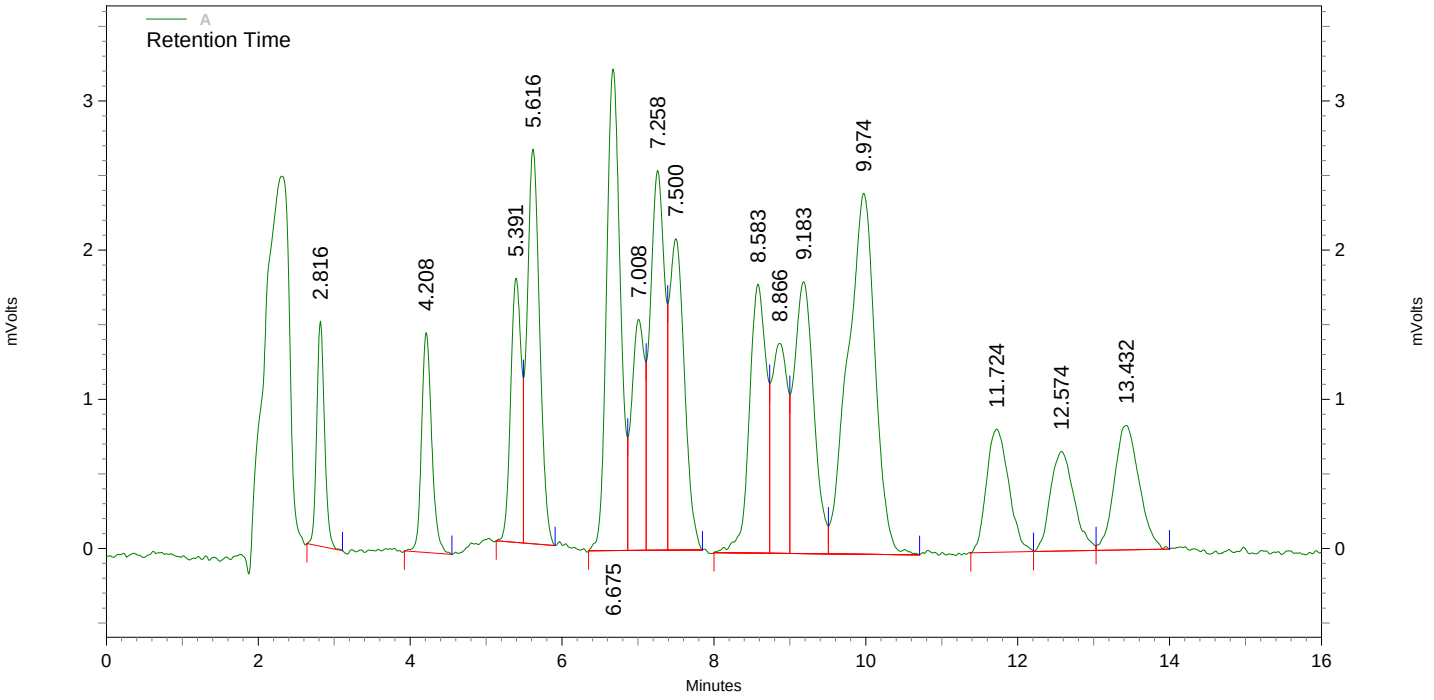
B

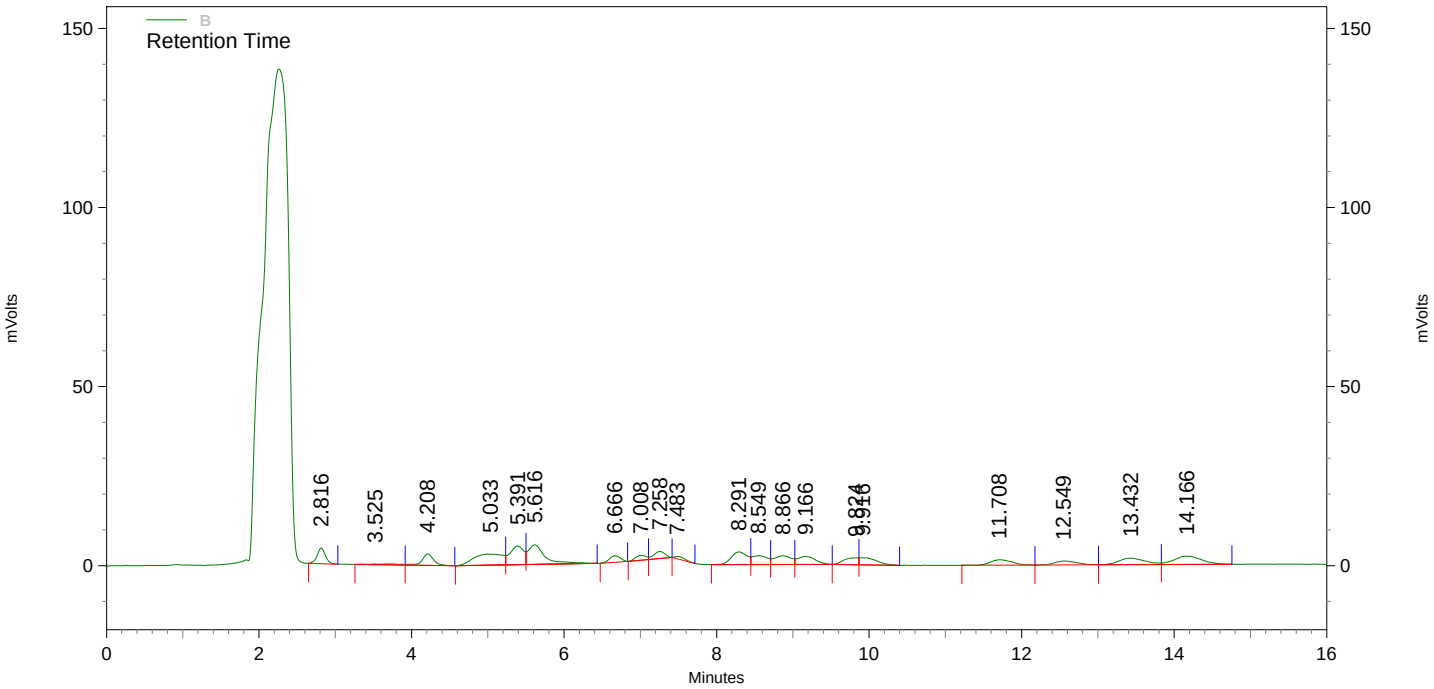
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	2.000	2.292	14.581	20.000	Passed
26-DNT	0.500	0.584	16.818	20.000	Passed
24-DNT	0.500	0.547	9.404	20.000	Passed
PETN	2.000	2.190	9.503	20.000	Passed

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\009.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 ICV EXP 4501
Acquired: Aug 21, 2011 16:30:00
Data Summary: Reason #3 applies to data. RED 8/22/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	10831	**0.530**
RDX	4.208	13712	**0.494**
12-DNB (SSTD)	5.391	17139	**104.822**
135-TNB	5.616	30471	**0.514**
13-DNB	6.675	40915	**0.530**
TETRYL	7.008	18355	**0.434**
35-DNA	7.258	33923	**0.534**
NB	7.500	28918	**0.530**
246-TNT	8.583	27752	**0.516**
4-AM-26-DNT	8.866	20251	**0.515**
2-AM-46-DNT	9.183	33190	**0.552**
2-NT	11.724	16786	**0.522**
4-NT	12.574	14435	**0.554**
3-NT	13.432	18992	**0.562**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.291	51362	**2.292**
26-DNT	9.824	24859	**0.584**
24-DNT	9.916	31044	**0.547**
PETN	14.166	59110	**2.190**

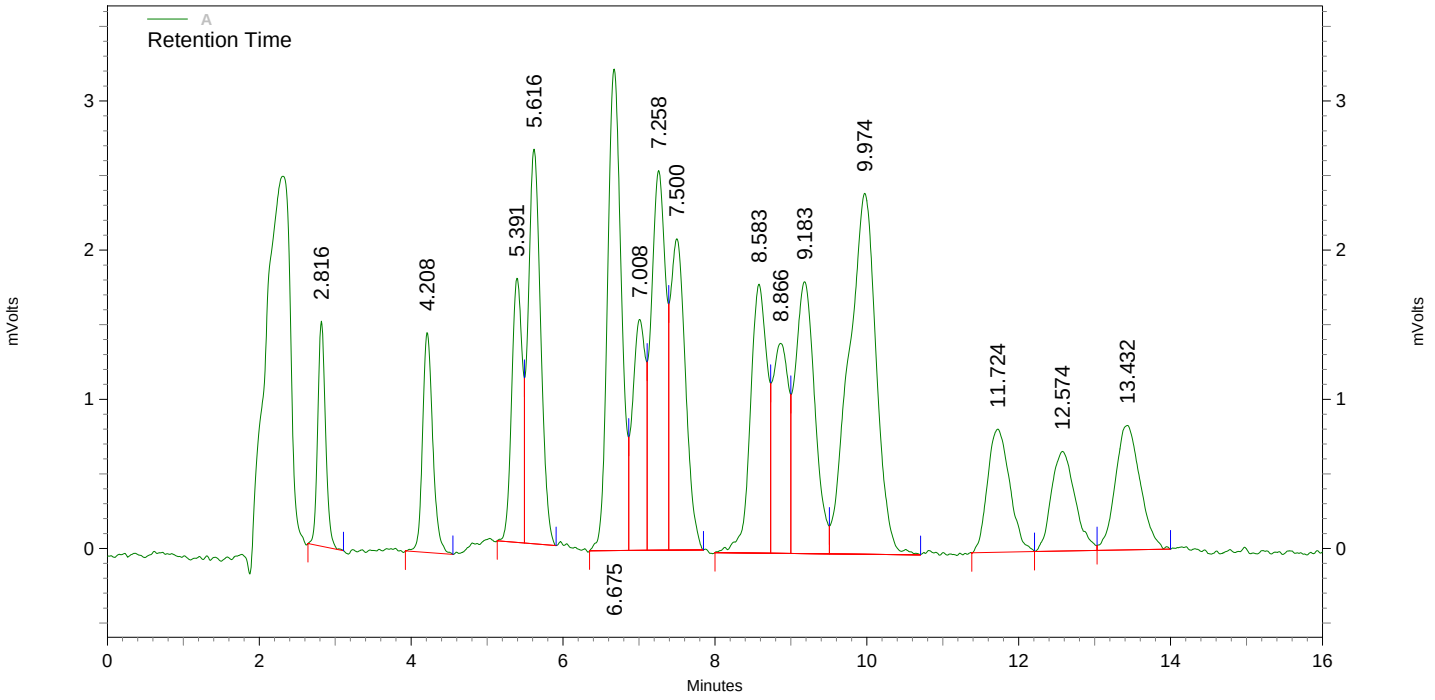
Before Manual Integration

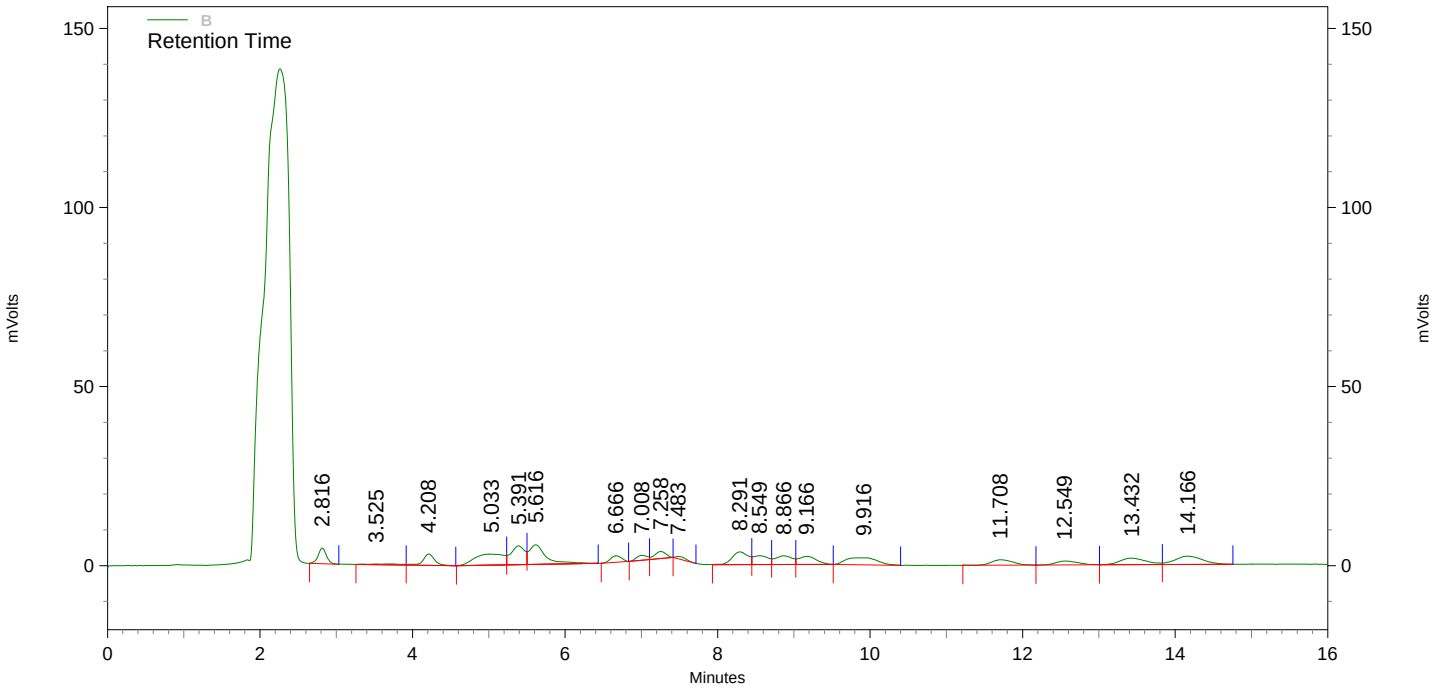
RED 08/26/2011

HHK 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\009.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 ICV EXP 4501
Acquired: Aug 21, 2011 16:30:00
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	10831	**0.530**
RDX	4.208	13712	**0.494**
12-DNB (SSTD)	5.391	17139	**104.822**
135-TNB	5.616	30471	**0.514**
13-DNB	6.675	40915	**0.530**
TETRYL	7.008	18355	**0.434**
35-DNA	7.258	33923	**0.534**
NB	7.500	28918	**0.530**
246-TNT	8.583	27752	**0.516**
4-AM-26-DNT	8.866	20251	**0.515**
2-AM-46-DNT	9.183	33190	**0.552**
2-NT	11.724	16786	**0.522**
4-NT	12.574	14435	**0.554**
3-NT	13.432	18992	**0.562**

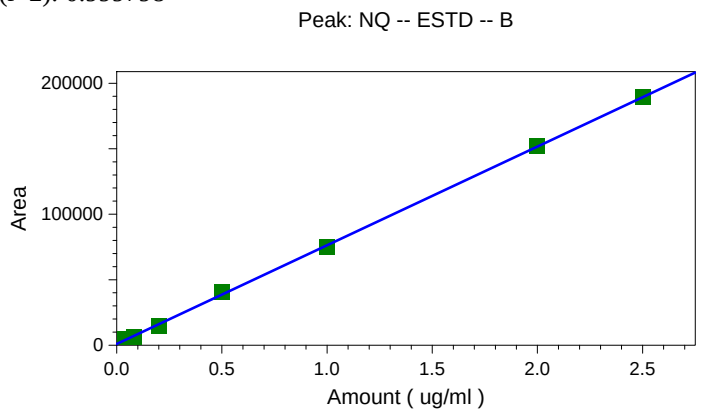
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.291	51362	**2.292**
26-DNT			**0.000 BDL**
24-DNT	9.916	55903	**0.966**
PETN	14.166	59110	**2.190**

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
Print Time: Aug 10, 2011 14:38:20
User: red
Instrument: HPLC 2 (Offline)

NQ (B)
Average RF: 82591.7 RF StDev: 13699.2 RF %RSD: 16.5867
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 75338.7x + 1010.23
Goodness of fit (r^2): 0.999798



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.04	0.08	0.2	0.5	1
Area	4516	6608	14970	40384	75033
RF	112900	82600	74850	80768	75033
Last Area					
Residual	-0.00653348	0.00569857	0.0147064	-0.0226237	0.0174664
Rep StDev					
Rep %RSD					
Rep 1 Area	4516	6608	14970	40384	75033
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\061611nqic-confirm\002.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\003.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\004.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\005.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\006.dat
Rep 1 Sample ID	nq pt 1 exp 4366	nq pt 2 exp 4367	nq pt 3 exp 4368	nq pt 4 exp 4369	nq pt 5 exp 4370
Rep 1 Calib. Time	Jun 16, 2011 14:16:27	Jun 16, 2011 14:17:41	Jun 16, 2011 14:18:41	Jun 16, 2011 14:18:54	Jun 16, 2011 14:19:08

	Level 6	Level 7
Amount	2	2.5
Area	152059	189903

Calibration Report

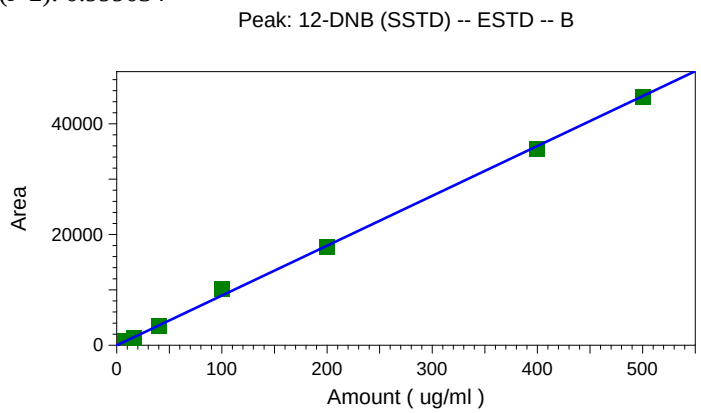
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
Print Time: Aug 10, 2011 14:38:20
User: red
Instrument: HPLC 2 (Offline)

RF	76029.5	75961.2
Last Area Residual	-0.00493031	-0.00724875
Rep StDev		
Rep %RSD		
Rep 1 Area	152059	189903
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\061611nqic-confirm\007.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\008.dat
Rep 1 Sample ID	nq pt 6 exp 4371	nq pt 7 exp 4372
Rep 1 Calib. Time	Jun 16, 2011 14:19:21	Jun 16, 2011 14:19:32

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
Print Time: Aug 10, 2011 14:38:32
User: red
Instrument: HPLC 2 (Offline)

12-DNB (SSTD) (B)
Average RF: 89.4294 RF StDev: 5.74230 RF %RSD: 6.42104
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 90.0777x - 27.3534
Goodness of fit (r^2): 0.999034



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	8	16	40	100	200
Area	684	1345	3504	10163	17748
RF	85.5	84.0625	87.6	101.63	88.74
Last Area					
Residual	0.102892	0.764784	0.796592	-13.1285	2.66647
Rep StDev					
Rep %RSD					
Rep 1 Area	684	1345	3504	10163	17748
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\061611nqic-confirm\002.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\003.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\004.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\005.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\006.dat
Rep 1 Sample ID	nq pt 1 exp 4366	nq pt 2 exp 4367	nq pt 3 exp 4368	nq pt 4 exp 4369	nq pt 5 exp 4370
Rep 1 Calib. Time	Jun 16, 2011 14:16:27	Jun 16, 2011 14:17:41	Jun 16, 2011 14:18:41	Jun 16, 2011 14:18:54	Jun 16, 2011 14:19:08

	Level 6	Level 7
Amount	400	500
Area	35434	44944

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
Print Time: Aug 10, 2011 14:38:32
User: red
Instrument: HPLC 2 (Offline)

RF	88.585	89.888
Last Area		
Residual	6.3249	0.749395
Rep StDev		
Rep %RSD		
Rep 1 Area	35434	44944
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\061611nqic-confirm\007.dat	C:\Instarch\HPLC 1\Data\061611nqic-confirm\008.dat
Rep 1 Sample ID	nq pt 6 exp 4371	nq pt 7 exp 4372
Rep 1 Calib. Time	Jun 16, 2011 14:19:21	Jun 16, 2011 14:19:32

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\061611nqic-confirm.seq
User : red
Printed : Jun 28, 2011 14:03:32

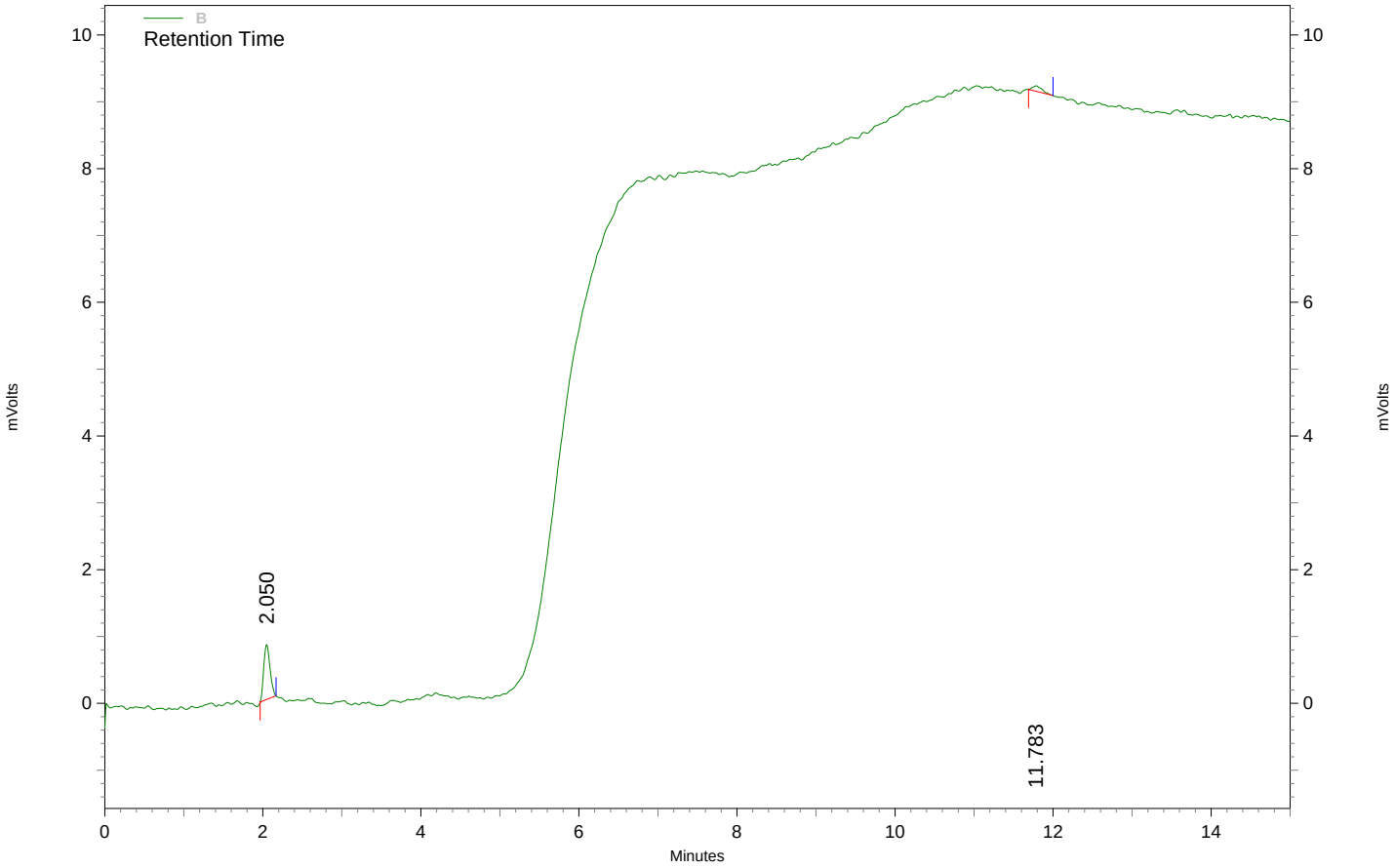
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\061611nqic-confirm\002.dat	nq pt 1 exp 4366	Jun 28, 2011 14:03:32

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.040	0.047	16.334	20.000	**Passed**
12-DNB (SSTD)	8.000	7.897	1.286	20.000	**Passed**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\002.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 1 exp 4366
Acquired: Jun 16, 2011 12:11:54
Data summary: {Data Description}

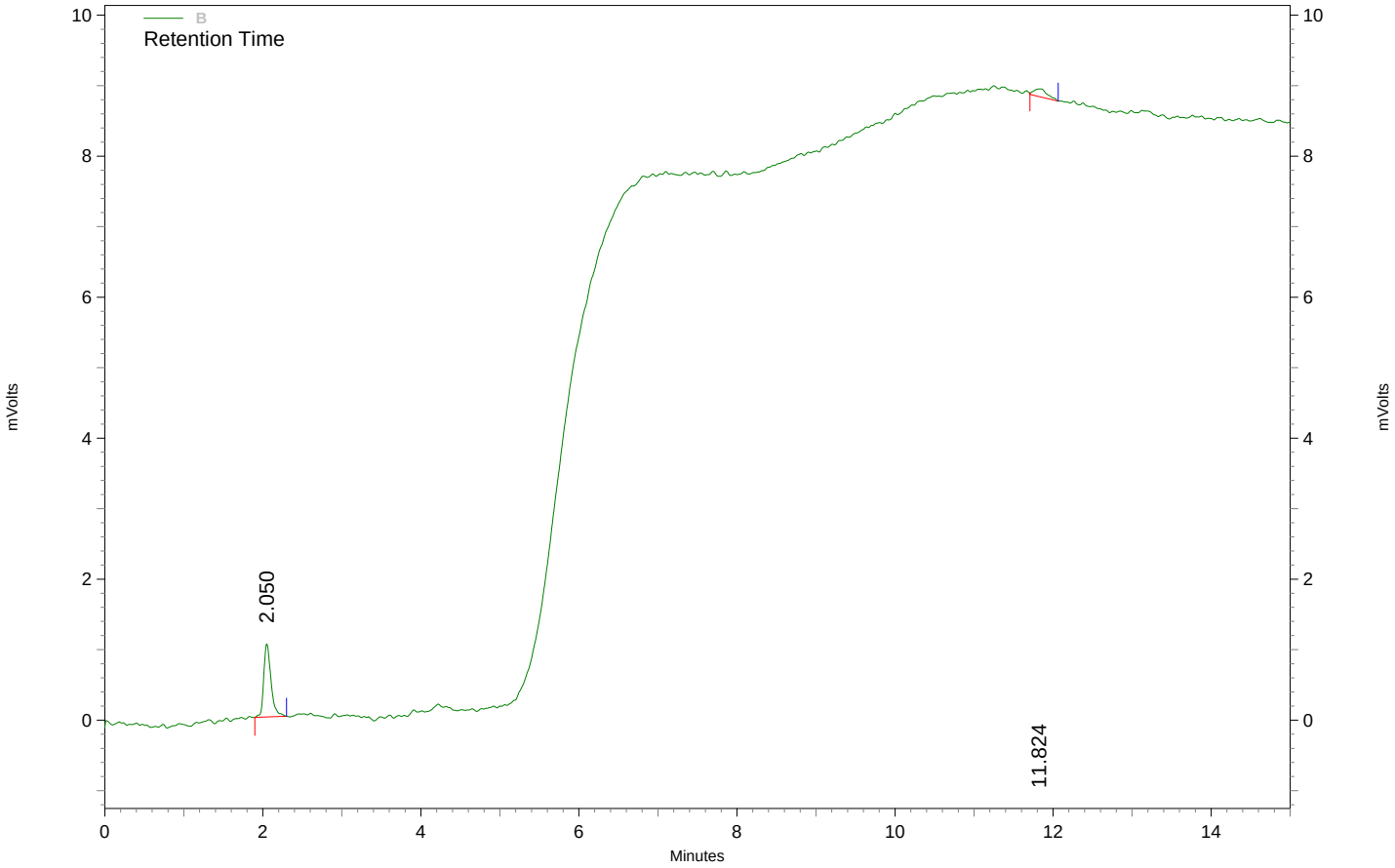


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.050	4516	**0.047**
12-DNB (SSTD)	11.783	684	**7.897**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\003.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 2 exp 4367
Acquired: Jun 16, 2011 12:29:07
Data summary: {Data Description}

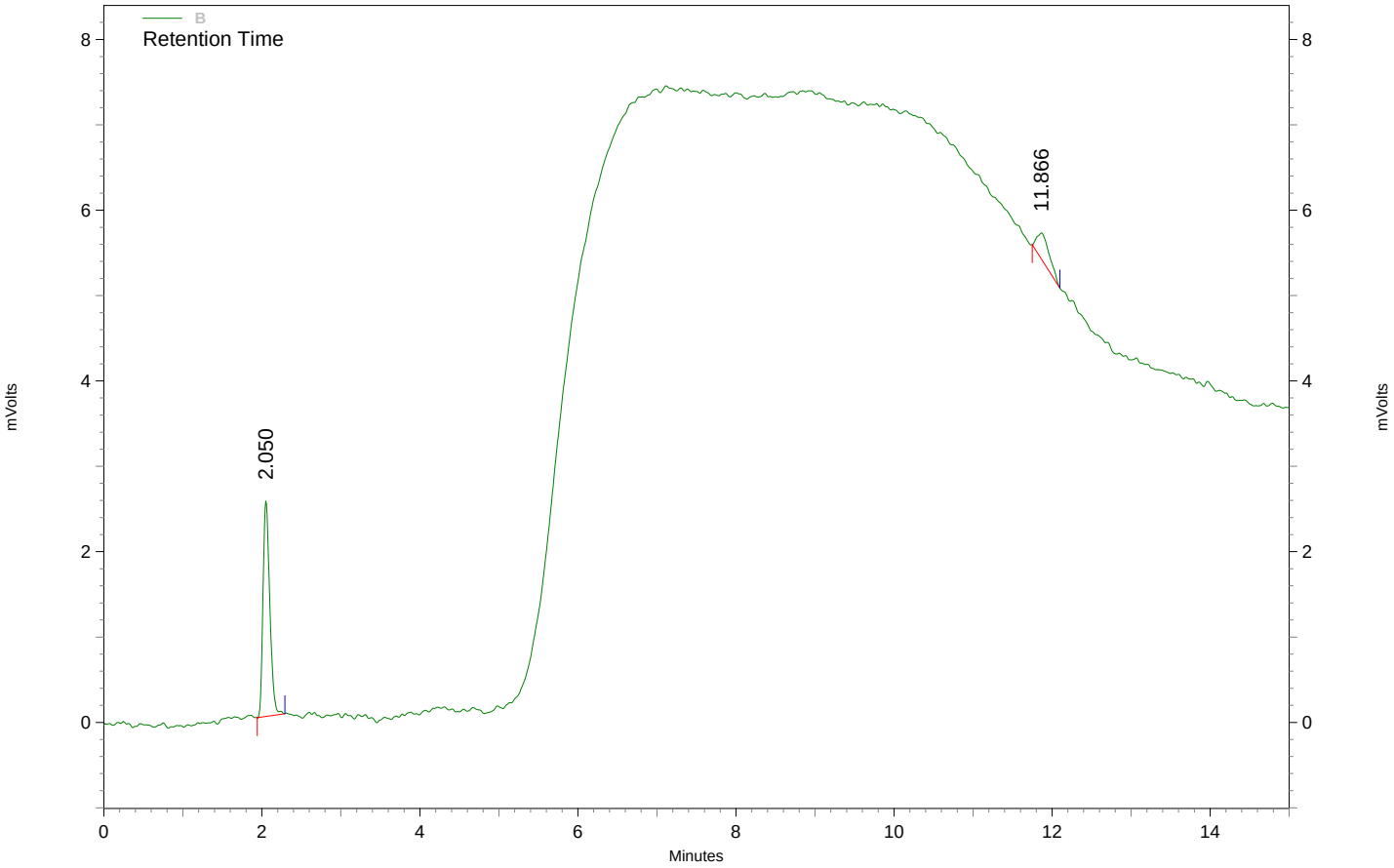


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.050	6608	**0.080 CAL**
12-DNB (SSTD)	11.824	1345	**16.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\004.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 3 exp 4368
Acquired: Jun 16, 2011 12:46:18
Data summary: {Data Description}

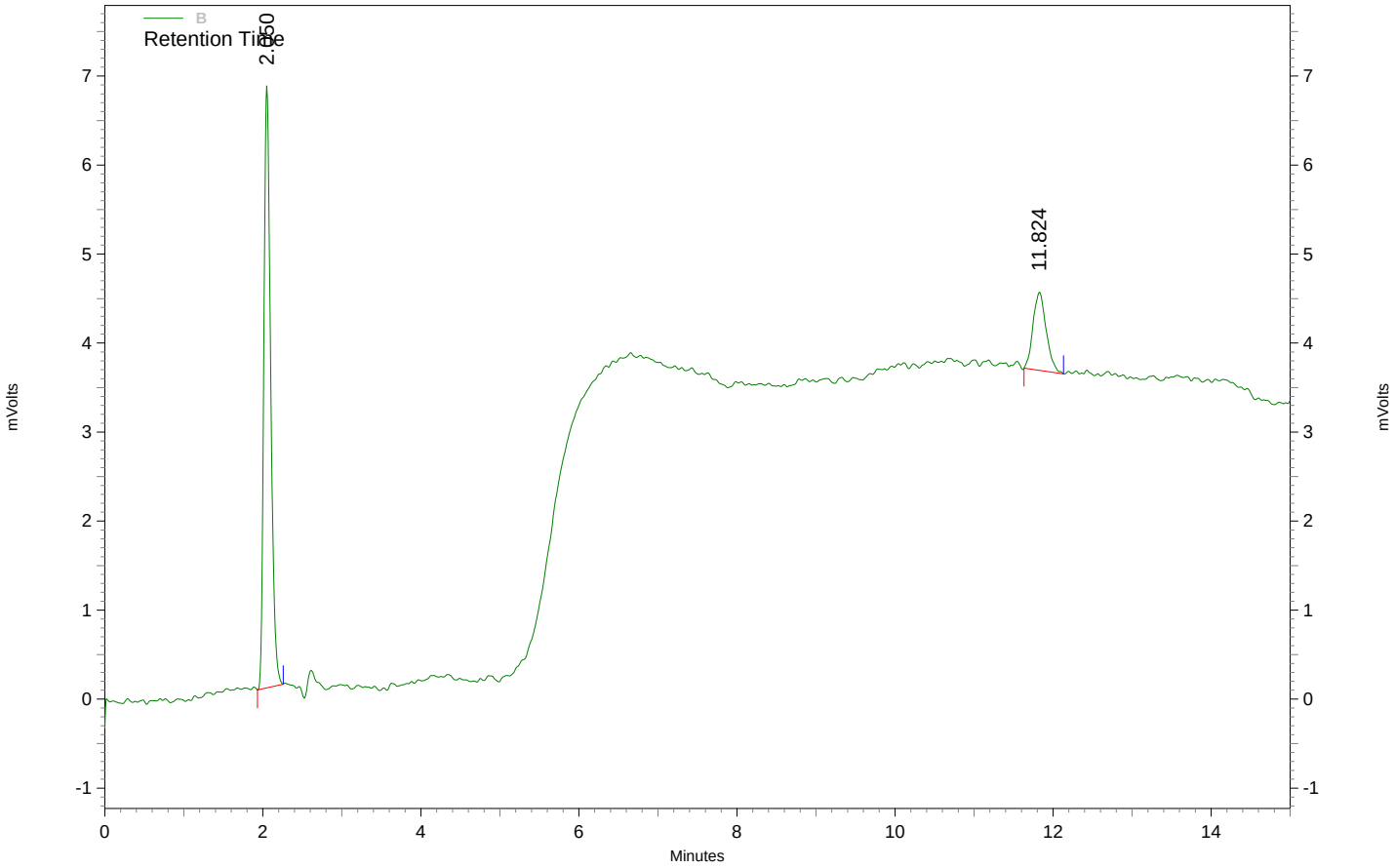


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.050	14970	**0.200 CAL**
12-DNB (SSTD)	11.866	3504	**40.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\005.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 4 exp 4369
Acquired: Jun 16, 2011 13:03:30
Data summary: {Data Description}

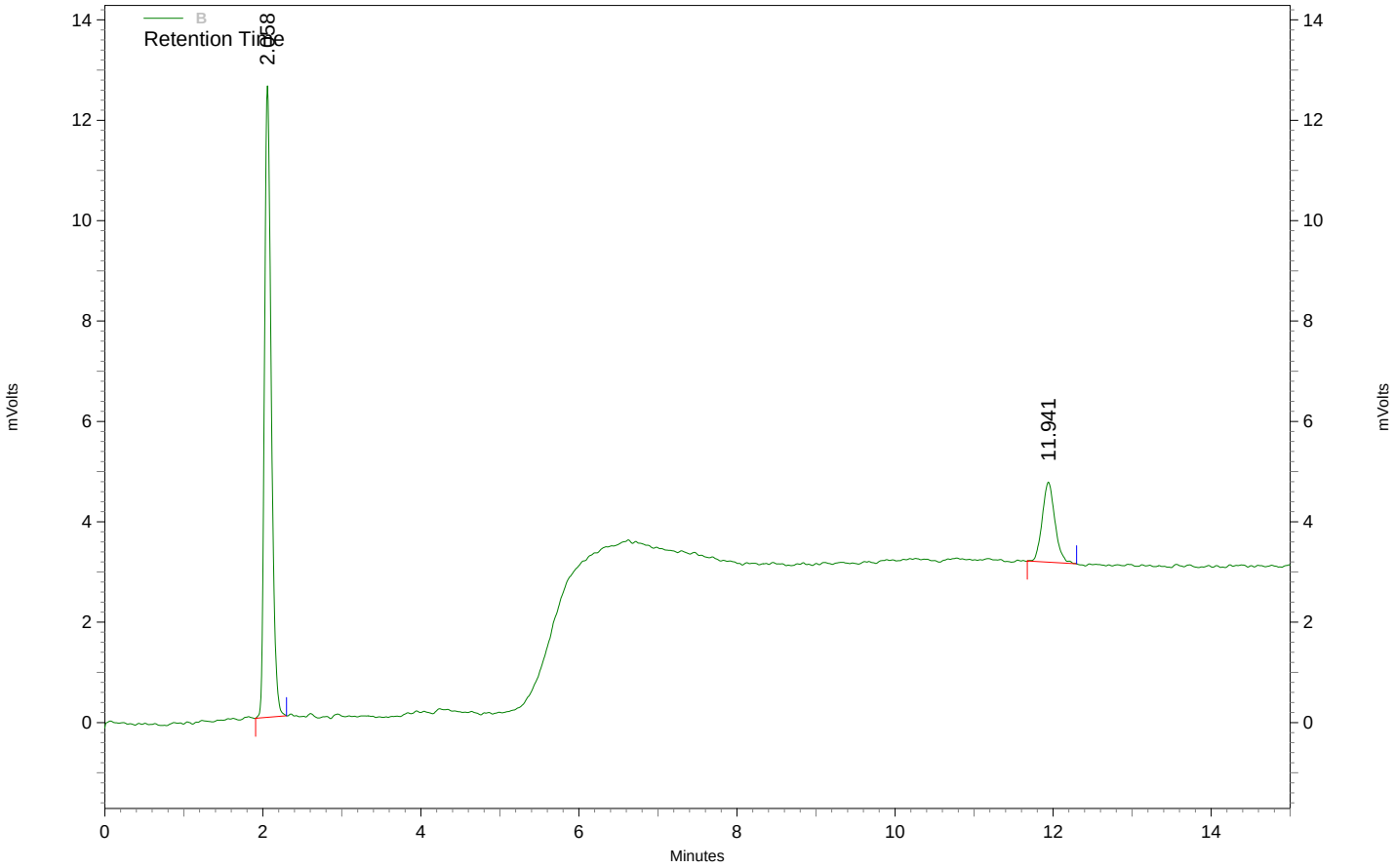


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.050	40384	**0.500 CAL**
12-DNB (SSTD)	11.824	10163	**100.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\006.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 5 exp 4370
Acquired: Jun 16, 2011 13:20:42
Data summary: {Data Description}

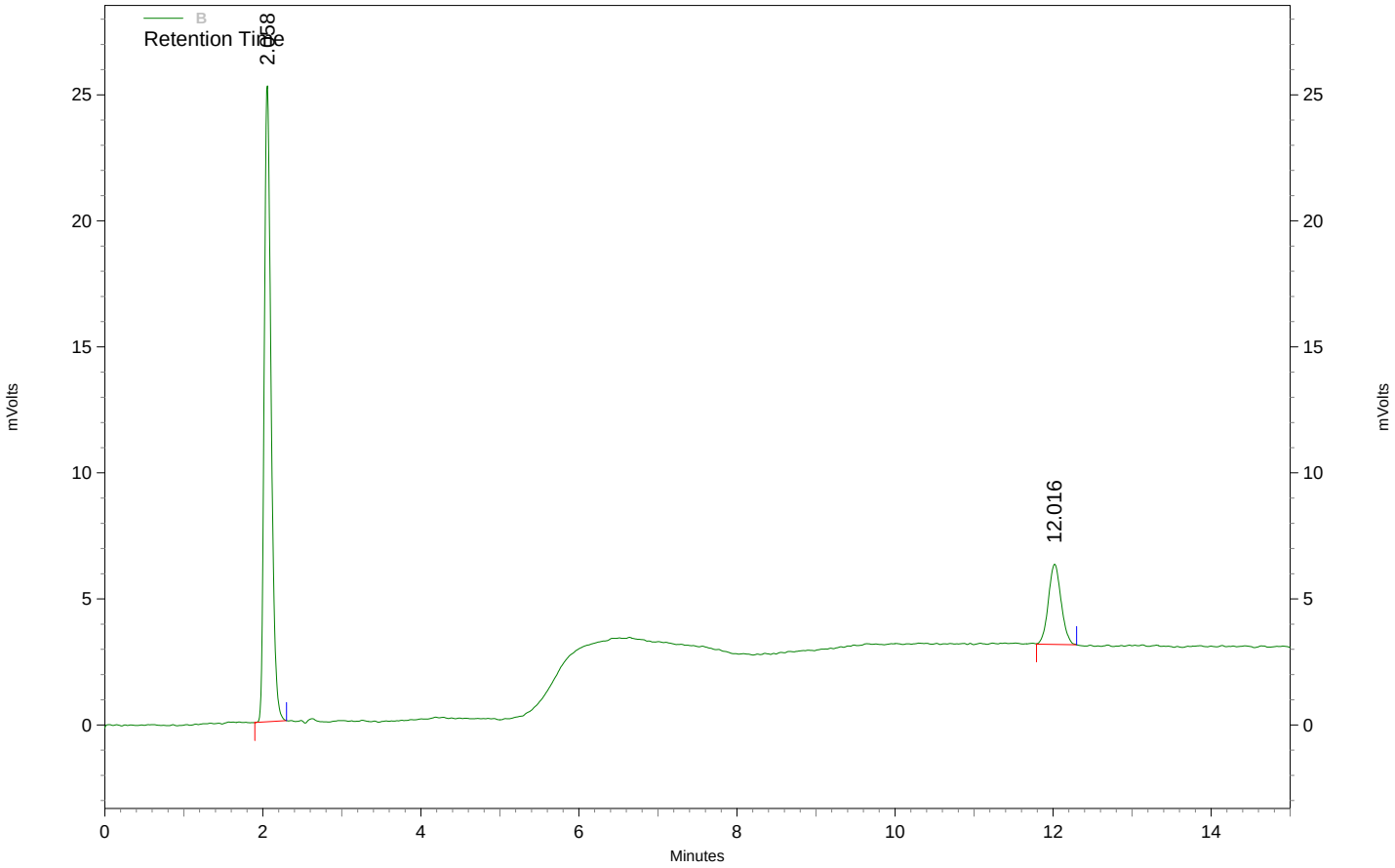


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.058	75033	**1.000 CAL**
12-DNB (SSTD)	11.941	17748	**200.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\007.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 6 exp 4371
Acquired: Jun 16, 2011 13:37:54
Data summary: {Data Description}

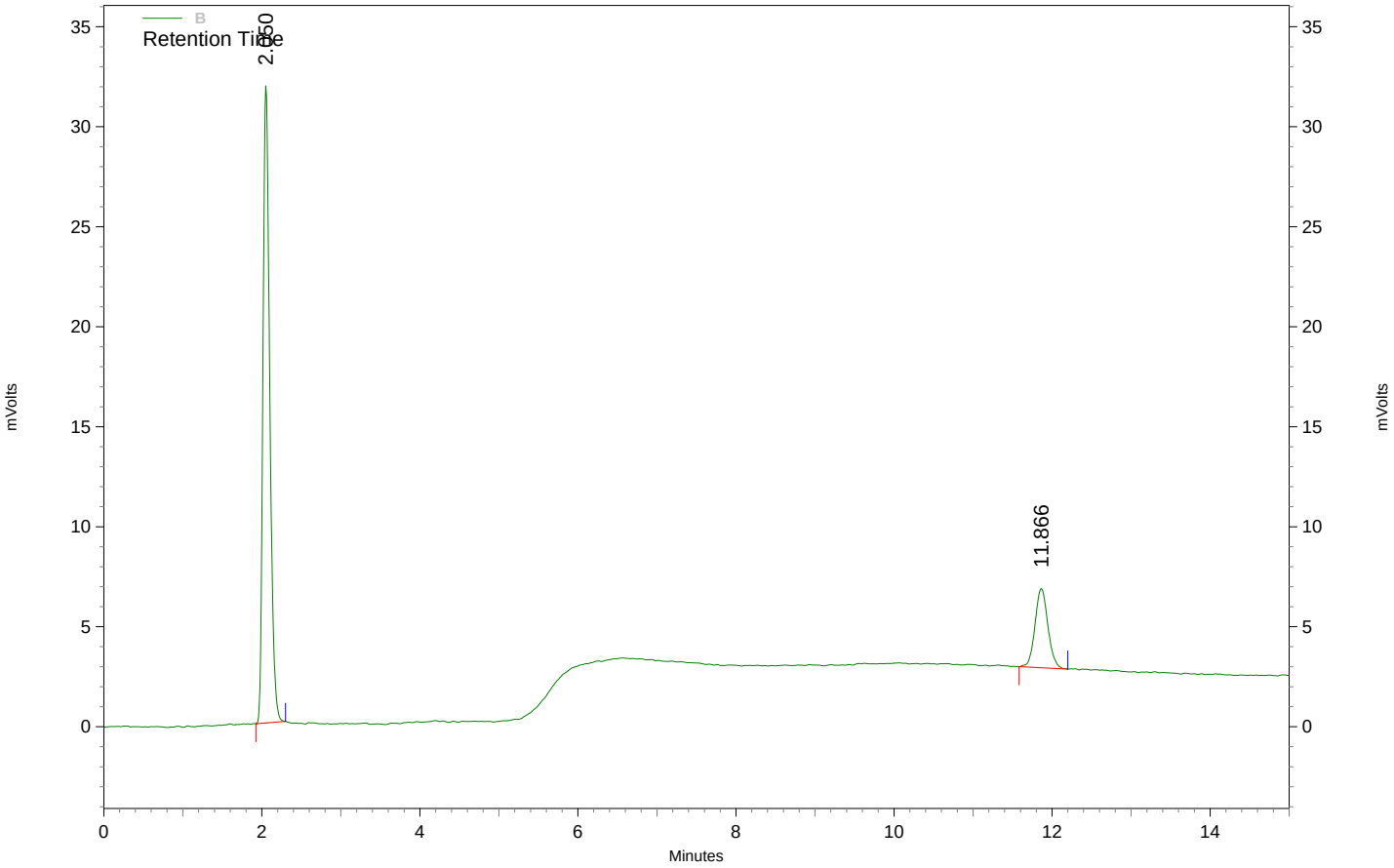


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.058	152059	**2.000 CAL**
12-DNB (SSTD)	12.016	35434	**400.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\008.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq pt 7 exp 4372
Acquired: Jun 16, 2011 13:55:05
Data summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.050	189903	**2.500 CAL**
12-DNB (SSTD)	11.866	44944	**500.000 CAL**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\061611nqic-confirm.seq
User : red
Printed : Jun 28, 2011 14:03:46

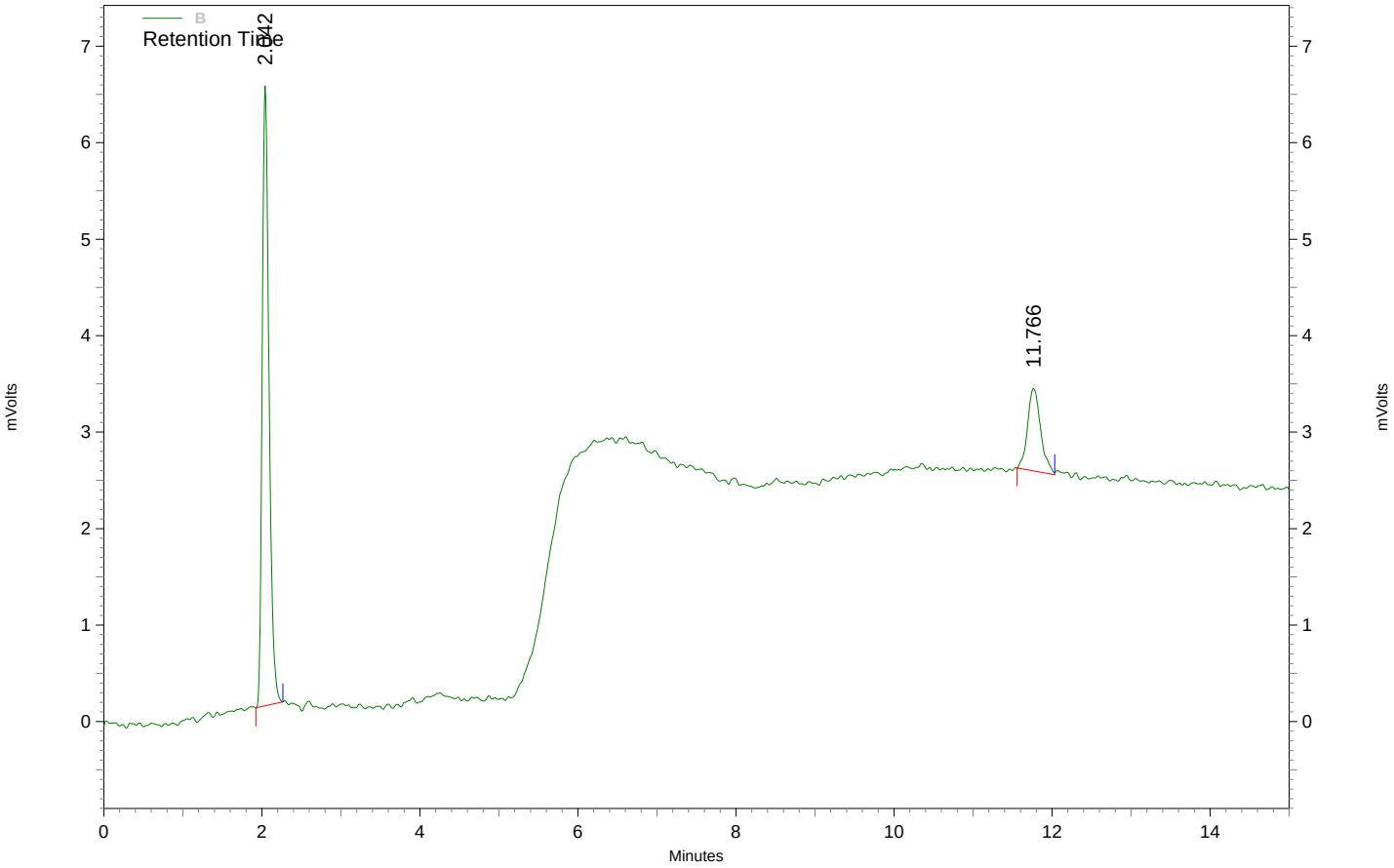
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\061611nqic-confirm\009.dat	nq icv exp 4373	Jun 28, 2011 14:03:46

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.497	0.617	20.000	**Passed**
12-DNB (SSTD)	100.000	109.509	9.509	20.000	**Passed**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\061611nqic-confirm\009.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\061611nqic-confirm.met
User ID: **red**
Sample ID: nq icv exp 4373
Acquired: Jun 16, 2011 14:12:22
Data summary: {Data Description}



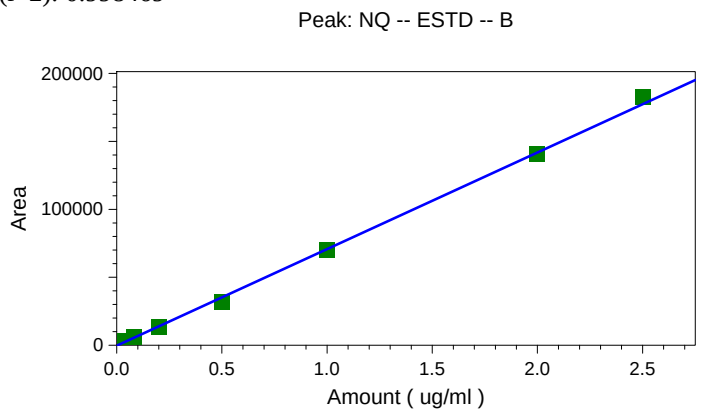
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.042	38447	**0.497**
12-DNB (SSTD)	11.766	9837	**109.509**

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Print Time: Jul 25, 2011 10:14:54
User: srt
Instrument: HPLC 1 (Offline)

NQ (B)
Average RF: 69102.6 RF StDev: 3114.52 RF %RSD: 4.50709
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 71041.4x - 311.627
Goodness of fit (r^2): 0.998469



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	0.04	0.08	0.2	0.5	1
Area	2771	5634	13322	31796	70348
RF	69275	70425	66610	63592	70348
Last Area					
Residual	-0.003392	-0.00369247	0.0080889	0.0480432	0.00537353
Rep StDev					
Rep %RSD					
Rep 1 Area	2771	5634	13322	31796	70348
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\070611nqic-primary\002.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\003.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\004.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\005.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\006.dat
Rep 1 Sample ID	NQ Pt. 1 EXP 4432	NQ Pt. 2 EXP 4433	NQ Pt. 3 EXP 4434	NQ Pt. 4 EXP 4435	NQ Pt. 5 EXP 4436
Rep 1 Calib. Time	Jul 06, 2011 14:17:20	Jul 06, 2011 13:30:22	Jul 06, 2011 13:50:04	Jul 06, 2011 14:02:19	Jul 06, 2011 14:01:56

	Level 6	Level 7
Amount	2	2.5
Area	140488	183061

Calibration Report

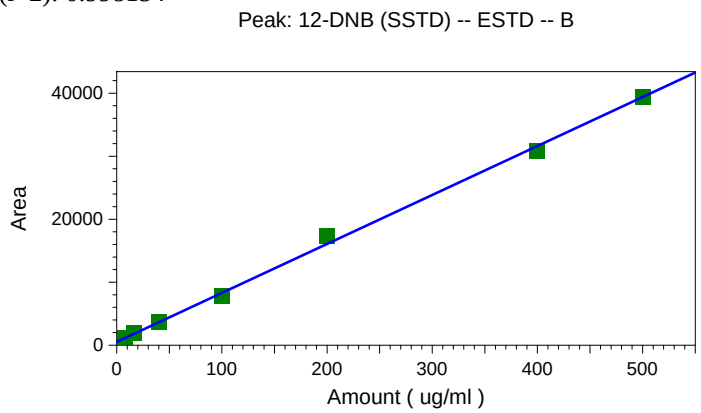
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Print Time: Jul 25, 2011 10:14:54
User: srt
Instrument: HPLC 1 (Offline)

RF	70244	73224.4
Last Area		
Residual	0.0180615	-0.081209
Rep StDev		
Rep %RSD		
Rep 1 Area	140488	183061
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\070611nqic-primary\007.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\008.dat
Rep 1 Sample ID	NQ Pt. 6 EXP 4437	NQ Pt. 7 EXP 4438
Rep 1 Calib. Time	Jul 06, 2011 14:09:05	Jul 06, 2011 14:16:01

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Print Time: Jul 25, 2011 10:14:56
User: srt
Instrument: HPLC 1 (Offline)

12-DNB (SSTD) (B)
Average RF: 95.2275 RF StDev: 22.9843 RF %RSD: 24.1362
Scaling: None LSQ Weighting: 1/Response Force Through Zero: Off
Replicate Mode: Replace
Fit Type: Linear
y = 77.7419x + 526.707
Goodness of fit (r^2): 0.998154



	Level 1	Level 2	Level 3	Level 4	Level 5
Amount	8	16	40	100	200
Area	1082	1914	3621	7837	17367
RF	135.25	119.625	90.525	78.37	86.835
Last Area					
Residual	0.857223	-1.84486	0.197864	5.96712	-16.618
Rep StDev					
Rep %RSD					
Rep 1 Area	1082	1914	3621	7837	17367
Rep 1 User	red	red	red	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\070611nqic-primary\002.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\003.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\004.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\005.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\006.dat
Rep 1 Sample ID	NQ Pt. 1 EXP 4432	NQ Pt. 2 EXP 4433	NQ Pt. 3 EXP 4434	NQ Pt. 4 EXP 4435	NQ Pt. 5 EXP 4436
Rep 1 Calib. Time	Jul 06, 2011 14:17:20	Jul 06, 2011 13:30:22	Jul 06, 2011 13:50:04	Jul 06, 2011 14:02:19	Jul 06, 2011 14:01:56

	Level 6	Level 7
Amount	400	500
Area	30807	39485

Calibration Report

Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Print Time: Jul 25, 2011 10:14:56
User: srt
Instrument: HPLC 1 (Offline)

RF	77.0175	78.97
Last Area		
Residual	10.5022	-1.12362
Rep StDev		
Rep %RSD		
Rep 1 Area	30807	39485
Rep 1 User	red	red
Rep 1 Data File	C:\Instarch\HPLC 1\Data\070611nqic-primary\007.dat	C:\Instarch\HPLC 1\Data\070611nqic-primary\008.dat
Rep 1 Sample ID	NQ Pt. 6 EXP 4437	NQ Pt. 7 EXP 4438
Rep 1 Calib. Time	Jul 06, 2011 14:09:05	Jul 06, 2011 14:16:01

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\070611nqic-primary.seq
User : srt
Printed : Jul 25, 2011 10:13:57

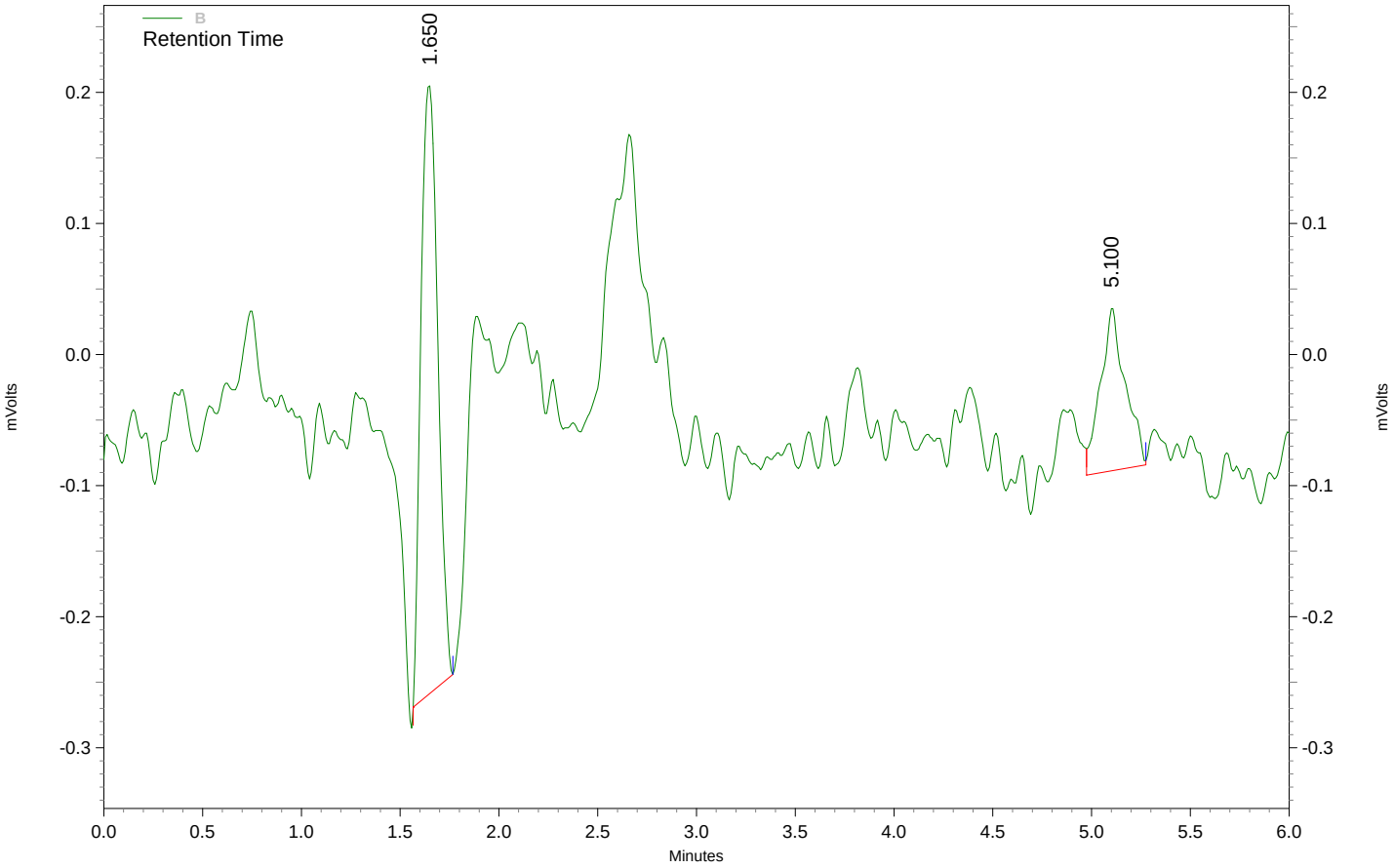
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\070611nqic-primary\002.dat	NQ Pt. 1 EXP 4432	Jul 25, 2011 10:13:56

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.040	0.043	8.480	20.000	Passed
12-DNB (SSTD)	8.000	7.143	10.715	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\002.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 1 EXP 4432
Acquired: Jul 06, 2011 13:08:10
Data Summary: {Data Description}

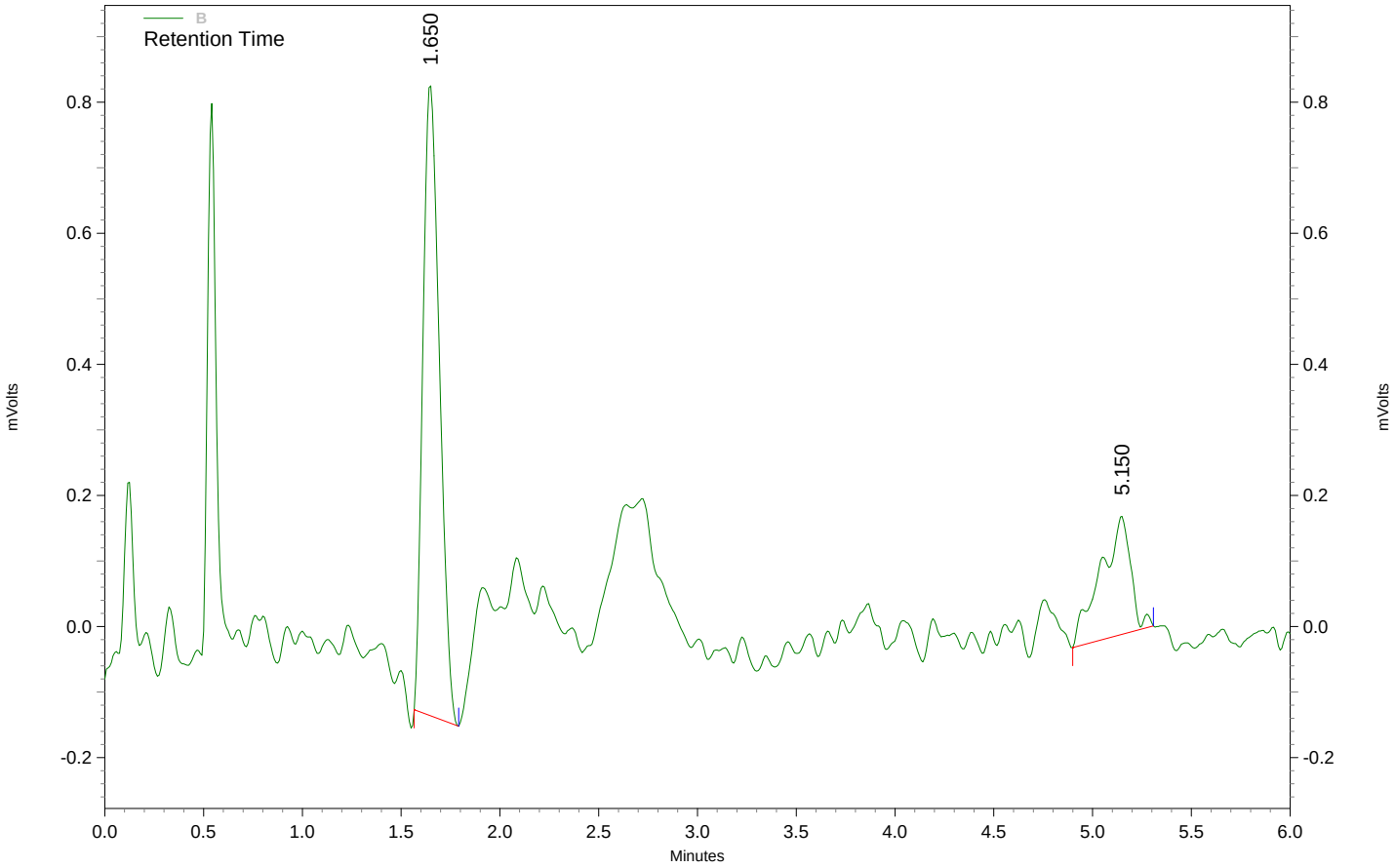


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	2771	**0.043**
12-DNB (SSTD)	5.100	1082	**7.143**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\003.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 2 EXP 4433
Acquired: Jul 06, 2011 13:18:01
Data Summary: {Data Description}

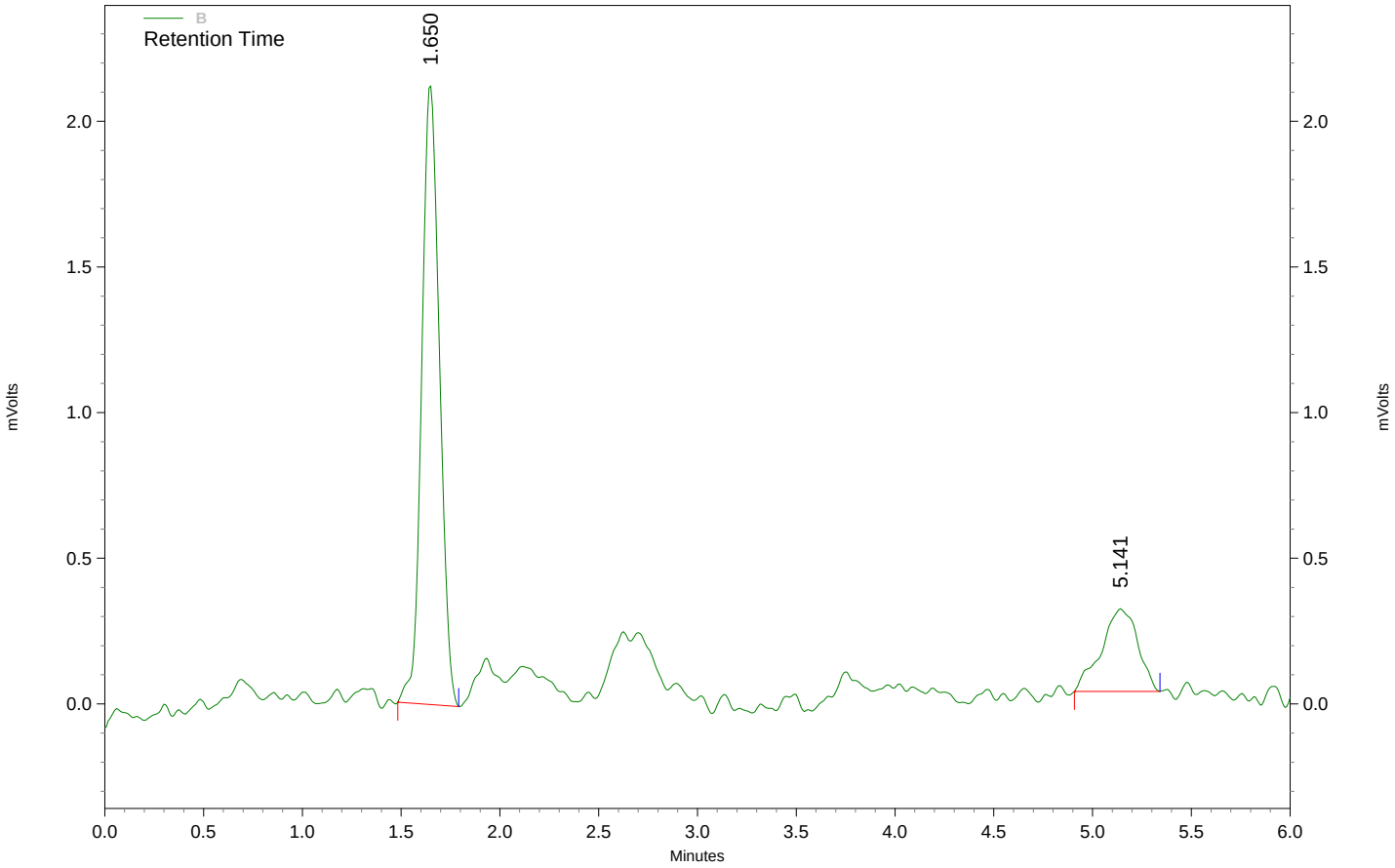


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	5634	**0.080 CAL**
12-DNB (SSTD)	5.150	1914	**16.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\004.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 3 EXP 4434
Acquired: Jul 06, 2011 13:34:10
Data Summary: {Data Description}

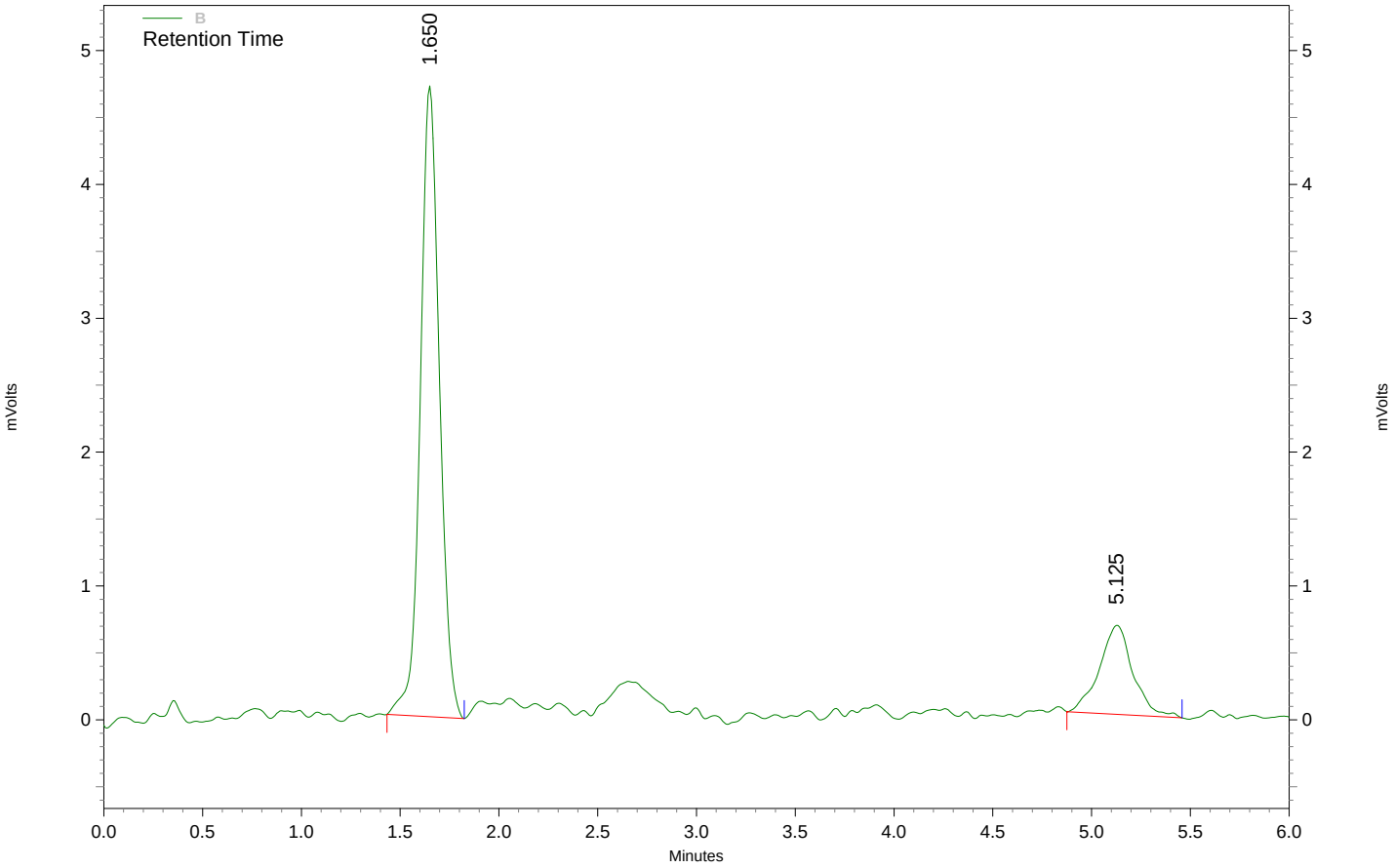


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	13322	**0.200 CAL**
12-DNB (SSTD)	5.141	3621	**40.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\005.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 4 EXP 4435
Acquired: Jul 06, 2011 13:41:58
Data Summary: {Data Description}

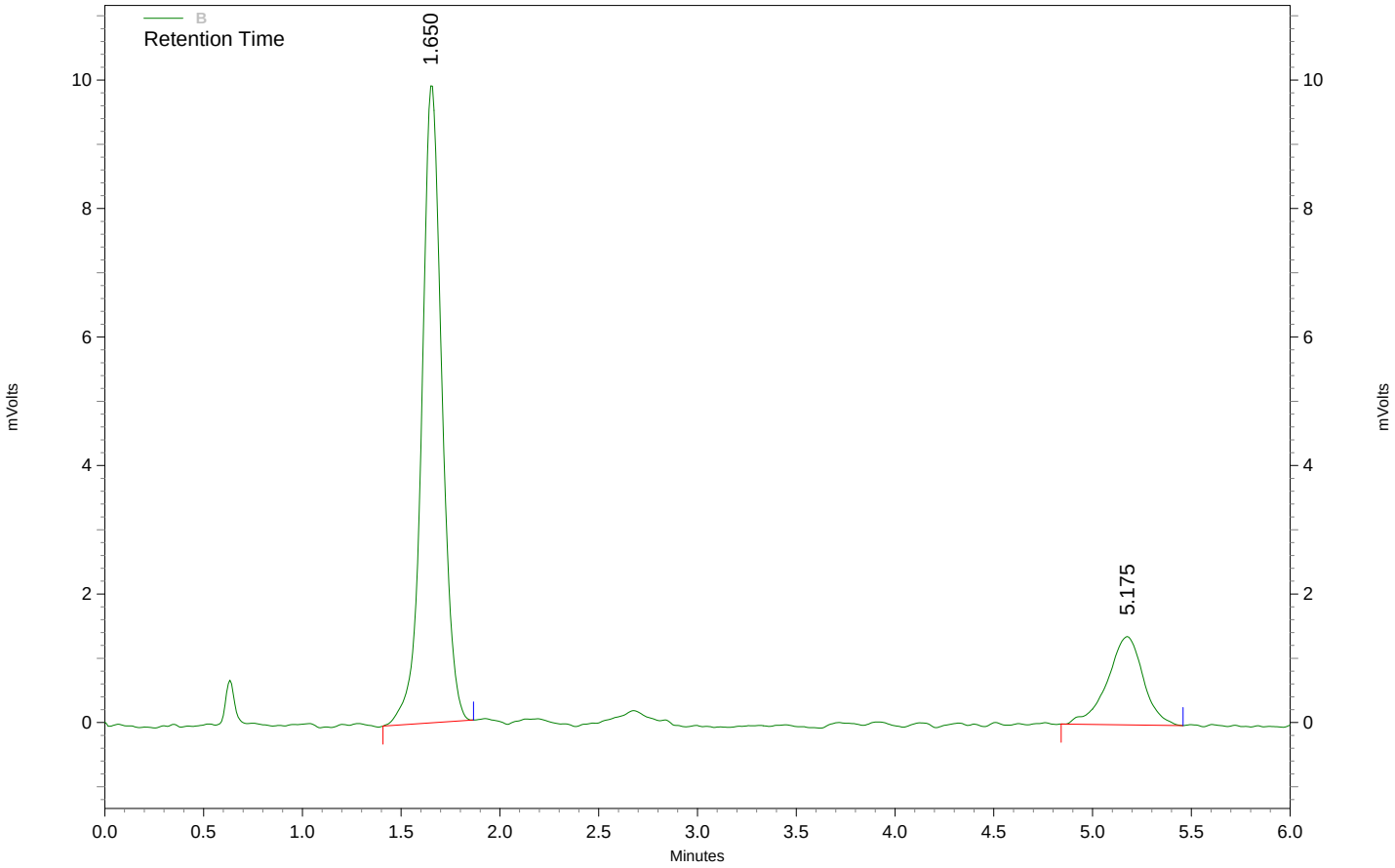


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	31796	**0.500 CAL**
12-DNB (SSTD)	5.125	7837	**100.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\006.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 5 EXP 4436
Acquired: Jul 06, 2011 13:49:47
Data Summary: {Data Description}

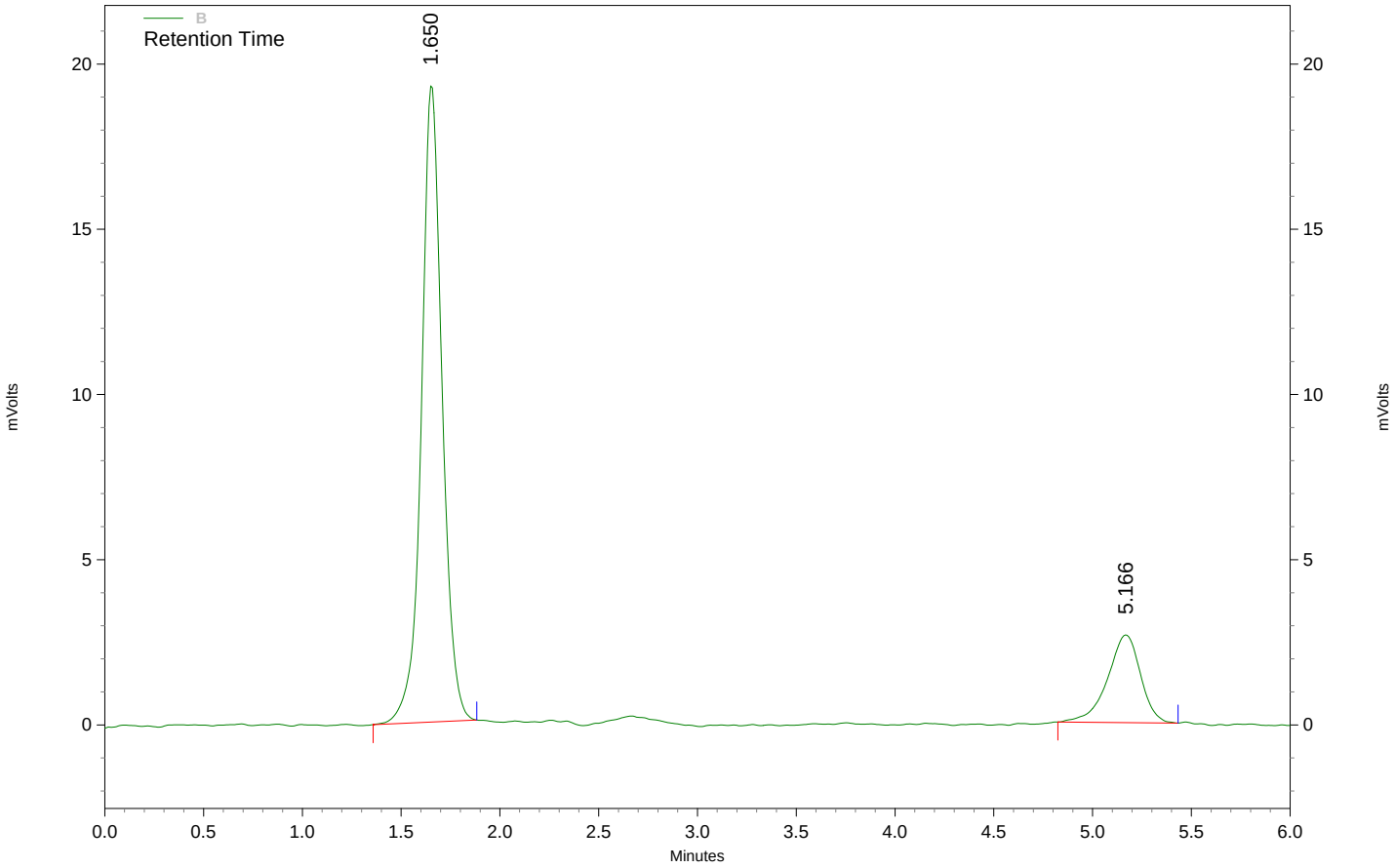


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	70348	**1.000 CAL**
12-DNB (SSTD)	5.175	17367	**200.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\007.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 6 EXP 4437
Acquired: Jul 06, 2011 13:57:35
Data Summary: {Data Description}

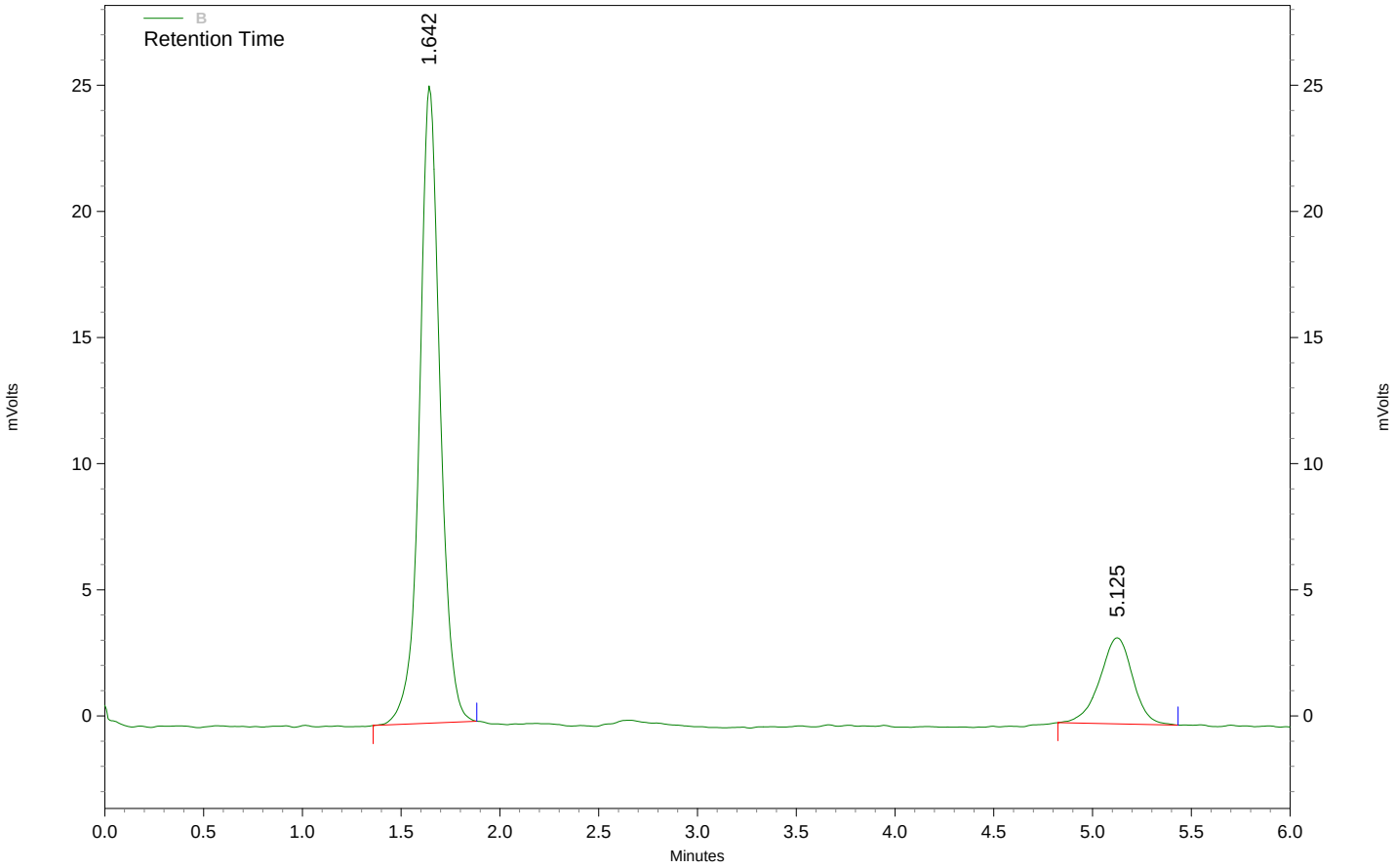


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	140488	**2.000 CAL**
12-DNB (SSTD)	5.166	30807	**400.000 CAL**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\008.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ Pt. 7 EXP 4438
Acquired: Jul 06, 2011 14:05:23
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.642	183061	**2.500 CAL**
12-DNB (SSTD)	5.125	39485	**500.000 CAL**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\070611nqic-primary.seq
User : srt
Printed : Jul 25, 2011 10:14:12

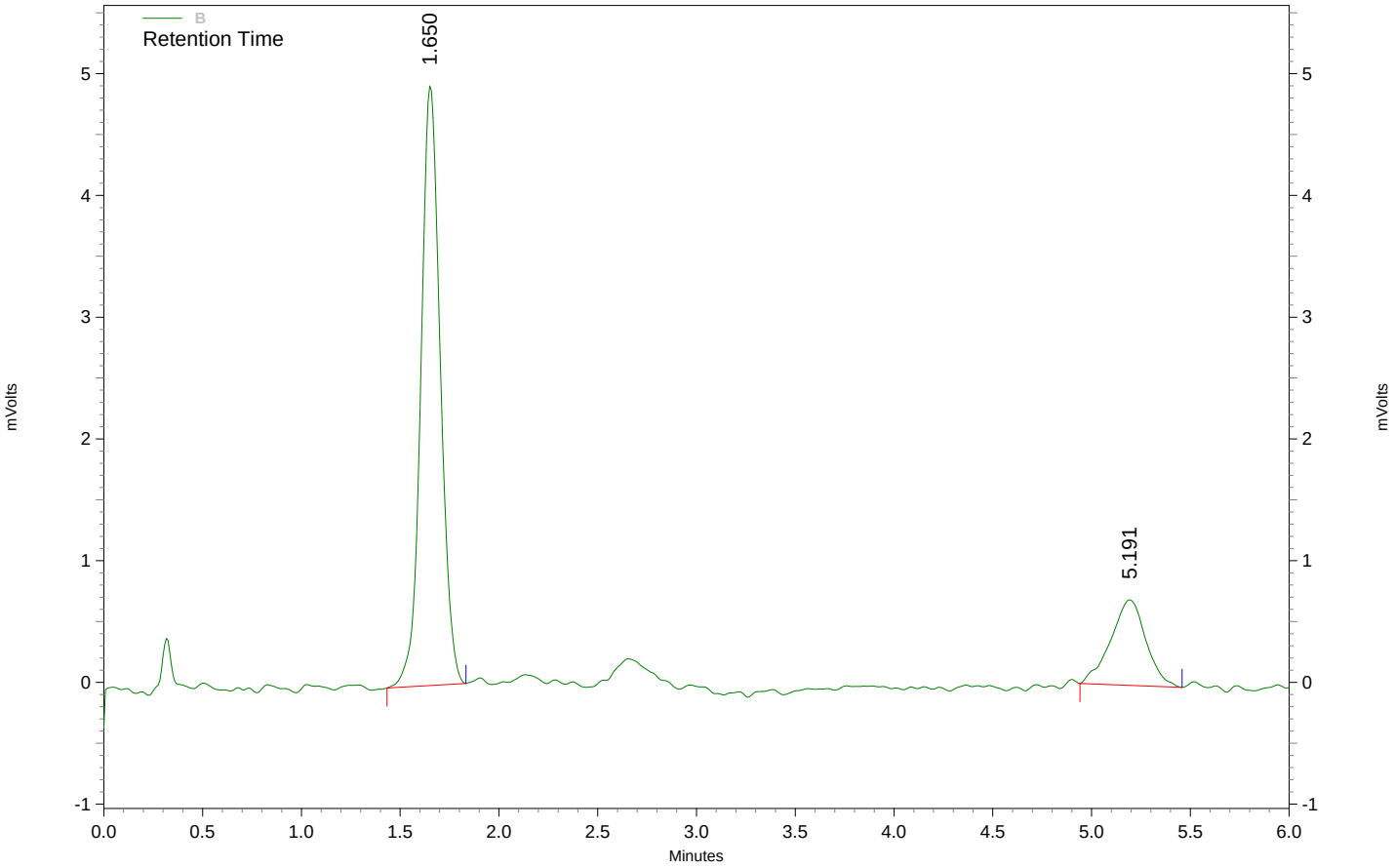
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\070611nqic-primary\009.dat	NQ ICV EXP 4439	Jul 25, 2011 10:14:11

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.479	4.248	20.000	Passed
12-DNB (SSTD)	100.000	105.172	5.172	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\070611nqic-primary\009.dat
User ID: srt
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\070611nqic-primary.met
Sample ID: NQ ICV EXP 4439
Acquired: Jul 06, 2011 14:13:13
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.650	33700	**0.479**
12-DNB (SSTD)	5.191	8703	**105.172**

NITROAROMATICS ANALYSIS
CONTINUING CALIBRATION
DOCUMENTS

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082111expic-primary.seq
User : red
Printed : Aug 22, 2011 14:54:39

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082111expic-primary\010.dat	8330 CCV EXP 4497	Aug 22, 2011 14:54:38

A

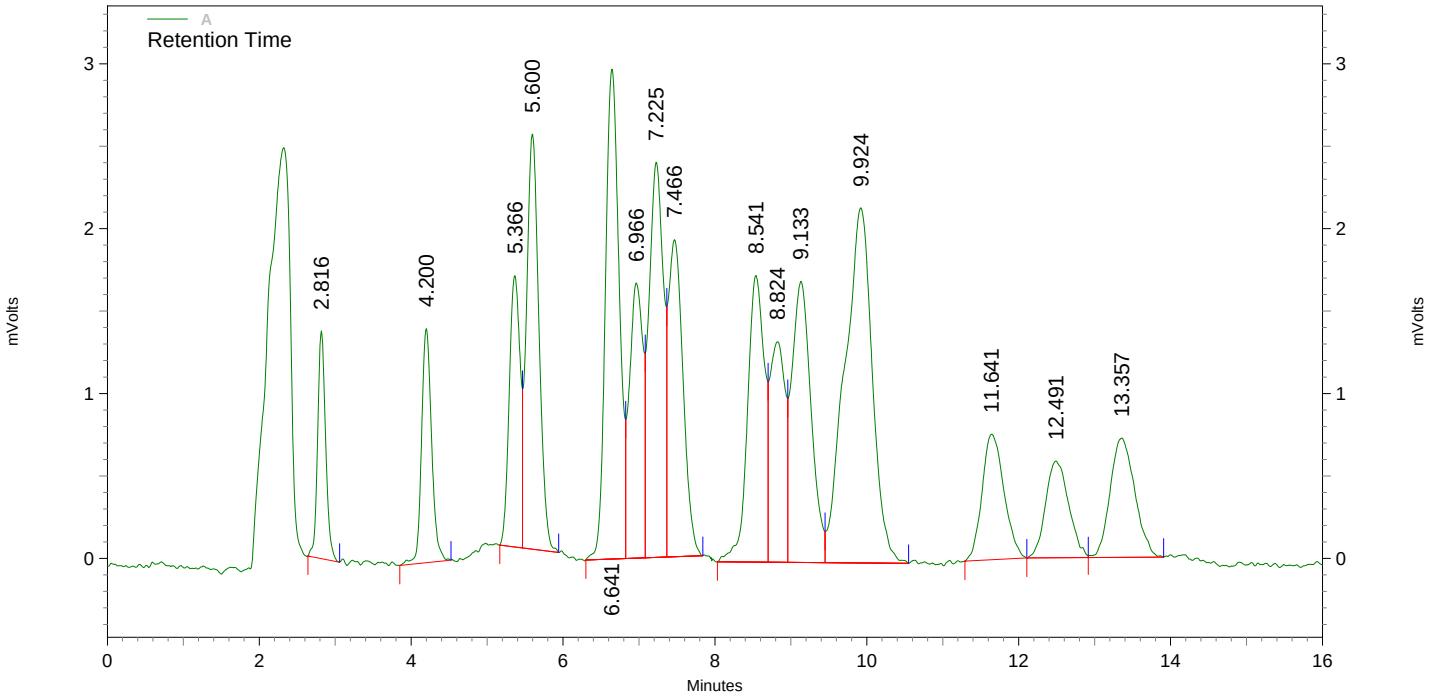
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.500	0.494	1.207	20.000	Passed
RDX	0.500	0.468	6.351	20.000	Passed
12-DNB (SSTD)	100.000	99.396	0.604	20.000	Passed
135-TNB	0.500	0.486	2.837	20.000	Passed
13-DNB	0.500	0.483	3.394	20.000	Passed
TETRYL	0.500	0.494	1.121	20.000	Passed
35-DNA	0.500	0.500	0.025	20.000	Passed
NB	0.500	0.474	5.284	20.000	Passed
246-TNT	0.500	0.501	0.214	20.000	Passed
4-AM-26-DNT	0.500	0.470	5.969	20.000	Passed
2-AM-46-DNT	0.500	0.502	0.400	20.000	Passed
2-NT	0.500	0.472	5.584	20.000	Passed
4-NT	0.500	0.473	5.377	20.000	Passed
3-NT	0.500	0.481	3.833	20.000	Passed

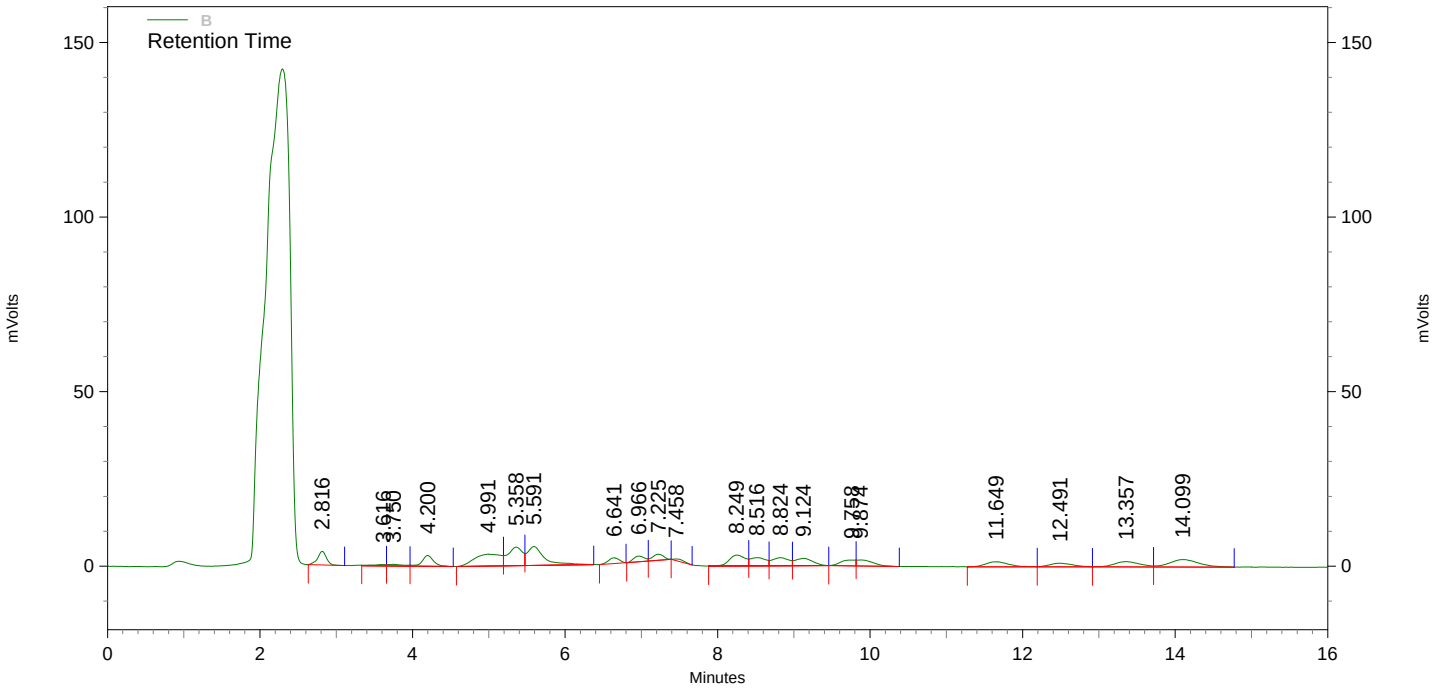
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	2.000	1.997	0.140	20.000	Passed
26-DNT	0.500	0.514	2.772	20.000	Passed
24-DNT	0.500	0.464	7.185	20.000	Passed
PETN	2.000	2.091	4.552	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\010.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 CCV EXP 4497
Acquired: Aug 21, 2011 16:48:21
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	10123	**0.494**
RDX	4.200	13054	**0.468**
12-DNB (SSTD)	5.366	16307	**99.396**
135-TNB	5.600	28793	**0.486**
13-DNB	6.641	37387	**0.483**
TETRYL	6.966	20800	**0.494**
35-DNA	7.225	31885	**0.500**
NB	7.466	25875	**0.474**
246-TNT	8.541	26967	**0.501**
4-AM-26-DNT	8.824	18564	**0.470**
2-AM-46-DNT	9.133	30277	**0.502**
2-NT	11.641	15235	**0.472**
4-NT	12.491	12370	**0.473**
3-NT	13.357	16297	**0.481**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.249	45016	**1.997**
26-DNT	9.758	22053	**0.514**
24-DNT	9.874	26117	**0.464**
PETN	14.099	56442	**2.091**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082111expic-primary.seq
User : red
Printed : Aug 22, 2011 14:55:00

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082111expic-primary\021.dat	8330 CCV EXP 4497	Aug 22, 2011 14:55:00

A

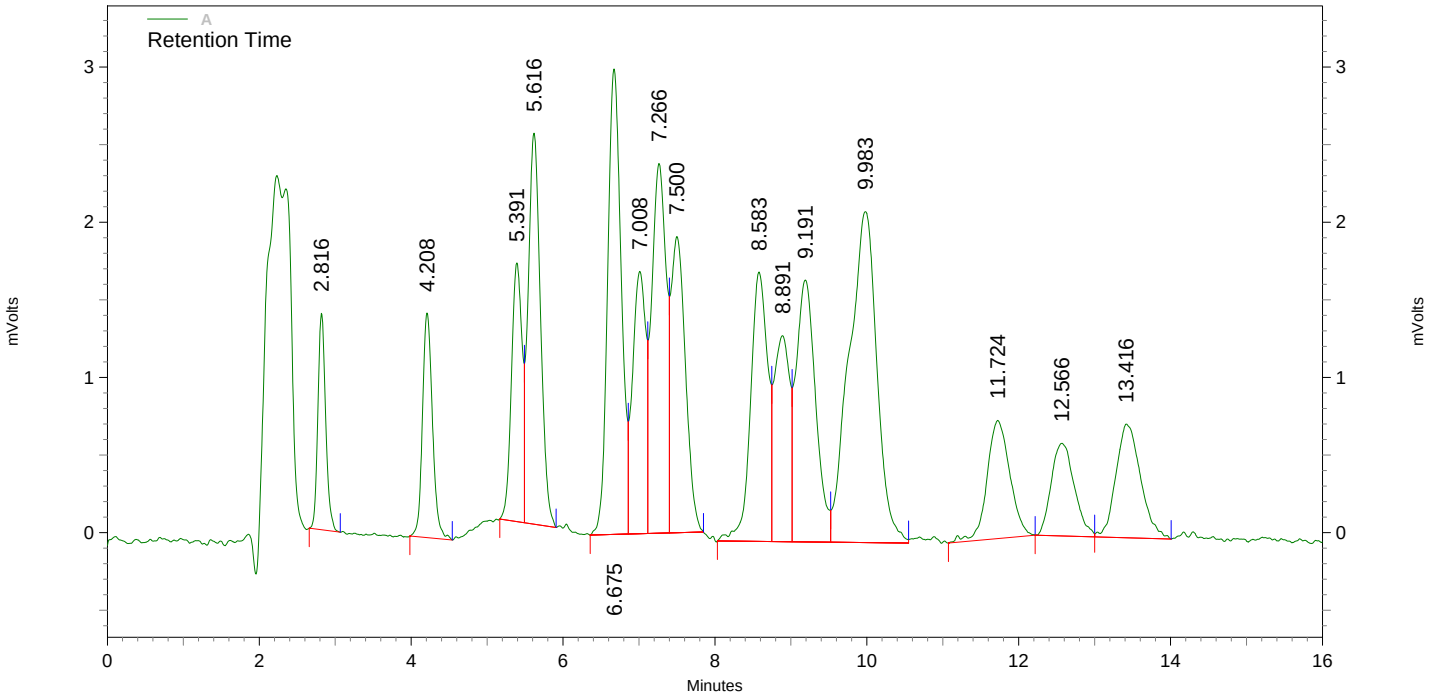
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.500	0.486	2.897	20.000	Passed
RDX	0.500	0.475	5.025	20.000	Passed
12-DNB (SSTD)	100.000	99.070	0.930	20.000	Passed
135-TNB	0.500	0.482	3.636	20.000	Passed
13-DNB	0.500	0.482	3.565	20.000	Passed
TETRYL	0.500	0.486	2.774	20.000	Passed
35-DNA	0.500	0.499	0.180	20.000	Passed
NB	0.500	0.466	6.841	20.000	Passed
246-TNT	0.500	0.508	1.671	20.000	Passed
4-AM-26-DNT	0.500	0.475	5.090	20.000	Passed
2-AM-46-DNT	0.500	0.502	0.363	20.000	Passed
2-NT	0.500	0.493	1.386	20.000	Passed
4-NT	0.500	0.481	3.785	20.000	Passed
3-NT	0.500	0.489	2.252	20.000	Passed

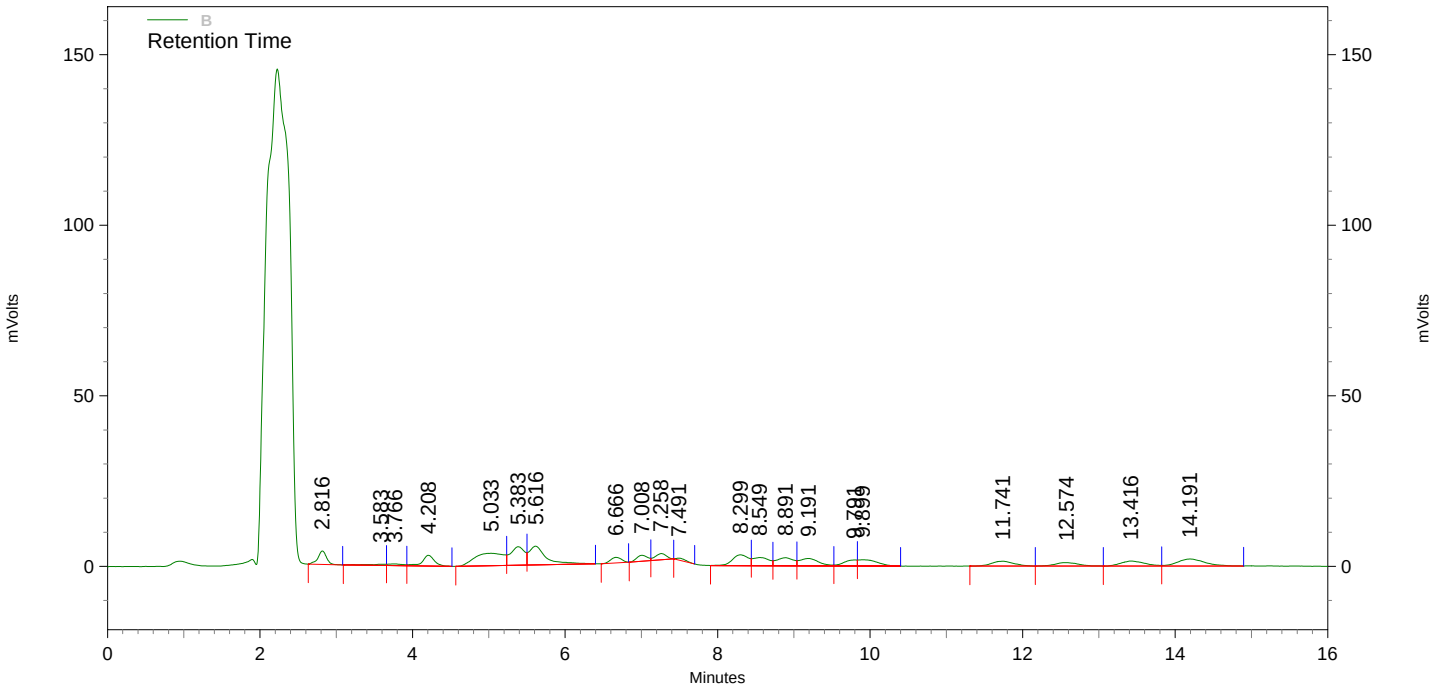
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	2.000	2.001	0.046	20.000	Passed
26-DNT	0.500	0.474	5.127	20.000	Passed
24-DNT	0.500	0.561	12.124	20.000	Passed
PETN	2.000	1.853	7.355	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\021.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 8330 CCV EXP 4497
Acquired: Aug 21, 2011 20:09:38
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	9958	**0.486**
RDX	4.208	13225	**0.475**
12-DNB (SSTD)	5.391	16257	**99.070**
135-TNB	5.616	28559	**0.482**
13-DNB	6.675	37323	**0.482**
TETRYL	7.008	20464	**0.486**
35-DNA	7.266	31838	**0.499**
NB	7.500	25453	**0.466**
246-TNT	8.583	27351	**0.508**
4-AM-26-DNT	8.891	18730	**0.475**
2-AM-46-DNT	9.191	30266	**0.502**
2-NT	11.724	15882	**0.493**
4-NT	12.566	12572	**0.481**
3-NT	13.416	16558	**0.489**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.299	45096	**2.001**
26-DNT	9.791	20475	**0.474**
24-DNT	9.899	31852	**0.561**
PETN	14.191	50025	**1.853**

After Manual Integration

QC Check Standard Report

HHK 08/26/2011 Page RED 08/26/2011

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082311exp-primary.seq
User : red
Printed : Aug 24, 2011 09:00:25

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082311exp-primary\013.dat	8330 CCV EXP 4502	Aug 24, 2011 09:00:25

A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.500	0.539	7.897	20.000	Passed
RDX	0.500	0.512	2.435	20.000	Passed
12-DNB (SSTD)	100.000	106.296	6.296	20.000	Passed
135-TNB	0.500	0.536	7.210	20.000	Passed
13-DNB	0.500	0.544	8.784	20.000	Passed
TETRYL	0.500	0.465	7.089	20.000	Passed
35-DNA	0.500	0.534	6.722	20.000	Passed
NB	0.500	0.544	8.732	20.000	Passed
246-TNT	0.500	0.542	8.474	20.000	Passed
4-AM-26-DNT	0.500	0.504	0.716	20.000	Passed
2-AM-46-DNT	0.500	0.542	8.437	20.000	Passed
2-NT	0.500	0.486	2.742	20.000	Passed
4-NT	0.500	0.496	0.869	20.000	Passed
3-NT	0.500	0.527	5.486	20.000	Passed

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	2.000	1.952	2.425	20.000	Passed
26-DNT	0.500	0.483	3.325	20.000	Passed
24-DNT	0.500	0.523	4.592	20.000	Passed
PETN	2.000	1.957	2.148	20.000	Passed

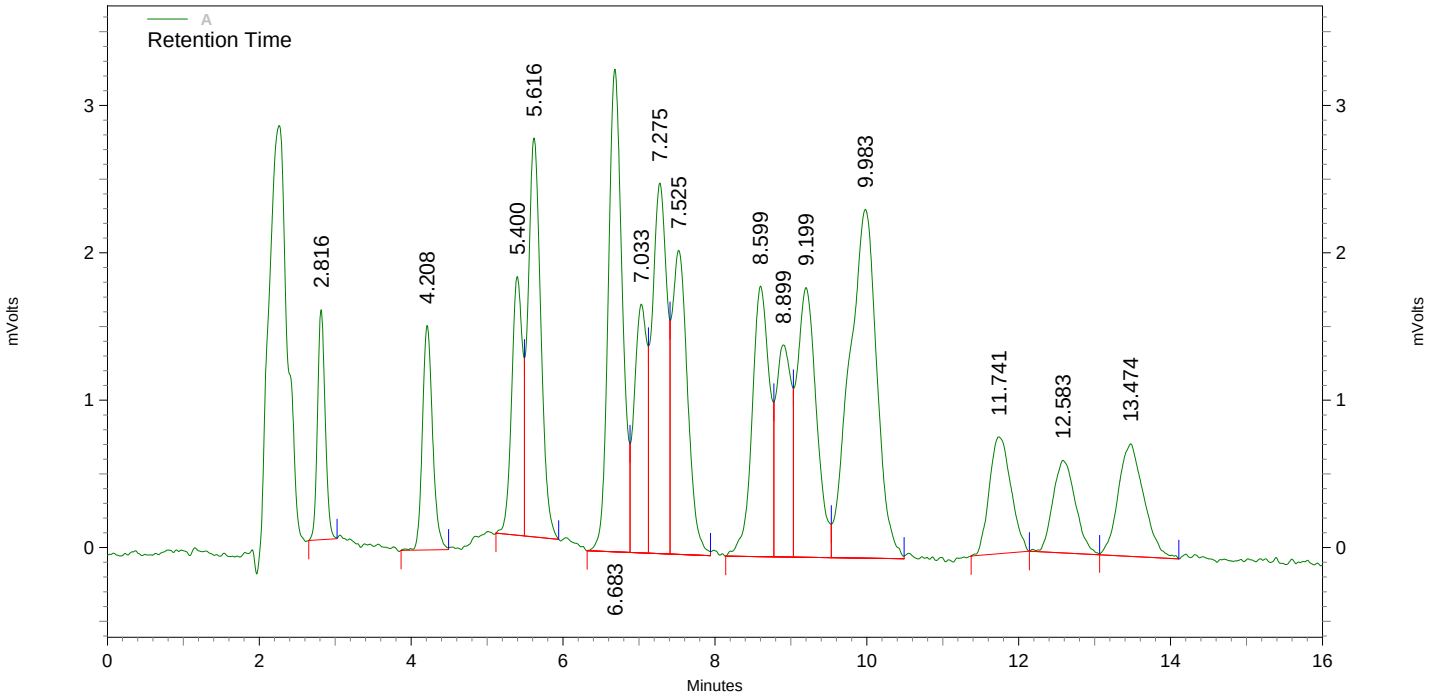
After Manual Integration

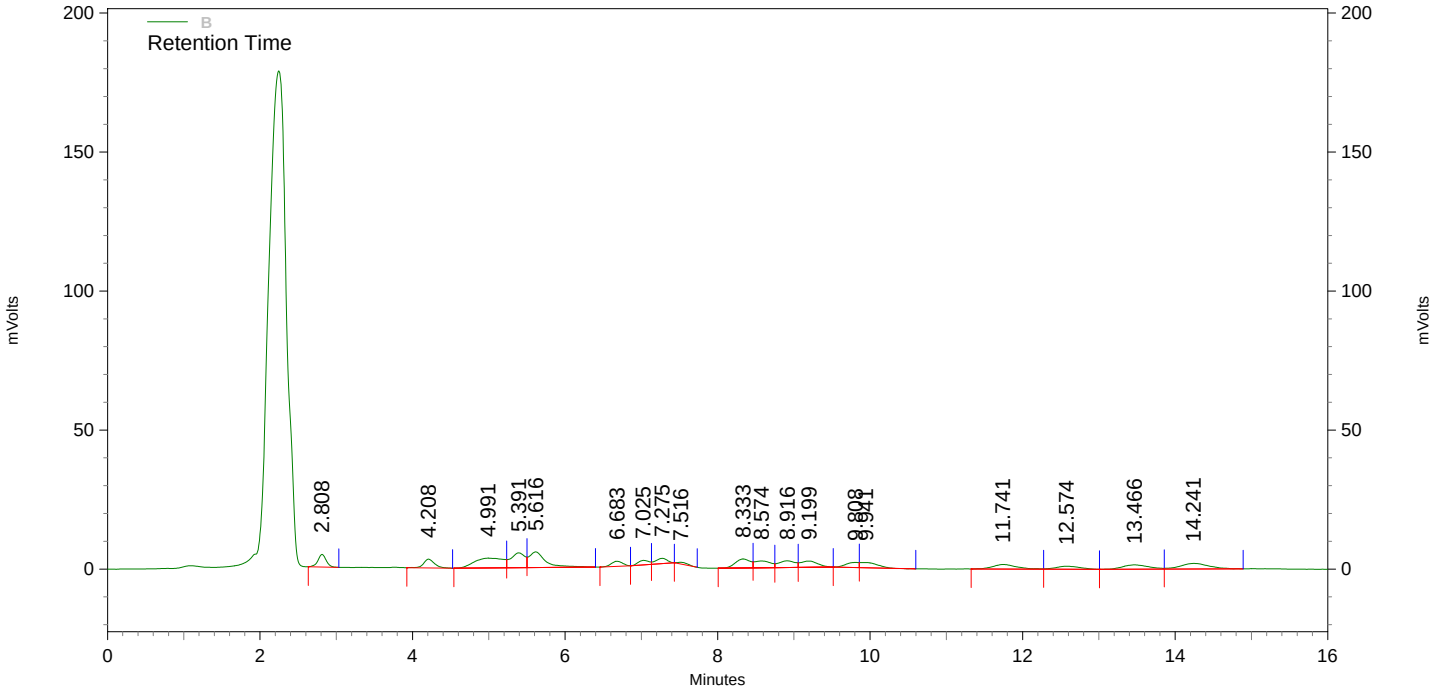
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\013.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 8330 CCV EXP 4502
Acquired: Aug 23, 2011 13:17:11
Data Summary: Reason #3,#4 applies to data. RED 8/23/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	11012	**0.539**
RDX	4.208	14187	**0.512**
12-DNB (SSTD)	5.400	17365	**106.296**
135-TNB	5.616	31734	**0.536**
13-DNB	6.683	41952	**0.544**
TETRYL	7.033	19587	**0.465**
35-DNA	7.275	33929	**0.534**
NB	7.525	29675	**0.544**
246-TNT	8.599	29143	**0.542**
4-AM-26-DNT	8.899	19827	**0.504**
2-AM-46-DNT	9.199	32636	**0.542**
2-NT	11.741	15673	**0.486**
4-NT	12.583	12942	**0.496**
3-NT	13.474	17836	**0.527**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.333	44031	**1.952**
26-DNT	9.808	20835	**0.483**
24-DNT	9.941	29615	**0.523**
PETN	14.241	52831	**1.957**

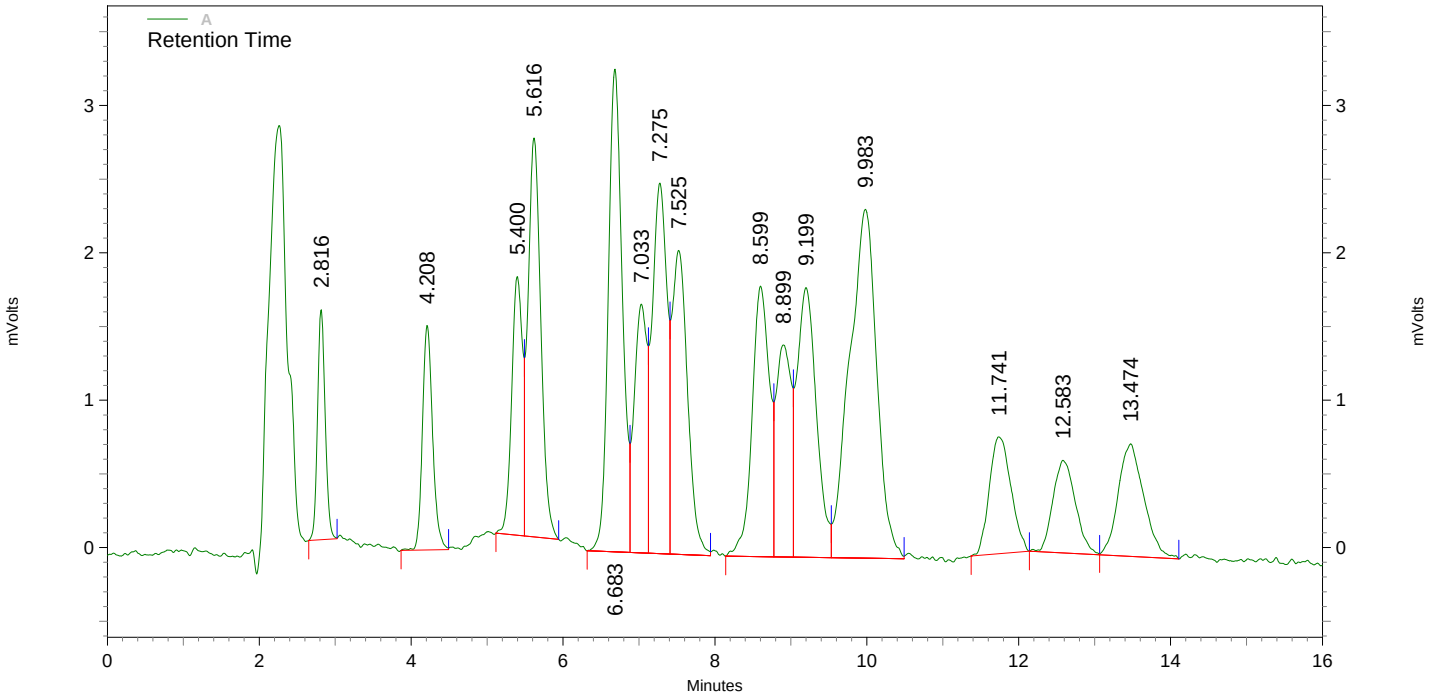
Before Manual Integration

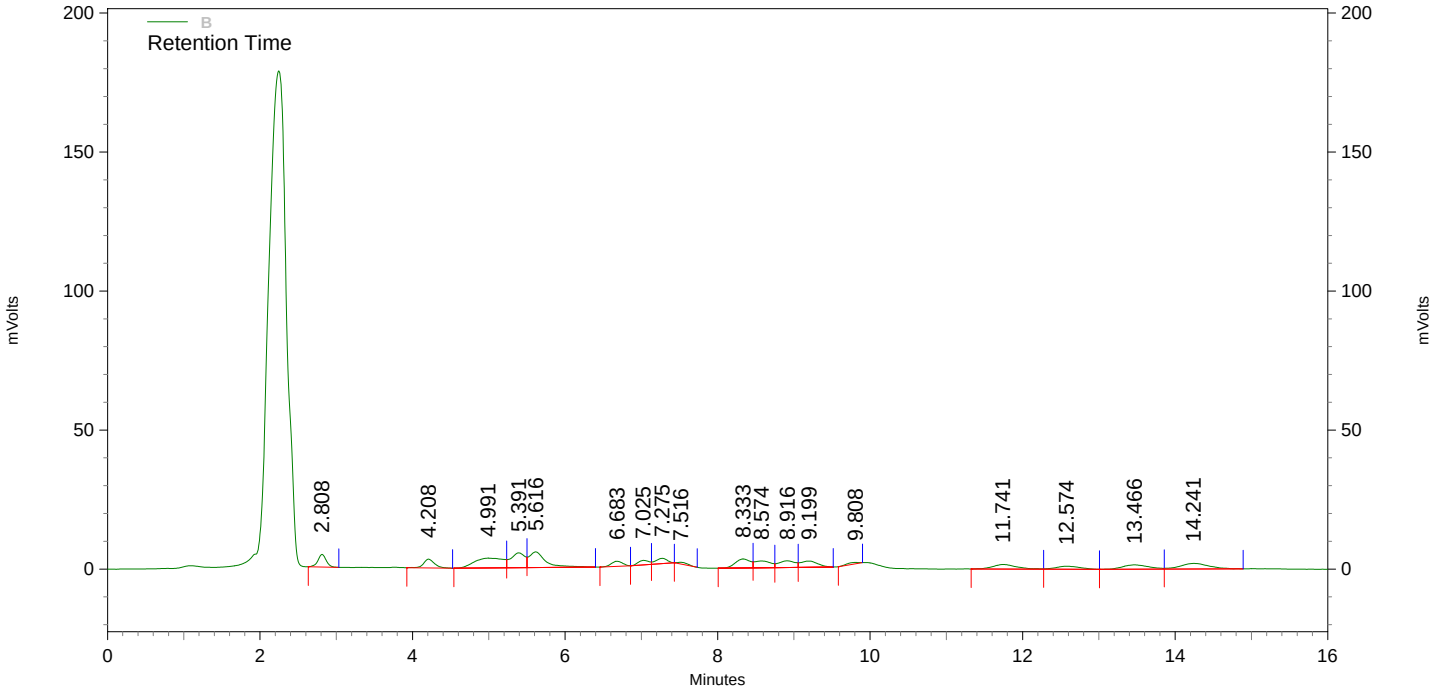
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\013.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 8330 CCV EXP 4502
Acquired: Aug 23, 2011 13:17:11
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.816	11012	**0.539**
RDX	4.208	14187	**0.512**
12-DNB (SSTD)	5.400	17365	**106.296**
135-TNB	5.616	31734	**0.536**
13-DNB	6.683	41952	**0.544**
TETRYL	7.033	19587	**0.465**
35-DNA	7.275	33929	**0.534**
NB	7.525	29675	**0.544**
246-TNT	8.599	29143	**0.542**
4-AM-26-DNT	8.899	19827	**0.504**
2-AM-46-DNT	9.199	32636	**0.542**
2-NT	11.741	15673	**0.486**
4-NT	12.583	12942	**0.496**
3-NT	13.474	17836	**0.527**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.333	44031	**1.952**
26-DNT	9.808	6405	**0.122**
24-DNT			**0.000 BDL**
PETN	14.241	52831	**1.957**

After Manual Integration

HHK 08/26/2011

RED 08/26/2011

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082311exp-primary.seq
User : red
Printed : Aug 24, 2011 09:00:48

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082311exp-primary\024.dat	8330 CCV EXP 4502	Aug 24, 2011 09:00:47

A

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX	0.500	0.447	10.650	20.000	Passed
RDX	0.500	0.477	4.591	20.000	Passed
12-DNB (SSTD)	100.000	119.137	19.137	20.000	Passed
135-TNB	0.500	0.548	9.645	20.000	Passed
13-DNB	0.500	0.498	0.471	20.000	Passed
TETRYL	0.500	0.476	4.722	20.000	Passed
35-DNA	0.500	0.498	0.345	20.000	Passed
NB	0.500	0.492	1.622	20.000	Passed
246-TNT	0.500	0.506	1.197	20.000	Passed
4-AM-26-DNT	0.500	0.512	2.404	20.000	Passed
2-AM-46-DNT	0.500	0.532	6.342	20.000	Passed
2-NT	0.500	0.492	1.587	20.000	Passed
4-NT	0.500	0.456	8.710	20.000	Passed
3-NT	0.500	0.483	3.342	20.000	Passed

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG	2.000	1.837	8.159	20.000	Passed
26-DNT	0.500	0.416	16.746	20.000	Passed
24-DNT	0.500	0.507	1.397	20.000	Passed
PETN	2.000	1.822	8.901	20.000	Passed

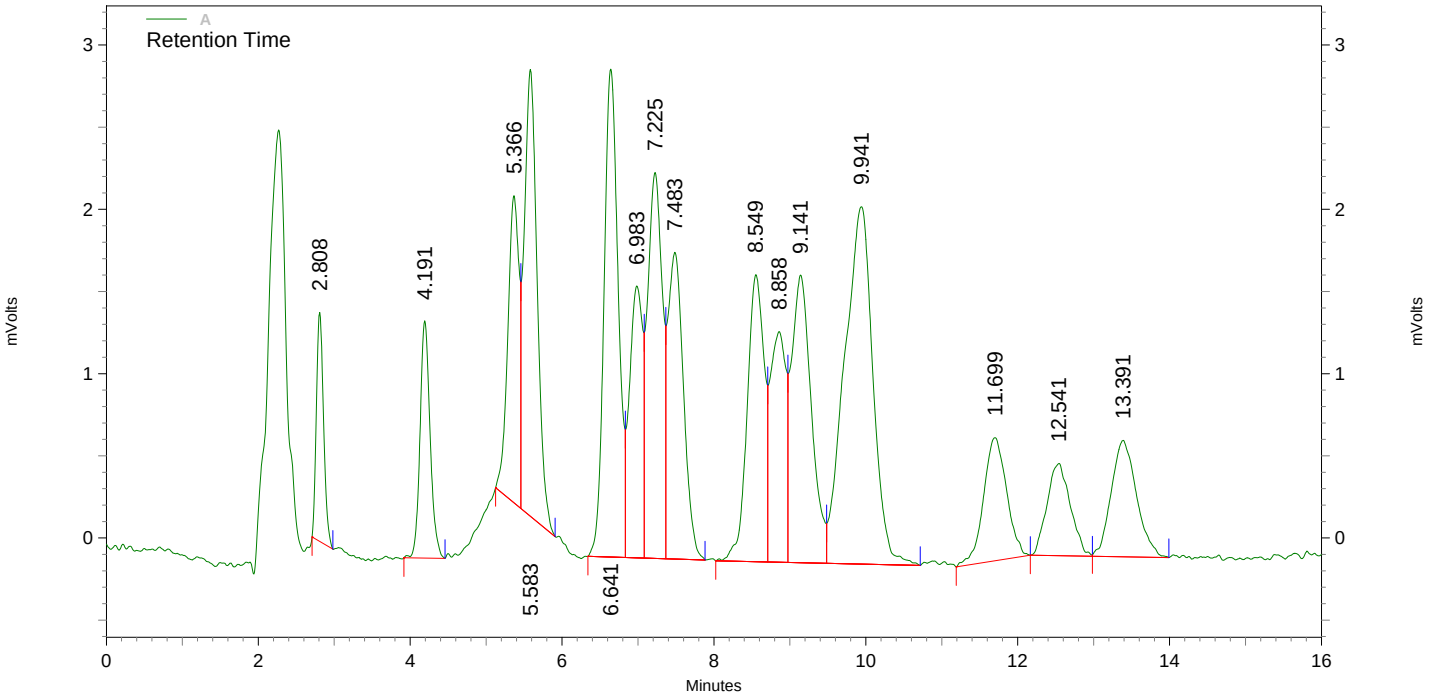
After Manual Integration

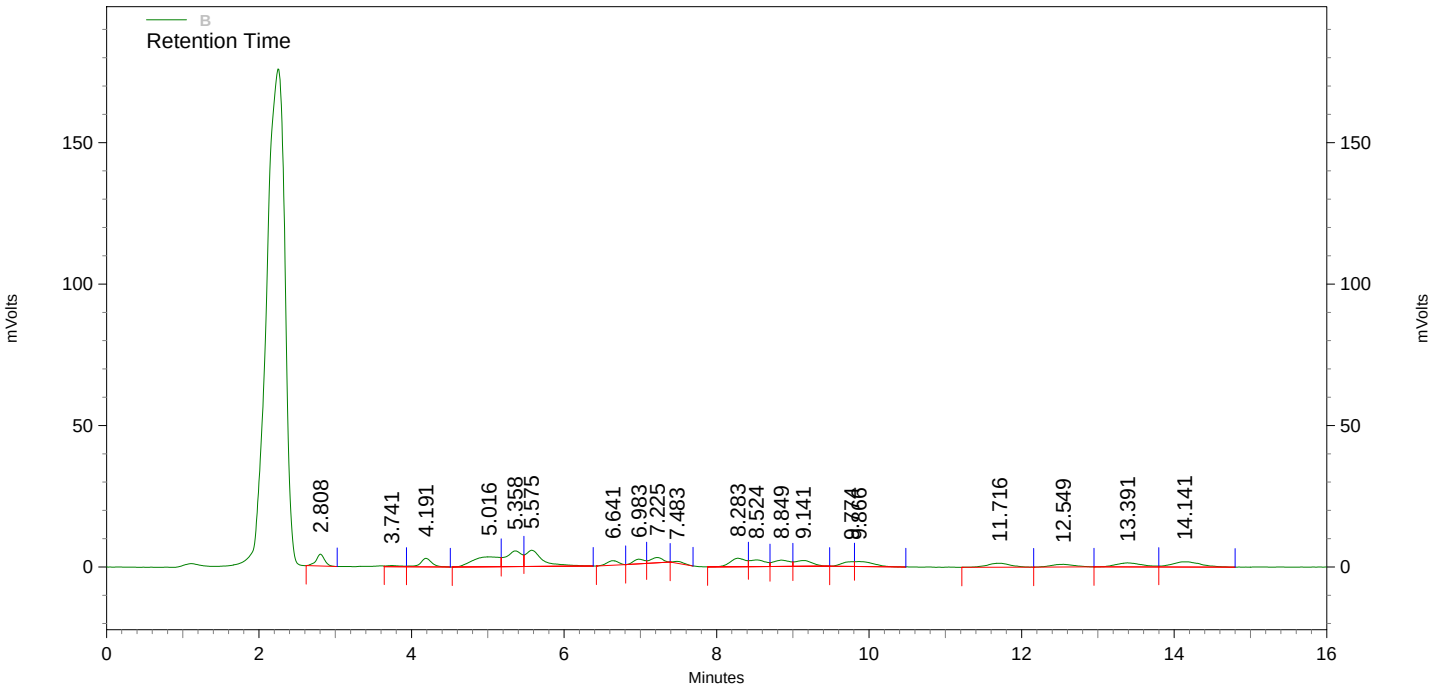
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\024.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 8330 CCV EXP 4502
Acquired: Aug 23, 2011 16:38:24
Data Summary: Reason #3 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	9201	**0.447**
RDX	4.191	13281	**0.477**
12-DNB (SSTD)	5.366	19334	**119.137**
135-TNB	5.583	32447	**0.548**
13-DNB	6.641	38483	**0.498**
TETRYL	6.983	20068	**0.476**
35-DNA	7.225	31788	**0.498**
NB	7.483	26868	**0.492**
246-TNT	8.549	27226	**0.506**
4-AM-26-DNT	8.858	20146	**0.512**
2-AM-46-DNT	9.141	32021	**0.532**
2-NT	11.699	15851	**0.492**
4-NT	12.541	11947	**0.456**
3-NT	13.391	16378	**0.483**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.283	41559	**1.837**
26-DNT	9.774	18154	**0.416**
24-DNT	9.866	28666	**0.507**
PETN	14.141	49192	**1.822**

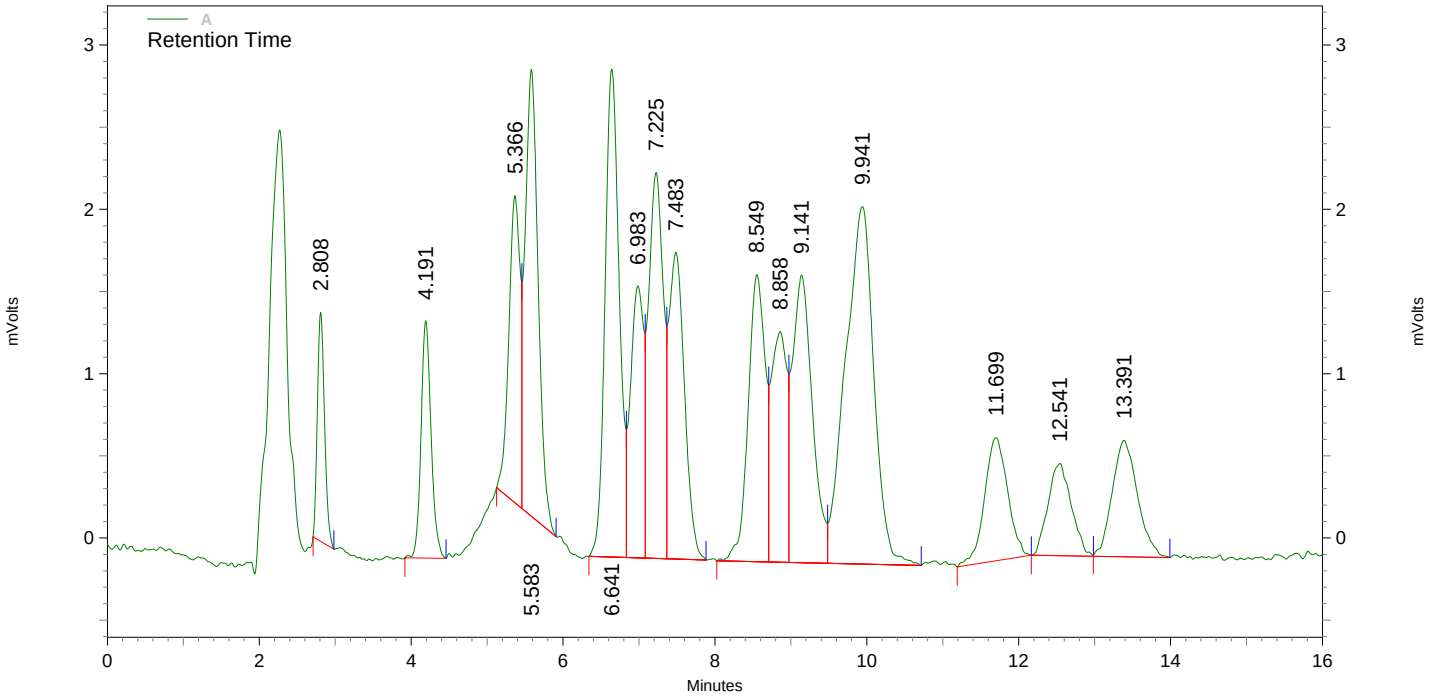
Before Manual Integration

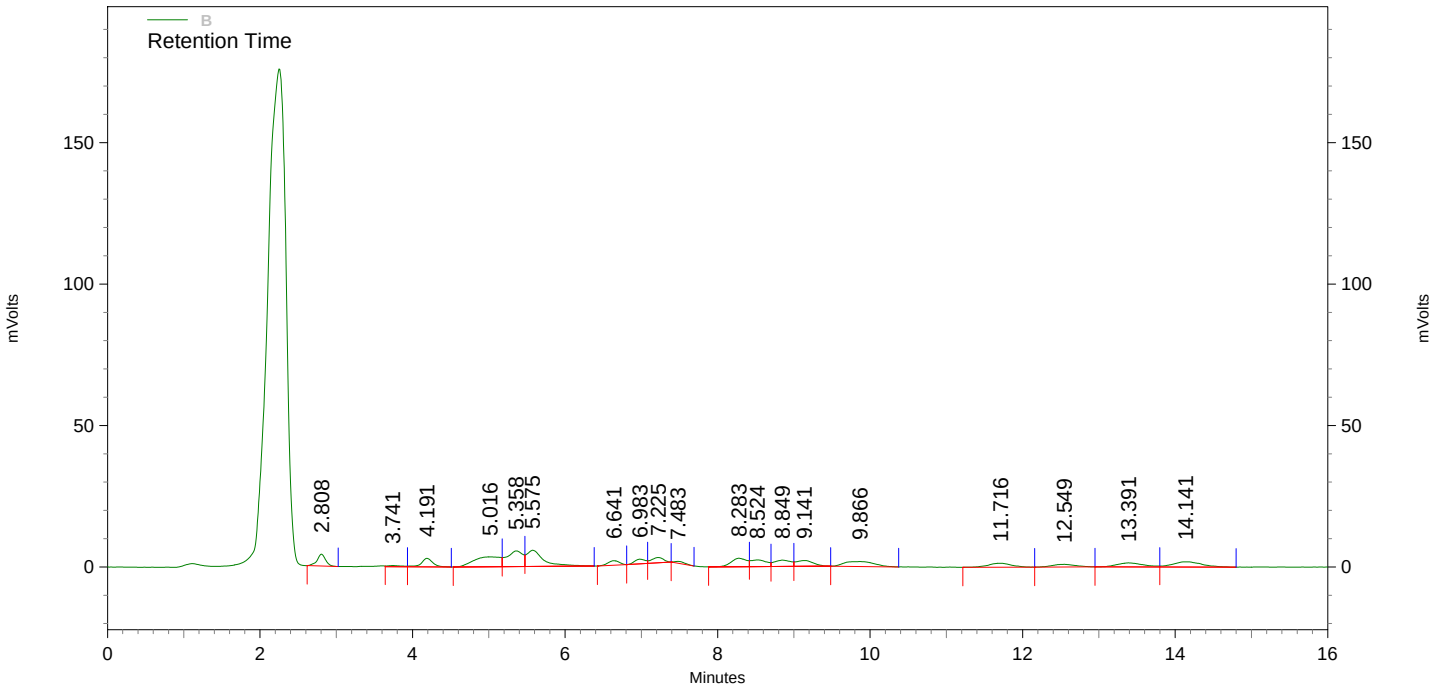
08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\024.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 8330 CCV EXP 4502
Acquired: Aug 23, 2011 16:38:24
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.808	9201	**0.447**
RDX	4.191	13281	**0.477**
12-DNB (SSTD)	5.366	19334	**119.137**
135-TNB	5.583	32447	**0.548**
13-DNB	6.641	38483	**0.498**
TETRYL	6.983	20068	**0.476**
35-DNA	7.225	31788	**0.498**
NB	7.483	26868	**0.492**
246-TNT	8.549	27226	**0.506**
4-AM-26-DNT	8.858	20146	**0.512**
2-AM-46-DNT	9.141	32021	**0.532**
2-NT	11.699	15851	**0.492**
4-NT	12.541	11947	**0.456**
3-NT	13.391	16378	**0.483**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.283	41559	**1.837**
26-DNT	9.866	47629	**1.154**
24-DNT			**0.000 BDL**
PETN	14.141	49192	**1.822**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082411exp-confirm.seq
User : red
Printed : Aug 25, 2011 16:04:52

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082411exp-confirm\002.dat	8330 CCV EXP 4503	Aug 25, 2011 16:04:52

A

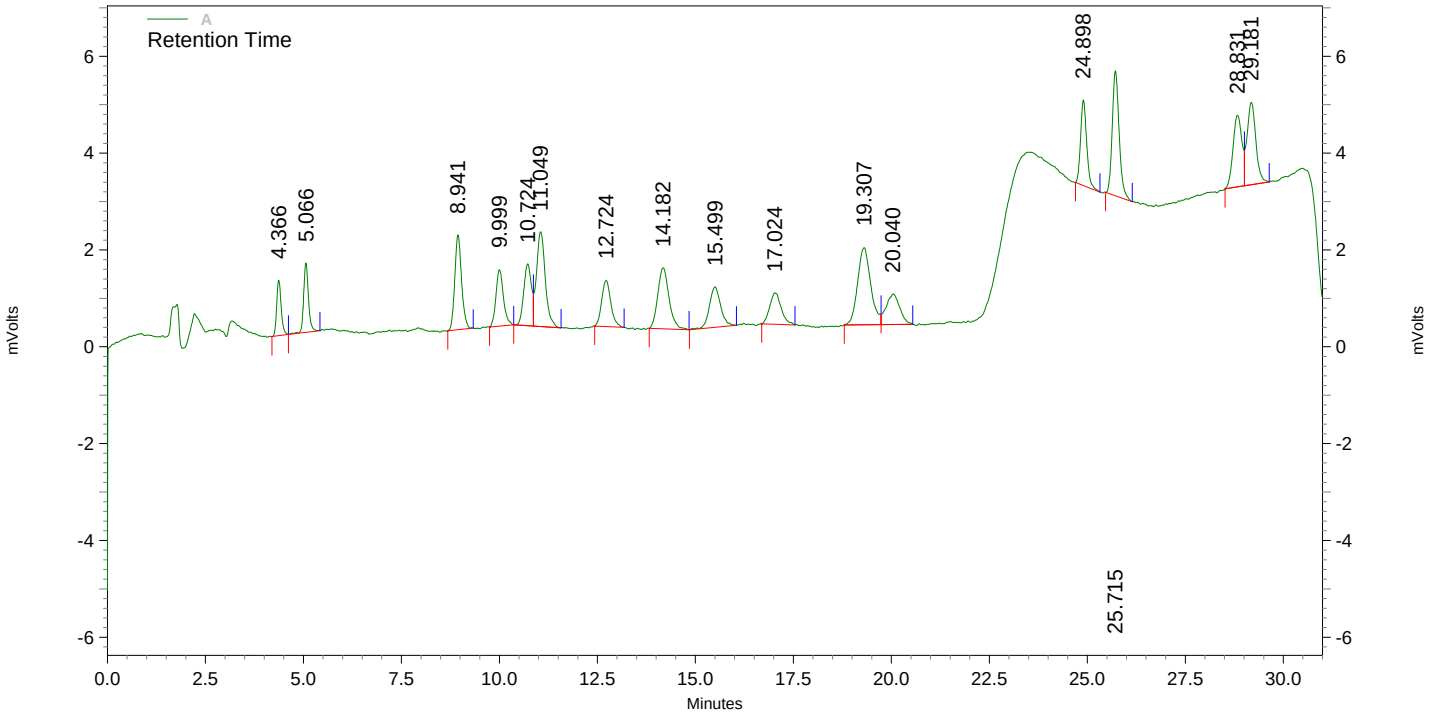
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.500	0.474	5.290	20.000	Passed
RDX-confirm	0.500	0.512	2.358	20.000	Passed
NB-confirm	0.500	0.524	4.786	20.000	Passed
12-DNB (SSTD)-confirm	100.000	93.761	6.239	20.000	Passed
4-AM-26-DNT-conf.	0.500	0.488	2.311	20.000	Passed
3,5-DNA-confirm	0.500	0.546	9.217	20.000	Passed
2-NT-confirm	0.500	0.527	5.323	20.000	Passed
2-AM-46-DNT-conf.	0.500	0.539	7.728	20.000	Passed
3-NT-confirm	0.500	0.543	8.540	20.000	Passed
4-NT-confirm	0.500	0.547	9.401	20.000	Passed
13-DNB-confirm	0.500	0.575	15.046	20.000	Passed
26-DNT-confirm	0.500	0.466	6.863	20.000	Passed
TETRYL-confirm	0.500	0.578	15.637	20.000	Passed
24-DNT-confirm	0.500	0.544	8.775	20.000	Passed
135-TNB-confirm	0.500	0.493	1.386	20.000	Passed
246-TNT-confirm	0.500	0.539	7.748	20.000	Passed

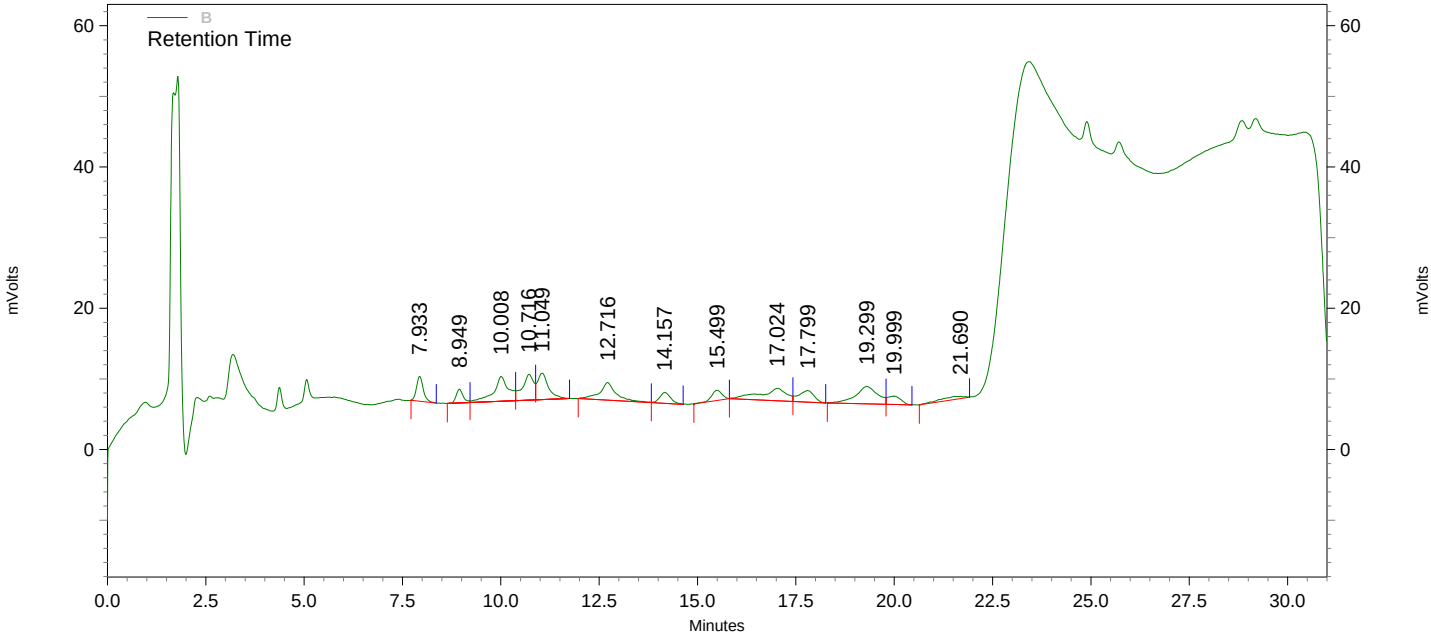
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	2.000	1.712	14.381	20.000	Passed
PETN-confirm	2.000	1.703	14.868	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\002.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirm.met
Sample ID: 8330 CCV EXP 4503
Acquired: Aug 24, 2011 10:47:22
Data Summary: {Data Description}





8330 CCV EXP 4503

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.366	9035	**0.474**
RDX-confirm	5.066	12353	**0.512**
NB-confirm	8.941	23634	**0.524**
12-DNB (SSTD)-confirm	9.999	15452	**93.761**
4-AM-26-DNT-conf.	10.724	17305	**0.488**
3,5-DNA-confirm	11.049	30716	**0.546**
2-NT-confirm	12.724	15470	**0.527**
2-AM-46-DNT-conf.	14.182	25239	**0.539**
3-NT-confirm	15.499	16720	**0.543**
4-NT-confirm	17.024	13268	**0.547**
13-DNB-confirm	19.307	37112	**0.575**
26-DNT-confirm	20.040	15198	**0.466**
TETRYL-confirm	24.898	19231	**0.578**
24-DNT-confirm	25.715	31665	**0.544**
135-TNB-confirm	28.831	23267	**0.493**
246-TNT-confirm	29.181	26881	**0.539**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	7.933	41663	**1.712**
PETN-confirm	17.799	43479	**1.703**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082411exp-confirm.seq
User : red
Printed : Aug 25, 2011 16:05:15

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082411exp-confirm\013.dat	8330 CCV EXP 4503	Aug 25, 2011 16:05:14

A

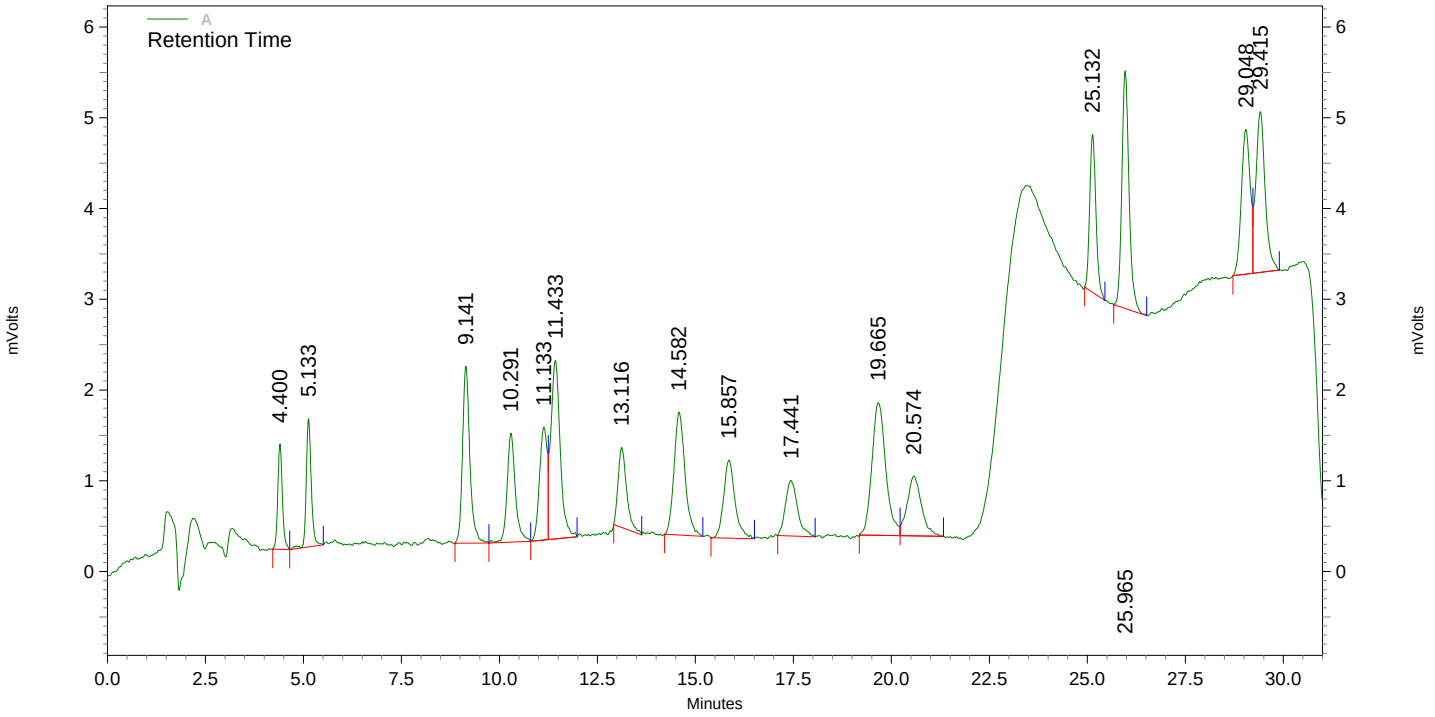
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.500	0.494	1.143	20.000	Passed
RDX-confirm	0.500	0.526	5.188	20.000	Passed
NB-confirm	0.500	0.563	12.675	20.000	Passed
12-DNB (SSTD)-confirm	100.000	108.058	8.058	20.000	Passed
4-AM-26-DNT-conf.	0.500	0.479	4.300	20.000	Passed
3,5-DNA-confirm	0.500	0.583	16.639	20.000	Passed
2-NT-confirm	0.500	0.449	10.163	20.000	Passed
2-AM-46-DNT-conf.	0.500	0.561	12.146	20.000	Passed
3-NT-confirm	0.500	0.565	12.904	20.000	Passed
4-NT-confirm	0.500	0.541	8.173	20.000	Passed
13-DNB-confirm	0.500	0.557	11.410	20.000	Passed
26-DNT-confirm	0.500	0.515	2.940	20.000	Passed
TETRYL-confirm	0.500	0.577	15.433	20.000	Passed
24-DNT-confirm	0.500	0.574	14.701	20.000	Passed
135-TNB-confirm	0.500	0.532	6.384	20.000	Passed
246-TNT-confirm	0.500	0.595	19.010	20.000	Passed

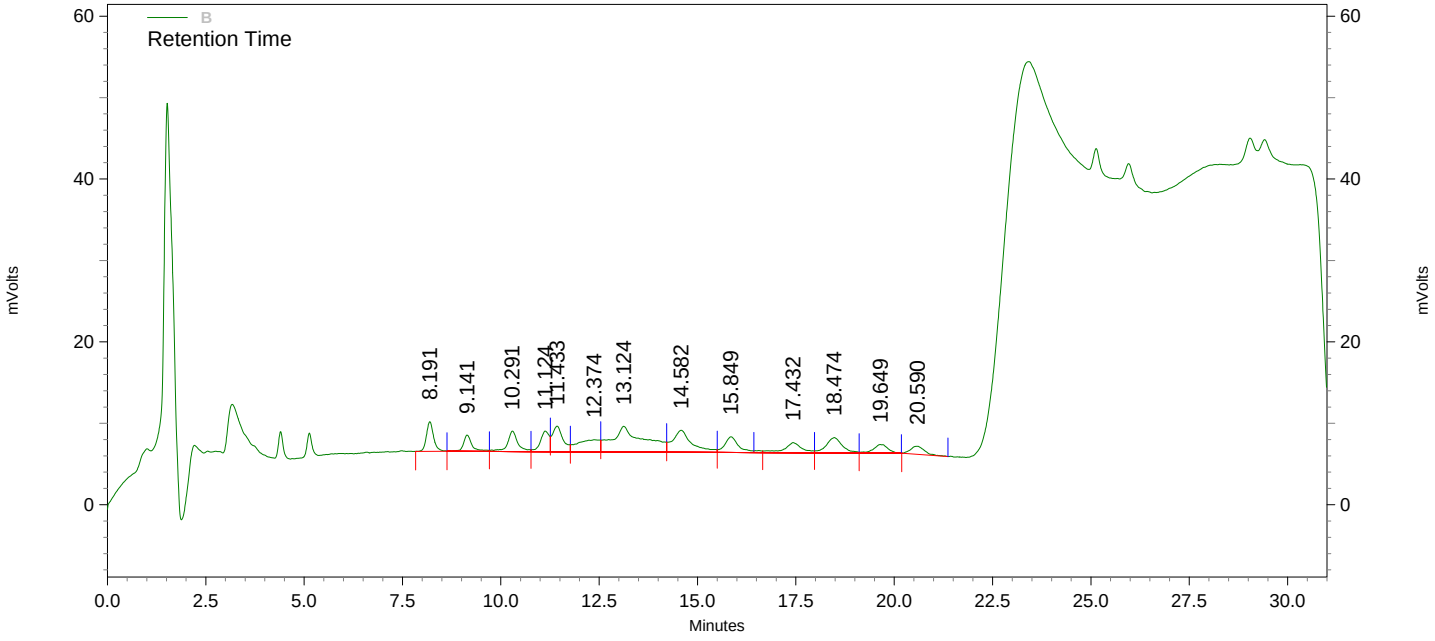
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	2.000	1.891	5.426	20.000	Passed
PETN-confirm	2.000	2.151	7.528	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\013.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 8330 CCV EXP 4503
Acquired: Aug 24, 2011 16:42:40
Data Summary: {Data Description}





8330 CCV EXP 4503

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.400	9403	**0.494**
RDX-confirm	5.133	12655	**0.526**
NB-confirm	9.141	25356	**0.563**
12-DNB (SSTD)-confirm	10.291	17622	**108.058**
4-AM-26-DNT-conf.	11.133	16977	**0.479**
3,5-DNA-confirm	11.433	32716	**0.583**
2-NT-confirm	13.116	13342	**0.449**
2-AM-46-DNT-conf.	14.582	26250	**0.561**
3-NT-confirm	15.857	17376	**0.565**
4-NT-confirm	17.441	13129	**0.541**
13-DNB-confirm	19.665	35980	**0.557**
26-DNT-confirm	20.574	16726	**0.515**
TETRYL-confirm	25.132	19199	**0.577**
24-DNT-confirm	25.965	33381	**0.574**
135-TNB-confirm	29.048	24904	**0.532**
246-TNT-confirm	29.415	29407	**0.595**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	8.191	45669	**1.891**
PETN-confirm	18.474	53375	**2.151**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082411exp-confirm.seq
User : red
Printed : Aug 25, 2011 16:06:24

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082411exp-confirm\046.dat	8330 CCV EXP 4503	Aug 25, 2011 16:06:23

A

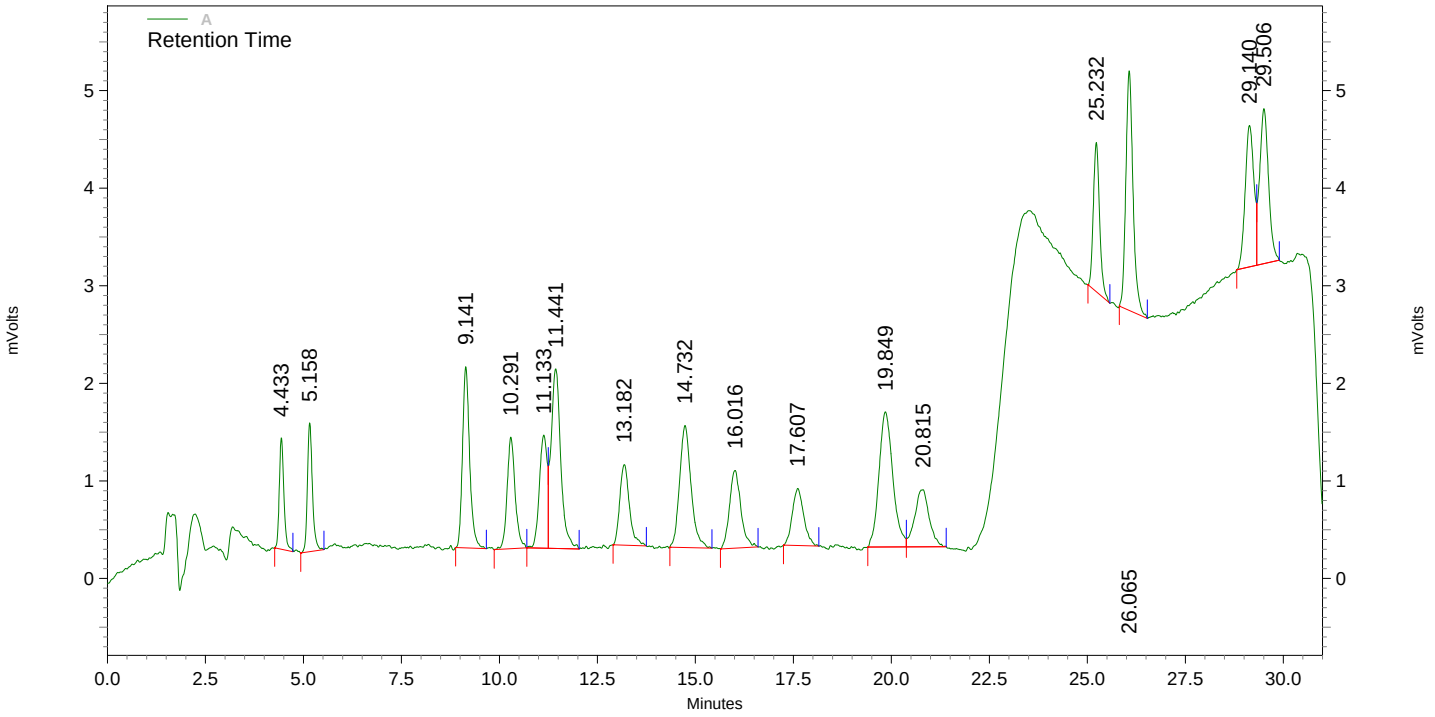
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.500	0.494	1.143	20.000	Passed
RDX-confirm	0.500	0.481	3.735	20.000	Passed
NB-confirm	0.500	0.522	4.360	20.000	Passed
12-DNB (SSTD)-confirm	100.000	99.387	0.613	20.000	Passed
4-AM-26-DNT-conf.	0.500	0.450	9.932	20.000	Passed
3,5-DNA-confirm	0.500	0.565	12.965	20.000	Passed
2-NT-confirm	0.500	0.478	4.465	20.000	Passed
2-AM-46-DNT-conf.	0.500	0.543	8.510	20.000	Passed
3-NT-confirm	0.500	0.520	4.057	20.000	Passed
4-NT-confirm	0.500	0.484	3.148	20.000	Passed
13-DNB-confirm	0.500	0.526	5.227	20.000	Passed
26-DNT-confirm	0.500	0.461	7.890	20.000	Passed
TETRYL-confirm	0.500	0.508	1.616	20.000	Passed
24-DNT-confirm	0.500	0.541	8.116	20.000	Passed
135-TNB-confirm	0.500	0.475	5.027	20.000	Passed
246-TNT-confirm	0.500	0.502	0.321	20.000	Passed

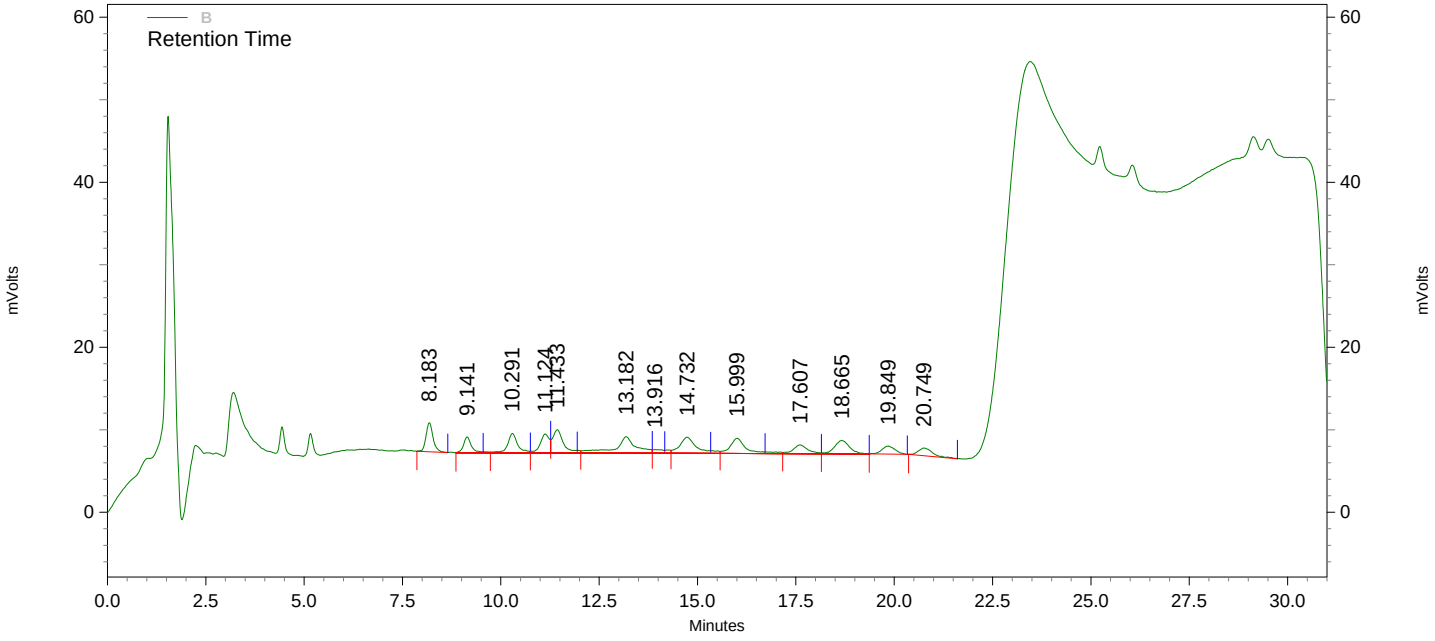
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	2.000	1.812	9.394	20.000	Passed
PETN-confirm	2.000	1.671	16.429	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\046.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 8330 CCV EXP 4503
Acquired: Aug 25, 2011 10:28:22
Data Summary: {Data Description}





8330 CCV EXP 4503

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.433	9403	**0.494**
RDX-confirm	5.158	11703	**0.481**
NB-confirm	9.141	23541	**0.522**
12-DNB (SSTD)-confirm	10.291	16306	**99.387**
4-AM-26-DNT-conf.	11.133	16048	**0.450**
3,5-DNA-confirm	11.441	31726	**0.565**
2-NT-confirm	13.182	14125	**0.478**
2-AM-46-DNT-conf.	14.732	25418	**0.543**
3-NT-confirm	16.016	16046	**0.520**
4-NT-confirm	17.607	11848	**0.484**
13-DNB-confirm	19.849	34055	**0.526**
26-DNT-confirm	20.815	15038	**0.461**
TETRYL-confirm	25.232	17026	**0.508**
24-DNT-confirm	26.065	31474	**0.541**
135-TNB-confirm	29.140	22500	**0.475**
246-TNT-confirm	29.506	25215	**0.502**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	8.183	43894	**1.812**
PETN-confirm	18.665	42789	**1.671**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 2\Sequences\8330A_B\082411exp-confirm.seq
User : red
Printed : Aug 25, 2011 16:06:42

File	Sample ID	Acquired
C:\Instarch\HPLC 2\Data\082411exp-confirm\055.dat	8330 CCV EXP 4503	Aug 25, 2011 16:06:42

A

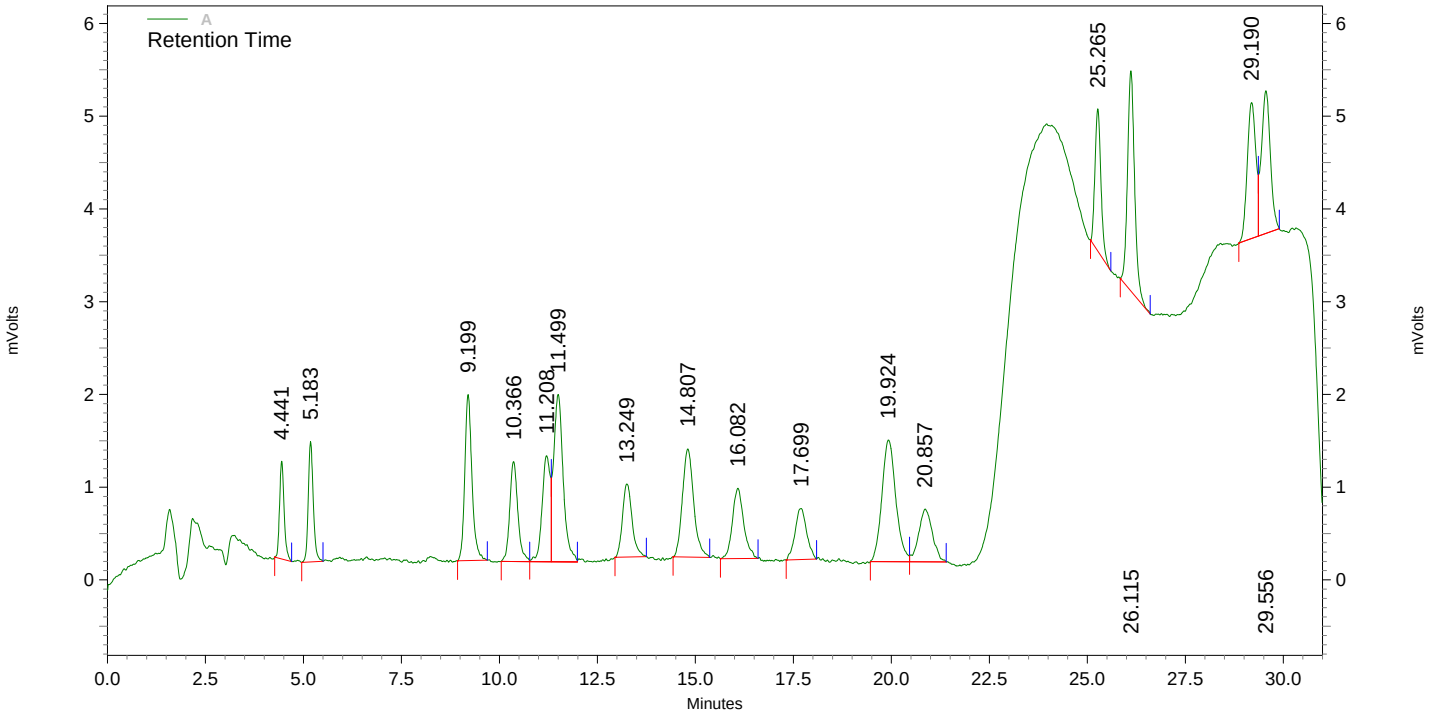
Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
HMX-confirm	0.500	0.448	10.395	20.000	Passed
RDX-confirm	0.500	0.470	5.975	20.000	Passed
NB-confirm	0.500	0.505	1.071	20.000	Passed
12-DNB (SSTD)-confirm	100.000	94.216	5.784	20.000	Passed
4-AM-26-DNT-conf.	0.500	0.462	7.537	20.000	Passed
3,5-DNA-confirm	0.500	0.544	8.842	20.000	Passed
2-NT-confirm	0.500	0.452	9.653	20.000	Passed
2-AM-46-DNT-conf.	0.500	0.496	0.830	20.000	Passed
3-NT-confirm	0.500	0.491	1.857	20.000	Passed
4-NT-confirm	0.500	0.461	7.787	20.000	Passed
13-DNB-confirm	0.500	0.500	0.047	20.000	Passed
26-DNT-confirm	0.500	0.423	15.428	20.000	Passed
TETRYL-confirm	0.500	0.486	2.823	20.000	Passed
24-DNT-confirm	0.500	0.513	2.546	20.000	Passed
135-TNB-confirm	0.500	0.472	5.549	20.000	Passed
246-TNT-confirm	0.500	0.488	2.412	20.000	Passed

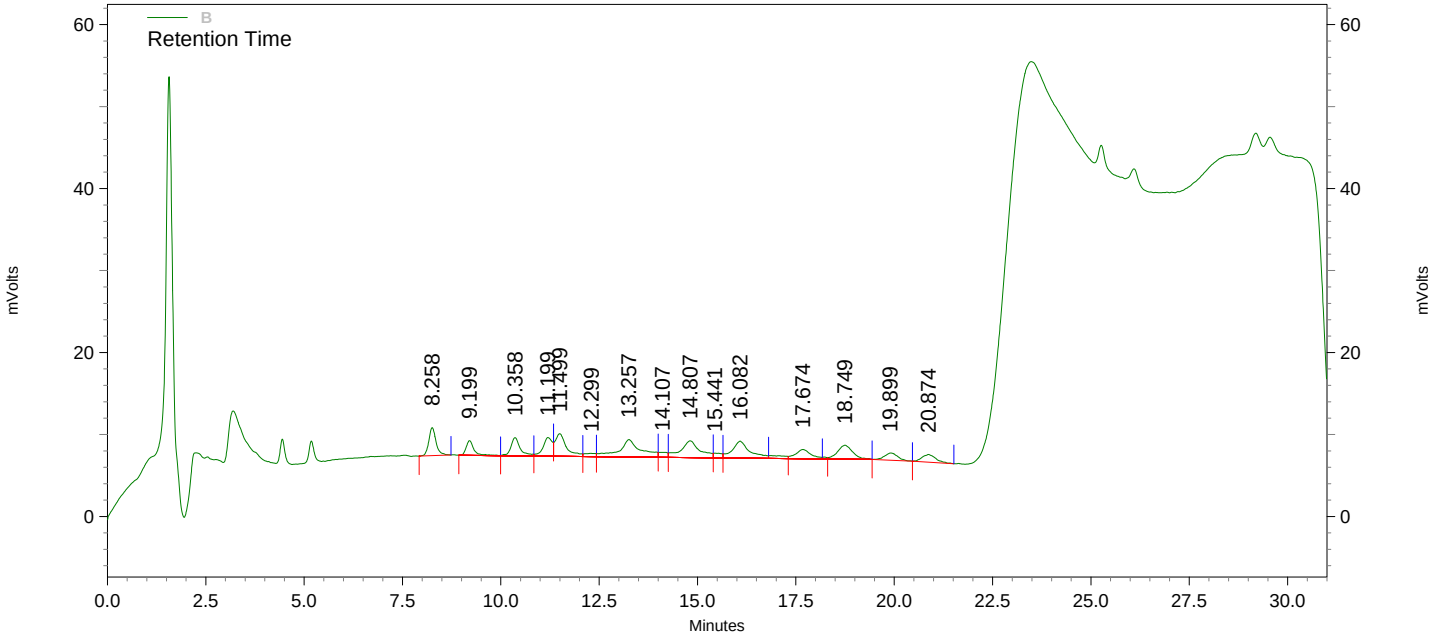
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NG-confirm	2.000	1.818	9.083	20.000	Passed
PETN-confirm	2.000	1.808	9.588	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\055.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 8330 CCV EXP 4503
Acquired: Aug 25, 2011 15:19:01
Data Summary: {Data Description}





8330 CCV EXP 4503

A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm	4.441	8582	**0.448**
RDX-confirm	5.183	11464	**0.470**
NB-confirm	9.199	22823	**0.505**
12-DNB (SSTD)-confirm	10.366	15521	**94.216**
4-AM-26-DNT-conf.	11.208	16443	**0.462**
3,5-DNA-confirm	11.499	30615	**0.544**
2-NT-confirm	13.249	13412	**0.452**
2-AM-46-DNT-conf.	14.807	23281	**0.496**
3-NT-confirm	16.082	15157	**0.491**
4-NT-confirm	17.699	11323	**0.461**
13-DNB-confirm	19.924	32413	**0.500**
26-DNT-confirm	20.857	13863	**0.423**
TETRYL-confirm	25.265	16328	**0.486**
24-DNT-confirm	26.115	29861	**0.513**
135-TNB-confirm	29.190	22390	**0.472**
246-TNT-confirm	29.556	24602	**0.488**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm	8.258	44033	**1.818**
PETN-confirm	18.749	45812	**1.808**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\081911nq-primary.seq
User : red
Printed : Aug 21, 2011 10:12:10

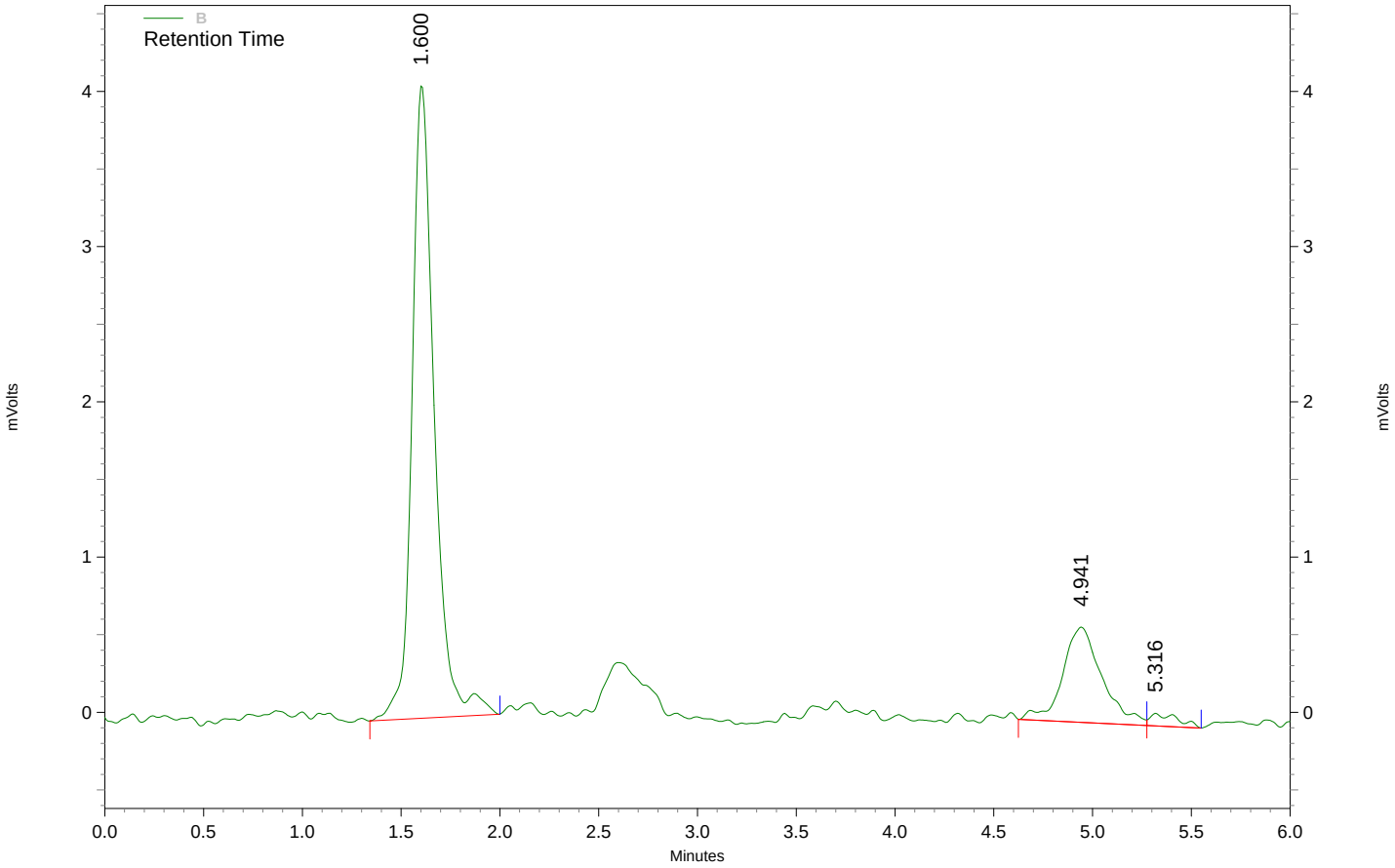
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\081911nq-primary\089.dat	NQ CCV EXP 4493	Aug 21, 2011 10:12:10

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.455	8.998	20.000	**Passed**
12-DNB (SSTD)	100.000	102.793	2.793	20.000	**Passed**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\089.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: NQ CCV EXP 4493
Acquired: Aug 20, 2011 05:16:35
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.600	32013	**0.455**
12-DNB (SSTD)	4.941	8518	**102.793**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\081911nq-primary.seq
User : red
Printed : Aug 21, 2011 10:12:29

File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\081911nq-primary\099.dat	NQ CCV EXP 4493	Aug 21, 2011 10:12:28

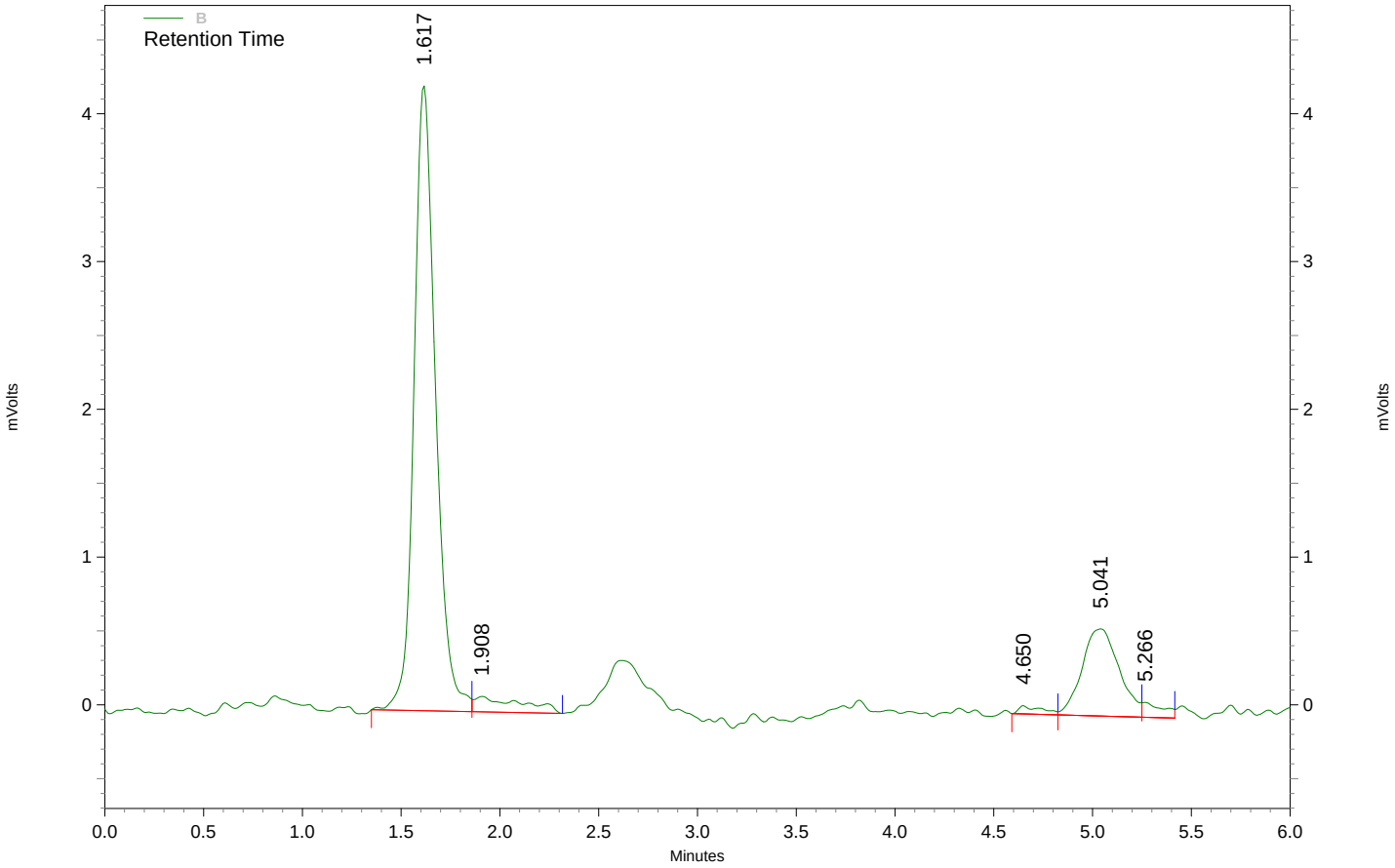
B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.457	8.635	20.000	Passed
12-DNB (SSTD)	100.000	92.399	7.601	20.000	Passed

After Manual Integration 08/26/2011 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\099.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: NQ CCV EXP 4493
Acquired: Aug 20, 2011 12:04:06
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	32142	**0.457**
12-DNB (SSTD)	5.041	7710	**92.399**

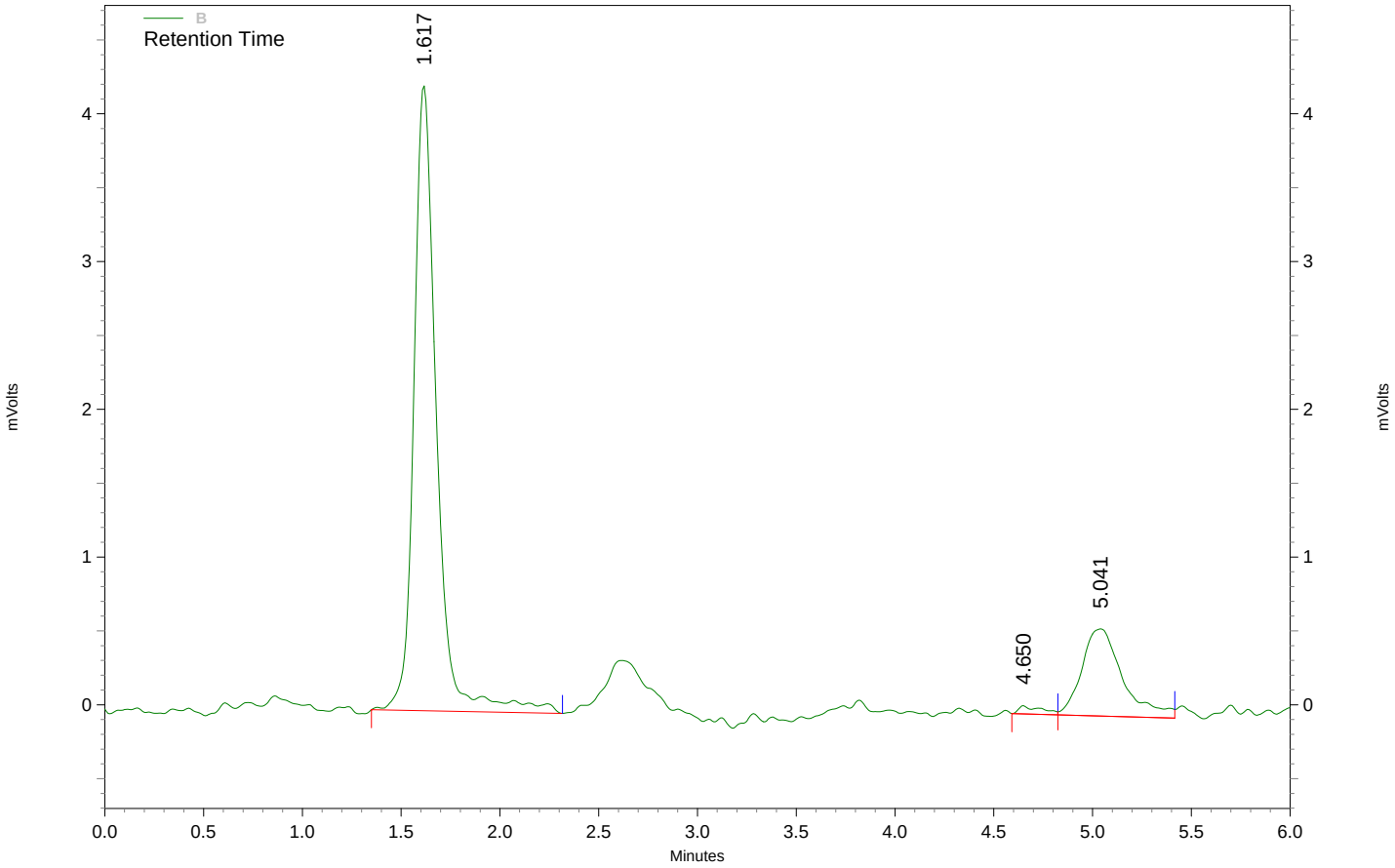
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\099.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: NQ CCV EXP 4493
Acquired: Aug 20, 2011 12:04:06
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	33909	**0.482**
12-DNB (SSTD)	5.041	8446	**101.866**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\082111nq-primary.seq
User : red
Printed : Aug 22, 2011 10:58:36

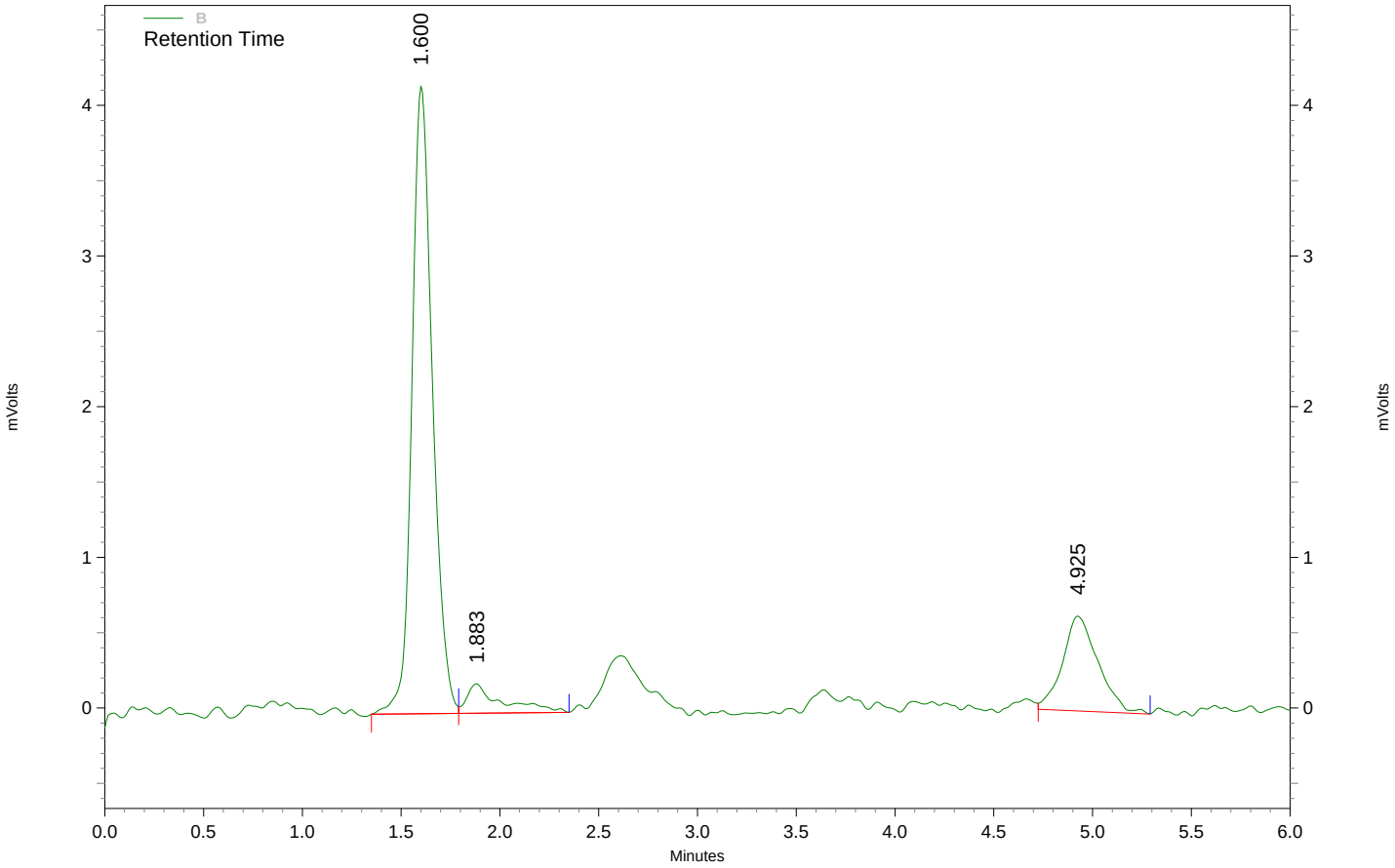
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\082111nq-primary\002.dat	NQ CCV EXP 4493	Aug 22, 2011 10:58:36

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.430	14.085	20.000	Passed
12-DNB (SSTD)	100.000	94.444	5.556	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-primary\002.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\082111nq-primary.met
Sample ID: NQ CCV EXP 4493
Acquired: Aug 21, 2011 14:07:25
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.600	30206	**0.430**
12-DNB (SSTD)	4.925	7869	**94.444**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\082111nq-primary.seq
User : red
Printed : Aug 22, 2011 10:58:49

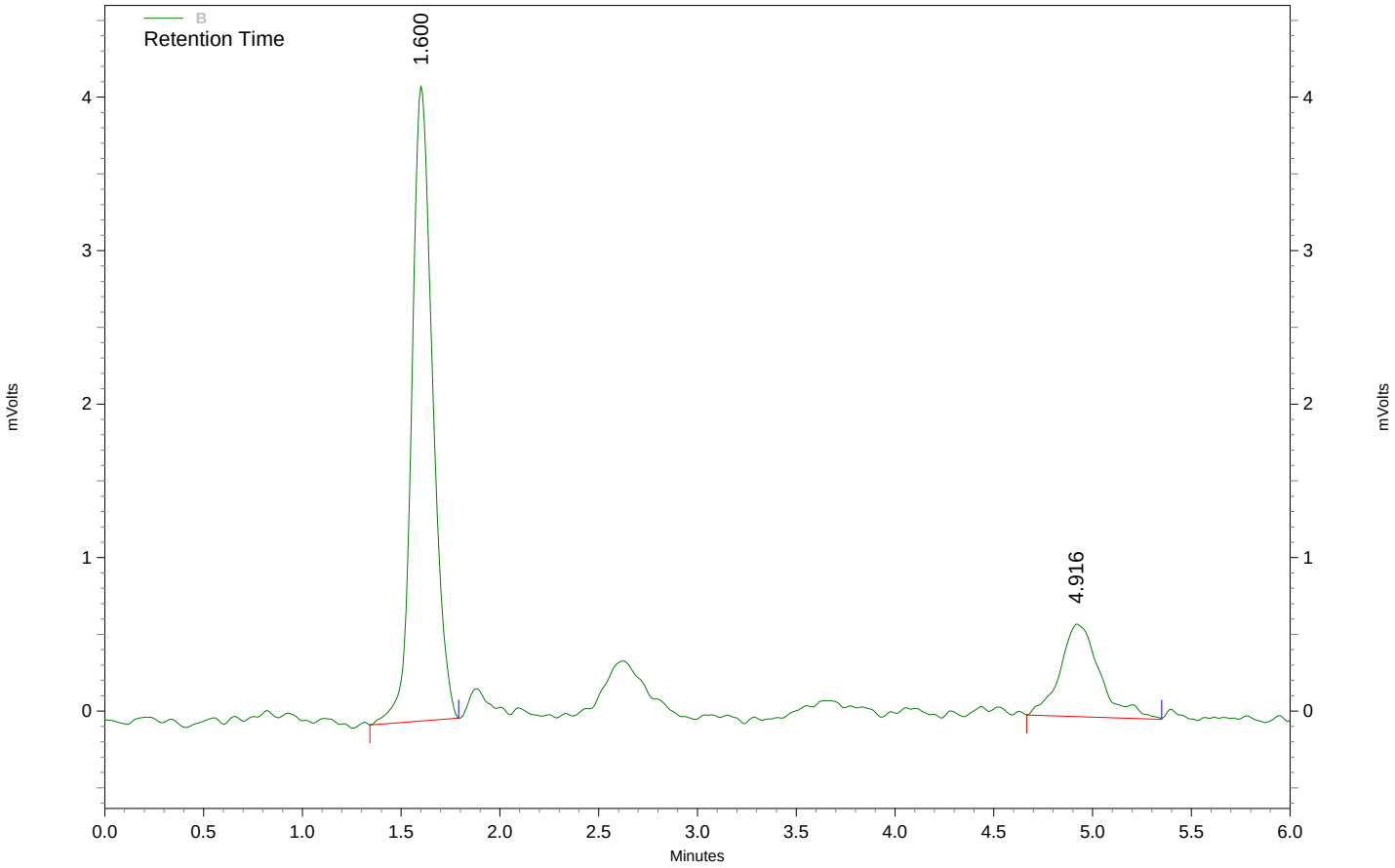
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\082111nq-primary\007.dat	NQ CCV EXP 4493	Aug 22, 2011 10:58:49

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.432	13.654	20.000	Passed
12-DNB (SSTD)	100.000	102.137	2.137	20.000	Passed

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-primary\007.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\082111nq-primary.met
Sample ID: NQ CCV EXP 4493
Acquired: Aug 21, 2011 14:46:24
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.600	30359	**0.432**
12-DNB (SSTD)	4.916	8467	**102.137**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\082111nq-confirm.seq
User : red
Printed : Aug 21, 2011 13:37:59

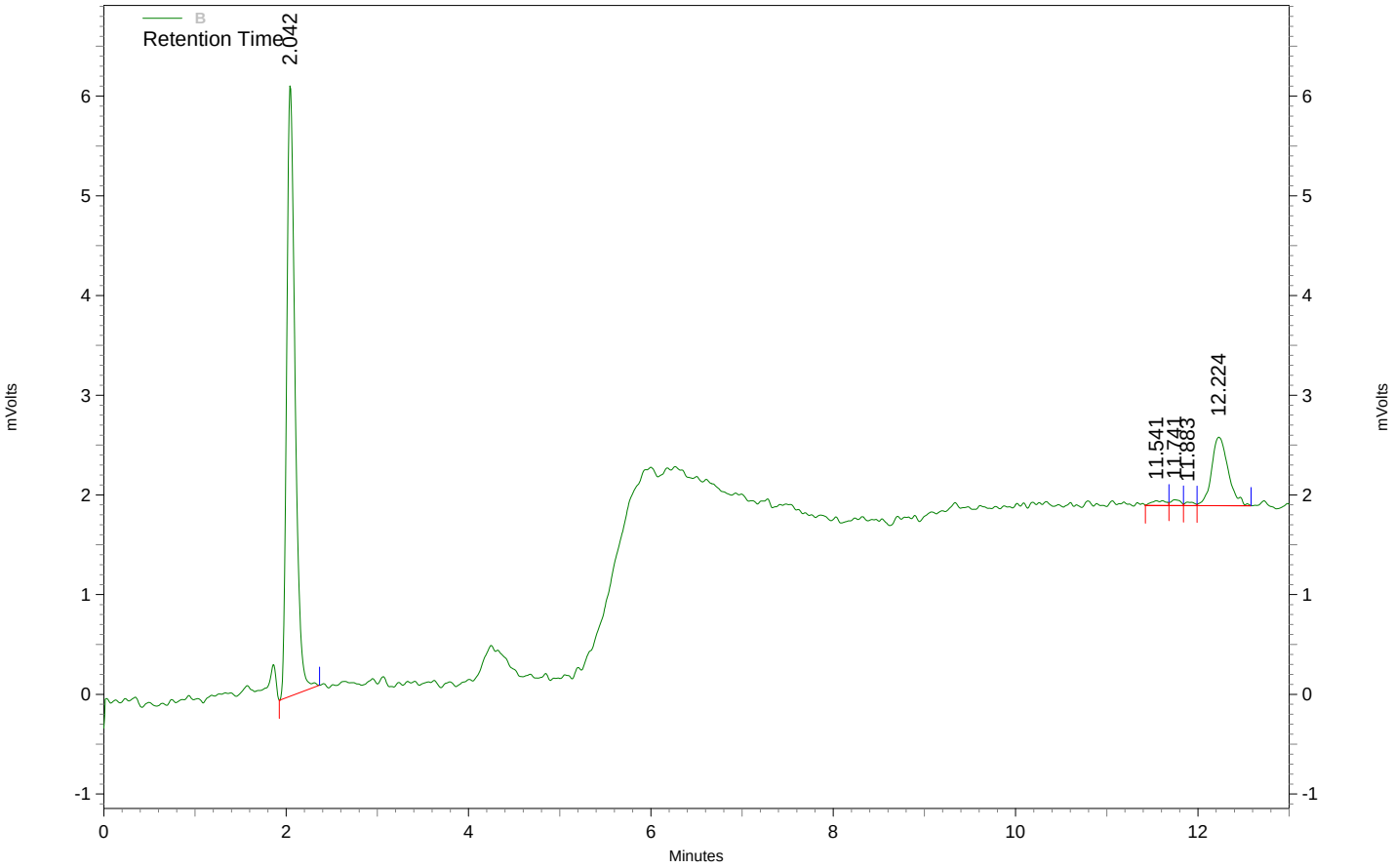
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\082111nq-confirm\002.dat	NQ CCV EXP 4493	Aug 21, 2011 13:37:59

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.508	1.567	20.000	**Passed**
12-DNB (SSTD)	100.000	96.687	3.313	20.000	**Passed**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\002.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: NQ CCV EXP 4493
Acquired: Aug 21, 2011 11:21:48
Data summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.042	39270	**0.508**
12-DNB (SSTD)	12.224	8682	**96.687**

QC Check Standard Report

Sequence : C:\Instarch\HPLC 1\Sequence\NQ\082111nq-confirm.seq
User : red
Printed : Aug 21, 2011 13:38:12

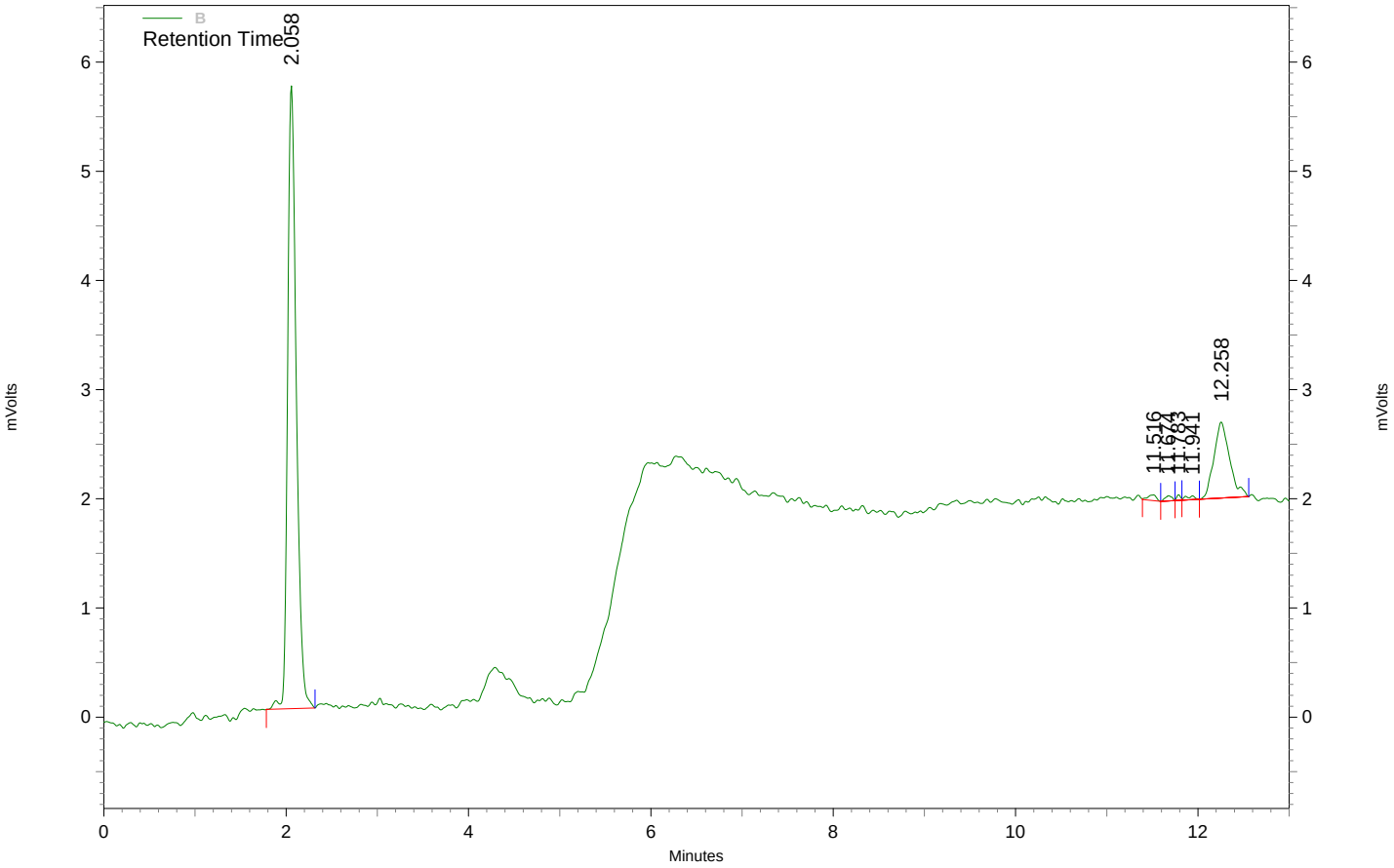
File	Sample ID	Acquired
C:\Instarch\HPLC 1\Data\082111nq-confirm\009.dat	NQ CCV EXP 4493	Aug 21, 2011 13:38:12

B

Compound	Expected Conc.	Actual Conc.	%RD Actual	%RD Limit	Status
NQ	0.500	0.489	2.279	20.000	**Passed**
12-DNB (SSTD)	100.000	92.779	7.221	20.000	**Passed**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\009.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: NQ CCV EXP 4493
Acquired: Aug 21, 2011 13:22:05
Data summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.058	37821	**0.489**
12-DNB (SSTD)	12.258	8330	**92.779**

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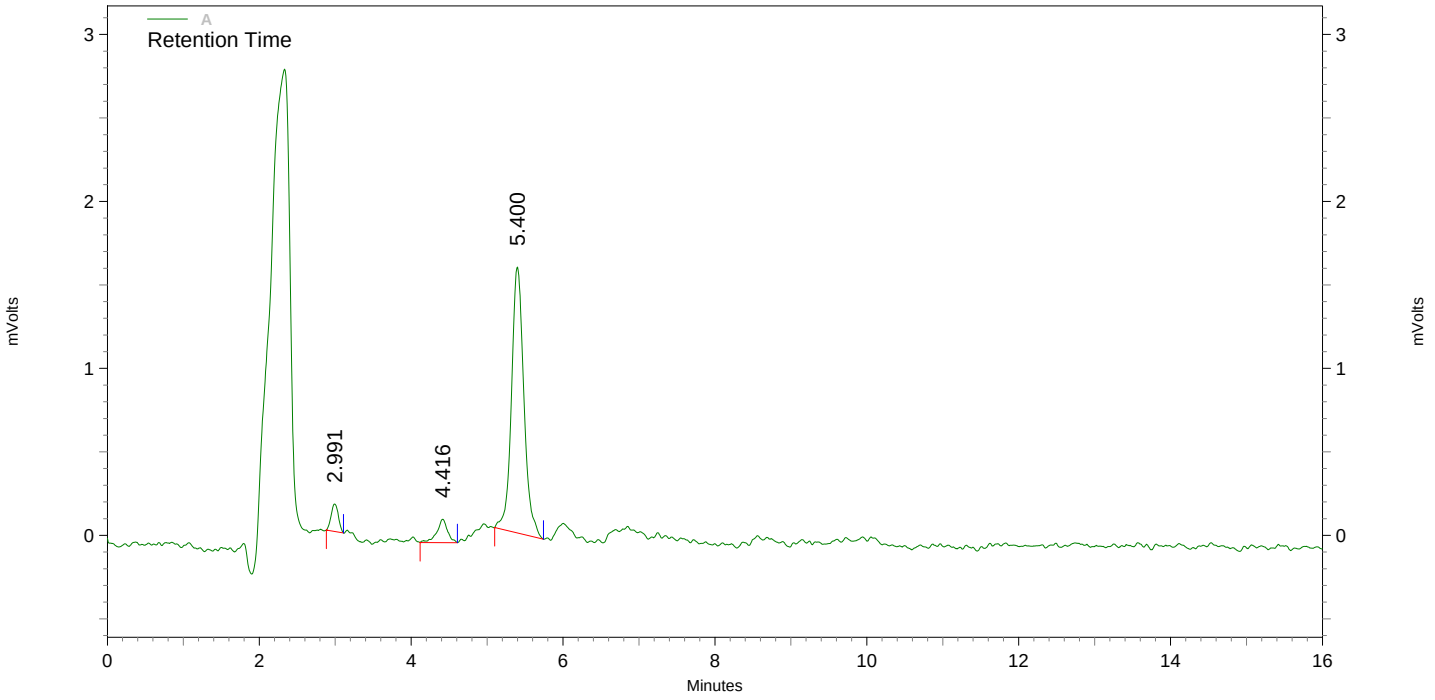
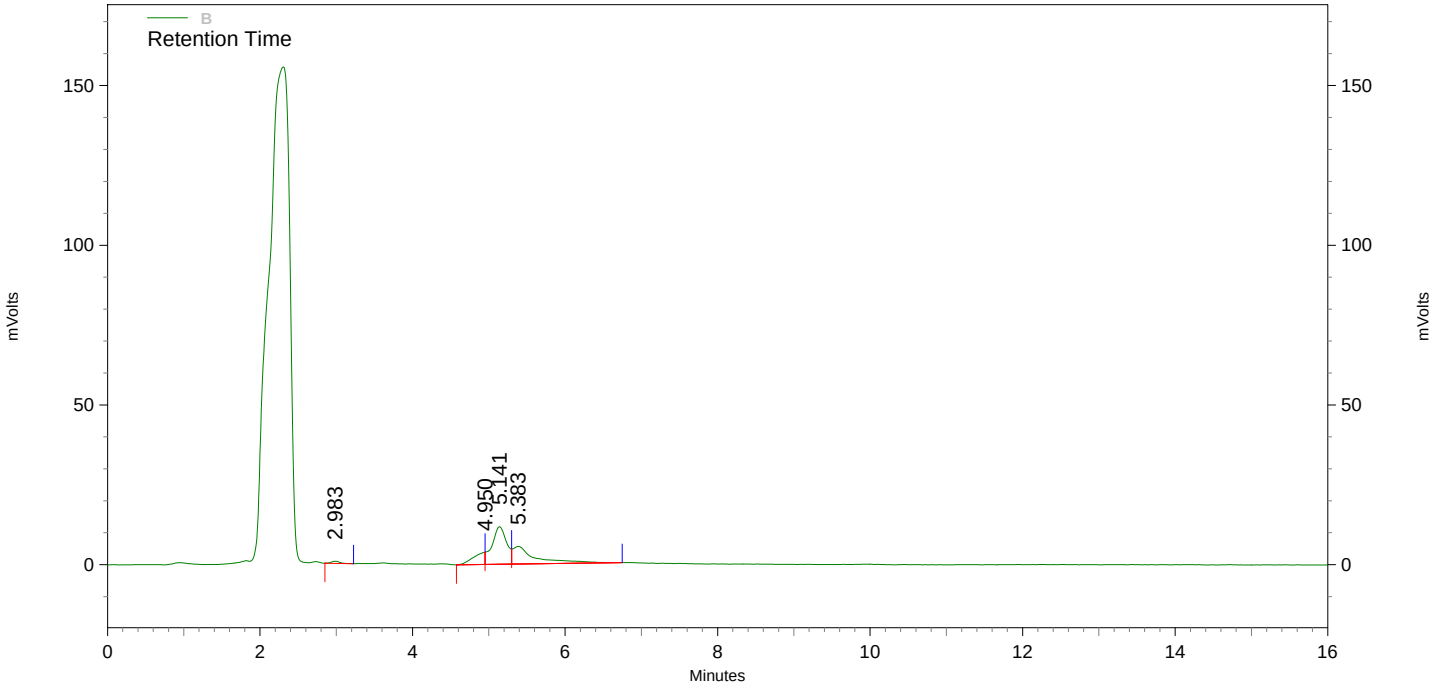
Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\011.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 78273,963300, mbw
Acquired: Aug 21, 2011 17:06:39
Data Summary: {Data Description}





A Results

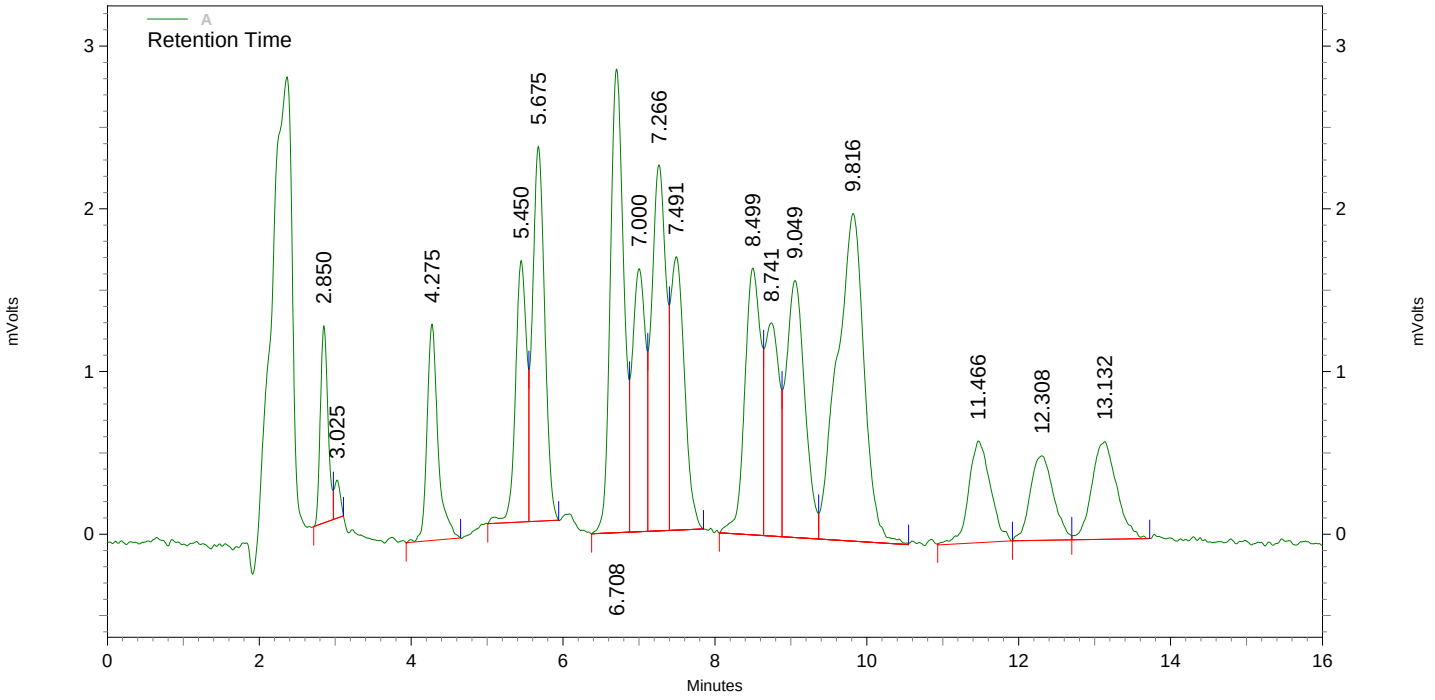
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.400	18119	**111.213**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

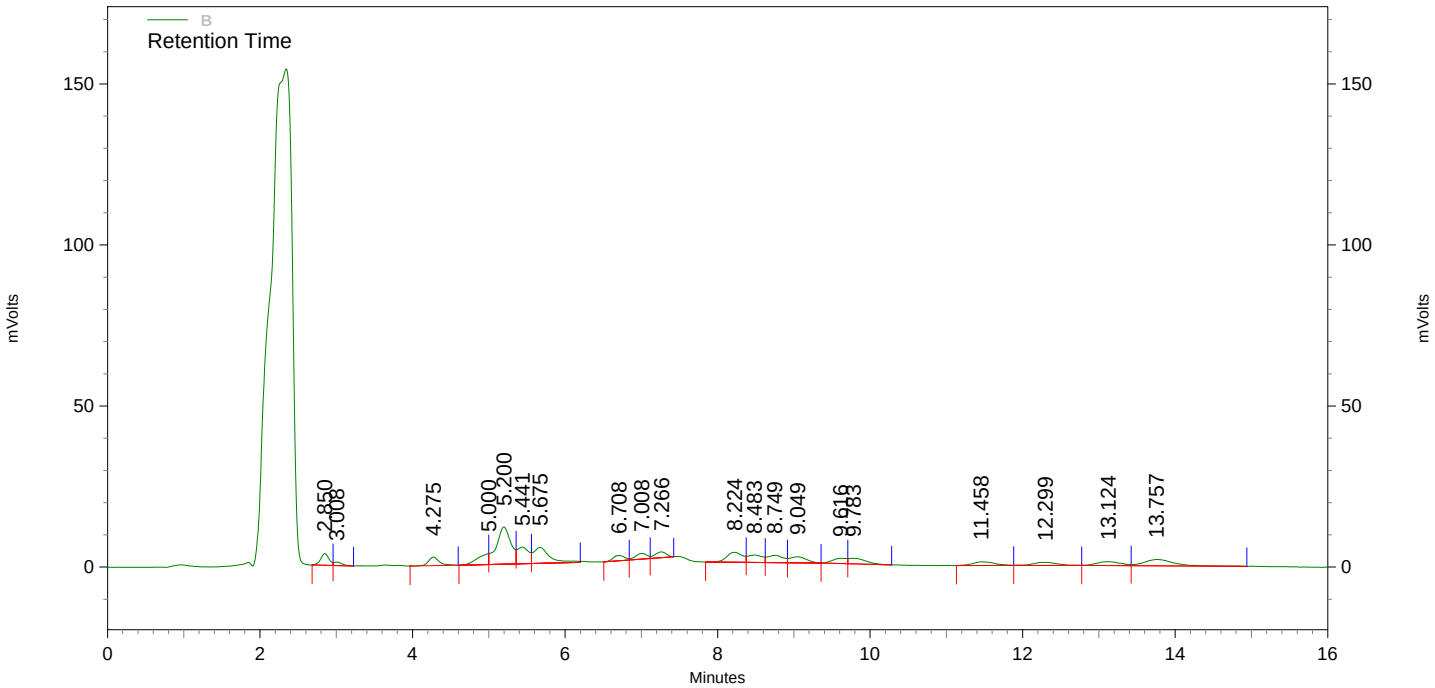
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082111expic-primary\012.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082111expic-primary.met
Sample ID: 78273,963301, lcsw
Acquired: Aug 21, 2011 17:24:59
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.850	8431	**0.407**
RDX	4.275	13379	**0.481**
12-DNB (SSTD)	5.450	16288	**99.273**
135-TNB	5.675	25581	**0.431**
13-DNB	6.708	34812	**0.449**
TETRYL	7.000	19270	**0.457**
35-DNA	7.266	29605	**0.462**
NB	7.491	21423	**0.391**
246-TNT	8.499	24029	**0.445**
4-AM-26-DNT	8.741	16957	**0.428**
2-AM-46-DNT	9.049	27213	**0.450**
2-NT	11.466	12455	**0.382**
4-NT	12.308	11047	**0.421**
3-NT	13.132	13737	**0.403**

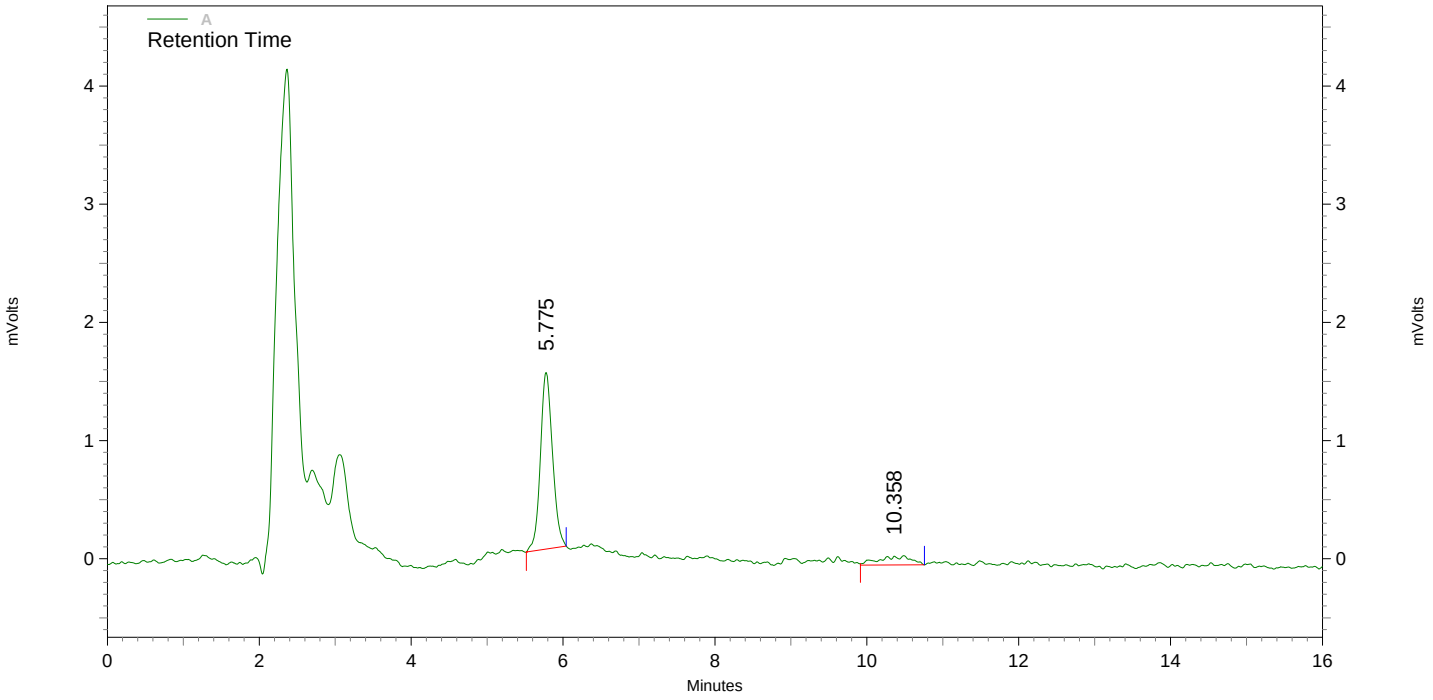
B Results

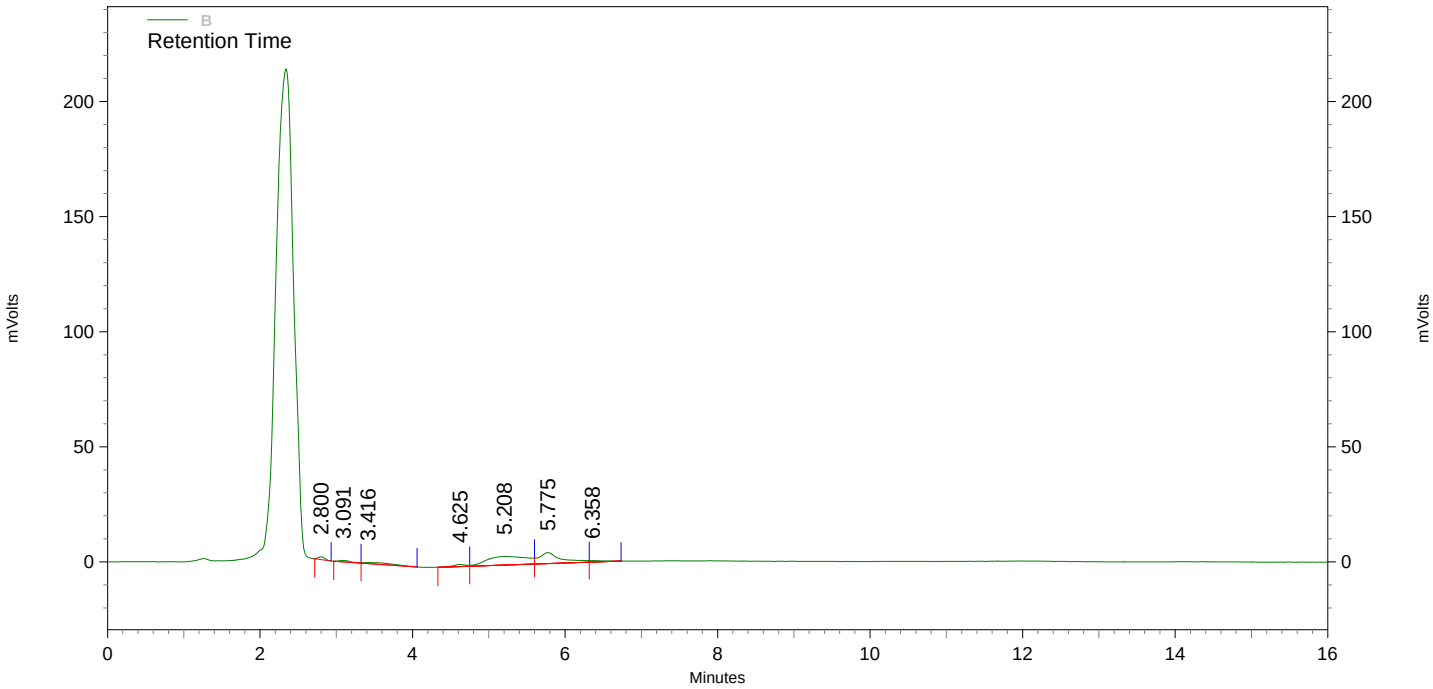
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.224	44999	**1.996**
26-DNT	9.616	20963	**0.487**
24-DNT	9.783	27462	**0.487**
PETN	13.757	53879	**1.996**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\015.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963946, mbs
Acquired: Aug 23, 2011 13:53:44
Data Summary: Reason #1,#4 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.775	16612	**101.385**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

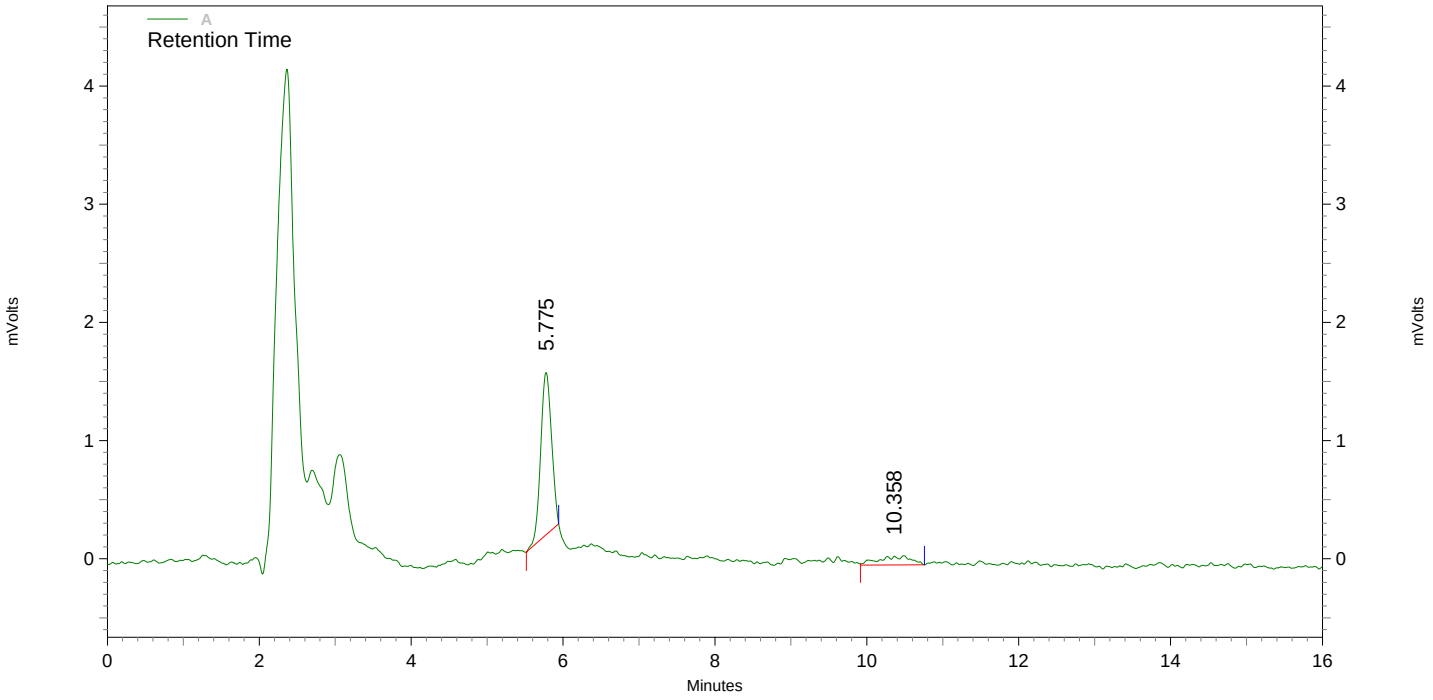
B Results

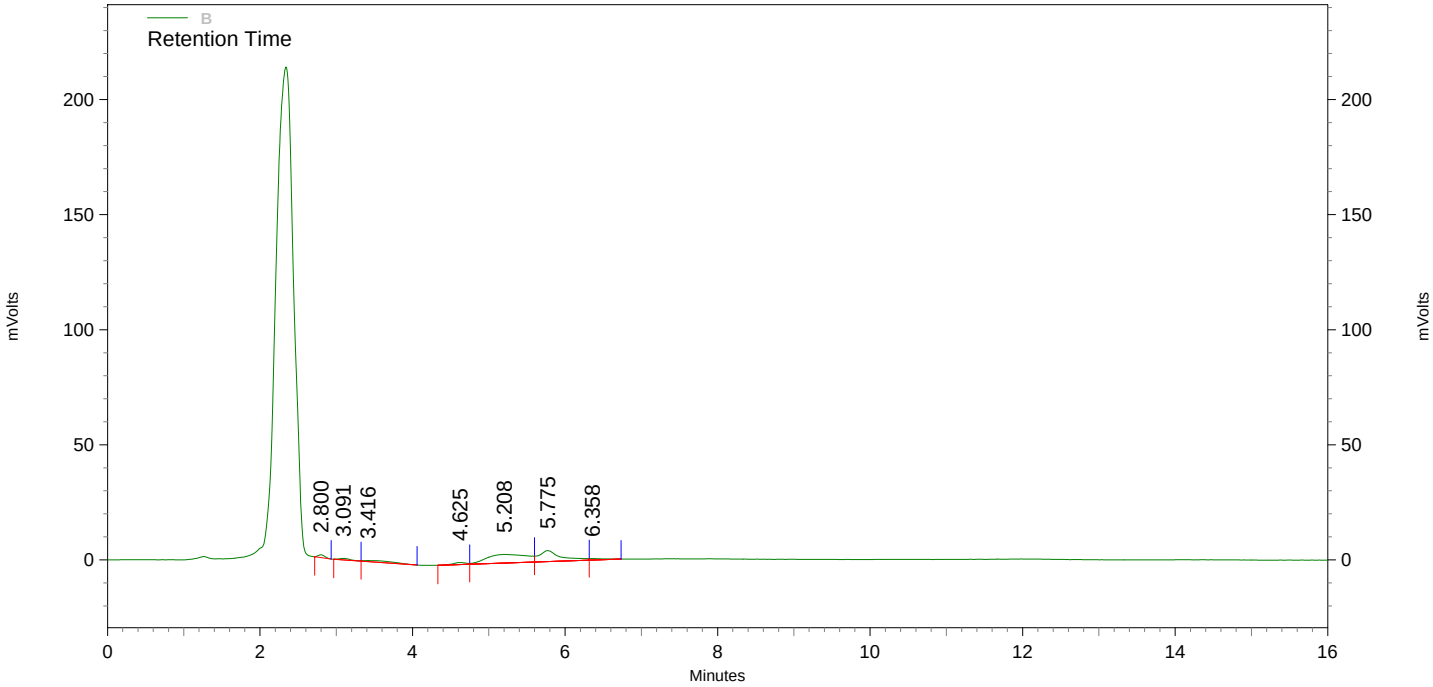
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

Before Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\015.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963946, mbs
Acquired: Aug 23, 2011 13:53:44
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)			**0.000 BDL**
135-TNB	5.775	13621	**0.227**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

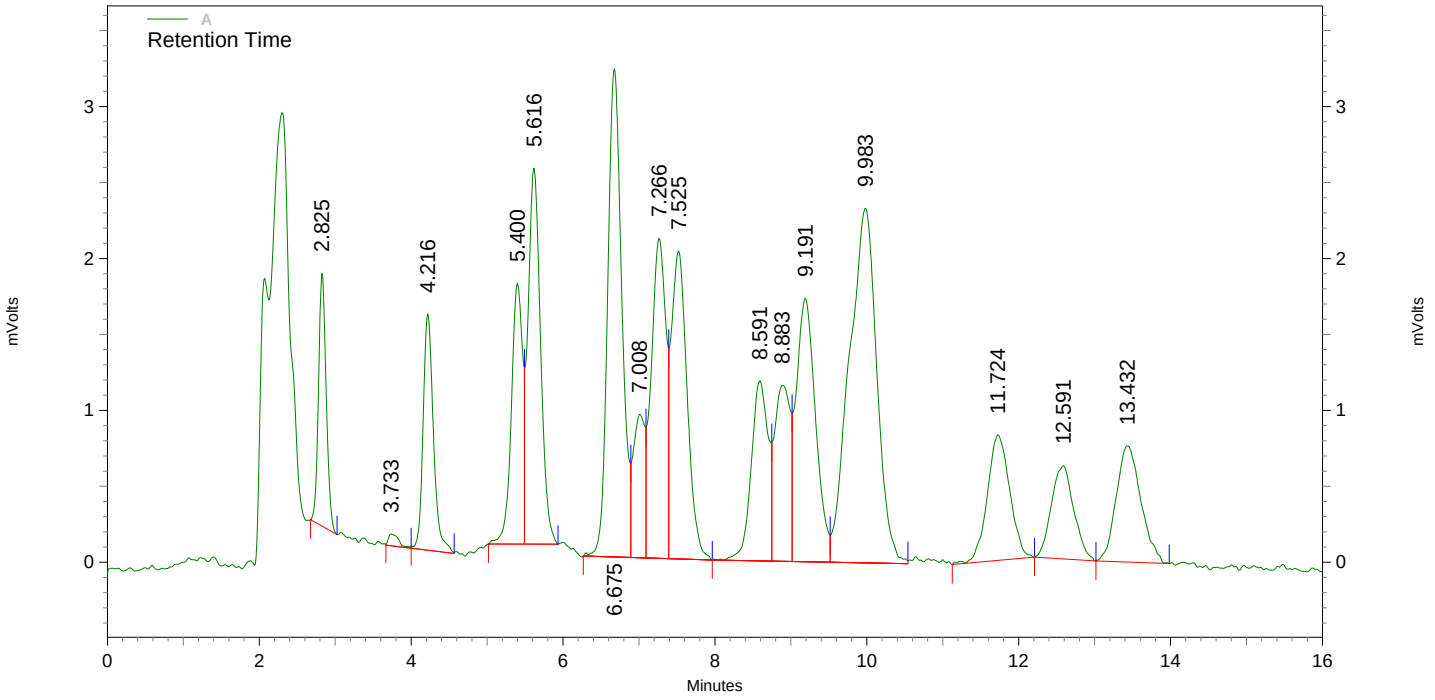
After Manual Integration

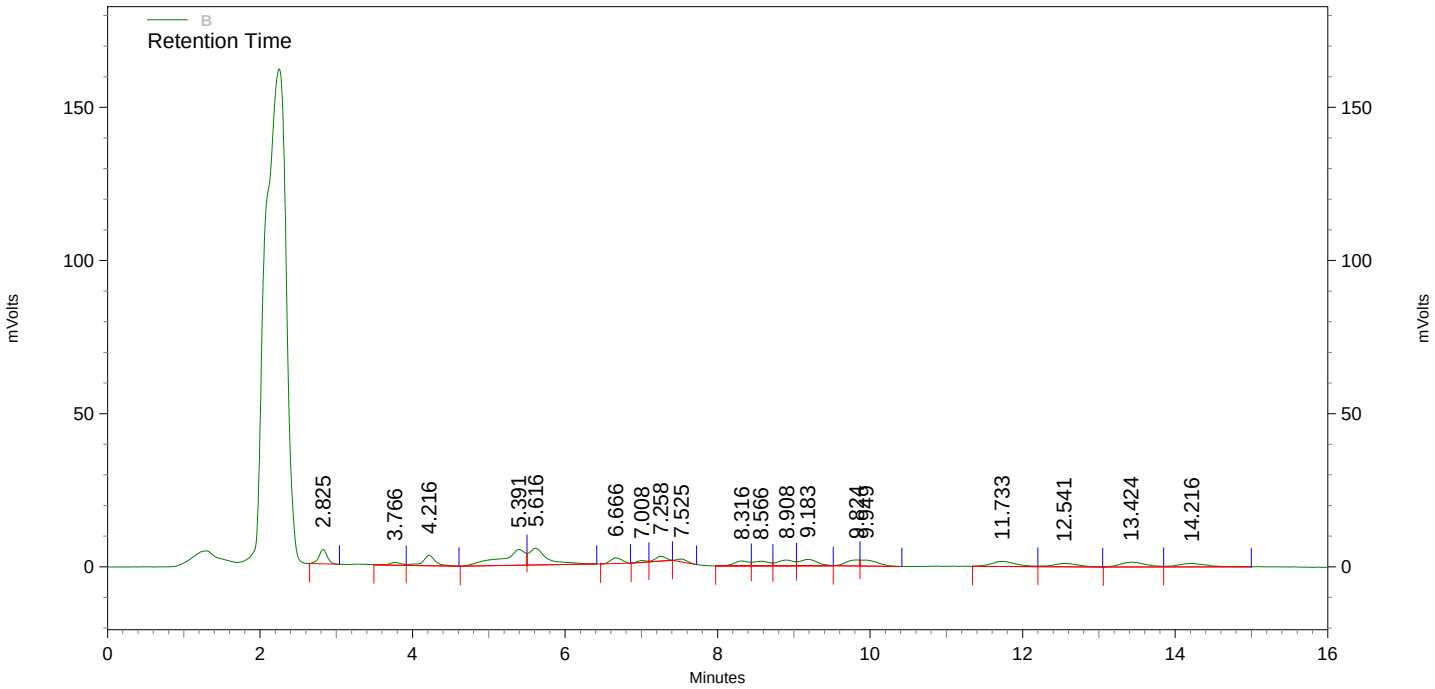
08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\016.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963947, lcss
Acquired: Aug 23, 2011 14:12:00
Data Summary: Reason #3,#4 applies to data. RED 8/23/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	11713	**0.575**
RDX	4.216	14608	**0.528**
12-DNB (SSTD)	5.400	17621	**107.966**
135-TNB	5.616	28632	**0.483**
13-DNB	6.675	41677	**0.540**
TETRYL	7.008	10036	**0.230**
35-DNA	7.266	28465	**0.443**
NB	7.525	29636	**0.543**
246-TNT	8.591	18464	**0.340**
4-AM-26-DNT	8.883	16465	**0.415**
2-AM-46-DNT	9.191	30717	**0.509**
2-NT	11.724	16946	**0.528**
4-NT	12.591	12571	**0.481**
3-NT	13.432	17231	**0.509**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.316	21021	**0.884**
26-DNT	9.824	23186	**0.542**
24-DNT	9.949	30612	**0.540**
PETN	14.216	29790	**1.102**

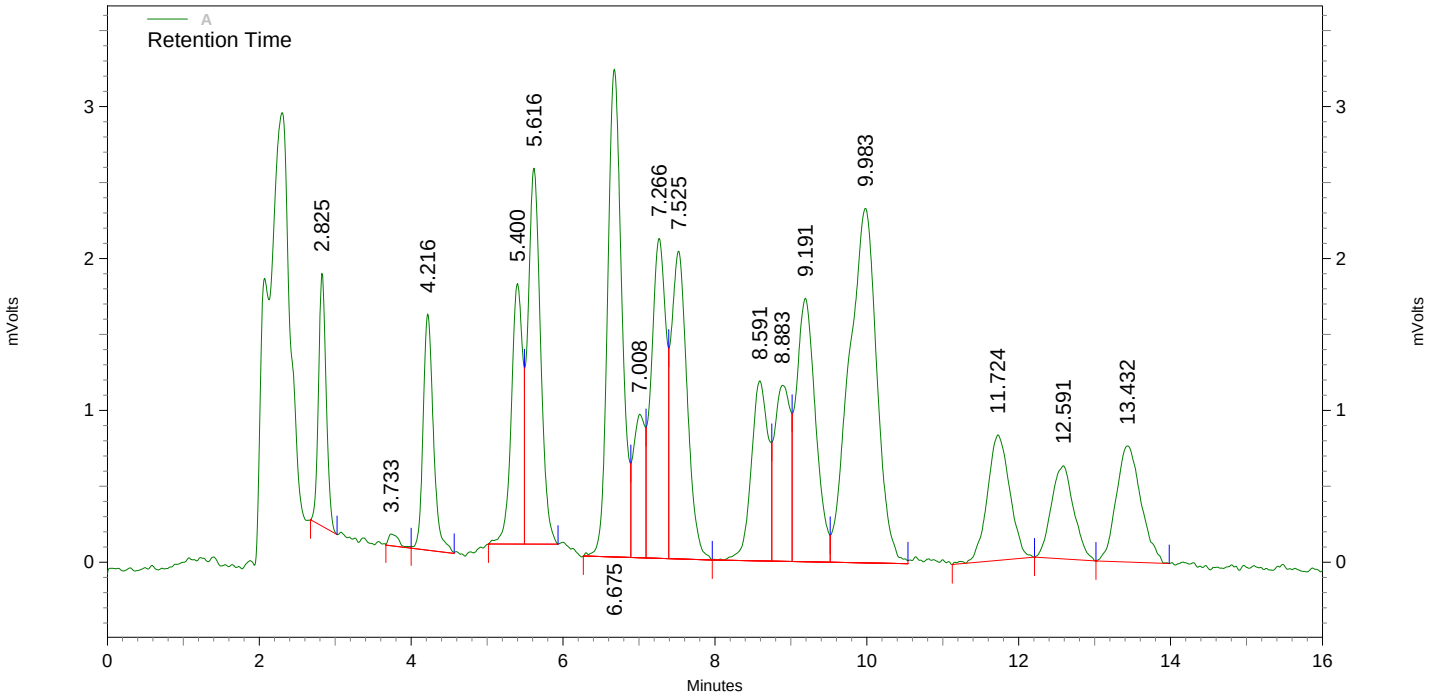
Before Manual Integration

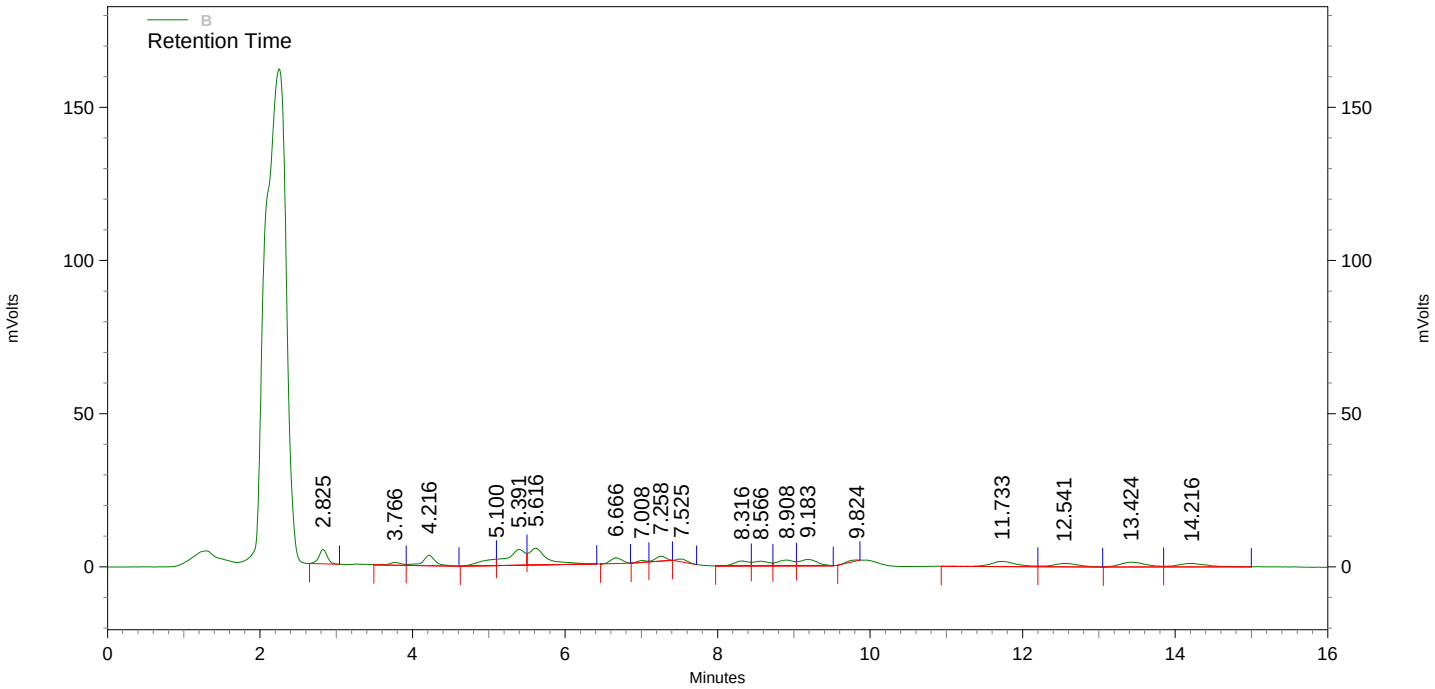
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\016.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963947, lcss
Acquired: Aug 23, 2011 14:12:00
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.825	11713	**0.575**
RDX	4.216	14608	**0.528**
12-DNB (SSTD)	5.400	17621	**107.966**
135-TNB	5.616	28632	**0.483**
13-DNB	6.675	41677	**0.540**
TETRYL	7.008	10036	**0.230**
35-DNA	7.266	28465	**0.443**
NB	7.525	29636	**0.543**
246-TNT	8.591	18464	**0.340**
4-AM-26-DNT	8.883	16465	**0.415**
2-AM-46-DNT	9.191	30717	**0.509**
2-NT	11.724	16946	**0.528**
4-NT	12.591	12571	**0.481**
3-NT	13.432	17231	**0.509**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.316	21021	**0.884**
26-DNT	9.824	4987	**0.087**
24-DNT			**0.000 BDL**
PETN	14.216	29790	**1.102**

Triplicate Sample Analysis Relative Standard Deviation Calculations

Analyst: HHK/RED
Sample ID: **962085**
Analysis Date: 8/23/2011
Data path: C:\Instarch\HPLC 2\Data\8330A_B\ 082311exp-primary

	Analyte Concentration (ug/mL)						
e	Parent Sample	Duplicate Sample	Triplicate Sample	Mean Conc. (ug/mL)	Standard Deviation	%RSD	Flag (>20% RSD)
Analyt	0	0	0	0	0	#DIV/0!	#DIV/0!
HMX							
RDX	0	0	0	0	0	#DIV/0!	#DIV/0!
1.3.5-Trinitrobenzne	0	0	0	0	0	#DIV/0!	#DIV/0!
1.2-Dinitrobenzene (SSTD)	112.433	130.132	138.004	126.856333	13.096431	10.32383	
1.3-Dinitrobenzene	0	0	0	0	0	#DIV/0!	#DIV/0!
tetryl	0	0	0	0	0	#DIV/0!	#DIV/0!
3,5-dinitroaniline	0	0	0	0	0	#DIV/0!	#DIV/0!
Nitrobenzene	0	0	0	0	0	#DIV/0!	#DIV/0!
2,4,6-Trinitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
2-amino-4,6-Dinitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
4-amino-2,6-Dinitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
2,6-Dinitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
2,4-Dinitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
2-Nitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
4-Nitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
3-Nitrotoluene	0	0	0	0	0	#DIV/0!	#DIV/0!
Nitroglycerin	0	0	0	0	0	#DIV/0!	#DIV/0!
PETN	0	0	0	0	0	#DIV/0!	#DIV/0!

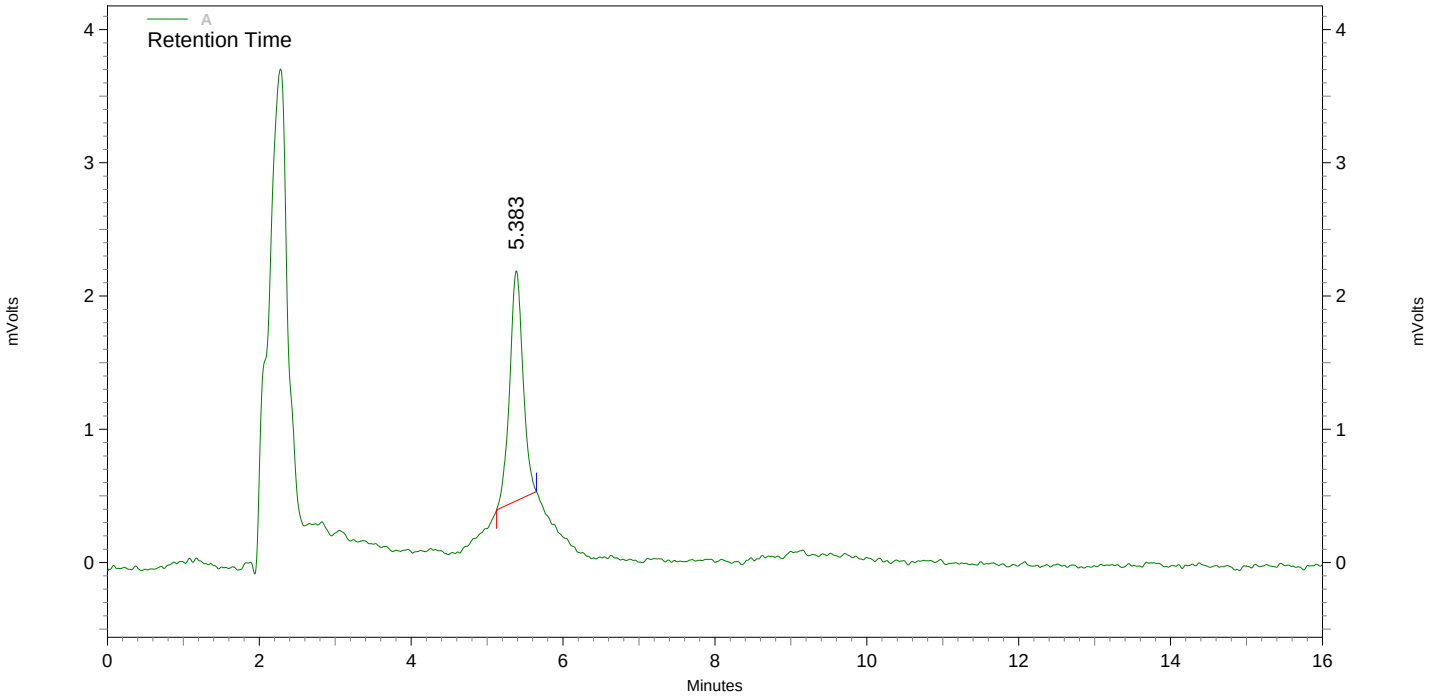
RED
08/26/2011

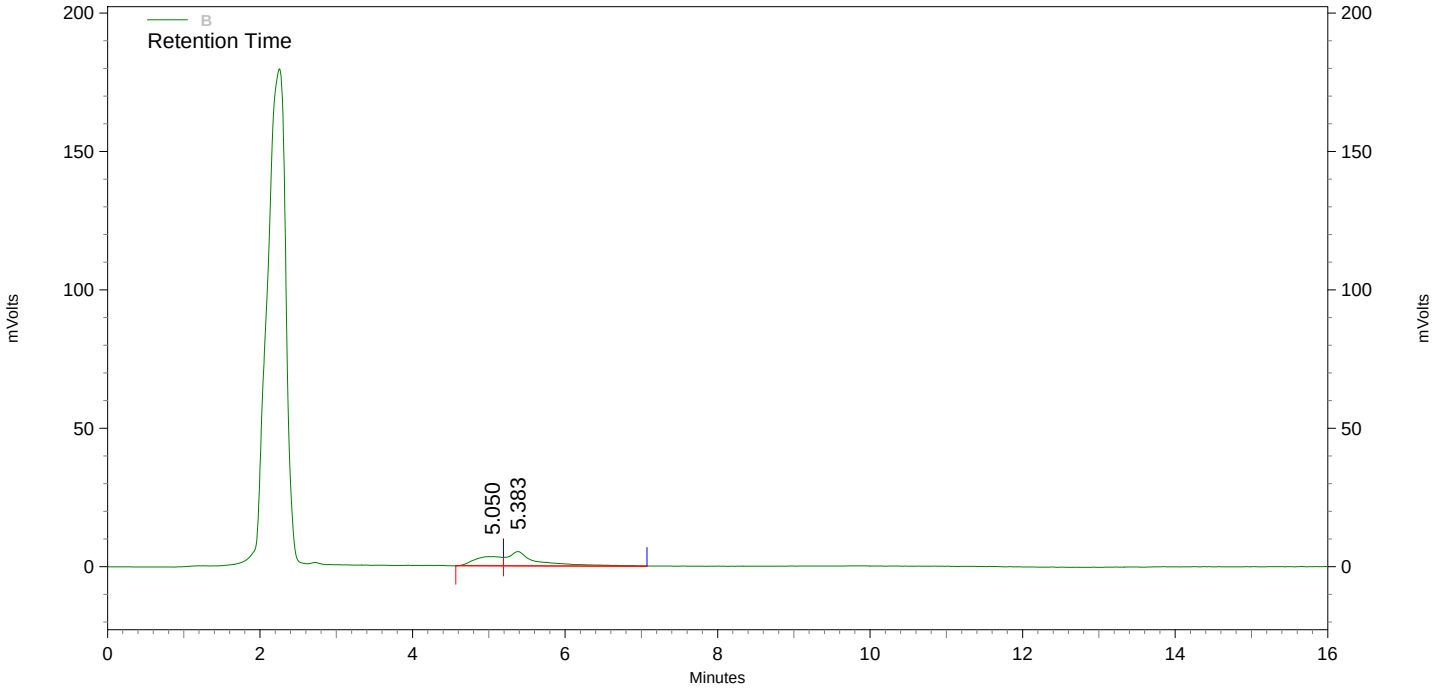
After Manual Integration

HHK
08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\018.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 962085 dup.
Acquired: Aug 23, 2011 14:48:37
Data Summary: Reason #4 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.383	21020	**130.132**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

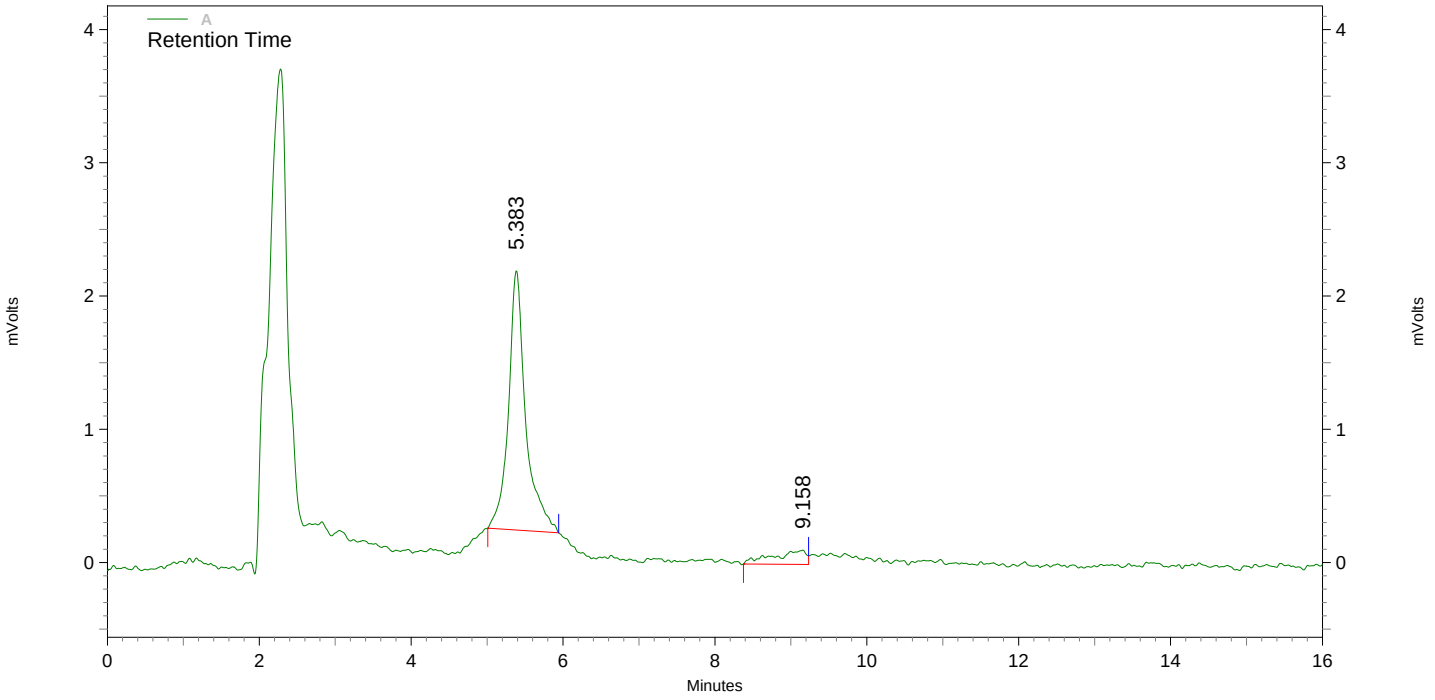
Before Manual Integration

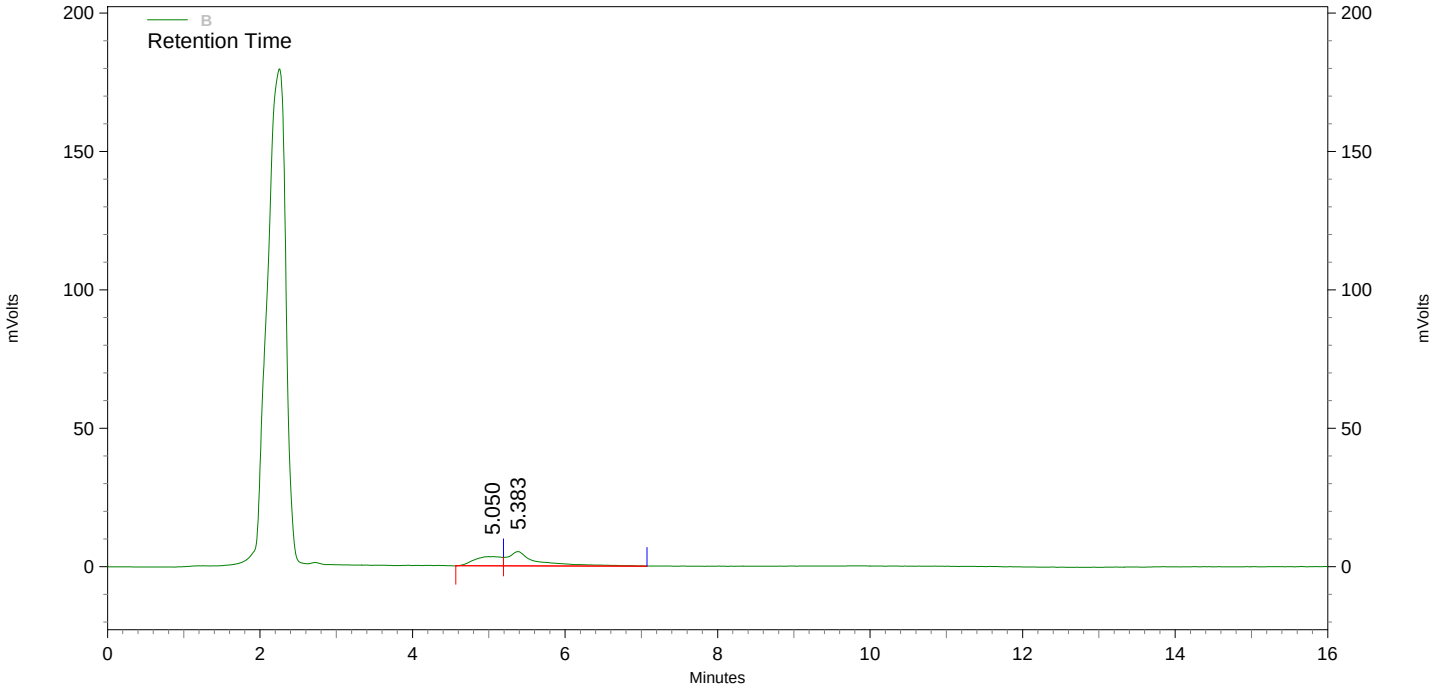
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\018.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 962085 dup.
Acquired: Aug 23, 2011 14:48:37
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.383	30721	**193.398**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT	9.158	3140	**0.062**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

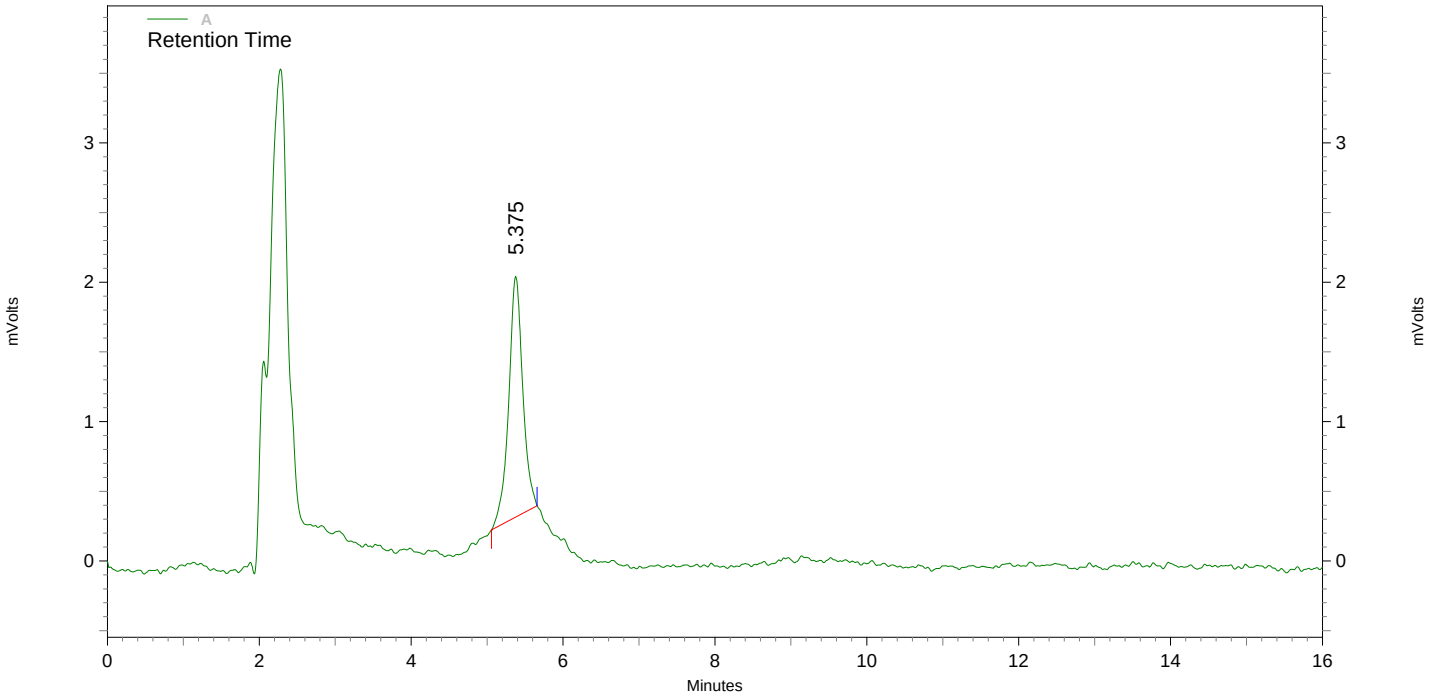
B Results

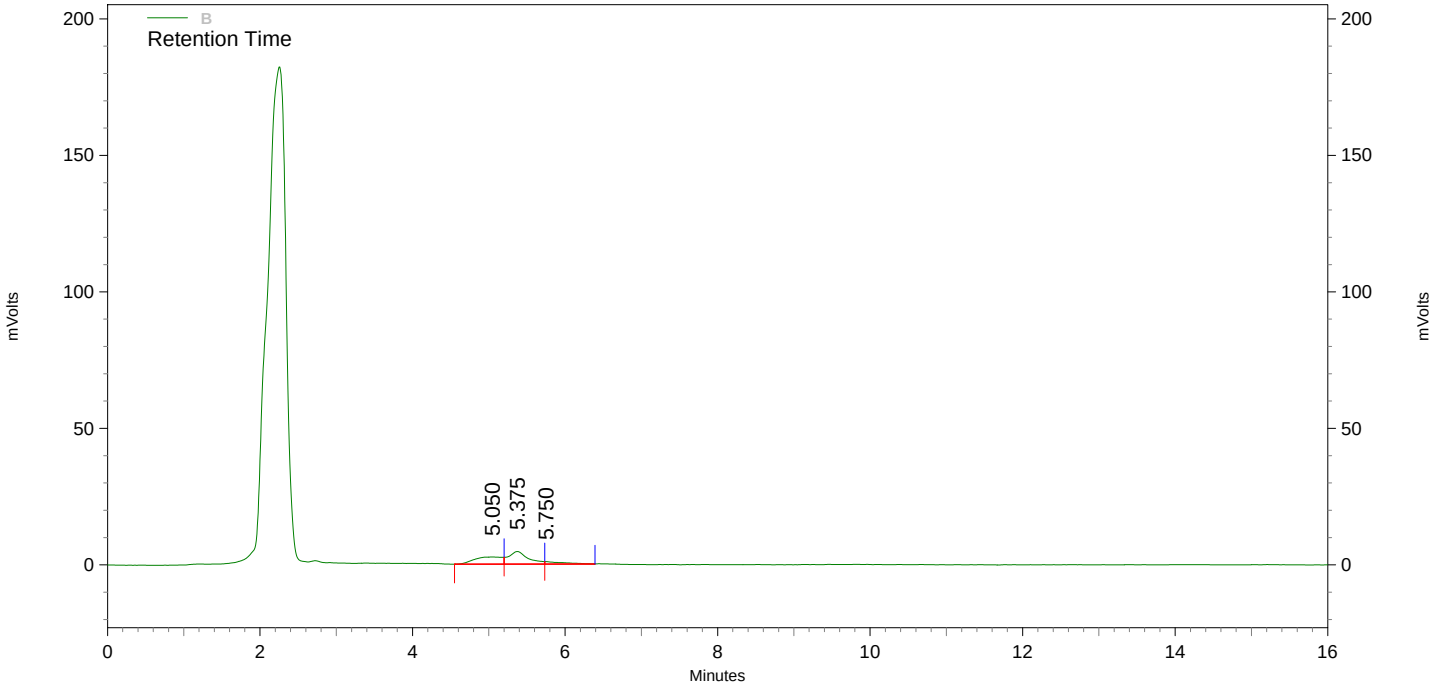
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\019.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 962085 trip.
Acquired: Aug 23, 2011 15:06:56
Data Summary: Reason #4 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.375	22227	**138.004**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

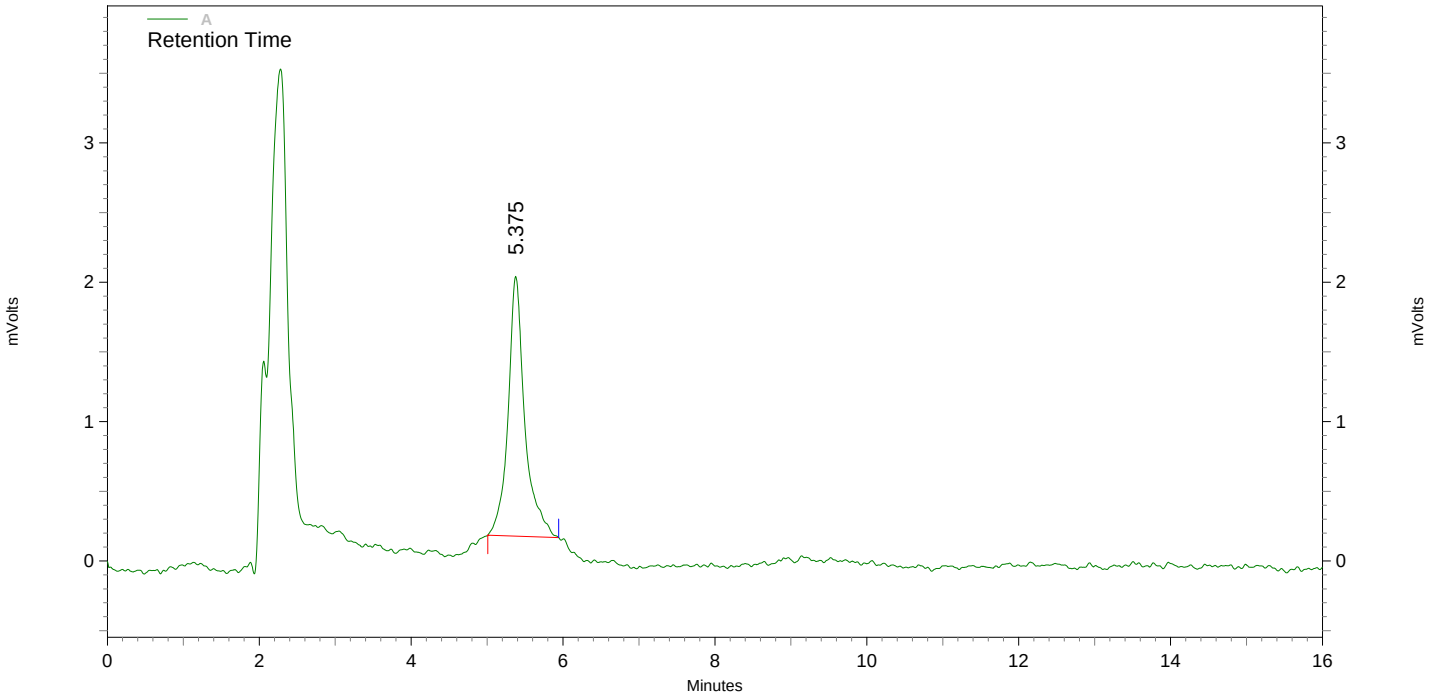
Before Manual Integration

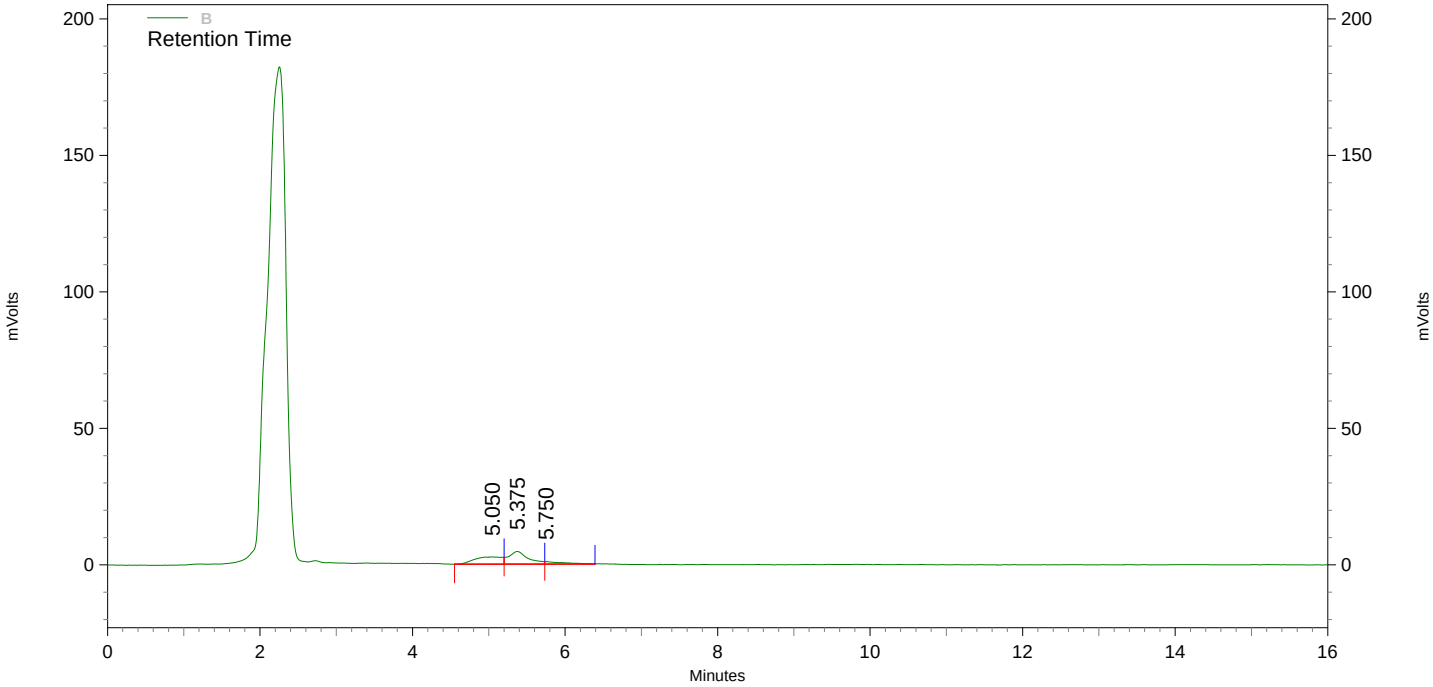
HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\019.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 962085 trip.
Acquired: Aug 23, 2011 15:06:56
Data Summary: {Data Description}





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX			**0.000 BDL**
RDX			**0.000 BDL**
12-DNB (SSTD)	5.375	28535	**179.142**
135-TNB			**0.000 BDL**
13-DNB			**0.000 BDL**
TETRYL			**0.000 BDL**
35-DNA			**0.000 BDL**
NB			**0.000 BDL**
246-TNT			**0.000 BDL**
4-AM-26-DNT			**0.000 BDL**
2-AM-46-DNT			**0.000 BDL**
2-NT			**0.000 BDL**
4-NT			**0.000 BDL**
3-NT			**0.000 BDL**

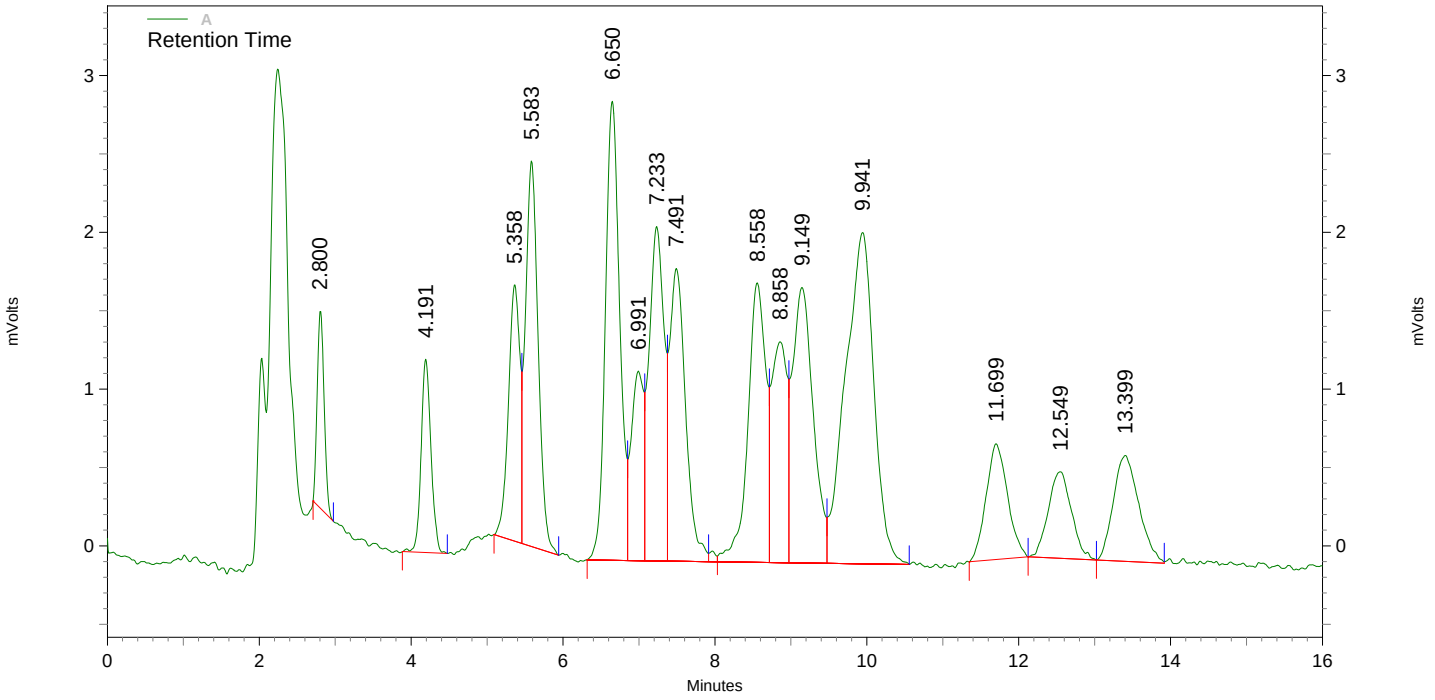
B Results

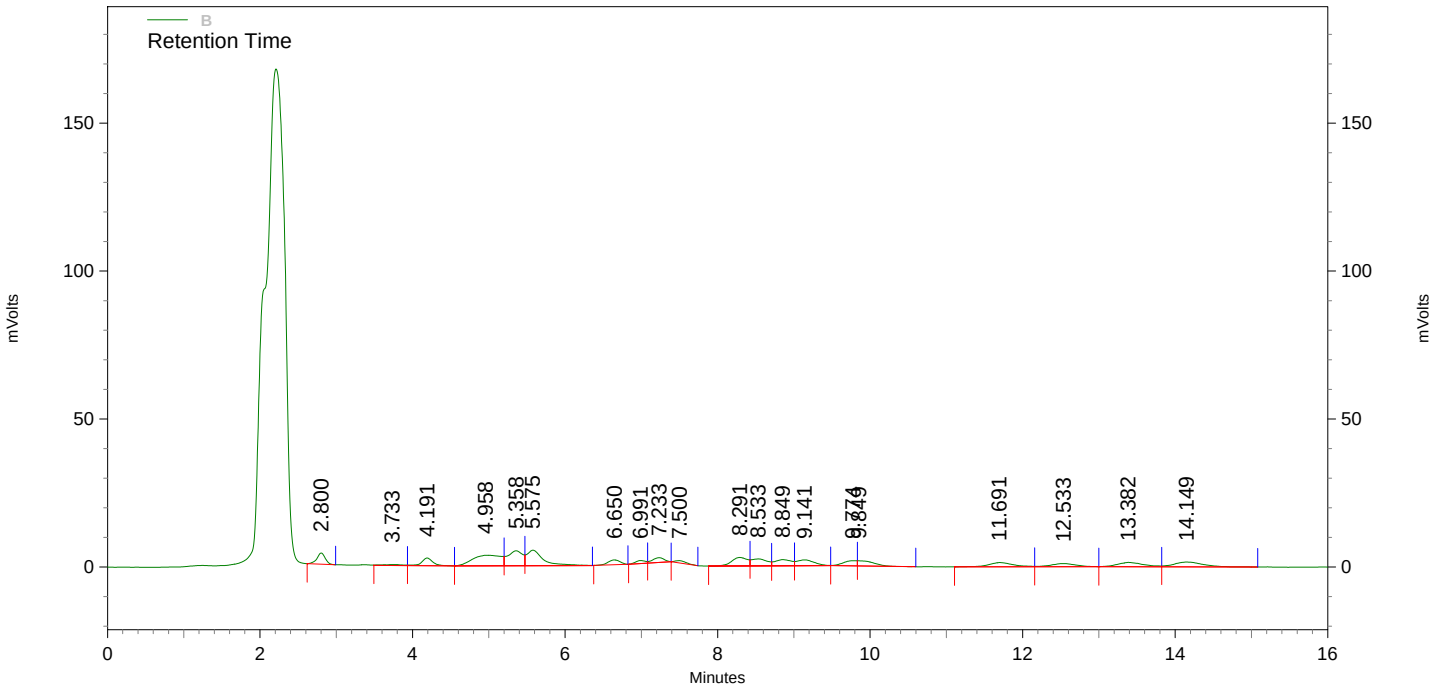
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG			**0.000 BDL**
26-DNT			**0.000 BDL**
24-DNT			**0.000 BDL**
PETN			**0.000 BDL**

After Manual Integration HHK 08/26/2011 RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\022.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963948, mss
Acquired: Aug 23, 2011 16:01:50
Data Summary: Reason #3 applies to data. RED 8/24/2011





A Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.800	8063	**0.388**
RDX	4.191	11079	**0.392**
12-DNB (SSTD)	5.358	17161	**104.966**
135-TNB	5.583	28611	**0.483**
13-DNB	6.650	38213	**0.494**
TETRYL	6.991	13611	**0.318**
35-DNA	7.233	29541	**0.461**
NB	7.491	27406	**0.502**
246-TNT	8.558	29234	**0.544**
4-AM-26-DNT	8.858	19843	**0.504**
2-AM-46-DNT	9.149	33377	**0.555**
2-NT	11.699	14507	**0.448**
4-NT	12.549	11726	**0.448**
3-NT	13.399	15735	**0.464**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.291	40400	**1.783**
26-DNT	9.774	20325	**0.471**
24-DNT	9.849	25030	**0.446**
PETN	14.149	43508	**1.611**

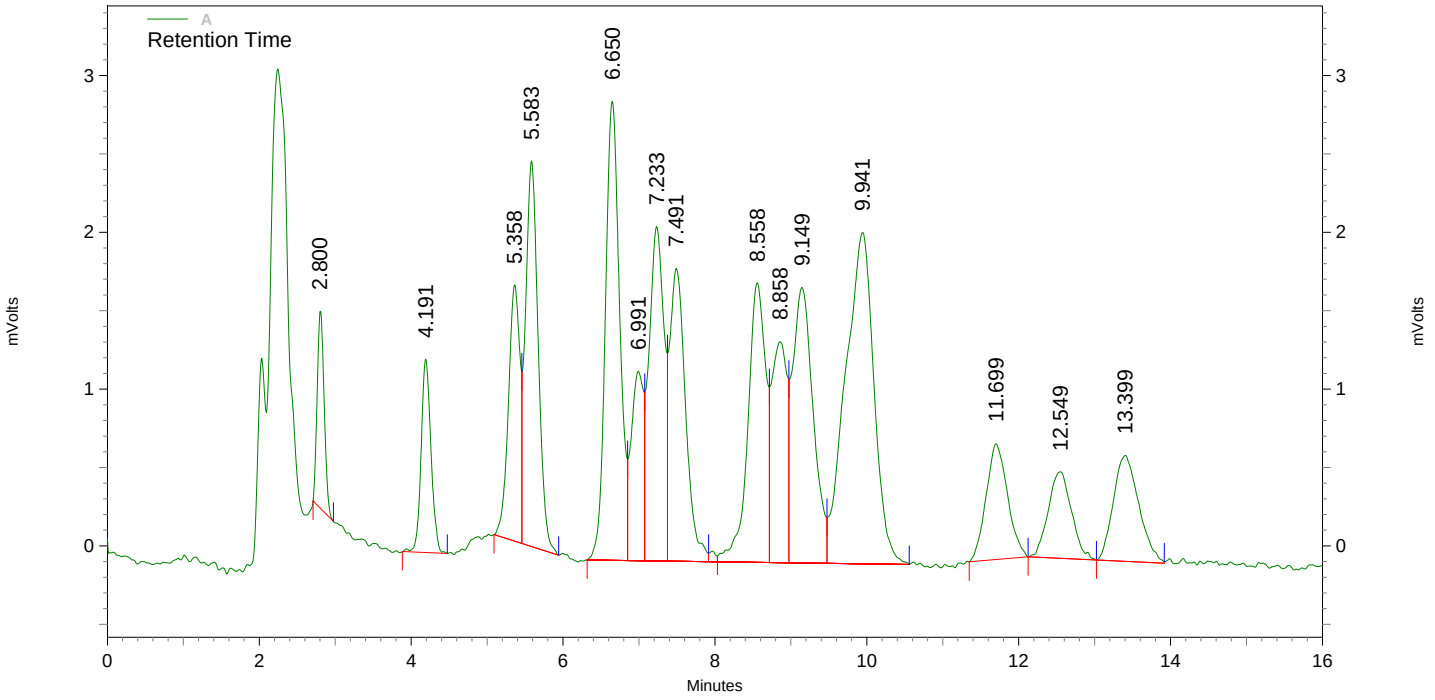
Before Manual Integration

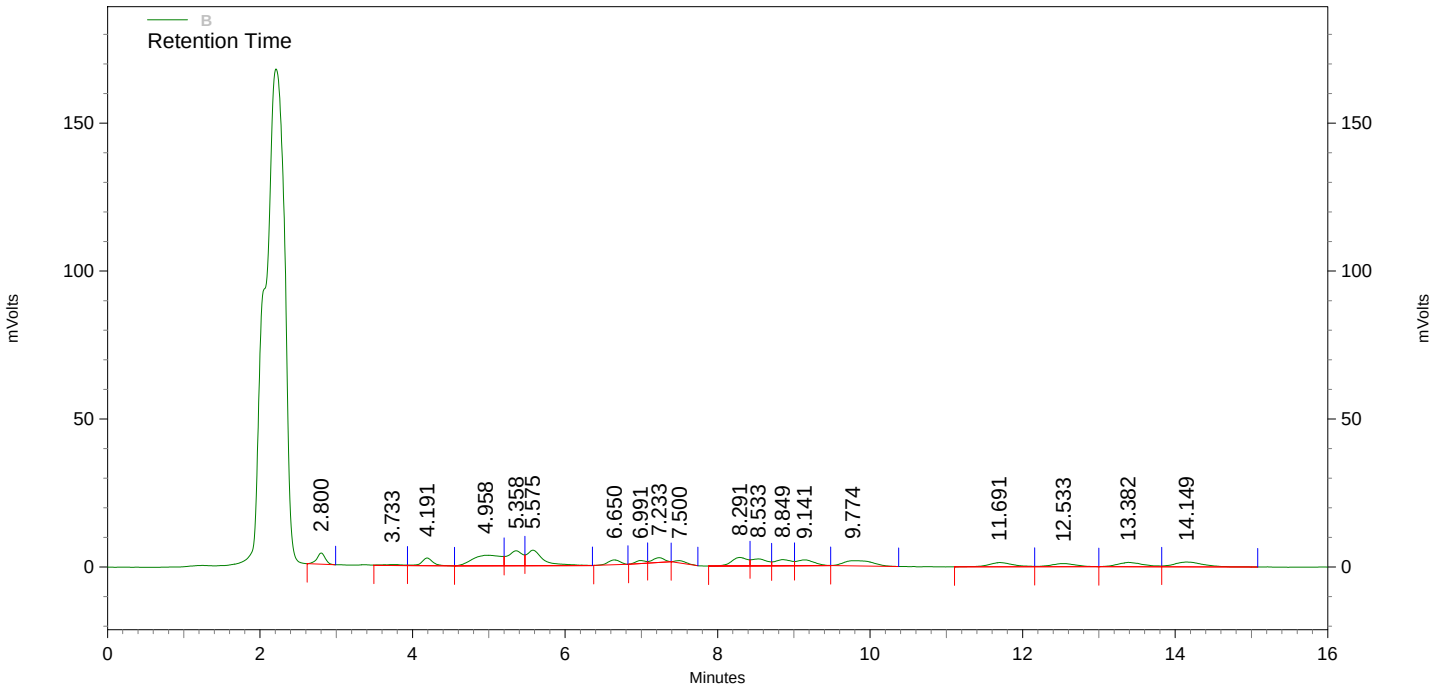
08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\022.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963948, mss
Acquired: Aug 23, 2011 16:01:50
Data Summary: {Data Description}





A Results

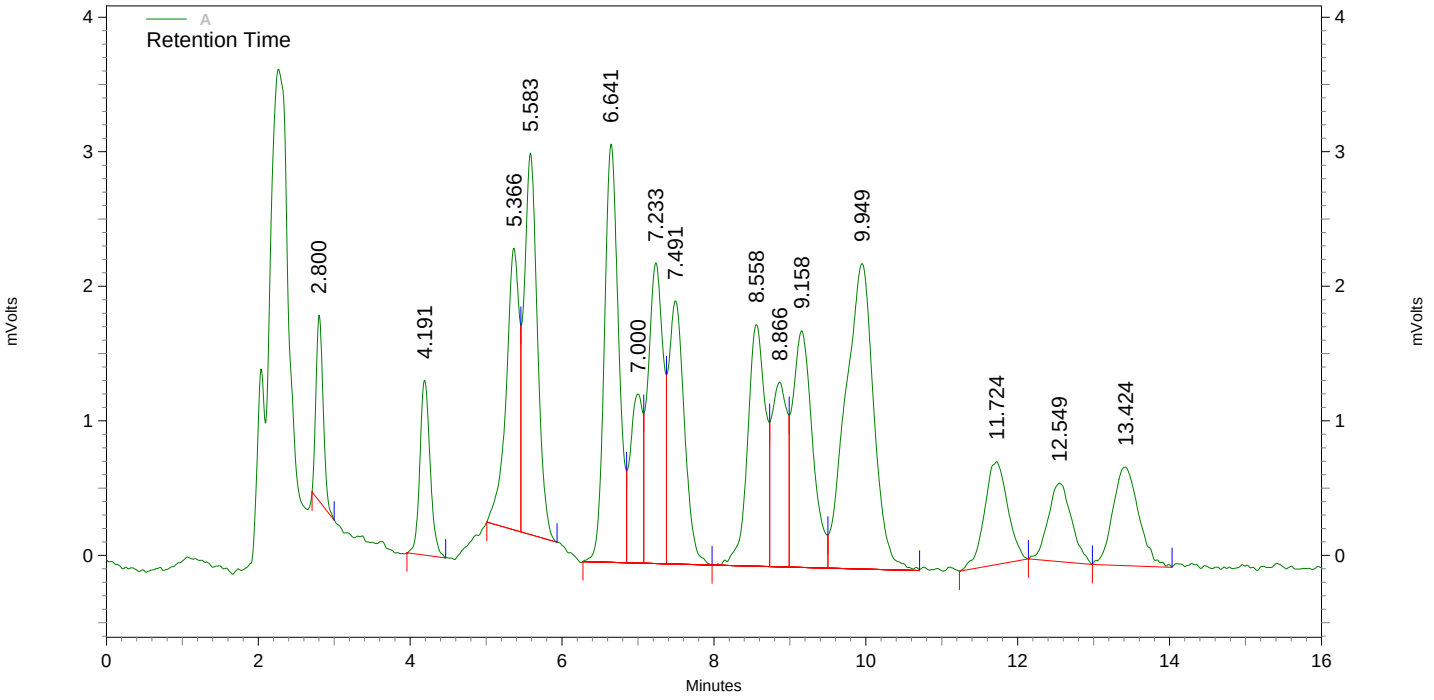
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.800	8063	**0.388**
RDX	4.191	11079	**0.392**
12-DNB (SSTD)	5.358	17161	**104.966**
135-TNB	5.583	28611	**0.483**
13-DNB	6.650	38213	**0.494**
TETRYL	6.991	13611	**0.318**
35-DNA	7.233	29541	**0.461**
NB	7.491	27406	**0.502**
246-TNT	8.558	29234	**0.544**
4-AM-26-DNT	8.858	19843	**0.504**
2-AM-46-DNT	9.149	33377	**0.555**
2-NT	11.699	14507	**0.448**
4-NT	12.549	11726	**0.448**
3-NT	13.399	15735	**0.464**

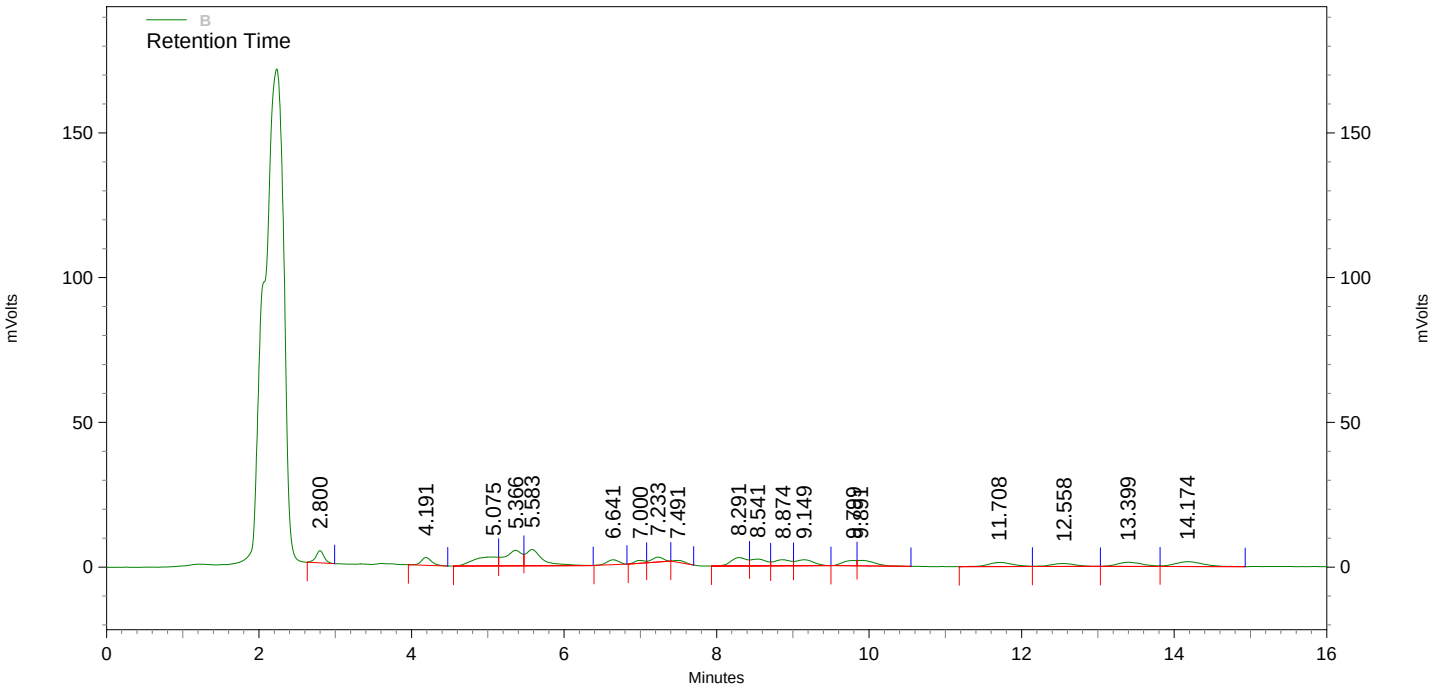
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.291	40400	**1.783**
26-DNT	9.774	46383	**1.123**
24-DNT			**0.000 BDL**
PETN	14.149	43508	**1.611**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082311exp-primary\023.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\primary\082111expic-primary\082311exp-primary.met
Sample ID: 78322,963949, msds
Acquired: Aug 23, 2011 16:20:07
Data Summary: {Data Description}





A Results

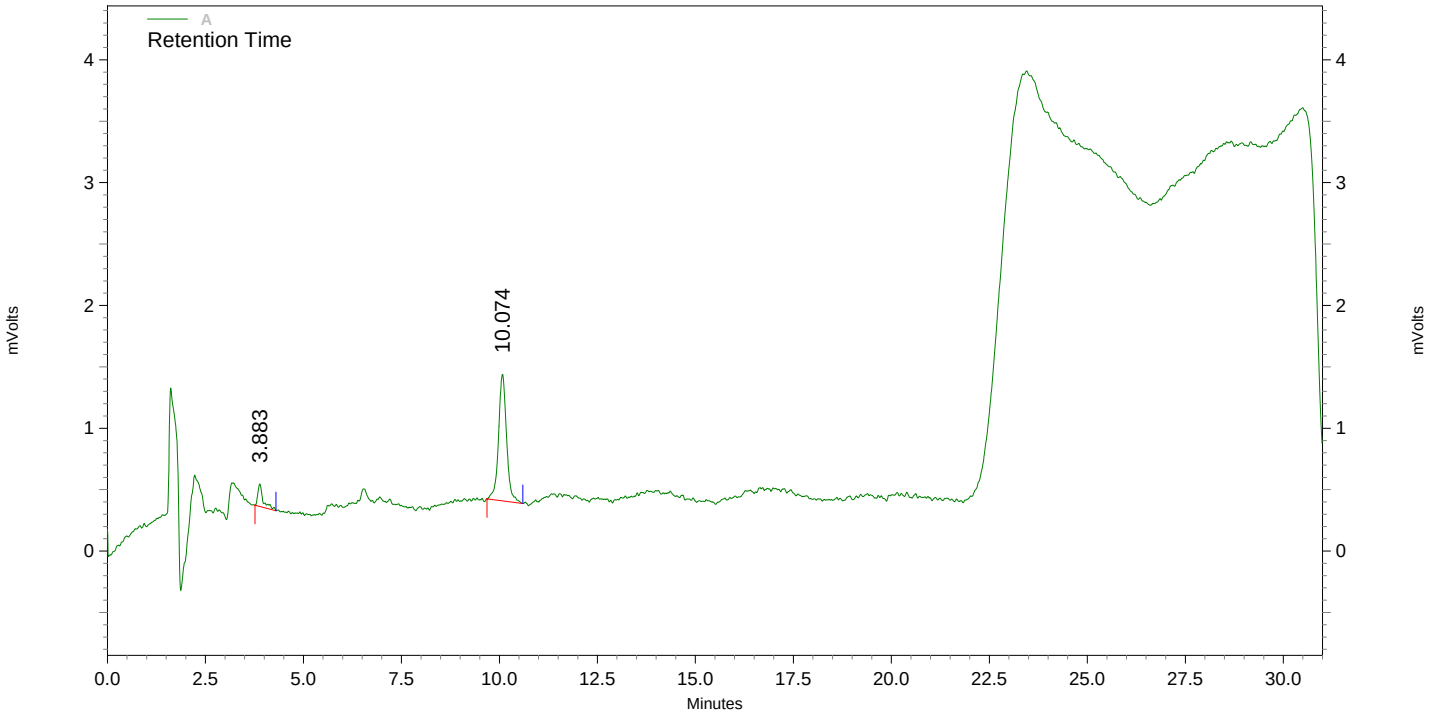
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX	2.800	9076	**0.440**
RDX	4.191	12228	**0.436**
12-DNB (SSTD)	5.366	25024	**156.245**
135-TNB	5.583	34670	**0.586**
13-DNB	6.641	40453	**0.524**
TETRYL	7.000	14240	**0.333**
35-DNA	7.233	31088	**0.487**
NB	7.491	28323	**0.519**
246-TNT	8.558	29166	**0.543**
4-AM-26-DNT	8.866	19202	**0.487**
2-AM-46-DNT	9.158	32117	**0.533**
2-NT	11.724	16275	**0.506**
4-NT	12.549	12427	**0.475**
3-NT	13.424	17323	**0.512**

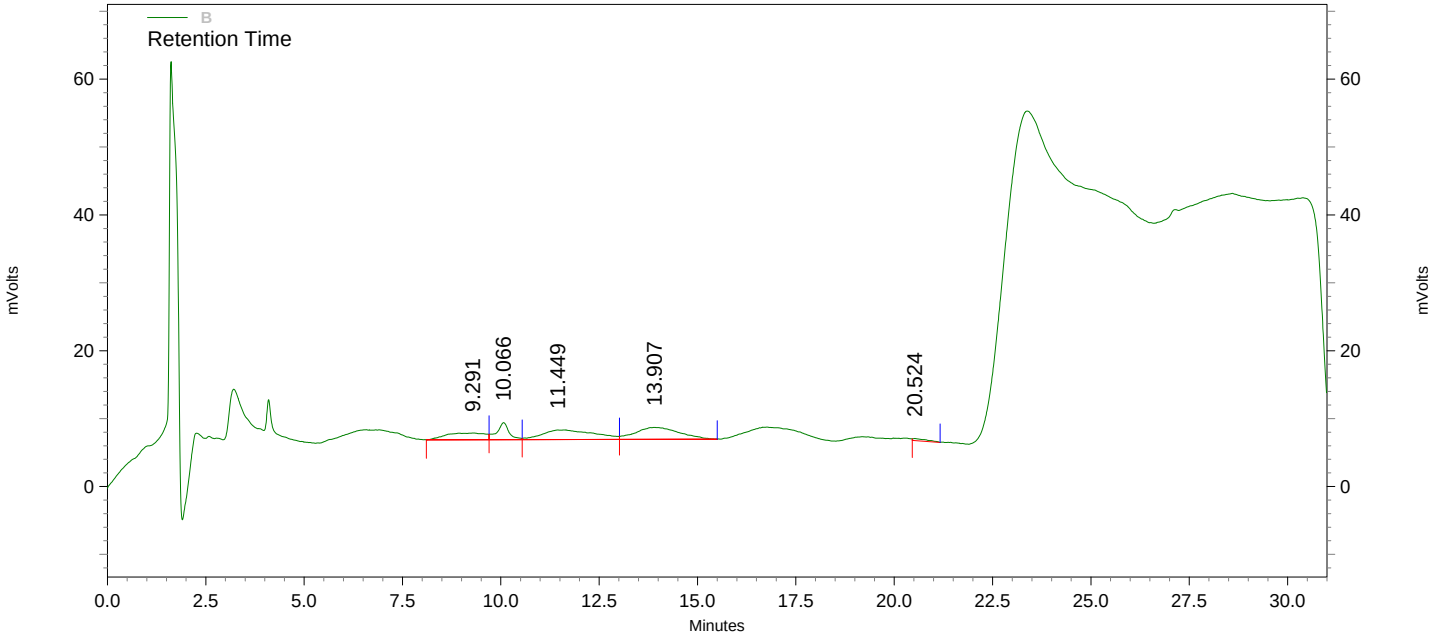
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG	8.291	41800	**1.848**
26-DNT	9.799	22452	**0.524**
24-DNT	9.891	29923	**0.528**
PETN	14.174	44368	**1.643**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\003.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78273,963300, mbw
Acquired: Aug 24, 2011 11:19:41
Data Summary: {Data Description}





78273,963300, mbw

A Results

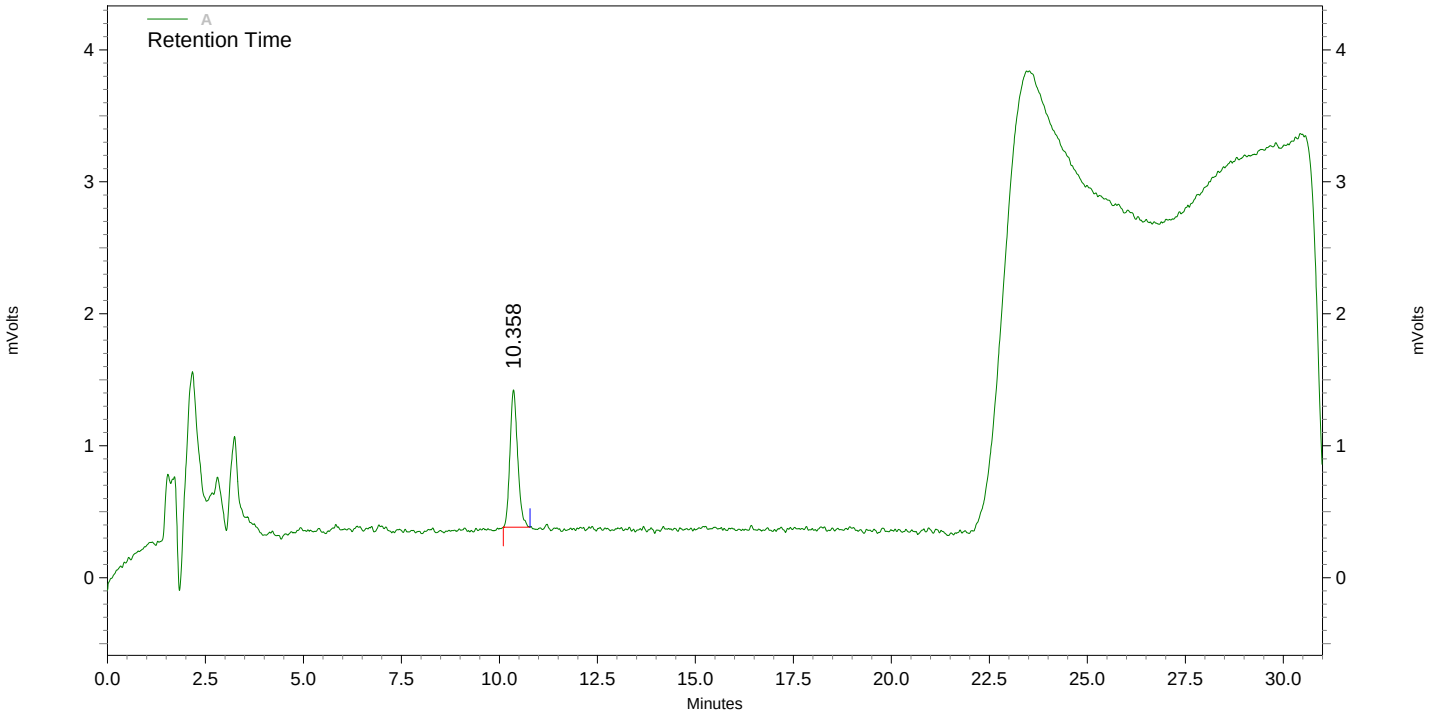
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.074	14698	**88.793**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm			**0.000 BDL**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm			**0.000 BDL**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm			**0.000 BDL**

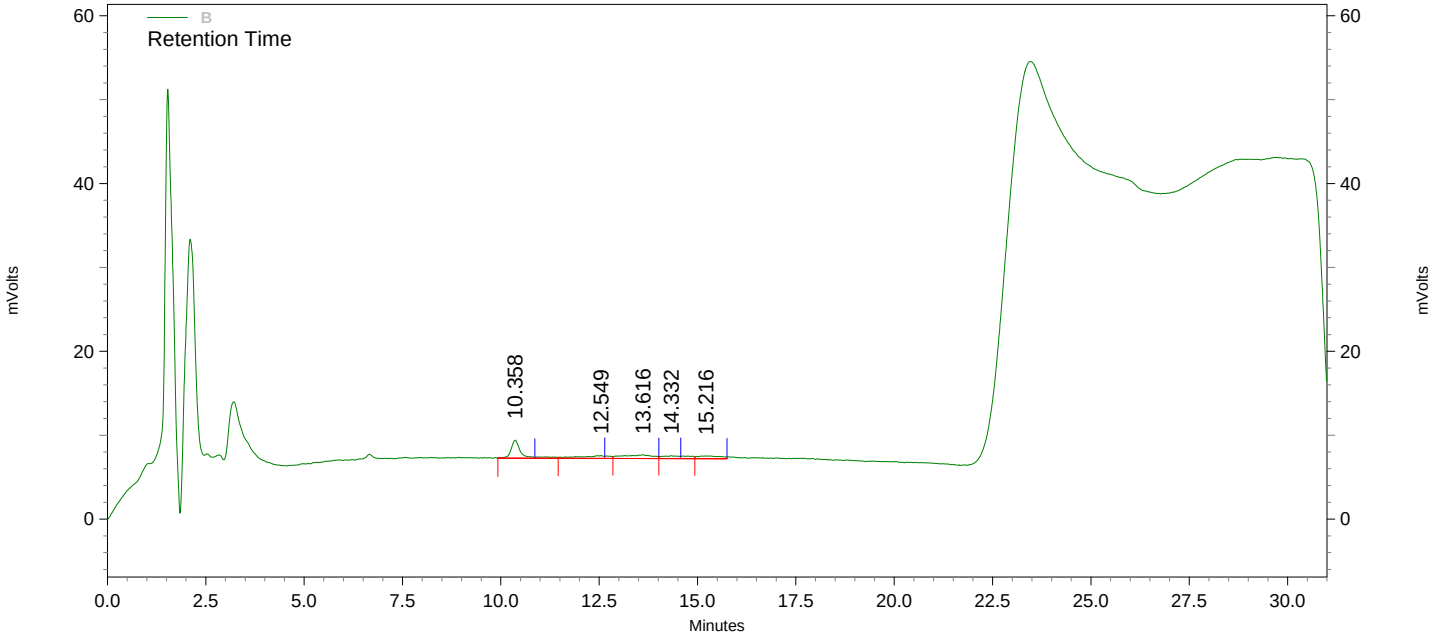
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\047.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,963946,mbs
Acquired: Aug 25, 2011 11:00:39
Data Summary: {Data Description}





78322,963946,mbs

A Results

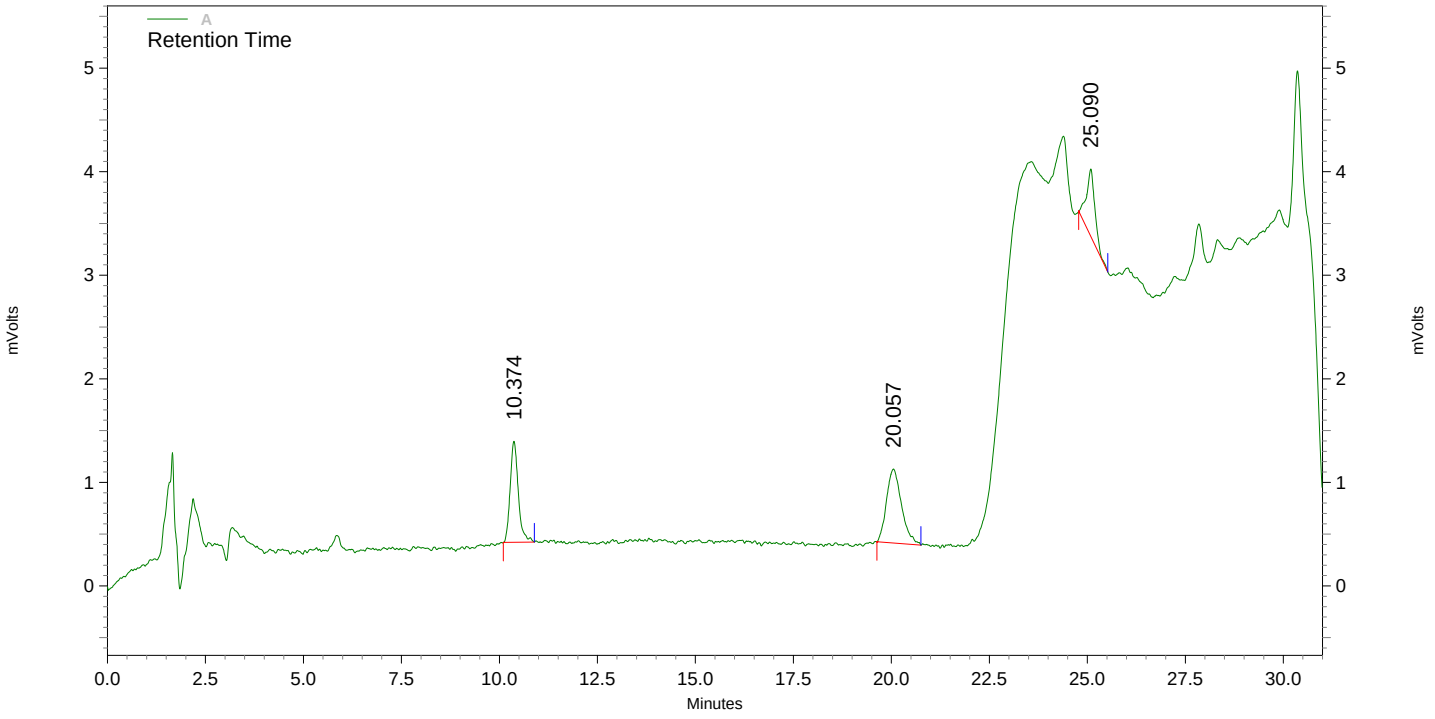
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.358	14231	**85.717**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm			**0.000 BDL**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm			**0.000 BDL**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm			**0.000 BDL**

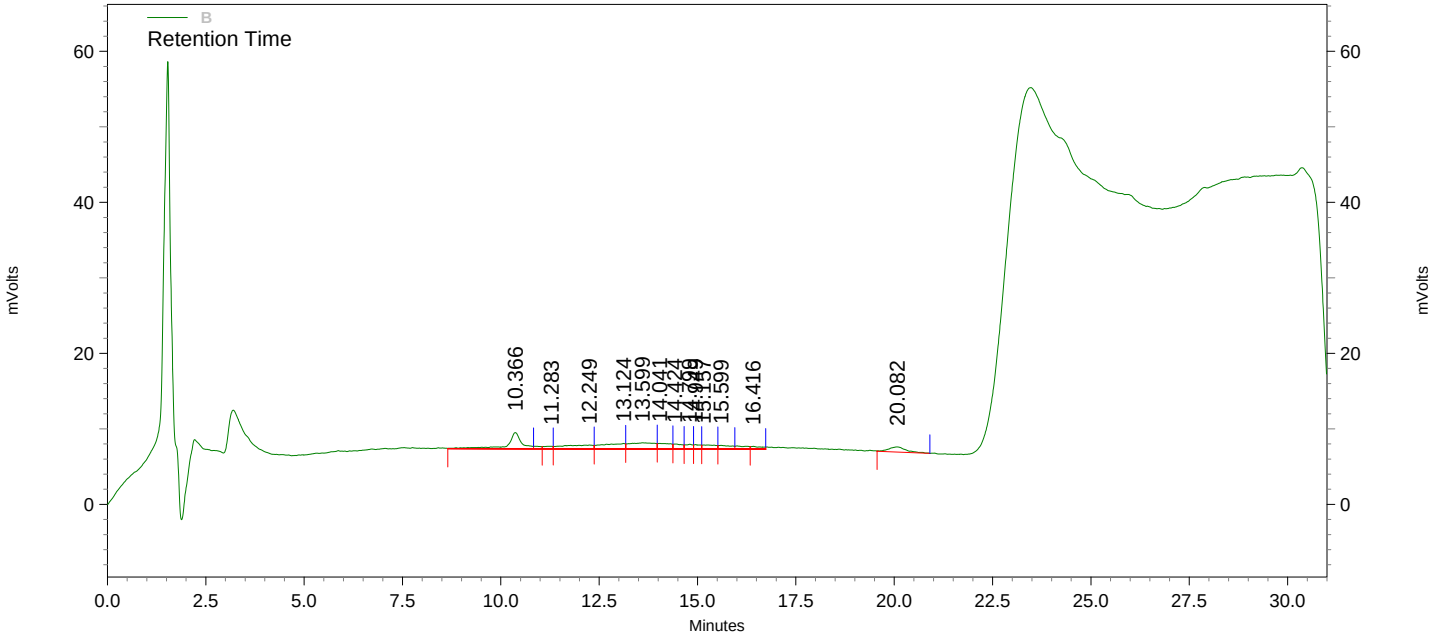
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\049.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,962085,dup.
Acquired: Aug 25, 2011 12:05:12
Data Summary: {Data Description}





78322,962085,dup.

A Results

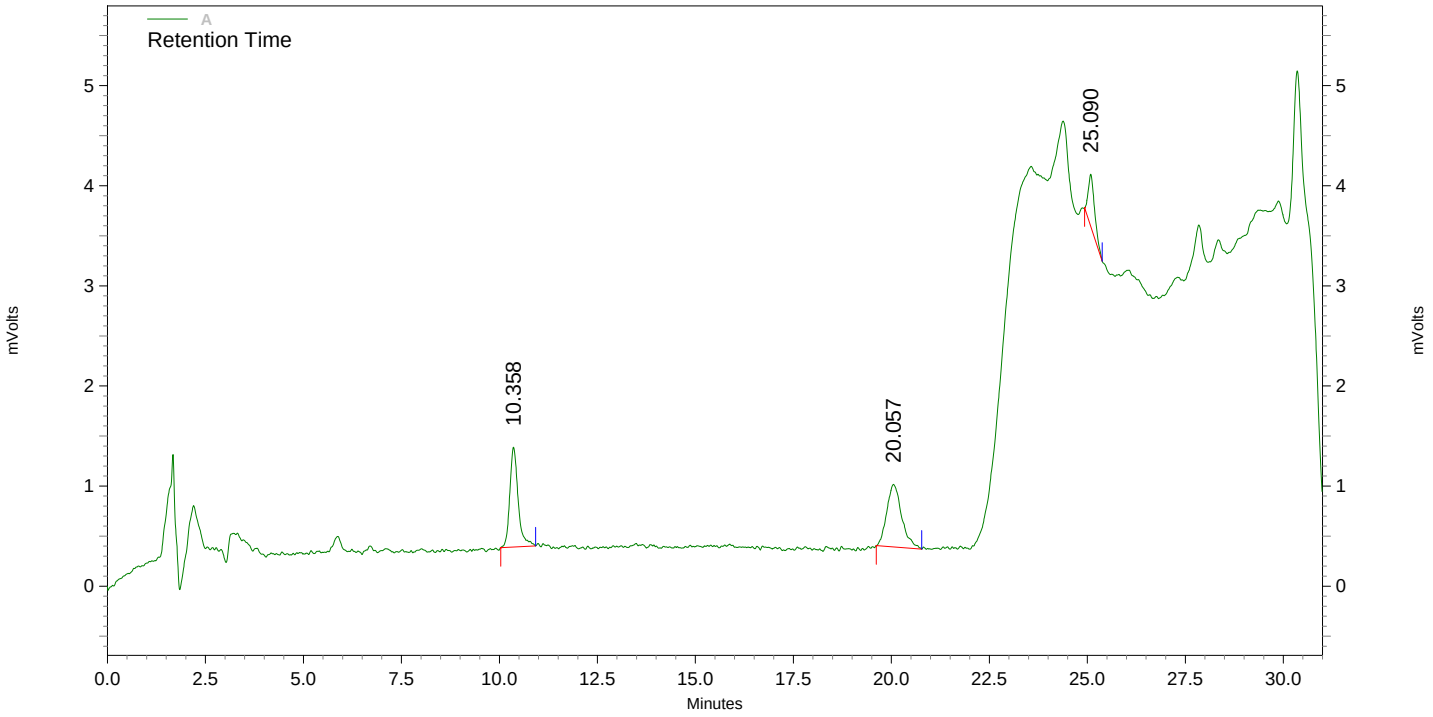
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.374	14096	**84.827**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm	20.057	19028	**0.285**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.090	9726	**0.276**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm			**0.000 BDL**

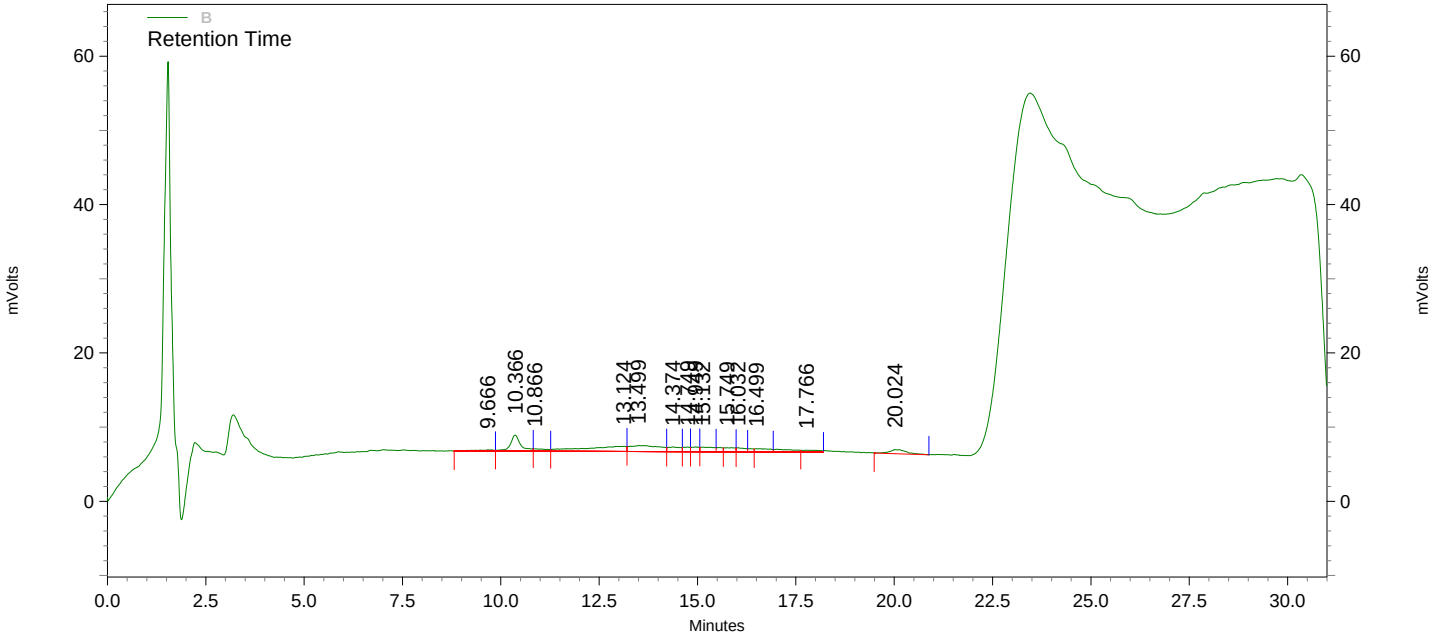
B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm			**0.000 BDL**

Explosives - 8330

File: C:\Instarch\HPLC 2\Data\082411exp-confirm\050.dat
User ID: red
Method: C:\Instarch\HPLC 2\Methods\8330A_B\confirmation\062111expic-confirm\082411exp-confirmb.met
Sample ID: 78322,962085,trip.
Acquired: Aug 25, 2011 12:37:31
Data Summary: {Data Description}





78322,962085,trip.

A Results

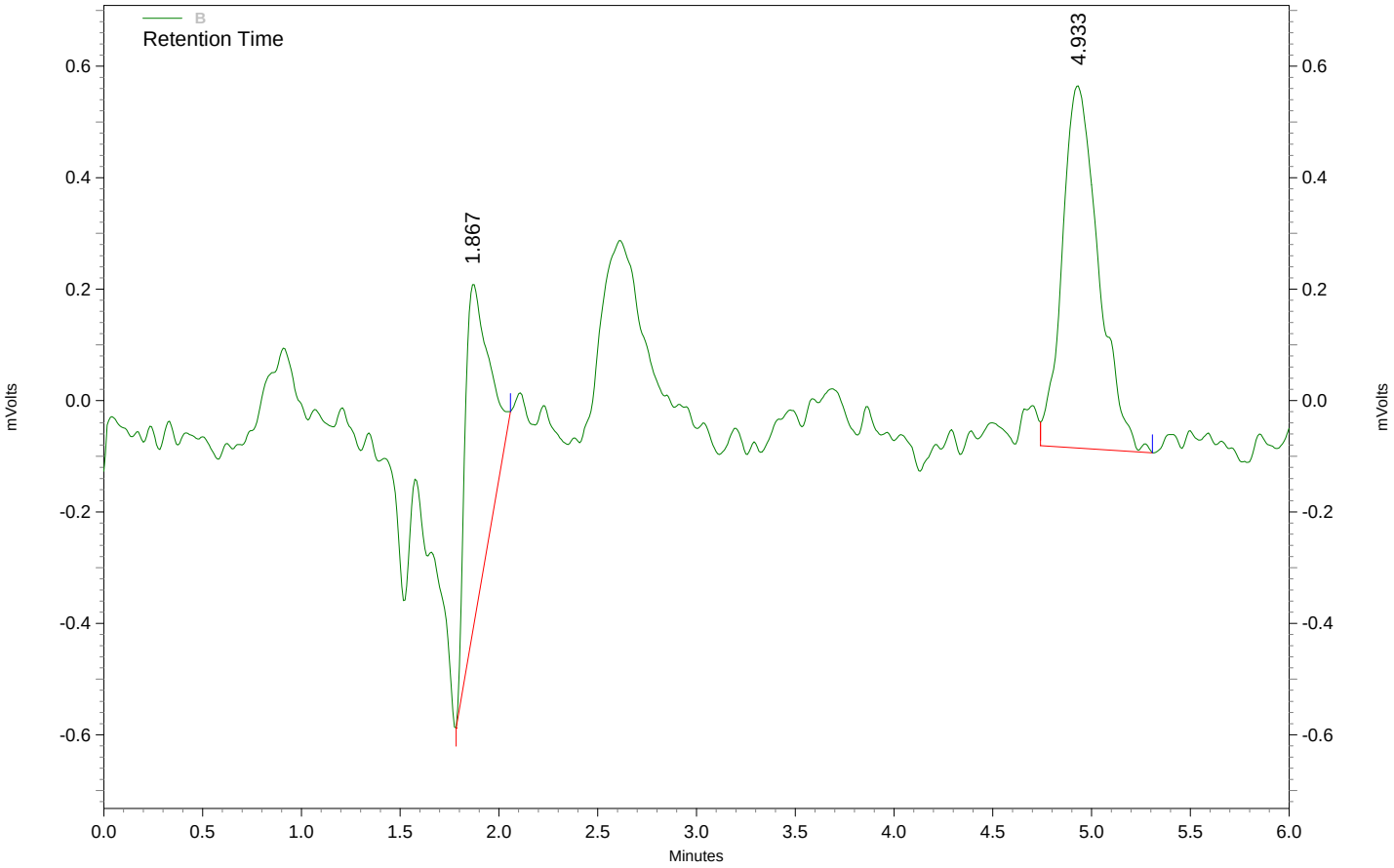
Name	*Retention Time*	*Area*	*concentration (ug/ml)*
HMX-confirm			**0.000 BDL**
RDX-confirm			**0.000 BDL**
NB-confirm			**0.000 BDL**
12-DNB (SSTD)-confirm	10.358	14755	**89.169**
4-AM-26-DNT-conf.			**0.000 BDL**
3,5-DNA-confirm			**0.000 BDL**
2-NT-confirm			**0.000 BDL**
2-AM-46-DNT-conf.			**0.000 BDL**
3-NT-confirm			**0.000 BDL**
4-NT-confirm			**0.000 BDL**
13-DNB-confirm	20.057	16511	**0.244**
26-DNT-confirm			**0.000 BDL**
TETRYL-confirm	25.090	5906	**0.155**
24-DNT-confirm			**0.000 BDL**
135-TNB-confirm			**0.000 BDL**
246-TNT-confirm			**0.000 BDL**

B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NG-confirm			**0.000 BDL**
PETN-confirm	17.766	7134	**0.058**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\090.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963950, mbs
Acquired: Aug 20, 2011 10:54:03
Data Summary: {Data Description}

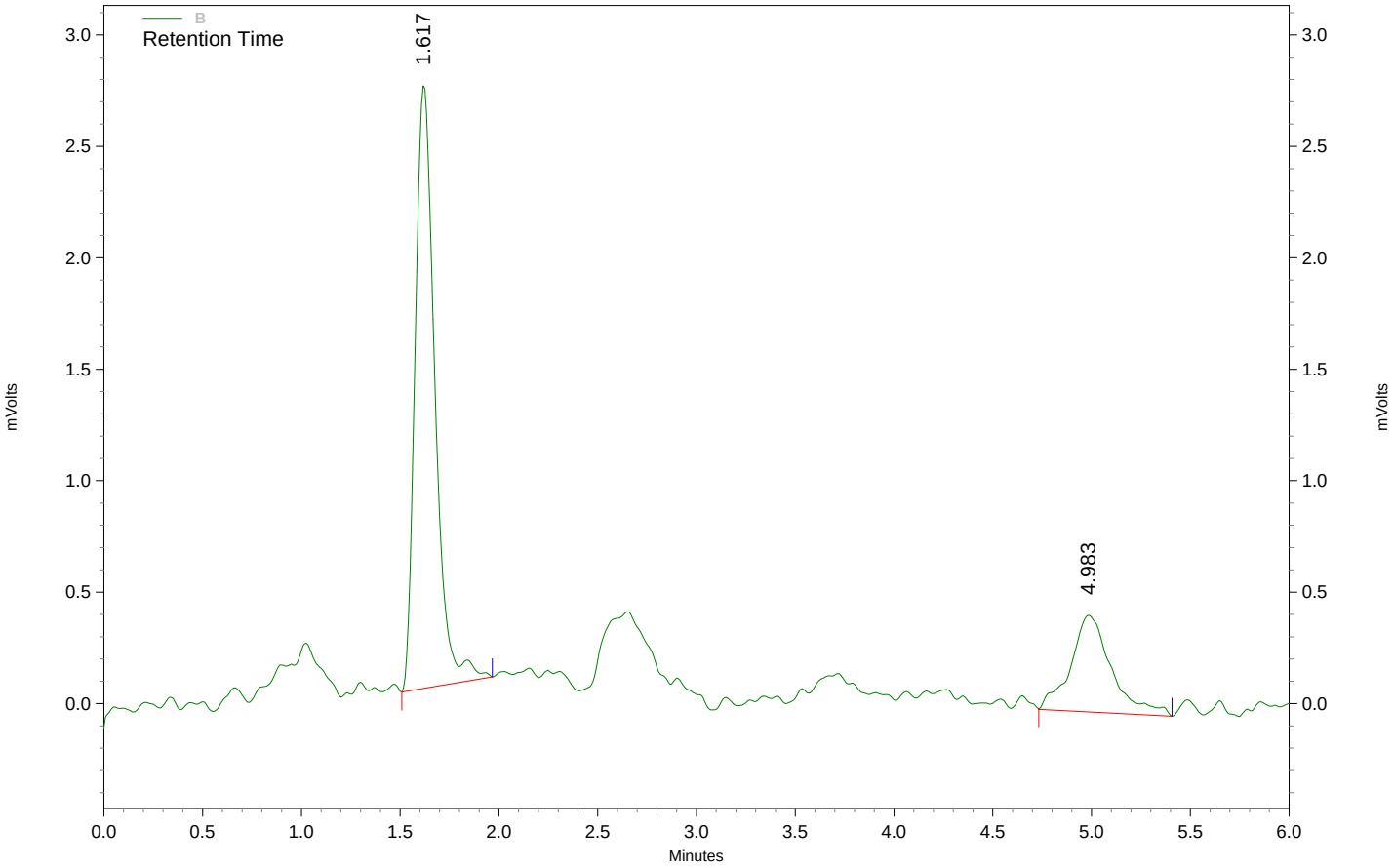


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ			**0.000 BDL**
12-DNB (SSTD)	4.933	8335	**100.439**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\091.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963951, lcss
Acquired: Aug 20, 2011 11:01:50
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	18867	**0.270**
12-DNB (SSTD)	4.983	6231	**73.375**

Triplicate Sample Analysis Relative Standard Deviation Calculations

Analyst: HHK/RED
Sample ID: 962085
Analysis Date: 08 20 2011
Data path: C:\Instarch\HPLC 1\Data\ 081911nq-primary

	Analyte Concentration (ug/mL)						
e	Parent Sample	Duplicate Sample	Triplicate Sample	Mean Conc. (ug/mL)	Standard Deviation	%RSD	Flag (>20% RSD)
Analyt Nitroguanidine (NQ)	0.064	0.062	0.054	0.06	0.0052915	8.819171	
1.2-Dinitrobenzene (SSTD)	87.73	87.293	96.876	90.633	5.41101	5.970243	

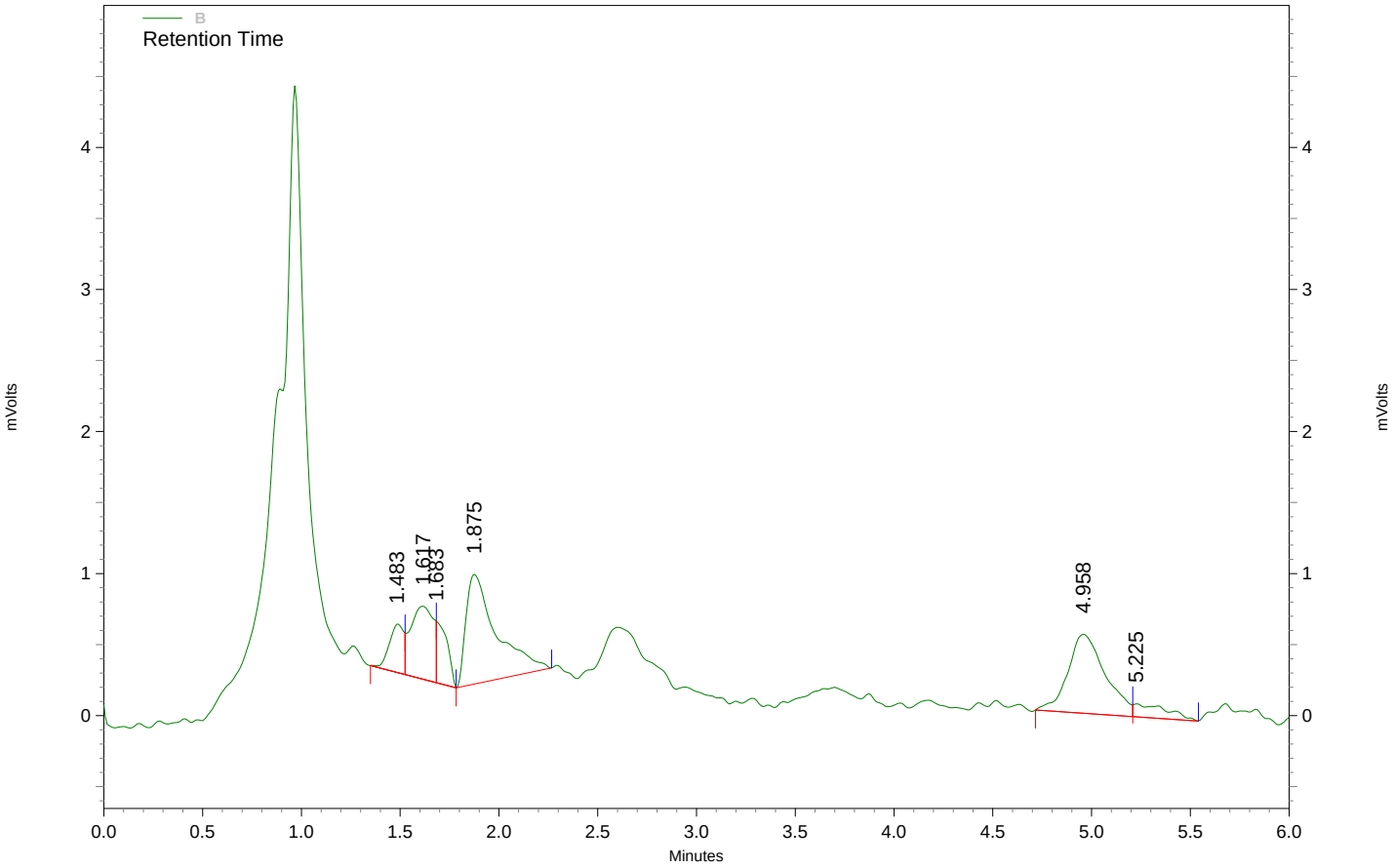
After Manual Integration

08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\093.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 962085 dup.
Acquired: Aug 20, 2011 11:17:26
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	4126	**0.062**
12-DNB (SSTD)	4.958	7313	**87.293**

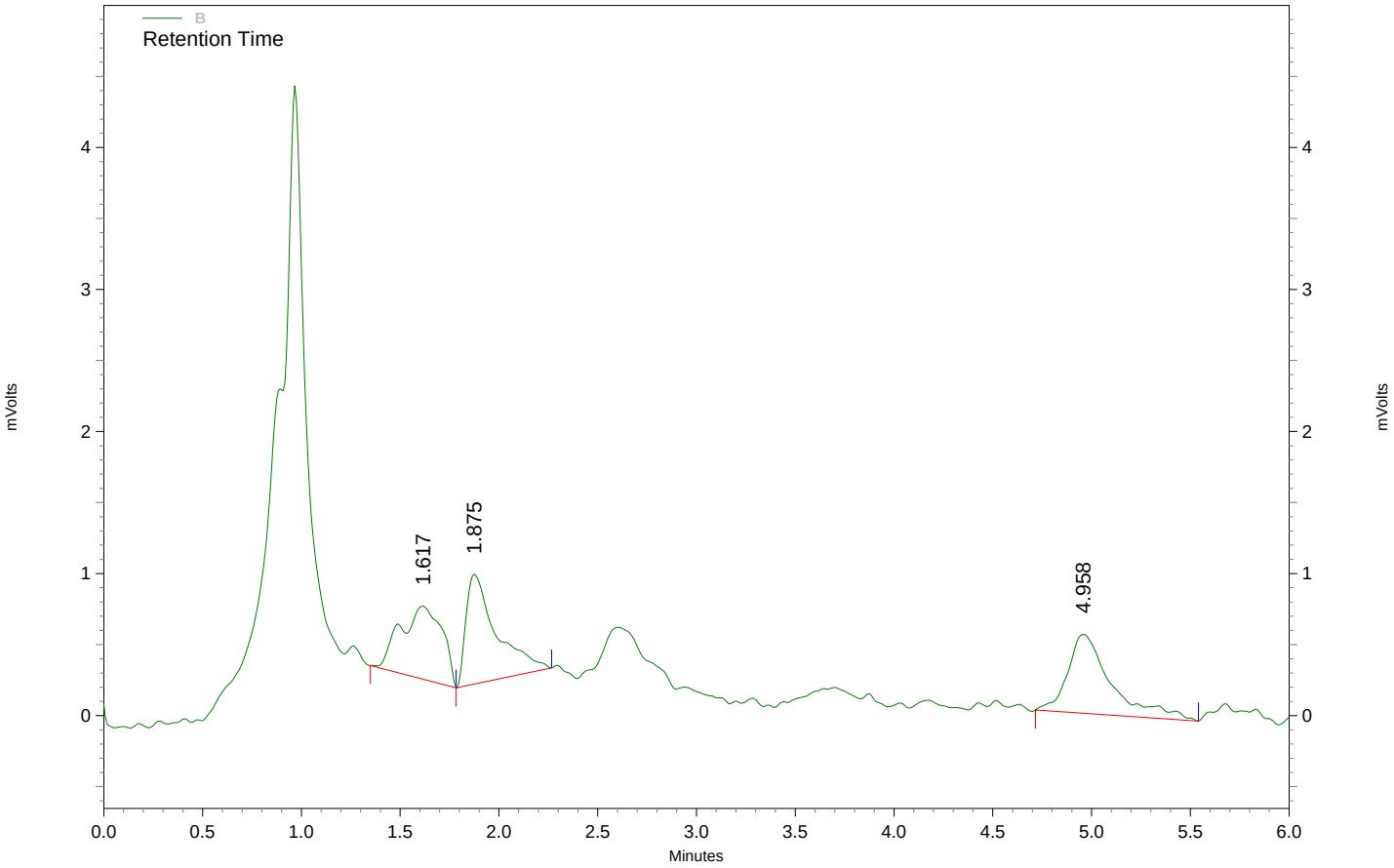
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\093.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 962085 dup.
Acquired: Aug 20, 2011 11:17:26
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	7517	**0.110**
12-DNB (SSTD)	4.958	8436	**101.738**

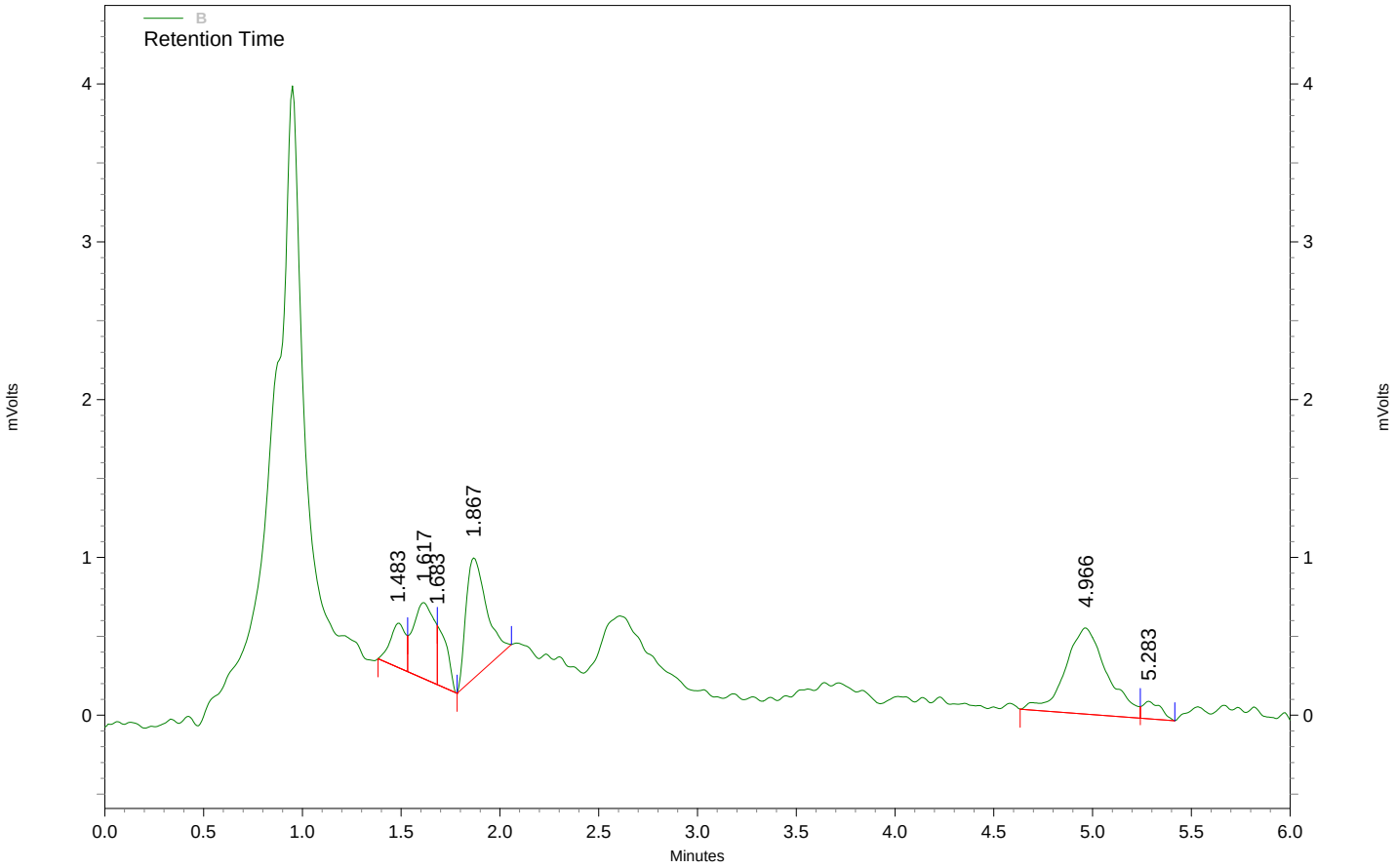
After Manual Integration

08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\094.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 962085 trip.
Acquired: Aug 20, 2011 11:25:13
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	3517	**0.054**
12-DNB (SSTD)	4.966	8058	**96.876**

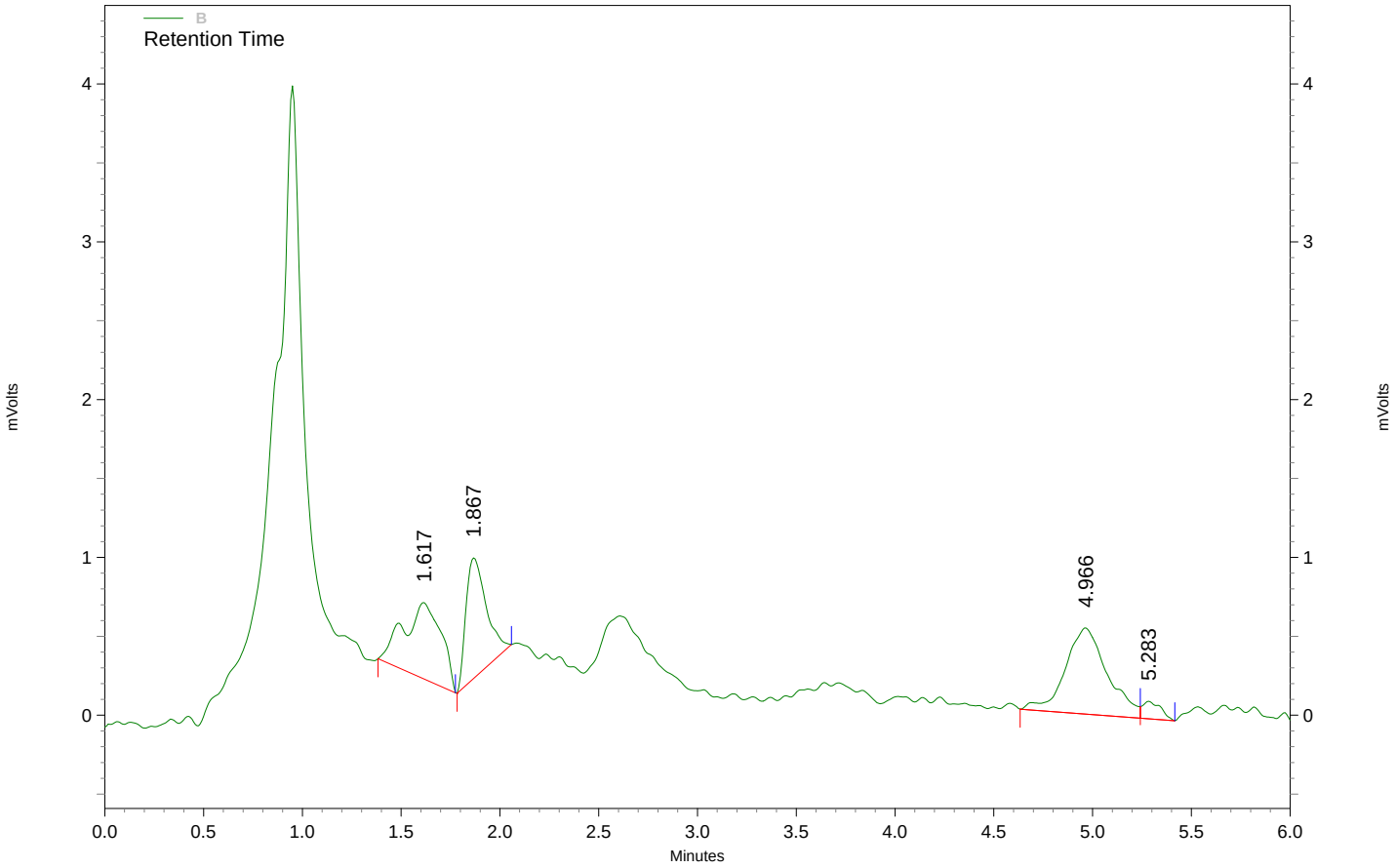
Before Manual Integration

08/26/2011

08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\094.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 962085 trip.
Acquired: Aug 20, 2011 11:25:13
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.617	6342	**0.094**
12-DNB (SSTD)	4.966	8058	**96.876**

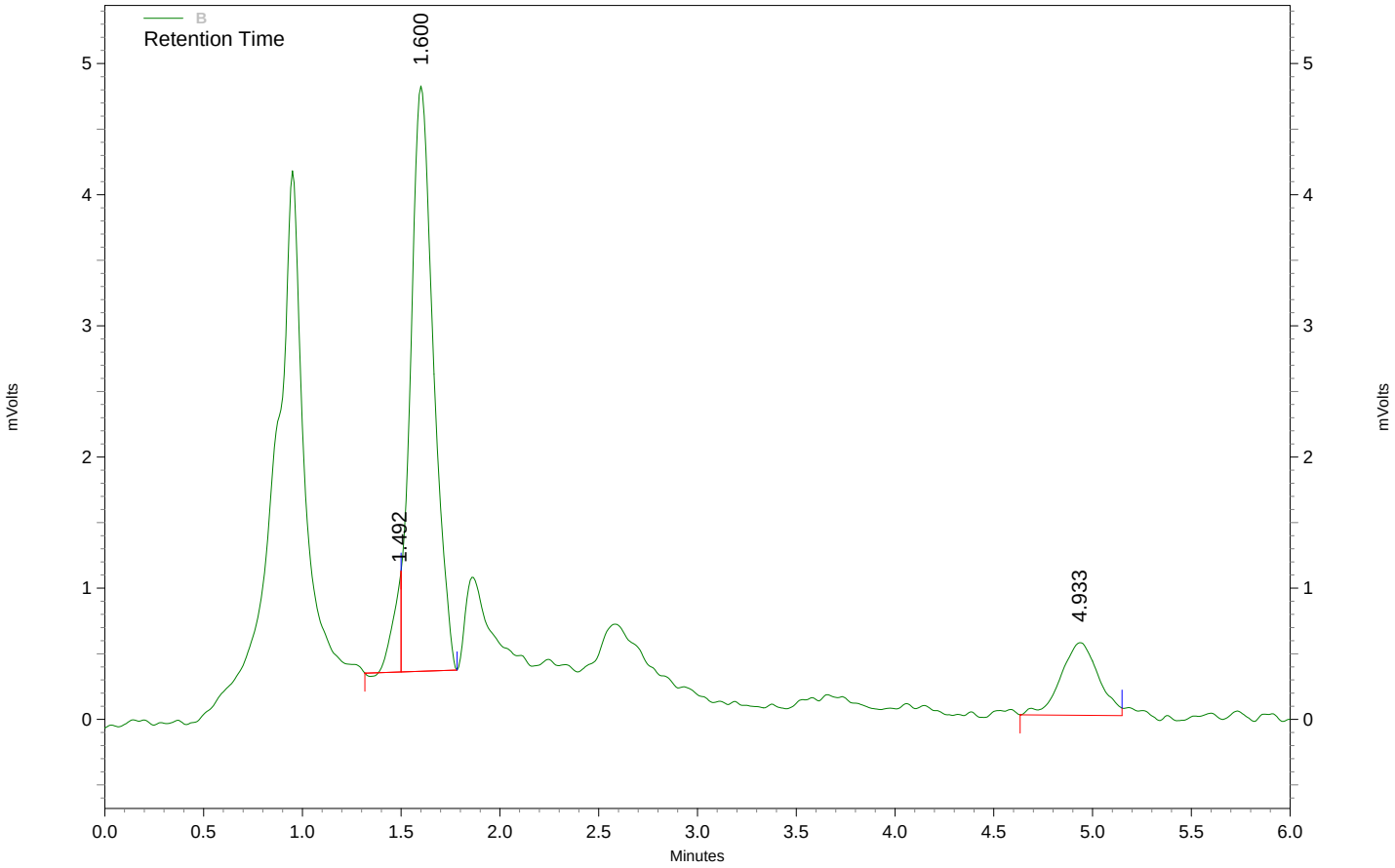
After Manual Integration

08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\097.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963953, mss
Acquired: Aug 20, 2011 11:48:33
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.600	35480	**0.504**
12-DNB (SSTD)	4.933	7324	**87.434**

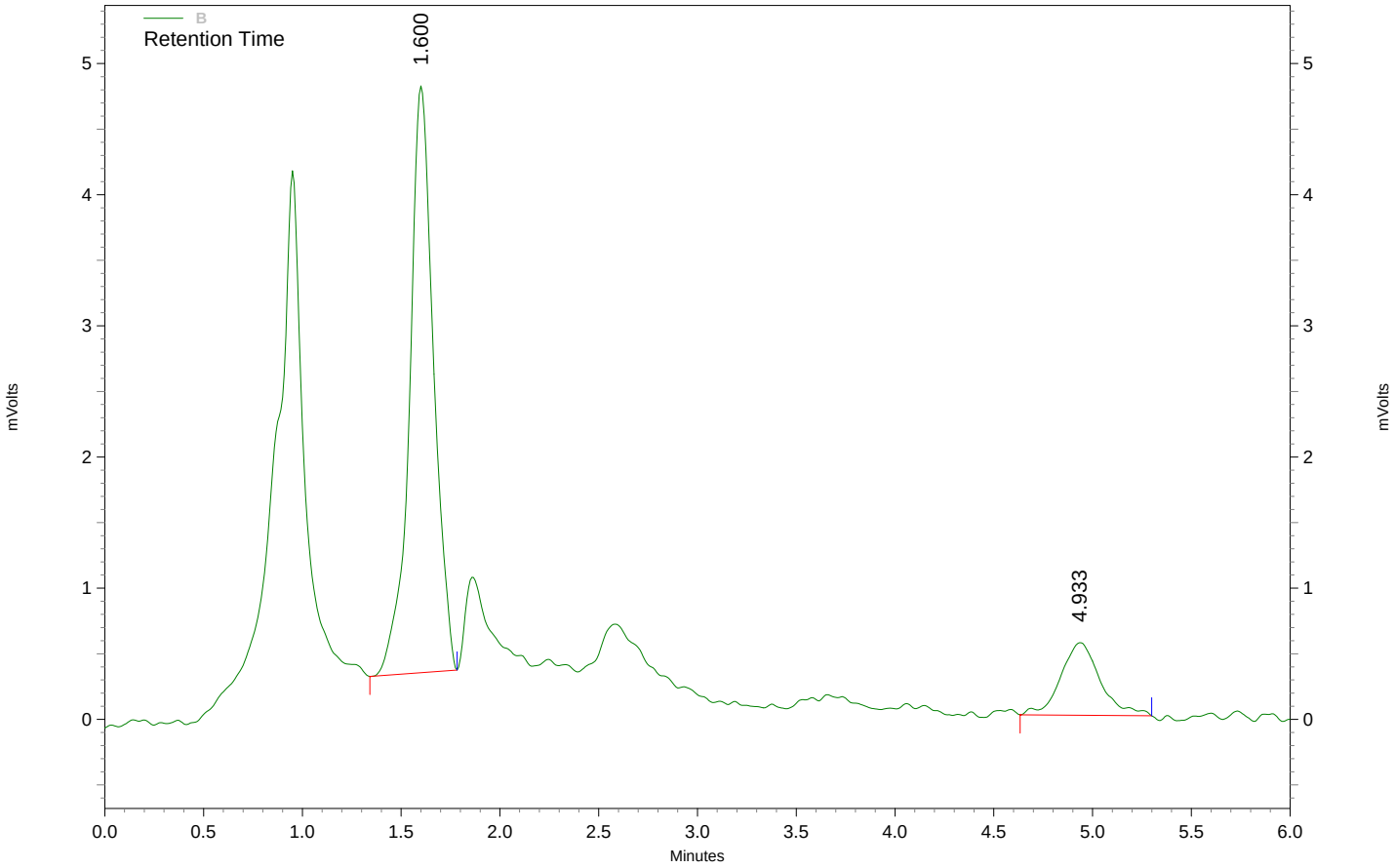
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\097.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963953, mss
Acquired: Aug 20, 2011 11:48:33
Data Summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.600	37873	**0.537**
12-DNB (SSTD)	4.933	7699	**92.258**

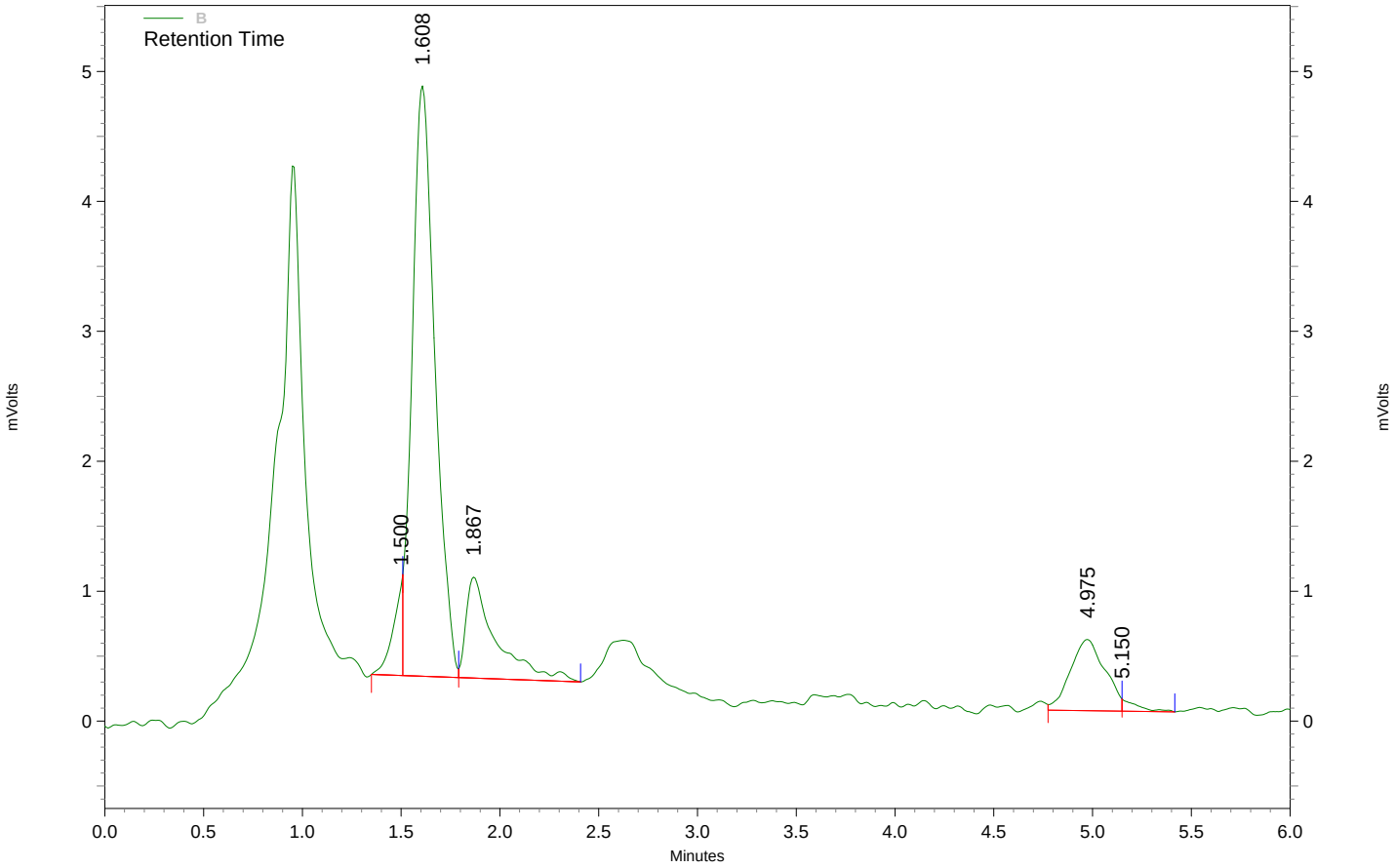
After Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\098.dat
User ID: red
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963954, msds
Acquired: Aug 20, 2011 11:56:18
Data Summary: Reason #3 applies to data. RED 8/21/2011



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.608	36474	**0.518**
12-DNB (SSTD)	4.975	6686	**79.227**

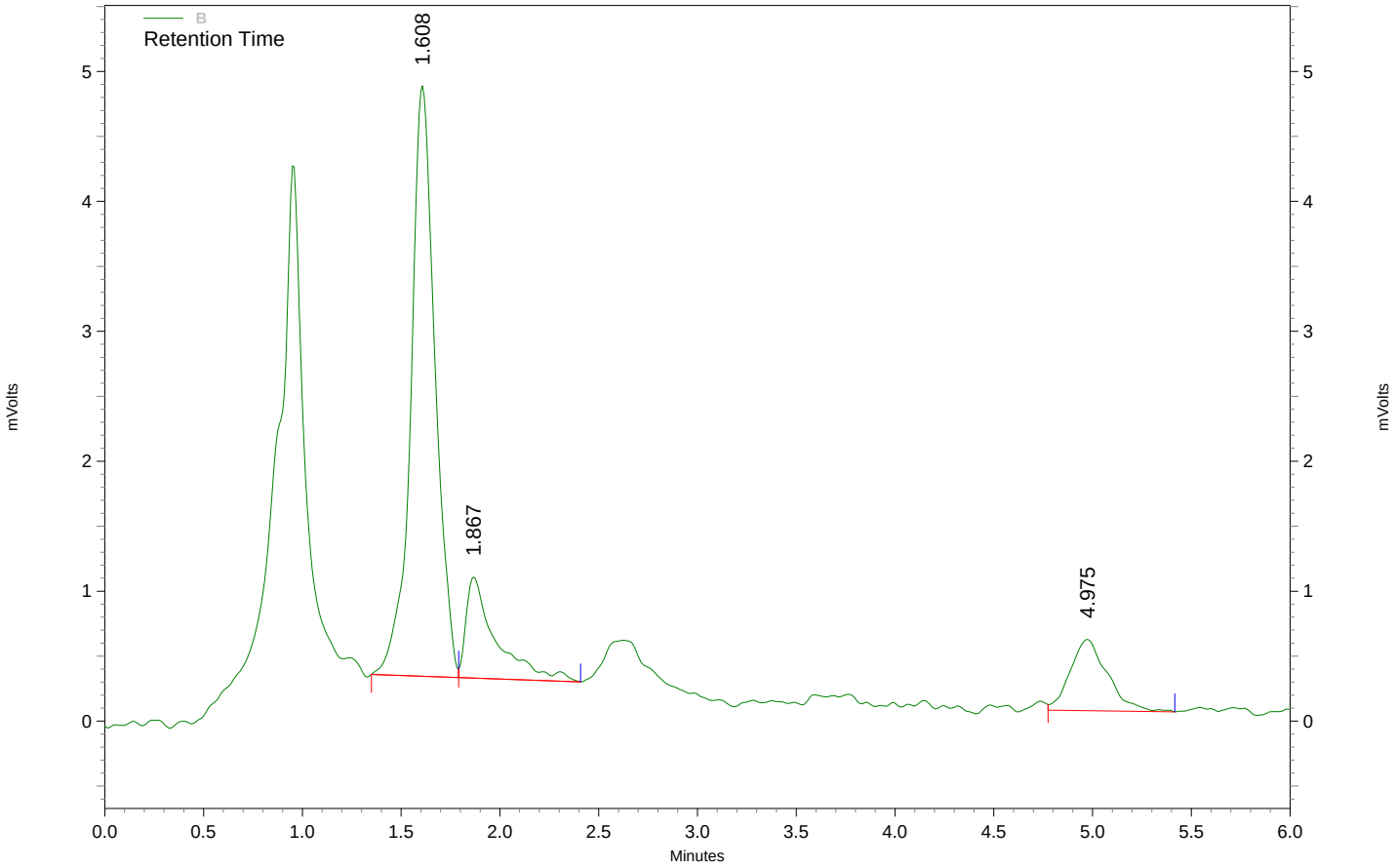
Before Manual Integration

HHK 08/26/2011

RED 08/26/2011

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\081911nq-primary\098.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\081911nq-primary.met
Sample ID: 78306,963954, msds
Acquired: Aug 20, 2011 11:56:18
Data Summary: {Data Description}

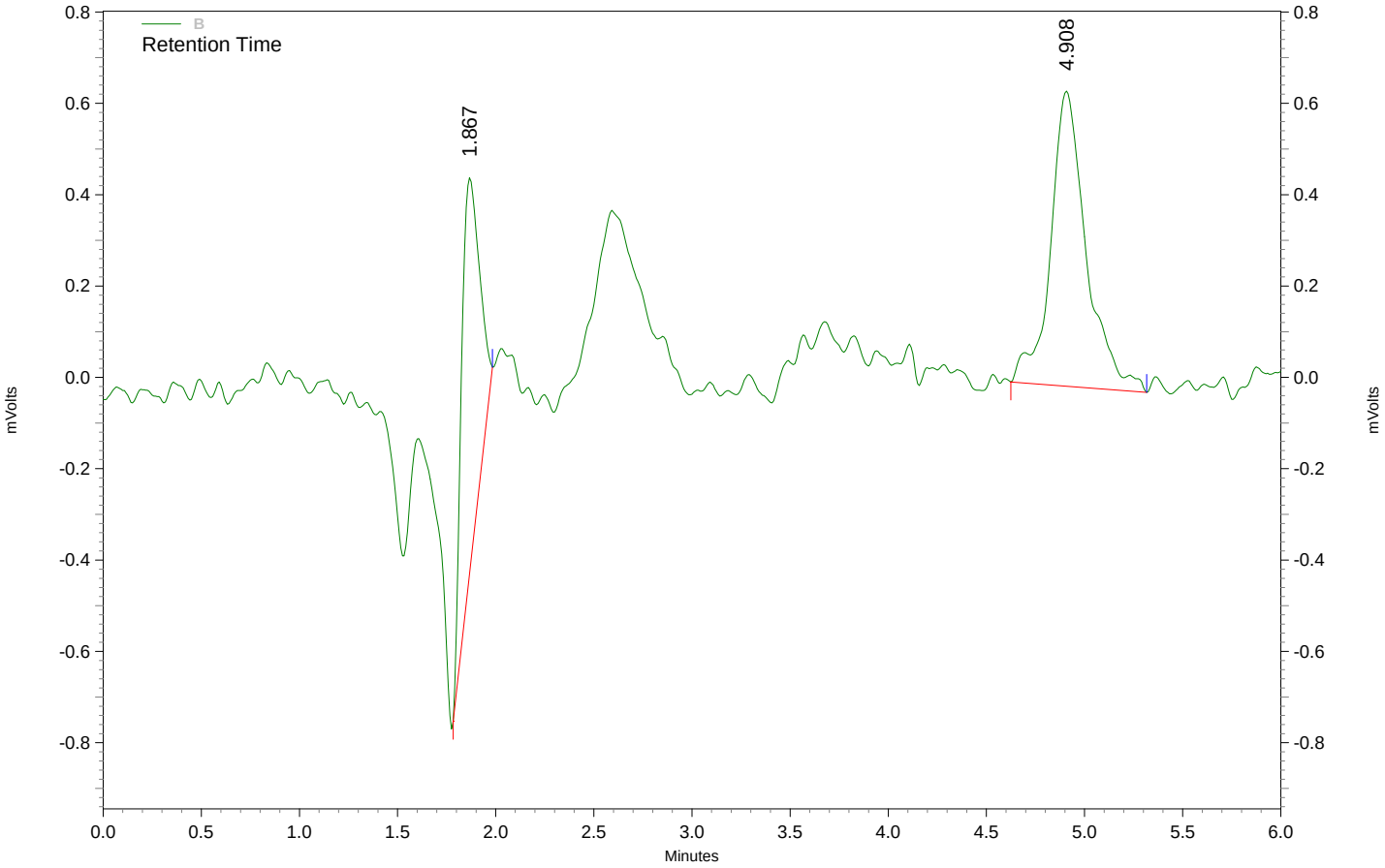


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.608	38846	**0.551**
12-DNB (SSTD)	4.975	7182	**85.608**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-primary\003.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\082111nq-primary.met
Sample ID: 78272,963325, mbw
Acquired: Aug 21, 2011 14:15:12
Data Summary: {Data Description}

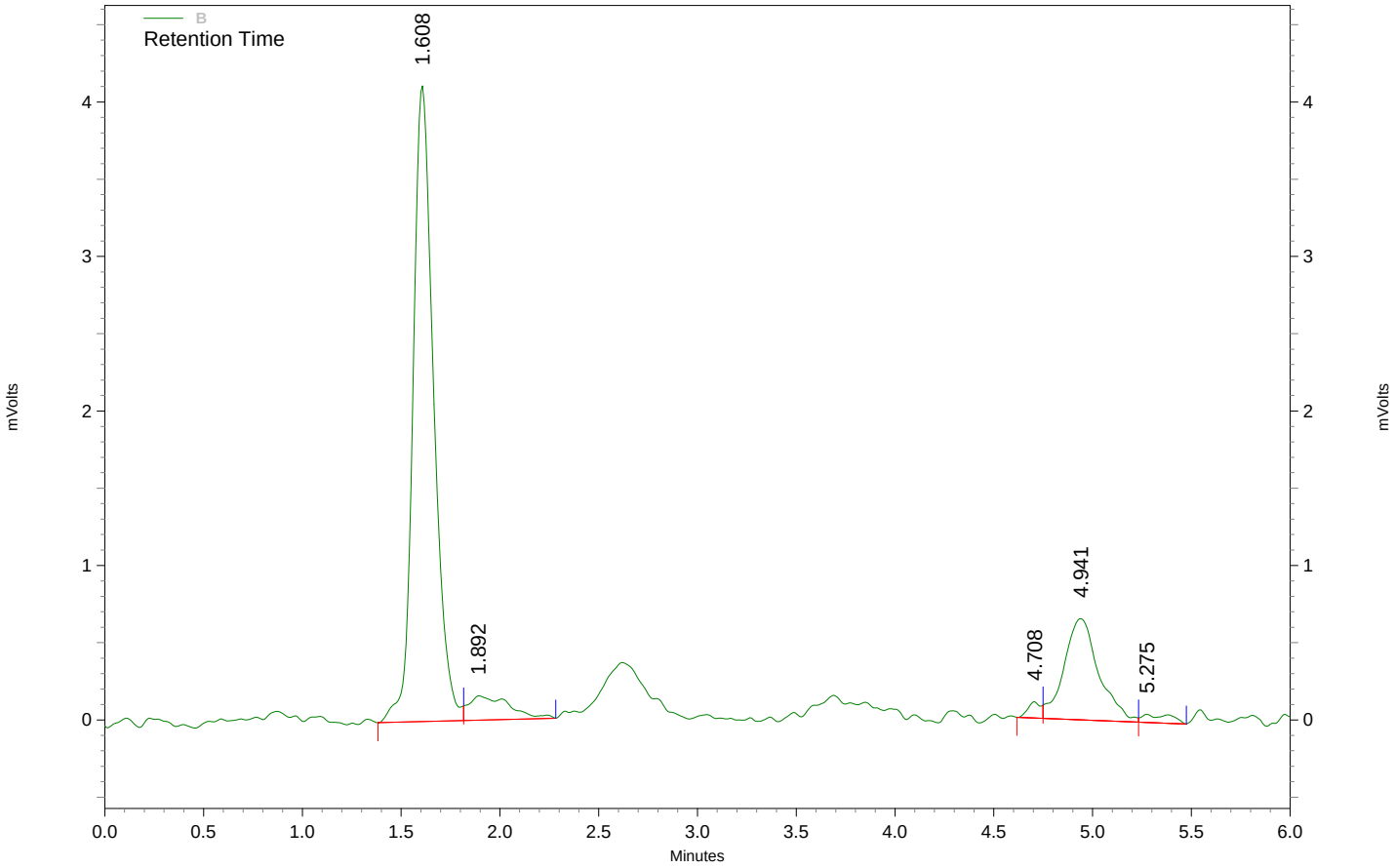


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ			**0.000 BDL**
12-DNB (SSTD)	4.908	8150	**98.059**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-primary\004.dat
User ID: **red**
Method: C:\Instarch\HPLC 1\Methods\NQ\070611nqic-primary\082111nq-primary.met
Sample ID: 78272,963326, lcsw
Acquired: Aug 21, 2011 14:23:01
Data Summary: {Data Description}

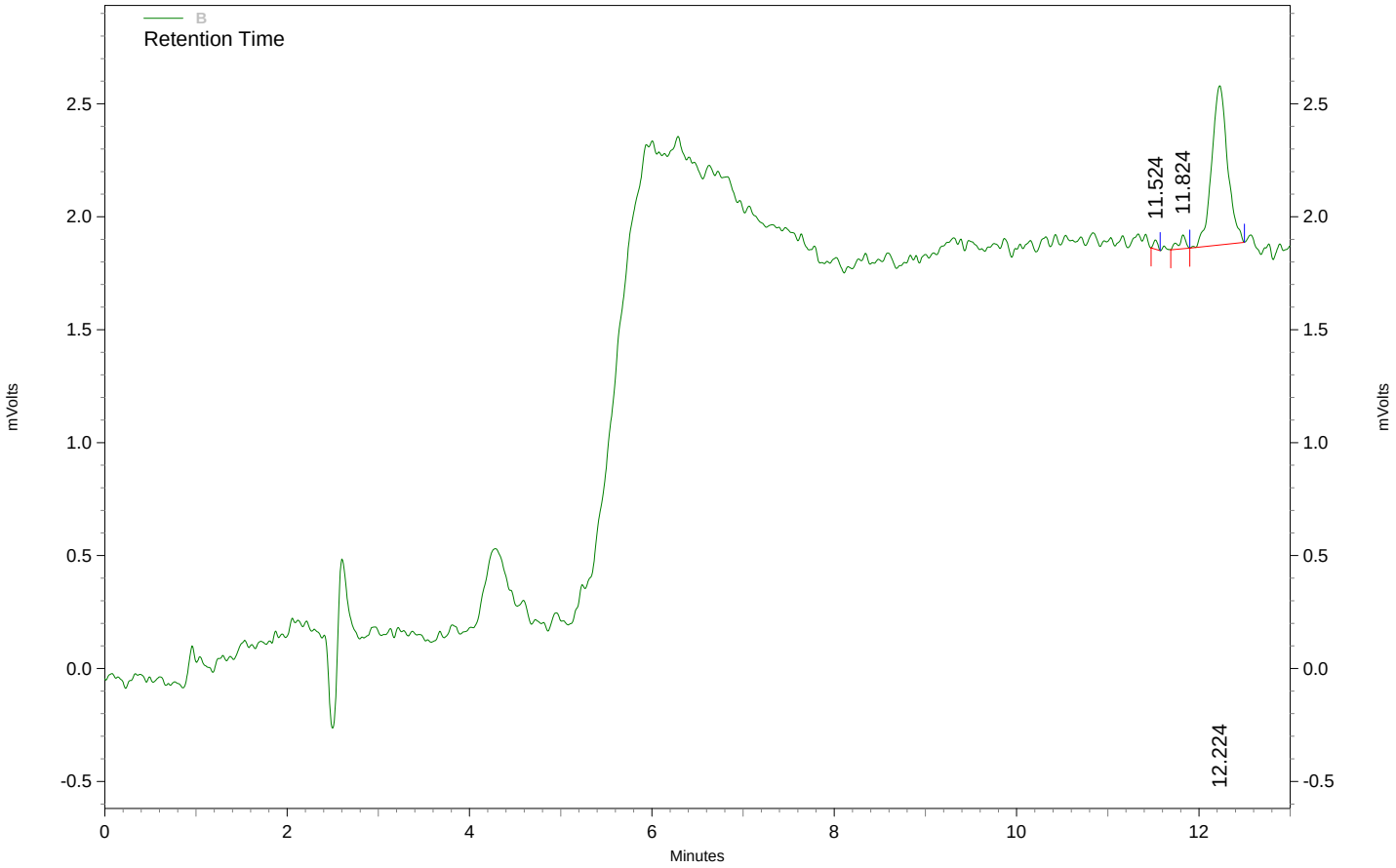


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	1.608	29949	**0.426**
12-DNB (SSTD)	4.941	7976	**95.821**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\003.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: 78306,963950, mbs
Acquired: Aug 21, 2011 11:39:01
Data summary: {Data Description}

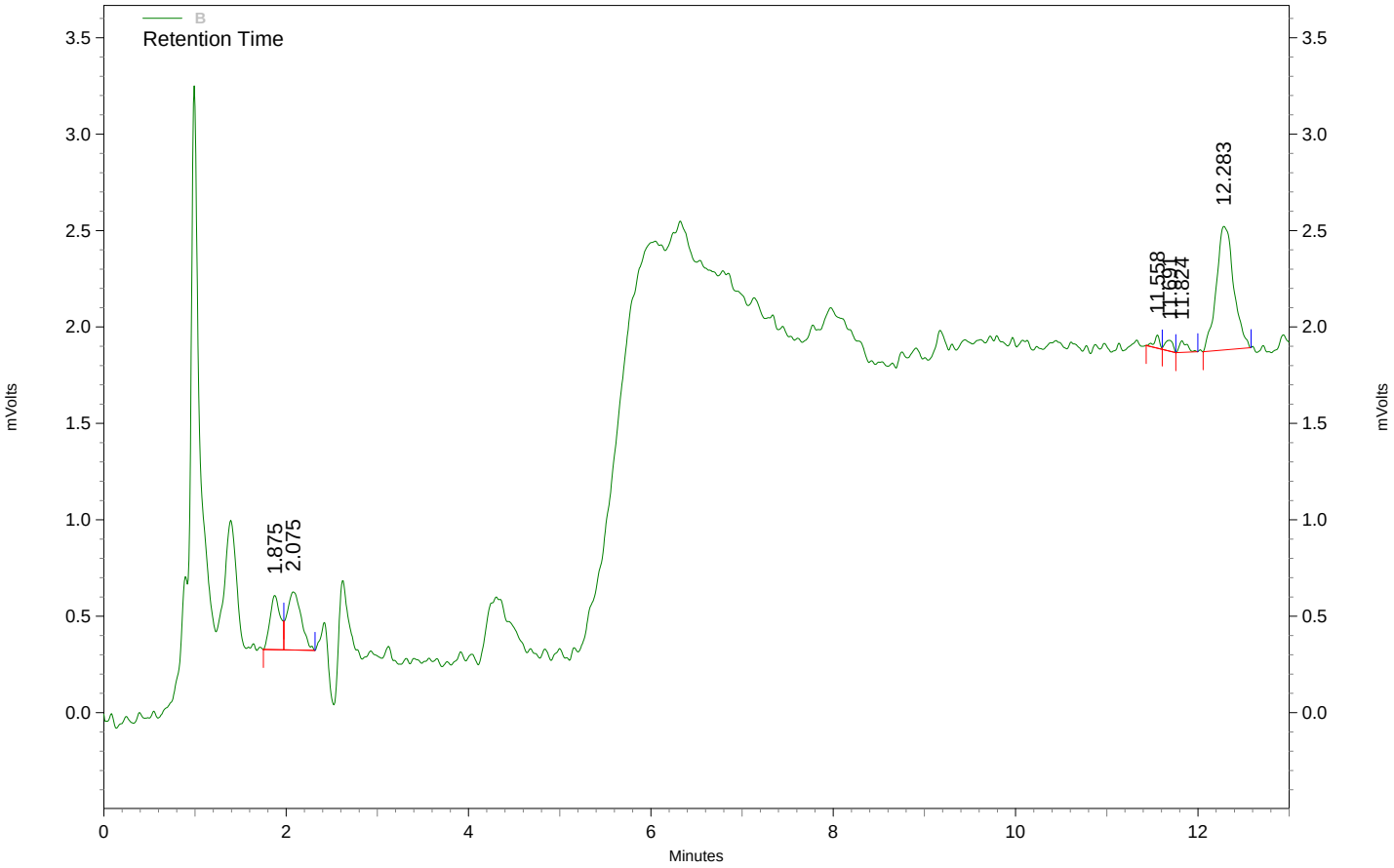


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ			**0.000 BDL**
12-DNB (SSTD)	12.224	8550	**95.222**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\005.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: 962085 dup.
Acquired: Aug 21, 2011 12:13:23
Data summary: {Data Description}

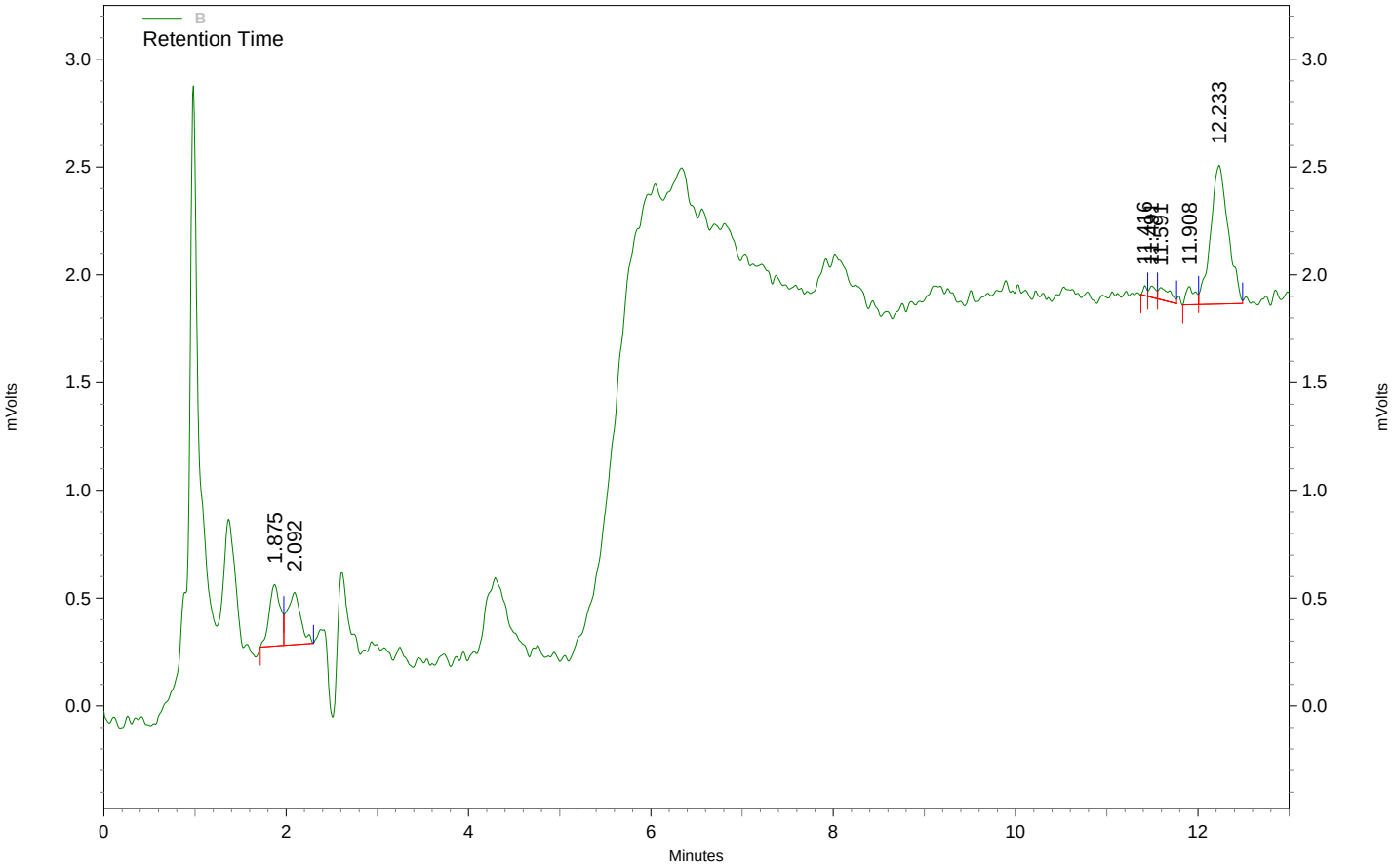


B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.075	3233	**0.030**
12-DNB (SSTD)	12.283	8514	**94.822**

Explosives - 8330

File: C:\Instarch\HPLC 1\Data\082111nq-confirm\006.dat
Method: C:\Instarch\HPLC 1\Methods\NQ\061611nqic-confirm\082111NQ-confirm.met
User ID: **red**
Sample ID: 962085 trip.
Acquired: Aug 21, 2011 12:30:32
Data summary: {Data Description}



B Results

Name	*Retention Time*	*Area*	*concentration (ug/ml)*
NQ	2.092	2465	**0.019**
12-DNB (SSTD)	12.233	8626	**96.065**

NITROAROMATICS ANALYSIS
LOGBOOK
DOCUMENTS

S 8330B EXPLOSIVES QSM Analytical Run
78273 on 8/18/2011

RED
08/26/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86587	961722		8/12/2011 1315		SHAW E&I INC	RVAAP MMRP	8330B EXPLOSIVES QSM		GW	**4**	
		FTF-006-RB						38235			
86608	962088		8/15/2011 1245		SHAW E&I INC	RVAAP MMRP	8330B EXPLOSIVES QSM		GW	**4**	
		LL1-718-RB						38235			
	963300						8330B EXPLOSIVES QSM				
				MBW				38235			
	963301						8330B EXPLOSIVES QSM				
				LCSW				38235			

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 8/18/2011

Prep Batch **38,235**

Prepped By:: RED

Date Prepped: 8/18/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	963300	MBW		8330B EXPLOSIVES QSM	LIQUID	5.0		0.500		
	963301	LCSW		8330B EXPLOSIVES QSM	LIQUID	5.0		0.500		
86587	961722			8330B EXPLOSIVES QSM	GROUND WATER	5.0		0.500	N	
86608	962088			8330B EXPLOSIVES QSM	GROUND WATER	5.0		0.500	N	

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Run # 78273

Table 6
8330A/8330B Bench Sheet

Explosives Prep Bench Sheet
SOP Reference Number 8330A & 8330B

Method references: 8330A (Explosives) – Water/Soil
8330B (Explosives) – Water/Soil
3535 (SPE) - Water

Test (circle one): Explosives or Nitroguanidine

Matrix: Soil Groundwater other_____ **Prep Batch Number** 38235

Spike and Surrogate Information:
Spike amount and concentration (Matrix Spikes and LCS): 0.500 mL @10/40 ug/mL
Spike Reference: EXP 4483
Surrogate amount and concentration: 0.500mL @ 10ug/mL
Surrogate Reference: EXP4484

Extraction Information and Reagent Lot #: Balance used _____
Extraction solvent: ACN Supplier: Macron Lot #: K15501
Dilution solvent: 0.1% formic acid Supplier — Lot #: EXP4338
Soil sonication start time/ date: — Soil sonication stop time/ date: —
Extraction by: Rep Date 5-18-11 Start Time 14:00 End Time 16:00
GPC by: — GPC start time/date — GPC end time/date —
Concentration by: — Date —

Client	Sample Number	Sample Amt. (gm or mL)	Initial Extract Vol.* (mL)	Final Extract Vol. ** (mL)	Comments
Method Blank	MB963300	500	5.0	10.0	
Control Spike	LCS963301	↓	↓	↓	
Matrix Spike	MS				
Matrix Spike Dup.	MSD		Rep 5-19-11		
Sample Duplicate	DUP				
Sample Triplicate	TRIP				
Shaw	961722	500	5.0	10.0	
↓	962088	↓	↓	↓	

Rep 5-19-11

*Initial ~~volumes include~~ volume contributed from spiking solutions Rep 5-19-11
**Final ~~soil~~ extract volumes diluted with equivalent volume of DI water or 0.1% formic acid in water solution before analysis.
Footnotes: Rep 5-19-11

Table 5

8330B Analysis Data Review Checklist

Analytical Run #: 78273	**Independent Reviewer: red**
Sequence Date: 8/21/2011	**Date of Review: 8/25/2011**
Analyst/Data Interpreter: HHK/RED	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the Explosive initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	**Yes**		**Yes**		
b. Is the variation between calibration response factors for all concentration levels <15% RSD, is r^2 >.990, or r > 0.995 for the regression line?		**Yes**		**Yes**		
c. Was each ICAL uniquely identified (i.e. Standard Number)?	RSD<15%, r^2>0.990, or r>0.995	**Yes**		**Yes**		
d. Was an initial calibration blank (ICB) analyzed?		**Yes**		**Yes**		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for all target analytes analyzed after the initial calibration and prior to analysis of any samples?	Second source	**Yes**		**Yes**		
b. Were the recoveries for the ICV between 85-115% (80-120% for QSM).	% Recovery	**Yes**		**Yes**		
c. Was the ICV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
samples (which ever comes first)(every 10 samples for QSM) and at the end of the analytical run?		**Yes**		**Yes**		
b. Were the recoveries for the CCVs within program limits?	%Recovery	**Yes**		**Yes**		
c. Was each CCV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		

Additional Comments:

Analytical Run #: 78273

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		**Yes**		**Yes**		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount (QSM: less than 1/2 the RL and <10% of the sample amount)?		**Yes**		**Yes**		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Per Program	**Yes**		**Yes**		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤20 samples		**no**		**no**	no ms/msd designated; not enough sample
b. Were MS recoveries in each MS within the acceptance criteria?	Per Program					
7. MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike sample analyzed at a frequency one per Prep Batch?	Batch <20 samples		**no**		**no**	no ms/msd designated; not enough sample
b. Were MSD within the acceptance criteria?	Per Program					
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	Per Program QSM: 30% RPD					

Additional Comments:

Analytical Run #: 78273

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		**Yes**		**Yes**		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?			**No**		**No**	see below
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		**na**		**na**		no hits exceeding
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	**Yes**		**Yes**		
e. Was there a acetonitrile:H2O injection preformed prior to sample analysis?		**Yes**		**Yes**		
f. If any analytes were detected in the soil grinding blanks, were the associated samples B-flagged?	< 1/2 RL	**na**		**na**		water samples
g. Was the batch soil triplicate RSD within acceptance criteria?	<20%	**na**		**na**		water samples
9. RECORDS AND REPORTING						
a. Are Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, initial and rerun raw and process data present in the PDF file?		**Yes**		**Yes**		
b. Are all chromatograms dated and initialed?		**Yes**		**Yes**		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		**Yes**		**Yes**		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		**Yes**		**Yes**		
e. Is the ICAL method referenced on the Raw Data?		**Yes**		**Yes**		

Additional Comments:

Both samples 961722 and 962088 had surrogate recoveries that were more than double what was expected. The method blank (MB) and laboratory control sample (LCS) had acceptable surrogate recoveries. The samples were re-analyzed on the confirmation column and the surrogate recoveries were within the acceptable QC range, but there were several other peaks elsewhere in the chromatogram. This points to something in the sample matrix that interferes at the surrogate retention time on the primary column analysis, but elutes elsewhere on the confirmation analysis. The primary value was reported and qualified with an "S".

S 8330B EXPLOSIVES QSM Analytical Run
78322 on Aug 21, 2011

RED
08/26/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962085		Aug 15, 2011 1315			SHAW E&I INC	RVAAP MMRP	8330B EXPLOSIVES QSM		S	**4**	
		LL1SS-715(I)-0001-SS		Designated MS/MSD					38276			
86608	962086		Aug 15, 2011 1330			SHAW E&I INC	RVAAP MMRP	8330B EXPLOSIVES QSM		S	**4**	
		LL1SS-716(I)-0001-SS							38276			
86608	962087		Aug 15, 2011 1350			SHAW E&I INC	RVAAP MMRP	8330B EXPLOSIVES QSM		S	**4**	
		LL1SS-717(I)-0001-SS							38276			
	963946							8330B EXPLOSIVES QSM				
				MBS					38276			
	963947							8330B EXPLOSIVES QSM				
				LCSS					38276			
	963948		Aug 15, 2011 1315					8330B EXPLOSIVES QSM				
		LL1SS-715(I)-0001-SS		MSS	962085				38276			
	963949		Aug 15, 2011 1315					8330B EXPLOSIVES QSM				
		LL1SS-715(I)-0001-SS		MSDS	963948				38276			

7 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on Aug 23, 2011

Prep Batch **38,276**

Prepped By:: RED

Date Prepped: Aug 19, 2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	963946	MBS		8330B EXPLOSIVES QSM	SOLID	20.0	10.07			
	963947	LCSS		8330B EXPLOSIVES QSM	SOLID	20.0	10.10			
86608	962085	*		8330B EXPLOSIVES QSM	SOIL	20.0	10.00		N	
	962086			8330B EXPLOSIVES QSM	SOIL	20.0	9.93		N	
	962087			8330B EXPLOSIVES QSM	SOIL	20.0	9.96		N	
	963948	MSS	962085	8330B EXPLOSIVES QSM	SOIL	20.0	10.04			
	963949	MSDS	963948	8330B EXPLOSIVES QSM	SOIL	20.0	9.93			

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Distibution:

C:\LIMSREPS\PREPWRKSHT.RPT

Table 6
8330A/8330B Bench Sheet

Run # 78321 / 78322

Explosives Prep Bench Sheet
SOP Reference Number 8330A & 8330B

Method references: 8330A (Explosives) – Water/Soil
8330B (Explosives) – Water/Soil
3535 (SPE) - Water

Test (circle one): Explosives or Nitroguanidine

Matrix: (Soil) Groundwater other _____

Prep Batch Number 38274 / 38276

Spike and Surrogate Information:
Spike amount and concentration (Matrix Spikes and LCS): 2.00 ml @10/40 ug/ml
Spike Reference: Exp 4490
Surrogate amount and concentration: 2.00ml @10 ug/ml
Surrogate Reference: Exp 4492
Extraction Information and Reagent Lot #: Balance used Semi #1
Extraction solvent: ACN Supplier: Macron Lot #: K15501
Dilution solvent: 0.1% Formic Acid Supplier — Lot #: Exp 4489
Soil sonication start time/ date: 8/20/11 @ 16:20 Soil sonication stop time/ date: 8/21/11 @ 10:00
Extraction by: HNK / RCD Date 8/19/11 Start Time 16:15 End Time 16:45
GPC by: — GPC start time/date — GPC end time/date —
Concentration by: — Date —

Client	Sample Number	Sample Amt. (gm or mL)	Initial Extract Vol.* (mL)	Final Extract Vol. ** (mL)	Comments
Method Blank	MB 962935/962946	10.07	20.0	40.0	Sand blank
Control Spike	LCS 962936/962947	10.10			Exp 4403
Matrix Spike	MS 961720	10.05			
Matrix Spike Dup.	MSD 961720	10.04			
Sample Duplicate	DUP 961720	9.94			
Sample Triplicate	TRIP 961720	9.95			
Shaw	961720	10.02			
	961721	9.97			
	962085	10.00			
	MS 962085	10.04			
	MSD 962085	9.93			
	DUP 962085	9.90			
	TRIP 962085	10.12			
	962086	9.93			
	962087	9.96			

*Initial volumes include volume contributed from spiking solutions
**Final soil extract volumes diluted with equivalent volume of DI water or 0.1% formic acid in water solution before analysis.
Footnotes:

Table 5

8330B Analysis Data Review Checklist

Analytical Run #: 78322	**Independent Reviewer: red**
Sequence Date: 8/23/2011	**Date of Review: 8/25/2011**
Analyst/Data Interpreter: HHK/RED	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the Explosive initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	**Yes**		**Yes**		
b. Is the variation between calibration response factors for all concentration levels <15% RSD, is r^2 >.990, or r > 0.995 for the regression line?		**Yes**		**Yes**		
c. Was each ICAL uniquely identified (i.e. Standard Number)?	RSD<15%, r^2>0.990, or r>0.995	**Yes**		**Yes**		
d. Was an initial calibration blank (ICB) analyzed?		**Yes**		**Yes**		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for all target analytes analyzed after the initial calibration and prior to analysis of any samples?	Second source	**Yes**		**Yes**		
b. Were the recoveries for the ICV between 85-115% (80-120% for QSM).	% Recovery	**Yes**		**Yes**		
c. Was the ICV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
samples (which ever comes first)(every 10 samples for QSM) and at the end of the analytical run?		**Yes**		**Yes**		
b. Were the recoveries for the CCVs within program limits?	%Recovery	**Yes**		**Yes**		
c. Was each CCV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		

Additional Comments:

Analytical Run #: 78322

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		**Yes**		**Yes**		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount (QSM: less than 1/2 the RL and <10% of the sample amount)?		**Yes**		**Yes**		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Per Program	**Yes**		**Yes**		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
b. Were MS recoveries in each MS within the acceptance criteria?	Per Program	**Yes**		**Yes**		
7. MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike sample analyzed at a frequency one per Prep Batch?	Batch <20 samples	**Yes**		**Yes**		
b. Were MSD within the acceptance criteria?	Per Program	**Yes**		**Yes**		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	Per Program QSM: 30% RPD		**No**		**No**	135-TNB RPD failed due to recovery in the MSD being on the high side. Qualified parent sample (#962085) with a "Y".

Additional Comments:

Analytical Run #: 78322

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		**Yes**		**Yes**		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?			**No**		**No**	see below
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		**Yes**		**Yes**		
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	**Yes**		**Yes**		
e. Was there a acetonitrile:H2O injection preformed prior to sample analysis?		**Yes**		**Yes**		
f. If any analytes were detected in the soil grinding blanks, were the associated samples B-flagged?	< 1/2 RL	**Yes**		**Yes**		
g. Was the batch soil triplicate RSD within acceptance criteria?	<20%	**Yes**		**Yes**		
9. RECORDS AND REPORTING						
a. Are Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, initial and rerun raw and process data present in the PDF file?		**Yes**		**Yes**		
b. Are all chromatograms dated and initialed?		**Yes**		**Yes**		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		**Yes**		**Yes**		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		**Yes**		**Yes**		
e. Is the ICAL method referenced on the Raw Data?		**Yes**		**Yes**		

Additional Comments:

All three samples (962085,962086,962087) had high surrogates along with the duplicate and triplicate analyses of 962085. Sample 962085, the first prep, had lower surrogate recovery than its duplicate preps. It appeared as though the surrogate interference was carryover from the previous sample, which explains why the first run of 962085 was better. It also explains interference with surrogate integration in the CCV immediately following the last sample in this analytical run. The interference affected surrogate integration in all of the samples. All samples were reanalyzed on the confirmation column to show that surrogate recoveries were in the normal range with normal integration. The confirmation analyses showed several extra peaks that were not apparent in the primary analyses. The MSD surrogate also failed high, but MSD samples are not qualified.

S EXPLOSIVES NITROGUAN Analytical Run
78306 on Aug 19, 2011

RED
08/26/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962085		Aug 15, 2011 1315			SHAW E&I INC	RVAAP MMRP	EXPLOSIVES NITROGUAN		S	**4**	
		LL1SS-715(I)-0001-SS		Designated MS/MSD					38277			
86608	962086		Aug 15, 2011 1330			SHAW E&I INC	RVAAP MMRP	EXPLOSIVES NITROGUAN		S	**4**	
		LL1SS-716(I)-0001-SS							38277			
86608	962087		Aug 15, 2011 1350			SHAW E&I INC	RVAAP MMRP	EXPLOSIVES NITROGUAN		S	**4**	
		LL1SS-717(I)-0001-SS							38277			
	963950							EXPLOSIVES NITROGUAN				
				MBS					38277			
	963951							EXPLOSIVES NITROGUAN				
				LCSS					38277			
	963953		Aug 15, 2011 1315					EXPLOSIVES NITROGUAN				
		LL1SS-715(I)-0001-SS		MSS	962085				38277			
	963954		Aug 15, 2011 1315					EXPLOSIVES NITROGUAN				
		LL1SS-715(I)-0001-SS		MSDS	963953				38277			

7 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on Aug 19, 2011

Prep Batch **38,277**

Prepped By:: RED

Date Prepped: Aug 19, 2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	963950	MBS		EXPLOSIVES	SOLID	10.0	5.08			
	963951	LCSS		EXPLOSIVES	SOLID	10.0	4.98			
86608	962085	*		EXPLOSIVES	SOIL	10.0	5.03		N	
	962086			EXPLOSIVES	SOIL	10.0	4.90		N	
	962087			EXPLOSIVES	SOIL	10.0	4.93		N	
	963953	MSS	962085	EXPLOSIVES	SOIL	10.0	4.94			
	963954	MSDS	963953	EXPLOSIVES	SOIL	10.0	5.00			

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Distibution: C:\LIMSREPS\PREPWRKSHT.RPT

Run# 78305/78306

Table 6
8330A/8330B Bench Sheet

Explosives Prep Bench Sheet
SOP Reference Number 8330A & 8330B

Method references: 8330A (Explosives) – Water/Soil
8330B (Explosives) – Water/Soil
3535 (SPE) - Water

Test (circle one): Explosives *or* Nitroguanidine

Matrix: Soil Groundwater other_____

Prep Batch Number 38275 / 38277

Spike and Surrogate Information:
Spike amount and concentration (Matrix Spikes and LCS): 1.00 mL @ ~~10/14~~ exp 8/19/14 10ug/mL
Spike Reference: Exp 4491
Surrogate amount and concentration: 1.00mL @ 10ug/mL
Surrogate Reference: Exp 2/492

Extraction Information and Reagent Lot #: Balance used Sauri #1
Extraction solvent: Millipore H2O Supplier: _____ Lot #: _____
Dilution solvent: MeOH Supplier Fisher Lot #: 110939
Soil sonication start time/ date: 8/19/11 @ 15:00 Soil sonication stop time/ date: 8/19/11 @ 17:00
Extraction by: HHK/REO Date 8/19/11 Start Time 14:30 End Time 15:00
GPC by: _____ GPC start time/date_____ GPC end time/date_____
Concentration by: _____ Date _____

Client	Sample Number	Sample Amt. (gm or mL)	Initial Extract Vol.* (mL)	Final Extract Vol. ** (mL)	Comments
Method Blank	MB 963941/963950	5.06	10.0	20.0	Sand blank Exp 4462
Control Spike	LCS 963942/963951	4.98			
Matrix Spike	MS 961720	4.99			
Matrix Spike Dup.	MSD 961720	4.95			
Sample Duplicate	DUP 961720	4.95			
Sample Triplicate	TRIP 961720	4.90			
Shaw	961720	5.10			
	961721	5.03			
	962085	5.03			
	MS 962085	4.94			
	MSD 962085	5.00			
	DUP 962085	5.10			
	TRIP 962085	4.99			
	962086	4.90			
	962087	4.93			

RAC 8/19/14

*Initial volumes include volume contributed from spiking solutions
**Final soil extract volumes diluted with equivalent volume of ~~DI water or 0.1% formic acid in water~~ MeOH except 8/19/14 solution before analysis.
Footnotes:

Table 5

8330B Analysis Data Review Checklist

Analytical Run #: 78306	**Independent Reviewer: red**
Sequence Date: 8/19/2011	**Date of Review: 8/22/2011**
Analyst/Data Interpreter: HHK	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the Explosive initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	**Yes**		**Yes**		
b. Is the variation between calibration response factors for all concentration levels <15% RSD, is r^2 >.990, or r > 0.995 for the regression line?		**Yes**		**Yes**		
c. Was each ICAL uniquely identified (i.e. Standard Number)?	RSD<15%, r^2>0.990, or r>0.995	**Yes**		**Yes**		
d. Was an initial calibration blank (ICB) analyzed?		**Yes**		**Yes**		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for all target analytes analyzed after the initial calibration and prior to analysis of any samples?	Second source	**Yes**		**Yes**		
b. Were the recoveries for the ICV between 85-115% (80-120% for QSM).	% Recovery	**Yes**		**Yes**		
c. Was the ICV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
samples (which ever comes first)(every 10 samples for QSM) and at the end of the analytical run?		**Yes**		**Yes**		
b. Were the recoveries for the CCVs within program limits?	%Recovery	**Yes**		**Yes**		
c. Was each CCV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		

Additional Comments:

Analytical Run #: 78306

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		**Yes**		**Yes**		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount (QSM: less than 1/2 the RL and <10% of the sample amount)?		**Yes**		**Yes**		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**yes**		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Per Program	**Yes**		**yes**		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
b. Were MS recoveries in each MS within the acceptance criteria?	Per Program	**Yes**		**Yes**		
7. MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike sample analyzed at a frequency one per Prep Batch?	Batch <20 samples	**Yes**		**yes**		
b. Were MSD within the acceptance criteria?	Per Program	**Yes**		**yes**		
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	Per Program QSM: 30% RPD	**Yes**		**yes**		

Additional Comments:

Analytical Run #: 78306

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		**Yes**		**Yes**		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		**Yes**		**Yes**		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		**na**		**na**		no hits above curve
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	**Yes**		**Yes**		
e. Was there a acetonitrile:H2O injection preformed prior to sample analysis?		**Yes**		**Yes**		
f. If any analytes were detected in the soil grinding blanks, were the associated samples B-flagged?	< 1/2 RL	**Yes**		**Yes**		
g. Was the batch soil triplicate RSD within acceptance criteria?	<20%	**Yes**		**Yes**		
9. RECORDS AND REPORTING						
a. Are Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, initial and rerun raw and process data present in the PDF file?		**Yes**		**Yes**		
b. Are all chromatograms dated and initialed?		**Yes**		**Yes**		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		**Yes**		**Yes**		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		**Yes**		**Yes**		
e. Is the ICAL method referenced on the Raw Data?		**Yes**		**Yes**		

Additional Comments:

S EXPLOSIVES NITROGUAN Analytical Run
78272 on 8/18/2011

RED
08/26/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86587	961722		8/12/2011	1315		SHAW E&I INC	RVAAP MMRP	EXPLOSIVES NITROGUAN		GW	**4**	
		FTF-006-RB							38239			
86608	962088		8/15/2011	1245		SHAW E&I INC	RVAAP MMRP	EXPLOSIVES NITROGUAN		GW	**4**	
		LL1-718-RB							38239			
	963325							EXPLOSIVES NITROGUAN				
					MBW				38239			
	963326							EXPLOSIVES NITROGUAN				
					LCSW				38239			

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 8/18/2011

Prep Batch **38,239**

Prepped By:: RED

Date Prepped: 8/18/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	963325	MBW		EXPLOSIVES	LIQUID	5.0		0.005		
	963326	LCSW		EXPLOSIVES	LIQUID	5.0		0.005		
86587	961722			EXPLOSIVES	GROUND WATER	5.0		0.005	N	
86608	962088			EXPLOSIVES	GROUND WATER	5.0		0.005	N	

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Run # 78272

Table 6
8330A/8330B Bench Sheet

Explosives Prep Bench Sheet
SOP Reference Number 8330A & 8330B

Method references: 8330A (Explosives) – Water/Soil
~~8330B~~ (Explosives) – Water/Soil
3535 (SPE) - Water

Test (circle one): Explosives *or* ~~Nitroguanidine~~

Matrix: Soil ~~Groundwater~~ other _____ **Prep Batch Number** 38239

Spike and Surrogate Information:
Spike amount and concentration (Matrix Spikes and LCS): 0.500 mL @ 10ug/mL MS 8-18-11
Spike Reference: Exp 4466
Surrogate amount and concentration: 0.500mL @ 10ug/mL
Surrogate Reference: exp 4484

Extraction Information and Reagent Lot #: Balance used —
Extraction solvent: — Supplier: — Lot #: —
Dilution solvent: MeOH Supplier Fisher Lot #: 110939
Soil sonication start time/ date: — Soil sonication stop time/ date: —
Extraction by: Rep Date 8-18-11 Start Time 14:45 End Time 15:00
GPC by: — GPC start time/date — GPC end time/date —
Concentration by: — Date —

Client	Sample Number	Sample Amt. (gm or mL)	Initial Extract Vol.* (mL)	Final Extract Vol. ** (mL)	Comments
Method Blank	MB 963325	5.0	5.0	10.0	
Control Spike	LCS 963326	↓	↓	↓	
Matrix Spike	MS				
Matrix Spike Dup.	MSD				
Sample Duplicate	DUP				
Sample Triplicate	TRIP				
Shaw	961722	5.0	5.0	10.0	
↓	962068	↓	↓	↓	

Rep 8-18-11

MS 8-18-11

*~~Initial volumes include volume contributed from spiking solutions.~~ MS 8-18-11
**~~Final soil extract volumes diluted with equivalent volume of DI water or 0.1% formic acid in water solution before analysis.~~ MS 8-18-11
Footnotes:

Table 5

8330B Analysis Data Review Checklist

Analytical Run #: 78272	**Independent Reviewer: red**
Sequence Date: 8/21/2011	**Date of Review: 8/22/2011**
Analyst/Data Interpreter: HHK	**Approval: YES**

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirements:	Acceptance Criteria	Analyst Review		Independent Review		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. INITIAL CALIBRATION (ICAL)						
a. Was the Explosive initial calibration performed using a minimum of five varying standard concentration levels?	Lowest standard at or near MRL	**Yes**		**Yes**		
b. Is the variation between calibration response factors for all concentration levels <15% RSD, is r^2 >.990, or r > 0.995 for the regression line?		**Yes**		**Yes**		
c. Was each ICAL uniquely identified (i.e. Standard Number)?	RSD<15%, r^2>0.990, or r>0.995	**Yes**		**Yes**		
d. Was an initial calibration blank (ICB) analyzed?		**Yes**		**Yes**		
2. INITIAL CALIBRATION VERIFICATION (ICV)						
a. Was there a second source ICV for all target analytes analyzed after the initial calibration and prior to analysis of any samples?	Second source	**Yes**		**Yes**		
b. Were the recoveries for the ICV between 85-115% (80-120% for QSM).	% Recovery	**Yes**		**Yes**		
c. Was the ICV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		
3. CONTINUING CALIBRATION VERIFICATION (CCV)						
samples (which ever comes first)(every 10 samples for QSM) and at the end of the analytical run?		**Yes**		**Yes**		
b. Were the recoveries for the CCVs within program limits?	%Recovery	**Yes**		**Yes**		
c. Was each CCV uniquely identified (i.e. Standard Number)?		**Yes**		**Yes**		

Additional Comments:

Analytical Run #: 78272

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
4. BLANKS						
a. Was a method blank (MB) analyzed prior to the analysis of samples?		**Yes**		**Yes**		
b. Was the MB result less than ½ the reporting limit (RL) or 5% of the sample amount (QSM: less than 1/2 the RL and <10% of the sample amount)?		**Yes**		**Yes**		
c. Was a MB prepped and analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**Yes**		
5. LABORATORY CONTROL SAMPLE (LCS)						
a. Was a LCS analyzed at a frequency of one per Prep Batch?	Batch ≤20 samples	**Yes**		**yes**		
b. Were the LCS recoveries in each LCS within the acceptance criteria?	Per Program	**Yes**		**yes**		
6. MATRIX SPIKES						
a. Was a matrix spiked (MS) sample analyzed at a frequency one per Prep Batch?	Batch ≤20 samples		**No**		**No**	none designated/not enough
b. Were MS recoveries in each MS within the acceptance criteria?	Per Program					
7. MATRIX SPIKE DUPLICATE						
a. Was a duplicate matrix spike sample analyzed at a frequency one per Prep Batch?	Batch <20 samples		**No**		**No**	none designated/not enough
b. Were MSD within the acceptance criteria?	Per Program					
c. Is the relative percent difference (RPD) between a matrix spike (MS) and its duplicate (MSD) within the acceptance criteria?	Per Program QSM: 30% RPD					

Additional Comments:

Analytical Run #: 78272

Table 5

8330B Analysis Data Review Checklist

Requirements:	Acceptance Criteria	Analyst		Independent		Comments (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
8. SAMPLES (INCLUDING BLANKS, STANDARDS, AND QC SAMPLES)						
a. Are chromatogram characteristics, including peak shapes and areas, consistent with those of the CCV?		**Yes**		**Yes**		
b. Are surrogate recoveries for all samples, blanks, standards, and QC samples within acceptance criteria?		**Yes**		**Yes**		
c. Were all samples having analytes detected in amounts exceeding the calibration range diluted and reanalyzed?		**na**		**na**		no hits
d. Were all samples extracted within holding times and analyzed within 40 days of extracting?	Analysis within 40 days of extraction	**Yes**		**Yes**		
e. Was there a acetonitrile:H2O injection preformed prior to sample analysis?		**Yes**		**Yes**		
f. If any analytes were detected in the soil grinding blanks, were the associated samples B-flagged?	< 1/2 RL	**na**		**na**		water samples
g. Was the batch soil triplicate RSD within acceptance criteria?	<20%	**na**		**na**		water samples
9. RECORDS AND REPORTING						
a. Are Run, Prep Batch and Extraction sheets, Summary sheets, Sequence file, initial and rerun raw and process data present in the PDF file?		**Yes**		**Yes**		
b. Are all chromatograms dated and initialed?		**Yes**		**Yes**		
c. Are reported results whose amounts exceeded the acceptance criteria flagged with an appropriate qualifier and, if needed, a NCR completed?		**Yes**		**Yes**		
d. Do all values, dilution factors and qualifiers listed on the raw reports match the LIMS data?		**Yes**		**Yes**		
e. Is the ICAL method referenced on the Raw Data?		**Yes**		**Yes**		

Additional Comments:

Summary Report

Instrument ID: HPLC 2 (Offline)
Data Path: C:\Instarch\HPLC 2\Sequences\8330A_B\062111expic-confirm.seq
User ID: red
Printed Date: Jun 21, 2011 14:35:42

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	ACN:0.1%formic acid in H2...	001.dat	062111expic-confirm....	Jun 21, 2011 14:05:12	
2	8330 Pt 1 EXP 4404	002.dat	062111expic-confirm....	Jun 21, 2011 14:37:30	
3	8330 Pt 2 EXP 4405	003.dat	062111expic-confirm....	Jun 21, 2011 15:09:48	
4	8330 Pt 3 EXP 4406	004.dat	062111expic-confirm....	Jun 21, 2011 15:48:53	
5	8330 Pt 4 EXP 4407	005.dat	062111expic-confirm....	Jun 21, 2011 16:21:09	
6	8330 Pt 5 EXP 4408	006.dat	062111expic-confirm....	Jun 21, 2011 16:53:27	
7	8330 Pt 6 EXP 4409	007.dat	062111expic-confirm....	Jun 21, 2011 17:25:44	
8	8330 Pt 7 EXP 4410	008.dat	062111expic-confirm....	Jun 21, 2011 17:58:00	
9	8330 ICV EXP 4411	009.dat	062111expic-confirm....	Jun 21, 2011 18:30:17	
10	8330 CCV EXP 4407	010.dat	062111expic-confirm....	Jun 21, 2011 19:02:36	
11	76448,mbw,	011.dat	062111expic-confirm....	Jun 21, 2011 19:34:56	
12	76448,935486,	012.dat	062111expic-confirm....	Jun 21, 2011 20:07:13	
13	76448,935482,	013.dat	062111expic-confirm....	Jun 21, 2011 20:39:32	
14	76448,935483,	014.dat	062111expic-confirm....	Jun 21, 2011 21:11:50	
15	76448,935484,	015.dat	062111expic-confirm....	Jun 21, 2011 21:44:07	
16	76448,935485,	016.dat	062111expic-confirm....	Jun 21, 2011 22:16:24	
17	76448,935487,	017.dat	062111expic-confirm....	Jun 21, 2011 22:48:40	Reason #3 applies to data...
18	76448,935488,	018.dat	062111expic-confirm....	Jun 21, 2011 23:20:56	Reason #3 applies to data...
19	8330 CCV EXP 4407	019.dat	062111expic-confirm....	Jun 21, 2011 23:53:12	
20	76445,mbs,	020.dat	062111expic-confirm....	Jun 22, 2011 00:25:31	
21	76445,935024,	021.dat	062111expic-confirm....	Jun 22, 2011 00:57:50	
22	76445,935024,mss	022.dat	062111expic-confirm....	Jun 22, 2011 01:30:08	
23	76445,935024,msds	023.dat	062111expic-confirm....	Jun 22, 2011 02:02:27	
24	76445,935022,	024.dat	062111expic-confirm....	Jun 22, 2011 02:34:45	
25	76445,935023,	025.dat	062111expic-confirm....	Jun 22, 2011 03:07:02	
26	935486 1:10	026.dat	062111expic-confirm....	Jun 22, 2011 03:39:19	
27	MS935486 1:10	027.dat	062111expic-confirm....	Jun 22, 2011 04:11:35	
28	MSD935486 1:10	028.dat	062111expic-confirm....	Jun 22, 2011 04:43:52	
29	935483 1:10	029.dat	062111expic-confirm....	Jun 22, 2011 05:16:07	
30	8330 CCV EXP 4407	030.dat	062111expic-confirm....	Jun 22, 2011 05:48:25	
31	935484 1:10	031.dat	062111expic-confirm....	Jun 22, 2011 06:20:44	
32	935485 1:10	032.dat	062111expic-confirm....	Jun 22, 2011 06:53:04	
33	935487 1:10	033.dat	062111expic-confirm....	Jun 22, 2011 07:25:22	
34	935488 1:10	034.dat	062111expic-confirm....	Jun 22, 2011 07:57:38	
35	rinse	035.dat	062111expic-confirm....	Jun 22, 2011 08:29:56	
36	76444,936576, mbs	036.dat	062111expic-confirm....	Jun 22, 2011 09:02:13	
37	76444,935001,	037.dat	062111expic-confirm....	Jun 22, 2011 09:34:30	
38	76444,936578, mss	038.dat	062111expic-confirm....	Jun 22, 2011 10:06:47	
39	76444,936579, msds	039.dat	062111expic-confirm....	Jun 22, 2011 10:39:01	
40	76444,935002,	040.dat	062111expic-confirm....	Jun 22, 2011 11:11:20	
41	935002 1:10	041.dat	062111expic-confirm....	Jun 22, 2011 11:43:39	
42	8330 CCV EXP 4412	042.dat	062111expic-confirm....	Jun 22, 2011 12:15:57	
43	76444,935003,	043.dat	062111expic-confirm....	Jun 22, 2011 12:48:16	Reason #3 applies to data...
44	935003 1:50	044.dat	062111expic-confirm....	Jun 22, 2011 13:20:32	
45	76444,935004,	045.dat	062111expic-confirm....	Jun 22, 2011 13:52:50	possible carryover from s...
46	935004 1:20	046.dat	062111expic-confirm....	Jun 22, 2011 14:25:07	
47	76444,935005,	047.dat	062111expic-confirm....	Jun 22, 2011 15:39:57	
48	76444,935006,	048.dat	062111expic-confirm....	Jun 22, 2011 16:12:15	
49	76444,935007,	049.dat	062111expic-confirm....	Jun 22, 2011 16:44:32	
50	76444,935008,	050.dat	062111expic-confirm....	Jun 22, 2011 17:16:53	
51	935008 1:10	051.dat	062111expic-confirm....	Jun 22, 2011 17:49:11	
52	76444,935012,	052.dat	062111expic-confirm....	Jun 22, 2011 18:21:30	Reason #4 applies to data...
53	8330 CCV EXP 4412	053.dat	062111expic-confirm....	Jun 22, 2011 18:53:48	
54	76444,935013,	054.dat	062111expic-confirm....	Jun 22, 2011 19:26:06	
55	76444,935014,	055.dat	062111expic-confirm....	Jun 22, 2011 19:58:22	Reason #3 applies to data...
56	935014 1:50	056.dat	062111expic-confirm....	Jun 22, 2011 20:30:39	
57	76444,935015,	057.dat	062111expic-confirm....	Jun 22, 2011 21:02:57	
58	76444,935017,	058.dat	062111expic-confirm....	Jun 22, 2011 21:35:13	
59	76444,935018,	059.dat	062111expic-confirm....	Jun 22, 2011 22:07:30	
60	76444,935021,	060.dat	062111expic-confirm....	Jun 22, 2011 22:39:49	
61	8330 CCV EXP 4412	061.dat	062311exp-confirm.met	Jun 22, 2011 23:12:09	

Summary Report

Instrument ID: HPLC 2 (Offline)
Data Path: C:\Instarch\HPLC 2\Sequences\8330A_B\082111expic-primary.seq
User ID: red
Printed Date: Aug 21, 2011 13:43:54

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 ACN:0.1%formic acid in...	001.dat	082111expic-primary....	Aug 21, 2011 13:27:53	
2	8330 Pt 1 EXP 4494	002.dat	082111expic-primary....	Aug 21, 2011 14:21:57	Reasons #1,#3, and #4 ap...
3	8330 Pt 2 EXP 4495	003.dat	082111expic-primary....	Aug 21, 2011 14:40:15	Reasons #3,#4 apply to d...
4	8330 Pt 3 EXP 4496	004.dat	082111expic-primary....	Aug 21, 2011 14:58:34	Reason #3 applies to data...
5	8330 Pt 4 EXP 4497	005.dat	082111expic-primary....	Aug 21, 2011 15:16:50	Reason #3,#4 applies to d...
6	8330 Pt 5 EXP 4498	006.dat	082111expic-primary....	Aug 21, 2011 15:35:08	
7	8330 Pt 6 EXP 4499	007.dat	082111expic-primary....	Aug 21, 2011 15:53:25	
8	8330 Pt 7 EXP 4500	008.dat	082111expic-primary....	Aug 21, 2011 16:11:43	
9	8330 ICV EXP 4501	009.dat	082111expic-primary....	Aug 21, 2011 16:30:00	Reason #3 applies to data...
10	8330 CCV EXP 4497	010.dat	082111expic-primary....	Aug 21, 2011 16:48:21	
11	78273,963300, mbw	011.dat	082111expic-primary....	Aug 21, 2011 17:06:39	
12	78273,963301, lcsw	012.dat	082111expic-primary....	Aug 21, 2011 17:24:59	
13	78273,961722,	013.dat	082111expic-primary....	Aug 21, 2011 17:43:16	Reason #3 applies to data...
14	78273,962088,	014.dat	082111expic-primary....	Aug 21, 2011 18:01:33	Reason #3 applies to data...
15	78318,963303, mbs	015.dat	082111expic-primary....	Aug 21, 2011 18:19:50	
16	78318,963304, lcss	016.dat	082111expic-primary....	Aug 21, 2011 18:38:07	
17	78318,961723,	017.dat	082111expic-primary....	Aug 21, 2011 18:56:24	
18	78318,961725,	018.dat	082111expic-primary....	Aug 21, 2011 19:14:41	Reason #3 applies to data...
19	78318,961726,	019.dat	082111expic-primary....	Aug 21, 2011 19:32:57	Reason #3 applies to data...
20	78318,961727,	020.dat	082111expic-primary....	Aug 21, 2011 19:51:19	
21	8330 CCV EXP 4497	021.dat	082111expic-primary....	Aug 21, 2011 20:09:38	
22	78318,961728,	022.dat	082111expic-primary....	Aug 21, 2011 20:27:55	
23	78318,961729,	023.dat	082111expic-primary....	Aug 21, 2011 20:46:13	
24	78318,961731,	024.dat	082111expic-primary....	Aug 21, 2011 21:04:31	
25	78318,961732,	025.dat	082111expic-primary....	Aug 21, 2011 21:22:48	
26	78318,961733,	026.dat	082111expic-primary....	Aug 21, 2011 21:41:06	
27	78318,961734,	027.dat	082111expic-primary....	Aug 21, 2011 21:59:21	
28	78318,961735,	028.dat	082111expic-primary....	Aug 21, 2011 22:17:38	
29	78318,962093,	029.dat	082111expic-primary....	Aug 21, 2011 22:35:54	
30	78318,962094,	030.dat	082111expic-primary....	Aug 21, 2011 22:54:15	
31	78318,962095,	031.dat	082111expic-primary....	Aug 21, 2011 23:12:35	
32	8330 CCV EXP 4497	032.dat	082111expic-primary....	Aug 21, 2011 23:30:52	Reason #3,#4 applies to d...
33	78318,962096,	033.dat	082111expic-primary....	Aug 21, 2011 23:49:10	
34	78318,962097,	034.dat	082111expic-primary....	Aug 22, 2011 00:07:28	
35	78318,962098,	035.dat	082111expic-primary....	Aug 22, 2011 00:25:45	
36	78318,962099,	036.dat	082111expic-primary....	Aug 22, 2011 00:44:02	
37	78318,962100,	037.dat	082111expic-primary....	Aug 22, 2011 01:02:18	
38	78318,962102,	038.dat	082111expic-primary....	Aug 22, 2011 01:20:34	
39	78318,963305, mss	039.dat	082111expic-primary....	Aug 22, 2011 01:38:50	
40	78318,963306, msds	040.dat	082111expic-primary....	Aug 22, 2011 01:57:10	
41	78319,963313, mbs	041.dat	082111expic-primary....	Aug 22, 2011 02:15:29	
42	78319,963314, lcss	042.dat	082111expic-primary....	Aug 22, 2011 02:33:47	Reason #3,#4 applies to d...
43	8330 CCV EXP 4497	043.dat	082111expic-primary....	Aug 22, 2011 02:52:04	
44	78319,961730,	044.dat	082111expic-primary....	Aug 22, 2011 03:10:22	
45	78319,962103,	045.dat	082111expic-primary....	Aug 22, 2011 03:28:39	
46	78319,962104,	046.dat	082111expic-primary....	Aug 22, 2011 03:46:56	
47	78319,962105,	047.dat	082111expic-primary....	Aug 22, 2011 04:05:12	
48	78319,962106,	048.dat	082111expic-primary....	Aug 22, 2011 04:23:28	
49	78319,962107,	049.dat	082111expic-primary....	Aug 22, 2011 04:41:44	
50	78319,962108,	050.dat	082111expic-primary....	Aug 22, 2011 05:00:05	
51	78319,962109,	051.dat	082111expic-primary....	Aug 22, 2011 05:18:22	Reason #4 applies to data...
52	78319,962110,	052.dat	082111expic-primary....	Aug 22, 2011 05:36:40	
53	78319,962111,	053.dat	082111expic-primary....	Aug 22, 2011 05:54:58	
54	8330 CCV EXP 4497	054.dat	082111expic-primary....	Aug 22, 2011 06:13:19	
55	78319,962112,	055.dat	082111expic-primary....	Aug 22, 2011 06:31:36	
56	78319,962113,	056.dat	082111expic-primary....	Aug 22, 2011 06:49:52	
57	78319,962114,	057.dat	082111expic-primary....	Aug 22, 2011 07:08:09	Reason #4 applies to data...
58	78319,962115,	058.dat	082111expic-primary....	Aug 22, 2011 07:26:26	
59	78319,962116,	059.dat	082111expic-primary....	Aug 22, 2011 07:44:42	
60	78319,962117,	060.dat	082111expic-primary....	Aug 22, 2011 08:03:01	
61	78319,962118,	061.dat	082111expic-primary....	Aug 22, 2011 08:21:19	
62	78319,962119,	062.dat	082111expic-primary....	Aug 22, 2011 08:39:38	
63	78319,962120,	063.dat	082111expic-primary....	Aug 22, 2011 08:57:56	

64	78319,962121,	064.dat	082111expic-primary....	Aug 22, 2011 09:16:14	
65	8330 CCV EXP 4497	065.dat	082111expic-primary....	Aug 22, 2011 09:34:35	Reason #1,#3,#4 applies t...
66	78319,963315, mss	066.dat	082111expic-primary....	Aug 22, 2011 09:52:50	
67	78319,963316, msds	067.dat	082111expic-primary....	Aug 22, 2011 10:11:07	Reason #3 applies to data...
68	78318,961732,	068.dat	082111expic-primary....	Aug 22, 2011 13:26:20	
69	78318 961735 1:10	069.dat	082111expic-primary....	Aug 22, 2011 13:44:36	
70	78319 962110 1:10	070.dat	082111expic-primary....	Aug 22, 2011 14:02:54	
71	8330 CCV EXP 4497	071.dat	082111expic-primary....	Aug 22, 2011 14:21:15	Reasons #3 and #4 apply ...

Summary Report

Instrument ID: HPLC 2 (Offline)
Data Path: C:\Instarch\HPLC 2\Sequences\8330A_B\082311exp-primary.seq
User ID: red
Printed Date: Aug 23, 2011 09:53:40

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 ACN:0.1%formic acid in...	001.dat	082311exp-primary.met	Aug 23, 2011 09:37:39	
2	8330 CCV EXP 4502	002.dat	082311exp-primary.met	Aug 23, 2011 09:55:57	Reason #3 applies to data...
3	78320,962144,	003.dat	082311exp-primary.met	Aug 23, 2011 10:14:14	
4	78320,963320, mss	004.dat	082311exp-primary.met	Aug 23, 2011 10:32:31	Reason #3 applies to data...
5	78320,963321, msds	005.dat	082311exp-primary.met	Aug 23, 2011 10:50:48	Reason #3 applies to data...
6	78321,963935, mbs	006.dat	082311exp-primary.met	Aug 23, 2011 11:09:04	
7	78321,963936, lcss	007.dat	082311exp-primary.met	Aug 23, 2011 11:27:21	
8	78321,961720,	008.dat	082311exp-primary.met	Aug 23, 2011 11:45:42	
9	961720 dup.	009.dat	082311exp-primary.met	Aug 23, 2011 12:04:00	
10	961720 trip.	010.dat	082311exp-primary.met	Aug 23, 2011 12:22:18	
11	78321,961721,	011.dat	082311exp-primary.met	Aug 23, 2011 12:40:36	
12	78321,963937, mss	012.dat	082311exp-primary.met	Aug 23, 2011 12:58:54	Reason #3 applies to data...
13	8330 CCV EXP 4502	013.dat	082311exp-primary.met	Aug 23, 2011 13:17:11	Reason #3,#4 applies to d...
14	78321,963938, msds	014.dat	082311exp-primary.met	Aug 23, 2011 13:35:27	
15	78322,963946, mbs	015.dat	082311exp-primary.met	Aug 23, 2011 13:53:44	Reason #1,#4 applies to d...
16	78322,963947, lcss	016.dat	082311exp-primary.met	Aug 23, 2011 14:12:00	Reason #3,#4 applies to d...
17	78322,962085,	017.dat	082311exp-primary.met	Aug 23, 2011 14:30:17	
18	962085 dup.	018.dat	082311exp-primary.met	Aug 23, 2011 14:48:37	Reason #4 applies to data...
19	962085 trip.	019.dat	082311exp-primary.met	Aug 23, 2011 15:06:56	Reason #4 applies to data...
20	78322,962086,	020.dat	082311exp-primary.met	Aug 23, 2011 15:25:14	Reason #4 applies to data...
21	78322,962087,	021.dat	082311exp-primary.met	Aug 23, 2011 15:43:32	
22	78322,963948, mss	022.dat	082311exp-primary.met	Aug 23, 2011 16:01:50	Reason #3 applies to data...
23	78322,963949, msds	023.dat	082311exp-primary.met	Aug 23, 2011 16:20:07	
24	8330 CCV EXP 4502	024.dat	082311exp-primary.met	Aug 23, 2011 16:38:24	Reason #3 applies to data...

Summary Report

Instrument ID: HPLC 2 (Offline)
Data Path: C:\Instarch\HPLC 2\Sequences\8330A_B\082411exp-confirm.seq
User ID: red
Printed Date: Aug 24, 2011 10:46:05

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 ACN:0.1%formic acid in...	001.dat	082411exp-confirm.met	Aug 24, 2011 10:15:04	
2	8330 CCV EXP 4503	002.dat	082411exp-confirm.met	Aug 24, 2011 10:47:22	
3	78273,963300, mbw	003.dat	082411exp-confirmb....	Aug 24, 2011 11:19:41	
4	78273,961722,	004.dat	082411exp-confirmb....	Aug 24, 2011 11:51:58	
5	78273,962088,	005.dat	082411exp-confirmb....	Aug 24, 2011 12:24:15	
6	78318,963303, mbs	006.dat	082411exp-confirmb....	Aug 24, 2011 12:56:32	
7	78318,961725,	007.dat	082411exp-confirmb....	Aug 24, 2011 13:28:50	
8	78318,961726,	008.dat	082411exp-confirmb....	Aug 24, 2011 14:01:08	
9	78318,961727,	009.dat	082411exp-confirmb....	Aug 24, 2011 14:33:24	
10	78318,961728,	010.dat	082411exp-confirmb....	Aug 24, 2011 15:05:46	
11	78318,961729,	011.dat	082411exp-confirmb....	Aug 24, 2011 15:38:04	
12	78318,961732,	012.dat	082411exp-confirmb....	Aug 24, 2011 16:10:22	
13	8330 CCV EXP 4503	013.dat	082411exp-confirmb....	Aug 24, 2011 16:42:40	
14	78318,961735,	014.dat	082411exp-confirmb....	Aug 24, 2011 17:14:58	
15	78318,961735,10,	015.dat	082411exp-confirmb....	Aug 24, 2011 17:47:14	
16	78318,962093,	016.dat	082411exp-confirmb....	Aug 24, 2011 18:19:31	
17	78318,963305,mss	017.dat	082411exp-confirmb....	Aug 24, 2011 18:51:49	Reason #3,#4 applies to d...
18	78318,963306,msds	018.dat	082411exp-confirmb....	Aug 24, 2011 19:24:06	
19	78319,963313,mbs	019.dat	082411exp-confirmb....	Aug 24, 2011 19:56:22	
20	78319,961730,	020.dat	082411exp-confirmb....	Aug 24, 2011 20:28:44	
21	78319,962103,	021.dat	082411exp-confirmb....	Aug 24, 2011 21:01:02	Reason #4 applies to data...
22	78319,962110,	022.dat	082411exp-confirmb....	Aug 24, 2011 21:33:20	
23	78319,962110,10,	023.dat	082411exp-confirmb....	Aug 24, 2011 22:05:38	
24	8330 CCV EXP 4503	024.dat	082411exp-confirmb....	Aug 24, 2011 22:37:54	Reason #1,#4 applies to d...
25	78319,962118,	025.dat	082411exp-confirmb....	Aug 24, 2011 23:10:11	
26	78319,962119,	026.dat	082411exp-confirmb....	Aug 24, 2011 23:42:29	Reason #4 applies to data...
27	78319,962120,	027.dat	082411exp-confirmb....	Aug 25, 2011 00:14:46	
28	78319,962121,	028.dat	082411exp-confirmb....	Aug 25, 2011 00:47:02	
29	78319,963315,mss	029.dat	082411exp-confirmb....	Aug 25, 2011 01:19:19	
30	78319,963316,msds	030.dat	082411exp-confirmb....	Aug 25, 2011 01:51:41	Reason #3 applies to data...
31	78320,963318,mbs	031.dat	082411exp-confirmb....	Aug 25, 2011 02:23:58	
32	78320,962123,	032.dat	082411exp-confirmb....	Aug 25, 2011 02:56:17	
33	78320,962125,	033.dat	082411exp-confirmb....	Aug 25, 2011 03:28:35	
34	78320,962128,	034.dat	082411exp-confirmb....	Aug 25, 2011 04:00:51	
35	8330 CCV EXP 4503	035.dat	082411exp-confirmb....	Aug 25, 2011 04:33:09	
36	78320,962129,	036.dat	082411exp-confirmb....	Aug 25, 2011 05:05:26	
37	78320,962130,	037.dat	082411exp-confirmb....	Aug 25, 2011 05:37:42	
38	78320,962132,	038.dat	082411exp-confirmb....	Aug 25, 2011 06:09:59	
39	78320,962133,	039.dat	082411exp-confirmb....	Aug 25, 2011 06:42:15	
40	78320,962134,	040.dat	082411exp-confirmb....	Aug 25, 2011 07:14:35	
41	78320,962144,	041.dat	082411exp-confirmb....	Aug 25, 2011 07:46:54	
42	78321,963935,mbs	042.dat	082411exp-confirmb....	Aug 25, 2011 08:19:12	
43	78321,961720,	043.dat	082411exp-confirmb....	Aug 25, 2011 08:51:30	
44	78321,961720,dup.	044.dat	082411exp-confirmb....	Aug 25, 2011 09:23:49	
45	78321,961720,trip.	045.dat	082411exp-confirmb....	Aug 25, 2011 09:56:06	
46	8330 CCV EXP 4503	046.dat	082411exp-confirmb....	Aug 25, 2011 10:28:22	
47	78322,963946,mbs	047.dat	082411exp-confirmb....	Aug 25, 2011 11:00:39	
48	78322,962085,	048.dat	082411exp-confirmb....	Aug 25, 2011 11:32:55	
49	78322,962085,dup.	049.dat	082411exp-confirmb....	Aug 25, 2011 12:05:12	
50	78322,962085,trip.	050.dat	082411exp-confirmb....	Aug 25, 2011 12:37:31	
51	78322,962086,	051.dat	082411exp-confirmb....	Aug 25, 2011 13:09:50	
52	78322,962087,	052.dat	082411exp-confirmb....	Aug 25, 2011 13:42:08	
53	rinse	053.dat	082411exp-confirmb....	Aug 25, 2011 14:14:25	
54	78320,963318,mbs	054.dat	082411exp-confirmb....	Aug 25, 2011 14:46:44	
55	8330 CCV EXP 4503	055.dat	082411exp-confirmb....	Aug 25, 2011 15:19:01	

Summary Report

Instrument ID: HPLC 1 (Offline)
Data Path: C:\Instarch\HPLC 1\Sequence\NQ\061611nqic-confirm.seq
User ID: red
Printed Date: Jun 16, 2011 13:49:30

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 MeOH:H20	001.dat	061611nqic-confirm....	Jun 16, 2011 11:54:42	
2	nq pt 1 exp 4366	002.dat	061611nqic-confirm....	Jun 16, 2011 12:11:54	
3	nq pt 2 exp 4367	003.dat	061611nqic-confirm....	Jun 16, 2011 12:29:07	
4	nq pt 3 exp 4368	004.dat	061611nqic-confirm....	Jun 16, 2011 12:46:18	
5	nq pt 4 exp 4369	005.dat	061611nqic-confirm....	Jun 16, 2011 13:03:30	
6	nq pt 5 exp 4370	006.dat	061611nqic-confirm....	Jun 16, 2011 13:20:42	
7	nq pt 6 exp 4371	007.dat	061611nqic-confirm....	Jun 16, 2011 13:37:54	
8	nq pt 7 exp 4372	008.dat	061611nqic-confirm....	Jun 16, 2011 13:55:05	
9	nq icv exp 4373	009.dat	061611nqic-confirm....	Jun 16, 2011 14:12:22	
10	ccv exp 4369	010.dat	061611nqic-confirm....	Jun 16, 2011 14:29:34	
11	nq mbw	011.dat	061611nqic-confirm....	Jun 16, 2011 14:54:09	
12	mdlw1	012.dat	061611nqic-confirm....	Jun 16, 2011 15:11:21	
13	mdlw2	013.dat	061611nqic-confirm....	Jun 16, 2011 15:28:34	
14	mdlw3	014.dat	061611nqic-confirm....	Jun 16, 2011 15:45:45	
15	mdlw4	015.dat	061611nqic-confirm....	Jun 16, 2011 16:02:58	
16	mdlw5	016.dat	061611nqic-confirm....	Jun 16, 2011 16:20:10	
17	mdlw6	017.dat	061611nqic-confirm....	Jun 16, 2011 16:37:22	
18	mdlw7	018.dat	061611nqic-confirm....	Jun 16, 2011 16:54:33	
19	mdlw8	019.dat	061611nqic-confirm....	Jun 16, 2011 17:11:49	
20	ccv exp 4369	020.dat	061611nqic-confirm....	Jun 16, 2011 17:29:01	
21	nq mbs	021.dat	061611nqic-confirm....	Jun 16, 2011 17:46:13	
22	mdls 1	022.dat	061611nqic-confirm....	Jun 16, 2011 18:03:25	
23	mdls 2	023.dat	061611nqic-confirm....	Jun 16, 2011 18:20:36	
24	mdls 3	024.dat	061611nqic-confirm....	Jun 16, 2011 18:37:48	
25	mdls4	025.dat	061611nqic-confirm....	Jun 16, 2011 18:55:00	
26	mdls5	026.dat	061611nqic-confirm....	Jun 16, 2011 19:12:11	
27	mdls 6	027.dat	061611nqic-confirm....	Jun 16, 2011 19:29:22	
28	mdls7	028.dat	061611nqic-confirm....	Jun 16, 2011 19:46:34	
29	mdls8	029.dat	061611nqic-confirm....	Jun 16, 2011 20:03:50	
30	ccv exp 4369	030.dat	061611nqic-confirm....	Jun 16, 2011 20:21:02	

Summary Report

Instrument ID: HPLC 1 (Offline)
Data Path: C:\Instarch\HPLC 1\Sequence\NQ\070611nqic-primary.seq
User ID: srt
Printed Date: Jul 06, 2011 14:18:22

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 MeOH:H2O	001.dat	070611nqic-primary....	Jul 06, 2011 11:26:19	
2	NQ Pt. 1 EXP 4432	002.dat	070611nqic-primary....	Jul 06, 2011 13:08:10	
3	NQ Pt. 2 EXP 4433	003.dat	070611nqic-primary....	Jul 06, 2011 13:18:01	
4	NQ Pt. 3 EXP 4434	004.dat	070611nqic-primary....	Jul 06, 2011 13:34:10	
5	NQ Pt. 4 EXP 4435	005.dat	070611nqic-primary....	Jul 06, 2011 13:41:58	
6	NQ Pt. 5 EXP 4436	006.dat	070611nqic-primary....	Jul 06, 2011 13:49:47	
7	NQ Pt. 6 EXP 4437	007.dat	070611nqic-primary....	Jul 06, 2011 13:57:35	
8	NQ Pt. 7 EXP 4438	008.dat	070611nqic-primary....	Jul 06, 2011 14:05:23	
9	NQ ICV EXP 4439	009.dat	070611nqic-primary....	Jul 06, 2011 14:13:13	
10	NQ CCV EXP 4435	010.dat	070611nqic-primary....	Jul 06, 2011 14:26:55	
11	76442,936599, mbs	011.dat	070611nqic-primary....	Jul 06, 2011 14:34:42	
12	76442,933679, lod check	012.dat	070611nqic-primary....	Jul 06, 2011 14:42:31	
13	937805 loq check	013.dat	070611nqic-primary....	Jul 06, 2011 14:50:19	
14	937805 loq check	014.dat	070611nqic-primary....	Jul 06, 2011 14:58:07	
15	76986,936595, mbw	015.dat	070611nqic-primary....	Jul 06, 2011 15:05:54	
16	76986,933678, lod check	016.dat	070611nqic-primary....	Jul 06, 2011 15:13:43	
17	945224 loq check	017.dat	070611nqic-primary....	Jul 06, 2011 15:21:30	
18	945224 loq check	018.dat	070611nqic-primary....	Jul 06, 2011 15:29:18	
19	NQ CCV EXP 4435	019.dat	070611nqic-primary....	Jul 06, 2011 15:37:06	

Summary Report

Instrument ID: HPLC 1 (Offline)
Data Path: C:\Instarch\HPLC 1\Sequence\NQ\081911nq-primary.seq
User ID: red
Printed Date: Aug 19, 2011 17:56:26

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 MeOH:H2O	001.dat	081911nq-primary.met	Aug 19, 2011 17:16:42	
2	NQ CCV EXP 4493	002.dat	081911nq-primary.met	Aug 19, 2011 17:24:31	
3	78302,963332, mbs	003.dat	081911nq-primary.met	Aug 19, 2011 18:06:07	
4	78302,963333, lcss	004.dat	081911nq-primary.met	Aug 19, 2011 18:13:55	Reason #3 applies to data...
5	78302,961723,	005.dat	081911nq-primary.met	Aug 19, 2011 18:21:43	
6	78302,961725,	006.dat	081911nq-primary.met	Aug 19, 2011 18:29:31	
7	78302,961726,	007.dat	081911nq-primary.met	Aug 19, 2011 18:37:20	
8	78302,961727,	008.dat	081911nq-primary.met	Aug 19, 2011 18:45:08	
9	78302,961728,	009.dat	081911nq-primary.met	Aug 19, 2011 18:52:58	
10	78302,961729,	010.dat	081911nq-primary.met	Aug 19, 2011 19:00:46	
11	78302,961731,	011.dat	081911nq-primary.met	Aug 19, 2011 19:08:35	
12	78302,961732,	012.dat	081911nq-primary.met	Aug 19, 2011 19:16:23	
13	NQ CCV EXP 4493	013.dat	081911nq-primary.met	Aug 19, 2011 19:24:11	
14	78302,961733,	014.dat	081911nq-primary.met	Aug 19, 2011 19:31:58	
15	78302,961734,	015.dat	081911nq-primary.met	Aug 19, 2011 19:39:46	
16	78302,961735,	016.dat	081911nq-primary.met	Aug 19, 2011 19:47:34	
17	78302,962093,	017.dat	081911nq-primary.met	Aug 19, 2011 19:55:22	
18	78302,962094,	018.dat	081911nq-primary.met	Aug 19, 2011 20:03:11	
19	78302,962095,	019.dat	081911nq-primary.met	Aug 19, 2011 20:11:02	
20	78302,962096,	020.dat	081911nq-primary.met	Aug 19, 2011 20:18:50	
21	78302,962097,	021.dat	081911nq-primary.met	Aug 19, 2011 20:26:38	
22	78302,962098,	022.dat	081911nq-primary.met	Aug 19, 2011 20:34:25	
23	78302,962099,	023.dat	081911nq-primary.met	Aug 19, 2011 20:42:14	
24	NQ CCV EXP 4493	024.dat	081911nq-primary.met	Aug 19, 2011 20:50:01	
25	78302,962100,	025.dat	081911nq-primary.met	Aug 19, 2011 20:57:49	
26	78302,962102,	026.dat	081911nq-primary.met	Aug 19, 2011 21:05:36	
27	78302,963339, mss	027.dat	081911nq-primary.met	Aug 19, 2011 21:13:24	
28	78302,963340, msds	028.dat	081911nq-primary.met	Aug 19, 2011 21:21:12	
29	78303,963341, mbs	029.dat	081911nq-primary.met	Aug 19, 2011 21:29:01	
30	78303,963342, lcss	030.dat	081911nq-primary.met	Aug 19, 2011 21:36:50	
31	78303,961730,	031.dat	081911nq-primary.met	Aug 19, 2011 21:44:39	
32	78303,962103,	032.dat	081911nq-primary.met	Aug 19, 2011 21:52:26	
33	78303,962104,	033.dat	081911nq-primary.met	Aug 19, 2011 22:00:14	
34	78303,962105,	034.dat	081911nq-primary.met	Aug 19, 2011 22:08:02	
35	NQ CCV EXP 4493	035.dat	081911nq-primary.met	Aug 19, 2011 22:15:49	
36	78303,962106,	036.dat	081911nq-primary.met	Aug 19, 2011 22:23:36	
37	78303,962107,	037.dat	081911nq-primary.met	Aug 19, 2011 22:31:24	
38	78303,962108,	038.dat	081911nq-primary.met	Aug 19, 2011 22:39:11	
39	78303,962109,	039.dat	081911nq-primary.met	Aug 19, 2011 22:47:02	
40	78303,962110,	040.dat	081911nq-primary.met	Aug 19, 2011 22:54:49	
41	78303,962111,	041.dat	081911nq-primary.met	Aug 19, 2011 23:02:38	
42	78303,962112,	042.dat	081911nq-primary.met	Aug 19, 2011 23:10:26	
43	78303,962113,	043.dat	081911nq-primary.met	Aug 19, 2011 23:18:14	
44	78303,962114,	044.dat	081911nq-primary.met	Aug 19, 2011 23:26:00	
45	78303,962115,	045.dat	081911nq-primary.met	Aug 19, 2011 23:33:48	
46	NQ CCV EXP 4493	046.dat	081911nq-primary.met	Aug 19, 2011 23:41:35	
47	78303,962116,	047.dat	081911nq-primary.met	Aug 19, 2011 23:49:21	
48	78303,962117,	048.dat	081911nq-primary.met	Aug 19, 2011 23:57:08	
49	78303,962118,	049.dat	081911nq-primary.met	Aug 20, 2011 00:04:58	
50	78303,962119,	050.dat	081911nq-primary.met	Aug 20, 2011 00:12:46	
51	78303,962120,	051.dat	081911nq-primary.met	Aug 20, 2011 00:20:35	
52	78303,962121,	052.dat	081911nq-primary.met	Aug 20, 2011 00:28:22	
53	78303,963344, mss	053.dat	081911nq-primary.met	Aug 20, 2011 00:36:10	
54	78303,963345, msds	054.dat	081911nq-primary.met	Aug 20, 2011 00:43:58	
55	78304,963346, mbs	055.dat	081911nq-primary.met	Aug 20, 2011 00:51:44	
56	78304,963347, lcss	056.dat	081911nq-primary.met	Aug 20, 2011 00:59:31	
57	NQ CCV EXP 4493	057.dat	081911nq-primary.met	Aug 20, 2011 01:07:17	
58	78304,962101,	058.dat	081911nq-primary.met	Aug 20, 2011 01:15:05	
59	78304,962122,	059.dat	081911nq-primary.met	Aug 20, 2011 01:22:54	
60	78304,962123,	060.dat	081911nq-primary.met	Aug 20, 2011 01:30:43	
61	78304,962124,	061.dat	081911nq-primary.met	Aug 20, 2011 01:38:31	
62	78304,962125,	062.dat	081911nq-primary.met	Aug 20, 2011 01:46:18	
63	78304,962126,	063.dat	081911nq-primary.met	Aug 20, 2011 01:54:06	

64	78304,962127,	064.dat	081911nq-primary.met	Aug 20, 2011 02:01:54	
65	78304,962128,	065.dat	081911nq-primary.met	Aug 20, 2011 02:09:40	
66	78304,962129,	066.dat	081911nq-primary.met	Aug 20, 2011 02:17:27	
67	78304,962130,	067.dat	081911nq-primary.met	Aug 20, 2011 02:25:14	
68	NQ CCV EXP 4493	068.dat	081911nq-primary.met	Aug 20, 2011 02:32:59	
69	78304,962131,	069.dat	081911nq-primary.met	Aug 20, 2011 02:40:48	
70	78304,962132,	070.dat	081911nq-primary.met	Aug 20, 2011 02:48:37	
71	78304,962133,	071.dat	081911nq-primary.met	Aug 20, 2011 02:56:25	
72	78304,962134,	072.dat	081911nq-primary.met	Aug 20, 2011 03:04:13	
73	78304,962135,	073.dat	081911nq-primary.met	Aug 20, 2011 03:12:01	
74	78304,962136,	074.dat	081911nq-primary.met	Aug 20, 2011 03:19:49	
75	78304,962137,	075.dat	081911nq-primary.met	Aug 20, 2011 03:27:35	
76	78304,962143,	076.dat	081911nq-primary.met	Aug 20, 2011 03:35:22	
77	78304,962144,	077.dat	081911nq-primary.met	Aug 20, 2011 03:43:07	
78	78304,963349, mss	078.dat	081911nq-primary.met	Aug 20, 2011 03:50:54	
79	NQ CCV EXP 4493	079.dat	081911nq-primary.met	Aug 20, 2011 03:58:43	
80	78304,963350, msds	080.dat	081911nq-primary.met	Aug 20, 2011 04:06:31	
81	78305,963941, mbs	081.dat	081911nq-primary.met	Aug 20, 2011 04:14:20	
82	78305,963942, lcss	082.dat	081911nq-primary.met	Aug 20, 2011 04:22:08	Reason #3 applies to data...
83	78305,961720,	083.dat	081911nq-primary.met	Aug 20, 2011 04:29:56	
84	961720 dup.	084.dat	081911nq-primary.met	Aug 20, 2011 04:37:42	
85	961720 trip.	085.dat	081911nq-primary.met	Aug 20, 2011 04:45:29	
86	78305,961721,	086.dat	081911nq-primary.met	Aug 20, 2011 04:53:16	
87	78305,963944, mss	087.dat	081911nq-primary.met	Aug 20, 2011 05:01:01	
88	78305,963945, msds	088.dat	081911nq-primary.met	Aug 20, 2011 05:08:47	
89	NQ CCV EXP 4493	089.dat	081911nq-primary.met	Aug 20, 2011 05:16:35	
90	78306,963950, mbs	090.dat	081911nq-primary.met	Aug 20, 2011 10:54:03	
91	78306,963951, lcss	091.dat	081911nq-primary.met	Aug 20, 2011 11:01:50	
92	78306,962085,	092.dat	081911nq-primary.met	Aug 20, 2011 11:09:38	Reason #3 applies to data...
93	962085 dup.	093.dat	081911nq-primary.met	Aug 20, 2011 11:17:26	Reason #3 applies to data...
94	962085 trip.	094.dat	081911nq-primary.met	Aug 20, 2011 11:25:13	Reason #3 applies to data...
95	78306,962086,	095.dat	081911nq-primary.met	Aug 20, 2011 11:33:00	Reason #3 applies to data...
96	78306,962087,	096.dat	081911nq-primary.met	Aug 20, 2011 11:40:46	Reason #3 applies to data...
97	78306,963953, mss	097.dat	081911nq-primary.met	Aug 20, 2011 11:48:33	Reason #3 applies to data...
98	78306,963954, msds	098.dat	081911nq-primary.met	Aug 20, 2011 11:56:18	Reason #3 applies to data...
99	NQ CCV EXP 4493	099.dat	081911nq-primary.met	Aug 20, 2011 12:04:06	Reason #3 applies to data...

Summary Report

Instrument ID: HPLC 1 (Offline)
Data Path: C:\Instarch\HPLC 1\Sequence\NQ\082111nq-primary.seq
User ID: red
Printed Date: Aug 21, 2011 14:05:37

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 MeOH:H2O	001.dat	082111nq-primary.met	Aug 21, 2011 13:59:36	
2	NQ CCV EXP 4493	002.dat	082111nq-primary.met	Aug 21, 2011 14:07:25	
3	78272,963325, mbw	003.dat	082111nq-primary.met	Aug 21, 2011 14:15:12	
4	78272,963326, lcsw	004.dat	082111nq-primary.met	Aug 21, 2011 14:23:01	
5	78272,961722,	005.dat	082111nq-primary.met	Aug 21, 2011 14:30:48	
6	78272,962088,	006.dat	082111nq-primary.met	Aug 21, 2011 14:38:36	
7	NQ CCV EXP 4493	007.dat	082111nq-primary.met	Aug 21, 2011 14:46:24	

Summary Report

Instrument ID: **HPLC 1 (Offline)**
Data Path: **C:\Instarch\HPLC 1\Sequence\NQ\082111nq-confirm.seq**
User ID: **red**
Printed Date: **Aug 21, 2011 11:17:37**

Run Number	Sample ID	Data Filename	Method Filename	Analysis Date	Data Description
1	1:1 MeOH:H2O	001.dat	082111NQ-confirm.met	Aug 21, 2011 11:04:36	
2	NQ CCV EXP 4493	002.dat	082111NQ-confirm.met	Aug 21, 2011 11:21:48	
3	78306,963950, mbs	003.dat	082111NQ-confirm.met	Aug 21, 2011 11:39:01	
4	78306,962085,	004.dat	082111NQ-confirm.met	Aug 21, 2011 11:56:11	
5	962085 dup.	005.dat	082111NQ-confirm.met	Aug 21, 2011 12:13:23	
6	962085 trip.	006.dat	082111NQ-confirm.met	Aug 21, 2011 12:30:32	
7	78306,962086,	007.dat	082111NQ-confirm.met	Aug 21, 2011 12:47:42	Reason #3 applies to data...
8	78306,962087,	008.dat	082111NQ-confirm.met	Aug 21, 2011 13:04:52	
9	NQ CCV EXP 4493	009.dat	082111NQ-confirm.met	Aug 21, 2011 13:22:05	

ExP4330 8330 Surrogate
1.00 mL S2340A @ 1000ug/mL added to ACN and brought to a final volume of 100mL and final concentration of 10ug/mL. Prepared on 5/9/2011 by RCD Expires 11/9/2011.
RCD 5/9/2011

ExP4331 NQ CCV
0.500 mL ExP4267 @ 10ug/mL added to 1:1 MeOH:H2O and brought to a final volume of 10mL and final concentration of 0.5ug/mL. Prepared on 5/10/2011 by RCD Expires 5/11/2011.
RCD 5/10/2011

ExP4332 NQ Spike
0.250 mL S2222C @ 1000ug/mL and 0.250 mL S2340A @ 1000 ug/mL added to 1:1 MeOH:H2O and brought to a final volume of 25.0mL and final concentration of 10ug/mL. Prepared on 5/11/11 by RCD Expires 8/1/11.
RCD 5/11/11

ExP4333 8330 Surrogate
1.00 mL S2342B @ 1000 ug/mL added to ACN and brought to a final volume of 100mL and final concentration of 10ug/mL. Prepared on 5/11/11 by RCD Expires 11/11/11.
RCD 5/11/11

ExP4334 8330 CCV 0.250 mL ExP4321 into 1:1 ACN:0.1% formic acid in H2O to a final volume of 5.0 mL and final concentration of 0.5/2.0ug/mL. Prepared on 5/12/11 by RCD Expires 5/13/11.
RCD 5/12/11

ExP4335 NQ CCV
0.250mL ExP4332 @ 10ug/mL added to 1:1 MeOH:H2O and brought to a final volume of 5.0mL and final concentration of 0.5ug/mL Prepared on 5/13/11 By RCD expires 5/14/11 RCD 5/13/11

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EXP4336 8330 CCV
0.250 mL of EXP 4321 into 1:1 ACN:0.1% formic acid in H_2O to a final volume of 5.0 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 5/15/11 by RED. Expires 5/16/11.

RED 5/15/11

EXP4337 NQCCV 0.250 mL of EXP4332 @ 10 ug/mL added to 1:1 MeOH: H_2O and brought to a final volume of 5.0 mL and final concentration of 0.5 ug/mL. Prepared on 5/16/11 by RED. Expires 5/17/11.

RED 5/16/11

EXP4338 0.1% formic acid solution
4.0 mL 98% formic acid (Sigma-Aldrich lot 04817 JE) added to 4 L MM1 pure H_2O. Prepared on 5/17/11 by Red. Expires 11/17/11.

Red 5/17/11

EXP4339 8330 Spike
The following were added to ACN and brought to a final volume of 25 mL and final concentrations of 10/40 ug/mL.
0.250 mL S2259A @ 1000 ug/mL
0.250 mL S 2250B @ 1000 ug/mL
0.250 mL S 2340A @ 1000 ug/mL
1.00 mL S2327 @ 1000 ug/mL
1.00 mL S 2339 A/B @ 1000 ug/mL
Prepared on 5/17/2011 by RED Expires 9/20/2011

RED 5/17/2011

EXP 4340 8330 CCV
0.250 mL EXP 4339 into 1:1 ACN:0.1% formic acid in H_2O to a final volume of ~~10.0~~ 5.0 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 5/17/11 by RED. Expires 5/18/11.

RED 5/17/11

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EXP 4341 8330 CCV
0.250 ml EXP4339 added to 1:1 ACN:0.1% formic acid in H2O to final volume of 5.0 ml and final concentration of 0.5/2.0 ug/ml. Prepared on 5/19/11 by REP. Expires 5/20/11
REP 5/19/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP ~~4341~~ 4342 REP 5-24-11	8330 Second Source	ACN lot	24-May-11 red 13-Oct-11	S2226	100	ug/mL	1.000	10.00	10.00	ug/ml
				S2227	100	ug/mL	1.000	10.00	10.00	ug/ml
				S2346	1000	ug/mL	0.100	10.00	10.00	ug/ml
				S2190C	1000	ug/mL	0.400	10.00	40.00	ug/ml
		lot H21S02		S2089	1000	ug/mL	0.400	10.00	40.00	ug/ml
				S2340A	1000	ug/mL	0.100	10.00	10.00	ug/ml

REP 5/24/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4343	8330 Pt 1	1:1 ACN:0.1% formic acid in water	24-May-11 red 25-May-11	EXP 4339/8330mix	10	ug/mL	0.003	1.00	0.03	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.003	1.00	0.12	ug/ml
EXP 4344	8330 Pt 2			EXP 4339/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4345	8330 Pt 3			EXP 4339/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4346	8330 Pt 4			EXP 4339/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4347	8330 Pt 5 (CCV)			EXP 4339/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4348	8330 Pt 6			EXP 4339/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4349	8330 Pt 7			EXP 4339/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4350	8330 Pt 8			EXP 4339/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4351	8330 ICV (second source)			EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

REP 5/24/11

EXP4352 8330 ccv 0.500ml exp4339 @ 10/40 ug/ml added to 1:1 ACN & 0.1% formic acid in H2O and brought to a final volume of 10ml and final concentration of 0.5/2.0 ug/ml. Prepared on 5/27/11 by Rep. Expires 5/28/11.

REP 5/27/11

EXP4353 8330 CCV 0.500ml EXP 4339 @ 10/40 ug/ml added to 1:1 ACN:0.1% formic acid in H2O and brought to a final volume of 10ml and final concentration of 0.5/2.0 ug/ml. Prepared on 5/29/2011 by Rep. Expires 5/30/2011.

REP 5/29/11

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Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4354	8330 Pt 1	1:1 ACN:0.1% formic acid in water	31-May-11 red 1-Jun-11	EXP 4339/8330mix	10	ug/mL	0.003	1.00	0.03	ug/ml
EXP 4355	8330 Pt 2			EXP 4339/NG-PETN	40	ug/mL	0.003	1.00	0.12	ug/ml
EXP 4356	8330 Pt 3			EXP 4339/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
EXP 4357	8330 Pt 4			EXP 4339/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4358	8330 Pt 5 (CCV)			EXP 4339/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
EXP 4359	8330 Pt 6			EXP 4339/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4360	8330 Pt 7			EXP 4339/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
EXP 4361	8330 Pt 8			EXP 4339/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4362	8330 ICV (second source)			EXP 4339/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
				EXP 4339/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
				EXP 4339/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
				EXP 4339/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
				EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

RED 6/1/11

EXP 4363 8330 CCV 0.500 mL EXP 4339 added to 1:1 ACN: 0.1% formic acid in H_2O and brought to a final volume of 10.0 mL and final concentration of 0.5/20 ug/mL. Prepared on 6/1/11 by RED. expires 6/2/11.

RED 6/1/11

EXP 4364 8330 CCV 0.500 mL EXP 4339 added to 1:1 ACN:0.1% formic acid in H_2O and brought to a final volume of 10.0 mL and final concentration of 0.5/20 ug/mL. Prepared on 6/6/11 by RED. Expires 6/7/11.

RED 6/6/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4365	NQ (2nd Source)	MeOH:H2O (1:1)	7-Jun-11 HHK 7-Dec-11	S2349	100	ug/mL	1.000	10.00	10.00	ug/ml
				S2364A	1000	ug/mL	0.1	10.00	10.00	ug/ml

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Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4366	NQ Linearity PT 1	1:1 MeOH:H2O lot 103149	7-Jun-11 HHK 1-Aug-11	EXP 4332	10	ug/mL	0.004	1.0	0.04	ug/ml
EXP 4367	NQ Linearity PT 2			EXP 4332	10	ug/mL	0.008	1.0	0.08	ug/ml
EXP 4368	NQ Linearity PT 3			EXP 4332	10	ug/mL	0.020	1.0	0.20	ug/ml
EXP 4369	NQ Linearity PT 4			EXP 4332	10	ug/mL	0.250	5.0	0.50	ug/ml
EXP 4370	NQ Linearity PT 5			EXP 4332	10	ug/mL	0.100	1.0	1.00	ug/ml
EXP 4371	NQ Linearity PT 6			EXP 4332	10	ug/mL	0.200	1.0	2.00	ug/ml
EXP 4372	NQ Linearity PT 7			EXP 4332	10	ug/mL	0.250	1.0	2.50	ug/ml
EXP 4373	NQ ICV (2nd Source)	MeOH:H2O (1:1)	07-Jun-11 RED 07-Dec-11	EXP 4365	10	ug/mL	0.050	1.0	0.50	ug/ml

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EXP4390 8330CCV 0.500mL EXP4339 added to 1:1 ACN: 0.1% formic acid in H2O to a final volume of 10 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 6/13/11 by REW. Expires 6/18/11.

REW 6/17/11

EXP4391 8330 CCV 0.250 mL EXP4339 added to 1:1 ACN: 0.1% formic acid H2O to a volume of 5mL and conc. of 0.5/2.0 ug/mL - Prepared 6/19/11 by REW. Expires 6/24/11.

REW 6/19/11

	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4392	8330 Pt 1	1:1 ACN:0.1% formic acid in water	19-Jun-11 red 20-Jun-11	EXP 4339/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4393	8330 Pt 2			EXP 4339/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4394	8330 Pt 3			EXP 4339/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4395	8330 Pt 4 (CCV)			EXP 4339/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4396	8330 Pt 5			EXP 4339/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4397	8330 Pt 6			EXP 4339/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4398	8330 Pt 7			EXP 4339/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4339/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4399	8330 ICV (second source)			EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

REW 6/19/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4400	8330 Spike	ACN lot lot H21S02	21-Jun-11 red 7-Dec-11	S2259B	1000	ug/mL	0.250	25.00	10.00	ug/ml
				S2256A	1000	ug/mL	0.250	25.00	10.00	ug/ml
				S2365A	1000	ug/mL	1.000	25.00	40.00	ug/ml
				S2366A	1000	ug/mL	1.000	25.00	40.00	ug/ml
				S2364A	1000	ug/mL	0.250	25.00	10.00	ug/ml

REW 6/21/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4401	8330 Surrogate	ACN lot H21S02	21-Jun-11 red 7-Dec-11	S2364A/B	1000	ug/mL	1.000	100.00	10.00	ug/ml

REW 6/21/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date			STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4402	8330B LCS Spike	MeCl2 lot K15J13	21-Jun-11	red	20-Sep-11	S2259A/B	1000	ug/mL	0.500	25.00	20.00	ug/ml
						S2250B/S2256A	1000	ug/mL	0.500	25.00	20.00	ug/ml
						S2364B	1000	ug/mL	0.500	25.00	20.00	ug/ml
						S2327/S2365A	1000	ug/mL	1.000	25.00	40.00	ug/ml
						S2339A/B/S2364A	1000	ug/mL	1.000	25.00	40.00	ug/ml
EXP 4403	8330B Soil LCS	clean soil matrix	21-Jun-11	red	20-Sep-11	EXP 4402	20	ug/mL	25 mL Spike Volume	250 g soil mass	2.00	mg/kg
							20	ug/mL			2.00	mg/kg
							20	ug/mL			2.00	mg/kg
							40	ug/mL			4.00	mg/kg
							40	ug/mL			4.00	mg/kg

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	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4404	8330 Pt 1	1:1 ACN:0.1% formic acid in water	21-Jun-11 red 22-Jun-11	EXP 4400/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4405	8330 Pt 2			EXP 4400/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4406	8330 Pt 3			EXP 4400/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4407	8330 Pt 4 (CCV)			EXP 4400/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4408	8330 Pt 5			EXP 4400/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4409	8330 Pt 6			EXP 4400/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4410	8330 Pt 7			EXP 4400/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4411	8330 ICV (second source)			EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

EXP 4412
8330 CCV 0.250 mL EXP4400 @ 10/40 ug/mL added to 1:1 ACN:0.1% formic acid in H_2O to a final volume of 5.0 mL and final conc. of 0.5/2.0 ug/mL. Prepared on 6/22/2011 by RED. Expires 6/23/2011
RED 6/22/2011

EXP4413 8330 CCV 0.500 mL EXP4400 @ 10/40 ug/mL added to 1:1 ACN:0.1% formic acid in H_2O to a final volume of 10.0 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 6/24/2011 by RED. Expires 6/25/2011.
RED 6/24/2011

EXP4414 8330 CCV 0.500 mL EXP4400 @ 10/40 ug/mL added to 1:1 ACN:0.1% formic acid in H_2O to a final volume of 10.0 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 6/27/2011 by RED. Expires 6/28/2011.
RED 6/27/2011

EXP4415 8330 CCV 0.500 EXP4400 @ 10/40 ug/mL added to 1:1 ACN:0.1% formic acid in H_2O to a final volume of ~10.0 mL and final concentration of 0.5/2.0 ug/mL. Prepared on 6/28/2011 by RED Expires 6/29/2011.
RED 6/28/2011

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	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4416	8330 Pt 1	1:1 ACN:0.1% formic acid in water	1-Jul-11 red 2-Jul-11	EXP 4400/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4417	8330 Pt 2			EXP 4400/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4418	8330 Pt 3			EXP 4400/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4419	8330 Pt 4 (CCV)			EXP 4400/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4420	8330 Pt 5			EXP 4400/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4421	8330 Pt 6			EXP 4400/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4422	8330 Pt 7			EXP 4400/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4423	8330 ICV (second source)			EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4424	8330 Pt 1	1:1 ACN:0.1% formic acid in water	6-Jul-11 red 7-Jul-11	EXP 4400/8330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4425	8330 Pt 2			EXP 4400/8330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4426	8330 Pt 3			EXP 4400/8330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4427	8330 Pt 4 (CCV)			EXP 4400/8330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4428	8330 Pt 5			EXP 4400/8330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4429	8330 Pt 6			EXP 4400/8330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4430	8330 Pt 7			EXP 4400/8330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
				EXP 4400/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4431	8330 ICV (second source)			EXP 4342/8330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
				EXP 4342/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4432	NQ Linearity PT 1	1:1 MeOH:H2O lot 103149	6-Jul-11 red 1-Aug-11	EXP 4332	10	ug/mL	0.004	1.0	0.04	ug/ml
EXP 4433	NQ Linearity PT 2			EXP 4332	10	ug/mL	0.008	1.0	0.08	ug/ml
EXP 4434	NQ Linearity PT 3			EXP 4332	10	ug/mL	0.020	1.0	0.20	ug/ml
EXP 4435	NQ Linearity PT 4			EXP 4332	10	ug/mL	0.250	5.0	0.50	ug/ml
EXP 4436	NQ Linearity PT 5			EXP 4332	10	ug/mL	0.100	1.0	1.00	ug/ml
EXP 4437	NQ Linearity PT 6			EXP 4332	10	ug/mL	0.200	1.0	2.00	ug/ml
EXP 4438	NQ Linearity PT 7			EXP 4332	10	ug/mL	0.250	1.0	2.50	ug/ml
EXP 4439	NQ ICV (2nd Source)	MeOH:H2O (1:1)	06-Jul-11 RED 07-Dec-11	EXP 4365	10	ug/mL	0.050	1.0	0.50	ug/ml

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4440	8330 Spike	ACN lot lot H21S02	8-Jul-11 red 21-Dec-11	S2259B	1000	ug/mL	0.250	25.00	10.00	ug/ml
				S2256A	1000	ug/mL	0.250	25.00	10.00	ug/ml
				S2365A/B	1000	ug/mL	1.000	25.00	40.00	ug/ml
				S2366A/B	1000	ug/mL	1.000	25.00	40.00	ug/ml
				S2364A/C	1000	ug/mL	0.250	25.00	10.00	ug/ml

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Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date			STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4441	NQ soil LCS Spike	ACN lot H21S02	11-Jul-11	red	8-Jan-12	S2287A	1000	ug/mL	0.500	25.00	20.00	ug/ml
						S2364C	1000	ug/mL	0.500	25.00	20.00	ug/ml
EXP 4442	~~8330B~~ Soil LCS NQ R=08/10/11	clean soil	11-Jul-11	red	8-Jan-12	EXP 4441	20	ug/mL	25 mL	250 g	2.00	mg/kg
							20	ug/mL	Spike	soil	2.00	mg/kg

RED 7/11/11

EXP4443 8330 CCV 0.500mL EXP4440 @ 10/40 ug/mL added to 1:1 ACN:0.1% formic acid w/H2O and brought to a final volume of 10mL and final concentration of 0.5/2.0 ug/mL. Prepared on 7/11/11 by RED. Expires 7/12/11

RED 7/11/11

Standard Number	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date			STD Parent ID & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4444	8330B LOD/LOQ Spike 150/600 ug/Kg	MeCl2 K01J11	11-Jul-11	RED	7-Dec-11	EXP 4400	10	ug/mL	1.500	10.0	1.50	ug/ml
							40	ug/mL	1.500	10.0	6.00	ug/ml
EXP 4445	8330B Soil LOD/LOQ 150/600 ug/Kg	clean soil matrix	11-Jul-11	red	11-Aug-11	EXP 4444	1.5	ug/mL	10 mL	100g	150.00	ug/Kg
							6.0	ug/mL	spike	soil	600.00	ug/Kg
EXP 4446	8330B LOD/LOQ Spike 250/1000 ug/Kg	MeCl2 K01J11	11-Jul-11	RED	7-Dec-11	EXP 4400	10	ug/mL	2.500	10.0	2.50	ug/ml
							40	ug/mL	2.500	10.0	10.00	ug/ml
EXP 4447	8330B Soil LOD/LOQ 250/1000 ug/Kg	clean soil matrix	11-Jul-11	red	11-Aug-11	EXP 4446	2.5	ug/mL	10 mL	100g	250.00	ug/Kg
							10.0	ug/mL	spike	soil	1000.00	ug/Kg
EXP 4448	8330B LOD/LOQ Spike 400/1600 ug/Kg	MeCl2 K01J11	11-Jul-11	RED	7-Dec-11	EXP 4400	10	ug/mL	4.000	10.0	4.00	ug/ml
							40	ug/mL	4.000	10.0	16.00	ug/ml
EXP 4449	8330B Soil LOD/LOQ 400/1600 ug/Kg	clean soil matrix	11-Jul-11	red	11-Aug-11	EXP 4448	4.0	ug/mL	10 mL	100g	400.00	ug/Kg
							16.0	ug/mL	spike	soil	1600.00	ug/Kg
EXP 4450	8330B LOD/LOQ Spike 500/2000 ug/Kg	MeCl2 K01J11	11-Jul-11	RED	7-Dec-11	EXP 4400	10	ug/mL	5.000	10.0	5.00	ug/ml
							40	ug/mL	5.000	10.0	20.00	ug/ml
EXP 4451	8330B Soil LOD/LOQ 500/2000 ug/Kg	clean soil matrix	11-Jul-11	red	11-Aug-11	EXP 4450	5.0	ug/mL	10 mL	100g	500.00	ug/Kg
							20.0	ug/mL	spike	soil	2000.00	ug/Kg

RED 7/11/11

	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date			STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentration	
EXP 4452	8330 Pt 1	1:1 ACN:0.1% formic acid in water	12-Jul-11	srt	13-Jul-11	EXP 44408330mix	10	ug/mL	0.005	1.00	0.05	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/ml
EXP 4453	8330 Pt 2					EXP 44408330mix	10	ug/mL	0.010	1.00	0.10	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/ml
EXP 4454	8330 Pt 3					EXP 44408330mix	10	ug/mL	0.025	1.00	0.25	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/ml
EXP 4455	8330 Pt 4 (CCV)					EXP 44408330mix	10	ug/mL	0.500	10.00	0.50	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/ml
EXP 4456	8330 Pt 5					EXP 44408330mix	10	ug/mL	0.100	1.00	1.00	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/ml
EXP 4457	8330 Pt 6					EXP 44408330mix	10	ug/mL	0.200	1.00	2.00	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/ml
EXP 4458	8330 Pt 7					EXP 44408330mix	10	ug/mL	0.300	1.00	3.00	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/ml
EXP 4459	8330 ICV (second source)					EXP 44408330mix	10	ug/mL	0.050	1.00	0.50	ug/ml
						EXP 4440/NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/ml

4342 SRT 7-12-11

SRT 7-12-11

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Exp 4460 NQCCV 0.500 mL Exp 4332 added to 1:1 MeOH:H2O + brought to a final volume of 10 mL at final concentration of 0.5 ug/mL. Prepared on 7/12/11 by SKT. Expires 8/1/11

7/12/11

Exp 4461 SKT 8330 CCV 0.500 mL Exp 4440 @ 10/40 ug/mL added to 1:1 ACN 0.1% formic acid H_2O brought to a final volume of 10 mL and final concentration of 0.5/2.0 ug/mL prep on 7-13-11, Exp 7-14-11.

Exp 4462 Reed 7/15/11 8330 CCV 0.500 mL Exp 4440 @ 10/40 ug/mL added to 1:1 ACN: 0.1% formic acid in H_2O brought to a final volume of 10 mL at final concentration of 0.5/2.0 ug/mL. Prep. on 7/15/11. Expires 7/16/11.

Exp 4463 Reed 7/18/11 0.1% formic acid solution 4.0 mL 98% formic acid (Sigma-Aldrich lot 048I7JE) added to 4 L Millipore H_2O. Prepared on 7/18/11 by Reed. Expires 1/18/12.

Exp 4464 Reed 7/18/11 8330 CCV ~~0.500 mL 7/18/11~~ 0.500 mL Exp 4440 @ 10/40 ug/mL added to 1:1 ACN: 0.1% formic acid in H_2O and brought to a final volume of 10 mL and final conc. of ~~top~~ 7-18-11 0.5/2.0 ug/mL. Prepared on 7/18/11 by Reed. Expires 7/19/11.

Exp 4465 Reed 7/19/11 8330 CCV 0.500 mL Exp 4440 @ 10/40 ug/mL added to 1:1 ACN: 0.1% formic acid in H_2O and brought to a final volume of 10 mL and final conc. of 0.5/2.0 ug/mL. Prepared on 7/19/11 by Reed. Expires 7/20/11.

Exp 4466 Reed 7/21/11 NQ Spike 0.250 mL S2287A @ 1000 ug/mL and 0.250 mL S2398AQ 1000 ug/mL added to 1:1 MeOH:H_2O and brought to a final volume of 25 mL and final concentration of 10 ug/mL. Prepared on 7/21/11 by Reed. Expires 1/11/12.

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Exp 4480 8330 CCV 0.500ml Exp 4440 added to 1:1 ACN:0.1% formic acid in H_2O and brought to a final volume of 10.0 ml and final concentration of 0.5/2.0 ug/ml. Prepared on 7/29/11 by RED. Expires 7/30/11.
RED
7/29/11

Exp 4481 8330 CCV 0.500ml Exp 4440 added to 1:1 ACN: 0.1% Formic acid in H_2O and brought to a final volume of 10.0ml and final concentration of 0.5/2.0ug/ml Prepaired on 8-02-11 by SRT expires 8-03-11.
SRT

Exp 4482 8330 CCV 0.500 ml Exp 4440 added to 1:1 ACN: 0.1% Formic acid in H_2O and brought to a final volume of 10.0 ml and final concentration of 0.5/2.0ug/ml Prepaired on 8-04-11 by SRT Expires 8-05-11.
SRT

Exp 4483 8330 Spike ~20ml
The following were added to ACN in a 25 ml volumetric flask:
0.250ml S2259C/S2397 @ 1000 ug/ml
0.250ml S2398A @ 1000 ug/ml
0.250ml S2256B @ 1000 ug/ml
1.000ml S2365B/S2396 @ 1000 ug/ml
1.000ml S2395 @ 1000 ug/ml
Brought to volume with ACN & inverted to mix. Final concentrations are 10/40 ug/ml. Prepared on 8-12-11. RED. Expires on 1-8-12.
RED 8-12-11

Exp 4484 8330 Surrogate
1.00ml S2398A/S2398C added to ACN and brought to a final volume of 100ml and final concentration of 10ug/ml. Prepared on 8-12-11 by RED. Expires on 1-20-12.
RED 8-13-11

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Exp 4485 NQ CCV 0.500 ml Exp 4466 @ 10 µg/ml added to 1:1 MeOH and brought to a final volume of 10 mL and final concentration of 0.5 µg/ml. Prepared on 8/15/11 by HHK. Expires 1/11/12.

HHK 8/15/11

Exp 4486 8330 CCV 0.500 ml Exp 4483 added to 1:1 ACN: 0.1% formic acid in H_2O and brought to a final volume of 10 mL and a final concentration of 0.5/2.0 µg/ml. Prepared on 8/15/11 by HHK. Expires 8/16/11

HHK 8/15/11

Exp 4487 8330 CCV 0.500 ml Exp 4483 added to 1:1 ACN: 0.1% formic acid in H_2O and brought to a final volume of 10 mL and final concentration of 0.5/2.0 µg/ml. Prepared on 8/17/11 by RAD. Expires 8/18/11.

RAD 8/17/11

Exp 4488 8330 CCV 0.500 ml Exp 4483 added to 1:1 ACN: 0.1% formic acid in H_2O and brought to final volume of 10 mL and final concentration of 0.5/2.0 µg/mL. Prepared on 8/18/11 by RAD. Expires 8/19/11.

RAD 8/18/11

Exp 4489 0.1% Formic Acid Solution
4.0 mL 98% Formic Acid added to 4 L MilliQ pure H_2O.
Sigma Aldrich lot 04817JE. Prepared on 8/19/11.
Expires 2/16/12

RAD 8/19/11

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EXP 4490 8330 Spike

The following were added to ~20 mL ACN in a 25 mL volumetric flasks:

0.250 mL	S2397	@ 1000 ug/mL
0.250 mL	S2056B/C	@ 1000 ug/mL
0.250 mL	S 2398C	@ 1000 ug/mL
1.00 mL	S2396	@ 1000 ug/mL
1.00 mL	S2395/S2419A	@ 1000 ug/mL

Brought to volume with ACN & inverted to mix. Final concentrations are 10/40 ug/mL. Prepared on 8-19-11 by RAD. Expires 1-20-12.

Read 8/19/11

EXP 4491 DQ Spike

0.250 mL S2287A @ 1000 ug/mL + 0.250 mL S2398C/S2417A @ 1000 ug/mL added to 1:1 MeOH:H2O and brought to 25 mL. Final concentration is 10 ug/mL. Prepared on 8-19-11 by RAD. Expires 1-11-12.

Read 8-19-11

EXP 4492 8330 Surrogate

2.00 mL S2417A/B @ 1000 ug/mL added to ACN and brought to a final volume of 200 mL and final concentration of 10 ug/mL. Prepared on 8-19-11. Expires 2-19-12.

Read 8-19-11

EXP 4493 DQCCV

1.250 mL EXP4466 into 25 mL 1:1 MeOH:H2O. Prepared on 8-19-11 by RAD. Expires 1-11-12. Conentration = 0.5 ug/mL.

Read 8-19-11

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	Standard Description	Solvent/Lot	Prep Date/Analyst/Exp. Date	STD Parent ID/analyte group & Concentration			Standard Volume (ml)	Final Volume (ml)	Final Concentra	
EXP 4494	8330 Pt 1	1:1 ACN:0.1% formic acid in water	21-Aug-11 red 22-Aug-11	EXP 4483 8330mix	10	ug/mL	0.005	1.00	0.05	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.005	1.00	0.20	ug/
EXP 4495	8330 Pt 2			EXP 4483 8330mix	10	ug/mL	0.010	1.00	0.10	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.010	1.00	0.40	ug/
EXP 4496	8330 Pt 3			EXP 4483 8330mix	10	ug/mL	0.025	1.00	0.25	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.025	1.00	1.00	ug/
EXP 4497	8330 Pt 4 (CCV)			EXP 4483 8330mix	10	ug/mL	0.500	10.00	0.50	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.500	10.00	2.00	ug/
EXP 4498	8330 Pt 5			EXP 4483 8330mix	10	ug/mL	0.100	1.00	1.00	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.100	1.00	4.00	ug/
EXP 4499	8330 Pt 6			EXP 4483 8330mix	10	ug/mL	0.200	1.00	2.00	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.200	1.00	8.00	ug/
EXP 4500	8330 Pt 7			EXP 4483 8330mix	10	ug/mL	0.300	1.00	3.00	ug/
				EXP 4483 NG-PETN	40	ug/mL	0.300	1.00	12.00	ug/
EXP 4501	8330 ICV (second source)			EXP 4342 8330mix	10	ug/mL	0.050	1.00	0.50	ug/
				EXP 4342 NG-PETN	40	ug/mL	0.050	1.00	2.00	ug/

EXP4502 0.500mL EXP4483 @ 10/40ug/mL into 1:1 ACN:0.1% formic acid in H2O + brought to 10mL. Final Conc = 0.5/2.0 ug/mL Prepared 8/22/2011 by RED - Expires 8/23/2011.

8/22/11

EXP4503 0.500mL exp 4490 @ 10/40 ug/mL into 1:1 ACN:0.1% formic acid in H2O + brought to 10mL. Final conc = 0.5/2.0 ug/mL. Prepared 8/24/11 by RED. Expires 8/25/11.

8/24/11

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METALS
CLP FORMS
DOCUMENTS

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	GROUND WATER	SDG No.:	86608
% Solids:		Lab Sample ID:	962088
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78423	Analysis Date/Time	08/24/2011 16:58
Analytical Prep Batch #:	38309	Prep. Date/Time:	08/23/2011 19:00
ICAL Calibration #:	1588	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-92-1	Total Lead	1.4	U	1.4	2.0	4.0	4.6

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Sample Description

LL1SS-715(I)-0001-SS

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.1	Lab Sample ID:	962085
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78472	Analysis Date/Time	08/25/2011 21:16
Analytical Prep Batch #:	38322	Prep. Date/Time:	08/24/2011 13:45
ICAL Calibration #:	1590	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-70-2	Calcium	9560		0.24	0.71	1.4	1.4
7439-92-1	Lead	109		0.041	0.13	0.25	0.25
7439-95-4	Magnesium	2270		0.14	0.41	0.82	0.82
7439-96-5	Manganese	963		0.025	0.076	0.15	0.15

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	10.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78472	Analysis Date/Time	08/29/2011 14:14
Analytical Prep Batch #:	38322	Prep. Date/Time:	08/24/2011 13:45
ICAL Calibration #:	1590	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-70-2	Calcium	63800		2.4	7.1	14	14

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78472	Analysis Date/Time	08/25/2011 22:25
Analytical Prep Batch #:	38322	Prep. Date/Time:	08/24/2011 13:45
ICAL Calibration #:	1590	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-92-1	Lead	70.9		0.040	0.13	0.25	0.25
7439-95-4	Magnesium	4830		0.14	0.40	0.81	0.81
7439-96-5	Manganese	1010		0.025	0.076	0.15	0.15

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	10.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78472	Analysis Date/Time	08/29/2011 14:21
Analytical Prep Batch #:	38322	Prep. Date/Time:	08/24/2011 13:45
ICAL Calibration #:	1590	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-70-2	Calcium	54600		2.4	7.1	14	14

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	EPA 6010C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78472	Analysis Date/Time	08/25/2011 22:33
Analytical Prep Batch #:	38322	Prep. Date/Time:	08/24/2011 13:45
ICAL Calibration #:	1590	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-92-1	Lead	81.2		0.041	0.13	0.25	0.25
7439-95-4	Magnesium	4800		0.14	0.41	0.81	0.81
7439-96-5	Manganese	1100		0.025	0.076	0.15	0.15

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966487

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Aluminum	8/24/11	14:44	12000	11400	95	90	110	P
Antimony	8/24/11	14:44	500.0	519.0	104	90	110	P
Barium	8/24/11	14:44	2000	2030	102	90	110	P
Cadmium	8/24/11	14:44	50.00	47.40	95	90	110	P
Chromium	8/24/11	14:44	200.0	204.0	102	90	110	P
Copper	8/24/11	14:44	250.0	252.0	101	90	110	P
Iron	8/24/11	14:44	5000	4860	97	90	110	P
Lead	8/24/11	14:44	500.0	478.0	96	90	110	P
Zinc	8/24/11	14:44	500.0	485.0	97	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967602

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	15:00	10000	10200	102	90	110	P
Lead	8/25/11	15:00	500.0	492.0	98	90	110	P
Magnesium	8/25/11	15:00	10000	9560	96	90	110	P
Manganese	8/25/11	15:00	500.0	487.0	97	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 968456

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #: 287 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/29/11	13:26	10000	10100	101	90	110	P
Lead	8/29/11	13:26	500.0	500.0	100	90	110	P
Magnesium	8/29/11	13:26	10000	10600	106	90	110	P
Manganese	8/29/11	13:26	500.0	499.0	100	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966498

Calibration Source: Ultra

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Aluminum	8/24/11	16:38	500.0	477.0	95	90	110	P
Antimony	8/24/11	16:38	500.0	506.0	101	90	110	P
Barium	8/24/11	16:38	500.0	497.0	99	90	110	P
Cadmium	8/24/11	16:38	50.00	47.10	94	90	110	P
Chromium	8/24/11	16:38	500.0	492.0	98	90	110	P
Copper	8/24/11	16:38	500.0	492.0	98	90	110	P
Iron	8/24/11	16:38	500.0	506.0	101	90	110	P
Lead	8/24/11	16:38	500.0	482.0	96	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423

Lab Sample ID: 966779

Calibration Source:

Ultra

ICAL Calibration #: 1588

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Aluminum	8/24/11	18:11	500.0	488.0	98	90	110	P
Antimony	8/24/11	18:11	500.0	521.0	104	90	110	P
Barium	8/24/11	18:11	500.0	519.0	104	90	110	P
Cadmium	8/24/11	18:11	50.00	48.00	96	90	110	P
Chromium	8/24/11	18:11	500.0	480.0	96	90	110	P
Copper	8/24/11	18:11	500.0	487.0	97	90	110	P
Iron	8/24/11	18:11	500.0	519.0	104	90	110	P
Lead	8/24/11	18:11	500.0	497.0	99	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966784

Calibration Source: Ultra

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Aluminum	8/24/11	19:44	500.0	490.0	98	90	110	P
Antimony	8/24/11	19:44	500.0	532.0	106	90	110	P
Barium	8/24/11	19:44	500.0	518.0	104	90	110	P
Cadmium	8/24/11	19:44	50.00	48.40	97	90	110	P
Chromium	8/24/11	19:44	500.0	485.0	97	90	110	P
Copper	8/24/11	19:44	500.0	483.0	97	90	110	P
Iron	8/24/11	19:44	500.0	523.0	105	90	110	P
Lead	8/24/11	19:44	500.0	507.0	101	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 967614

Calibration Source:

Ultra

ICAL Calibration #: 1590

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	19:57	5000	4980	100	90	110	P
Lead	8/25/11	19:57	5000	5020	100	90	110	P
Magnesium	8/25/11	19:57	5000	4960	99	90	110	P
Manganese	8/25/11	19:57	5000	5050	101	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 967615

Calibration Source:

Ultra

ICAL Calibration #: 1590

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	20:03	500.0	484.0	97	90	110	P
Lead	8/25/11	20:03	500.0	509.0	102	90	110	P
Magnesium	8/25/11	20:03	500.0	486.0	97	90	110	P
Manganese	8/25/11	20:03	500.0	480.0	96	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 967618

Calibration Source:

Ultra

ICAL Calibration #: 1590

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	21:30	5000	4820	96	90	110	P
Lead	8/25/11	21:30	5000	5160	103	90	110	P
Magnesium	8/25/11	21:30	5000	4800	96	90	110	P
Manganese	8/25/11	21:30	5000	5050	101	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 967619

Calibration Source:

Ultra

ICAL Calibration #: 1590

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	21:37	500.0	480.0	96	90	110	P
Lead	8/25/11	21:37	500.0	532.0	106	90	110	P
Magnesium	8/25/11	21:37	500.0	493.0	99	90	110	P
Manganese	8/25/11	21:37	500.0	494.0	99	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 967622

Calibration Source:

Ultra

ICAL Calibration #: 1590

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	23:06	5000	4820	96	90	110	P
Lead	8/25/11	23:06	5000	5140	103	90	110	P
Magnesium	8/25/11	23:06	5000	4770	95	90	110	P
Manganese	8/25/11	23:06	5000	5020	100	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967623

Calibration Source: Ultra

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/25/11	23:12	500.0	469.0	94	90	110	P
Lead	8/25/11	23:12	500.0	531.0	106	90	110	P
Magnesium	8/25/11	23:12	500.0	488.0	98	90	110	P
Manganese	8/25/11	23:12	500.0	486.0	97	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 968460

Calibration Source:

Ultra

ICAL Calibration #: 287

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/29/11	15:16	5000	5440	109	90	110	P
Lead	8/29/11	15:16	5000	5310	106	90	110	P
Manganese	8/29/11	15:16	5000	5090	102	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472

Lab Sample ID: 968461

Calibration Source:

Ultra

ICAL Calibration #: 287

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Calcium	8/29/11	15:22	500.0	492.0	98	90	110	P
Lead	8/29/11	15:22	500.0	509.0	102	90	110	P
Magnesium	8/29/11	15:22	500.0	481.0	96	90	110	P
Manganese	8/29/11	15:22	500.0	503.0	101	90	110	P

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966489

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Aluminum	08/24/2011 14:51	3.76			18	P
Antimony	08/24/2011 14:51	-0.564			6.0	P
Barium	08/24/2011 14:51	-0.183			0.90	P
Cadmium	08/24/2011 14:51	-0.117			1.0	P
Chromium	08/24/2011 14:51	-1.55			2.0	P
Copper	08/24/2011 14:51	-0.668			3.5	P
Iron	08/24/2011 14:51	-8.71			50	P
Lead	08/24/2011 14:51	-0.582			2.0	P
Zinc	08/24/2011 14:51	-0.530			4.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967603

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/25/2011 15:06	5.70			28	P
Lead	08/25/2011 15:06	0.517			5.0	P
Magnesium	08/25/2011 15:06	11.10			16	P
Manganese	08/25/2011 15:06	-0.130			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 968457

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 287 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/29/2011 13:32	9.71			28	P
Lead	08/29/2011 13:32	0.159			5.0	P
Magnesium	08/29/2011 13:32	11.40			16	P
Manganese	08/29/2011 13:32	0.0870			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966500

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Aluminum	08/24/2011 16:52	-4.32			18	P
Antimony	08/24/2011 16:52	-2.21			6.0	P
Barium	08/24/2011 16:52	-0.0660			0.90	P
Cadmium	08/24/2011 16:52	-0.0790			1.0	P
Chromium	08/24/2011 16:52	-0.935			2.0	P
Copper	08/24/2011 16:52	-0.458			3.5	P
Iron	08/24/2011 16:52	-14.6			50	P
Lead	08/24/2011 16:52	-0.217			2.0	P
Zinc	08/24/2011 16:52	-0.282			5.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966780

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Aluminum	08/24/2011 18:24	-4.07			18	P
Antimony	08/24/2011 18:24	0.574			6.0	P
Barium	08/24/2011 18:24	-0.00600			0.90	P
Cadmium	08/24/2011 18:24	-0.167			1.0	P
Chromium	08/24/2011 18:24	-0.950			2.0	P
Copper	08/24/2011 18:24	-0.611			3.5	P
Iron	08/24/2011 18:24	-14.4			50	P
Lead	08/24/2011 18:24	0.526			2.0	P
Zinc	08/24/2011 18:24	-0.0820			5.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 966785

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Aluminum	08/24/2011 19:57	-4.15			18	P
Antimony	08/24/2011 19:57	0.182			6.0	P
Barium	08/24/2011 19:57	0.0210			0.90	P
Cadmium	08/24/2011 19:57	-0.0960			1.0	P
Chromium	08/24/2011 19:57	-1.35			2.0	P
Copper	08/24/2011 19:57	-0.981			3.5	P
Iron	08/24/2011 19:57	-14.3			50	P
Lead	08/24/2011 19:57	-1.56			2.0	P
Zinc	08/24/2011 19:57	-0.279			5.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967616

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/25/2011 20:16	3.43			28	P
Lead	08/25/2011 20:16	0.0800			5.0	P
Magnesium	08/25/2011 20:16	-3.87			16	P
Manganese	08/25/2011 20:16	-0.0280			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967620

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/25/2011 21:50	5.25			28	P
Lead	08/25/2011 21:50	-0.703			5.0	P
Magnesium	08/25/2011 21:50	-3.23			16	P
Manganese	08/25/2011 21:50	0.0850			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 967624

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 1590 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/25/2011 23:26	5.65			28	P
Lead	08/25/2011 23:26	0.0190			5.0	P
Magnesium	08/25/2011 23:26	-3.23			16	P
Manganese	08/25/2011 23:26	0.242			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 968462

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 287 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Calcium	08/29/2011 15:35	10.90			28	P
Lead	08/29/2011 15:35	0.807			5.0	P
Magnesium	08/29/2011 15:35	-4.89			16	P
Manganese	08/29/2011 15:35	0.308			3.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78423 Lab Sample ID: 965156

Analytical Prep Batch # 38309 Preparation Date/Time: 08/23/2011 19:00

ICAL Calibration #: 1588 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Total Aluminum	08/24/2011 16:25	0	U	6	18	P
Total Antimony	08/24/2011 16:25	0	U	2.0	6.0	P
Total Barium	08/24/2011 16:25	0.118	U	0.29	0.90	P
Total Cadmium	08/24/2011 16:25	0	U	0.3	1.0	P
Total Chromium	08/24/2011 16:25	0	U	0.6	2.0	P
Total Copper	08/24/2011 16:25	0	U	1.2	3.5	P
Total Iron	08/24/2011 16:25	0	U	16	50	P
Total Lead	08/24/2011 16:25	0	U	1.4	2.0	P
Total Zinc	08/24/2011 16:25	0	U	1.6	5.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78424 Lab Sample ID: 965156

Analytical Prep Batch # 38309 Preparation Date/Time: 08/23/2011 19:00

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Total Strontium	08/26/2011 11:33	0.0160	U	0.3	1.0	P

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78472 Lab Sample ID: 965958

Analytical Prep Batch # 38322 Preparation Date/Time: 08/24/2011 13:45

ICAL Calibration #: 1590 Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M	
Calcium	08/25/2011 21:10	0.95		0.24	0.70	P	FAIL
Lead	08/25/2011 21:10	-0.038	U	0.04	0.125	P	
Magnesium	08/25/2011 21:10	0.28		0.14	0.40	P	FAIL
Manganese	08/25/2011 21:10	0.050		0.025	0.075	P	FAIL

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

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Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX

Analytical Run #: 78423
Lab Sample ID: 966491
ICP MRL Standard Source: Ultra
ICAL Calibration #: 1588
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/24/2011 15:11	500000	492000	98	80	120	P
Antimony	08/24/2011 15:11	0	0		-6.0	6.0	P
Barium	08/24/2011 15:11	0	0		-0.90	0.90	P
Cadmium	08/24/2011 15:11	0	-0.00400		-1.0	1.0	P
Calcium	08/24/2011 15:11	500000	500000	100	80	120	P
Chromium	08/24/2011 15:11	0	-0.177		-2.0	2.0	P
Copper	08/24/2011 15:11	0	0.00100		-3.5	3.5	P
Iron	08/24/2011 15:11	500000	438000	88	80	120	P
Lead	08/24/2011 15:11	0	0.00100		-2.0	2.0	P
Magnesium	08/24/2011 15:11	500000	447000	89	80	120	P
Zinc	08/24/2011 15:11	0	0		-5.0	5.0	P

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX

Analytical Run #: 78472
Lab Sample ID: 967604
ICP MRL Standard Source: Ultra
ICAL Calibration #: 1590
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/25/2011 15:26	500000	493000	99	80	120	P
Calcium	08/25/2011 15:26	500000	500000	100	80	120	P
Iron	08/25/2011 15:26	500000	482000	96	80	120	P
Lead	08/25/2011 15:26	0	0		-5.0	5.0	P
Magnesium	08/25/2011 15:26	500000	465000	93	80	120	P
Manganese	08/25/2011 15:26	0	-0.0340		-3.0	3.0	P

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX

Analytical Run #: 78472
Lab Sample ID: 968458
ICP MRL Standard Source: Ultra
ICAL Calibration #: 287
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/29/2011 13:53	500000	495000	99	80	120	P
Calcium	08/29/2011 13:53	500000	511000	102	80	120	P
Iron	08/29/2011 13:53	500000	477000	95	80	120	P
Lead	08/29/2011 13:53	0	0		-5.0	5.0	P
Magnesium	08/29/2011 13:53	500000	509000	102	80	120	P
Manganese	08/29/2011 13:53	0	0		-3.0	3.0	P

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Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX, Ultra

Analytical Run #: 78423
Lab Sample ID: 966492
ICP MRL Standard Source: Ultra
ICAL Calibration #: 1588
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/24/2011 15:18	500000	490000	98	80	120	P
Antimony	08/24/2011 15:18	500.0	500.0	100	80	120	P
Barium	08/24/2011 15:18	500.0	538.0	108	80	120	P
Cadmium	08/24/2011 15:18	500.0	404.0	81	80	120	P
Calcium	08/24/2011 15:18	500000	501000	100	80	120	P
Chromium	08/24/2011 15:18	500.0	468.0	94	80	120	P
Copper	08/24/2011 15:18	500.0	573.0	115	80	120	P
Iron	08/24/2011 15:18	500000	436000	87	80	120	P
Lead	08/24/2011 15:18	500.0	527.0	105	80	120	P
Magnesium	08/24/2011 15:18	500000	449000	90	80	120	P
Zinc	08/24/2011 15:18	500.0	473.0	95	80	120	P

CT LABORATORIES
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Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX, Ultra

Analytical Run #: 78472
Lab Sample ID: 967605
ICP MRL Standard Source: Ultra
ICAL Calibration #: 1590
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/25/2011 15:33	500000	496000	99	80	120	P
Calcium	08/25/2011 15:33	500000	505000	101	80	120	P
Iron	08/25/2011 15:33	500000	486000	97	80	120	P
Lead	08/25/2011 15:33	500.0	501.0	100	80	120	P
Magnesium	08/25/2011 15:33	500000	470000	94	80	120	P
Manganese	08/25/2011 15:33	500.0	505.0	101	80	120	P

CT LABORATORIES
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Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
ICP ID Number: TJA 6000
SDG No.: 86608
ICS Source: SPEX, Ultra

Analytical Run #: 78472
Lab Sample ID: 968459
ICP MRL Standard Source: Ultra
ICAL Calibration #: 287
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)	M
Aluminum	08/29/2011 14:00	500000	516000	103	80	120	P
Calcium	08/29/2011 14:00	500000	536000	107	80	120	P
Iron	08/29/2011 14:00	500000	485000	97	80	120	P
Lead	08/29/2011 14:00	500.0	575.0	115	80	120	P
Magnesium	08/29/2011 14:00	500000	528000	106	80	120	P
Manganese	08/29/2011 14:00	500.0	526.0	105	80	120	P

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5A

SPIKE SAMPLE RECOVERY

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	LIQUID	SDG No.:	86608
% Solids for Sample:		Concentration Units:	ug/L
Sample No	965370	Parent Sample No.:	962088
Analytical Prep Batch #	38309	Analytical Preparation Date/Time:	08/23/2011 19:00
Analytical Run #:	78423	ICAL Calibration #:	1588

Analysis Type	*Initial Analysis*	Analysis Date: -----	08/24/2011	Analysis Time: --------	17:18

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Lead	80-120	905		BDL	U	1000	90		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOLID	SDG No.:	86608
% Solids for Sample:	98.1	Concentration Units:	mg/kg
Sample No	965961	Parent Sample No.:	962085
Analytical Prep Batch #	38322	Analytical Preparation Date/Time:	08/24/2011 13:45
Analytical Run #:	78472	ICAL Calibration #:	1590

Analysis Type	*Initial Analysis*	Analysis Date: -----	08/25/2011	Analysis Time: --------	22:04

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Calcium	80-120	14000		9560		5100	87		P	
Lead	80-120	128		109		25.5	75		P	*FAIL*
Magnesium	80-120	4330		2270		2550	81		P	
Manganese	80-120	996		963		25.5	129		P	*FAIL*

BDL = analyte concentration was below detection limit

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5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description: **LL1-718-RB**

Lab Name: CT Laboratories | Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: LIQUID | SDG No.: 86608

% Solids for Sample: | Concentration Units: ug/L

Sample No: 966506 | Parent Sample No.: 962088

Analytical Prep Batch #: 0 | Analytical Preparation Date/Time:

Analytical Run #: 78423 | ICAL Calibration #: 1588

Analysis Type: *Initial Analysis* | Analysis Date: ----- 08/24/2011 | Analysis Time: -------- 17:31

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Lead	75-125	968		BDL	U	1000	97		P

BDL = analyte concentration was below detection limit

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5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOLID	SDG No.:	86608
% Solids for Sample:	98.1	Concentration Units:	ug/L
Sample No	967621	Parent Sample No.:	962085
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	78472	ICAL Calibration #:	1590

Analysis Type *Initial Analysis* Analysis Date: ----- 08/25/2011 Analysis Time: -------- 22:18

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Calcium	75-125	726000.		375000.		400000	88		P
Magnesium	75-125	251000.		88900.		200000	81		P

BDL = analyte concentration was below detection limit

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5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
Matrix: SOLID
SDG No.: 86608
% Solids for Sample: 98.1
Concentration Units: ug/L
Sample No: 967621
Parent Sample No.: 962085
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 78472
ICAL Calibration #: 1590

ReRun | *Re-Analysis #1* | Analysis Date: ----- 08/29/2011 | Analysis Time: -------- 14:07

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Lead	75-125	22400		4270.		20000	91		P
Manganese	75-125	56100		37800.		20000	92		P

BDL = analyte concentration was below detection limit

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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	LIQUID	SDG No.:	86608
% Solids for Sample:		Concentration Units:	ug/L
Sample No	965371	Parent Sample No.:	965370
Analytical Prep Batch #	38309	Analytical Preparation Date/Time:	08/23/2011 19:00
Analytical Run #:	78423	ICAL Calibration #:	1588

Analysis Type	*Initial Analysis*	Analysis Date: -----	08/24/2011	Analysis Time: --------	17:25

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Lead	80-120	913		BDL	U	1000	91		P

BDL = analyte concentration was below detection limit

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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOLID	SDG No.:	86608
% Solids for Sample:	98.1	Concentration Units:	mg/kg
Sample No	965962	Parent Sample No.:	965961
Analytical Prep Batch #	38322	Analytical Preparation Date/Time:	08/24/2011 13:45
Analytical Run #:	78472	ICAL Calibration #:	1590

Analysis Type	*Initial Analysis*	Analysis Date: -----	08/25/2011	Analysis Time: --------	22:11

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Calcium	80-120	13900		9560		5100	85		P	
Lead	80-120	137		109		25.5	110		P	
Magnesium	80-120	4260		2270		2550	78		P	*FAIL*
Manganese	80-120	971		963		25.5	31		P	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
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DUPLICATES

Sample Description

LL1-718-RB

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: LIQUID

SDG No.: 86608

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 38309

Analytical Run #: 78423

ICAL Calibration #: 1588

Sample #: 965369

Parent Sample #: 962088

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Lead	08/24/2011	17:11	20	1.4	U	1.4	U	0		P

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DUPLICATES

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOLID

SDG No.: 86608

% Solid for Sample: 98.1

Concentration Units: mg/kg

Analytical Prep Batch # 1

Analytical Preparation Date/Time 38322

Analytical Run #: 78472

ICAL Calibration #: 1590

Sample #: 965960

Parent Sample #: 962085

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Calcium	08/25/2011	21:57	20	9560		9350		2		P
Lead	08/25/2011	21:57	20	109		101		7		P
Magnesium	08/25/2011	21:57	20	2270		2190		4		P
Manganese	08/25/2011	21:57	20	963		958		1		P

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description

LL1-718-RB

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: LIQUID
SDG No.: 86608

% Solid for Sample:
Concentration Units: ug/L

Analytical Prep Batch #: 38309
Analytical Preparation Date/Time: 08/23/2011 19:00

Analytical Run #: 78423
ICAL Calibration #: 1588

Sample #: 965371
Parent Sample #: 965370

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Lead	08/24/2011	17:25	20	905		913		1		P

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6A

MATRIX SPIKE DUPLICATES

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories | Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOLID | SDG No.: 86608

% Solid for Sample: 98.1 | Concentration Units: mg/kg

Analytical Prep Batch #: 38322 | Analytical Preparation Date/Time: 08/24/2011 13:45

Analytical Run #: 78472 | ICAL Calibration #: 1590

Sample #: 965962 | Parent Sample #: 965961

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Calcium	08/25/2011	22:11	20	14000		13900		1		P
Lead	08/25/2011	22:11	20	128		137		7		P
Magnesium	08/25/2011	22:11	20	4330		4260		2		P
Manganese	08/25/2011	22:11	20	996		971		3		P

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: ug/L

Analytical Run #: 78423 Sample No.:#: 965157

Analytical Prep Batch #: 38309 Preparation Date/Time: 08/23/2011 19:00

ICAL Calibration #: 1588

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Aluminum	08/24/2011 16:19	80-120	4010		4000	100		P
Total Antimony	08/24/2011 16:19	80-120	971.0		1000	97		P
Total Barium	08/24/2011 16:19	80-120	3850		4000	96		P
Total Cadmium	08/24/2011 16:19	80-120	83.10		100.0	83		P
Total Chromium	08/24/2011 16:19	80-120	353.0		400.0	88		P
Total Copper	08/24/2011 16:19	80-120	434.0		500.0	87		P
Total Iron	08/24/2011 16:19	80-120	1870		2000	94		P
Total Lead	08/24/2011 16:19	80-120	919.0		1000	92		P
Total Magnesium	08/24/2011 16:19	80-120	94700		100000	95		P
Total Manganese	08/24/2011 16:19	80-120	840.0		1000	84		P
Total Zinc	08/24/2011 16:19	80-120	898.0		1000	90		P

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: ug/L

Analytical Run #: 78424 Sample No.:#: 965157

Analytical Prep Batch #: 38309 Preparation Date/Time: 08/23/2011 19:00

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Strontium	08/26/2011 11:28	80-120	1950		2000	98		P

CT LABORATORIES
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7-2

Sample No:

LABORATORY CONTROL SAMPLE - SOLID

LCS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: mg/kg

Analytical Run #: 78472 Sample No.:#: 965959

Analytical Prep Batch #: 38322 Preparation Date/Time: 08/24/2011 13:45

ICAL Calibration #: 1590

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Calcium	08/25/2011 21:03	80-120	4550		5000	91		P
Lead	08/25/2011 21:03	80-120	24.0		25.0	96		P
Magnesium	08/25/2011 21:03	80-120	2110		2500	84		P
Manganese	08/25/2011 21:03	80-120	22.4		25.0	90		P

CT LABORATORIES
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9

ICP SERIAL DILUTION

Sample Description

LL1-718-RB

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: LIQUID SDG No.: 86608

Concentration Units: ug/L

Sample No.: 966501 Parent Sample No.: 962088

LIMS Run #: 78423 ICAL Calibration #:.: 1588

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Initial Sample Result (I)	C (I)	Serial Dilution Result (S)	C (S)	% Diff.	Q	M	
Lead	08/24/2011 17:05	BDL	U	7	U	0		P	*INVALID*

CT LABORATORIES
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9

ICP SERIAL DILUTION

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOLID SDG No.: 86608

Concentration Units: ug/L

Sample No.: 967617 Parent Sample No.: 962085

LIMS Run #: 78472 ICAL Calibration #:.: 1590

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Initial Sample Result (I)	C (I)	Serial Dilution Result (S)	C (S)	% Diff.	Q	M	
Calcium	08/25/2011 21:23	375000.		417500		11		P	*FAIL*
Lead	08/25/2011 21:23	4270.		4440		4		P	
Magnesium	08/25/2011 21:23	88900.		102000		15		P	*FAIL*
Manganese	08/25/2011 21:23	37800.		42100		11		P	*FAIL*

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METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TJA SDG No.: 86608

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Lead	220.35			1.4	P

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METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TJA SDG No.: 86608

Matrix: SOLID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (mg/k)	M
Calcium	393.3			0.24	P
Lead	220.35			0.04	P
Magnesium	279.5			0.14	P
Manganese	257.61			0.025	P

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ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TA ICAP6000 / ICAP6500 SDG No.: 86608

Analyte	Wavelength (nm)	Interelement Correction Factors for:			
		Al	*Ca*	*Fe*	*Si (*Mg)*
Aluminum/1	167.079			0.000627 / 0.000627	
Aluminum/2	309.271				
Aluminum/3	396.152				
Antimony/1	206.833			0.000036 / 0.000021	0.069000* / 0.06900*
Antimony/2	217.581			-0.000166/-0.000166	0.050000* / 0.05000*
Arsenic/1	189.042			0.000240 / 0.000240	
Arsenic/2	193.759			0.001207 / 0.001692	
Barium/1	455.403			0.000002 / 0.000003	
Barium/2	493.409			0.000230 / 0.000130	
Beryllium/1	234.861			-0.000120 / 0.000080	
Beryllium/2	313.042			0.000000 / 0.000000	
Cadmium/1	226.502			0.000079 / 0.000130	
Cadmium/2	228.802			0.000000 / 0.000000	
Calcium/1	317.933				
Calcium/2	393.366				
Calcium/3	396.847				
Chromium/1	283.563			0.001012/ 0.000511	
Chromium/2	267.716			0.000005 / 0.000001	
Cobalt/1	228.616			0.000001 / 0.000002	-0.20 Cu / -0.20 Cu
Cobalt/2	238.892			-0.000680/-0.000087	
Copper/1	224.700			0.000028 / 0.000042	
Copper/2	324.754			-0.000025/-0.000025	
Copper/3	327.396			-0.000038/-0.00038	
Iron/1	234.349				
Iron/2	239.562				

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11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TA ICAP6000 / ICAP6500 SDG No.: 86608

Analyte	Wavelength (nm)	Interelement Correction Factors for:			
		Al	*Ca*	*Fe*	*Si (*Mg)*
Iron/3	259.940				
Lead/1	216.999	0.001232 / 0.000632		------- / 0.002113	
Lead/2	220.353	0.0090 Co / 0.010 Co	0.0080 V / 0.010 V	-0.000063/-0.000009	0.000000 / 0.000000
Magnesium/1	279.079				
Magnesium/2	279.553				
Magnesium/3	280.270				
Manganese/1	257.610	0.000003 /-0.00072			
Manganese/2	259.373				0.002328*/0.001928*
Molybdenum/1	202.030			-0.000014/-0.000010	
Molybdenum/2	204.598			0.000026 / 0.000026	
Molybdenum/3	203.844				
Nickel/1	221.647		0.000015 / 0.000015		
Nickel/2	231.604			-0.000005 / 0.000038	-0.20 Co / -0.20 Co
Selenium/1	196.090			-0.000386 /-0.000370	
Selenium/2	206.279			0.000638 / 0.000638	
Silver/1	328.068			-0.000227/-0.000281	
Silver/2	338.289		0.000514/ 0.000514		
Thallium/1	190.856			-0.000007 / 0.000001	0.0080 Ti /0.0080 Ti
Thallium/2	276.787			0.000000 / 0.00000	0.030232*/0.030232*
Tin (1 [ ] line)	189.989				
Tin (2 [ ] line)	189.989				
Tungsten/3	209.475				
Tungsten/4	257.144				
Vanadium/1	292.402			0.000005 /-0.000009	
Vanadium/2	292.882			0.000171 / 0.000171	

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ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TA ICAP6000 / ICAP6500 SDG No.: 86608

Analyte	Wavelength (nm)	Interelement Correction Factors for:			
		Al	*Ca*	*Fe*	*Si (*Mg)*
Zinc/1	206.200			0.000051 / 0.000051	
Zinc/2	213.856			0.000167 / 0.000151	

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

ICP ID Number: TJA SDG No.: 86608

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

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PREPARATION LOG

Lab Name: CT Laboratories

Project: SHAW E&I INC-RVAAP MMRP LL1

Method: EPA 3010A

SDG No.: 86608

Preparation Batch #: 38309

Preparation Date/Time: 08/23/2011 / 19:00

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
962088	Normal Sample	LL1-718-RB	GROUND WATER	50
965074	Normal Sample	BDI-008-RB	GROUND WATER	50
965146	Normal Sample	RQL-078-RB	GROUND WATER	50
965156	Method Blank		LIQUID	50
965157	Lab Control Spike		LIQUID	50
965369	Lab Duplicate	LL1-718-RB	GROUND WATER	50
965370	Matrix Spike	LL1-718-RB	GROUND WATER	50
965371	Matrix Spike Duplicate	LL1-718-RB	GROUND WATER	50
965372	Lab Duplicate	BDI-008-RB	GROUND WATER	50
965373	Matrix Spike	BDI-008-RB	GROUND WATER	50
965374	Matrix Spike Duplicate	BDI-008-RB	GROUND WATER	50
965375	Lab Duplicate	RQL-078-RB	GROUND WATER	50
965376	Matrix Spike	RQL-078-RB	GROUND WATER	50
965377	Matrix Spike Duplicate	RQL-078-RB	GROUND WATER	50

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PREPARATION LOG

Lab Name: CT Laboratories Project: SHAW E&I INC-RVAAP MMRP LL1

Method: EPA 3050B SDG No.: 86608

Preparation Batch #: 38322 Preparation Date/Time: 08/24/2011 / 13:45

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
962085	Normal Sample	LL1SS-715(I)-0001-SS	SOIL	2.0
962086	Normal Sample	LL1SS-716(I)-0001-SS	SOIL	2.0
962087	Normal Sample	LL1SS-717(I)-0001-SS	SOIL	2.0
965958	Method Blank		SOLID	2.0
965959	Lab Control Spike		SOLID	2.0
965960	Lab Duplicate	LL1SS-715(I)-0001-SS	SOIL	2.0
965961	Matrix Spike	LL1SS-715(I)-0001-SS	SOIL	2.0
965962	Matrix Spike Duplicate	LL1SS-715(I)-0001-SS	SOIL	2.0

CT LABORATORIES
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ANALYSIS RUN LOG

Lab Name: CT Laboratories | Contract: SHAW E&I INC-RVAAP MMRP LL1

Lab Code: CTL | SDG No.: 86608

Instrument ID Number: TJA | Method Number: P

Start & End Date: 08/24/2011 to 08/24/2011 | Analytical Run #: 78423

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
966487	ICV	1.00	8/24 14:44	X	X		X			X		X		X	X	X																X
966489	ICB	1.00	8/24 14:51	X	X		X			X		X		X	X	X																X
966491	ICSA	1.00	8/24 15:11	X	X		X			X	X	X		X	X	X	X															X
966492	ICSAB	1.00	8/24 15:18	X	X		X			X	X	X		X	X	X	X															X
965157	LCSW	1.00	8/24 16:19	X	X		X			X		X		X	X	X	X	X														X
965156	MBW	1.00	8/24 16:25	X	X		X			X		X		X	X	X																X
966498	CCV2	1.00	8/24 16:38	X	X		X			X		X		X	X	X																X
966500	CCB	1.00	8/24 16:52	X	X		X			X		X		X	X	X																X
962088	Initial	1.00	8/24 16:58													X																
966501	L	5	8/24 17:05													X																
965369	DUP	1.00	8/24 17:11													X																
965370	MSW	1.00	8/24 17:18													X																
965371	MSDW	1.00	8/24 17:25													X																
966506	PDSW	1.00	8/24 17:31													X																
965074	Initial	1.00	8/24 17:38	X	X										X	X																
966507	L	5	8/24 17:44	X	X										X	X																
965372	DUP	1.00	8/24 17:51	X	X										X	X																
965373	MSW	1.00	8/24 17:58	X	X										X	X																
966779	CCV2	1.00	8/24 18:11	X	X		X			X		X		X	X	X																X
966780	CCB	1.00	8/24 18:24	X	X		X			X		X		X	X	X																X
965374	MSDW	1.00	8/24 18:31	X	X										X	X																
966781	PDSW	1.00	8/24 18:37	X	X										X	X																
965146	Initial	1.00	8/24 18:44	X	X		X			X		X		X	X	X																X
966782	L	5	8/24 18:51	X	X		X			X		X		X	X	X																X
965375	DUP	1.00	8/24 18:57	X	X		X			X		X		X	X	X																X
965376	MSW	1.00	8/24 19:04	X	X		X			X		X		X	X	X																X
965377	MSDW	1.00	8/24 19:10	X	X		X			X		X		X	X	X																X
966783	PDSW	1.00	8/24 19:17	X	X		X			X		X		X	X	X																X
966784	CCV2	1.00	8/24 19:44	X	X		X			X		X		X	X	X																X

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Lab Code: CTL

SDG No.: 86608

Instrument ID Number: TJA

Method Number: P

Start & End Date: 08/24/2011 to 08/24/2011

Analytical Run #: 78423

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
966785	CCB	1.00	8/24 19:57	X	X		X			X		X		X	X	X																X

CT LABORATORIES
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ANALYSIS RUN LOG

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1

Lab Code: CTL
SDG No.: 86608

Instrument ID Number: TJA
Method Number: P

Start & End Date: 08/25/2011 to 08/29/2011
Analytical Run #: 78472

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
967602	ICV	1.00	8/25 15:00								X					X	X	X														
967603	ICB	1.00	8/25 15:06								X					X	X	X														
967604	ICSA	1.00	8/25 15:26	X							X				X	X	X	X														
967605	ICSAB	1.00	8/25 15:33	X							X				X	X	X	X														
967614	CCV1	1.00	8/25 19:57								X					X	X	X														
967615	CCV2	1.00	8/25 20:03								X					X	X	X														
967616	CCB	1.00	8/25 20:16								X					X	X	X														
965959	LCSS	1.00	8/25 21:03								X					X	X	X														
965958	MBS	1.00	8/25 21:10								X					X	X	X														
962085	Initial	1.00	8/25 21:16								X					X	X	X														
967617	L	5	8/25 21:23								X					X	X	X														
967618	CCV1	1.00	8/25 21:30								X					X	X	X														
967619	CCV2	1.00	8/25 21:37								X					X	X	X														
967620	CCB	1.00	8/25 21:50								X					X	X	X														
965960	DUP	1.00	8/25 21:57								X					X	X	X														
965961	MSS	1.00	8/25 22:04								X					X	X	X														
965962	MSDS	1.00	8/25 22:11								X					X	X	X														
967621	PDSS	1.00	8/25 22:18								X						X															
962086	Initial	1.00	8/25 22:25													X	X	X														
962087	Initial	1.00	8/25 22:33													X	X	X														
967622	CCV1	1.00	8/25 23:06								X					X	X	X														
967623	CCV2	1.00	8/25 23:12								X					X	X	X														
967624	CCB	1.00	8/25 23:26								X					X	X	X														
968456	ICV	1.00	8/29 13:26								X					X	X	X														
968457	ICB	1.00	8/29 13:32								X					X	X	X														
968458	ICSA	1.00	8/29 13:53	X							X				X	X	X	X														
968459	ICSAB	1.00	8/29 14:00	X							X				X	X	X	X														
967621	PDSS	1.00	8/29 14:07													X		X														

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Lab Code: CTL

SDG No.: 86608

Instrument ID Number: TJA

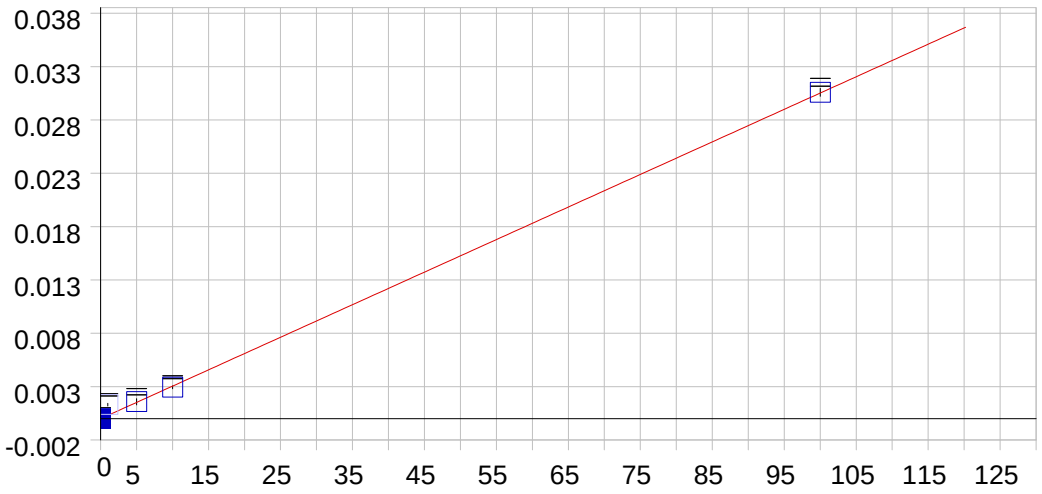
Method Number: P

Start & End Date: 08/25/2011 to 08/29/2011

Analytical Run #: 78472

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
962086	Re-Analysis	10.00	8/29 14:14								X																					
962087	Re-Analysis	10.00	8/29 14:21								X																					
968460	CCV1	1.00	8/29 15:16								X					X		X														
968461	CCV2	1.00	8/29 15:22								X					X	X	X														
968462	CCB	1.00	8/29 15:35								X					X	X	X														

METALS
RAW DATA
DOCUMENTS

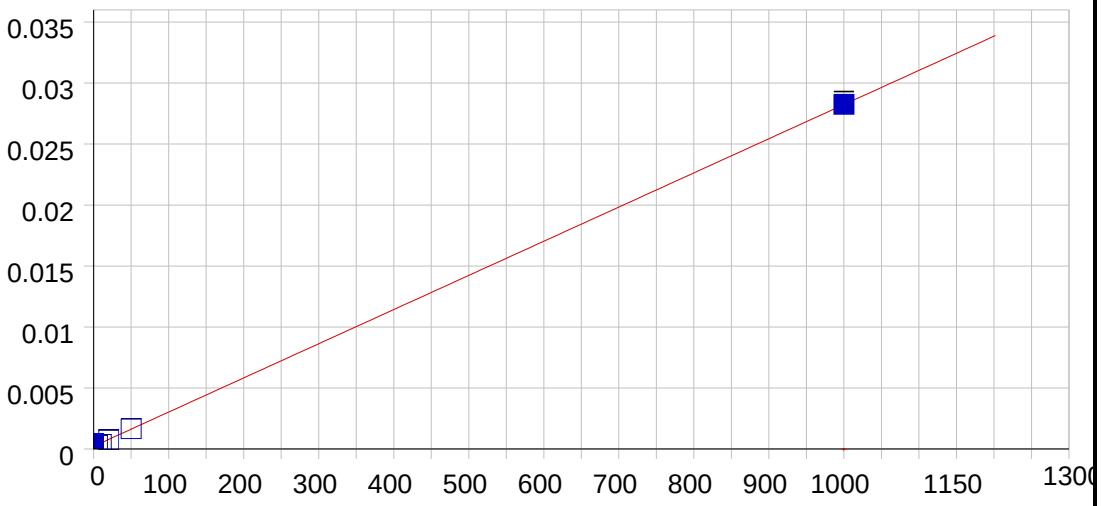


Ag 328.068 {103}

Date of Fit:	08/24/2011 13:50:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000305	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.571279		
Predicted MQL:	1.904265		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00001	.000	1
CalibStd=100	100.00	100.19	.187	.187	.03058	.000	1
CalibStd=10	10.000	9.6270	-.373	-3.73	.00293	.000	1
CalibStd=1	1.0000	4.3175	3.32	332.	.00131	.000	0
CalibStd=5	5.0000	5.1862	.186	3.72	.00158	.000	1

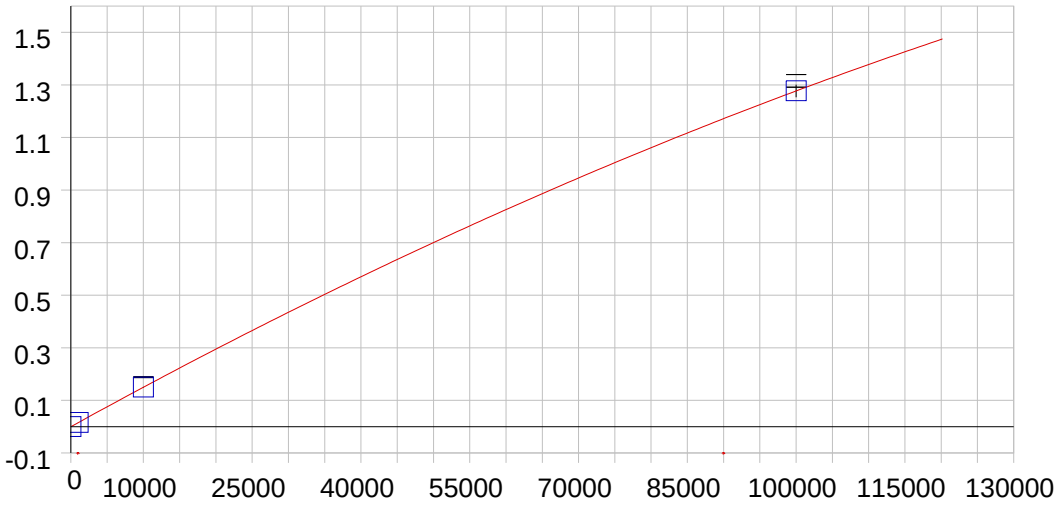


Al 167.079 {502}

Date of Fit:	08/24/2011 13:56:28	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000224	Re-Slope:	1.000000
A1 (Gain):	0.000028	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999942	Status:	OK.
Std Error of Est:	0.000136		
Predicted MDL:	0.561167		
Predicted MQL:	1.870555		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	7.8325	7.83	.000	.00044	.000	1
CalibStd=100	1000.0	1000.0	.033	.003	.02826	.000	1
CalibStd=20	20.000	18.770	-1.23	-6.15	.00075	.000	1
CalibStd=10	10.000	5.6499	-4.35	-43.5	.00038	.000	1
CalibStd=5	5.0000	1.6756	-3.32	-66.5	.00027	.000	1
CalibStd=50	50.000	51.039	1.04	2.08	.00165	.000	1

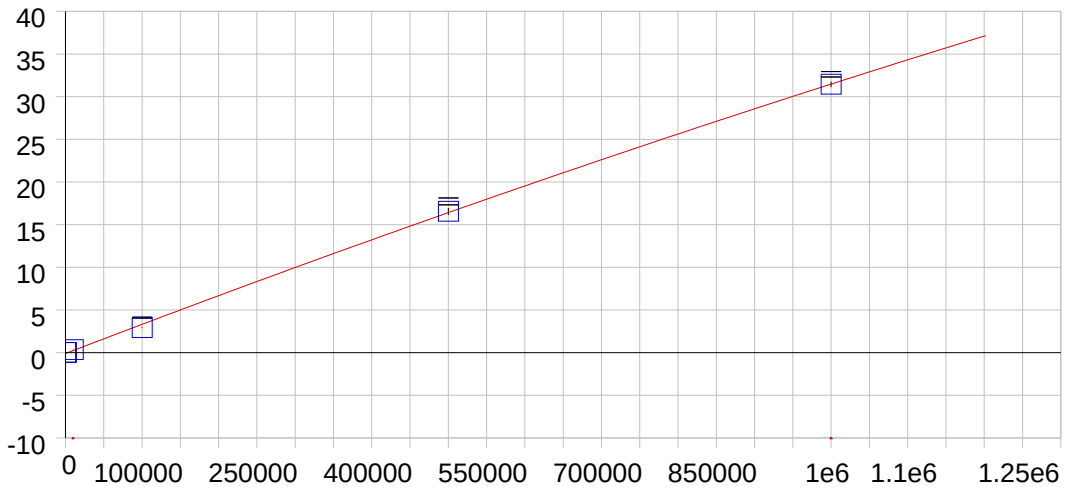


Al 309.271 {109}

Date of Fit:	08/24/2011 14:17:23	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.000089	Re-Slope:	1.000000
A1 (Gain):	0.000015	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000318		
Predicted MDL:	23.949248		
Predicted MQL:	79.830828		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-13.835	-13.8	.000	-.00030	.000	1
CalibStd=100	10000.	9998.2	-1.77	-.018	.14989	.001	1
CalibStd=100	100000.	100000.	.023	.000	1.2772	.024	1
CalibStd=100	1000.0	1015.6	15.6	1.56	.01537	.000	1

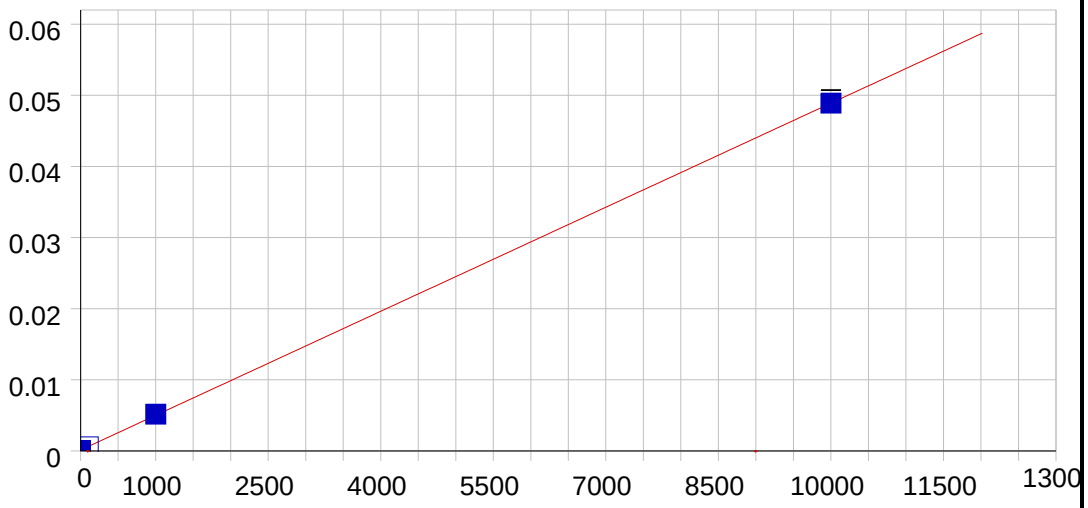


Al 396.152 { 85}

Date of Fit:	08/24/2011 14:31:41	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.099691	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999878	Status:	OK.
Std Error of Est:	0.260326		
Predicted MDL:	13.737638		
Predicted MQL:	45.792127		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	2902.6	2900.	.000	.00032	.000	1
CalibStd=100	100000.	88367.	-11600.	-11.6	2.9234	.051	1
CalibStd-100	1000000.	998930.	-1070.	-.107	31.450	.323	1
CalibStd=500	500000.	504380.	4380.	.875	16.550	.397	1
CalibStd=100	1000.0	3877.3	2880.	288.	.03390	.000	1
CalibStd=100	10000.	12555.	2560.	25.6	.33258	.006	1

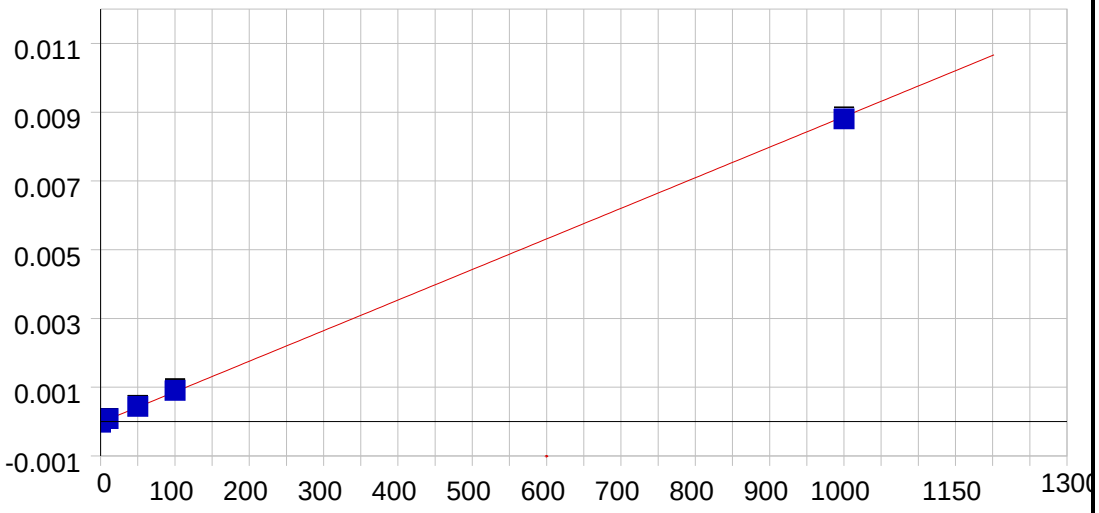


As 189.042 {479}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000131	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000118		
Predicted MDL:	5.773155		
Predicted MQL:	19.243850		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-14.082	-14.1	.000	.00006	.000	1
CalibStd=100	1000.0	1028.8	28.8	2.88	.00515	.000	1
CalibStd=100	10000.	9997.2	-2.76	-.028	.04888	.000	1
CalibStd=100	100.00	88.048	-12.0	-12.0	.00056	.000	1

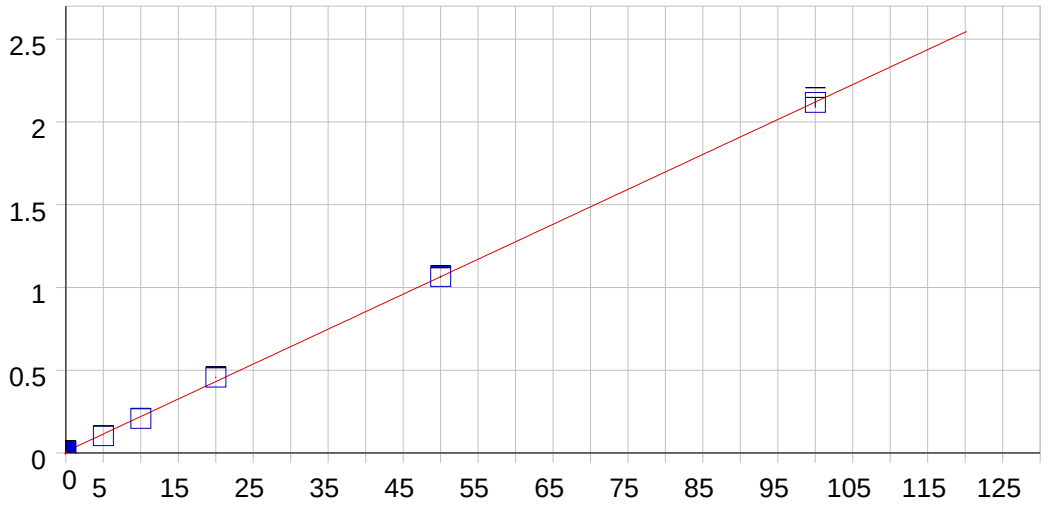


As 193.759 {474}

Date of Fit:	08/24/2011 13:56:28	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000024	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999737	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	3.362046		
Predicted MQL:	11.206821		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00245	-.002	.000	-.00002	.000	1
CalibStd=100	1000.0	992.04	-7.96	-.796	.00880	.000	1
CalibStd=50	50.000	52.192	2.19	4.38	.00044	.000	1
CalibStd=10	10.000	11.686	1.69	16.9	.00008	.000	1
CalibStd=100	100.00	104.08	4.08	4.08	.00090	.000	1

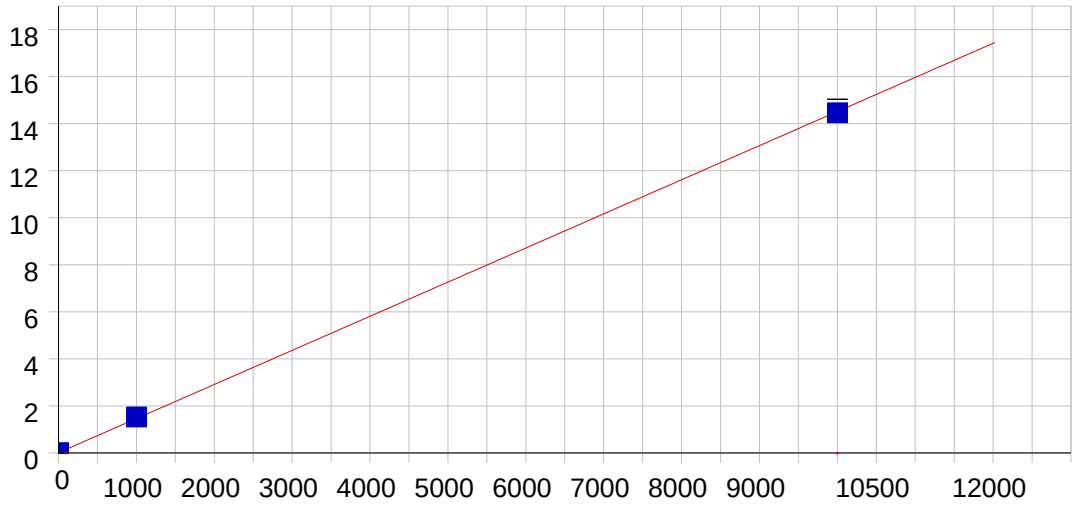


Ba 455.403 { 74}

Date of Fit:	08/24/2011 13:50:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.009091	Re-Slope:	1.000000
A1 (Gain):	0.021113	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999851	Status:	OK.
Std Error of Est:	0.015592		
Predicted MDL:	0.034011		
Predicted MQL:	0.113370		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.01456	.015	.000	.00940	.002	1
CalibStd=50	50.000	50.016	.016	.031	1.0650	.006	1
CalibStd=10	10.000	9.4275	-.573	-5.73	.20813	.001	1
CalibStd=20	20.000	21.243	1.24	6.21	.45758	.003	1
CalibStd=100	100.00	99.827	-.173	-.173	2.1167	.030	1
CalibStd=5	5.0000	4.4721	-.528	-10.6	.10351	.001	1

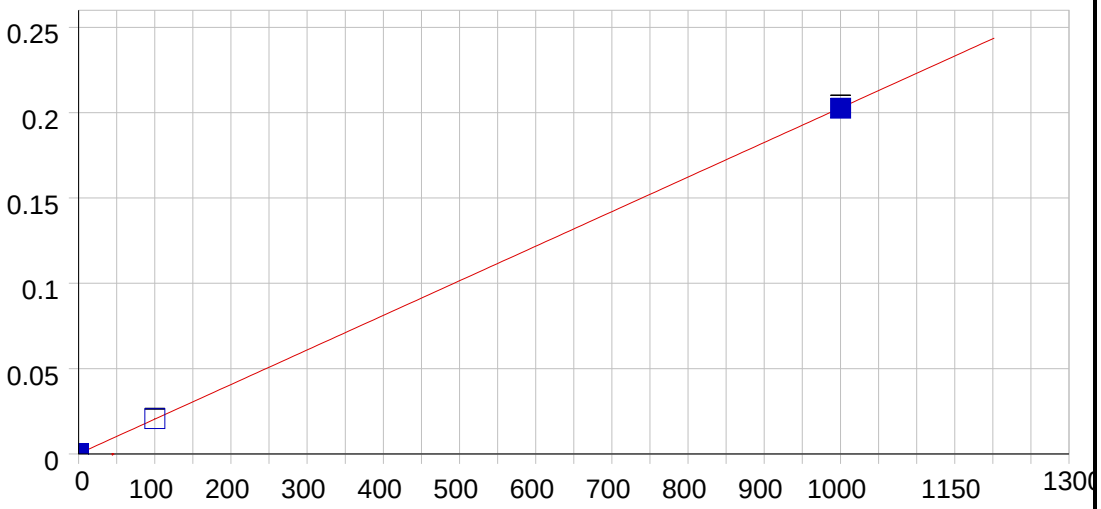


Ba 493.409 { 68}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.010150	Re-Slope:	1.000000
A1 (Gain):	0.001451	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999911	Status:	OK.
Std Error of Est:	0.003516		
Predicted MDL:	0.821600		
Predicted MQL:	2.738666		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03797	-.038	.000	.01010	.001	1
CalibStd=100	1000.0	1042.2	42.2	4.22	1.5221	.004	1
CalibStd=100	10000.	9957.8	-42.2	-.422	14.456	.152	1

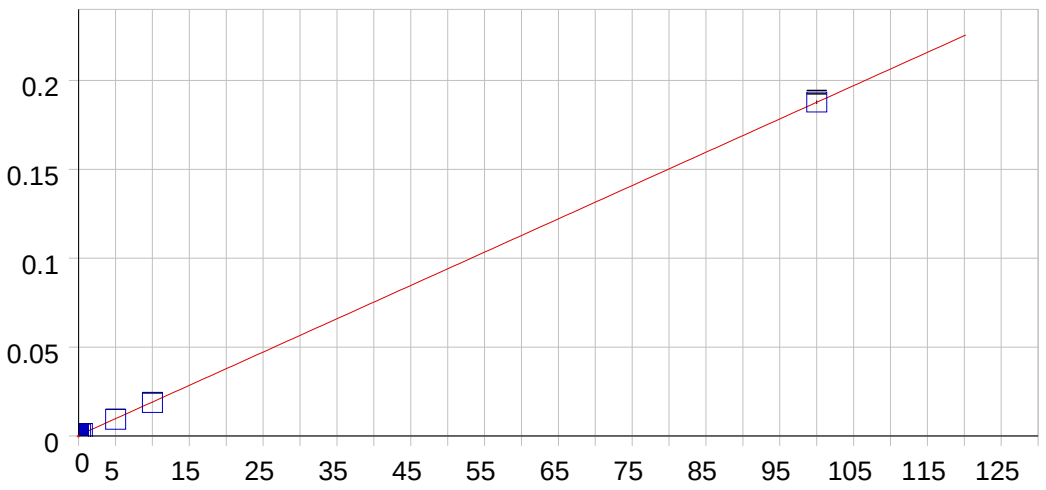


Be 234.861 {144}

Date of Fit:	08/24/2011 13:56:28	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000147	Re-Slope:	1.000000
A1 (Gain):	0.000203	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999993	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.417828		
Predicted MQL:	1.392760		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00106	-.001	.000	.00015	.000	1
CalibStd=100	1000.0	998.82	-1.18	-.118	.20253	.002	1
CalibStd=100	100.00	101.18	1.18	1.18	.02065	.000	1

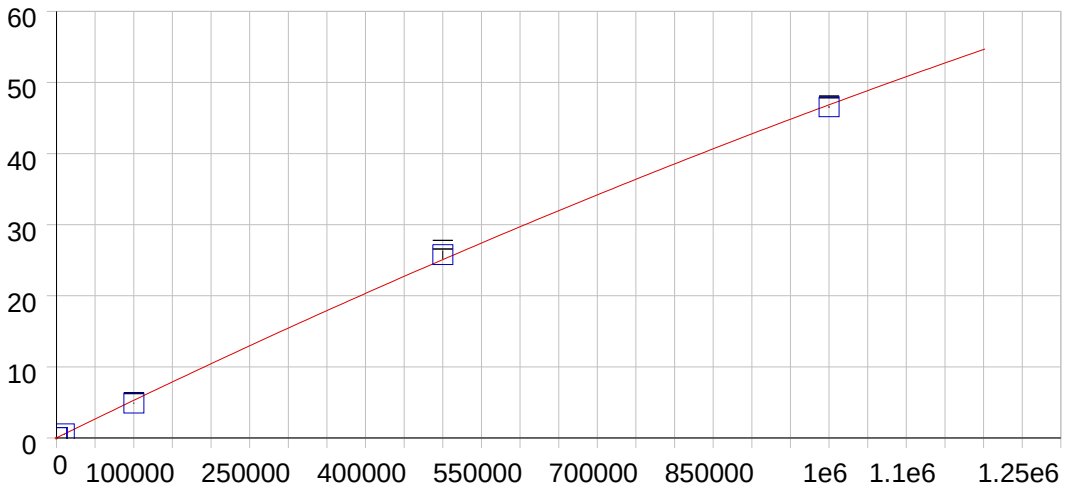


Be 313.042 {108}

Date of Fit:	08/24/2011 13:50:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000354	Re-Slope:	1.000000
A1 (Gain):	0.001874	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000371		
Predicted MDL:	0.098052		
Predicted MQL:	0.326841		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.18324	.183	.000	.00070	.000	1
CalibStd=10	10.000	9.7831	-.217	-2.17	.01869	.000	1
CalibStd=100	100.00	100.03	.032	.032	.18779	.001	1
CalibStd=0.5	.50000	.61855	.119	23.7	.00151	.000	1
CalibStd=5	5.0000	4.7774	-.223	-4.45	.00931	.000	1
CalibStd=0.2	.25000	.35575	.106	42.3	.00102	.000	1

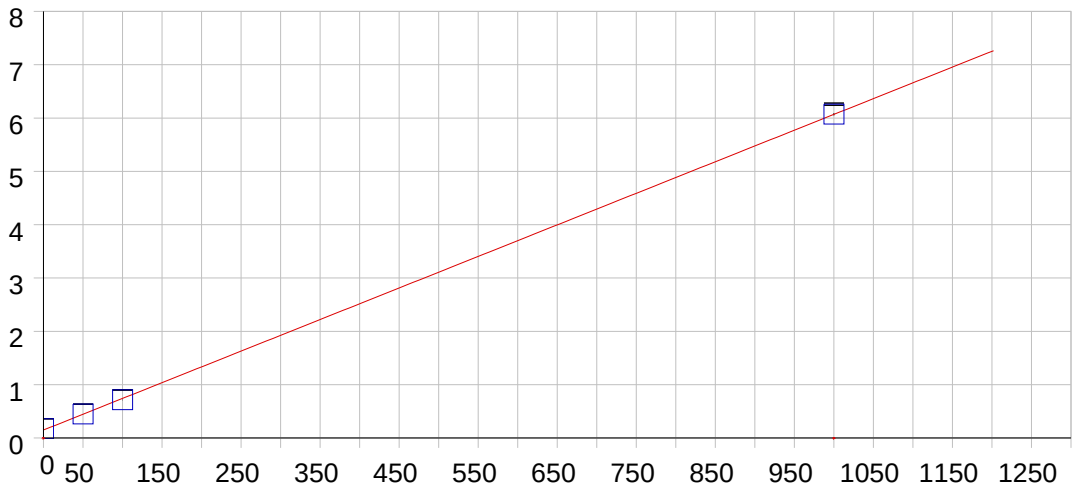


Ca 317.933 {106}

Date of Fit:	08/24/2011 14:31:41	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.012252	Re-Slope:	1.000000
A1 (Gain):	0.000053	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999652	Status:	OK.
Std Error of Est:	0.002288		
Predicted MDL:	3.307872		
Predicted MQL:	11.026240		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02007	-.020	.000	.01225	.000	1
CalibStd=100	10000.	10285.	285.	2.85	.56130	.006	1
CalibStd=100	100000.	92391.	-7610.	-7.61	4.8943	.086	1
CalibStd=500	500000.	514540.	14500.	2.91	25.767	.608	1
CalibStd-100	1000000.	992550.	-7450.	-.745	46.558	.129	1
CalibStd=100	1000.0	1046.1	46.1	4.61	.06816	.000	1

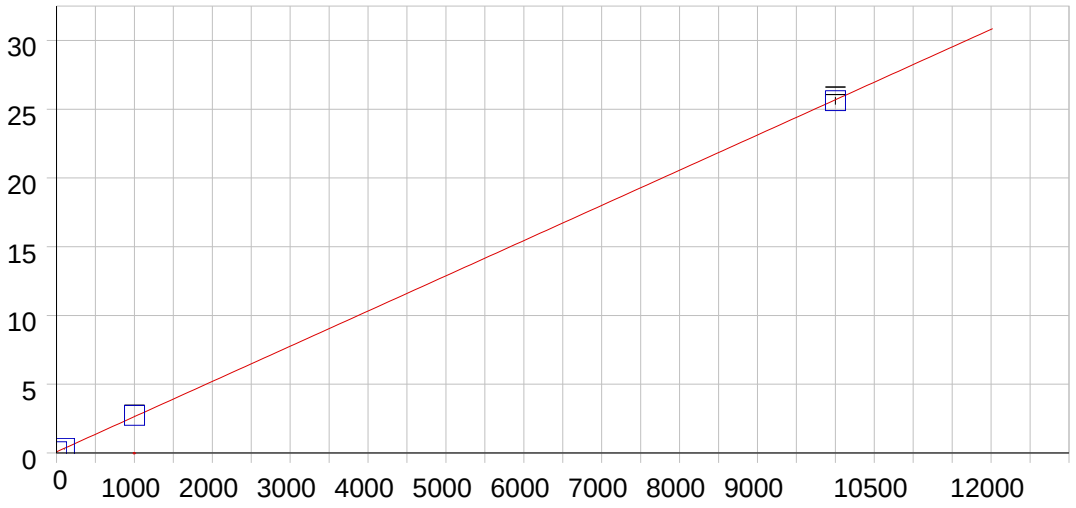


Ca 393.366 { 86}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.149053	Re-Slope:	1.000000
A1 (Gain):	0.005919	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999974	Status:	OK.
Std Error of Est:	0.025127		
Predicted MDL:	0.070717		
Predicted MQL:	0.235723		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	3.8613	3.86	.000	.17191	.005	1
CalibStd=50	50.000	50.263	.263	.526	.44656	.001	1
CalibStd=100	1000.0	1000.4	.444	.044	6.0706	.021	1
CalibStd=100	100.00	95.432	-4.57	-4.57	.71390	.005	1

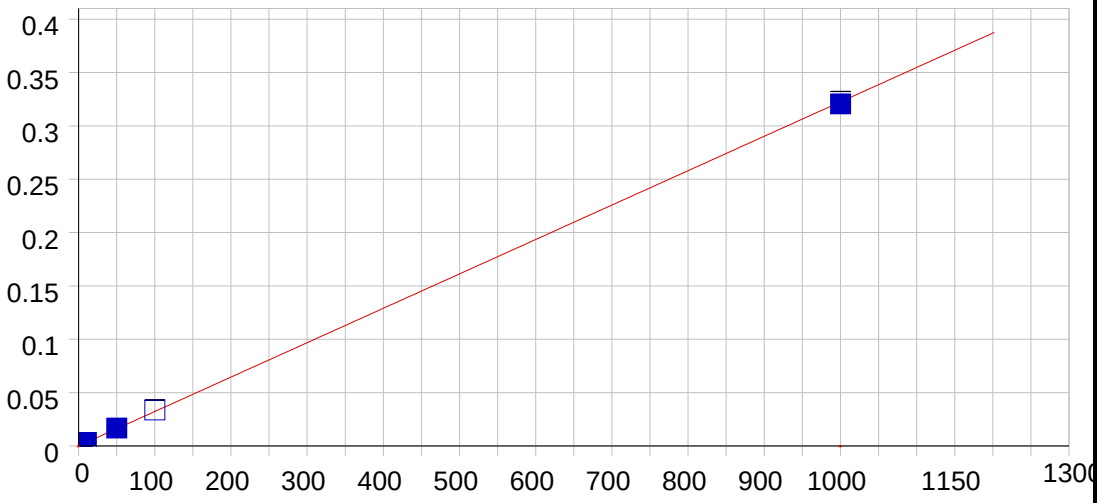


Ca 396.847 { 85}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.079166	Re-Slope:	1.000000
A1 (Gain):	0.002561	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.001340		
Predicted MDL:	0.115022		
Predicted MQL:	0.383407		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00047	.000	.000	.07917	.003	1
CalibStd=100	10000.	9969.6	-30.4	-.304	25.608	.273	1
CalibStd=100	100.00	96.444	-3.56	-3.56	.32613	.001	1
CalibStd=100	1000.0	1034.0	34.0	3.40	2.7268	.006	1

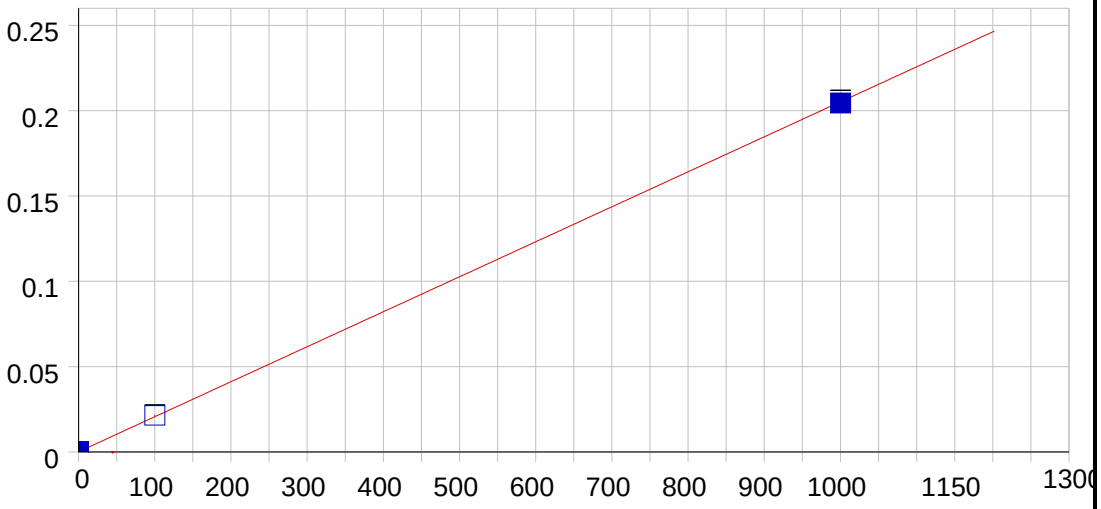


Cd 226.502 {449}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000038	Re-Slope:	1.000000
A1 (Gain):	0.000322	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999658	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.143967		
Predicted MQL:	0.479891		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00028	.000	.000	.00004	.000	1
CalibStd=50	50.000	51.715	1.72	3.43	.01671	.000	1
CalibStd=1	1.0000	1.7222	.722	72.2	.00059	.000	1
CalibStd=0.5	.50000	.40519	-.095	-19.0	.00017	.000	1
CalibStd=5	5.0000	4.7656	-.234	-4.69	.00157	.000	1
CalibStd=100	100.00	103.90	3.90	3.90	.03354	.000	1
CalibStd=10	10.000	10.070	.070	.700	.00329	.000	1
CalibStd=100	1000.0	993.92	-6.08	-.608	.32056	.002	1

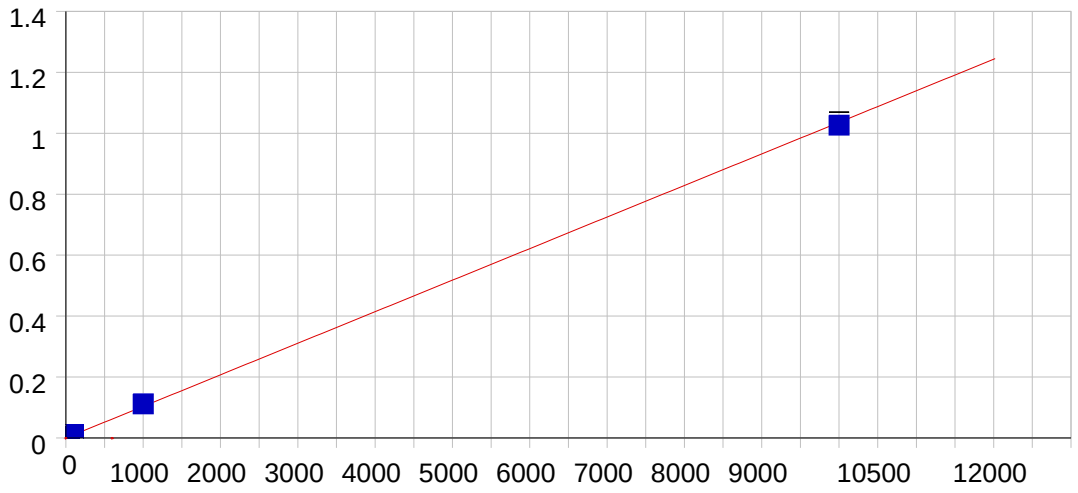


Cd 228.802 {447}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000144	Re-Slope:	1.000000
A1 (Gain):	0.000205	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999921	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.231437		
Predicted MQL:	0.771455		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00358	-.004	.000	.00014	.000	1
CalibStd=100	1000.0	996.02	-3.98	-.398	.20436	.002	1
CalibStd=100	100.00	103.98	3.98	3.98	.02146	.000	1

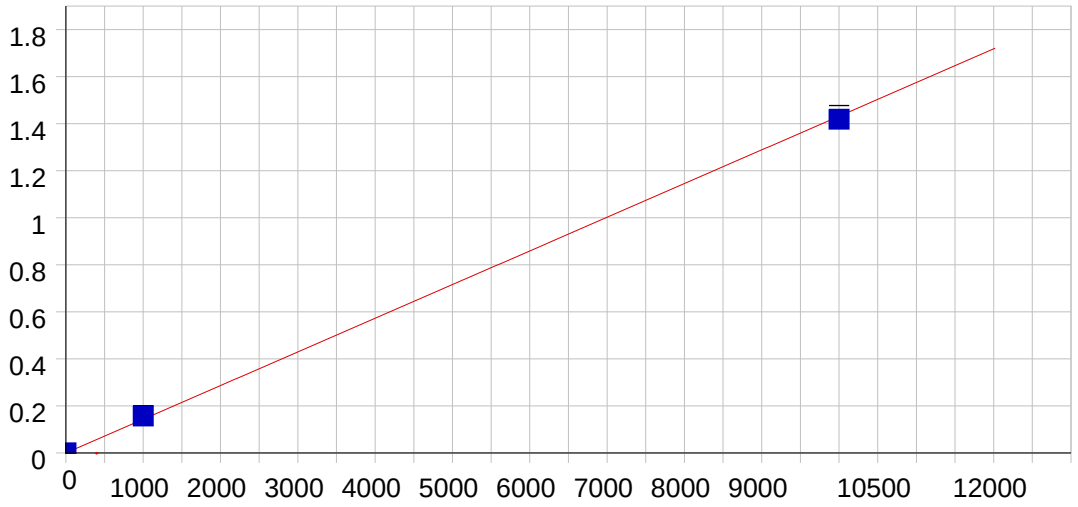


Co 228.616 {447}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000048	Re-Slope:	1.000000
A1 (Gain):	0.000104	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999615	Status:	OK.
Std Error of Est:	0.000025		
Predicted MDL:	0.387310		
Predicted MQL:	1.291034		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00201	-.002	.000	.00005	.000	1
CalibStd=50	50.000	55.149	5.15	10.3	.00575	.000	1
CalibStd=10	10.000	10.796	.796	7.96	.00117	.000	1
CalibStd=5	5.0000	5.1905	.191	3.81	.00058	.000	1
CalibStd=100	100.00	111.40	11.4	11.4	.01160	.000	1
CalibStd=100	1000.0	1076.3	76.3	7.63	.11162	.001	1
CalibStd=100	10000.	9906.1	-93.9	-.939	1.0261	.010	1

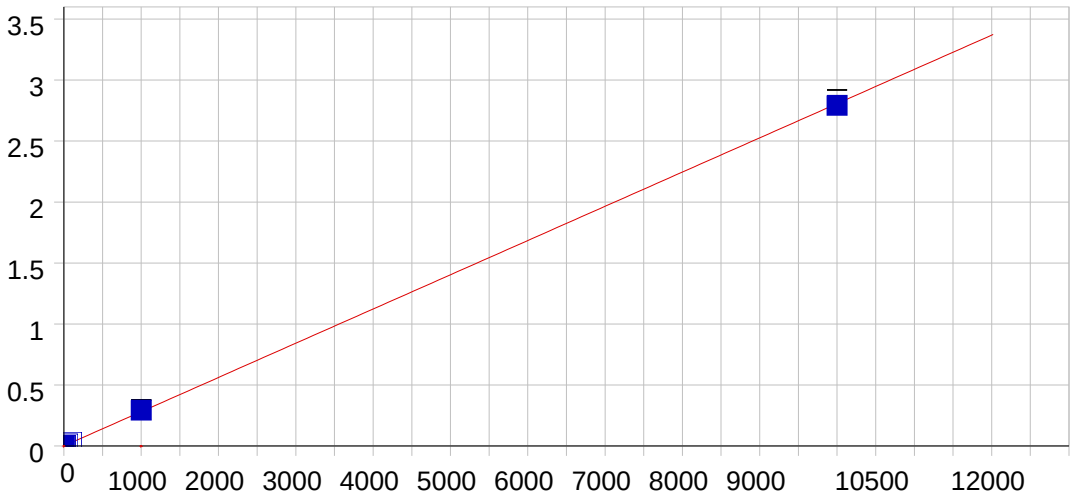


Co 238.892 {141}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000095	Re-Slope:	1.000000
A1 (Gain):	0.000143	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999566	Status:	OK.
Std Error of Est:	0.000766		
Predicted MDL:	0.583523		
Predicted MQL:	1.945078		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.08380	-.084	.000	.00008	.000	1
CalibStd=100	1000.0	1093.1	93.1	9.31	.15651	.001	1
CalibStd=100	10000.	9906.9	-93.1	-.931	1.4176	.017	1

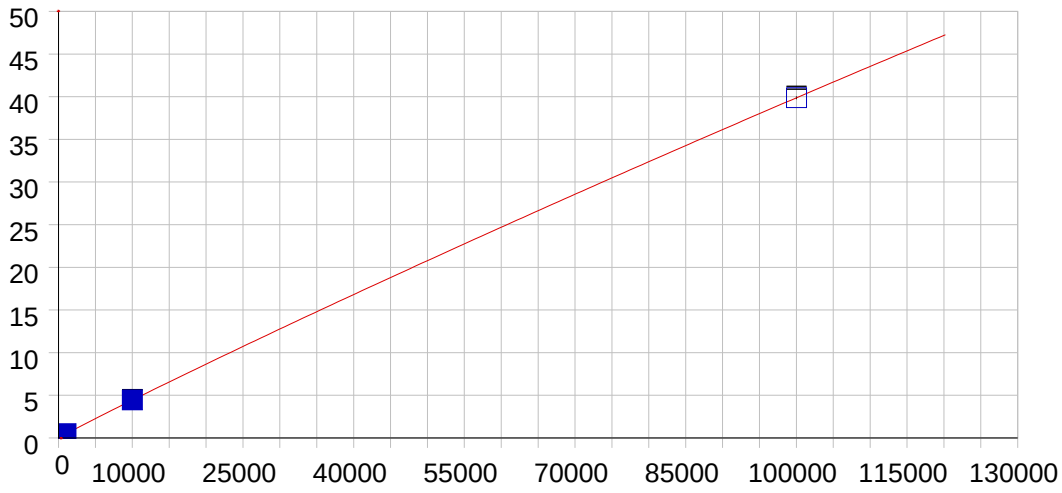


Cr 267.716 {126}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000429	Re-Slope:	1.000000
A1 (Gain):	0.000281	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999859	Status:	OK.
Std Error of Est:	0.000059		
Predicted MDL:	0.488270		
Predicted MQL:	1.627568		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00198	-.002	.000	.00043	.000	1
CalibStd=10	10.000	9.2459	-.754	-7.54	.00302	.000	1
CalibStd=50	50.000	52.650	2.65	5.30	.01521	.000	1
CalibStd=100	1000.0	1042.8	42.8	4.28	.29311	.002	1
CalibStd=20	20.000	22.133	2.13	10.7	.00664	.000	1
CalibStd=100	100.00	107.67	7.67	7.67	.03065	.000	1
CalibStd=100	10000.	9945.5	-54.5	-.545	2.7918	.044	1

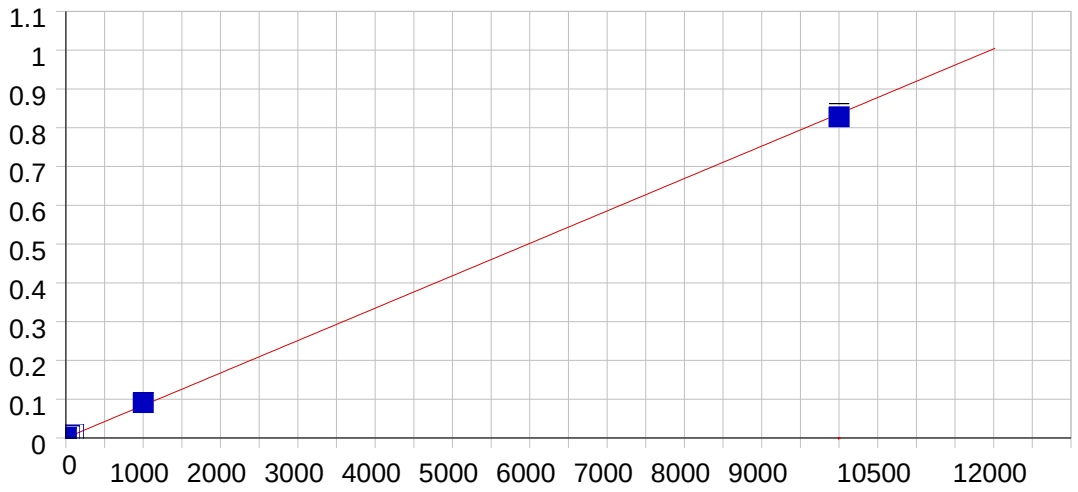


Cr 283.563 {119}

Date of Fit:	08/24/2011 14:10:35	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.003493	Re-Slope:	1.000000
A1 (Gain):	0.000587	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.970000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.001727		
Predicted MDL:	0.253437		
Predicted MQL:	0.844792		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	2.9026	2.90	.000	.00514	.000	1
CalibStd=50	50.000	50.069	.069	.138	.02964	.000	1
CalibStd=100	100.00	99.771	-.229	-.229	.05453	.001	1
CalibStd=100	1000.0	996.15	-3.85	-.385	.47932	.002	1
CalibStd=100	10000.	10000.	.497	.005	4.4437	.051	1
CalibStd-100	100000.	100000.	-.006	.000	39.870	.169	1

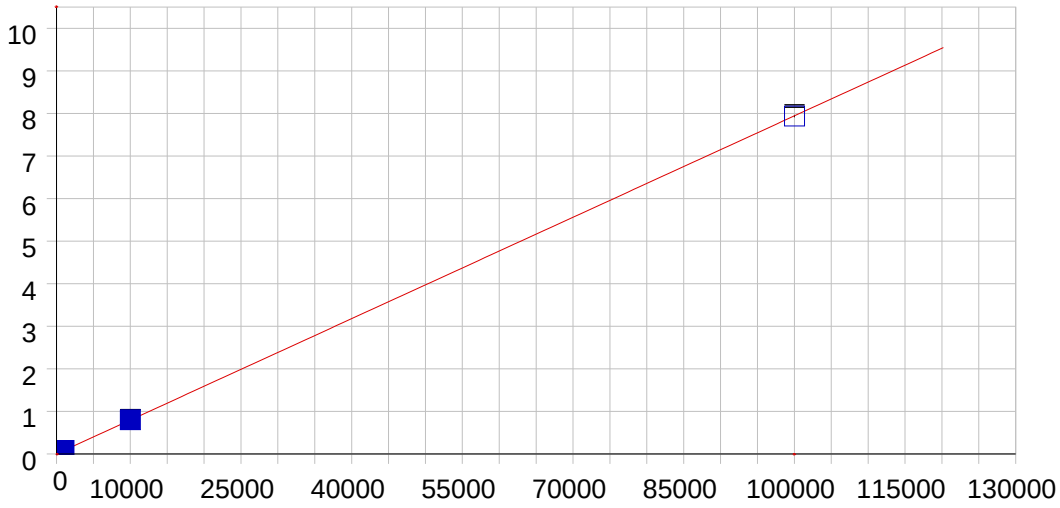


Cu 224.700 {450}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000329	Re-Slope:	1.000000
A1 (Gain):	0.000084	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999558	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	0.667578		
Predicted MQL:	2.225259		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00301	-.003	.000	.00033	.000	1
CalibStd=100	1000.0	1080.6	80.6	8.06	.09066	.001	1
CalibStd=50	50.000	56.648	6.65	13.3	.00506	.000	1
CalibStd=100	100.00	112.20	12.2	12.2	.00971	.000	1
CalibStd=10	10.000	9.7497	-.250	-2.50	.00114	.000	1
CalibStd=100	10000.	9900.8	-99.2	-.992	.82797	.008	1

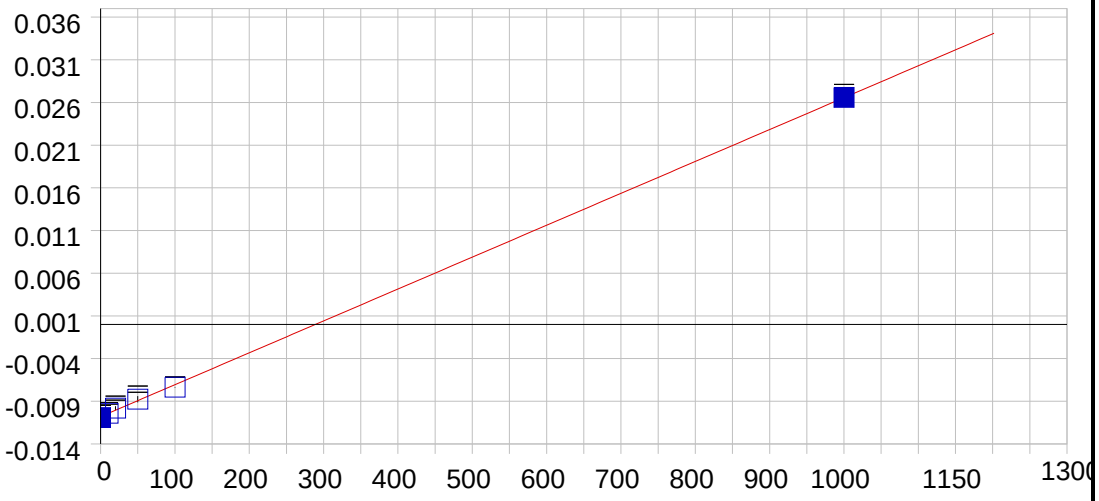


Cu 324.754 {104}

Date of Fit:	08/24/2011 14:10:35	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002359	Re-Slope:	1.000000
A1 (Gain):	0.000079	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999989	Status:	OK.
Std Error of Est:	0.000033		
Predicted MDL:	3.632695		
Predicted MQL:	12.108983		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00978	-.010	.000	.00236	.000	1
CalibStd=100	1000.0	1035.8	35.8	3.58	.08459	.000	1
CalibStd=50	50.000	54.905	4.90	9.81	.00672	.000	1
CalibStd=100	100.00	105.86	5.86	5.86	.01077	.000	1
CalibStd=100	10000.	10040.	40.1	.401	.79946	.010	1
CalibStd-100	100000.	99913.	-86.7	-.087	7.9369	.028	1

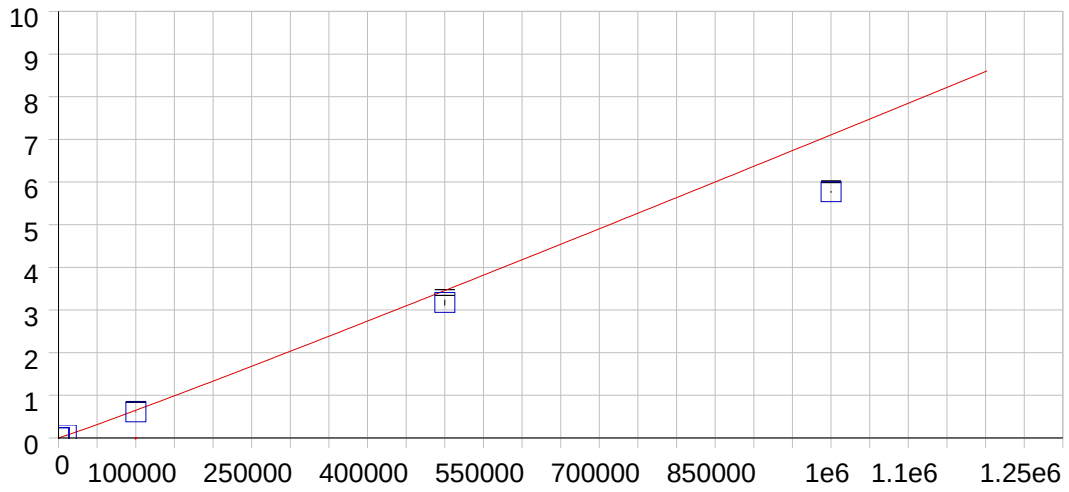


Cu 327.396 {103}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.010795	Re-Slope:	1.000000
A1 (Gain):	0.000037	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999915	Status:	OK.
Std Error of Est:	0.000216		
Predicted MDL:	8.051495		
Predicted MQL:	26.838317		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.3927	-3.39	.000	-.01092	.000	1
CalibStd=20	20.000	26.244	6.24	31.2	-.00982	.000	1
CalibStd=50	50.000	54.431	4.43	8.86	-.00876	.000	1
CalibStd=100	100.00	92.054	-7.95	-7.95	-.00736	.000	1
CalibStd=10	10.000	10.219	.219	2.19	-.01041	.000	1
CalibStd=100	1000.0	1000.4	.446	.045	.02658	.000	1

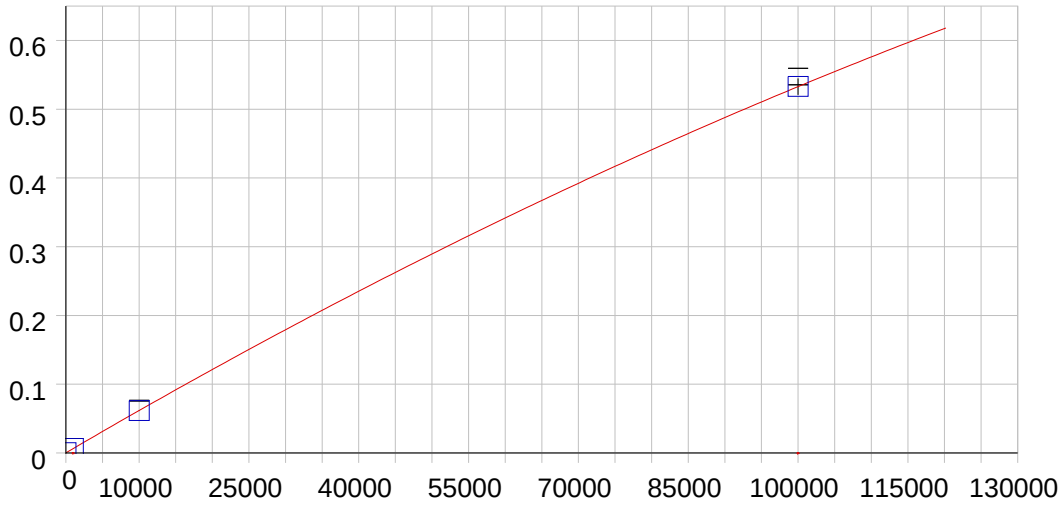


Fe 234.349 {144}

Date of Fit:	08/24/2011 14:31:41	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000173	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.040000		
Correlation:	0.999835	Status:	OK.
Std Error of Est:	0.000239		
Predicted MDL:	13.255102		
Predicted MQL:	44.183673		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00017	.000	1
CalibStd=100	10000.	11364.	1360.	13.6	.06768	.001	1
CalibStd=500	500000.	460510.	-39500.	-7.90	3.1725	.068	1
CalibStd=100	100000.	94244.	-5760.	-5.76	.60947	.011	1
CalibStd-100	1000000.	818570.	-181000.	-18.1	5.7702	.018	1
CalibStd=100	1000.0	1264.2	264.	26.4	.00705	.000	1

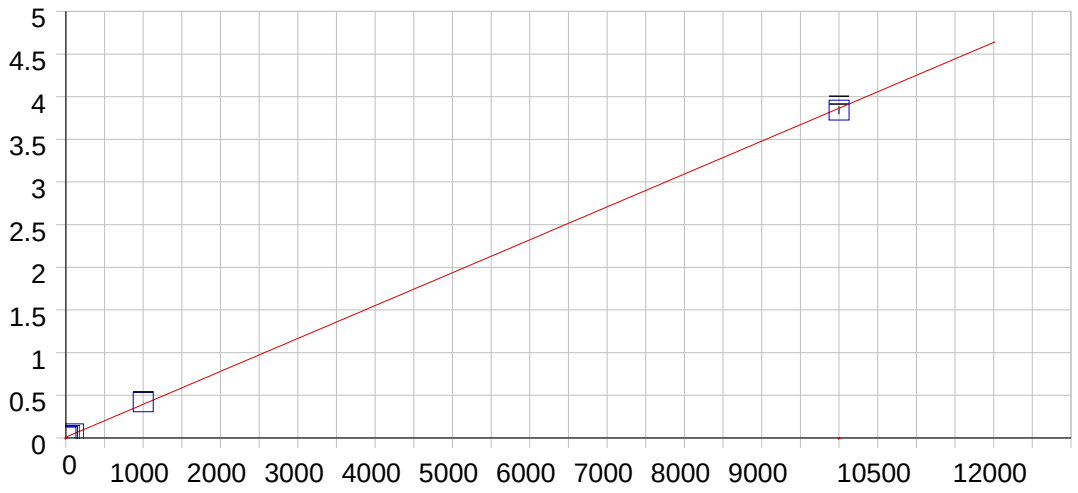


Fe 239.562 {141}

Date of Fit:	08/24/2011 14:17:24	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000195	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	10.810017		
Predicted MQL:	36.033391		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02647	-.026	.000	.00020	.000	1
CalibStd=100	1000.0	1029.8	29.8	2.98	.00661	.000	1
CalibStd=100	10000.	9966.3	-33.7	-.337	.06150	.000	1
CalibStd=100	100000.	100000.	4.20	.004	.53286	.012	1

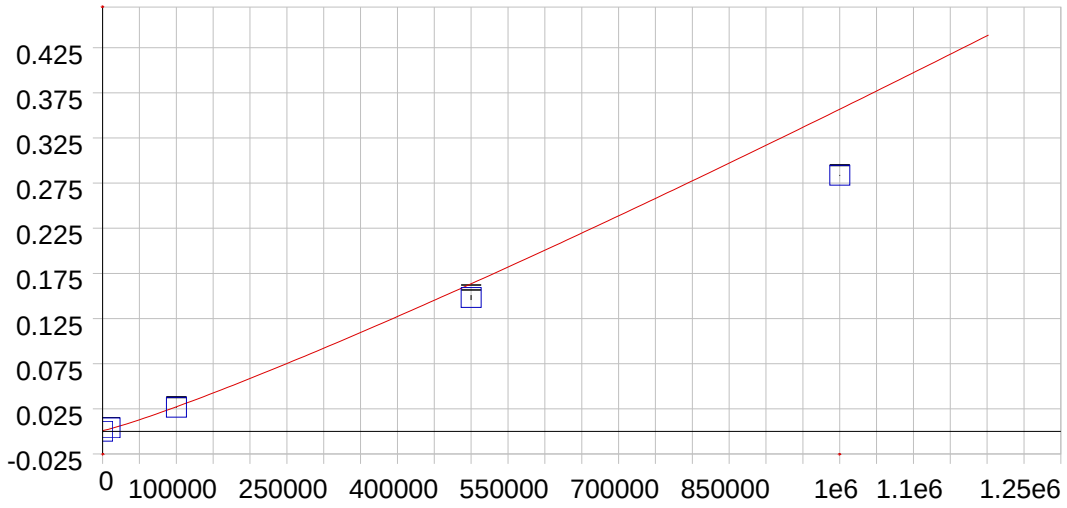


Fe 259.940 {130}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.009252	Re-Slope:	1.000000
A1 (Gain):	0.000386	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999688	Status:	OK.
Std Error of Est:	0.000176		
Predicted MDL:	0.344345		
Predicted MQL:	1.147817		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00573	.006	.000	.00925	.001	1
CalibStd=100	1000.0	1069.4	69.4	6.94	.42158	.003	1
CalibStd=50	50.000	46.683	-3.32	-6.63	.02725	.000	1
CalibStd=100	100.00	99.765	-.235	-.235	.04772	.000	1
CalibStd=20	20.000	14.379	-5.62	-28.1	.01480	.000	1
CalibStd=100	10000.	9939.8	-60.2	-.602	3.8419	.047	1

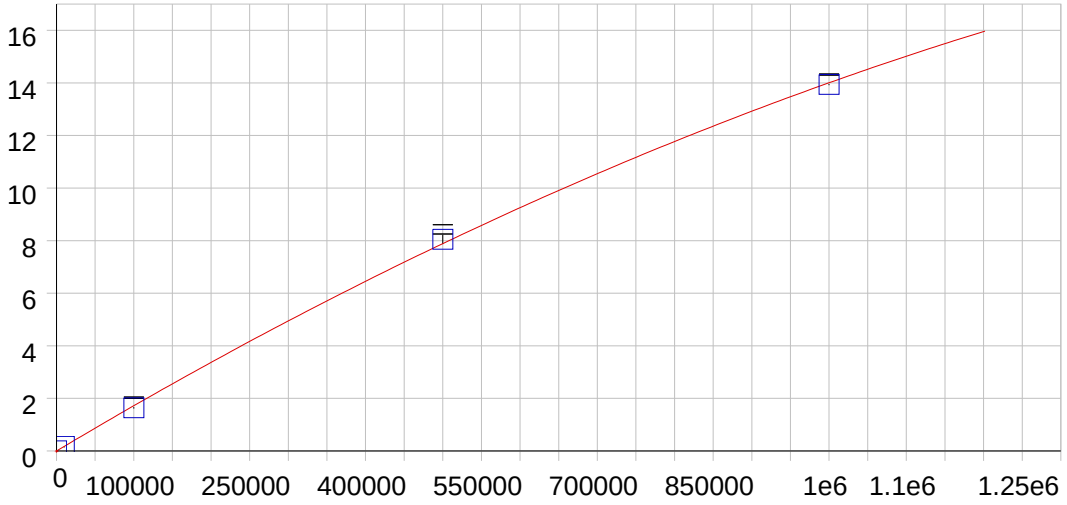


Mg 202.582 {466}

Date of Fit:	08/24/2011 14:31:41	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.000822	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.130000		
Correlation:	0.999986	Status:	OK.
Std Error of Est:	0.001303		
Predicted MDL:	334.260798		
Predicted MQL:	1114.202660		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00000	.000	1
CalibStd=100	100000.	97987.	-2010.	-2.01	.02661	.000	1
CalibStd=500	500000.	458290.	-41700.	-8.34	.14824	.003	1
CalibStd=100	10000.	14366.	4370.	43.7	.00377	.000	1
CalibStd-100	1000000.	815720.	-184000.	-18.4	.28363	.000	1

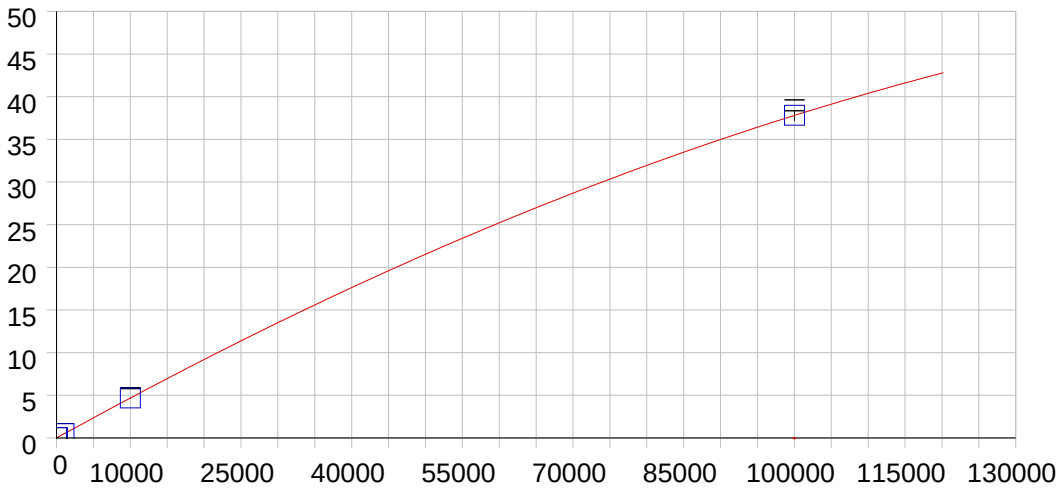


Mg 279.079 {121}

Date of Fit:	08/24/2011 14:31:41	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000458	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999828	Status:	OK.
Std Error of Est:	0.001740		
Predicted MDL:	4.828839		
Predicted MQL:	16.096130		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.62424	.624	.000	.00047	.000	1
CalibStd=100	100000.	95215.	-4780.	-4.78	1.6393	.027	1
CalibStd=500	500000.	511150.	11100.	2.23	8.0447	.176	1
CalibStd=100	10000.	9696.5	-304.	-3.04	.17029	.002	1
CalibStd-100	1000000.	993350.	-6650.	-.665	13.936	.023	1

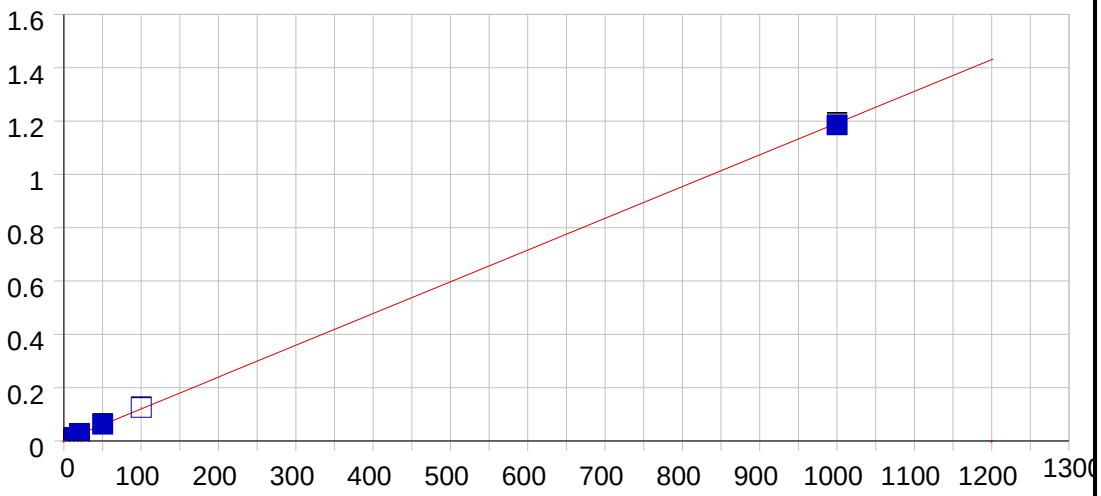


Mg 280.270 {120}

Date of Fit:	08/24/2011 14:17:24	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.010842	Re-Slope:	1.000000
A1 (Gain):	0.000435	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.010000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000410		
Predicted MDL:	0.186274		
Predicted MQL:	0.620914		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.01419	.014	.000	.01085	.001	1
CalibStd=100	1000.0	1045.0	45.0	4.50	.49693	.001	1
CalibStd=100	10000.	9970.6	-29.4	-.294	4.6609	.059	1
CalibStd=100	100.00	92.608	-7.39	-7.39	.05298	.000	1
CalibStd=50	50.000	38.591	-11.4	-22.8	.02825	.000	1
CalibStd=100	100000.	100000.	4.09	.004	37.802	.637	1

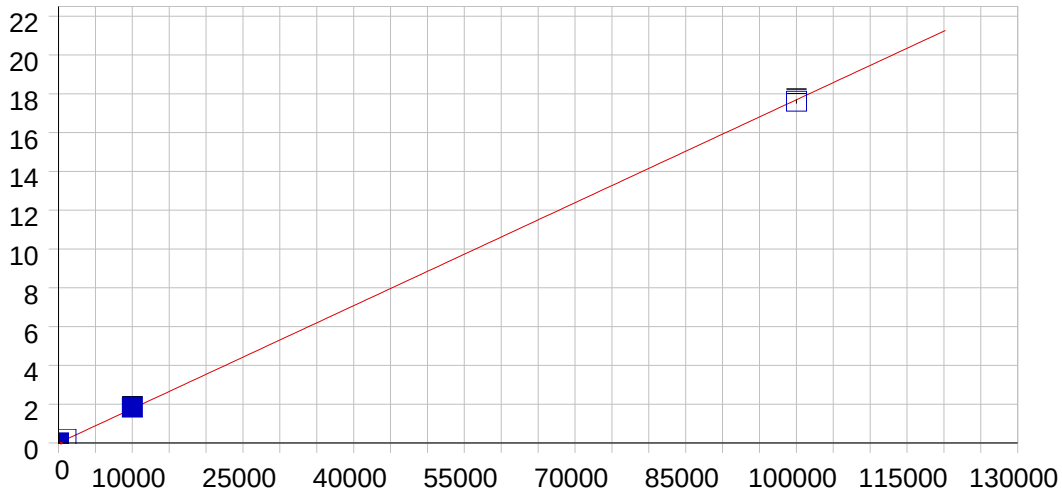


Mn 257.610 {131}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001420	Re-Slope:	1.000000
A1 (Gain):	0.001191	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999755	Status:	OK.
Std Error of Est:	0.000076		
Predicted MDL:	0.062417		
Predicted MQL:	0.208056		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00051	.001	.000	.00142	.000	1
CalibStd=10	10.000	9.4157	-.584	-5.84	.01263	.000	1
CalibStd=50	50.000	51.322	1.32	2.64	.06253	.000	1
CalibStd=20	20.000	21.549	1.55	7.75	.02708	.000	1
CalibStd=100	100.00	104.33	4.33	4.33	.12565	.001	1
CalibStd=5	5.0000	4.0726	-.927	-18.5	.00627	.000	1
CalibStd=100	1000.0	994.32	-5.68	-.568	1.1854	.007	1

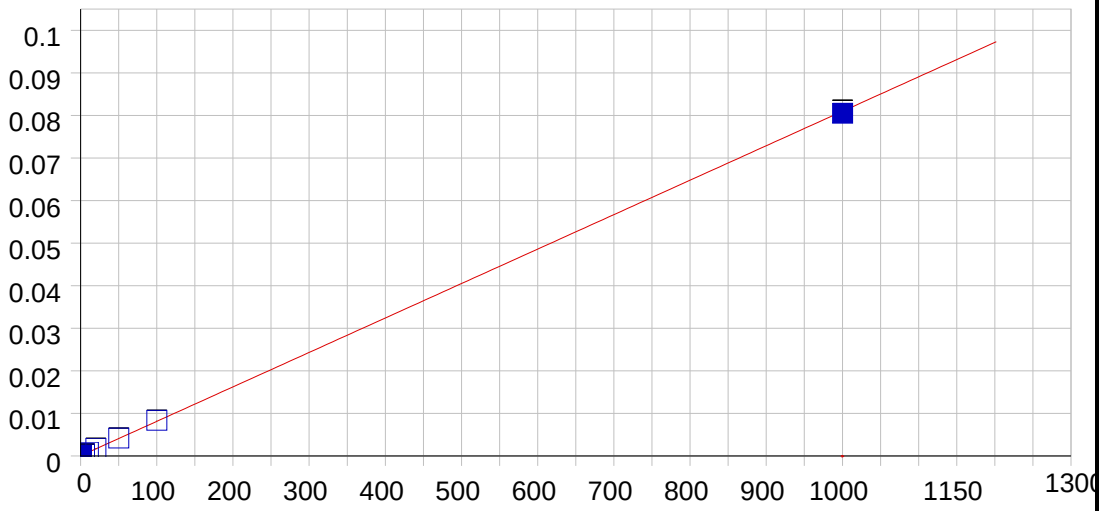


Mn 259.373 {130}

Date of Fit:	08/24/2011 14:10:35	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000323	Re-Slope:	1.000000
A1 (Gain):	0.000177	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999895	Status:	OK.
Std Error of Est:	0.001209		
Predicted MDL:	0.762683		
Predicted MQL:	2.542277		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.11325	-.113	.000	.00030	.000	1
CalibStd=100	10000.	10386.	386.	3.86	1.8401	.017	1
CalibStd-100	100000.	99534.	-466.	-.466	17.608	.117	1
CalibStd=100	1000.0	1079.3	79.3	7.93	.19126	.001	1

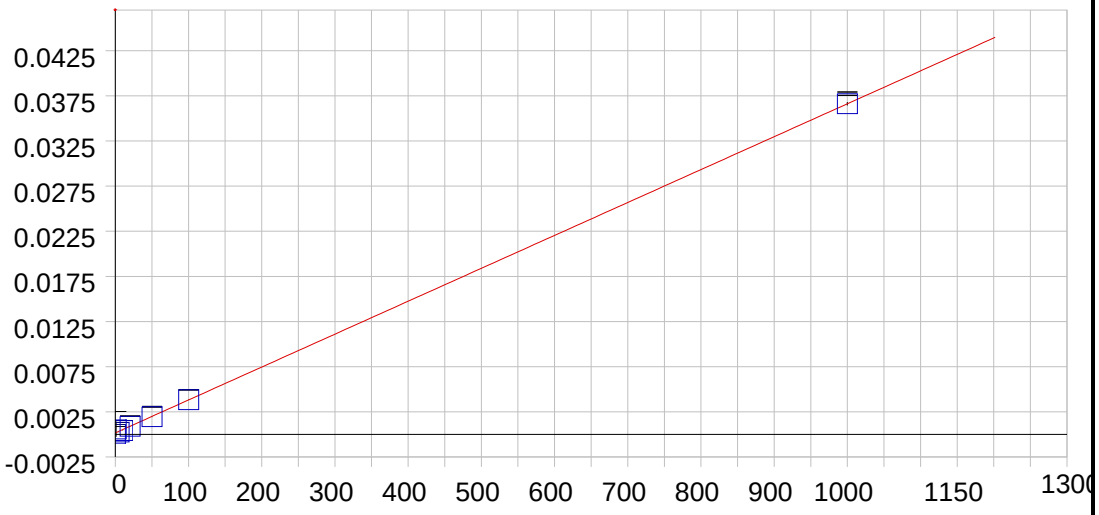


Mo 202.030 {467}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000040	Re-Slope:	1.000000
A1 (Gain):	0.000081	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999864	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.413861		
Predicted MQL:	1.379535		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00018	.000	.000	.00004	.000	1
CalibStd=50	50.000	51.212	1.21	2.42	.00419	.000	1
CalibStd=1	1.0000	1.0406	.041	4.06	.00012	.000	1
CalibStd=20	20.000	21.833	1.83	9.17	.00181	.000	1
CalibStd=10	10.000	10.339	.339	3.39	.00088	.000	1
CalibStd=100	100.00	102.67	2.67	2.67	.00835	.000	1
CalibStd=5	5.0000	4.8510	-.149	-2.98	.00043	.000	1
CalibStd=100	1000.0	994.05	-5.95	-.595	.08050	.001	1

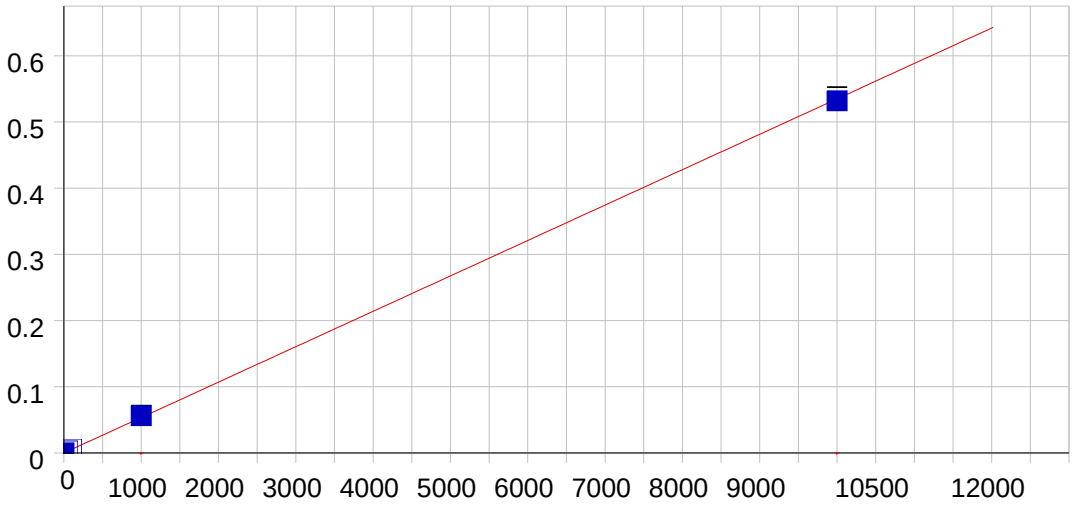


Mo 203.844 {465}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000167	Re-Slope:	1.000000
A1 (Gain):	0.000036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999916	Status:	OK.
Std Error of Est:	0.000176		
Predicted MDL:	0.922118		
Predicted MQL:	3.073725		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.6647	-3.66	.000	.00003	.000	1
CalibStd=50	50.000	48.996	-1.00	-2.01	.00195	.000	1
CalibStd=1	1.0000	11.353	10.4	1040.	.00058	.001	1
CalibStd=20	20.000	19.823	-.177	-.884	.00089	.000	1
CalibStd=10	10.000	6.7622	-3.24	-32.4	.00041	.000	1
CalibStd=100	100.00	100.56	.557	.557	.00383	.000	1
CalibStd=5	5.0000	2.1390	-2.86	-57.2	.00025	.000	1
CalibStd=100	1000.0	1000.0	.034	.003	.03662	.000	1

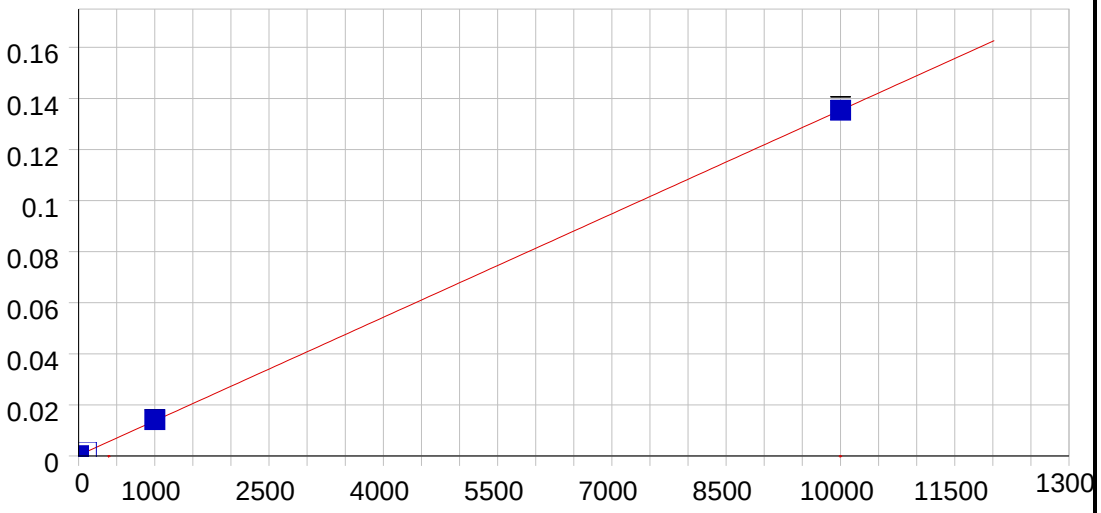


Mo 204.598 {465}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000027	Re-Slope:	1.000000
A1 (Gain):	0.000053	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999842	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	0.704168		
Predicted MQL:	2.347226		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00996	-.010	.000	.00003	.000	1
CalibStd=100	1000.0	1047.0	47.0	4.70	.05603	.000	1
CalibStd=100	10000.	9941.0	-59.0	-.590	.53175	.006	1
CalibStd=50	50.000	53.749	3.75	7.50	.00290	.000	1
CalibStd=100	100.00	108.31	8.31	8.31	.00582	.000	1

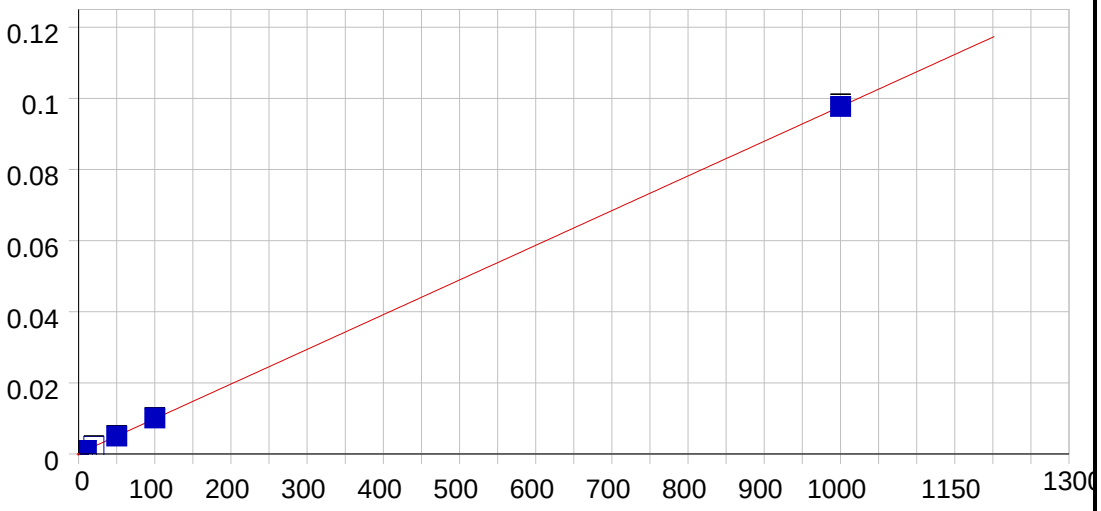


Ni 221.647 {452}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000257	Re-Slope:	1.000000
A1 (Gain):	0.000014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000328		
Predicted MDL:	2.728442		
Predicted MQL:	9.094808		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-16.204	-16.2	.000	.00004	.000	1
CalibStd=100	10000.	9997.2	-2.77	-.028	.13533	.001	1
CalibStd=100	100.00	90.353	-9.65	-9.65	.00148	.000	1
CalibStd=100	1000.0	1028.6	28.6	2.86	.01415	.000	1

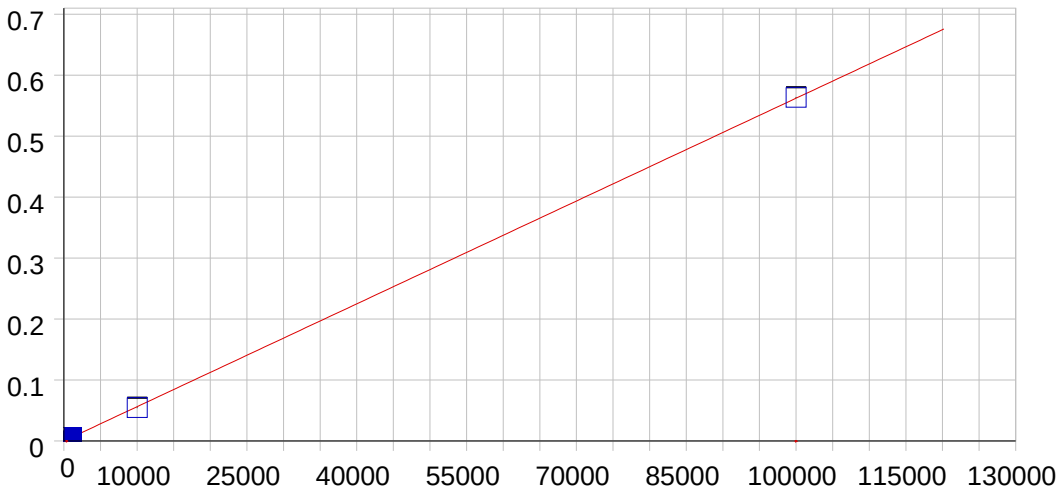


Ni 231.604 {445}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000149	Re-Slope:	1.000000
A1 (Gain):	0.000098	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999993	Status:	OK.
Std Error of Est:	0.000143		
Predicted MDL:	0.506105		
Predicted MQL:	1.687017		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.61288	.613	.000	.00021	.000	1
CalibStd=50	50.000	49.802	-.198	-.397	.00501	.000	1
CalibStd=20	20.000	20.983	.983	4.92	.00220	.000	1
CalibStd=10	10.000	8.5776	-1.42	-14.2	.00099	.000	1
CalibStd=100	100.00	102.02	2.02	2.02	.01010	.000	1
CalibStd=5	5.0000	3.1910	-1.81	-36.2	.00046	.000	1
CalibStd=100	1000.0	999.81	-.189	-.019	.09767	.001	1

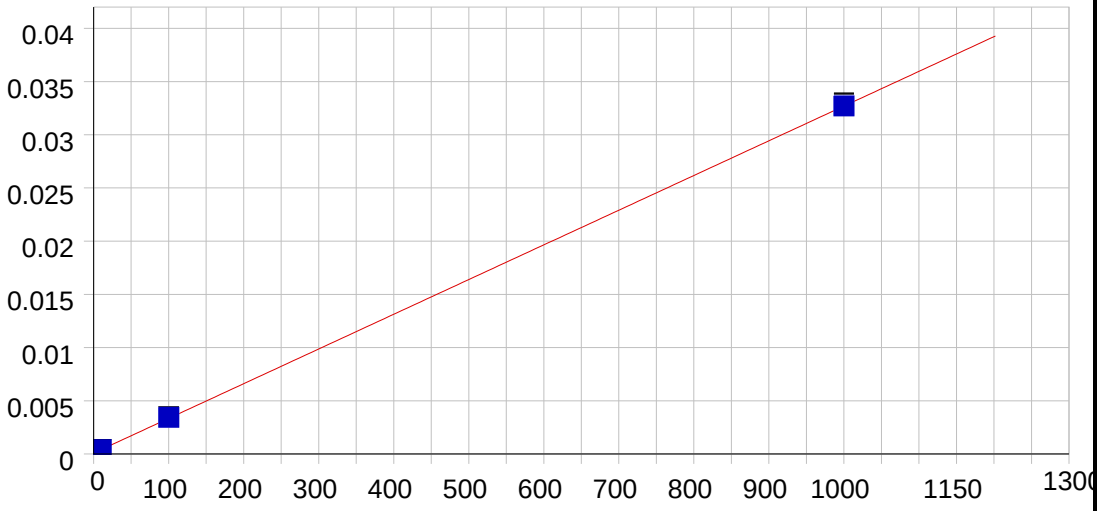


Pb 216.999 {455}

Date of Fit:	08/24/2011 14:10:35	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000028	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	7.359564		
Predicted MQL:	24.531879		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03302	-.033	.000	.00003	.000	1
CalibStd=100	1000.0	1061.1	61.1	6.11	.00600	.000	1
CalibStd=100	10000.	9694.2	-306.	-3.06	.05453	.001	1
CalibStd-100	100000.	100240.	245.	.245	.56362	.001	1

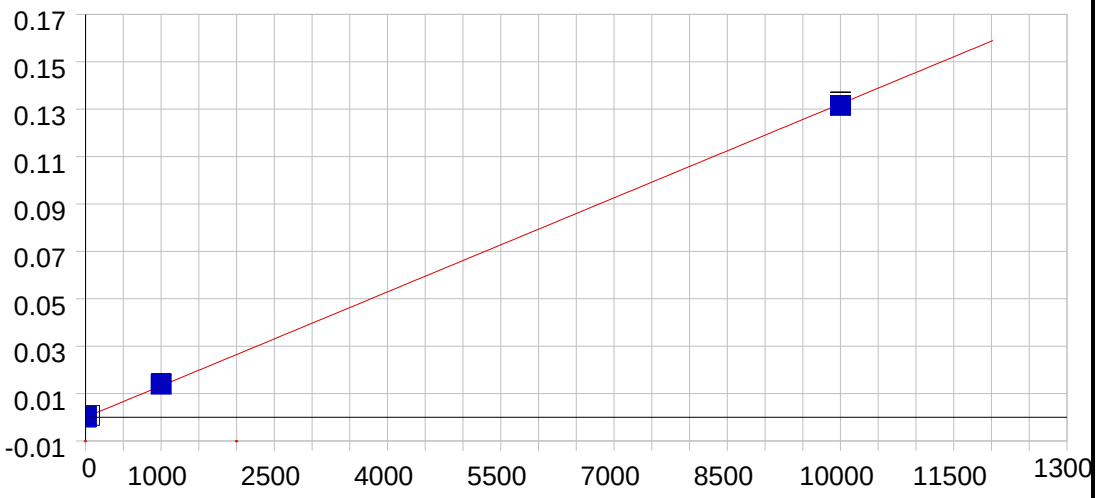


Pb 220.353 {453}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000081	Re-Slope:	1.000000
A1 (Gain):	0.000033	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000059		
Predicted MDL:	1.487200		
Predicted MQL:	4.957333		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.71075	-.711	.000	.00006	.000	1
CalibStd=10	10.000	9.4246	-.575	-5.75	.00039	.000	1
CalibStd=100	100.00	102.74	2.74	2.74	.00344	.000	1
CalibStd=5	5.0000	3.8076	-1.19	-23.8	.00020	.000	1
CalibStd=100	1000.0	999.74	-.262	-.026	.03277	.000	1

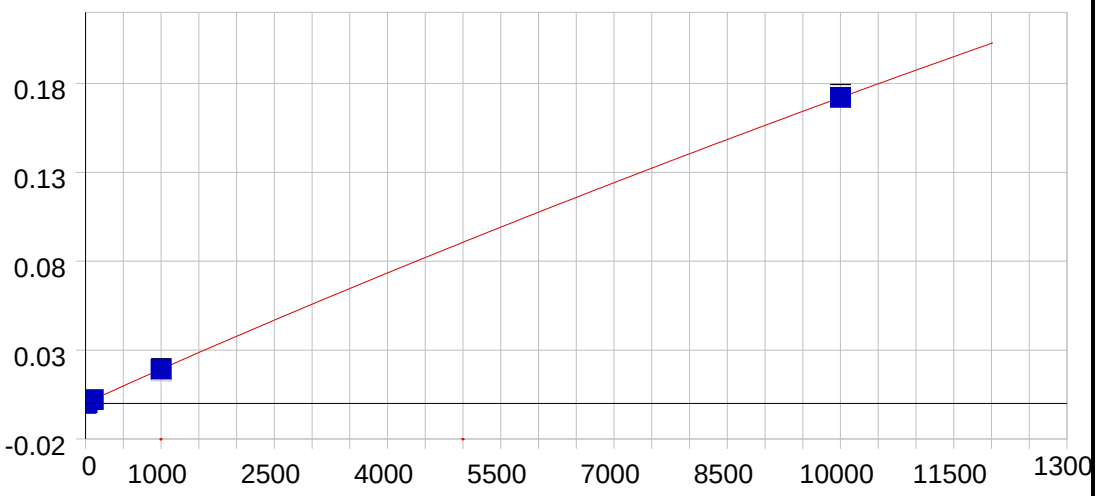


Sb 206.833 {463}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999838	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	2.808705		
Predicted MQL:	9.362351		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00151	-.002	.000	.00000	.000	1
CalibStd=100	1000.0	1049.3	49.3	4.93	.01388	.000	1
CalibStd=10	10.000	9.7698	-.230	-2.30	.00013	.000	1
CalibStd=50	50.000	56.500	6.50	13.0	.00075	.000	1
CalibStd=100	10000.	9944.4	-55.6	-.556	.13154	.001	1

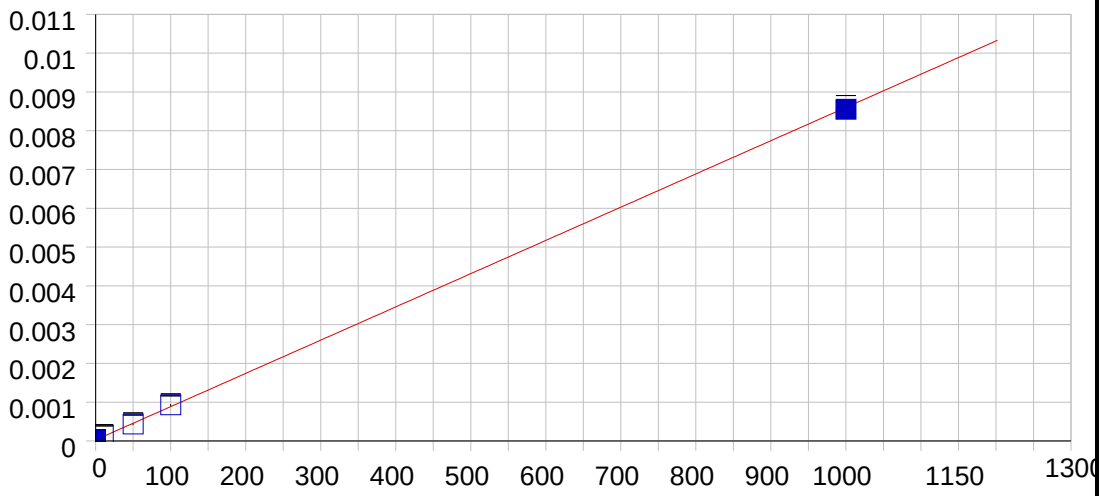


Sb 217.581 {455}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	-0.000029	Re-Slope:	1.000000
A1 (Gain):	0.000022	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.980000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000035		
Predicted MDL:	2.597630		
Predicted MQL:	8.658767		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	1.0594	1.06	.000	-.00001	.000	1
CalibStd=100	1000.0	999.97	-.027	-.003	.01816	.000	1
CalibStd=20	20.000	20.594	.594	2.97	.00038	.000	1
CalibStd=10	10.000	8.0125	-1.99	-19.9	.00013	.000	1
CalibStd=100	100.00	100.31	.314	.314	.00190	.000	1
CalibStd=100	10000.	10000.	.000	.000	.17208	.002	1

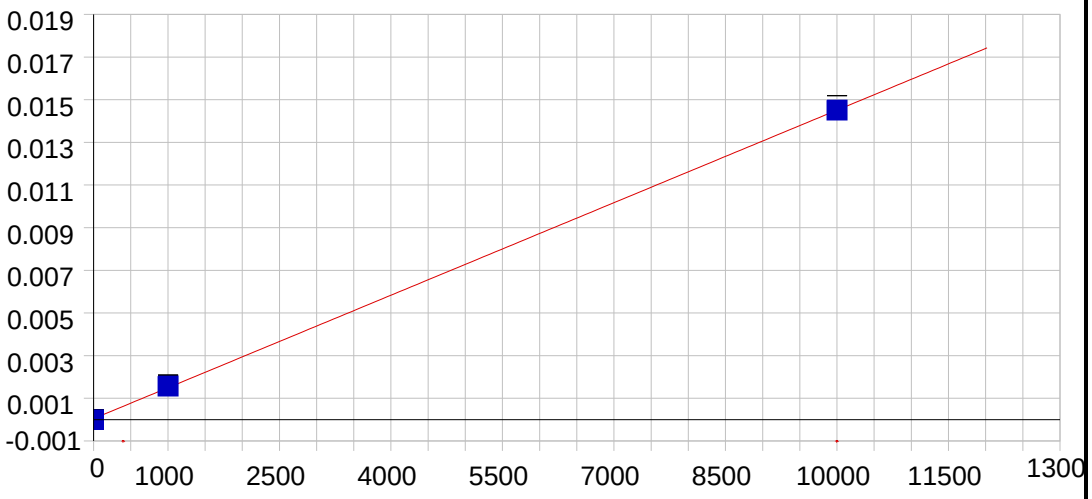


Se 196.090 {472}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000028	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999274	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	3.933312		
Predicted MQL:	13.111041		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00347	-.003	.000	.00003	.000	1
CalibStd=50	50.000	47.371	-2.63	-5.26	.00043	.000	1
CalibStd=100	1000.0	994.17	-5.83	-.583	.00855	.000	1
CalibStd=10	10.000	13.566	3.57	35.7	.00014	.000	1
CalibStd=100	100.00	104.89	4.89	4.89	.00093	.000	1

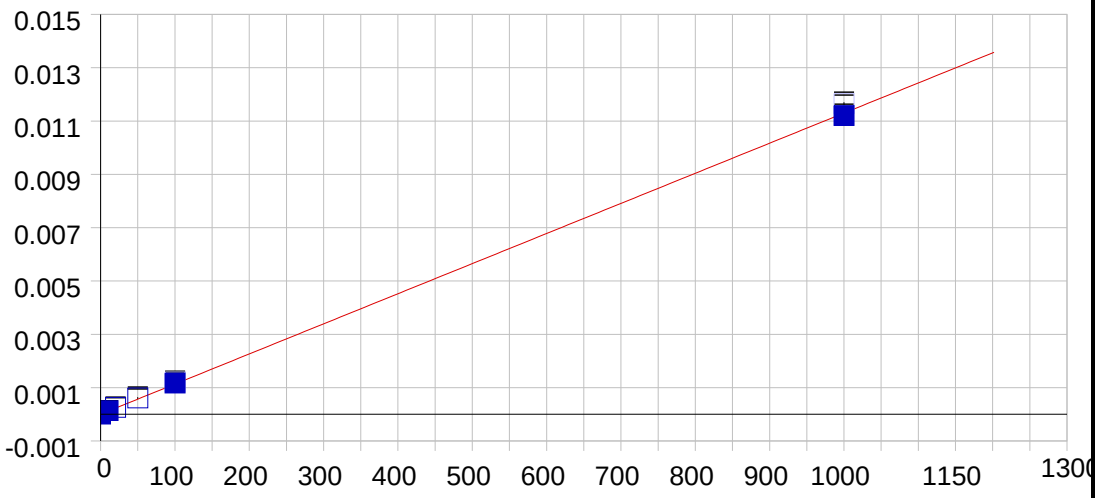


Se 206.279 {463}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000048	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999965	Status:	OK.
Std Error of Est:	0.000095		
Predicted MDL:	26.573164		
Predicted MQL:	88.577215		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-43.636	-43.6	.000	-.00001	.000	1
CalibStd=100	1000.0	1048.5	48.5	4.85	.00157	.000	1
CalibStd=100	10000.	9995.2	-4.85	-.048	.01451	.000	1

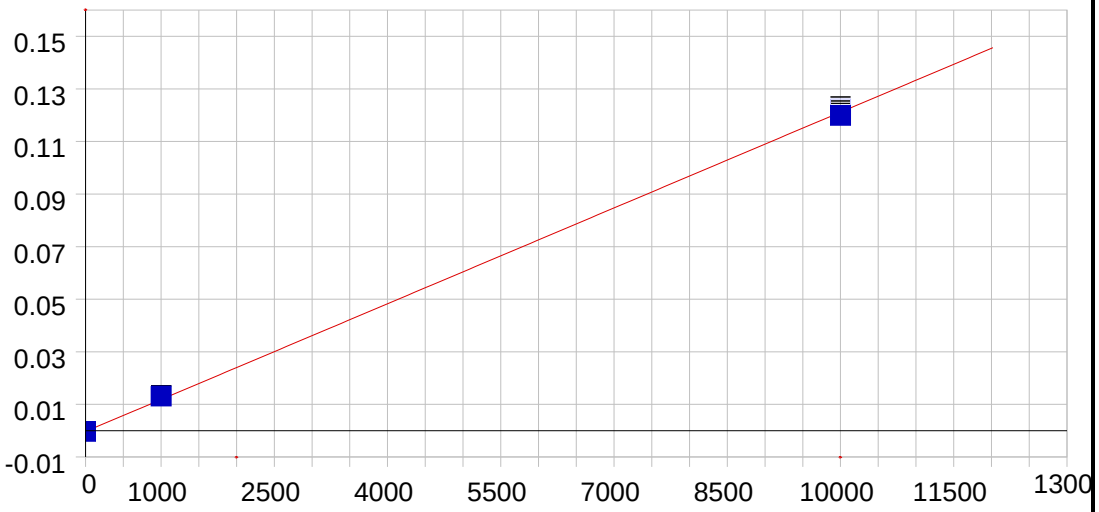


Tl 190.856 {477}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000011	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999734	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	2.361706		
Predicted MQL:	7.872355		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00268	-.003	.000	.00000	.000	1
CalibStd=50	50.000	53.276	3.28	6.55	.00061	.000	1
CalibStd=100	1000.0	991.21	-8.79	-.879	.01165	.000	1
CalibStd=20	20.000	22.268	2.27	11.3	.00026	.000	1
CalibStd=100	100.00	102.75	2.75	2.75	.00121	.000	1
CalibStd=10	10.000	10.701	.701	7.01	.00013	.000	1

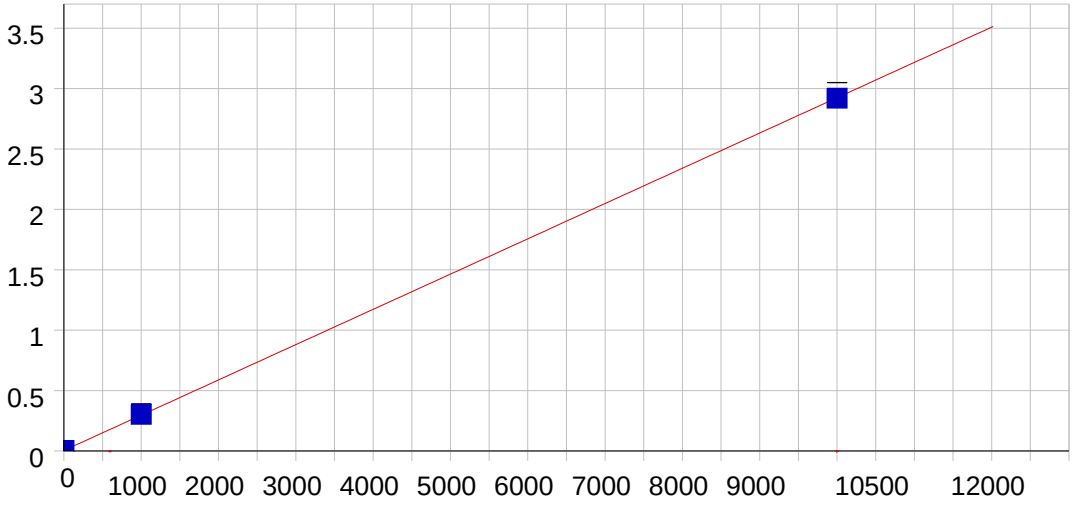


Tl 276.787 {122}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000302	Re-Slope:	1.000000
A1 (Gain):	0.000012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999467	Status:	OK.
Std Error of Est:	0.000073		
Predicted MDL:	12.551833		
Predicted MQL:	41.839444		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.09499	-.095	.000	-.00030	.000	1
CalibStd=100	1000.0	1105.3	105.	10.5	.01312	.000	1
CalibStd=100	10000.	9896.7	-103.	-1.03	.12233	.001	1

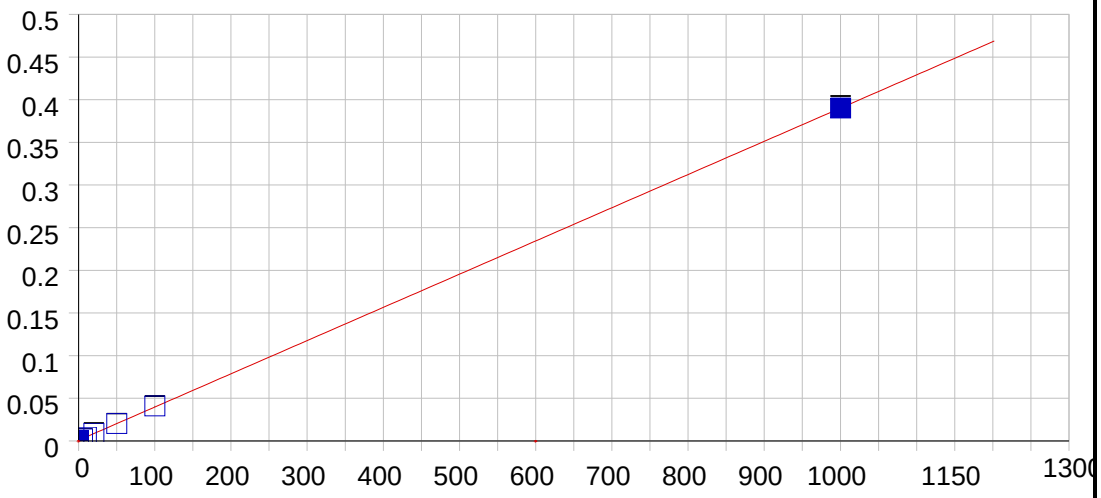


V 290.882 {116}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004110	Re-Slope:	1.000000
A1 (Gain):	0.000292	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999983	Status:	OK.
Std Error of Est:	0.000308		
Predicted MDL:	0.613060		
Predicted MQL:	2.043533		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01653	-.017	.000	.00411	.000	1
CalibStd=100	1000.0	1018.4	18.4	1.84	.30158	.002	1
CalibStd=100	10000.	9981.6	-18.4	-.184	2.9198	.047	1

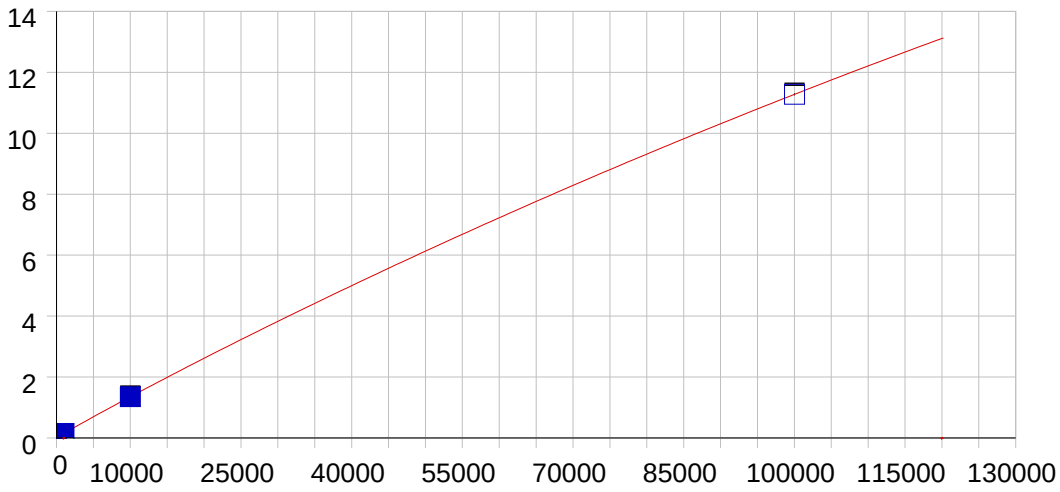


V 292.402 {115}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000839	Re-Slope:	1.000000
A1 (Gain):	0.000389	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000628		
Predicted MDL:	0.443041		
Predicted MQL:	1.476803		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.2518	-1.25	.000	.00035	.000	1
CalibStd=50	50.000	50.003	.003	.006	.02031	.000	1
CalibStd=100	1000.0	999.72	-.275	-.028	.39007	.002	1
CalibStd=20	20.000	21.176	1.18	5.88	.00908	.000	1
CalibStd=5	5.0000	3.7510	-1.25	-25.0	.00230	.000	1
CalibStd=10	10.000	8.9089	-1.09	-10.9	.00431	.000	1
CalibStd=100	100.00	102.69	2.69	2.69	.04082	.000	1

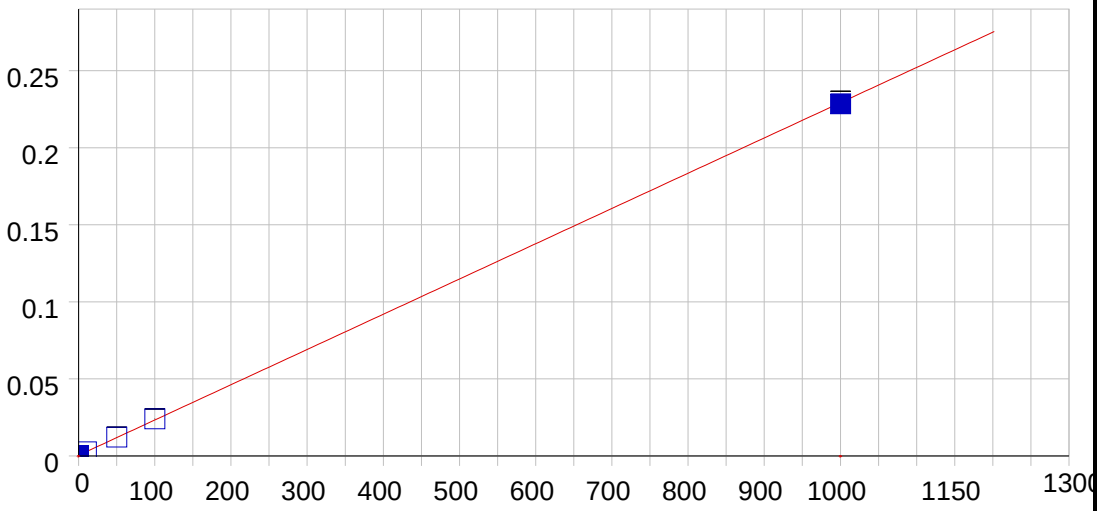


Zn 206.200 {463}

Date of Fit:	08/24/2011 14:10:35	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000271	Re-Slope:	1.000000
A1 (Gain):	0.000180	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.970000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.184619		
Predicted MQL:	0.615395		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalibStd=100	10000.	9992.0	-8.01	-.080	1.3504	.014	1
CalibStd-100	100000.	100000.	1.13	.001	11.277	.036	1
Blank	.00000	.00000	.000	.000	.00027	.000	1
CalibStd=100	1000.0	1006.2	6.16	.616	.14756	.001	1

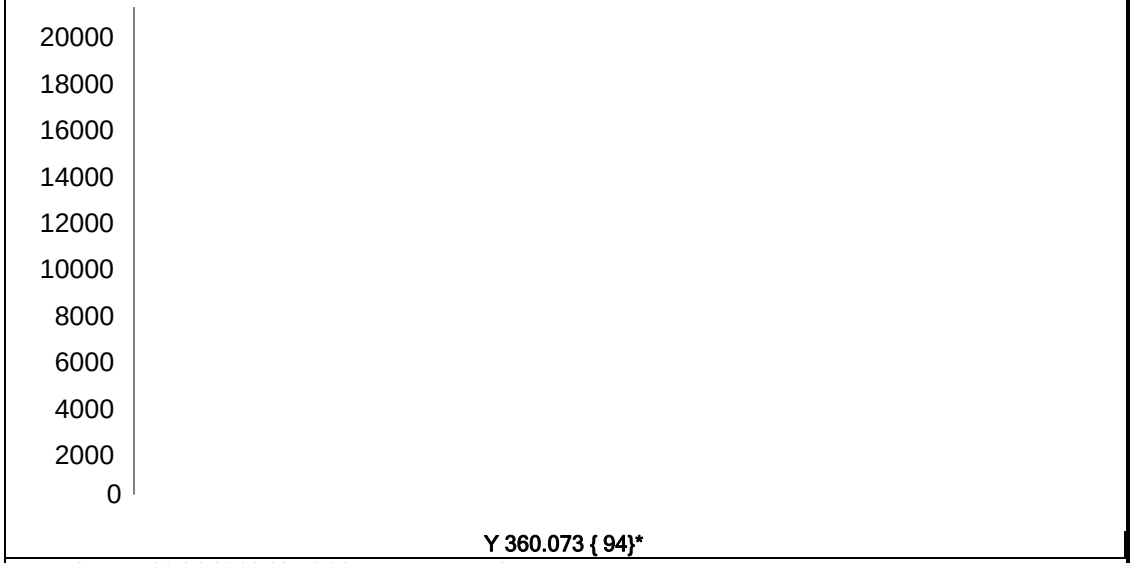


Zn 213.856 {458}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

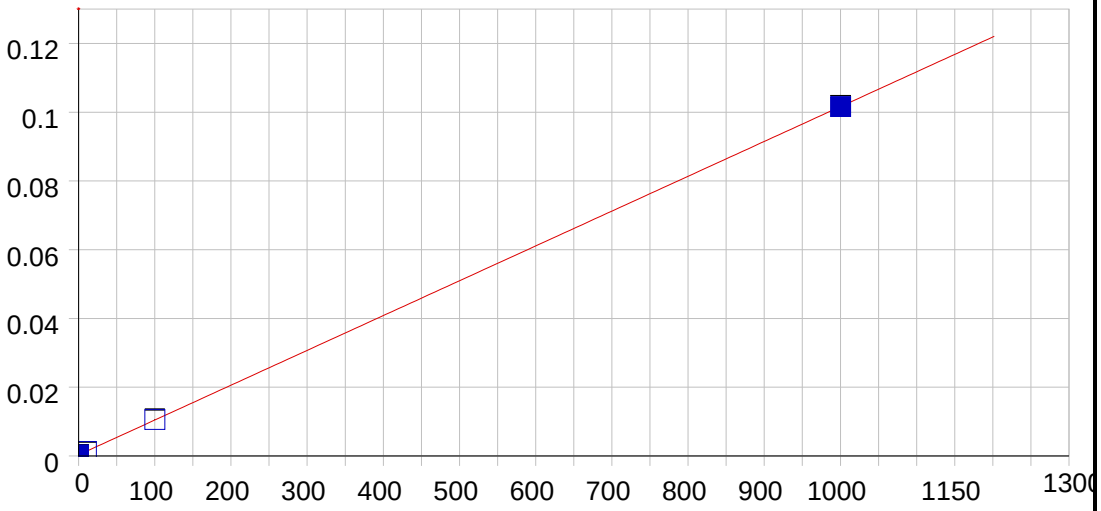
A0 (Offset):	0.000454	Re-Slope:	1.000000
A1 (Gain):	0.000229	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.159799		
Predicted MQL:	0.532664		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00003	.000	.000	.00045	.000	1
CalibStd=100	100.00	102.95	2.95	2.95	.02401	.000	1
CalibStd=50	50.000	51.235	1.23	2.47	.01218	.000	1
CalibStd=10	10.000	9.4598	-.540	-5.40	.00262	.000	1
CalibStd=100	1000.0	996.36	-3.64	-.364	.22843	.002	1



Date of Fit:	08/24/2011 12:58:09	Type of Fit:	Linear	Weighting:	None	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	19143.	32.6	1

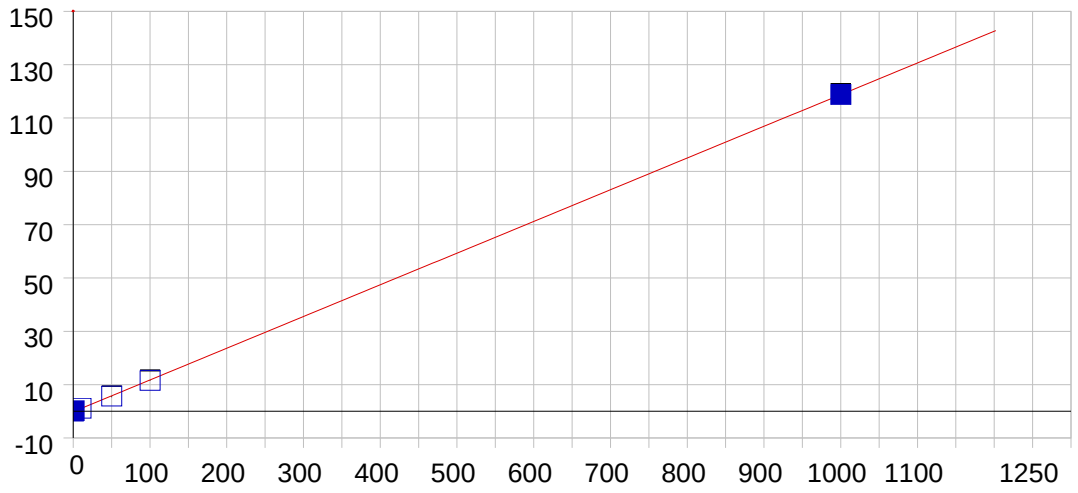


B 249.773 {135}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000320	Re-Slope:	1.000000
A1 (Gain):	0.000101	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999998	Status:	OK.
Std Error of Est:	0.000118		
Predicted MDL:	1.256869		
Predicted MQL:	4.189563		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.38232	-.382	.000	.00028	.000	1
CalibStd=10	10.000	9.1527	-.847	-8.47	.00125	.000	1
CalibStd=100	100.00	101.36	1.36	1.36	.01059	.000	1
CalibStd=100	1000.0	999.87	-.127	-.013	.10165	.000	1

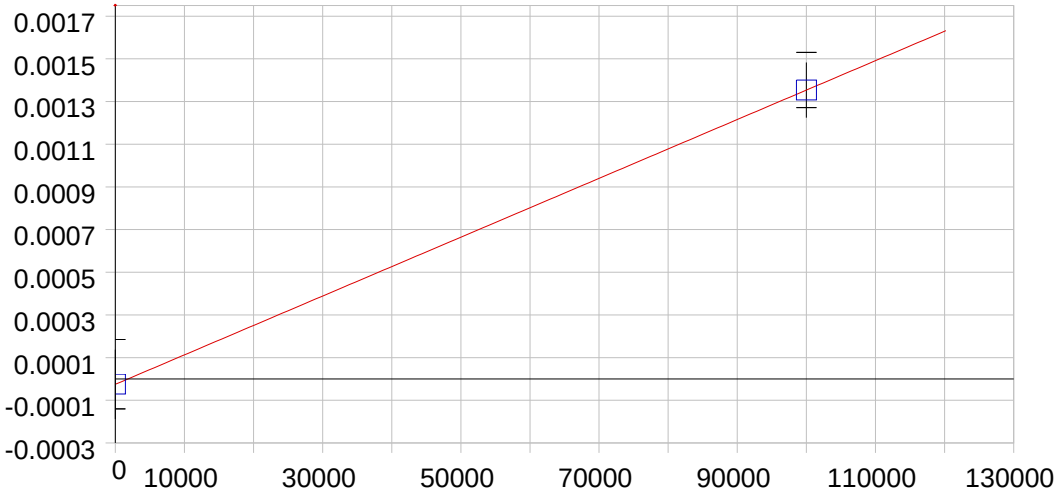


Li 670.784 { 50}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.126144	Re-Slope:	1.000000
A1 (Gain):	0.118909	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.164272		
Predicted MDL:	0.008668		
Predicted MQL:	0.028892		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	1.2847	1.28	.000	.02661	.004	1
CalibStd=10	10.000	10.415	.415	4.15	1.1122	.001	1
CalibStd=50	50.000	48.681	-1.32	-2.64	5.6625	.026	1
CalibStd=100	100.00	98.310	-1.69	-1.69	11.564	.129	1
CalibStd=100	1000.0	1000.2	.230	.023	118.81	.292	1
CalibStd=1	1.0000	2.0794	1.08	108.	.12112	.002	1

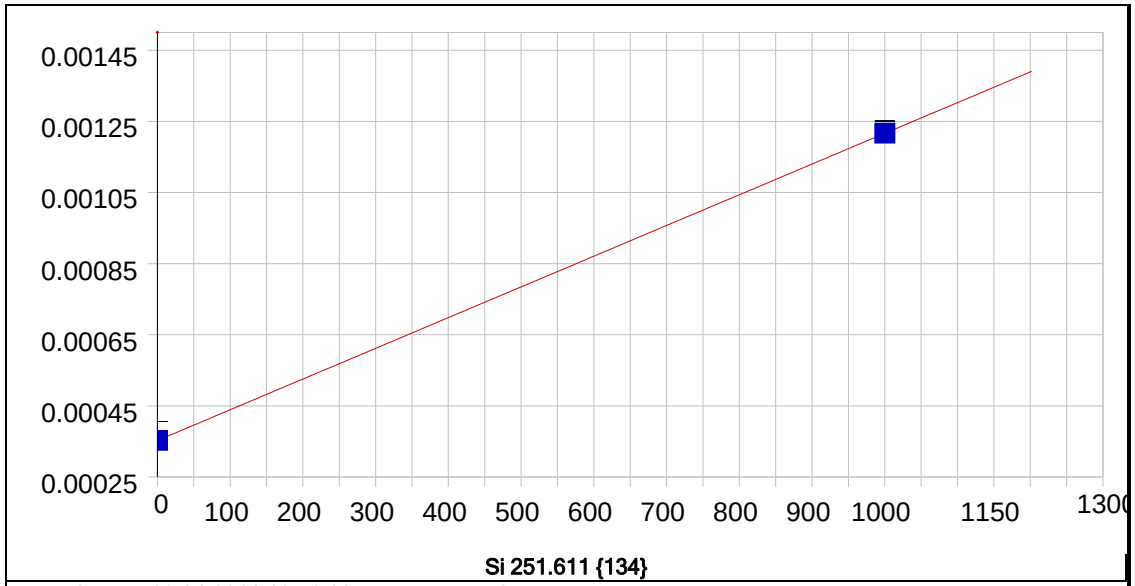


Na 330.298 {102}

Date of Fit:	08/24/2011 14:17:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000025	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	19804.50508		
Predicted MQL:	66015.01696		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00003	.000	1
CalibStd=100	100000.	100000.	.000	.000	.00135	.000	1

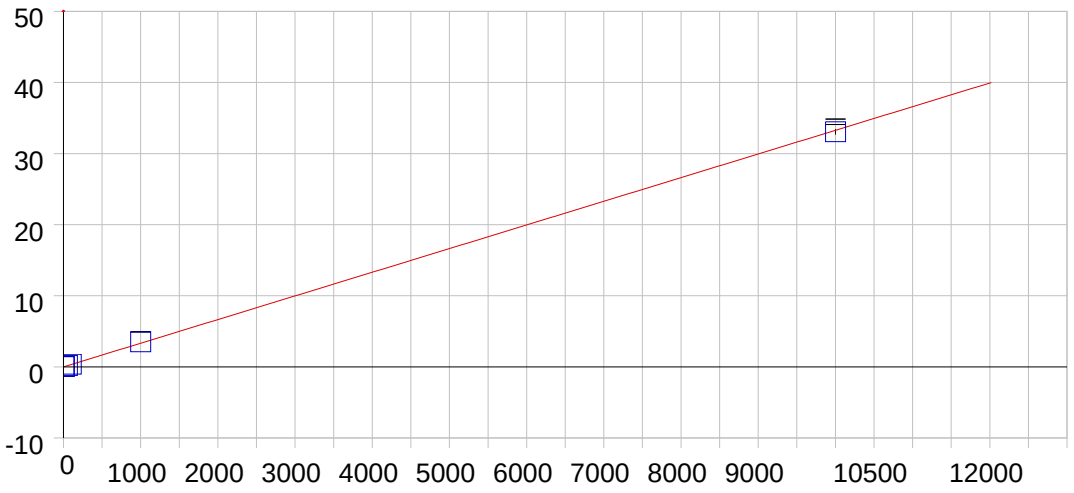


Si 251.611 {134}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000353	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	155.745169		
Predicted MQL:	519.150565		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00035	.000	1
CalibStd=100	1000.0	1000.0	.000	.000	.00122	.000	1

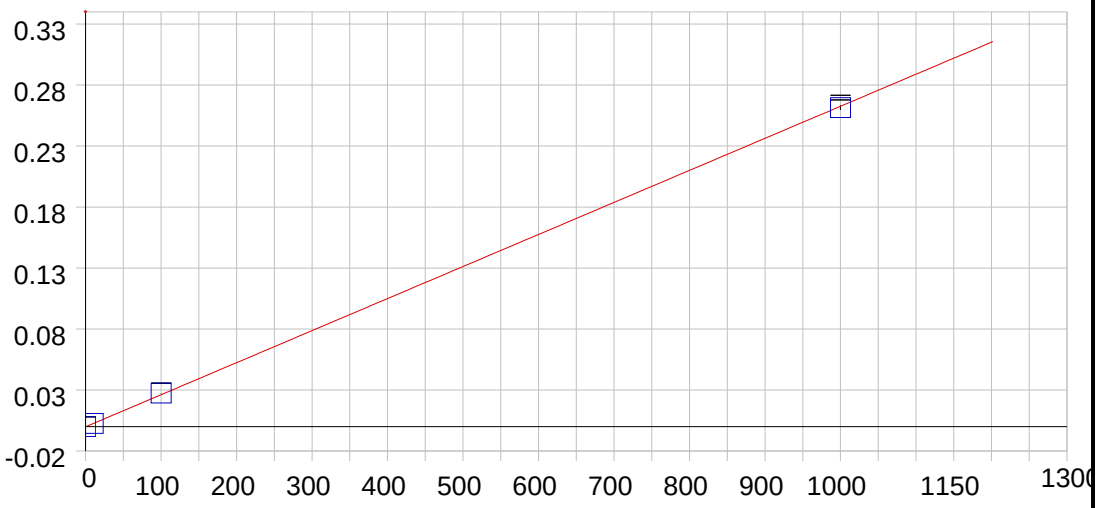


Sr 407.771 { 83}

Date of Fit:	08/24/2011 14:03:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002563	Re-Slope:	1.000000
A1 (Gain):	0.003327	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999796	Status:	OK.
Std Error of Est:	0.000259		
Predicted MDL:	0.113460		
Predicted MQL:	0.378200		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00014	.000	.000	-.00256	.000	1
CalibStd=1	1.0000	.63793	-.362	-36.2	-.00044	.000	1
CalibStd=5	5.0000	4.9435	-.056	-1.13	.01389	.000	1
CalibStd=10	10.000	10.402	.402	4.02	.03205	.000	1
CalibStd=50	50.000	53.202	3.20	6.40	.17447	.001	1
CalibStd=100	100.00	107.44	7.44	7.44	.35496	.001	1
CalibStd=100	1000.0	1056.6	56.6	5.66	3.5133	.002	1
CalibStd=100	10000.	9932.7	-67.3	-.673	33.049	.383	1



Ti 334.941 {101}

Date of Fit:	08/24/2011 13:56:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000190	Re-Slope:	1.000000
A1 (Gain):	0.000263	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999896	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	0.954579		
Predicted MQL:	3.181930		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00031	.000	.000	-.00019	.000	1
CalibStd=10	10.000	9.9002	-.100	-.998	.00241	.000	1
CalibStd=100	100.00	104.58	4.58	4.58	.02730	.000	1
CalibStd=100	1000.0	995.52	-4.48	-.448	.26145	.002	1

Sample Name: Blank Acquired: 08/24/2011 12:51:37 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3092	Al3961	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.009**	**.010**	**.000**	**.001**	**.012**	**.172**
Stddev	.00	.000	.00	.000	.000	.00	.002	.001	.000	.000	.000	.005
%RSD	2570.	7.93	73.0	57.2	21.2	58.8	20.0	7.95	4.08	15.4	.310	2.97

Elem	Ca3968	Cd2265	Cd2288	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.079**	**.000**	**.000**	**.000**	**.000**	**.000**	**.005**	**.000**	**.002**	**.000**	**.000**	**.009**
Stddev	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001
%RSD	3.60	8.20	2.20	98.5	67.6	29.4	1.12	15.0	2.31	16.7	19.6	7.33

Elem	Mg2025	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.011**	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2390.	8.28	5.31	5.68	23.3	49.6	69.8	84.0	12.1	67.3	79.7	256.

Elem	Sb2175	Se1960	Se2062	Tl1908	Tl2767	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.004**	**.000**	**.000**	**.000**
Stddev	.00	.000	.00	.000	.00	.000	.000	.000	.000
%RSD	419.	35.3	183.	335.	9.58	1.45	23.6	6.92	14.7

Int. Std.	Y_3600
Units	Cts/S
Avg	**19143.**
Stddev	33.
%RSD	.17047

Sample Name: CalibStd=0.25 Acquired: 08/24/2011 12:58:12 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130
Units	Cts/S
Avg	**.001**
Stddev	.000
%RSD	5.29

Int. Std.	Y_3600
Units	Cts/S
Avg	**18619.**
Stddev	103.
%RSD	.55195

Sample Name: CalibStd=0.5 Acquired: 08/24/2011 13:04:47 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265
Units	Cts/S	Cts/S
Avg	**.002**	**.000**
Stddev	.000	.000
%RSD	4.91	7.60

Int. Std.	Y_3600
Units	Cts/S
Avg	**19041.**
Stddev	212.
%RSD	1.1118

Sample Name: CalibStd=1 Acquired: 08/24/2011 13:11:22 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Cd2265	Mo2020
Units	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.001**	**.000**
Stddev	.000	.000	.000
%RSD	9.58	69.1	39.6

Int. Std.	Y_3600
Units	Cts/S
Avg	**18494.**
Stddev	236.
%RSD	1.2765

Sample Name: CalibStd=5 Acquired: 08/24/2011 13:17:38 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Ba4554	Be3130	Cd2265	Co2286	Mn2576	Mo2020	Ni2316	Pb2203	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**.104**	**.009**	**.002**	**.001**	**.006**	**.000**	**.000**	**.000**	**.002**
Stddev	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	18.3	.784	1.03	.617	1.41	5.37	.700	11.0	13.5	10.2	2.01

Int. Std.	Y_3600
Units	Cts/S
Avg	**18826.**
Stddev	134.
%RSD	.71140

Sample Name: CalibStd=10 Acquired: 08/24/2011 13:24:14 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Cd2265	Co2286	Cr2677	Cu2247	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.000**	**.000**	**.208**	**.019**	**.003**	**.001**	**.003**	**.001**	**.013**	**.001**	**.001**
Stddev	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	4.67	4.66	6.91	.518	.855	.922	1.73	3.50	6.38	.291	2.76	2.02

Elem	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.004**	**.003**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	14.9	25.9	26.4	12.6	12.5	1.53	1.29

Int. Std.	Y_3600
Units	Cts/S
Avg	**18700.**
Stddev	32.
%RSD	.17055

Sample Name: CalibStd=20 Acquired: 08/24/2011 13:30:49 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Ba4554	Cr2677	Fe2599	Mn2576	Mo2020	Ni2316	Sb2175	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.458**	**.007**	**.015**	**.027**	**.002**	**.002**	**.000**	**.000**	**.009**
Stddev	.000	.003	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.04	.742	1.94	.328	.409	.571	1.55	8.15	4.66	2.49

Int. Std.	Y_3600
Units	Cts/S
Avg	**18845.**
Stddev	101.
%RSD	.53772

Sample Name: CalibStd=50 Acquired: 08/24/2011 13:37:21 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	As1937	Ba4554	Ca3933	Cd2265	Co2286	Cr2677	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**1.07**	**.447**	**.017**	**.006**	**.015**	**.030**	**.005**	**.007**	**.027**	**.028**
Stddev	.000	.000	.01	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.846	5.53	.608	.324	.403	.693	.597	1.14	1.99	1.69	.695	.649

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.063**	**.004**	**.003**	**.005**	**.001**	**.000**	**.001**	**.020**	**.012**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.500	.611	1.10	1.17	.990	6.18	5.85	.821	.910

Int. Std.	Y_3600
Units	Cts/S
Avg	**18813.**
Stddev	105.
%RSD	.55650

Sample Name: CalibStd=100 Acquired: 08/24/2011 13:43:48 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	As1890	As1937	Ba4554	Be2348	Be3130	Ca3933	Ca3968	Cd2265	Cd2288	Co2286	Cr2677
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.031**	**.001**	**.001**	**2.12**	**.021**	**.188**	**.714**	**.326**	**.034**	**.021**	**.012**	**.031**
Stddev	.000	.000	.000	.03	.000	.001	.005	.001	.000	.000	.000	.000
%RSD	1.20	.347	4.48	1.40	.991	.507	.639	.187	.786	.871	.681	.832

Elem	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2203	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.055**	**.010**	**.011**	**.048**	**.053**	**.126**	**.008**	**.006**	**.001**	**.010**	**.003**	**.002**
Stddev	.001	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
%RSD	1.35	1.41	.734	.812	.539	.811	.491	.939	2.39	.561	1.88	2.67

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.001**	**.041**	**.024**
Stddev	.000	.000	.000	.000
%RSD	2.75	2.48	.617	.700

Int. Std.	Y_3600
Units	Cts/S
Avg	**18554.**
Stddev	146.
%RSD	.78541

Sample Name: CalibStd=1000 Acquired: 08/24/2011 13:50:11 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3092	Al3961	As1890	As1937	Ba4934	Be2348	Ca3179	Ca3933	Ca3968	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.028**	**.015**	**.034**	**.005**	**.009**	**1.52**	**.203**	**.068**	**6.07**	**2.73**	**.321**	**.204**
Stddev	.000	.000	.000	.000	.000	.00	.002	.000	.02	.01	.002	.002
%RSD	.827	.968	1.02	.119	.521	.273	.842	.679	.348	.233	.697	.803

Elem	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599	Mg2802	Mn2576	Mn2593
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.112**	**.157**	**.293**	**.479**	**.091**	**.085**	**.007**	**.007**	**.422**	**.497**	**1.19**	**.191**
Stddev	.001	.001	.002	.002	.001	.000	.000	.000	.003	.001	.01	.001
%RSD	.775	.593	.815	.495	.671	.444	.973	1.59	.658	.178	.625	.472

Elem	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	Tl2767
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.081**	**.056**	**.014**	**.098**	**.006**	**.033**	**.014**	**.018**	**.009**	**.002**	**.012**	**.013**
Stddev	.001	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.860	.747	.616	.673	.594	.585	.678	.925	1.16	2.76	.485	1.09

Elem	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.302**	**.390**	**.148**	**.228**
Stddev	.002	.002	.001	.002
%RSD	.827	.636	.694	.740

Int. Std.	Y_3600
Units	Cts/S
Avg	**18789.**
Stddev	103.
%RSD	.54985

Sample Name: CalibStd=10000 Acquired: 08/24/2011 13:56:33 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	As1890	Ba4934	Ca3179	Ca3968	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.150**	**.333**	**.049**	**14.5**	**.561**	**25.6**	**1.03**	**1.42**	**2.79**	**4.44**	**.828**	**.799**
Stddev	.001	.006	.000	.2	.006	.3	.01	.02	.04	.05	.008	.010
%RSD	.909	1.84	.883	1.05	1.13	1.07	.960	1.17	1.58	1.16	1.01	1.26

Elem	Fe2343	Fe2395	Fe2599	Mg2025	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.068**	**.062**	**3.84**	**.004**	**.170**	**4.66**	**1.84**	**.532**	**.135**	**.055**	**.132**	**.172**
Stddev	.001	.000	.05	.000	.002	.06	.02	.006	.001	.001	.001	.002
%RSD	1.59	.733	1.22	1.31	1.07	1.26	.906	1.05	1.04	1.10	.994	.974

Elem	Se2062	Tl2767	V_2908	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.015**	**.122**	**2.92**	**1.35**
Stddev	.000	.001	.05	.01
%RSD	1.47	.630	1.61	1.01

Int. Std.	Y_3600
Units	Cts/S
Avg	**18745.**
Stddev	181.
%RSD	.96399

Sample Name: CalibStd-100k Acquired: 08/24/2011 14:03:28 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Cr2835	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**39.9**	**7.94**	**17.6**	**.564**	**11.3**
Stddev	.2	.03	.1	.001	.0
%RSD	.423	.354	.665	.126	.317

Int. Std.	Y_3600
Units	Cts/S
Avg	**18548.**
Stddev	27.
%RSD	.14527

Sample Name: CalibStd=100000 Acquired: 08/24/2011 14:10:39 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	Ca3179	Fe2343	Fe2395	Mg2025	Mg2790	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.28**	**2.92**	**4.89**	**.609**	**.533**	**.027**	**1.64**	**37.8**
Stddev	.02	.05	.09	.011	.012	.000	.03	.6
%RSD	1.90	1.75	1.77	1.80	2.25	1.71	1.65	1.68

Int. Std.	Y_3600
Units	Cts/S
Avg	**18056.**
Stddev	308.
%RSD	1.7050

Sample Name: CalibStd=500000 Acquired: 08/24/2011 14:17:28 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**16.5**	**25.8**	**3.17**	**.148**	**8.04**
Stddev	.4	.6	.07	.003	.18
%RSD	2.40	2.36	2.13	1.86	2.19

Int. Std.	Y_3600
Units	Cts/S
Avg	**17174.**
Stddev	334.
%RSD	1.9459

Sample Name: CalibStd-1000k Acquired: 08/24/2011 14:24:34 Type: Cal
Method: DOD Calibration 1(v1588) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**31.4**	**46.6**	**5.77**	**.284**	**13.9**
Stddev	.3	.1	.02	.000	.0
%RSD	1.03	.277	.320	.173	.168

Int. Std.	Y_3600
Units	Cts/S
Avg	**16996.**
Stddev	25.
%RSD	.14748

Sample Name: icv Acquired: 08/24/2011 14:44:49 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be2348	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2395
Avg	**45.7**	**11400.**	**2020.**	**2030.**	**47.4**	**10300.**	**47.4**	**514.**	**204.**	**252.**	**4860.**
Stddev	.3	20.	19.	8.	.3	23.	.4	4.	.	2.	19.
%RSD	.600	.174	.938	.407	.551	.228	.850	.749	.167	.864	.394
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**10100.**	**476.**	**490.**	**466.**	**478.**	**519.**	**1900.**	**1960.**	**484.**	**485.**
Stddev	126.	3.	4.	3.	2.	4.	19.	13.	2.	4.
%RSD	1.24	.664	.770	.675	.394	.861	.983	.679	.424	.773
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_3600
Avg	**18971.**
Stddev	118.
%RSD	.62026

Sample Name: icb Acquired: 08/24/2011 14:51:29 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.111**	**3.76**	**3.24**	**-.183**	**.093**	**-10.1**	**-.117**	**.076**	**-1.55**	**-.668**	**-8.71**	**-13.0**
Stddev	.511	.20	2.72	.031	.089	.3	.075	.120	.28	.533	.41	.1
%RSD	460.	5.32	84.0	16.8	95.5	2.81	64.2	157.	17.9	79.8	4.68	.579
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.904**	**.511**	**-1.76**	**-.582**	**-.564**	**.006**	**1.45**	**-1.18**	**-.530**
Stddev	.009	.279	.34	1.22	1.48	3.47	1.33	.17	.045
%RSD	1.000	54.5	19.1	210.	262.	58800.	91.7	14.3	8.42
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18852.**
Stddev	89.
%RSD	.47030

Sample Name: MRL Acquired: 08/24/2011 15:04:40 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2790
Avg	**14.7**	**394.**	**23.0**	**9.05**	**4.23**	**482.**	**5.08**	**10.6**	**9.03**	**9.73**	**317.**	**541.**
Stddev	.3	1.	2.5	.02	.10	3.	.05	.2	.14	.13	.	4.
%RSD	1.88	.298	10.9	.219	2.30	.517	.966	2.20	1.52	1.34	.107	.751
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**8.94**	**9.59**	**8.58**	**8.27**	**21.4**	**20.4**	**18.2**	**8.90**	**9.51**
Stddev	.03	.44	.35	.74	1.3	2.0	2.1	.19	.06
%RSD	.309	4.55	4.09	9.00	6.23	9.94	11.7	2.09	.649
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18831.**
Stddev	43.
%RSD	.22739

Sample Name: icsa Acquired: 08/24/2011 15:11:11 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4554	Be3130	Ca3179	Cd2265	Co2286	Cr2677	Cu2247
Avg	**.000**	**492000.**	**.000**	**.000**	**.072**	**500000.**	**-.004**	**-.090**	**-.177**	**.001**
Stddev	.503	2700.	2.95	.014	.163	2810.	.211	.127	.639	.723
%RSD	8882e12	.549	788000.	.000	227.	.561	5500.	141.	362.	52700.
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Fe2343	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avg	**438000.**	**447000.**	**.000**	**.000**	**-.015**	**.001**	**.000**	**-.004**	**-1.63**	**.000**
Stddev	1690.	1110.	.031	.528	.213	.882	.92	3.02	4.74	1.01
%RSD	.385	.248	110000.	3440000.	1470.	80600.	1410000.	68400.	291.	1140000.
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Zn2138
Avg	**.000**
Stddev	.483
%RSD	321000.
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: icsa Acquired: 08/24/2011 15:11:11 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	17352.
Stddev	36.
%RSD	.20780

Sample Name: icsab Acquired: 08/24/2011 15:18:21 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be2348	Ca3179	Cd2265	Co2286	Cr2677	Cu3247
Avg	**444.**	**490000.**	**491.**	**538.**	**500.**	**501000.**	**404.**	**451.**	**468.**	**573.**
Stddev	1.	2330.	12.	1.	2.	3000.	.	1.	3.	1.
%RSD	.166	.475	2.36	.261	.324	.598	.043	.294	.589	.181
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Fe2343	Mg2025	Mn2576	Mo2020	Ni2216	Pb2169	Sb2068	Se1960	Tl1908	V_2924
Avg	**436000.**	**449000.**	**440.**	**456.**	**472.**	**527.**	**500.**	**452.**	**408.**	**469.**
Stddev	827.	659.	.	1.	3.	16.	2.	4.	3.	1.
%RSD	.190	.147	.020	.172	.716	3.09	.337	.940	.811	.193
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Zn2138
Avg	**473.**
Stddev	.
%RSD	.071
Check ?	None
Value	
Range	

Sample Name: icsab Acquired: 08/24/2011 15:18:21 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	**17466.**
Stddev	11.
%RSD	.06418

Sample Name: lcsw38309 Acquired: 08/24/2011 16:19:04 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**83.8**	**4010.**	**3770.**	**3850.**	**88.8**	**203000.**	**83.1**	**889.**	**353.**	**434.**
Stddev	.7	47.	48.	29.	.8	2820.	.9	7.	1.	4.
%RSD	.819	1.17	1.27	.742	.846	1.39	1.07	.799	.358	.937

Elem	Fe2395	Mg2790	Mn2576	Mo2020	Ni2316	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1870.**	**94700.**	**840.**	**-.573**	**819.**	**919.**	**971.**	**3840.**	**3240.**	**898.**
Stddev	62.	678.	6.	.397	8.	11.	9.	72.	27.	3.
%RSD	3.31	.716	.744	69.2	.943	1.19	.924	1.87	.848	.333

Elem	Zn2138
Units	ug/L
Avg	**891.**
Stddev	8.
%RSD	.915

Int. Std.	Y_3600
Units	Cts/S
Avg	**17982.**
Stddev	133.
%RSD	.74172

Sample Name: mbw38309 Acquired: 08/24/2011 16:25:42 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.580**	**-5.97**	**-.356**	**.118**	**.145**	**-7.72**	**-.205**	**-.398**	**-1.28**	**-1.38**	**-12.8**	**-21.1**
Stddev	.345	.23	2.47	.031	.112	.61	.078	.407	.53	.25	.3	.3
%RSD	59.4	3.85	695.	26.4	76.9	7.85	38.3	102.	41.8	17.7	2.03	1.55

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.593**	**-.090**	**-1.38**	**-.806**	**-.160**	**.239**	**-.263**	**-1.42**	**-.849**
Stddev	.036	.057	.42	.520	2.75	2.46	1.58	.10	.103
%RSD	6.13	63.6	30.5	64.6	1720.	1030.	600.	7.31	12.1

Int. Std.	Y_3600
Units	Cts/S
Avg	**18726.**
Stddev	137.
%RSD	.73068

Sample Name: ccv2 Acquired: 08/24/2011 16:38:54 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3092	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933	Cd2265
Avg	**45.6**	**477.**	**480.**	**483.**	**472.**	**469.**	**497.**	**47.4**	**46.2**	**479.**	**474.**	**47.1**
Stddev	.2	2.	20.	4.	6.	3.	2.	.5	.3	6.	3.	.3
%RSD	.405	.426	4.21	.815	1.17	.645	.439	1.09	.562	1.24	.535	.698
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Cd2288	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2395	Fe2599	Mg2790	Mg2802	Mn2576
Avg	**47.4**	**519.**	**529.**	**492.**	**468.**	**516.**	**492.**	**486.**	**506.**	**485.**	**492.**	**480.**
Stddev	.2	2.	3.	3.	1.	3.	9.	4.	2.	5.	3.	2.
%RSD	.327	.470	.611	.515	.111	.542	1.77	.867	.436	.960	.564	.431
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2020	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2924
Avg	**516.**	**477.**	**471.**	**484.**	**522.**	**482.**	**506.**	**474.**	**475.**	**459.**	**485.**	**481.**
Stddev	4.	1.	.	2.	7.	2.	2.	4.	1.	.	1.	2.
%RSD	.819	.255	.065	.342	1.26	.425	.489	.828	.239	.078	.103	.439
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Sample Name: ccv2 Acquired: 08/24/2011 16:38:54 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Zn2138
Avg	**478.**
Stddev	2.
%RSD	.448
Check ?	None
Value	
Range	
Int. Std.	Y_3600
Avg	**18514.**
Stddev	87.
%RSD	.46864

Sample Name: ccb Acquired: 08/24/2011 16:52:00 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**.121**	**-4.32**	**2.04**	**-.066**	**.157**	**-14.8**	**-.079**	**.179**	**-.935**	**-.458**	**-14.6**	**-20.9**
Stddev	.532	.62	3.84	.017	.181	.1	.043	.155	.070	.131	.1	.1
%RSD	440.	14.3	188.	26.3	115.	.691	54.6	86.8	7.54	28.6	.573	.697
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.703**	**.486**	**-.872**	**-.217**	**-2.21**	**-1.77**	**.869**	**-1.01**	**-.282**
Stddev	.017	.066	.222	.845	1.41	3.50	.826	.10	.066
%RSD	2.42	13.6	25.5	389.	63.6	198.	95.0	9.71	23.4
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18570.**
Stddev	59.
%RSD	.31669

Sample Name: 962088 Acquired: 08/24/2011 16:58:37 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.281**	**-4.62**	**2.55**	**-.214**	**.130**	**1.93**	**-.151**	**-.237**	**-1.06**	**-1.25**	**-17.8**	**-18.1**
Stddev	.284	.45	4.85	.006	.006	.23	.159	.240	.32	.42	.3	.1
%RSD	101.	9.65	190.	2.96	4.62	12.0	105.	101.	29.9	33.8	1.78	.624

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.43**	**-.159**	**-.096**	**-1.07**	**.028**	**1.52**	**-.289**	**-1.45**	**1.17**
Stddev	.03	.241	.583	.47	.540	2.06	1.46	.30	.15
%RSD	1.25	151.	607.	44.2	1910.	135.	505.	20.7	12.4

Int. Std.	Y_3600
Units	Cts/S
Avg	**18727.**
Stddev	94.
%RSD	.50030

Sample Name: I962088 Acquired: 08/24/2011 17:05:14 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.049**	**-6.18**	**1.75**	**-.260**	**.148**	**-10.3**	**-.186**	**-.408**	**-1.42**	**-1.59**	**-14.3**	**-23.3**
Stddev	.227	.10	1.99	.011	.105	.2	.121	.190	.08	.23	.4	.1
%RSD	465.	1.54	114.	4.28	71.1	1.49	65.4	46.6	5.69	14.2	2.89	.446

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.567**	**-.142**	**-1.55**	**-1.67**	**-.848**	**2.53**	**.013**	**-1.52**	**-.554**
Stddev	.050	.401	.27	1.33	1.55	3.98	1.65	.31	.122
%RSD	8.81	282.	17.6	79.7	183.	157.	12700.	20.6	21.9

Int. Std.	Y_3600
Units	Cts/S
Avg	**18654.**
Stddev	250.
%RSD	1.3389

Sample Name: dup962088 Acquired: 08/24/2011 17:11:50 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.074**	**-4.99**	**-.597**	**-.342**	**.086**	**42.8**	**-.258**	**-.641**	**-1.05**	**-1.89**	**-19.3**	**-22.2**
Stddev	.373	.37	3.02	.012	.069	.3	.060	.236	.55	.31	.1	.1
%RSD	503.	7.41	507.	3.49	79.8	.655	23.3	36.7	52.4	16.6	.433	.297

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.187**	**.100**	**-.557**	**-1.44**	**2.04**	**-.901**	**-1.55**	**-1.56**	**.277**
Stddev	.047	.289	.165	1.10	2.29	2.79	1.50	.14	.042
%RSD	25.0	288.	29.7	76.6	112.	309.	96.8	9.12	15.2

Int. Std.	Y_3600
Units	Cts/S
Avg	**18593.**
Stddev	51.
%RSD	.27576

Sample Name: msw962088 Acquired: 08/24/2011 17:18:26 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**83.2**	**4040.**	**3730.**	**3820.**	**87.1**	**199000.**	**82.1**	**877.**	**349.**	**454.**
Stddev	.3	46.	12.	4.	.1	1380.	.5	4.	1.	3.
%RSD	.415	1.13	.323	.103	.090	.692	.558	.486	.240	.706

Elem	Fe2395	Mg2790	Mn2576	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1920.**	**92300.**	**831.**	**-.633**	**867.**	**905.**	**956.**	**3720.**	**3200.**	**885.**
Stddev	18.	569.	2.	.171	8.	5.	4.	18.	3.	3.
%RSD	.941	.617	.300	27.0	.974	.596	.391	.482	.089	.389

Elem	Zn2138
Units	ug/L
Avg	**880.**
Stddev	2.
%RSD	.283

Int. Std.	Y_3600
Units	Cts/S
Avg	**18114.**
Stddev	65.
%RSD	.35899

Sample Name: msdw962088 Acquired: 08/24/2011 17:25:04 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**84.1**	**4030.**	**3750.**	**3820.**	**87.1**	**200000.**	**82.6**	**879.**	**350.**	**451.**
Stddev	.1	26.	14.	5.	.4	546.	.2	3.	3.	4.
%RSD	.176	.640	.375	.137	.414	.273	.266	.330	.900	.967

Elem	Fe2395	Mg2025	Mn2576	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1940.**	**102000.**	**832.**	**-.342**	**869.**	**913.**	**963.**	**3750.**	**3240.**	**889.**
Stddev	16.	168.	2.	.221	1.	6.	2.	15.	11.	4.
%RSD	.838	.165	.277	64.7	.113	.645	.241	.389	.334	.423

Elem	Zn2138
Units	ug/L
Avg	**886.**
Stddev	2.
%RSD	.235

Int. Std.	Y_3600
Units	Cts/S
Avg	**17881.**
Stddev	24.
%RSD	.13573

Sample Name: pdsw962088 Acquired: 08/24/2011 17:31:43 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**87.9**	**4710.**	**3910.**	**4160.**	**93.6**	**416000.**	**84.1**	**887.**	**357.**	**493.**
Stddev	.9	41.	4.	38.	1.2	5550.	.1	3.	1.	8.
%RSD	.970	.867	.099	.908	1.25	1.33	.062	.297	.289	1.66

Elem	Fe2395	Mg2790	Mn2576	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2070.**	**180000.**	**856.**	**-.755**	**900.**	**968.**	**989.**	**3870.**	**3200.**	**909.**
Stddev	13.	1060.	1.	.167	2.	3.	4.	36.	16.	3.
%RSD	.626	.588	.130	22.1	.195	.344	.443	.936	.507	.299

Elem	Zn2138
Units	ug/L
Avg	**921.**
Stddev	1.
%RSD	.147

Int. Std.	Y_3600
Units	Cts/S
Avg	**17444.**
Stddev	35.
%RSD	.19811

Sample Name: 965074 Acquired: 08/24/2011 17:38:21 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.146**	**74.0**	**-.935**	**.402**	**.122**	**25.3**	**-.020**	**-.390**	**-1.15**	**-1.06**	**87.1**	**-3.93**
Stddev	.299	.5	.897	.022	.043	4.7	.122	.182	.20	.34	1.1	2.37
%RSD	205.	.616	95.9	5.39	35.6	18.5	604.	46.6	17.5	32.7	1.23	60.2

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**5.52**	**-.079**	**1.72**	**-1.03**	**4.97**	**3.60**	**-.958**	**-1.16**	**1.89**
Stddev	.04	.287	.08	.98	1.68	3.79	1.47	.05	.12
%RSD	.730	365.	4.70	95.6	33.8	106.	153.	4.23	6.17

Int. Std.	Y_3600
Units	Cts/S
Avg	**18728.**
Stddev	62.
%RSD	.32880

Sample Name: I965074 Acquired: 08/24/2011 17:44:56 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.122**	**12.4**	**1.75**	**-.207**	**.084**	**-18.2**	**-.073**	**-.259**	**-1.25**	**-1.42**	**2.20**	**-20.8**
Stddev	.172	.5	.82	.006	.082	.3	.048	.308	.06	.11	.49	.1
%RSD	141.	4.36	46.8	2.87	97.3	1.42	66.2	119.	5.06	7.93	22.1	.626

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.573**	**-.181**	**-.817**	**-2.10**	**.555**	**-.593**	**.470**	**-1.50**	**-.784**
Stddev	.051	.306	.161	.48	1.34	1.59	2.45	.21	.038
%RSD	8.91	169.	19.7	22.6	242.	268.	520.	14.0	4.84

Int. Std.	Y_3600
Units	Cts/S
Avg	**18721.**
Stddev	106.
%RSD	.56560

Sample Name: dup965074 Acquired: 08/24/2011 17:51:32 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.441**	**63.5**	**.977**	**.354**	**.094**	**9.88**	**-.188**	**-.262**	**-.921**	**-1.39**	**74.6**	**-12.0**
Stddev	.329	3.1	2.00	.048	.047	1.08	.066	.457	.143	.35	3.8	.6
%RSD	74.6	4.84	204.	13.7	50.5	10.9	35.2	175.	15.6	25.0	5.05	4.94

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1.81**	**-.306**	**1.51**	**-1.59**	**2.14**	**.691**	**.480**	**-1.20**	**3.11**
Stddev	.09	.240	.34	1.04	1.04	1.07	1.01	.21	.16
%RSD	4.91	78.3	22.9	65.6	48.9	155.	210.	17.2	5.03

Int. Std.	Y_3600
Units	Cts/S
Avg	**18232.**
Stddev	632.
%RSD	3.4643

Sample Name: msw965074 Acquired: 08/24/2011 17:58:08 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**86.6**	**4170.**	**3800.**	**3870.**	**88.7**	**205000.**	**84.5**	**889.**	**352.**	**442.**
Stddev	.5	67.	4.	17.	.3	457.	.4	2.	1.	2.
%RSD	.533	1.60	.096	.450	.383	.223	.458	.188	.268	.445

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1910.**	**91900.**	**852.**	**-.319**	**840.**	**838.**	**982.**	**3620.**	**3320.**	**895.**
Stddev	4.	154.	.	.072	1.	.	1.	19.	8.	2.
%RSD	.209	.167	.046	22.7	.130	.013	.115	.512	.232	.208

Elem	Zn2138
Units	ug/L
Avg	**903.**
Stddev	1.
%RSD	.121

Int. Std.	Y_3600
Units	Cts/S
Avg	**17753.**
Stddev	4.
%RSD	.02363

Sample Name: ccv2 Acquired: 08/24/2011 18:11:21 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3092	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933	Cd2265
Avg	**47.2**	**488.**	**510.**	**494.**	**484.**	**493.**	**519.**	**48.2**	**46.5**	**486.**	**490.**	**48.2**
Stddev	.6	1.	11.	7.	4.	3.	1.	.2	.2	3.	2.	.0
%RSD	1.22	.225	2.19	1.38	.885	.687	.138	.391	.428	.546	.465	.041
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Cd2288	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2395	Fe2599	Mg2790	Mg2802	Mn2576
Avg	**48.0**	**527.**	**533.**	**497.**	**480.**	**528.**	**487.**	**530.**	**519.**	**482.**	**499.**	**490.**
Stddev	.2	.	3.	1.	1.	1.	4.	11.	1.	4.	1.	1.
%RSD	.502	.056	.593	.239	.285	.172	.868	2.15	.220	.786	.167	.140
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2020	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Se1960	Se2062	Tl1908	V_2924	Zn2138
Avg	**518.**	**487.**	**476.**	**498.**	**538.**	**497.**	**521.**	**494.**	**471.**	**498.**	**490.**	**490.**
Stddev	1.	2.	1.	1.	3.	1.	2.	1.	7.	1.	1.	.
%RSD	.211	.345	.268	.175	.589	.193	.468	.176	1.47	.206	.227	.091
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Sample Name: ccv2 Acquired: 08/24/2011 18:11:21 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	18019.
Stddev	9.
%RSD	.05032

Sample Name: ccb Acquired: 08/24/2011 18:24:29 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.331**	**-4.07**	**2.81**	**-.006**	**.088**	**-13.9**	**-.167**	**.197**	**-.950**	**-.611**	**-14.4**	**-20.5**
Stddev	.315	.34	3.83	.049	.006	.1	.078	.325	.131	.292	.3	.1
%RSD	95.0	8.45	136.	804.	6.72	.436	46.6	165.	13.8	47.7	1.93	.303
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.657**	**.285**	**-.702**	**.526**	**.574**	**-1.95**	**2.05**	**-.928**	**-.082**
Stddev	.018	.250	.157	.627	1.51	4.18	2.45	.197	.193
%RSD	2.67	87.7	22.4	119.	264.	215.	120.	21.2	234.
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18177.**
Stddev	111.
%RSD	.61049

Sample Name: msdw965074 Acquired: 08/24/2011 18:31:05 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**87.5**	**4270.**	**3820.**	**3880.**	**88.3**	**205000.**	**84.9**	**886.**	**349.**	**443.**
Stddev	.7	27.	32.	6.	.5	1500.	.5	6.	2.	3.
%RSD	.791	.625	.836	.158	.521	.733	.633	.655	.681	.654

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1910.**	**90400.**	**855.**	**-.450**	**845.**	**847.**	**985.**	**3680.**	**3360.**	**884.**
Stddev	12.	344.	6.	.040	5.	5.	5.	21.	24.	6.
%RSD	.604	.380	.662	8.99	.615	.594	.487	.558	.703	.710

Elem	Zn2138
Units	ug/L
Avg	**907.**
Stddev	5.
%RSD	.522

Int. Std.	Y_3600
Units	Cts/S
Avg	**17549.**
Stddev	104.
%RSD	.59052

Sample Name: pdsw965074 Acquired: 08/24/2011 18:37:45 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**91.8**	**4980.**	**3930.**	**4240.**	**95.3**	**419000.**	**85.1**	**879.**	**350.**	**446.**
Stddev	.5	59.	5.	35.	.8	544.	.3	5.	1.	1.
%RSD	.544	1.19	.136	.831	.789	.130	.335	.545	.320	.256

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1920.**	**168000.**	**868.**	**-.663**	**846.**	**842.**	**1000.**	**3790.**	**3290.**	**894.**
Stddev	6.	1080.	2.	.319	2.	6.	6.	21.	14.	5.
%RSD	.308	.646	.183	48.0	.280	.702	.602	.549	.412	.593

Elem	Zn2138
Units	ug/L
Avg	**930.**
Stddev	2.
%RSD	.161

Int. Std.	Y_3600
Units	Cts/S
Avg	**17057.**
Stddev	37.
%RSD	.21570

Sample Name: 965146 Acquired: 08/24/2011 18:44:25 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.220**	**-4.67**	**3.54**	**-.293**	**.142**	**-1.41**	**-.061**	**-.224**	**-.524**	**-1.64**	**-15.3**	**-17.9**
Stddev	.094	.27	1.86	.038	.043	1.03	.024	.219	.156	.21	.2	.7
%RSD	42.9	5.74	52.7	13.1	29.9	73.0	38.3	98.0	29.8	13.0	1.30	3.70

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.139**	**-.497**	**-.914**	**-1.01**	**5.40**	**2.33**	**.030**	**-1.02**	**-.061**
Stddev	.011	.020	.436	.87	3.04	4.18	1.39	.10	.152
%RSD	8.14	4.04	47.7	86.6	56.3	180.	4700.	9.97	249.

Int. Std.	Y_3600
Units	Cts/S
Avg	**18170.**
Stddev	61.
%RSD	.33798

Sample Name: I965146 Acquired: 08/24/2011 18:51:02 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.254**	**-7.22**	**1.91**	**-.402**	**.165**	**-21.4**	**-.208**	**-.203**	**-1.61**	**-1.51**	**-21.9**	**-23.9**
Stddev	.128	.32	2.17	.047	.056	.2	.060	.335	.28	.10	.5	.2
%RSD	50.2	4.37	114.	11.8	34.2	1.08	28.8	165.	17.2	6.83	2.26	.984

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.952**	**-.187**	**-1.32**	**-2.72**	**.864**	**-1.24**	**-.331**	**-1.47**	**-1.16**
Stddev	.041	.047	.30	.83	2.42	2.14	.388	.34	.17
%RSD	4.26	24.9	22.4	30.5	280.	172.	117.	23.1	14.5

Int. Std.	Y_3600
Units	Cts/S
Avg	**18316.**
Stddev	73.
%RSD	.39834

Sample Name: dup965146 Acquired: 08/24/2011 18:57:40 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.108**	**-3.23**	**1.54**	**-.374**	**.095**	**-13.3**	**-.221**	**-.408**	**-.783**	**-1.93**	**-17.2**	**-23.1**
Stddev	.348	.30	1.13	.014	.072	.0	.135	.313	.338	.32	.2	.3
%RSD	322.	9.20	73.0	3.78	75.4	.332	60.8	76.7	43.2	16.6	1.31	1.11

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.684**	**-.115**	**-.670**	**-2.33**	**.259**	**1.30**	**-.137**	**-1.37**	**.674**
Stddev	.072	.178	.379	.56	2.91	3.21	.222	.02	.129
%RSD	10.5	156.	56.6	23.9	1120.	247.	162.	1.66	19.1

Int. Std.	Y_3600
Units	Cts/S
Avg	**18202.**
Stddev	198.
%RSD	1.0885

Sample Name: msw965146 Acquired: 08/24/2011 19:04:17 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**87.5**	**4190.**	**3790.**	**3870.**	**87.5**	**207000.**	**84.2**	**875.**	**347.**	**442.**
Stddev	1.4	7.	43.	17.	.6	1790.	1.2	7.	3.	6.
%RSD	1.62	.155	1.14	.447	.741	.867	1.43	.792	.914	1.47

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1820.**	**89000.**	**850.**	**-.439**	**842.**	**844.**	**983.**	**3680.**	**3350.**	**879.**
Stddev	19.	660.	9.	.207	10.	14.	16.	60.	39.	10.
%RSD	1.06	.742	1.04	47.3	1.14	1.68	1.60	1.62	1.16	1.15

Elem	Zn2138
Units	ug/L
Avg	**901.**
Stddev	10.
%RSD	1.06

Int. Std.	Y_3600
Units	Cts/S
Avg	**17499.**
Stddev	209.
%RSD	1.1970

Sample Name: msdw965146 Acquired: 08/24/2011 19:10:56 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**88.2**	**4190.**	**3840.**	**3900.**	**88.3**	**210000.**	**85.2**	**889.**	**347.**	**447.**
Stddev	.6	20.	23.	5.	.1	2130.	.9	5.	2.	4.
%RSD	.730	.477	.608	.135	.101	1.01	1.02	.532	.604	.999

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1830.**	**91000.**	**859.**	**-.524**	**849.**	**849.**	**993.**	**3710.**	**3370.**	**882.**
Stddev	13.	418.	6.	.340	7.	8.	12.	33.	30.	8.
%RSD	.727	.459	.660	64.8	.817	.958	1.19	.878	.878	.865

Elem	Zn2138
Units	ug/L
Avg	**910.**
Stddev	8.
%RSD	.833

Int. Std.	Y_3600
Units	Cts/S
Avg	**17442.**
Stddev	135.
%RSD	.77349

Sample Name: pdsw965146 Acquired: 08/24/2011 19:17:34 Type: Unk
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**90.5**	**4830.**	**3950.**	**4190.**	**93.8**	**413000.**	**85.3**	**890.**	**353.**	**488.**
Stddev	.9	49.	18.	35.	.3	2000.	.6	7.	3.	4.
%RSD	1.01	1.01	.463	.837	.326	.485	.688	.747	.824	.903

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1830.**	**173000.**	**864.**	**-.425**	**840.**	**841.**	**1000.**	**3740.**	**3270.**	**904.**
Stddev	15.	1380.	6.	.632	7.	8.	10.	25.	33.	7.
%RSD	.803	.795	.737	149.	.801	.902	.959	.655	1.00	.721

Elem	Zn2138
Units	ug/L
Avg	**931.**
Stddev	6.
%RSD	.645

Int. Std.	Y_3600
Units	Cts/S
Avg	**17242.**
Stddev	127.
%RSD	.73399

Sample Name: ccv2 Acquired: 08/24/2011 19:44:19 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933	Cd2265	Cd2288
Avg	**48.2**	**490.**	**492.**	**484.**	**495.**	**518.**	**48.1**	**46.4**	**495.**	**494.**	**48.6**	**48.4**
Stddev	.3	3.	2.	4.	16.	2.	1.0	.2	1.	1.	.3	.2
%RSD	.601	.554	.473	.773	3.22	.311	2.00	.381	.276	.297	.594	.459
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2599	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020
Avg	**528.**	**533.**	**490.**	**485.**	**534.**	**483.**	**523.**	**472.**	**503.**	**497.**	**513.**	**493.**
Stddev	2.	3.	3.	4.	3.	6.	4.	3.	2.	3.	1.	3.
%RSD	.440	.598	.615	.740	.568	1.30	.786	.669	.465	.675	.272	.606
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Se1960	Se2062	Tl1908	V_2924	Zn2138
Avg	**476.**	**505.**	**531.**	**507.**	**532.**	**504.**	**471.**	**513.**	**493.**	**494.**
Stddev	3.	4.	8.	5.	2.	3.	21.	4.	3.	3.
%RSD	.717	.794	1.48	1.04	.449	.572	4.47	.766	.554	.661
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Sample Name: ccv2 Acquired: 08/24/2011 19:44:19 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

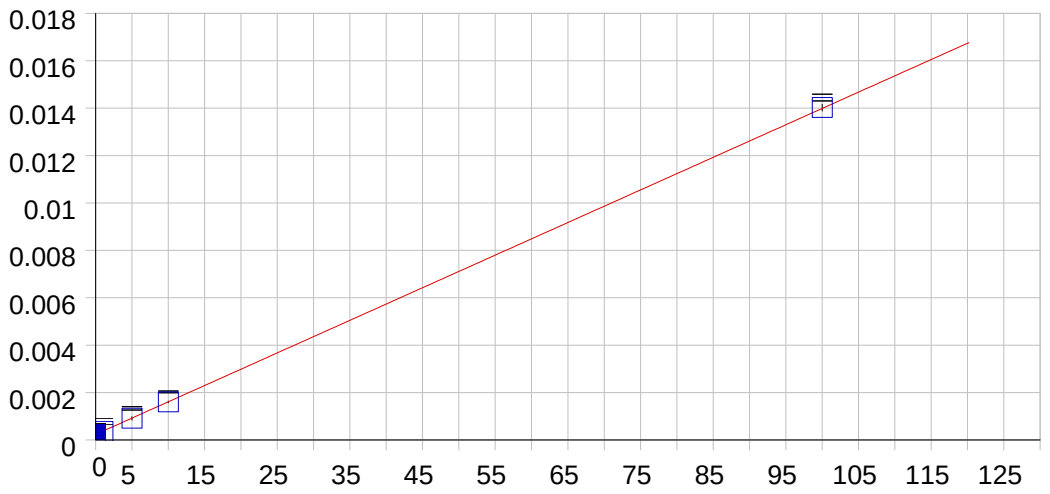
Int. Std.	Y_3600
Avg	17736.
Stddev	96.
%RSD	.53891

Sample Name: ccb Acquired: 08/24/2011 19:57:27 Type: QC
Method: DOD Calibration 1(v1588) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.006**	**-4.15**	**.942**	**.021**	**.231**	**-13.6**	**-.096**	**.206**	**-1.35**	**-.981**	**-14.3**	**-20.1**
Stddev	.457	.56	1.10	.029	.078	.1	.138	.557	.17	.269	.3	.2
%RSD	8150.	13.6	117.	139.	33.7	.437	144.	271.	12.5	27.4	2.29	1.14
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.595**	**.296**	**-1.28**	**-1.56**	**.182**	**4.66**	**.261**	**-1.22**	**-.279**
Stddev	.072	.447	.54	.80	2.14	1.01	.509	.17	.103
%RSD	12.1	151.	41.9	51.2	1180.	21.6	195.	14.4	36.8
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18265.**
Stddev	114.
%RSD	.62438

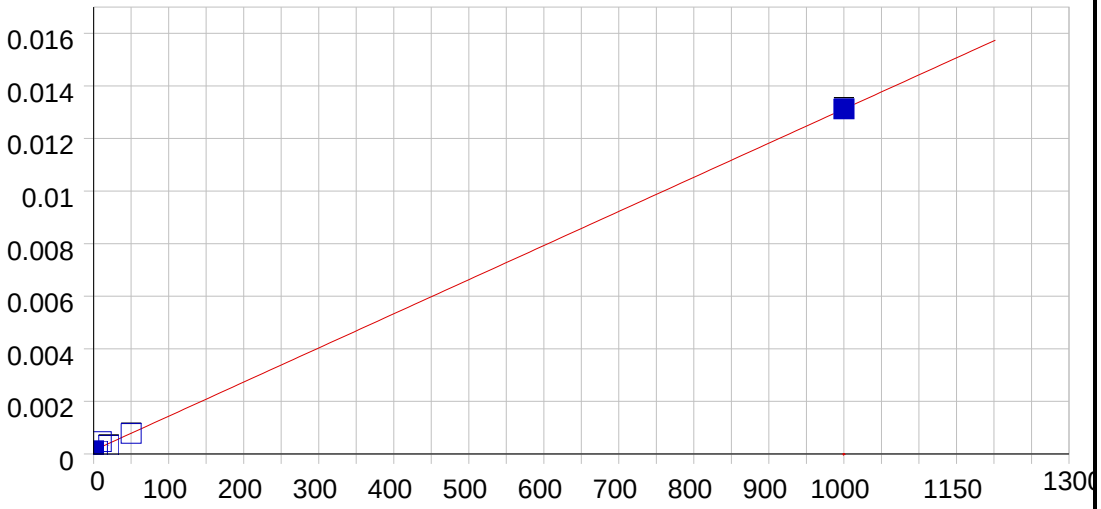


Ag 328.068 {103}

Date of Fit:	08/25/2011 14:05:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000234	Re-Slope:	1.000000
A1 (Gain):	0.000138	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999939	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.719273		
Predicted MQL:	2.397577		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00013	.000	.000	.00023	.000	1
CalibStd=100	100.00	100.24	.243	.243	.01402	.000	1
CalibStd=10	10.000	9.9436	-.056	-.564	.00160	.000	1
CalibStd=1	1.0000	.89066	-.109	-10.9	.00036	.000	1
CalibStd=5	5.0000	4.9225	-.078	-1.55	.00091	.000	1

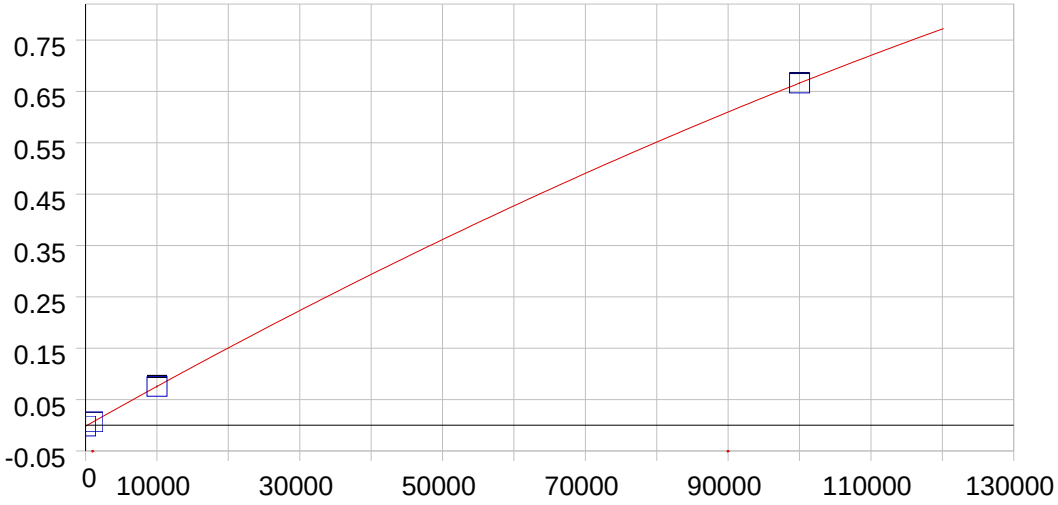


Al 167.079 {502}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000137	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999806	Status:	OK.
Std Error of Est:	0.000115		
Predicted MDL:	0.688682		
Predicted MQL:	2.295607		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.8651	-1.87	.000	.00011	.000	1
CalibStd=100	1000.0	1000.0	.011	.001	.01313	.000	1
CalibStd=20	20.000	14.870	-5.13	-25.7	.00033	.000	1
CalibStd=10	10.000	25.010	15.0	150.	.00046	.000	1
CalibStd=5	5.0000	-2.6135	-7.61	-152.	.00010	.000	1
CalibStd=50	50.000	49.588	-.412	-.824	.00078	.000	1

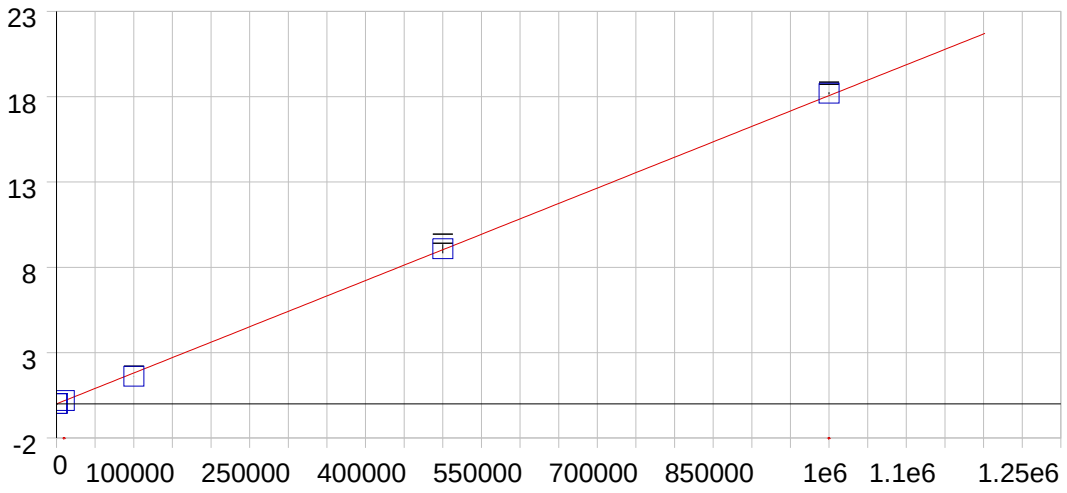


Al 309.271 {109}

Date of Fit:	08/25/2011 14:32:50	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.001671	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000134		
Predicted MDL:	25.267412		
Predicted MQL:	84.224707		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-11.316	-11.3	.000	-.00176	.000	1
CalibStd=100	10000.	9998.6	-1.44	-.014	.07567	.002	1
CalibStd=100	100000.	100000.	.018	.000	.66615	.001	1
CalibStd=100	1000.0	1012.7	12.7	1.27	.00627	.000	1

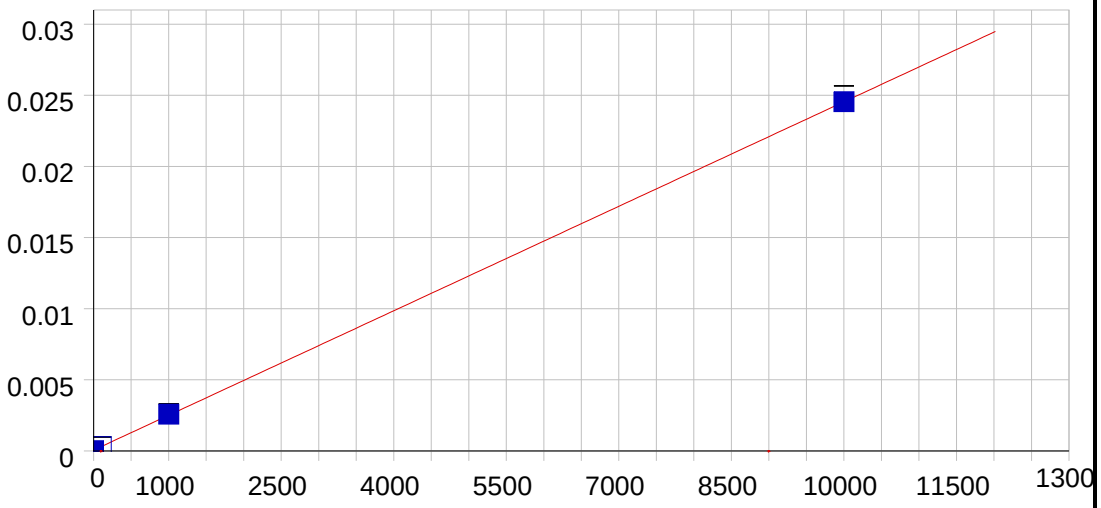


Al 396.152 { 85}

Date of Fit:	08/26/2011 12:40:03	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000066	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999612	Status:	OK.
Std Error of Est:	0.000782		
Predicted MDL:	14.721593		
Predicted MQL:	49.071978		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01224	-.012	.000	.00007	.000	1
CalibStd=100	100000.	89221.	-10800.	-10.8	1.6119	.004	1
CalibStd-100	1000000.	1007400.	7410.	.741	18.199	.062	1
CalibStd=500	500000.	502980.	2980.	.596	9.0865	.269	1
CalibStd=100	1000.0	1075.6	75.6	7.56	.01950	.000	1
CalibStd=100	10000.	10311.	311.	3.11	.18634	.004	1

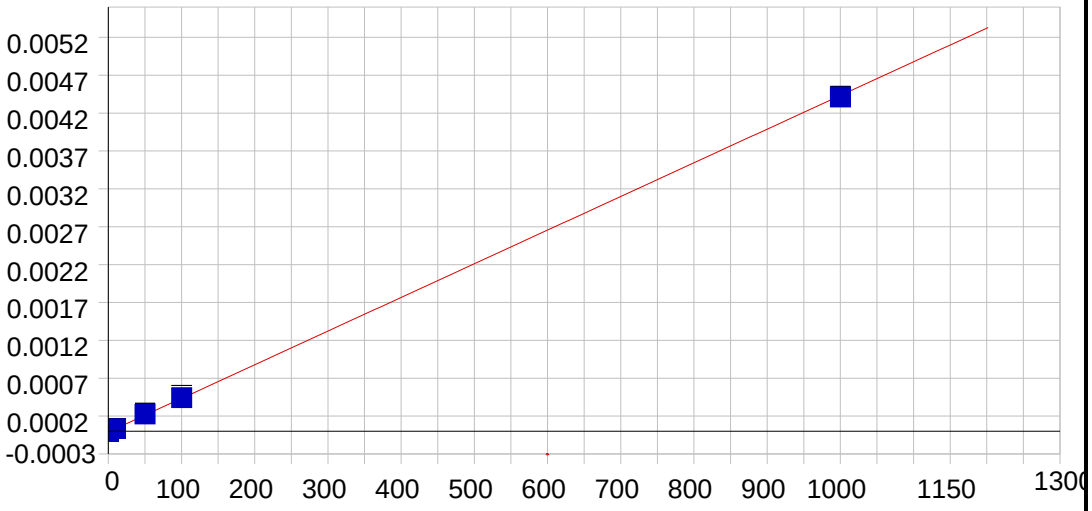


As 189.042 {479}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000059		
Predicted MDL:	6.602828		
Predicted MQL:	22.009426		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-17.895	-17.9	.000	.00002	.000	1
CalibStd=100	1000.0	1027.9	27.9	2.79	.00258	.000	1
CalibStd=100	10000.	9997.3	-2.72	-.027	.02454	.000	1
CalibStd=100	100.00	92.707	-7.29	-7.29	.00029	.000	1

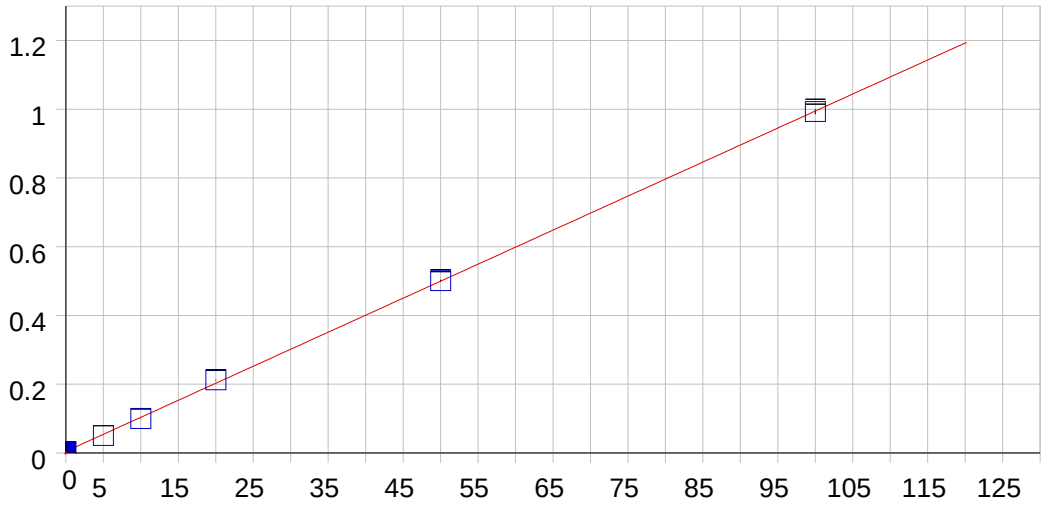


As 193.759 {474}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000011	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999874	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.779056		
Predicted MQL:	12.596853		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00056	-.001	.000	-.00001	.000	1
CalibStd=100	1000.0	995.02	-4.98	-.498	.00441	.000	1
CalibStd=50	50.000	53.361	3.36	6.72	.00023	.000	1
CalibStd=10	10.000	9.7517	-.248	-2.48	.00003	.000	1
CalibStd=100	100.00	101.86	1.86	1.86	.00044	.000	1

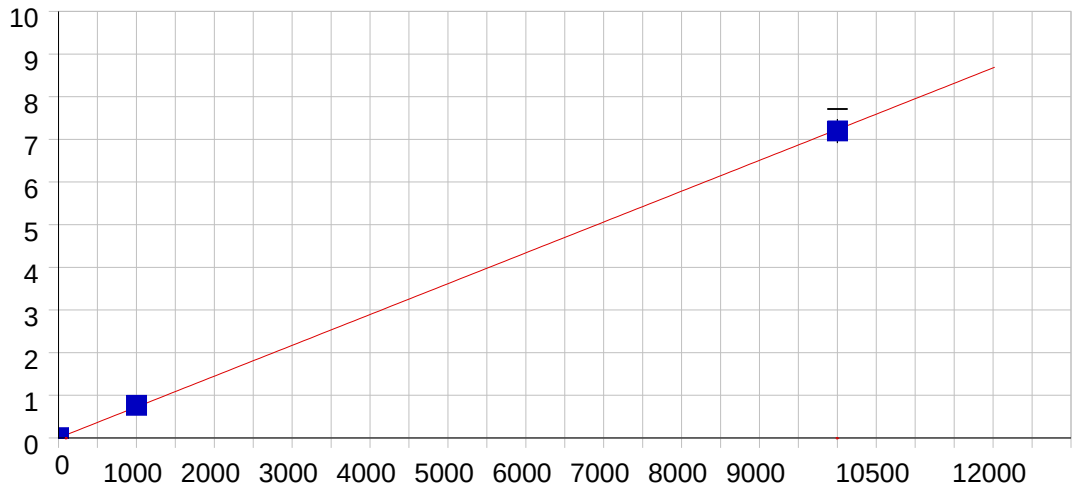


Ba 455.403 { 74}

Date of Fit:	08/25/2011 14:05:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.004719	Re-Slope:	1.000000
A1 (Gain):	0.009899	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999911	Status:	OK.
Std Error of Est:	0.005665		
Predicted MDL:	0.038752		
Predicted MQL:	0.129174		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.04080	-.041	.000	.00432	.000	1
CalibStd=50	50.000	50.134	.134	.268	.50102	.003	1
CalibStd=10	10.000	9.5687	-.431	-4.31	.09944	.001	1
CalibStd=20	20.000	20.946	.946	4.73	.21207	.001	1
CalibStd=100	100.00	99.808	-.192	-.192	.99276	.007	1
CalibStd=5	5.0000	4.5845	-.416	-8.31	.05010	.000	1

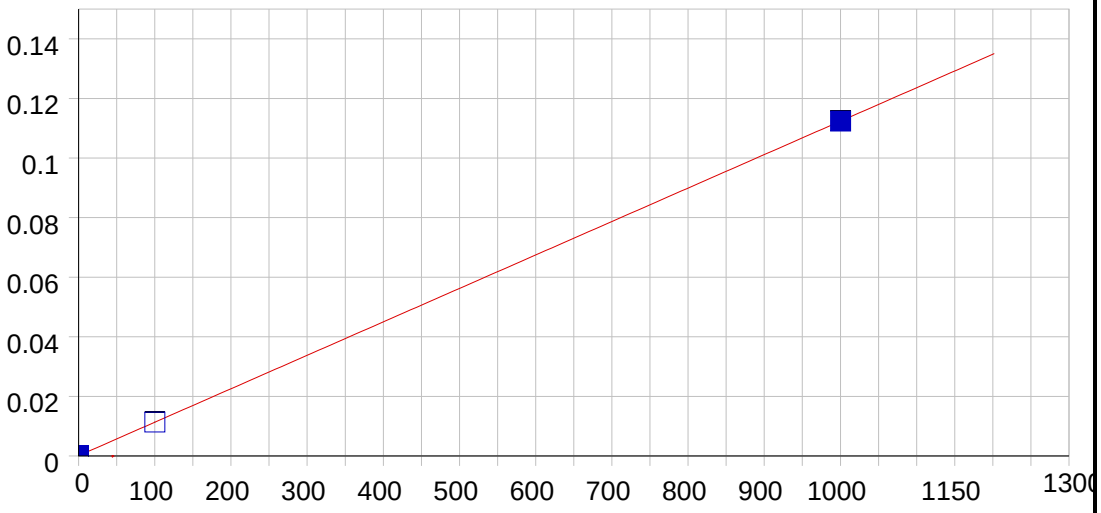


Ba 493.409 { 68}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002818	Re-Slope:	1.000000
A1 (Gain):	0.000723	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999873	Status:	OK.
Std Error of Est:	0.002094		
Predicted MDL:	0.925537		
Predicted MQL:	3.085124		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.04540	-.045	.000	.00279	.000	1
CalibStd=100	1000.0	1050.4	50.4	5.04	.76205	.002	1
CalibStd=100	10000.	9949.6	-50.4	-.504	7.1940	.280	1

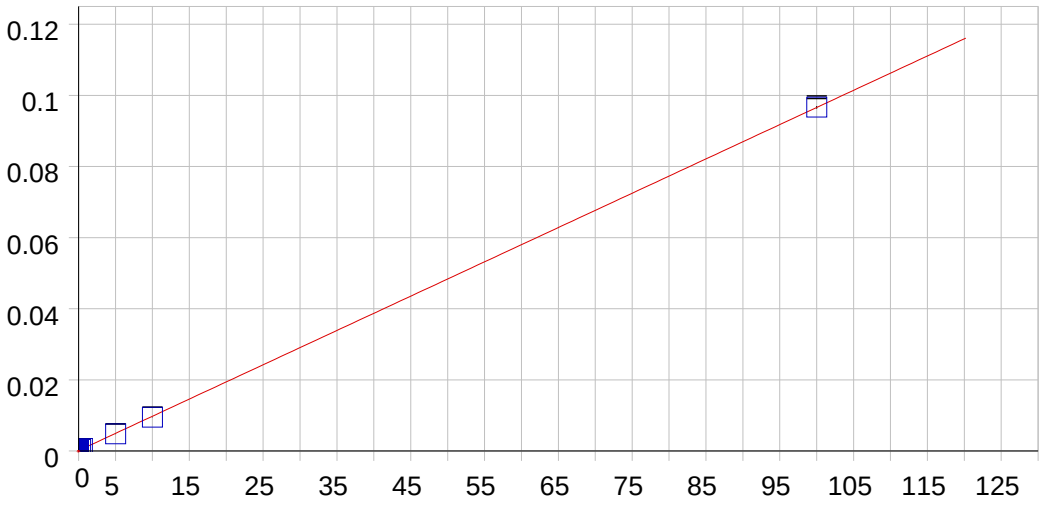


Be 234.861 {144}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000101	Re-Slope:	1.000000
A1 (Gain):	0.000112	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.442772		
Predicted MQL:	1.475907		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00024	.000	.000	.00010	.000	1
CalibStd=100	1000.0	999.73	-.265	-.027	.11233	.000	1
CalibStd=100	100.00	100.26	.265	.265	.01136	.000	1

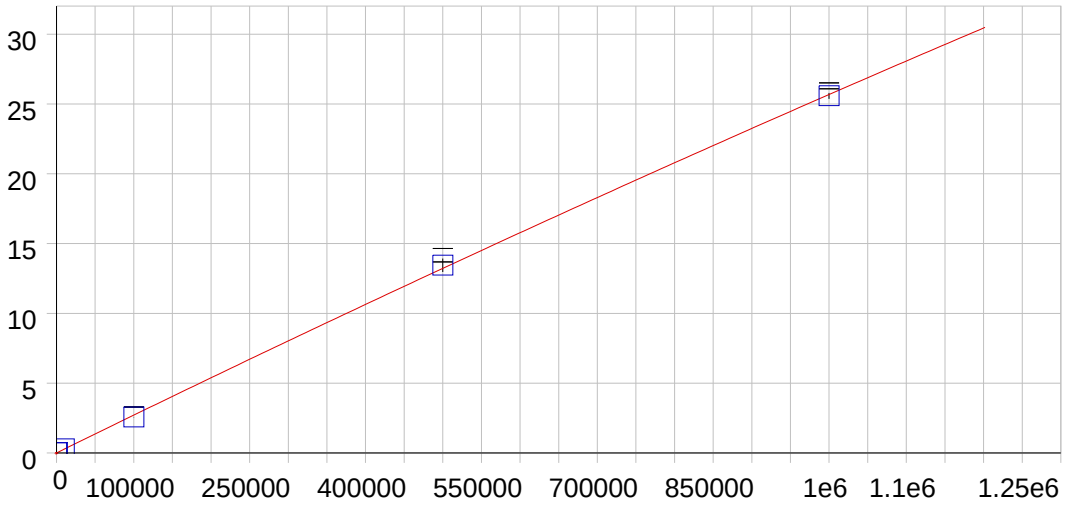


Be 313.042 {108}

Date of Fit:	08/25/2011 14:05:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000115	Re-Slope:	1.000000
A1 (Gain):	0.000965	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999987	Status:	OK.
Std Error of Est:	0.000219		
Predicted MDL:	0.107201		
Predicted MQL:	0.357336		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.22602	.226	.000	.00033	.000	1
CalibStd=10	10.000	9.6841	-.316	-3.16	.00946	.000	1
CalibStd=100	100.00	100.04	.039	.039	.09664	.000	1
CalibStd=0.5	.50000	.61276	.113	22.6	.00071	.000	1
CalibStd=5	5.0000	4.8281	-.172	-3.44	.00477	.000	1
CalibStd=0.2	.25000	.35968	.110	43.9	.00046	.000	1

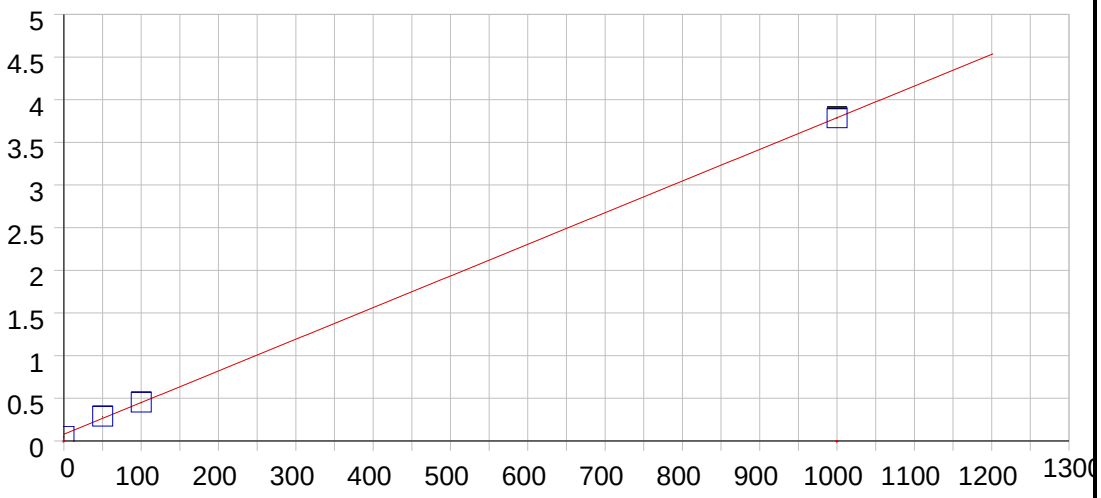


Ca 317.933 {106}

Date of Fit:	08/25/2011 14:47:11	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.003840	Re-Slope:	1.000000
A1 (Gain):	0.000027	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999844	Status:	OK.
Std Error of Est:	0.000823		
Predicted MDL:	3.667944		
Predicted MQL:	12.226479		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.10391	-.104	.000	.00384	.000	1
CalibStd=100	10000.	10512.	512.	5.12	.28965	.007	1
CalibStd=100	100000.	94698.	-5300.	-5.30	2.5662	.007	1
CalibStd=500	500000.	508740.	8740.	1.75	13.447	.483	1
CalibStd-100	1000000.	995940.	-4060.	-.406	25.577	.210	1
CalibStd=100	1000.0	1092.3	92.3	9.23	.03355	.000	1

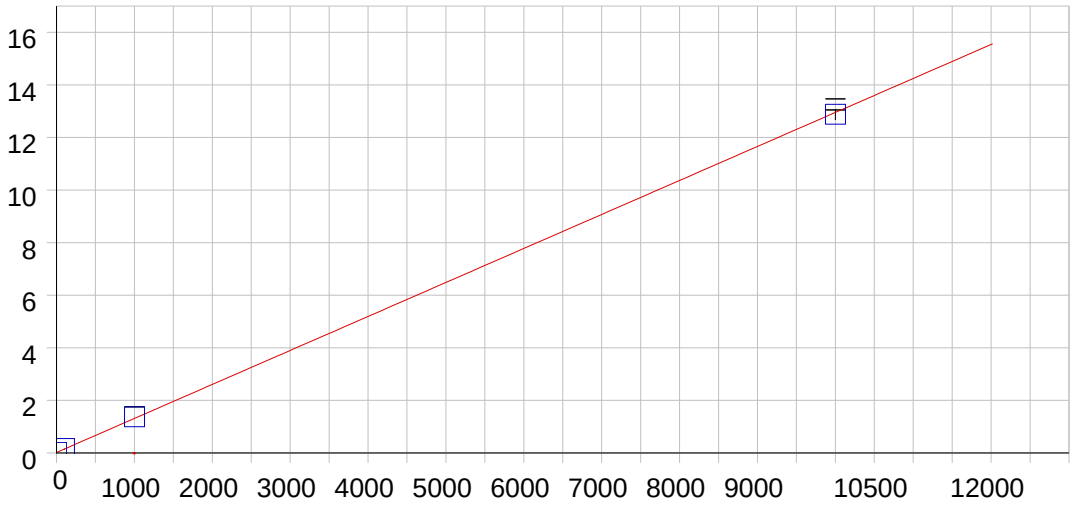


Ca 393.366 { 86}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.079132	Re-Slope:	1.000000
A1 (Gain):	0.003710	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.025387		
Predicted MDL:	0.063215		
Predicted MQL:	0.210716		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-7.0784	-7.08	.000	.05287	.000	1
CalibStd=50	50.000	56.511	6.51	13.0	.28877	.001	1
CalibStd=100	1000.0	999.58	-.425	-.042	3.7874	.010	1
CalibStd=100	100.00	100.99	.992	.992	.45379	.001	1

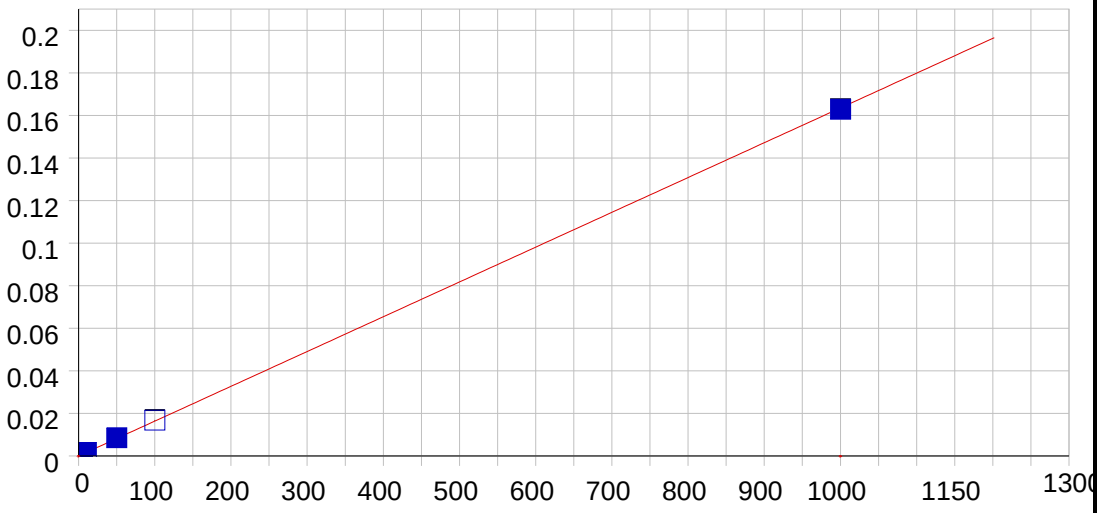


Ca 396.847 { 85}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.019180	Re-Slope:	1.000000
A1 (Gain):	0.001293	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999815	Status:	OK.
Std Error of Est:	0.001172		
Predicted MDL:	0.127733		
Predicted MQL:	0.425777		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01701	-.017	.000	.01916	.000	1
CalibStd=100	10000.	9941.5	-58.5	-.585	12.877	.210	1
CalibStd=100	100.00	113.05	13.0	13.0	.16539	.001	1
CalibStd=100	1000.0	1045.4	45.4	4.54	1.3713	.003	1

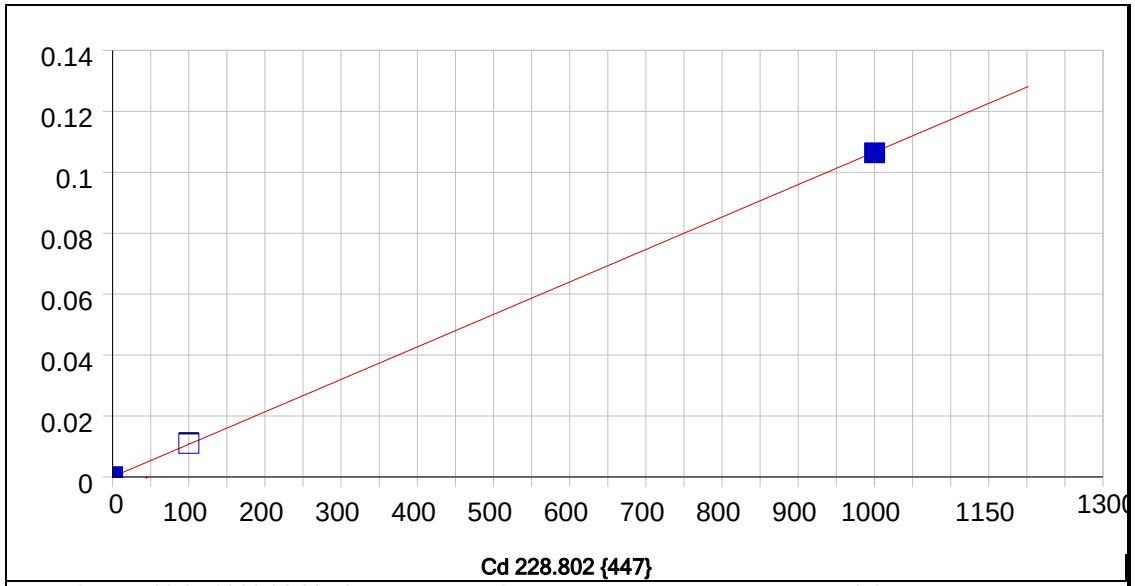


Cd 226.502 {449}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000011	Re-Slope:	1.000000
A1 (Gain):	0.000164	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999909	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.160895		
Predicted MQL:	0.536317		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00012	.000	.000	.00001	.000	1
CalibStd=50	50.000	52.043	2.04	4.09	.00852	.000	1
CalibStd=1	1.0000	.80194	-.198	-19.8	.00014	.000	1
CalibStd=0.5	.50000	.47468	-.025	-5.06	.00009	.000	1
CalibStd=5	5.0000	4.8067	-.193	-3.87	.00080	.000	1
CalibStd=100	100.00	102.51	2.51	2.51	.01677	.000	1
CalibStd=10	10.000	9.8381	-.162	-1.62	.00162	.000	1
CalibStd=100	1000.0	996.02	-3.98	-.398	.16291	.000	1

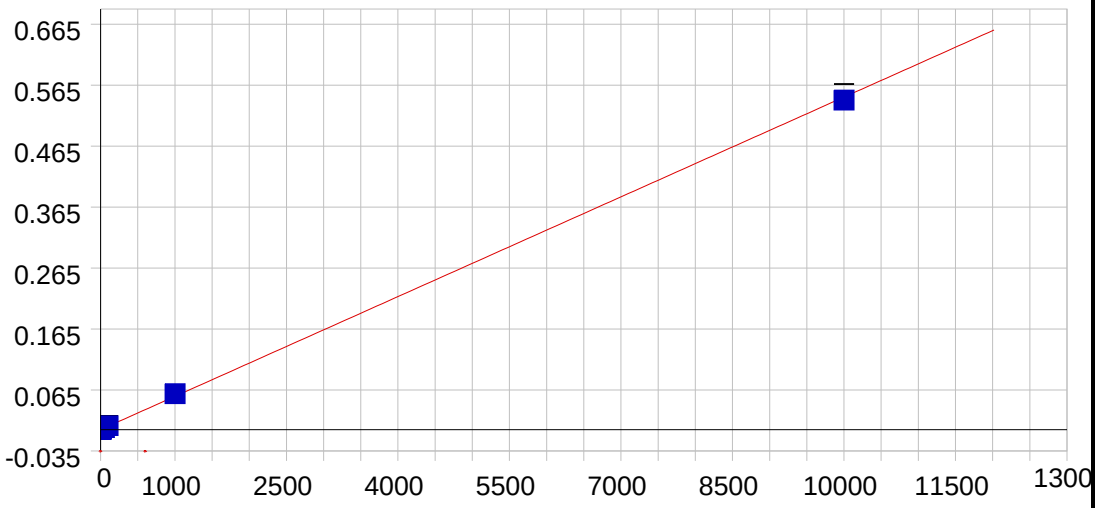


Cd 228.802 {447}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000057	Re-Slope:	1.000000
A1 (Gain):	0.000107	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.253267		
Predicted MQL:	0.844224		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00234	-.002	.000	.00006	.000	1
CalibStd=100	1000.0	997.40	-2.60	-.260	.10635	.000	1
CalibStd=100	100.00	102.60	2.60	2.60	.01099	.000	1

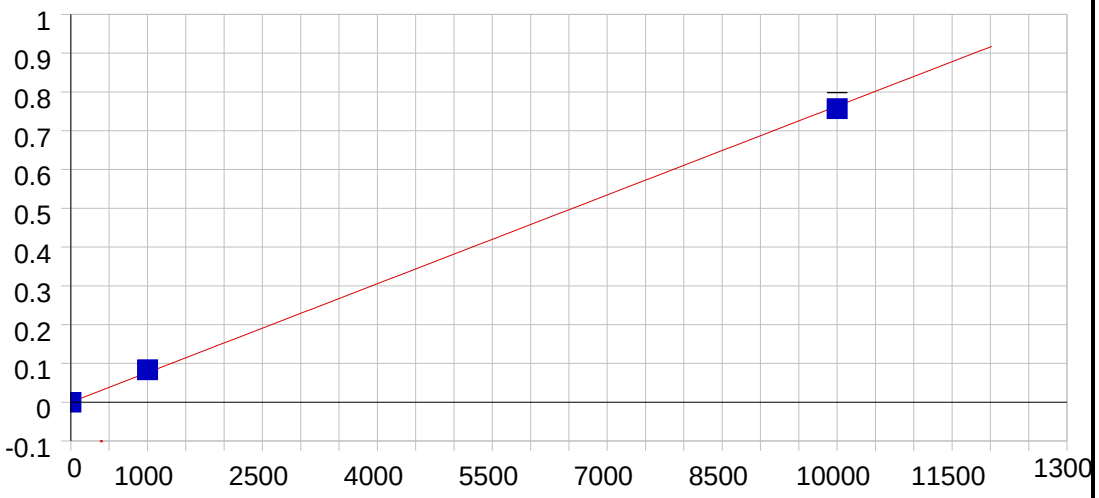


Co 228.616 {447}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000055	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999622	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.417172		
Predicted MQL:	1.390573		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00214	-.002	.000	.00001	.000	1
CalibStd=50	50.000	56.147	6.15	12.3	.00307	.000	1
CalibStd=10	10.000	10.717	.717	7.17	.00059	.000	1
CalibStd=5	5.0000	5.2965	.297	5.93	.00030	.000	1
CalibStd=100	100.00	110.83	10.8	10.8	.00606	.000	1
CalibStd=100	1000.0	1074.8	74.8	7.48	.05869	.000	1
CalibStd=100	10000.	9907.1	-92.9	-.929	.54044	.010	1

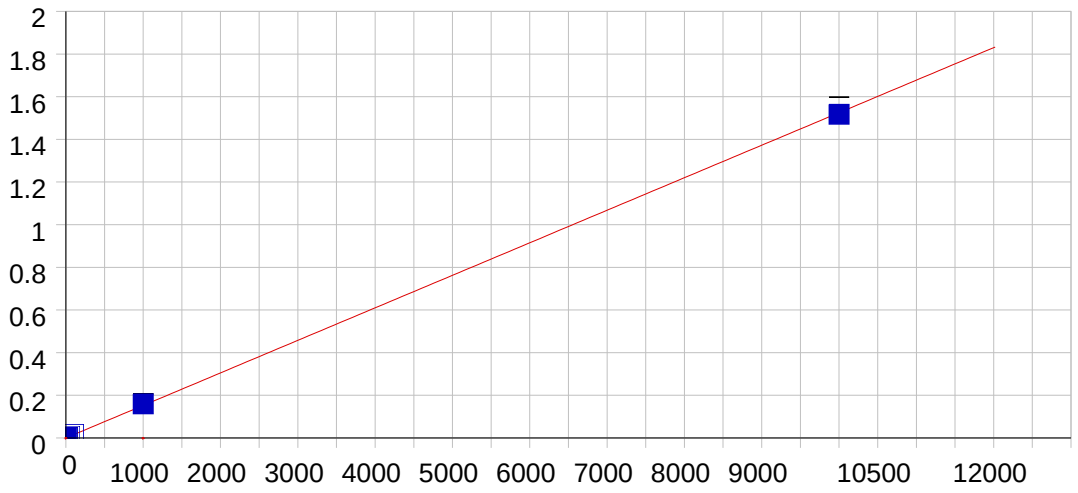


Co 238.892 {141}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000076	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999590	Status:	OK.
Std Error of Est:	0.000397		
Predicted MDL:	0.621552		
Predicted MQL:	2.071841		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.08145	-.081	.000	-.00001	.000	1
CalibStd=100	1000.0	1090.5	90.5	9.05	.08321	.000	1
CalibStd=100	10000.	9909.5	-90.5	-.905	.75612	.016	1

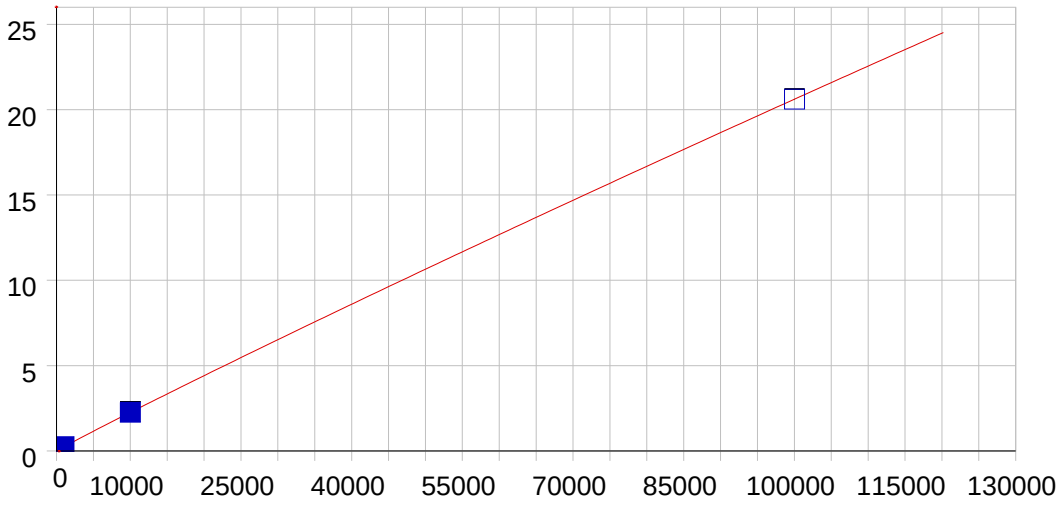


Cr 267.716 {126}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000085	Re-Slope:	1.000000
A1 (Gain):	0.000152	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999857	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	0.508871		
Predicted MQL:	1.696238		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00372	-.004	.000	.00008	.000	1
CalibStd=10	10.000	10.507	.507	5.07	.00169	.000	1
CalibStd=50	50.000	54.146	4.15	8.29	.00834	.000	1
CalibStd=100	1000.0	1041.1	41.1	4.11	.15885	.001	1
CalibStd=20	20.000	22.699	2.70	13.5	.00355	.000	1
CalibStd=100	100.00	106.82	6.82	6.82	.01637	.000	1
CalibStd=100	10000.	9944.8	-55.2	-.552	1.5167	.034	1

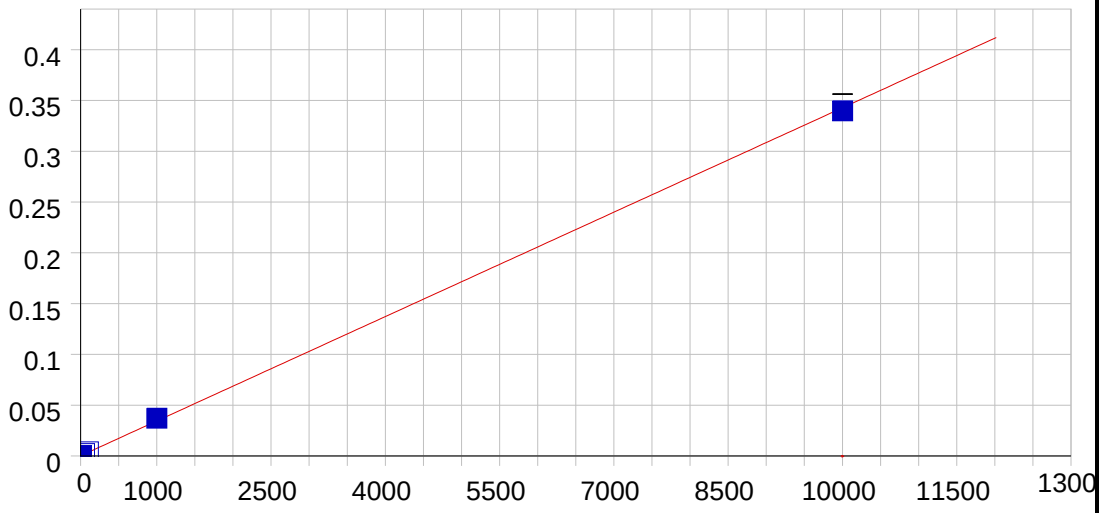


Cr 283.563 {119}

Date of Fit:	08/25/2011 14:26:01	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.001745	Re-Slope:	1.000000
A1 (Gain):	0.000298	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.970000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000599		
Predicted MDL:	0.281298		
Predicted MQL:	0.937659		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	1.9763	1.98	.000	.00232	.000	1
CalibStd=50	50.000	49.108	-.892	-1.78	.01478	.000	1
CalibStd=100	100.00	97.868	-2.13	-2.13	.02718	.000	1
CalibStd=100	1000.0	1000.9	.873	.087	.24454	.000	1
CalibStd=100	10000.	9999.9	-.073	-.001	2.2606	.050	1
CalibStd-100	100000.	100000.	.001	.000	20.612	.013	1

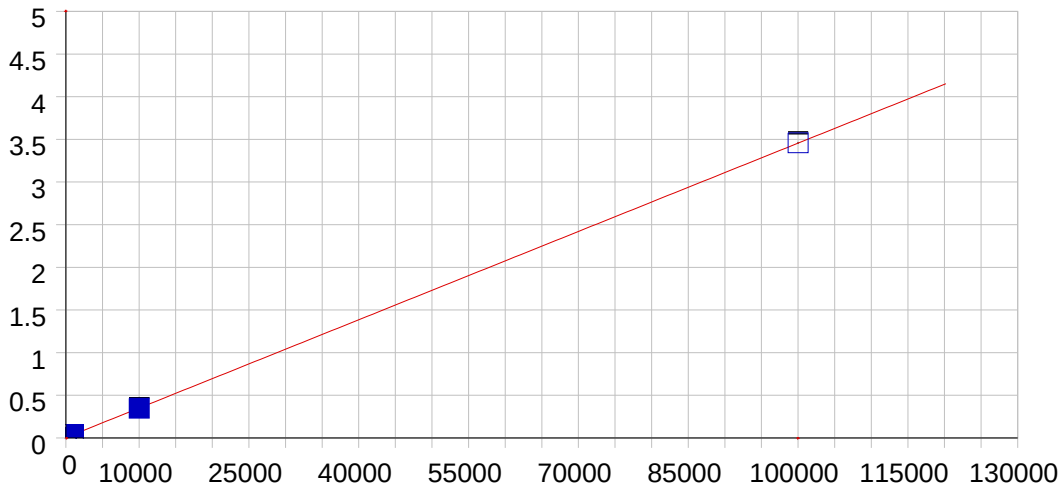


Cu 224.700 {450}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000192	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999606	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.759979		
Predicted MQL:	2.533264		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00351	-.004	.000	.00019	.000	1
CalibStd=100	1000.0	1074.4	74.4	7.44	.03702	.000	1
CalibStd=50	50.000	57.242	7.24	14.5	.00215	.000	1
CalibStd=100	100.00	111.62	11.6	11.6	.00402	.000	1
CalibStd=10	10.000	10.249	.249	2.49	.00054	.000	1
CalibStd=100	10000.	9906.5	-93.5	-.935	.33977	.007	1

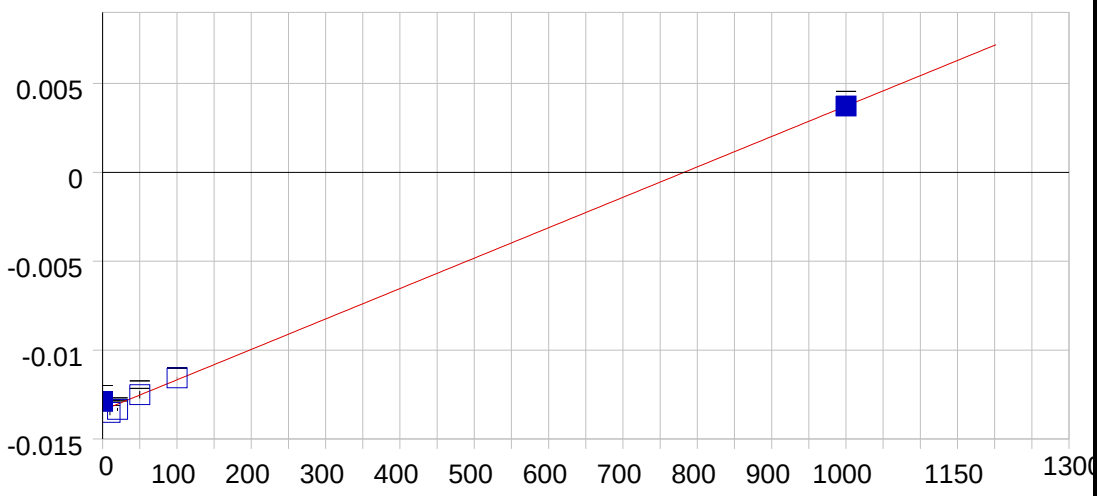


Cu 324.754 {104}

Date of Fit:	08/25/2011 14:26:01	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005123	Re-Slope:	1.000000
A1 (Gain):	0.000035	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	4.312657		
Predicted MQL:	14.375523		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01039	-.010	.000	.00512	.000	1
CalibStd=100	1000.0	1034.5	34.5	3.45	.04081	.000	1
CalibStd=50	50.000	56.225	6.23	12.5	.00706	.000	1
CalibStd=100	100.00	105.95	5.95	5.95	.00878	.000	1
CalibStd=100	10000.	9887.4	-113.	-1.13	.34619	.007	1
CalibStd-100	100000.	100070.	65.9	.066	3.4579	.011	1

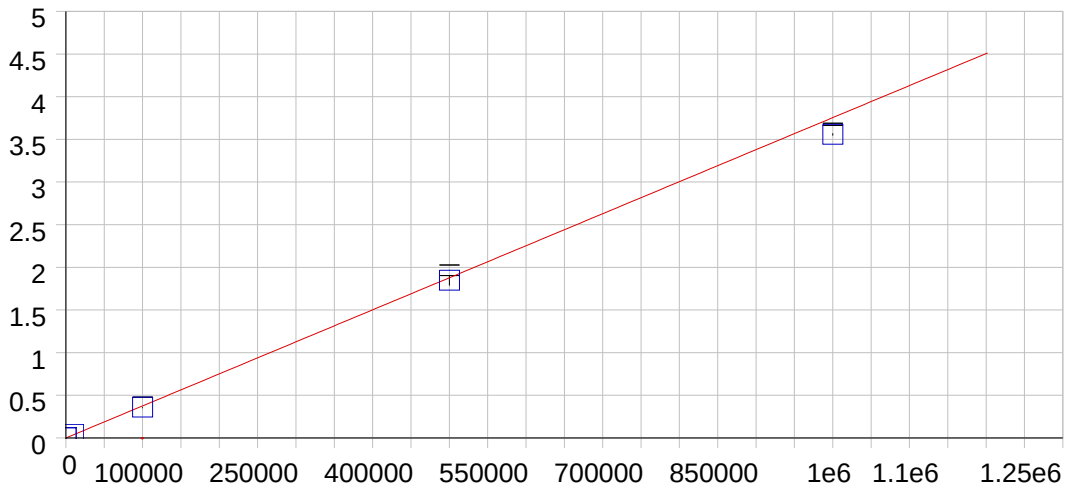


Cu 327.396 {103}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.013385	Re-Slope:	1.000000
A1 (Gain):	0.000017	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999061	Status:	OK.
Std Error of Est:	0.000328		
Predicted MDL:	11.584457		
Predicted MQL:	38.614855		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	28.489	28.5	.000	-.01290	.000	1
CalibStd=20	20.000	2.6418	-17.4	-86.8	-.01334	.000	1
CalibStd=50	50.000	50.853	.853	1.71	-.01251	.000	1
CalibStd=100	100.00	105.98	5.98	5.98	-.01157	.000	1
CalibStd=10	10.000	-7.8469	-17.8	-178.	-.01352	.000	1
CalibStd=100	1000.0	999.89	-.115	-.011	.00373	.000	1

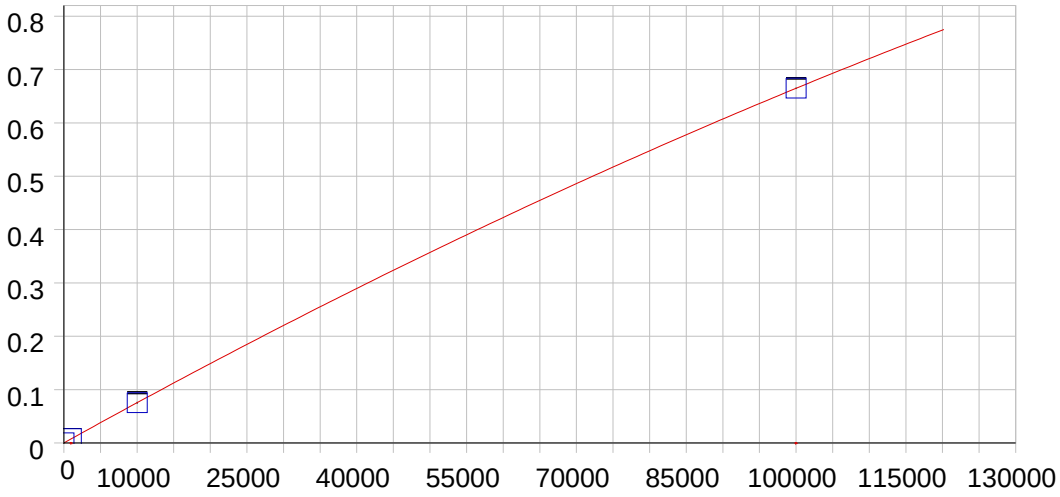


Fe 234.349 {144}

Date of Fit:	08/25/2011 14:47:11	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000041	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999912	Status:	OK.
Std Error of Est:	0.000105		
Predicted MDL:	8.517098		
Predicted MQL:	28.390327		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00004	.000	1
CalibStd=100	10000.	10810.	810.	8.10	.04063	.001	1
CalibStd=500	500000.	491950.	-8050.	-1.61	1.8472	.063	1
CalibStd=100	100000.	95889.	-4110.	-4.11	.36008	.001	1
CalibStd-100	1000000.	947480.	-52500.	-5.25	3.5577	.013	1
CalibStd=100	1000.0	1142.3	142.	14.2	.00433	.000	1

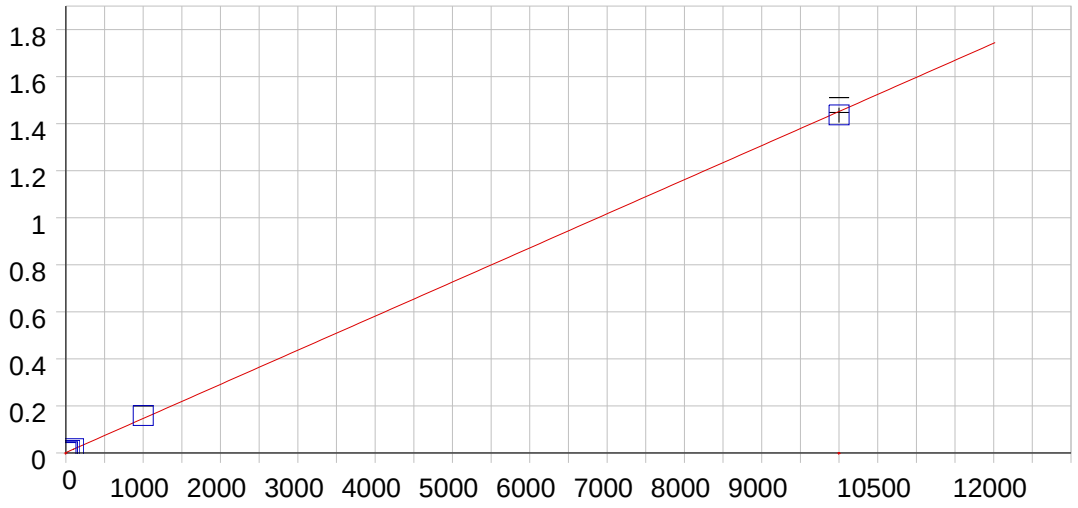


Fe 239.562 {141}

Date of Fit:	08/25/2011 14:32:50	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000087	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	4.719787		
Predicted MQL:	15.732625		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02729	-.027	.000	.00009	.000	1
CalibStd=100	1000.0	1030.7	30.7	3.07	.00794	.000	1
CalibStd=100	10000.	9965.4	-34.6	-.346	.07518	.002	1
CalibStd=100	100000.	100000.	4.13	.004	.66485	.001	1

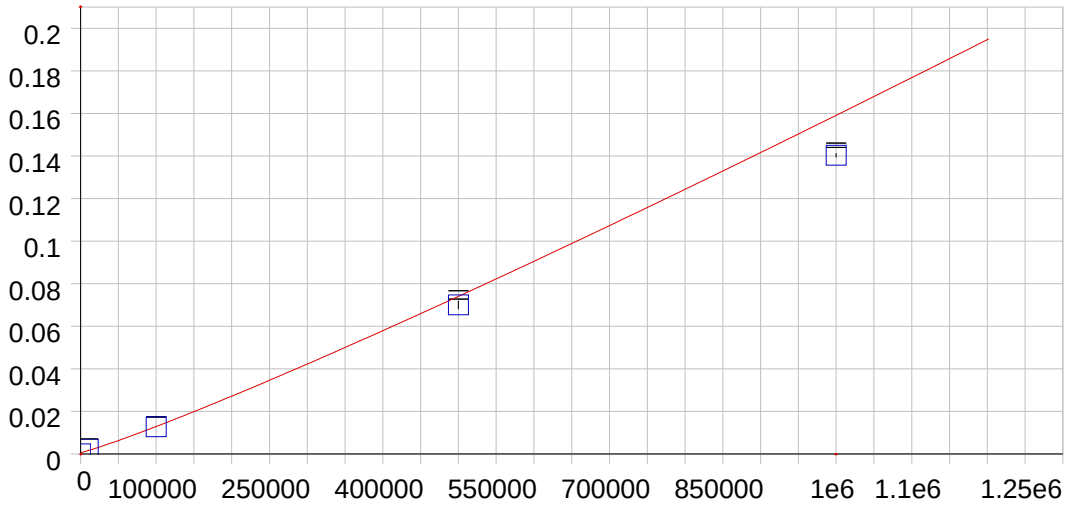


Fe 259.940 {130}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001661	Re-Slope:	1.000000
A1 (Gain):	0.000145	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999471	Status:	OK.
Std Error of Est:	0.000086		
Predicted MDL:	0.472830		
Predicted MQL:	1.576101		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01143	-.011	.000	.00166	.000	1
CalibStd=100	1000.0	1080.4	80.4	8.04	.15835	.000	1
CalibStd=50	50.000	61.014	11.0	22.0	.01051	.000	1
CalibStd=100	100.00	111.05	11.0	11.0	.01777	.000	1
CalibStd=20	20.000	23.418	3.42	17.1	.00506	.000	1
CalibStd=100	10000.	9894.1	-106.	-1.06	1.4365	.031	1

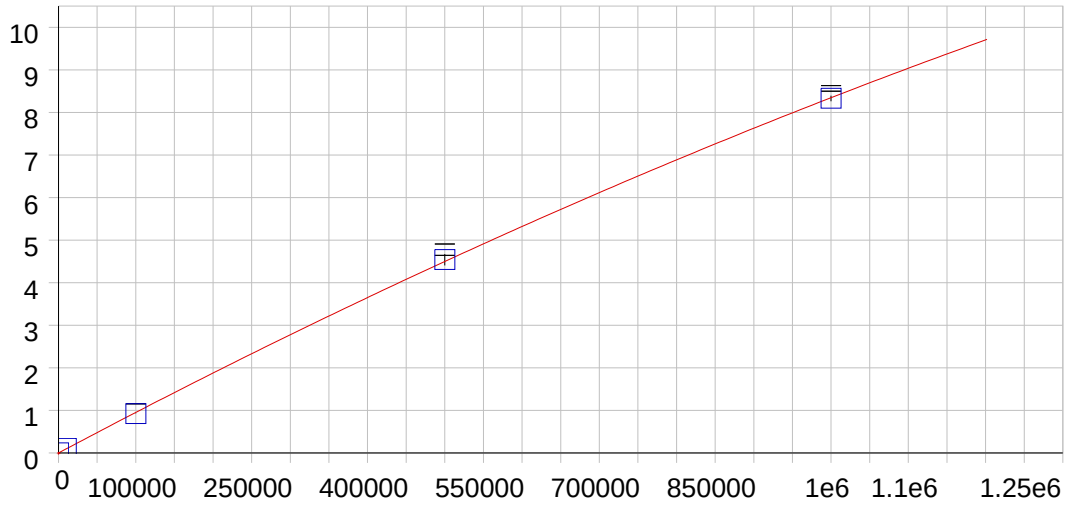


Mg 202.582 {466}

Date of Fit:	08/25/2011 14:47:11	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.000595	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.110000		
Correlation:	0.999971	Status:	OK.
Std Error of Est:	0.000915		
Predicted MDL:	333.467858		
Predicted MQL:	1111.559528		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00001	.000	1
CalibStd=100	100000.	98297.	-1700.	-1.70	.01267	.000	1
CalibStd=500	500000.	475270.	-24700.	-4.95	.07003	.002	1
CalibStd=100	10000.	16325.	6320.	63.2	.00224	.000	1
CalibStd-100	1000000.	892400.	-108000.	-10.8	.14032	.001	1

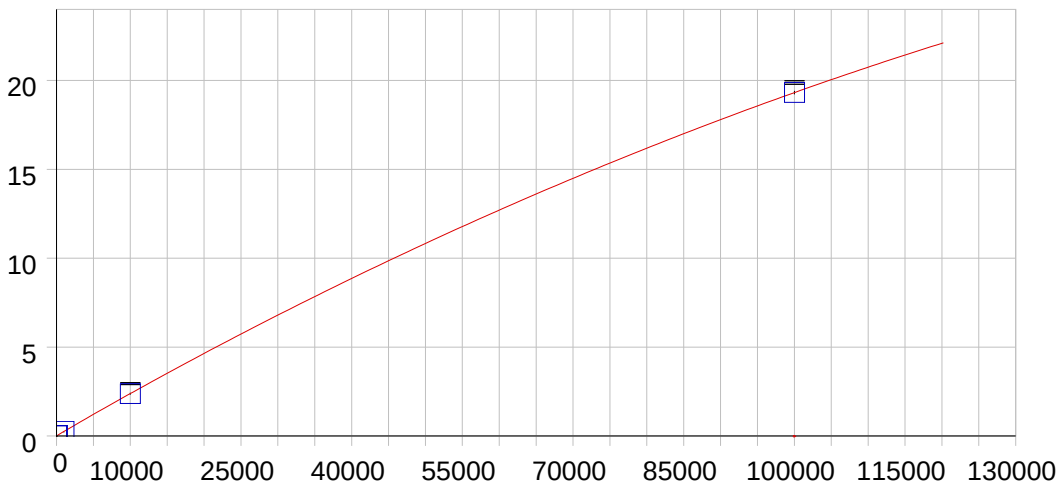


Mg 279.079 {121}

Date of Fit:	08/25/2011 14:47:11	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000095	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000667		
Predicted MDL:	4.989759		
Predicted MQL:	16.632532		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.48655	-.487	.000	.00009	.000	1
CalibStd=100	100000.	96769.	-3230.	-3.23	.92163	.004	1
CalibStd=500	500000.	504870.	4870.	.973	4.5398	.134	1
CalibStd=100	10000.	10737.	737.	7.37	.10355	.002	1
CalibStd-100	1000000.	997540.	-2460.	-.246	8.3301	.066	1

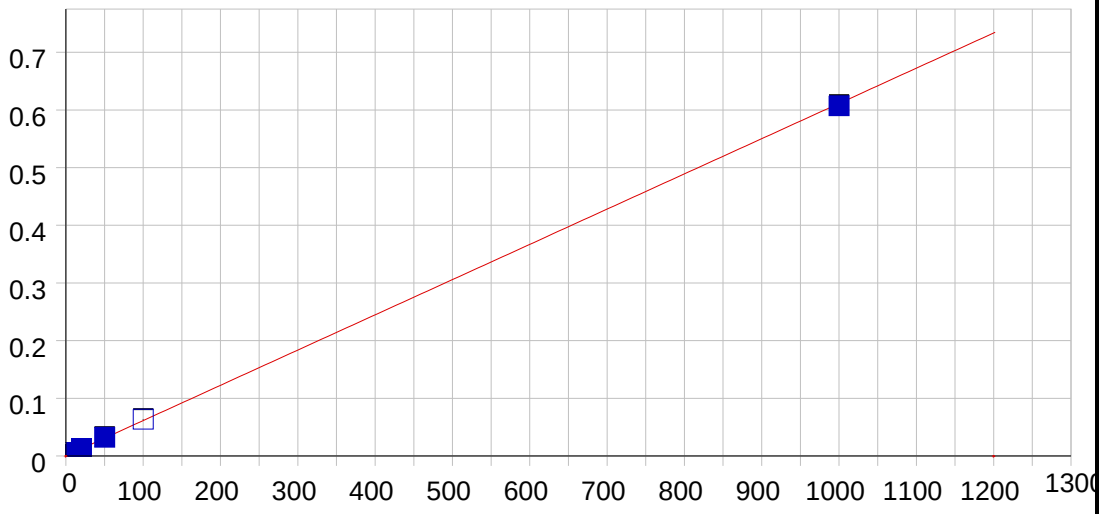


Mg 280.270 {120}

Date of Fit:	08/25/2011 14:32:50	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.002273	Re-Slope:	1.000000
A1 (Gain):	0.000266	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.990000		
Correlation:	0.999996	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.171219		
Predicted MQL:	0.570732		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00087	.001	.000	.00227	.000	1
CalibStd=100	1000.0	1022.2	22.2	2.22	.25568	.001	1
CalibStd=100	10000.	9977.3	-22.7	-.227	2.3788	.054	1
CalibStd=100	100.00	97.820	-2.18	-2.18	.02714	.000	1
CalibStd=50	50.000	49.127	-.873	-1.75	.01485	.000	1
CalibStd=100	100000.	100000.	3.32	.003	19.319	.100	1

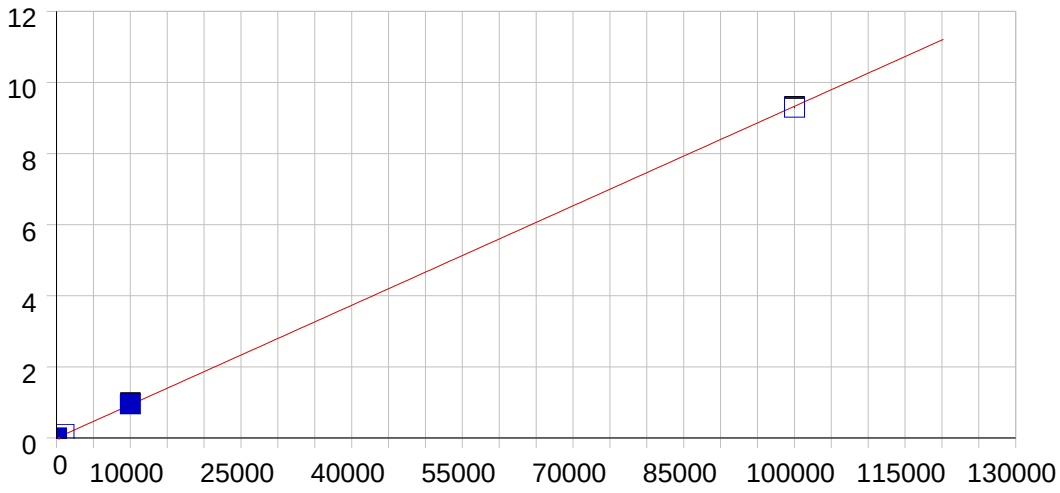


Mn 257.610 {131}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000336	Re-Slope:	1.000000
A1 (Gain):	0.000611	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999800	Status:	OK.
Std Error of Est:	0.000035		
Predicted MDL:	0.068811		
Predicted MQL:	0.229371		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00025	.000	.000	.00034	.000	1
CalibStd=10	10.000	9.8363	-.164	-1.64	.00635	.000	1
CalibStd=50	50.000	52.203	2.20	4.41	.03223	.000	1
CalibStd=20	20.000	21.805	1.81	9.03	.01366	.000	1
CalibStd=100	100.00	103.44	3.44	3.44	.06354	.001	1
CalibStd=5	5.0000	4.5224	-.478	-9.55	.00310	.000	1
CalibStd=100	1000.0	993.19	-6.81	-.681	.60720	.001	1

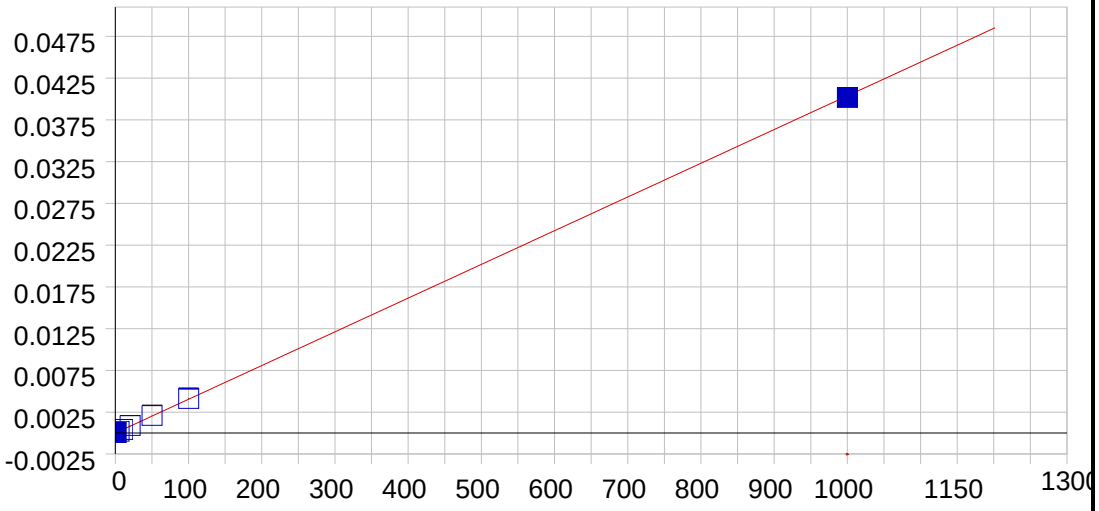


Mn 259.373 {130}

Date of Fit:	08/25/2011 14:26:01	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000062	Re-Slope:	1.000000
A1 (Gain):	0.000093	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999948	Status:	OK.
Std Error of Est:	0.000447		
Predicted MDL:	0.830310		
Predicted MQL:	2.767702		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.09217	-.092	.000	.00005	.000	1
CalibStd=100	10000.	10231.	231.	2.31	.95583	.022	1
CalibStd-100	100000.	99696.	-304.	-.304	9.3011	.023	1
CalibStd=100	1000.0	1072.1	72.1	7.21	.10008	.000	1

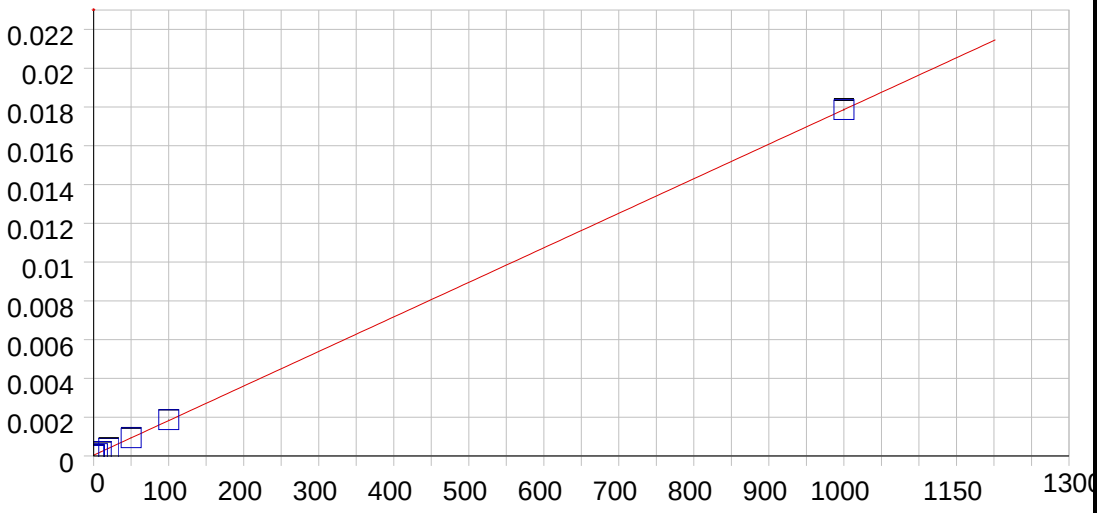


Mo 202.030 {467}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000040	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999850	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.469676		
Predicted MQL:	1.565588		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00003	.000	.000	.00001	.000	1
CalibStd=50	50.000	51.754	1.75	3.51	.00210	.000	1
CalibStd=1	1.0000	.86559	-.134	-13.4	.00004	.000	1
CalibStd=20	20.000	22.029	2.03	10.1	.00090	.000	1
CalibStd=10	10.000	9.7987	-.201	-2.01	.00040	.000	1
CalibStd=100	100.00	101.90	1.90	1.90	.00412	.000	1
CalibStd=5	5.0000	4.8619	-.138	-2.76	.00020	.000	1
CalibStd=100	1000.0	994.79	-5.21	-.521	.04016	.000	1

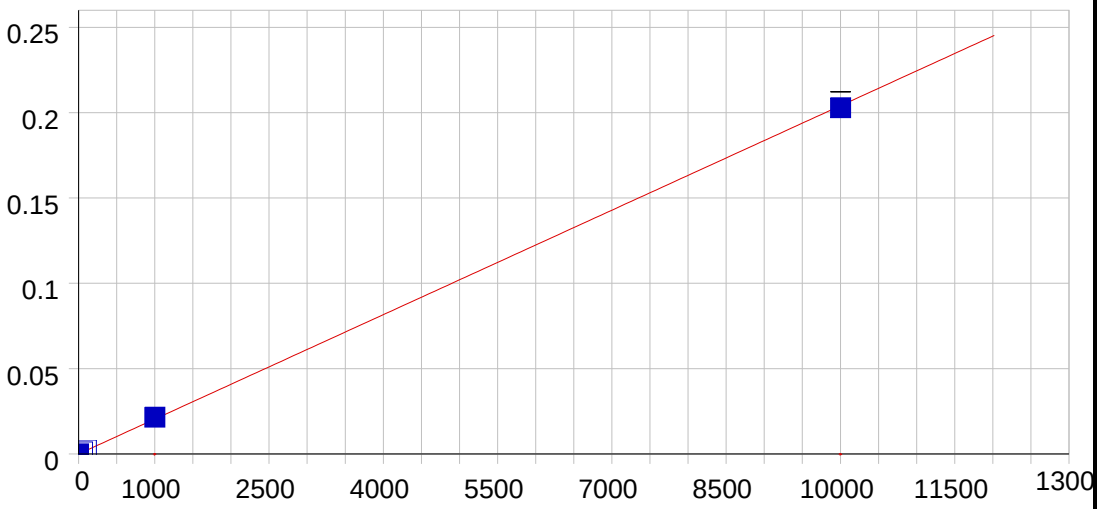


Mo 203.844 {465}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000041	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	1.066758		
Predicted MQL:	3.555860		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.77228	-.772	.000	.00003	.000	1
CalibStd=50	50.000	50.033	.033	.067	.00093	.000	1
CalibStd=1	1.0000	.34116	-.659	-65.9	.00005	.000	1
CalibStd=20	20.000	20.287	.287	1.44	.00040	.000	1
CalibStd=10	10.000	10.121	.121	1.21	.00022	.000	1
CalibStd=100	100.00	102.30	2.30	2.30	.00186	.000	1
CalibStd=5	5.0000	3.9259	-1.07	-21.5	.00011	.000	1
CalibStd=100	1000.0	999.77	-.232	-.023	.01786	.000	1

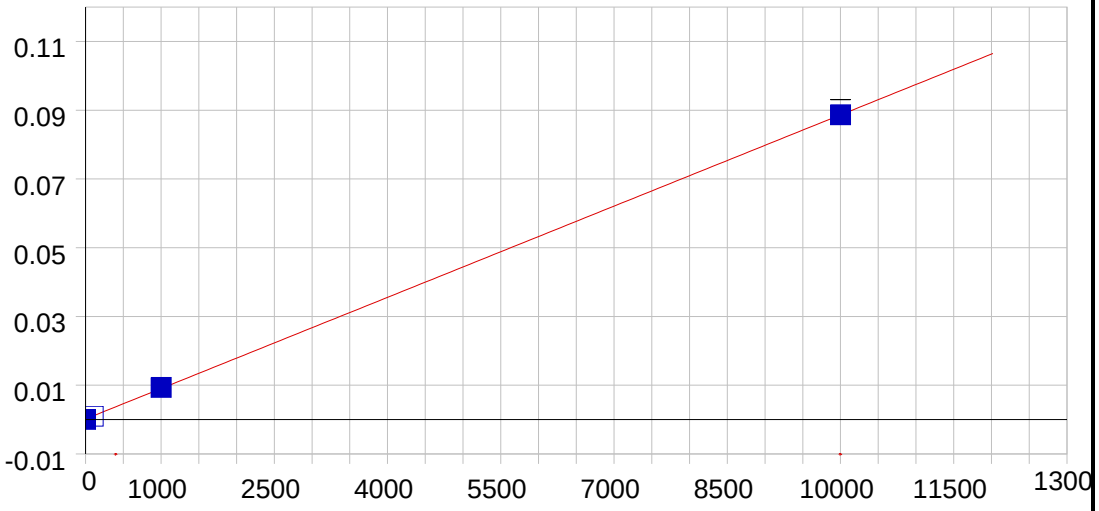


Mo 204.598 {465}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000015	Re-Slope:	1.000000
A1 (Gain):	0.000020	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999824	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.953424		
Predicted MQL:	3.178081		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00994	-.010	.000	.00001	.000	1
CalibStd=100	1000.0	1051.3	51.3	5.13	.02147	.000	1
CalibStd=100	10000.	9937.1	-62.9	-.629	.20278	.004	1
CalibStd=50	50.000	53.743	3.74	7.49	.00111	.000	1
CalibStd=100	100.00	107.90	7.90	7.90	.00222	.000	1

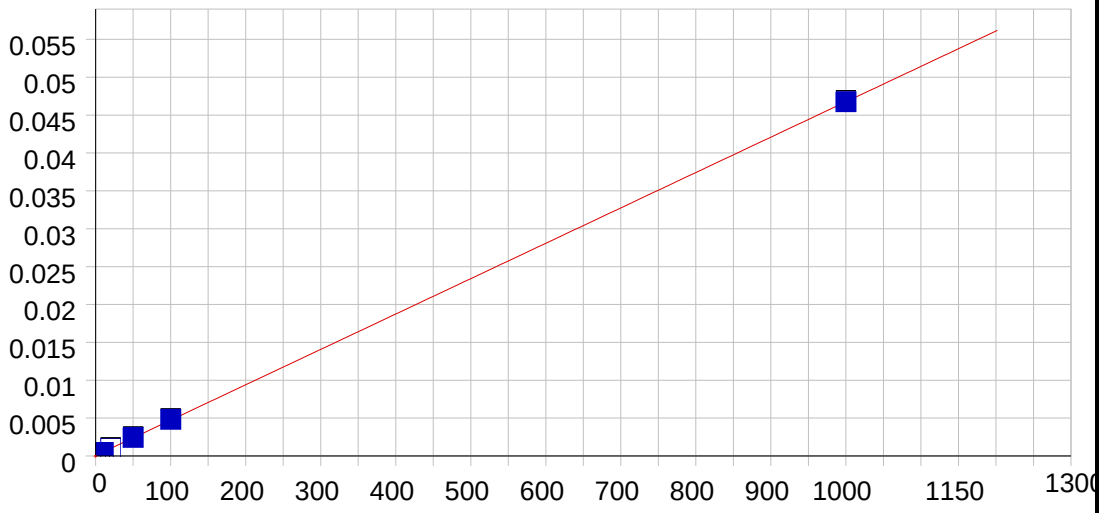


Ni 221.647 {452}

Date of Fit:	08/25/2011 14:18:46	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000171	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999989	Status:	OK.
Std Error of Est:	0.000250		
Predicted MDL:	2.550075		
Predicted MQL:	8.500249		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-17.915	-17.9	.000	.00001	.000	1
CalibStd=100	10000.	9996.8	-3.22	-.032	.08862	.002	1
CalibStd=100	100.00	87.719	-12.3	-12.3	.00095	.000	1
CalibStd=100	1000.0	1033.4	33.4	3.34	.00931	.000	1

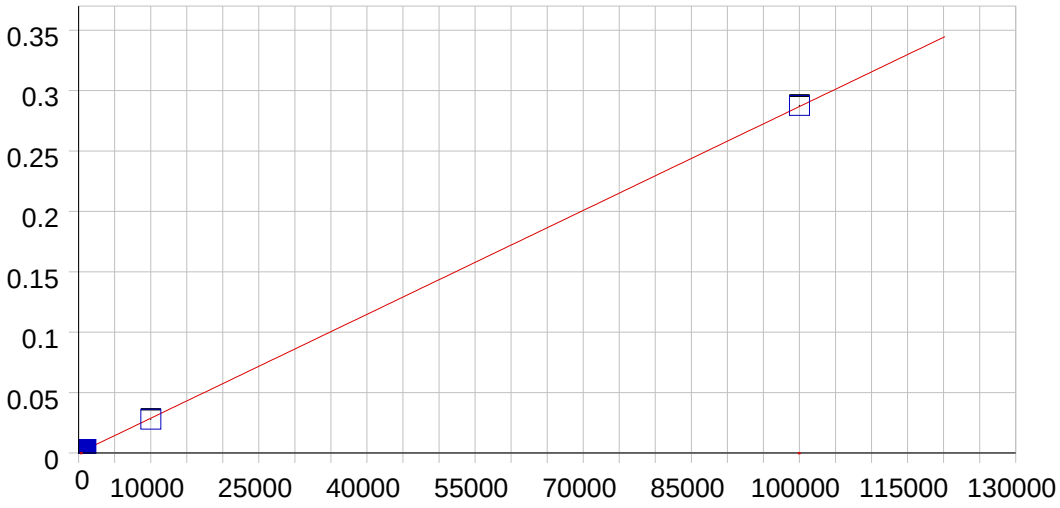


Ni 231.604 {445}

Date of Fit:	08/25/2011 14:11:51	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000057	Re-Slope:	1.000000
A1 (Gain):	0.000047	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000066		
Predicted MDL:	0.599244		
Predicted MQL:	1.997480		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.12394	-.124	.000	.00005	.000	1
CalibStd=50	50.000	50.736	.736	1.47	.00243	.000	1
CalibStd=20	20.000	21.018	1.02	5.09	.00104	.000	1
CalibStd=10	10.000	8.3842	-1.62	-16.2	.00045	.000	1
CalibStd=100	100.00	101.77	1.77	1.77	.00481	.000	1
CalibStd=5	5.0000	3.4251	-1.57	-31.5	.00022	.000	1
CalibStd=100	1000.0	999.79	-.210	-.021	.04675	.000	1

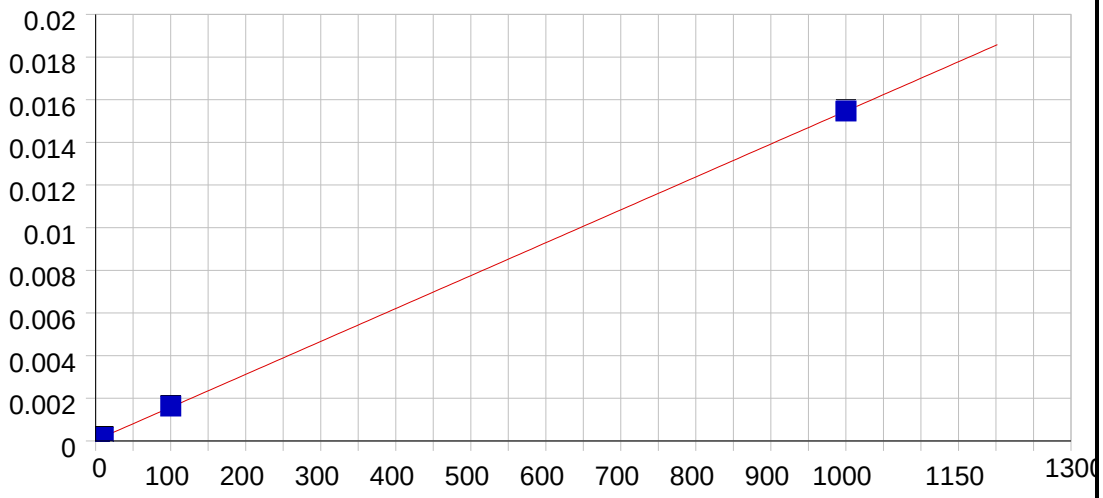


Pb 216.999 {455}

Date of Fit:	08/25/2011 14:26:01	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000031	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999932	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	8.148003		
Predicted MQL:	27.160011		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03792	-.038	.000	.00003	.000	1
CalibStd=100	1000.0	1067.1	67.1	6.71	.00310	.000	1
CalibStd=100	10000.	9683.1	-317.	-3.17	.02780	.000	1
CalibStd-100	100000.	100250.	250.	.250	.28754	.001	1

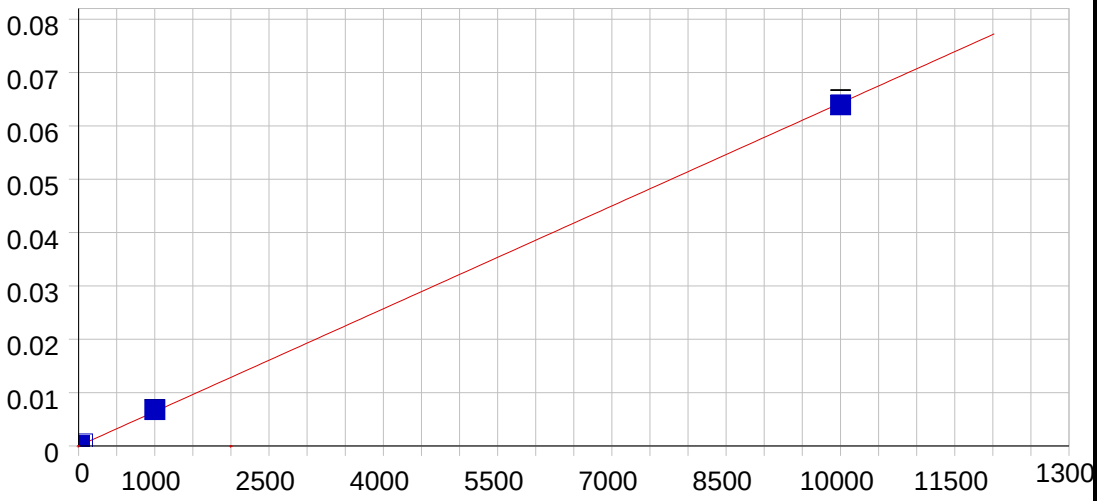


Pb 220.353 {453}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000037	Re-Slope:	1.000000
A1 (Gain):	0.000015	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	1.778625		
Predicted MQL:	5.928751		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.04690	.047	.000	.00004	.000	1
CalibStd=10	10.000	8.5126	-1.49	-14.9	.00017	.000	1
CalibStd=100	100.00	102.97	2.97	2.97	.00163	.000	1
CalibStd=5	5.0000	3.7490	-1.25	-25.0	.00009	.000	1
CalibStd=100	1000.0	999.72	-.276	-.028	.01550	.000	1

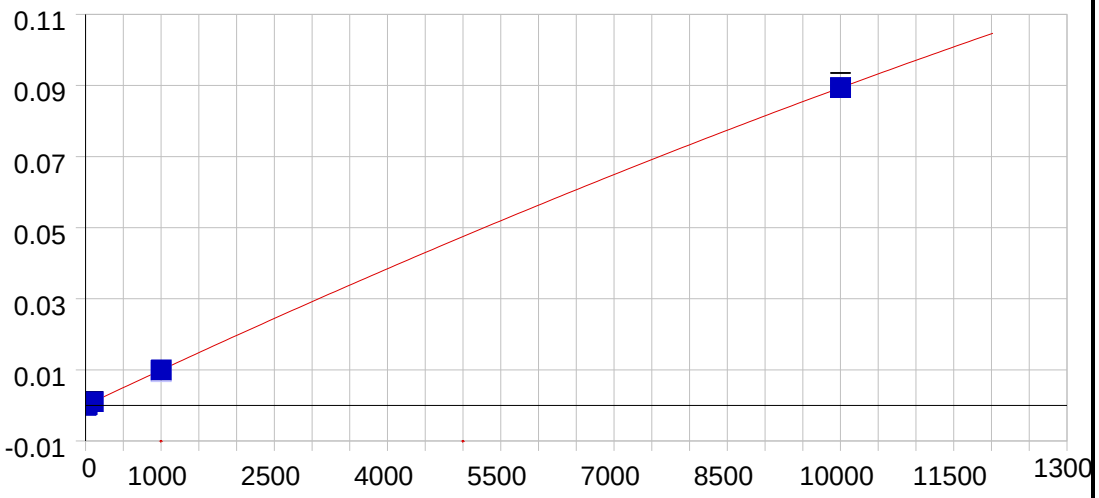


Sb 206.833 {463}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999775	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	3.267045		
Predicted MQL:	10.890151		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00259	.003	.000	.00001	.000	1
CalibStd=100	1000.0	1054.6	54.6	5.46	.00679	.000	1
CalibStd=10	10.000	6.2073	-3.79	-37.9	.00005	.000	1
CalibStd=50	50.000	53.558	3.56	7.12	.00035	.000	1
CalibStd=100	10000.	9945.6	-54.4	-.544	.06392	.001	1

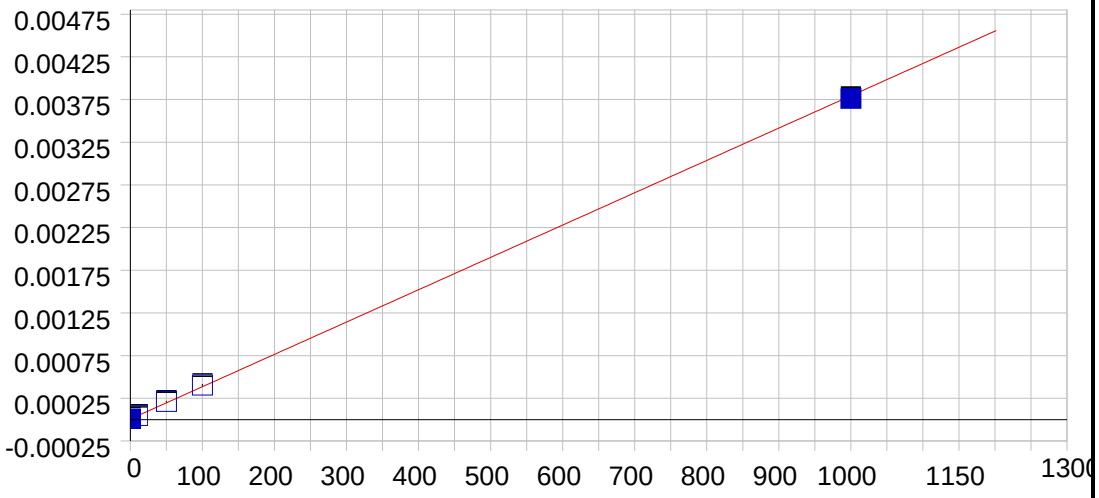


Sb 217.581 {455}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000015		
Predicted MDL:	3.271970		
Predicted MQL:	10.906565		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00001	.000	1
CalibStd=100	1000.0	999.91	-.090	-.009	.00944	.000	1
CalibStd=20	20.000	21.178	1.18	5.89	.00019	.000	1
CalibStd=10	10.000	8.3773	-1.62	-16.2	.00007	.000	1
CalibStd=100	100.00	100.73	.728	.728	.00095	.000	1
CalibStd=100	10000.	10000.	.001	.000	.08937	.001	1

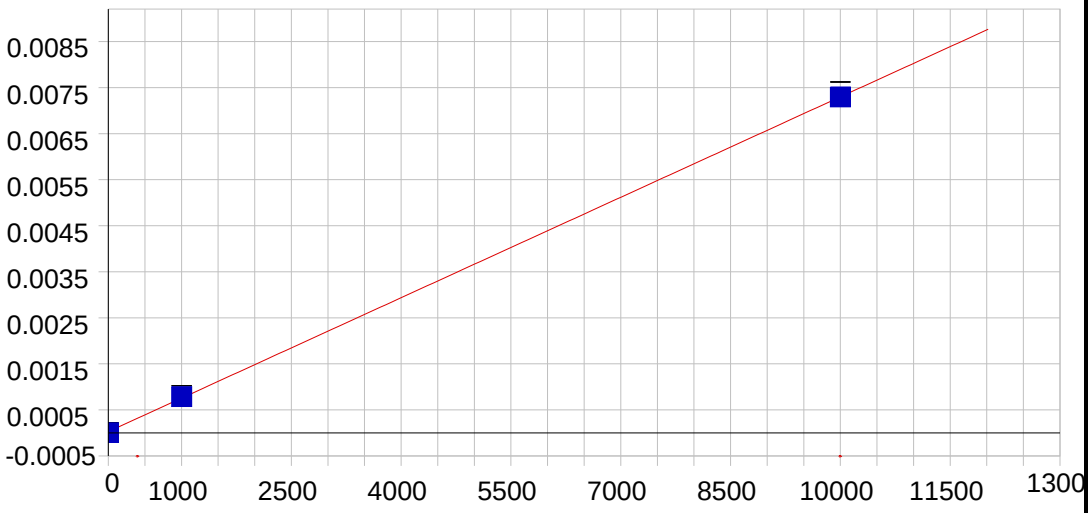


Se 196.090 {472}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999753	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.591072		
Predicted MQL:	15.303574		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00161	-.002	.000	.00001	.000	1
CalibStd=50	50.000	53.701	3.70	7.40	.00021	.000	1
CalibStd=100	1000.0	991.34	-8.66	-.866	.00376	.000	1
CalibStd=10	10.000	10.517	.517	5.17	.00005	.000	1
CalibStd=100	100.00	104.45	4.45	4.45	.00040	.000	1

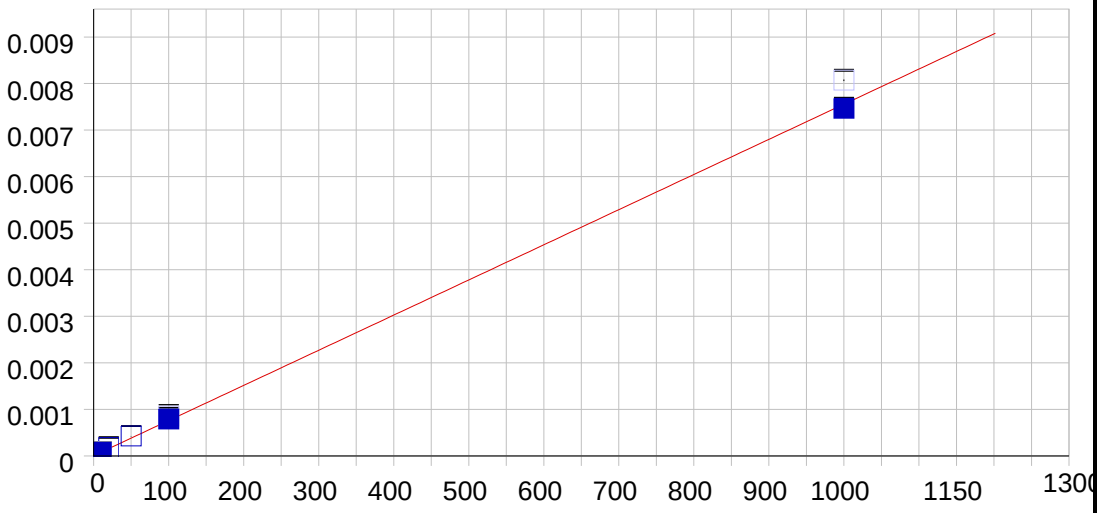


Se 206.279 {463}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000029	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000042		
Predicted MDL:	29.763116		
Predicted MQL:	99.210387		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-38.263	-38.3	.000	.00000	.000	1
CalibStd=100	1000.0	1042.5	42.5	4.25	.00079	.000	1
CalibStd=100	10000.	9995.7	-4.25	-.043	.00730	.000	1

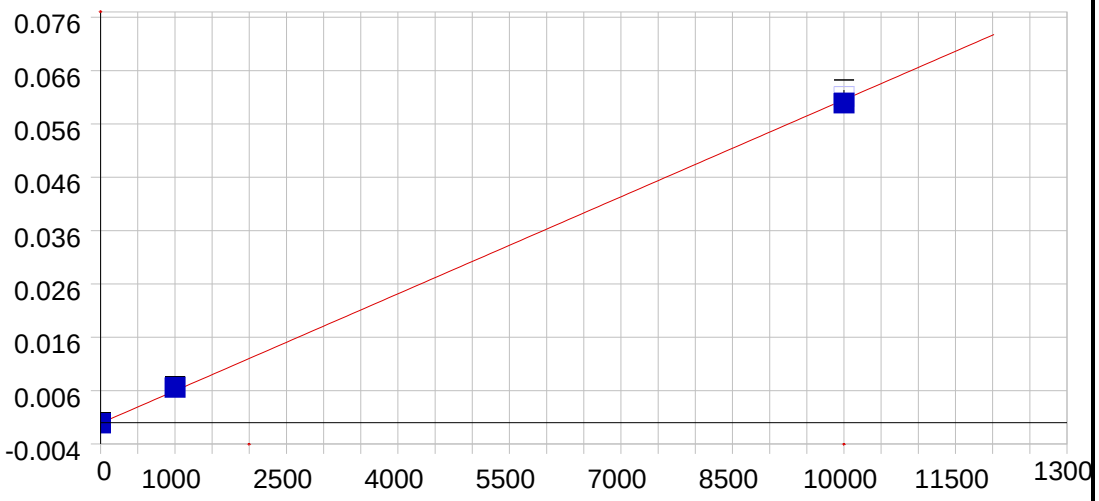


Tl 190.856 {477}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999489	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	2.183055		
Predicted MQL:	7.276851		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00268	-.003	.000	.00001	.000	1
CalibStd=50	50.000	55.536	5.54	11.1	.00042	.000	1
CalibStd=100	1000.0	988.16	-11.8	-1.18	.00807	.000	1
CalibStd=20	20.000	23.049	3.05	15.2	.00018	.000	1
CalibStd=100	100.00	104.14	4.14	4.14	.00085	.000	1
CalibStd=10	10.000	9.7540	-.246	-2.46	.00009	.000	1

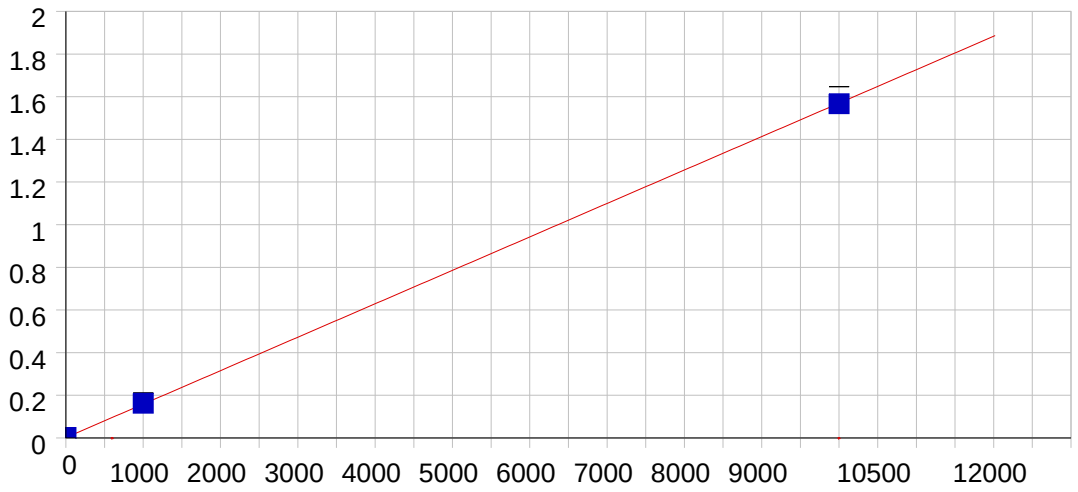


Tl 276.787 {122}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000101	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999478	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	14.166641		
Predicted MQL:	47.222136		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.09396	-.094	.000	-.00010	.000	1
CalibStd=100	1000.0	1104.2	104.	10.4	.00659	.000	1
CalibStd=100	10000.	9897.9	-102.	-1.02	.06113	.001	1

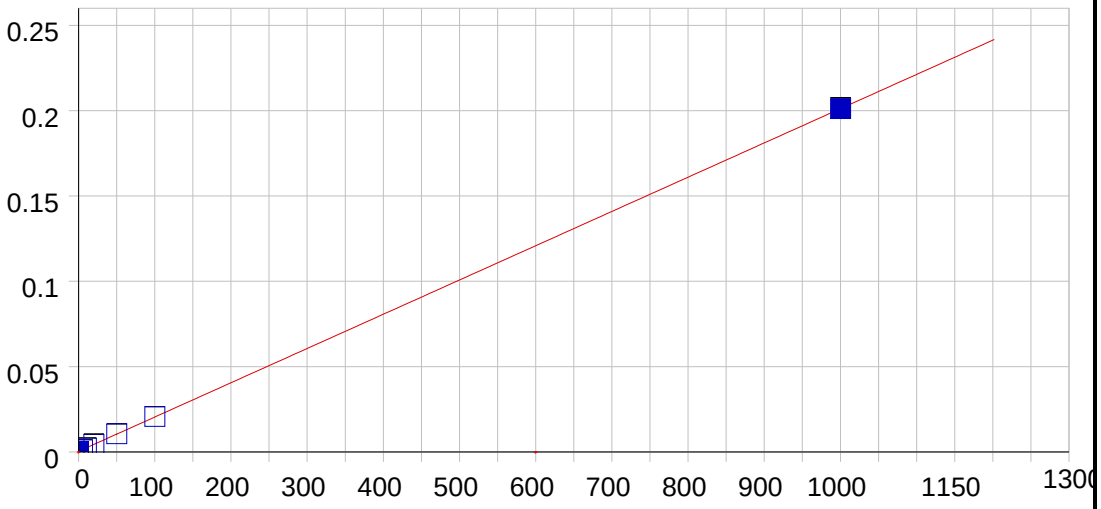


V 290.882 {116}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002034	Re-Slope:	1.000000
A1 (Gain):	0.000157	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999976	Status:	OK.
Std Error of Est:	0.000196		
Predicted MDL:	0.648106		
Predicted MQL:	2.160355		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01958	-.020	.000	.00203	.000	1
CalibStd=100	1000.0	1021.8	21.8	2.18	.16225	.000	1
CalibStd=100	10000.	9978.2	-21.8	-.218	1.5667	.034	1

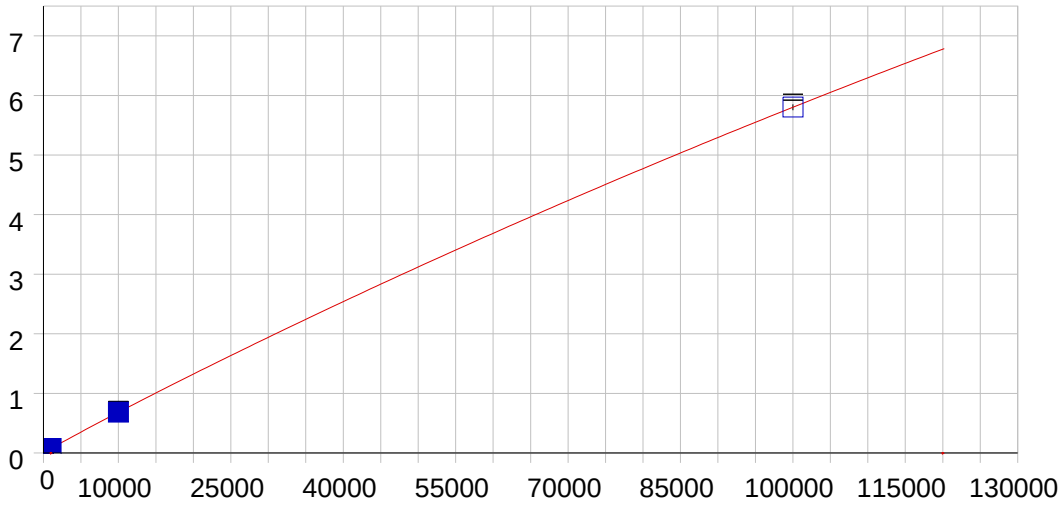


V 292.402 {115}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000391	Re-Slope:	1.000000
A1 (Gain):	0.000201	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.000211		
Predicted MDL:	0.484800		
Predicted MQL:	1.616001		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.62514	-.625	.000	.00027	.000	1
CalibStd=50	50.000	50.927	.927	1.85	.01062	.000	1
CalibStd=100	1000.0	999.83	-.165	-.017	.20114	.001	1
CalibStd=20	20.000	20.789	.789	3.95	.00456	.000	1
CalibStd=5	5.0000	3.8331	-1.17	-23.3	.00116	.000	1
CalibStd=10	10.000	9.0596	-.940	-9.40	.00221	.000	1
CalibStd=100	100.00	101.18	1.18	1.18	.02071	.000	1

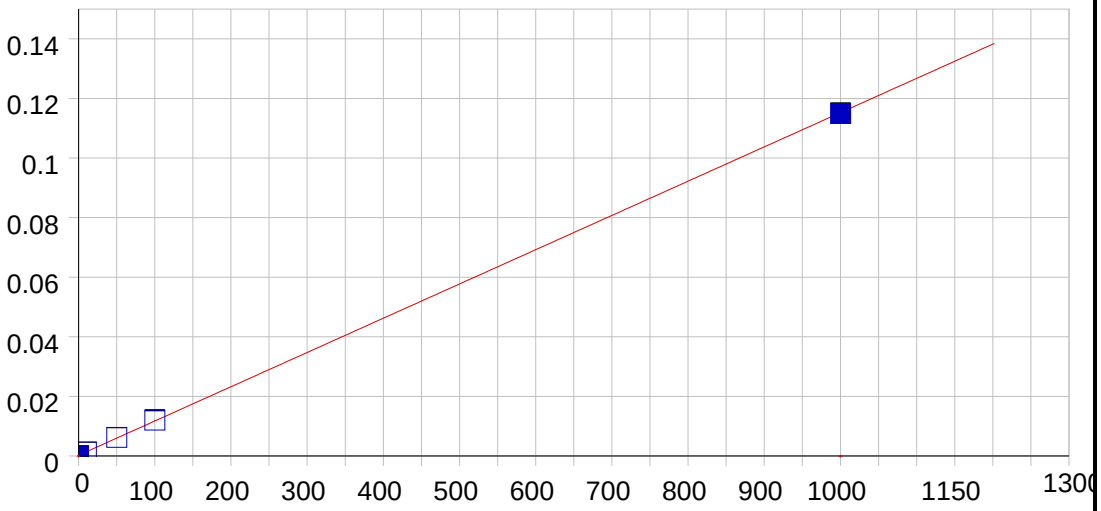


Zn 206.200 {463}

Date of Fit:	08/25/2011 14:26:01	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000116	Re-Slope:	1.000000
A1 (Gain):	0.000091	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.970000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.207527		
Predicted MQL:	0.691757		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalibStd=100	10000.	9991.1	-8.87	-.089	.68203	.012	1
CalibStd-100	100000.	100000.	1.20	.001	5.8019	.049	1
Blank	.00000	.00000	.000	.000	.00012	.000	1
CalibStd=100	1000.0	1006.8	6.85	.685	.07444	.000	1

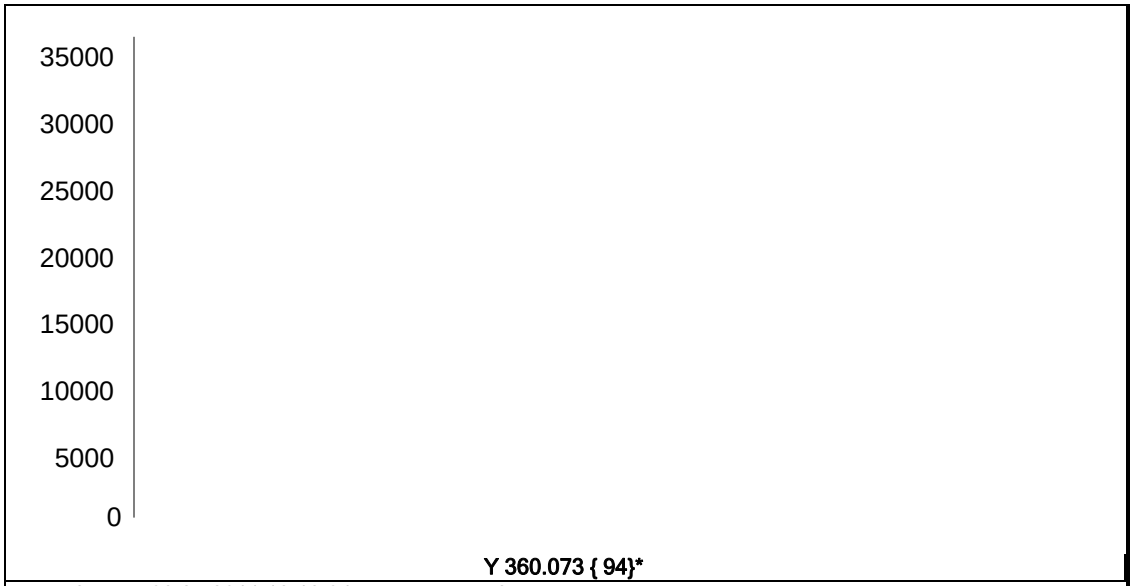


Zn 213.856 {458}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	1/Conc

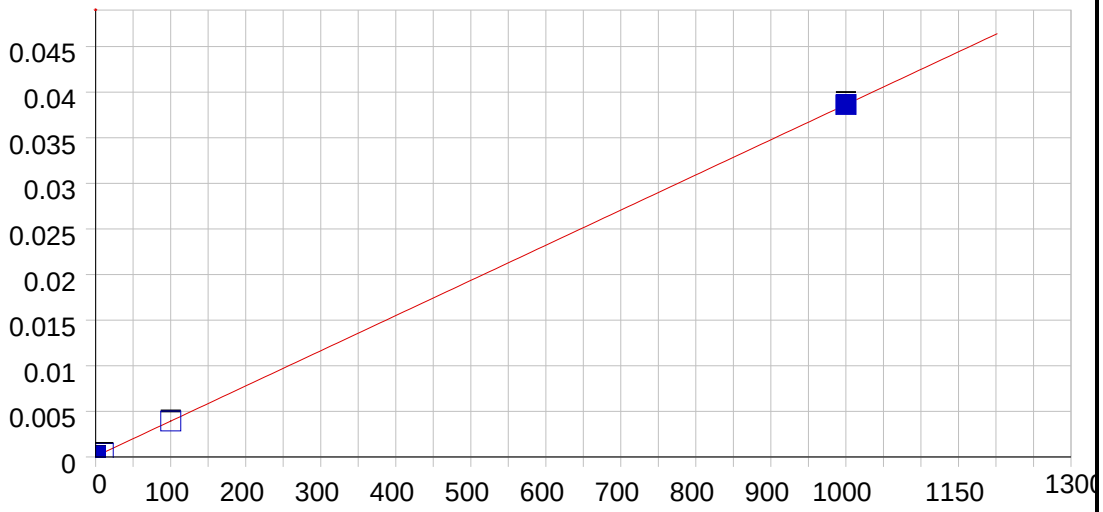
A0 (Offset):	0.000233	Re-Slope:	1.000000
A1 (Gain):	0.000115	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999944	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	0.180151		
Predicted MQL:	0.600503		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00008	.000	.000	.00023	.000	1
CalibStd=100	100.00	102.09	2.09	2.09	.01197	.000	1
CalibStd=50	50.000	51.515	1.51	3.03	.00616	.000	1
CalibStd=10	10.000	9.4363	-.564	-5.64	.00132	.000	1
CalibStd=100	1000.0	996.96	-3.04	-.304	.11491	.000	1



Date of Fit:	08/25/2011 13:13:04	Type of Fit:	Linear	Weighting:	None	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	33886.	127.	1

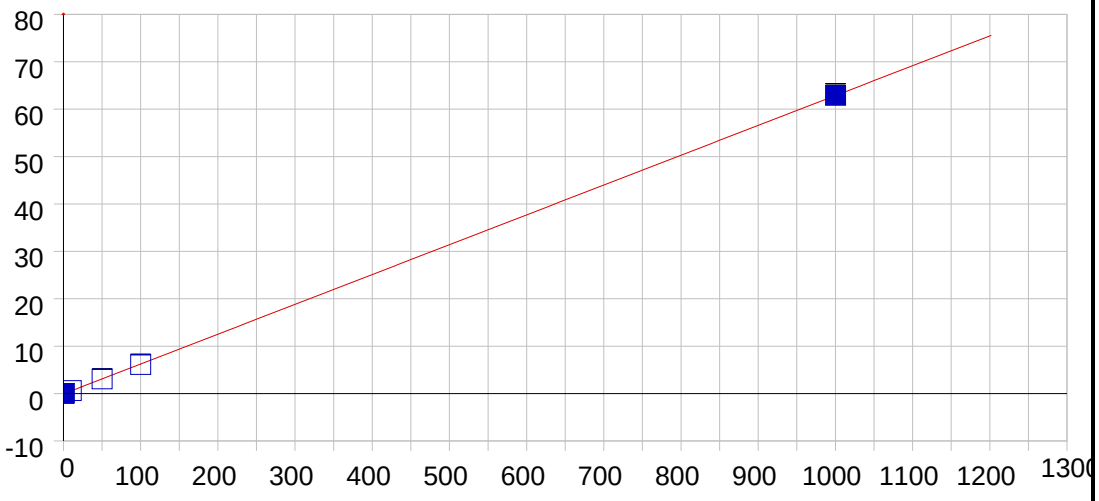


B 249.773 {135}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000075	Re-Slope:	1.000000
A1 (Gain):	0.000039	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	1.869797		
Predicted MQL:	6.232657		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.90758	.908	.000	.00011	.000	1
CalibStd=10	10.000	8.9241	-1.08	-10.8	.00042	.000	1
CalibStd=100	100.00	100.18	.175	.175	.00394	.000	1
CalibStd=100	1000.0	999.99	-.007	-.001	.03865	.000	1

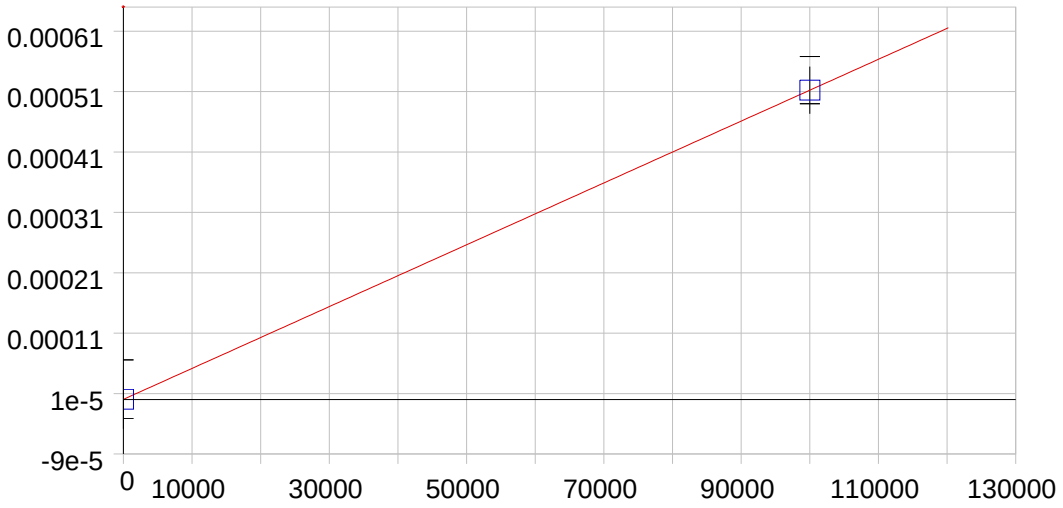


Li 670.784 { 50}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.061768	Re-Slope:	1.000000
A1 (Gain):	0.062939	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.073131		
Predicted MDL:	0.009312		
Predicted MQL:	0.031039		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.98305	.983	.000	.00010	.000	1
CalibStd=10	10.000	10.271	.271	2.71	.58466	.007	1
CalibStd=50	50.000	49.547	-.453	-.906	3.0567	.025	1
CalibStd=100	100.00	98.154	-1.85	-1.85	6.1159	.055	1
CalibStd=100	1000.0	1000.2	.204	.020	62.891	.363	1
CalibStd=1	1.0000	1.8411	.841	84.1	.05411	.000	1

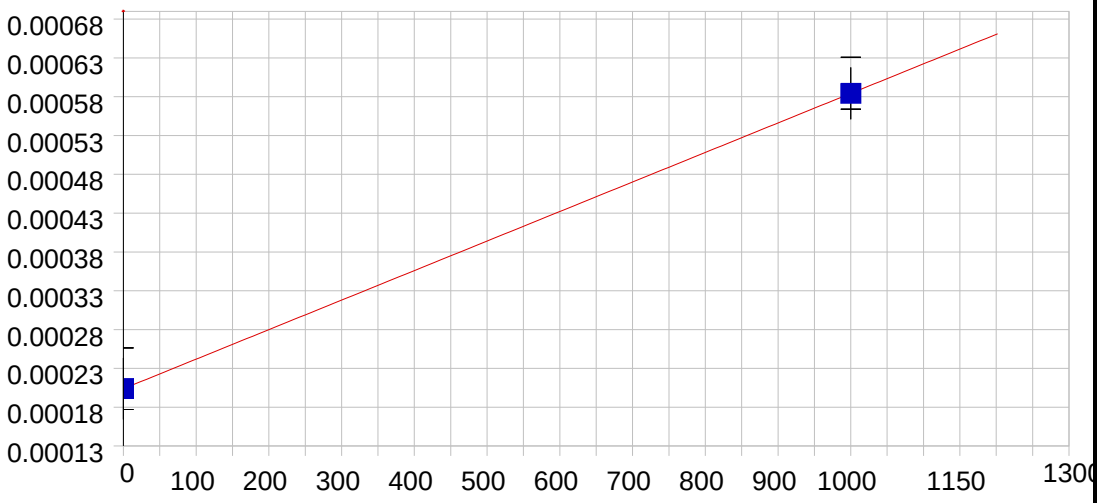


Na 330.298 {102}

Date of Fit:	08/25/2011 14:32:50	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	30054.60526		
Predicted MQL:	100182.0175		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00000	.000	1
CalibStd=100	100000.	100000.	.000	.000	.00051	.000	1

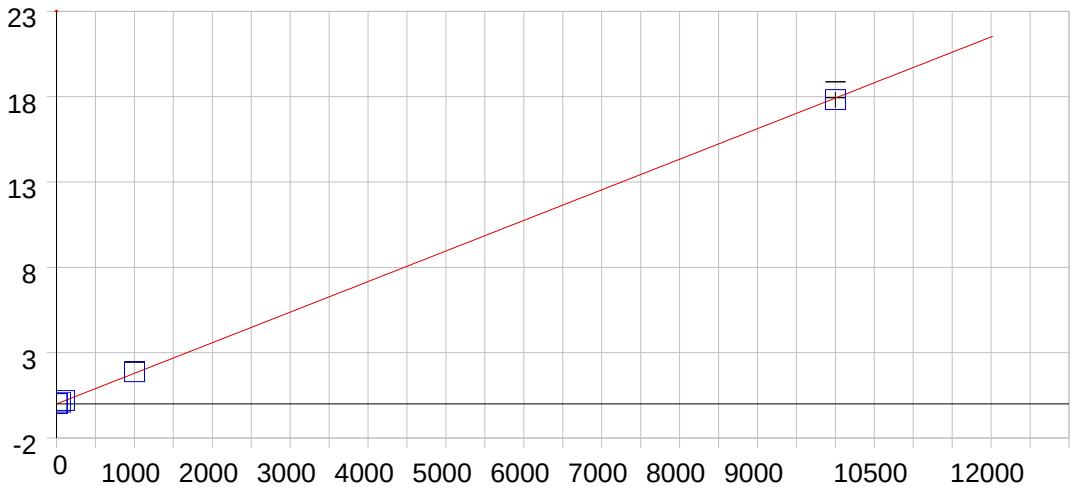


Si 251.611 {134}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000204	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	202.671285		
Predicted MQL:	675.570950		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00020	.000	1
CalibStd=100	1000.0	1000.0	.000	.000	.00058	.000	1

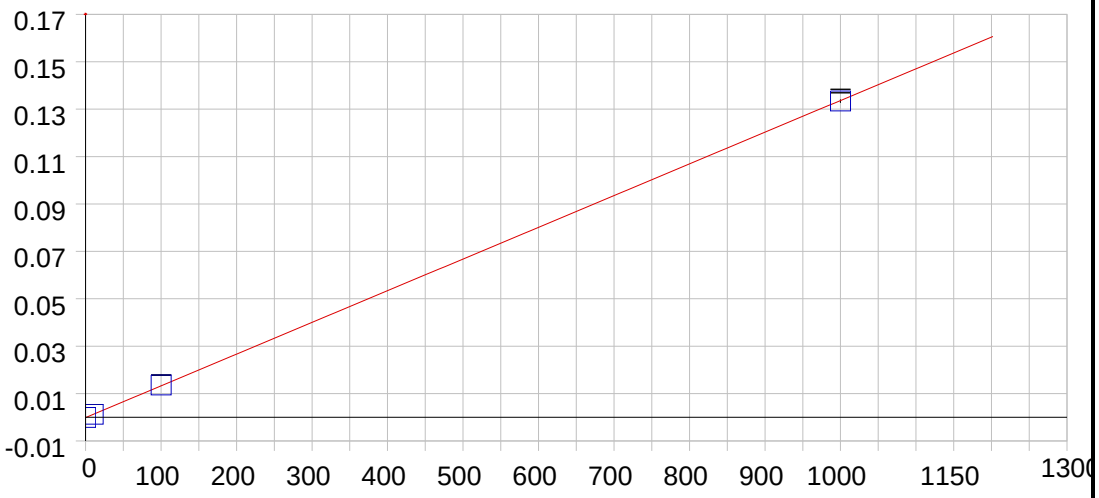


Sr 407.771 { 83}

Date of Fit:	08/25/2011 14:18:47	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.004076	Re-Slope:	1.000000
A1 (Gain):	0.001792	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999865	Status:	OK.
Std Error of Est:	0.000113		
Predicted MDL:	0.122732		
Predicted MQL:	0.409108		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00015	.000	.000	-.00408	.000	1
CalibStd=1	1.0000	.96159	-.038	-3.84	-.00235	.000	1
CalibStd=5	5.0000	5.0114	.011	.227	.00491	.000	1
CalibStd=10	10.000	10.125	.125	1.25	.01407	.000	1
CalibStd=50	50.000	53.490	3.49	6.98	.09179	.000	1
CalibStd=100	100.00	106.56	6.56	6.56	.18691	.000	1
CalibStd=100	1000.0	1045.0	45.0	4.50	1.8689	.001	1
CalibStd=100	10000.	9944.8	-55.2	-.552	17.820	.464	1



Ti 334.941 {101}

Date of Fit:	08/25/2011 14:11:52	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000115	Re-Slope:	1.000000
A1 (Gain):	0.000134	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999979	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	1.054054		
Predicted MQL:	3.513515		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00006	.000	.000	-.00011	.000	1
CalibStd=10	10.000	9.8770	-.123	-1.23	.00121	.000	1
CalibStd=100	100.00	102.03	2.03	2.03	.01354	.000	1
CalibStd=100	1000.0	998.09	-1.91	-.191	.13342	.001	1

Sample Name: Blank Acquired: 08/25/2011 13:06:32 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3092	Al3961	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**-.002**	**.000**	**.000**	**.000**	**.004**	**.003**	**.000**	**.000**	**.004**	**.053**
Stddev	.000	.000	.000	.000	.000	.00	.000	.000	.000	.000	.000	.000
%RSD	10.7	3.26	2.22	270.	37.3	76.5	7.43	17.4	44.5	15.6	1.87	.363

Elem	Ca3968	Cd2265	Cd2288	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.019**	**.000**	**.000**	**.000**	**.000**	**.000**	**.002**	**.000**	**.005**	**.000**	**.000**	**.002**
Stddev	.000	.000	.000	.000	.00	.000	.000	.000	.000	.000	.000	.000
%RSD	.512	94.5	21.8	168.	1000.	23.3	1.03	14.4	3.28	13.7	18.7	4.59

Elem	Mg2025	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.002**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	64.2	42.3	1.26	13.0	79.6	113.	99.8	115.	17.6	39.6	13.3	72.7

Elem	Sb2175	Se1960	Se2062	Tl1908	Tl2767	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.002**	**.000**	**.000**	**.000**
Stddev	.00	.000	.000	.000	.00	.000	.000	.000	.000
%RSD	30.7	309.	407.	48.2	67.7	4.79	33.2	14.7	8.01

Int. Std.	Y_3600
Units	Cts/S
Avg	**33886.**
Stddev	127.
%RSD	.37615

Sample Name: CalibStd=0.25 Acquired: 08/25/2011 13:13:07 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	6.57

Int. Std.	Y_3600
Units	Cts/S
Avg	**33572.**
Stddev	39.
%RSD	.11647

Sample Name: CalibStd=0.5 Acquired: 08/25/2011 13:19:43 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265
Units	Cts/S	Cts/S
Avg	**.001**	**.000**
Stddev	.000	.000
%RSD	7.81	8.21

Int. Std.	Y_3600
Units	Cts/S
Avg	**33851.**
Stddev	129.
%RSD	.38173

Sample Name: CalibStd=1 Acquired: 08/25/2011 13:26:20 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Cd2265	Mo2020
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	31.3	9.37	34.3

Int. Std.	Y_3600
Units	Cts/S
Avg	**33701.**
Stddev	186.
%RSD	.55284

Sample Name: CalibStd=5 Acquired: 08/25/2011 13:32:56 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Ba4554	Be3130	Cd2265	Co2286	Mn2576	Mo2020	Ni2316	Pb2203	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.044**	**.005**	**.001**	**.000**	**.003**	**.000**	**.000**	**.000**	**.001**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	7.78	.836	.947	.766	2.61	6.13	1.53	4.38	9.00	25.4	1.74

Int. Std.	Y_3600
Units	Cts/S
Avg	**33677.**
Stddev	148.
%RSD	.43910

Sample Name: CalibStd=10 Acquired: 08/25/2011 13:39:32 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Cd2265	Co2286	Cr2677	Cu2247	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**.000**	**.091**	**.009**	**.002**	**.001**	**.002**	**.001**	**.006**	**.000**	**.000**
Stddev	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.39	.628	16.6	1.25	.383	1.41	2.48	1.39	4.11	1.02	4.63	2.10

Elem	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.002**	**.001**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	11.8	41.4	4.30	4.99	7.12	4.33	.956

Int. Std.	Y_3600
Units	Cts/S
Avg	**33566.**
Stddev	267.
%RSD	.79485

Sample Name: CalibStd=20 Acquired: 08/25/2011 13:46:09 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Ba4554	Cr2677	Fe2599	Mn2576	Mo2020	Ni2316	Sb2175	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.196**	**.004**	**.007**	**.014**	**.001**	**.001**	**.000**	**.000**	**.005**
Stddev	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.19	.715	2.40	4.43	.873	.332	.550	18.4	7.67	1.11

Int. Std.	Y_3600
Units	Cts/S
Avg	**33538.**
Stddev	176.
%RSD	.52371

Sample Name: CalibStd=50 Acquired: 08/25/2011 13:52:42 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	As1937	Ba4554	Ca3933	Cd2265	Co2286	Cr2677	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.464**	**.204**	**.009**	**.003**	**.008**	**.015**	**.003**	**.006**	**.014**	**.015**
Stddev	.000	.000	.002	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.797	3.43	.469	.125	.676	.692	1.58	.247	1.40	.616	.917	.350

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.032**	**.002**	**.001**	**.002**	**.000**	**.000**	**.000**	**.011**	**.006**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.867	1.17	1.85	1.74	1.42	6.58	1.30	.109	.639

Int. Std.	Y_3600
Units	Cts/S
Avg	**33841.**
Stddev	217.
%RSD	.64134

Sample Name: CalibStd=100 Acquired: 08/25/2011 13:59:10 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	As1890	As1937	Ba4554	Be2348	Be3130	Ca3933	Ca3968	Cd2265	Cd2288	Co2286	Cr2677
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.014**	**.000**	**.000**	**.915**	**.011**	**.097**	**.318**	**.165**	**.017**	**.011**	**.006**	**.016**
Stddev	.000	.000	.000	.006	.000	.000	.001	.001	.000	.000	.000	.000
%RSD	1.02	8.91	6.69	.667	.958	.388	.415	.354	.948	1.10	1.39	1.00

Elem	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2203	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.027**	**.005**	**.008**	**.023**	**.027**	**.064**	**.004**	**.003**	**.001**	**.005**	**.002**	**.001**
Stddev	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
%RSD	.669	1.60	1.56	.825	.713	.801	.899	1.02	3.35	.928	.971	3.63

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.001**	**.021**	**.012**
Stddev	.000	.000	.000	.000
%RSD	3.23	5.43	.206	1.14

Int. Std.	Y_3600
Units	Cts/S
Avg	**33931.**
Stddev	229.
%RSD	.67383

Sample Name: CalibStd=1000 Acquired: 08/25/2011 14:05:32 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3092	Al3961	As1890	As1937	Ba4934	Be2348	Ca3179	Ca3933	Ca3968	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.013**	**.006**	**.019**	**.003**	**.004**	**.762**	**.112**	**.034**	**2.68**	**1.37**	**.163**	**.106**
Stddev	.000	.000	.000	.000	.000	.002	.000	.000	.01	.00	.000	.000
%RSD	.275	2.80	1.43	.813	.192	.245	.221	.515	.510	.216	.126	.021

Elem	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599	Mg2802	Mn2576	Mn2593
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.059**	**.083**	**.159**	**.245**	**.044**	**.049**	**.004**	**.009**	**.208**	**.256**	**.607**	**.100**
Stddev	.000	.000	.001	.000	.000	.000	.000	.000	.001	.001	.001	.000
%RSD	.171	.141	.368	.203	.091	.512	.286	.901	.279	.289	.153	.175

Elem	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	Tl2767
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.040**	**.027**	**.009**	**.047**	**.003**	**.015**	**.007**	**.009**	**.004**	**.001**	**.005**	**.007**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.062	.113	.243	.312	.256	.209	.329	.244	.262	2.44	.134	1.70

Elem	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.162**	**.201**	**.074**	**.115**
Stddev	.000	.001	.000	.000
%RSD	.283	.259	.055	.101

Int. Std.	Y_3600
Units	Cts/S
Avg	**33917.**
Stddev	42.
%RSD	.12519

Sample Name: CalibStd=10000 Acquired: 08/25/2011 14:11:55 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	As1890	Ba4934	Ca3179	Ca3968	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.067**	**.186**	**.025**	**7.19**	**.290**	**12.9**	**.540**	**.756**	**1.52**	**2.26**	**.399**	**.444**
Stddev	.002	.004	.000	.28	.007	.2	.010	.016	.03	.05	.005	.010
%RSD	2.35	2.35	1.72	3.90	2.31	1.63	1.85	2.14	2.22	2.20	1.18	2.14

Elem	Fe2343	Fe2395	Fe2599	Mg2025	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.041**	**.084**	**1.88**	**.002**	**.104**	**2.38**	**.956**	**.254**	**.089**	**.028**	**.064**	**.089**
Stddev	.001	.002	.04	.000	.002	.05	.022	.003	.002	.000	.001	.001
%RSD	2.34	2.57	2.23	1.85	1.93	2.28	2.31	1.27	1.73	1.60	1.39	1.47

Elem	Se2062	Tl2767	V_2908	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.007**	**.061**	**1.57**	**.682**
Stddev	.000	.001	.03	.012
%RSD	1.46	2.01	2.16	1.82

Int. Std.	Y_3600
Units	Cts/S
Avg	**34186.**
Stddev	646.
%RSD	1.8897

Sample Name: CalibStd-100k Acquired: 08/25/2011 14:18:50 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Cr2835	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**20.6**	**3.46**	**9.30**	**.288**	**5.80**
Stddev	.0	.01	.02	.001	.05
%RSD	.063	.317	.245	.215	.844

Int. Std.	Y_3600
Units	Cts/S
Avg	**33472.**
Stddev	129.
%RSD	.38671

Sample Name: CalibStd=100000 Acquired: 08/25/2011 14:26:05 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	Ca3179	Fe2343	Fe2395	Mg2025	Mg2790	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.666**	**1.61**	**2.57**	**.360**	**.665**	**.013**	**.922**	**19.3**
Stddev	.001	.00	.01	.001	.001	.000	.004	.1
%RSD	.122	.259	.280	.255	.200	.500	.436	.518

Int. Std.	Y_3600
Units	Cts/S
Avg	**33220.**
Stddev	174.
%RSD	.52507

Sample Name: CalibStd=500000 Acquired: 08/25/2011 14:32:54 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**9.09**	**13.4**	**1.85**	**.070**	**4.54**
Stddev	.27	.5	.06	.002	.13
%RSD	2.97	3.59	3.38	2.79	2.95

Int. Std.	Y_3600
Units	Cts/S
Avg	**31982.**
Stddev	910.
%RSD	2.8450

Sample Name: CalibStd-1000k Acquired: 08/25/2011 14:40:01 Type: Cal
Method: DOD Calibration 1(v1590) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**18.2**	**25.6**	**3.56**	**.140**	**8.33**
Stddev	.1	.2	.01	.001	.07
%RSD	.340	.821	.355	.715	.787

Int. Std.	Y_3600
Units	Cts/S
Avg	**30233.**
Stddev	77.
%RSD	.25512

Sample Name: icv Acquired: 08/25/2011 15:00:18 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3968	Cd2265	Co2286	Cr2677	Cu2247	Fe2395
Avg	**48.2**	**11800.**	**2060.**	**2080.**	**48.9**	**10200.**	**48.6**	**525.**	**205.**	**256.**	**5200.**
Stddev	.5	44.	6.	2.	.3	59.	.3	3.	2.	1.	24.
%RSD	1.06	.374	.294	.118	.599	.574	.583	.541	.817	.386	.459
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Elem	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**9560.**	**487.**	**500.**	**485.**	**492.**	**532.**	**1960.**	**2110.**	**492.**	**497.**
Stddev	289.	1.	1.	3.	1.	4.	9.	6.	2.	3.
%RSD	3.03	.299	.236	.586	.213	.780	.475	.291	.453	.509
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_3600
Avg	**33631.**
Stddev	177.
%RSD	.52743

Sample Name: icb Acquired: 08/25/2011 15:06:52 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**.013**	**17.1**	**3.46**	**.944**	**.228**	**5.70**	**-.062**	**.213**	**.021**	**-.155**	**15.3**	**11.1**
Stddev	.527	5.7	.94	.003	.063	.63	.072	.035	.113	.432	.6	.6
%RSD	3980.	33.1	27.2	.360	27.9	11.0	116.	16.6	547.	278.	3.94	5.56
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.130**	**.864**	**-1.46**	**.517**	**-1.25**	**3.18**	**.414**	**-.769**	**.904**
Stddev	.086	.108	.63	.735	1.47	3.24	1.52	.102	.228
%RSD	66.4	12.6	43.0	142.	118.	102.	368.	13.3	25.2
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**33638.**
Stddev	673.
%RSD	2.0008

Sample Name: icsa Acquired: 08/25/2011 15:26:35 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4554	Be3130	Ca3179	Cd2265	Co2286	Cr2677	Cu2247
Avg	**.000**	**493000.**	**.000**	**.122**	**.091**	**500000.**	**-.004**	**-.053**	**-.361**	**.089**
Stddev	.63	272.	11.1	.034	.061	3570.	.098	.241	.049	1.10
%RSD	21e15	.055	3410000.	28.2	66.6	.714	2430.	457.	13.6	1240.
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Fe2343	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avg	**482000.**	**465000.**	**-.034**	**.000**	**-.035**	**.000**	**.000**	**-.015**	**-1.39**	**.000**
Stddev	1460.	520.	.079	.43	.463	.70	1.90	2.02	1.34	.269
%RSD	.303	.112	228.	3400000.	1310.	257000.	2710000.	13500.	96.6	160000.
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Zn2138
Avg	**.000**
Stddev	.40
%RSD	112000.
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: icsa Acquired: 08/25/2011 15:26:35 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	**31578.**
Stddev	95.
%RSD	.29998

Sample Name: icsab Acquired: 08/25/2011 15:33:43 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be2348	Ca3179	Cd2288	Co2388	Cr2677	Cu3247
Avg	**475.**	**496000.**	**506.**	**551.**	**531.**	**505000.**	**472.**	**407.**	**465.**	**559.**
Stddev	6.	8350.	7.	1.	6.	3990.	6.	4.	5.	4.
%RSD	1.25	1.68	1.44	.253	1.11	.789	1.30	.978	1.10	.644
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Fe2343	Mg2025	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2924
Avg	**486000.**	**470000.**	**505.**	**468.**	**478.**	**501.**	**518.**	**544.**	**452.**	**473.**
Stddev	3050.	1700.	3.	4.	7.	7.	5.	56.	2.	4.
%RSD	.627	.361	.583	.937	1.53	1.43	1.05	10.2	.454	.771
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Zn2138
Avg	**487.**
Stddev	6.
%RSD	1.28
Check ?	None
Value	
Range	

Sample Name: icsab Acquired: 08/25/2011 15:33:43 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	**31393.**
Stddev	288.
%RSD	.91708

Sample Name: ccv1 Acquired: 08/25/2011 19:57:17 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be2348	Ca3179	Cd2288	Co2388	Cr2835	Cu3247	Fe2395	Mg2790
Avg	**463.**	**5010.**	**5070.**	**5160.**	**504.**	**4980.**	**490.**	**5070.**	**5010.**	**4990.**	**4910.**	**4960.**
Stddev	4.	4.	38.	6.	1.	42.	3.	25.	30.	8.	17.	18.
%RSD	.860	.077	.749	.112	.219	.850	.589	.485	.605	.156	.345	.354
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Pb2169	Sb2175	Se2062	Tl2767	V_2908	Zn2062
Avg	**5050.**	**5110.**	**4850.**	**5020.**	**5070.**	**5120.**	**5350.**	**4820.**	**5000.**
Stddev	5.	37.	29.	31.	42.	38.	25.	36.	33.
%RSD	.092	.727	.600	.609	.822	.735	.467	.739	.656
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**33151.**
Stddev	206.
%RSD	.62060

Sample Name: ccv2 Acquired: 08/25/2011 20:03:46 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**50.0**	**501.**	**478.**	**461.**	**46.2**	**484.**	**47.4**	**506.**	**469.**	**493.**	**510.**	**486.**
Stddev	.6	4.	3.	8.	.2	1.	.4	3.	2.	3.	1.	3.
%RSD	1.16	.847	.531	1.65	.326	.228	.807	.615	.430	.609	.194	.626
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**480.**	**488.**	**504.**	**509.**	**522.**	**473.**	**505.**	**477.**	**483.**
Stddev	3.	2.	3.	1.	3.	.	2.	3.	3.
%RSD	.575	.476	.597	.237	.561	.081	.308	.630	.548
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**33324.**
Stddev	200.
%RSD	.60016

Sample Name: ccb Acquired: 08/25/2011 20:16:51 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.668**	**-6.82**	**-1.78**	**.151**	**.196**	**3.43**	**.002**	**.372**	**.228**	**-.874**	**-5.00**	**-3.87**
Stddev	.604	.98	3.63	.040	.037	.12	.105	.125	.159	.138	.11	.07
%RSD	90.5	14.4	204.	26.4	18.8	3.56	5120.	33.7	69.7	15.8	2.22	1.76
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.028**	**.828**	**-.704**	**.080**	**-3.76**	**2.23**	**.710**	**-.977**	**.922**
Stddev	.030	.048	.445	.417	1.88	1.94	.828	.166	.034
%RSD	105.	5.76	63.2	519.	50.1	86.8	117.	17.0	3.74
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**33020.**
Stddev	144.
%RSD	.43759

Sample Name: LCSS38322 Acquired: 08/25/2011 21:03:34 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2677	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**97.2**	**4060.**	**3900.**	**4050.**	**91.8**	**182000.**	**87.8**	**903.**	**350.**	**475.**
Stddev	.1	11.	21.	7.	.5	333.	.5	6.	4.	5.
%RSD	.114	.272	.531	.170	.521	.183	.566	.708	1.05	1.10

Elem	Fe2395	Mg2790	Mn2576	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1870.**	**84300.**	**895.**	**-.041**	**886.**	**959.**	**1030.**	**3840.**	**3650.**	**894.**
Stddev	2.	579.	3.	.392	5.	18.	8.	11.	23.	6.
%RSD	.093	.687	.366	956.	.524	1.86	.755	.291	.637	.704

Elem	Zn2138
Units	ug/L
Avg	**927.**
Stddev	4.
%RSD	.464

Int. Std.	Y_3600
Units	Cts/S
Avg	**30345.**
Stddev	122.
%RSD	.40057

Sample Name: MBS38322 Acquired: 08/25/2011 21:10:05 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.574**	**12.1**	**.955**	**.714**	**.230**	**37.8**	**-.035**	**.093**	**.290**	**-1.07**	**18.8**	**11.3**
Stddev	.549	.5	2.81	.011	.073	.4	.077	.342	.298	.51	.2	.4
%RSD	95.7	4.28	294.	1.49	31.7	1.03	218.	369.	103.	47.4	1.29	3.67

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.00**	**.164**	**-1.19**	**-1.51**	**.389**	**.023**	**1.02**	**-.737**	**-.200**
Stddev	.05	.298	.50	1.10	.835	.483	1.41	.097	.198
%RSD	2.51	181.	42.0	72.4	214.	2130.	138.	13.2	99.1

Int. Std.	Y_3600
Units	Cts/S
Avg	**31843.**
Stddev	65.
%RSD	.20375

Sample Name: 962085 Acquired: 08/25/2011 21:16:42 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**-30.7**	**406000.**	**369.**	**3710.**	**34.0**	**375000.**	**20.2**	**343.**	**6540.**	**1320.**
Stddev	1.8	4730.	7.	3.	.2	5920.	.3	5.	91.	12.
%RSD	5.79	1.17	2.01	.075	.511	1.58	1.46	1.56	1.39	.924

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**755000.**	**88900.**	**37800.**	**54.7**	**671.**	**4270.**	**109.**	**27.6**	**45.9**	**514.**
Stddev	8280.	705.	22.	.9	12.	63.	2.	4.9	4.2	3.
%RSD	1.10	.793	.059	1.71	1.82	1.47	2.07	17.8	9.25	.648

Elem	Zn2062
Units	ug/L
Avg	**3310.**
Stddev	49.
%RSD	1.47

Int. Std.	Y_3600
Units	Cts/S
Avg	**31845.**
Stddev	425.
%RSD	1.3346

Sample Name: L962085 Acquired: 08/25/2011 21:23:56 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-6.41**	**85100.**	**74.4**	**799.**	**7.51**	**83500.**	**2.44**	**75.7**	**1370.**	**273.**
Stddev	.73	1930.	6.3	19.	.06	1940.	.09	1.2	14.	3.
%RSD	11.3	2.27	8.48	2.43	.835	2.32	3.48	1.61	.985	1.14

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2316	Pb2169	Sb2068	Se1960	Tl1908	V_2924
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**175000.**	**20400.**	**8420.**	**10.9**	**148.**	**888.**	**20.3**	**11.8**	**-25.2**	**135.**
Stddev	3930.	249.	208.	.3	2.	10.	2.4	3.8	.4	1.
%RSD	2.24	1.22	2.47	2.77	1.68	1.17	12.0	32.1	1.70	1.03

Elem	Zn2138
Units	ug/L
Avg	**748.**
Stddev	8.
%RSD	1.11

Int. Std.	Y_3600
Units	Cts/S
Avg	**32691.**
Stddev	248.
%RSD	.75719

Sample Name: ccv1 Acquired: 08/25/2011 21:30:58 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be2348	Ca3179	Cd2288	Co2388	Cr2835	Cu3247	Fe2395	Mg2790
Avg	**494.**	**5040.**	**5200.**	**5220.**	**517.**	**4820.**	**496.**	**5150.**	**5150.**	**5000.**	**4980.**	**4800.**
Stddev	2.	40.	7.	11.	2.	23.	1.	11.	7.	11.	37.	22.
%RSD	.455	.785	.135	.205	.407	.474	.188	.210	.129	.212	.745	.465
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Pb2169	Sb2175	Se2062	Tl2767	V_2908	Zn2062
Avg	**5050.**	**5240.**	**4870.**	**5160.**	**5180.**	**5250.**	**5580.**	**4770.**	**5140.**
Stddev	8.	15.	33.	28.	23.	28.	19.	33.	10.
%RSD	.167	.294	.685	.547	.434	.527	.338	.692	.197
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**32470.**
Stddev	52.
%RSD	.16104

Sample Name: ccv2 Acquired: 08/25/2011 21:37:26 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4934	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**52.2**	**516.**	**491.**	**513.**	**46.7**	**480.**	**49.0**	**519.**	**474.**	**503.**	**525.**	**493.**
Stddev	.2	.	2.	3.	.3	1.	.3	1.	2.	2.	1.	1.
%RSD	.331	.075	.372	.511	.727	.247	.523	.127	.329	.442	.261	.300
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**494.**	**504.**	**523.**	**532.**	**538.**	**490.**	**525.**	**487.**	**498.**
Stddev	.	2.	1.	1.	4.	1.	2.	1.	1.
%RSD	.083	.300	.201	.224	.721	.121	.448	.242	.194
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**32585.**
Stddev	37.
%RSD	.11389

Sample Name: ccb Acquired: 08/25/2011 21:50:32 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.646**	**-6.03**	**2.75**	**.309**	**.194**	**5.25**	**-.101**	**.672**	**.031**	**-.643**	**-4.19**	**-3.23**
Stddev	.653	.49	2.78	.001	.076	.10	.143	.434	.079	.635	.87	.11
%RSD	101.	8.19	101.	.452	39.1	1.85	142.	64.6	257.	98.8	20.9	3.41
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**.085**	**1.04**	**-1.37**	**-.703**	**.070**	**.257**	**-.744**	**-.358**	**1.38**
Stddev	.023	.19	.46	.572	1.24	4.43	1.33	.510	.14
%RSD	27.1	18.1	33.4	81.3	1780.	1720.	178.	142.	9.96
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**32792.**
Stddev	112.
%RSD	.34229

Sample Name: DUP962085 Acquired: 08/25/2011 21:57:08 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**-35.8**	**396000.**	**363.**	**3690.**	**33.6**	**367000.**	**19.9**	**339.**	**6830.**	**1320.**
Stddev	.8	1360.	8.	5.	.0	2690.	.2	4.	35.	2.
%RSD	2.27	.343	2.24	.123	.081	.733	.823	1.06	.512	.185

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**746000.**	**85800.**	**37600.**	**55.5**	**663.**	**3980.**	**112.**	**20.2**	**46.1**	**511.**
Stddev	1360.	222.	34.	.7	7.	39.	2.	7.0	3.8	6.
%RSD	.182	.259	.091	1.19	1.02	.989	2.08	34.8	8.19	1.08

Elem	Zn2062
Units	ug/L
Avg	**3270.**
Stddev	34.
%RSD	1.05

Int. Std.	Y_3600
Units	Cts/S
Avg	**32001.**
Stddev	180.
%RSD	.56229

Sample Name: MSS962085 Acquired: 08/25/2011 22:04:21 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**64.5**	**446000.**	**3910.**	**7830.**	**124.**	**551000.**	**95.2**	**911.**	**6280.**	**1830.**
Stddev	.8	3870.	33.	15.	.	2050.	.5	4.	13.	6.
%RSD	1.27	.868	.834	.192	.143	.372	.489	.396	.199	.320

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**763000.**	**170000.**	**39100.**	**52.6**	**1500.**	**5010.**	**246.**	**3460.**	**2870.**	**1330.**
Stddev	2630.	539.	76.	.6	3.	8.	2.	12.	9.	3.
%RSD	.345	.317	.193	1.11	.222	.154	.875	.334	.310	.209

Elem	Zn2062
Units	ug/L
Avg	**4210.**
Stddev	24.
%RSD	.565

Int. Std.	Y_3600
Units	Cts/S
Avg	**31551.**
Stddev	44.
%RSD	.14077

Sample Name: MSDS962085 Acquired: 08/25/2011 22:11:36 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**63.8**	**440000.**	**3860.**	**7630.**	**121.**	**545000.**	**94.4**	**891.**	**6160.**	**1790.**
Stddev	.6	8240.	22.	21.	.	5070.	1.1	1.	16.	3.
%RSD	1.01	1.87	.570	.276	.226	.932	1.13	.082	.263	.162

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**748000.**	**167000.**	**38100.**	**52.7**	**1480.**	**5360.**	**252.**	**3430.**	**2860.**	**1320.**
Stddev	525.	273.	38.	.8	6.	35.	3.	29.	19.	2.
%RSD	.070	.164	.098	1.51	.433	.661	1.11	.848	.672	.122

Elem	Zn2062
Units	ug/L
Avg	**4140.**
Stddev	20.
%RSD	.488

Int. Std.	Y_3600
Units	Cts/S
Avg	**31483.**
Stddev	148.
%RSD	.47134

Sample Name: PDSS962085 Acquired: 08/25/2011 22:18:51 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be3130	Ca3179	Cd2265	Co2388	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**77.5**	**397000.**	**4370.**	**8030.**	**131.**	**726000.**	**101.**	**963.**	**6710.**	**1810.**
Stddev	.8	5490.	68.	105.	2.	12800.	2.	14.	98.	23.
%RSD	1.06	1.38	1.54	1.31	1.17	1.76	1.51	1.50	1.45	1.26

Elem	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**720000.**	**251000.**	**36800.**	**51.7**	**1540.**	**4880.**	**1180.**	**4120.**	**3300.**	**1370.**
Stddev	9390.	2850.	453.	1.0	23.	76.	13.	40.	48.	19.
%RSD	1.30	1.14	1.23	2.01	1.52	1.56	1.10	.965	1.45	1.40

Elem	Zn2062
Units	ug/L
Avg	**3900.**
Stddev	55.
%RSD	1.42

Int. Std.	Y_3600
Units	Cts/S
Avg	**31035.**
Stddev	421.
%RSD	1.3556

Sample Name: 962086 Acquired: 08/25/2011 22:25:54 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-41.6**	**475000.**	**354.**	**4920.**	**60.4**	**1160000.**	**13.9**	**239.**	**10500.**
Stddev	2.1	2770.	5.	15.	.3	6480.	.3	1.	30.
%RSD	5.05	.584	1.28	.307	.423	.559	2.03	.310	.282

Elem	Cu3247	Fe2343	Mg2790	Mn2593	Mo2020	Ni2216	Pb2169	Sb2068	Se1960
Units	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**847.**	**767000.**	**191000.**	**39900.**	**59.5**	**637.**	**2800.**	**174.**	**22.9**
Stddev	7.	1520.	1310.	48.	.4	3.	15.	9.	5.4
%RSD	.843	.199	.688	.121	.698	.482	.531	5.44	23.5

Elem	Tl1908	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**42.0**	**495.**	**2370.**
Stddev	3.9	3.	2.
%RSD	9.38	.632	.072

Int. Std.	Y_3600
Units	Cts/S
Avg	**31936.**
Stddev	42.
%RSD	.13036

Sample Name: 962087 Acquired: 08/25/2011 22:33:14 Type: Unk
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-40.3**	**461000.**	**339.**	**5050.**	**57.9**	**1280000.**	**21.5**	**226.**	**15700.**
Stddev	1.7	1780.	9.	9.	.2	13800.	.5	2.	96.
%RSD	4.15	.387	2.77	.169	.325	1.08	2.55	1.06	.612

Elem	Cu3247	Fe2343	Mg2790	Mn2593	Mo2020	Ni2316	Pb2169	Sb2068	Se1960
Units	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**881.**	**704000.**	**189000.**	**43200.**	**64.5**	**593.**	**3200.**	**247.**	**34.0**
Stddev	1.	424.	1020.	86.	.7	3.	30.	5.	3.9
%RSD	.143	.060	.541	.198	1.12	.453	.923	1.87	11.6

Elem	Tl1908	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**42.7**	**427.**	**2330.**
Stddev	.3	4.	13.
%RSD	.718	.880	.544

Int. Std.	Y_3600
Units	Cts/S
Avg	**32134.**
Stddev	137.
%RSD	.42672

Sample Name: ccv1 Acquired: 08/25/2011 23:06:27 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be2348	Ca3179	Cd2265	Co2388	Cr2835	Cu3247	Fe2395	Mg2790
Avg	**492.**	**4990.**	**5130.**	**5180.**	**513.**	**4820.**	**496.**	**5110.**	**5140.**	**4990.**	**4910.**	**4770.**
Stddev	6.	17.	28.	11.	3.	22.	4.	32.	45.	7.	10.	20.
%RSD	1.21	.337	.555	.220	.532	.464	.758	.617	.880	.141	.211	.411
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Pb2169	Sb2175	Se2062	Tl2767	V_2908	Zn2062
Avg	**5020.**	**5210.**	**4830.**	**5140.**	**5130.**	**5170.**	**5530.**	**4790.**	**5120.**
Stddev	2.	34.	42.	51.	38.	75.	79.	30.	40.
%RSD	.030	.652	.867	.988	.731	1.45	1.42	.635	.780
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**32630.**
Stddev	234.
%RSD	.71840

Sample Name: ccv2 Acquired: 08/25/2011 23:12:56 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1890	Ba4554	Be2348	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**52.2**	**508.**	**495.**	**477.**	**48.4**	**469.**	**48.3**	**508.**	**462.**	**487.**	**513.**	**488.**
Stddev	.3	2.	3.	17.	.6	1.	.0	.	3.	.	7.	2.
%RSD	.642	.319	.667	3.58	1.24	.138	.033	.025	.678	.042	1.34	.447
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**486.**	**501.**	**523.**	**531.**	**539.**	**480.**	**520.**	**479.**	**494.**
Stddev	7.	2.	.	1.	2.	3.	3.	3.	1.
%RSD	1.34	.348	.068	.107	.448	.524	.536	.557	.149
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

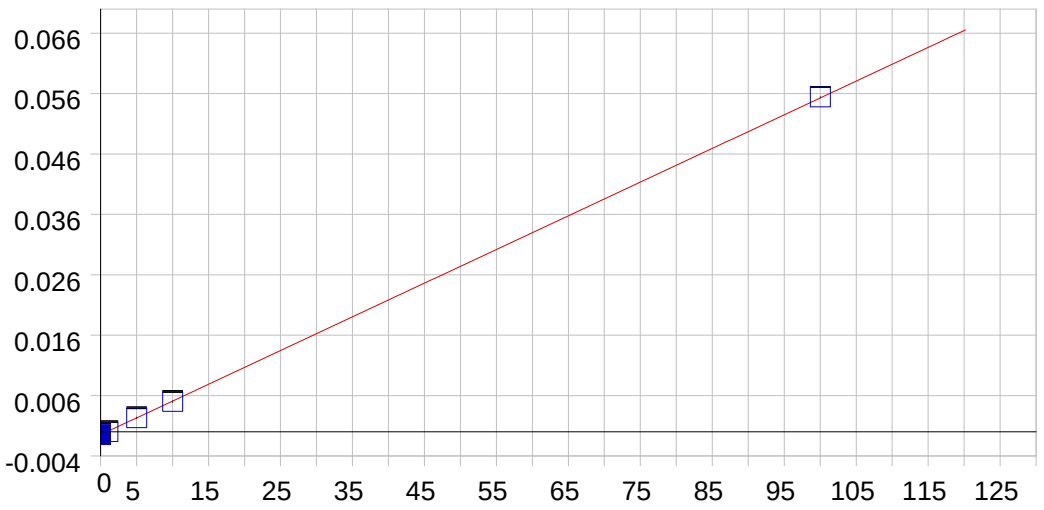
Int. Std.	Y_3600
Avg	**33039.**
Stddev	54.
%RSD	.16400

Sample Name: ccb Acquired: 08/25/2011 23:26:04 Type: QC
Method: DOD Calibration 1(v1590) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6000: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.655**	**-5.57**	**.203**	**.398**	**.220**	**5.65**	**-.067**	**.764**	**.286**	**-.432**	**-4.25**	**-3.23**
Stddev	.810	.32	1.82	.010	.074	.56	.202	.127	.512	.599	.15	.12
%RSD	124.	5.74	896.	2.56	33.7	9.87	303.	16.6	179.	139.	3.43	3.62
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**.242**	**1.50**	**-.868**	**.019**	**-2.47**	**4.55**	**-.958**	**-.762**	**1.36**
Stddev	.104	.20	.421	.272	2.00	3.62	.584	.156	.09
%RSD	43.0	13.3	48.5	1420.	80.6	79.5	60.9	20.5	6.28
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**32645.**
Stddev	535.
%RSD	1.6376

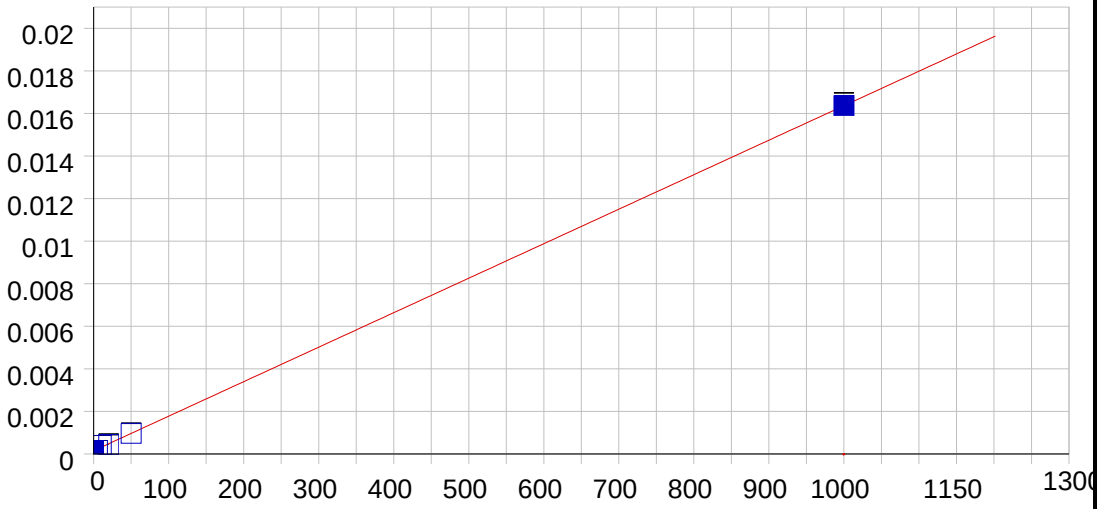


Ag 328.068 {103}

Date of Fit:	08/29/2011 12:32:03	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000486	Re-Slope:	1.000000
A1 (Gain):	0.000558	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999939	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.302331		
Predicted MQL:	1.007769		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00012	.000	.000	-.00049	.000	1
CalibStd=100	100.00	100.25	.253	.253	.05543	.000	1
CalibStd=10	10.000	9.8510	-.149	-1.49	.00501	.000	1
CalibStd=1	1.0000	.89331	-.107	-10.7	.00001	.000	1
CalibStd=5	5.0000	5.0031	.003	.063	.00230	.000	1

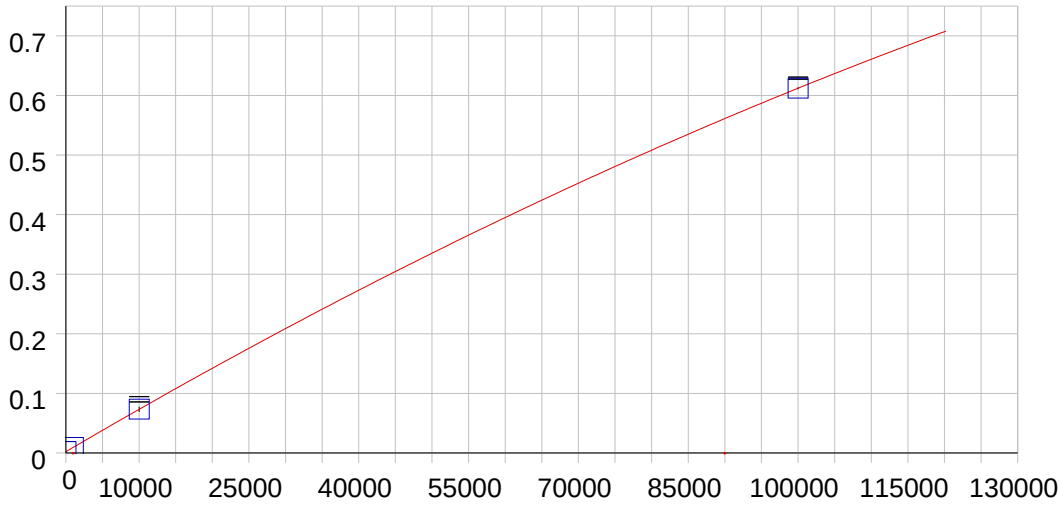


Al 167.079 {502}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000154	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999970	Status:	OK.
Std Error of Est:	0.000056		
Predicted MDL:	1.168948		
Predicted MQL:	3.896492		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.57425	.574	.000	.00016	.000	1
CalibStd=100	1000.0	1000.0	.006	.001	.01637	.000	1
CalibStd=20	20.000	18.039	-1.96	-9.81	.00045	.000	1
CalibStd=10	10.000	15.332	5.33	53.3	.00040	.000	1
CalibStd=5	5.0000	1.0486	-3.95	-79.0	.00017	.000	1
CalibStd=50	50.000	50.001	.001	.001	.00096	.000	1

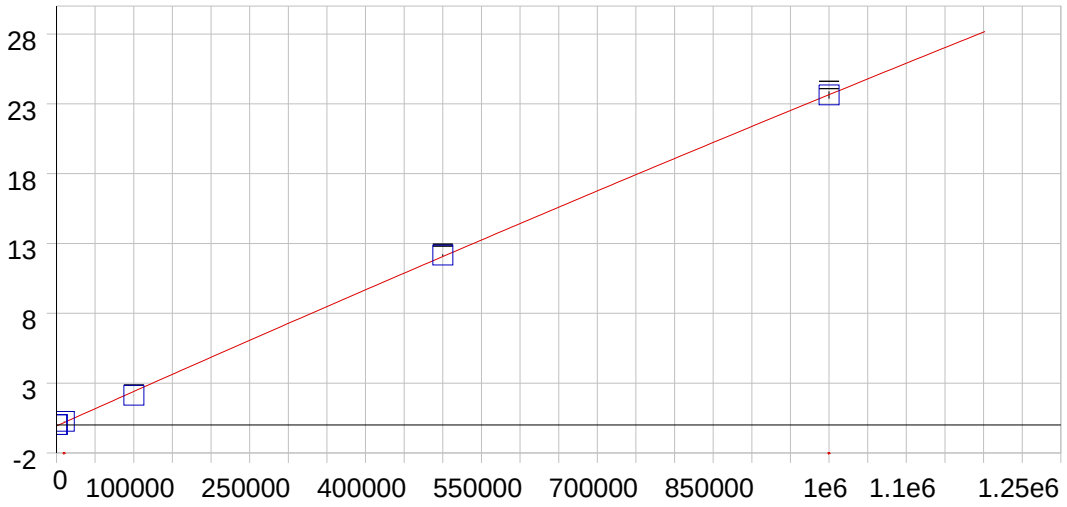


Al 309.271 {109}

Date of Fit:	08/29/2011 12:59:17	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	0.002117	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000150		
Predicted MDL:	24.290377		
Predicted MQL:	80.967923		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	13.744	13.7	.000	.00222	.000	1
CalibStd=100	10000.	10002.	1.75	.018	.07325	.004	1
CalibStd=100	100000.	100000.	-.022	.000	.61210	.002	1
CalibStd=100	1000.0	984.53	-15.5	-1.55	.00922	.000	1

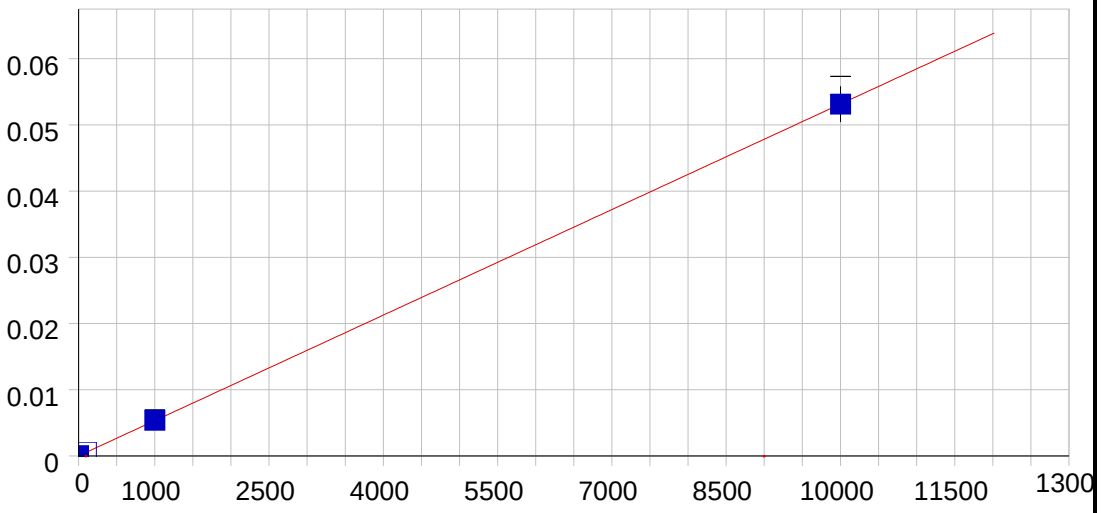


Al 396.152 { 85}

Date of Fit:	08/29/2011 13:12:57	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.065935	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999894	Status:	OK.
Std Error of Est:	0.182169		
Predicted MDL:	11.068960		
Predicted MQL:	36.896535		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	2664.7	2660.	.000	.00015	.000	1
CalibStd=100	100000.	88770.	-11200.	-11.2	2.1272	.005	1
CalibStd-100	1000000.	999060.	-943.	-.094	23.633	.262	1
CalibStd=500	500000.	504070.	4070.	.813	12.161	.071	1
CalibStd=100	1000.0	3645.7	2650.	265.	.02447	.000	1
CalibStd=100	10000.	12804.	2800.	28.0	.25144	.015	1

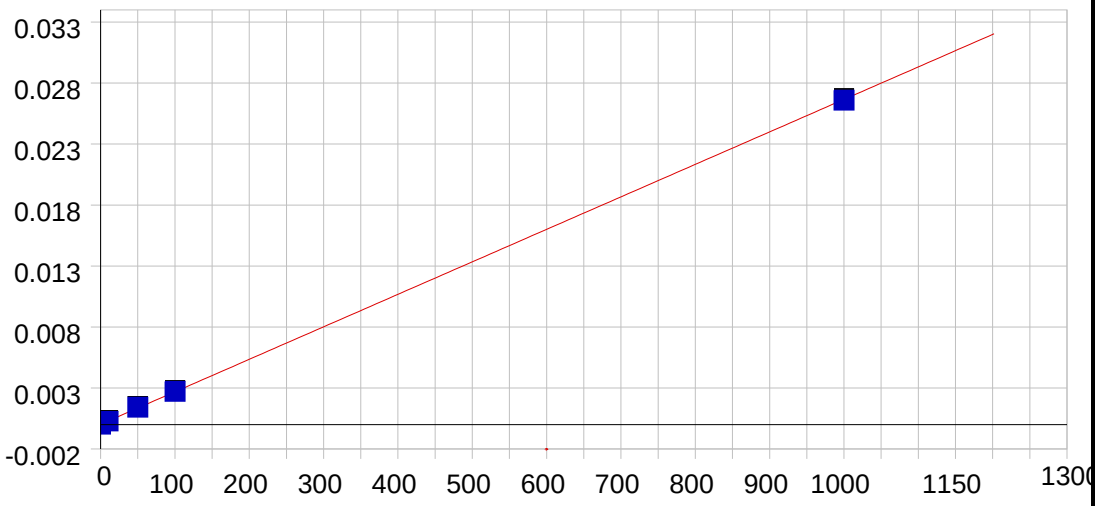


As 189.042 {479}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000019	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999998	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	5.235193		
Predicted MQL:	17.450644		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00197	-.002	.000	.00002	.000	1
CalibStd=100	1000.0	1005.1	5.09	.509	.00536	.000	1
CalibStd=100	10000.	9993.4	-6.62	-.066	.05312	.003	1
CalibStd=100	100.00	101.53	1.53	1.53	.00056	.000	1

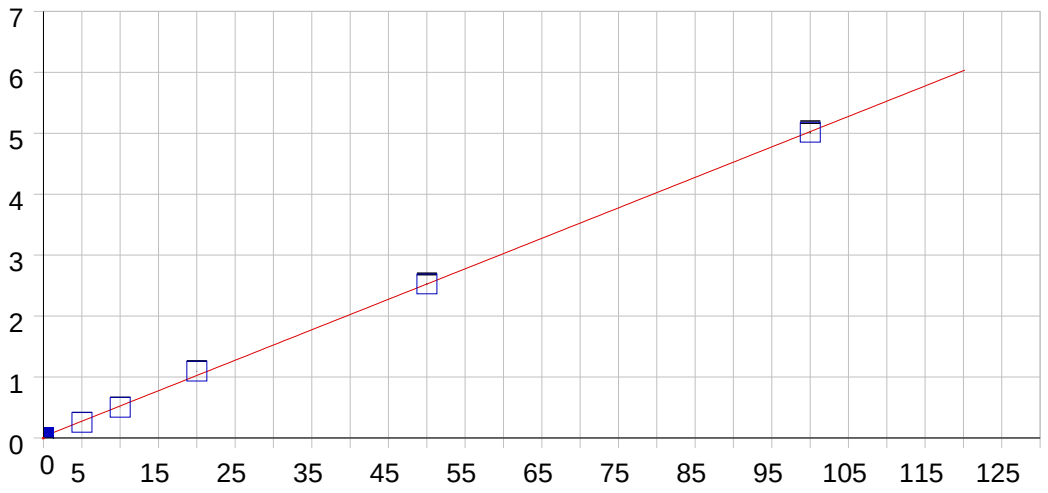


As 193.759 {474}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.000027	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	1.442523		
Predicted MQL:	4.808411		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00011	.000	.000	.00002	.000	1
CalibStd=100	1000.0	997.18	-2.82	-.282	.02658	.000	1
CalibStd=50	50.000	52.124	2.12	4.25	.00141	.000	1
CalibStd=10	10.000	9.6011	-.399	-3.99	.00028	.000	1
CalibStd=100	100.00	101.10	1.10	1.10	.00272	.000	1

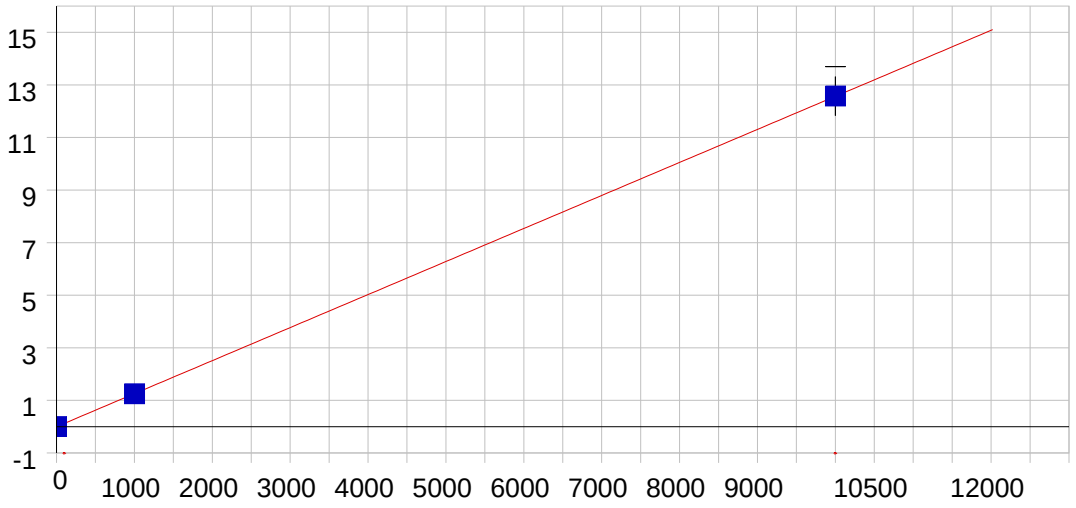


Ba 455.403 { 74}

Date of Fit:	08/29/2011 12:32:04	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.024647	Re-Slope:	1.000000
A1 (Gain):	0.050017	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999827	Status:	OK.
Std Error of Est:	0.039863		
Predicted MDL:	0.013640		
Predicted MQL:	0.045465		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.32940	-.329	.000	.00817	.000	1
CalibStd=50	50.000	50.006	.006	.012	2.5258	.014	1
CalibStd=10	10.000	9.5301	-.470	-4.70	.50131	.002	1
CalibStd=20	20.000	21.415	1.41	7.07	1.0957	.005	1
CalibStd=100	100.00	99.781	-.219	-.219	5.0154	.020	1
CalibStd=5	5.0000	4.5975	-.403	-8.05	.25460	.001	1

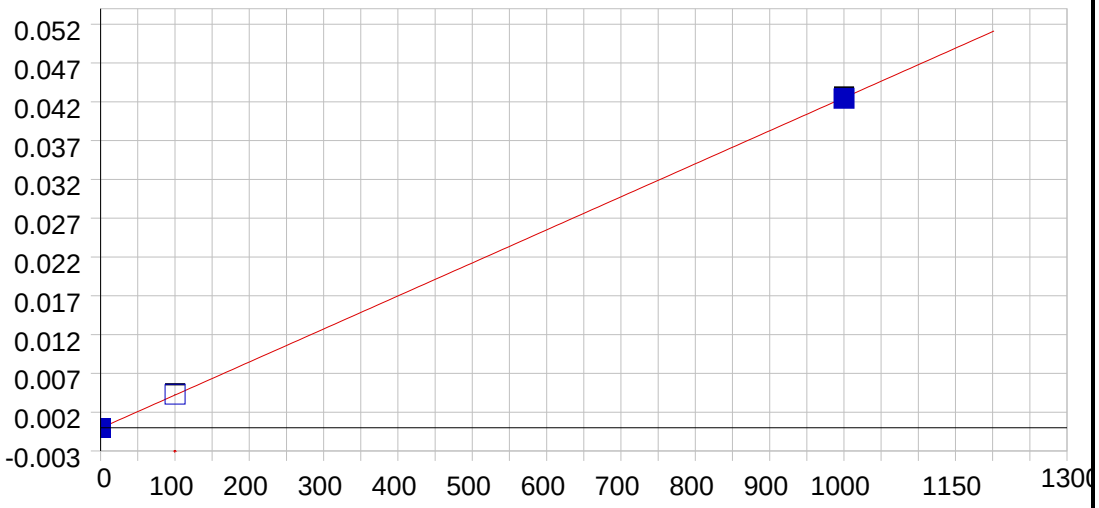


Ba 493.409 { 68}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001128	Re-Slope:	1.000000
A1 (Gain):	0.001257	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000393		
Predicted MDL:	0.481836		
Predicted MQL:	1.606121		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00490	.005	.000	-.00112	.000	1
CalibStd=100	1000.0	994.55	-5.45	-.545	1.2487	.004	1
CalibStd=100	10000.	10005.	5.45	.054	12.572	.741	1

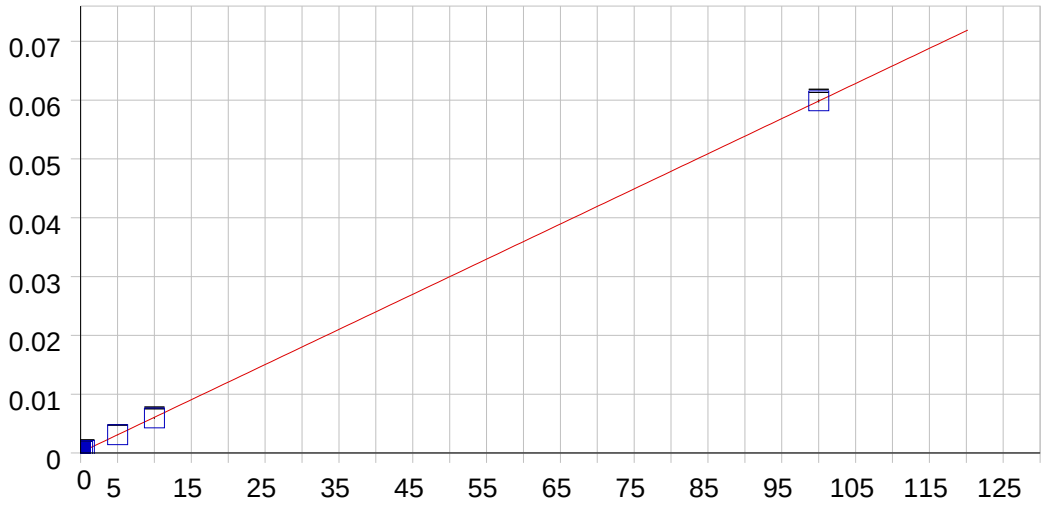


Be 234.861 {144}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000055	Re-Slope:	1.000000
A1 (Gain):	0.000043	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999979	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	1.430233		
Predicted MQL:	4.767443		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00185	-.002	.000	-.00006	.000	1
CalibStd=100	1000.0	997.95	-2.05	-.205	.04244	.000	1
CalibStd=100	100.00	102.05	2.05	2.05	.00429	.000	1

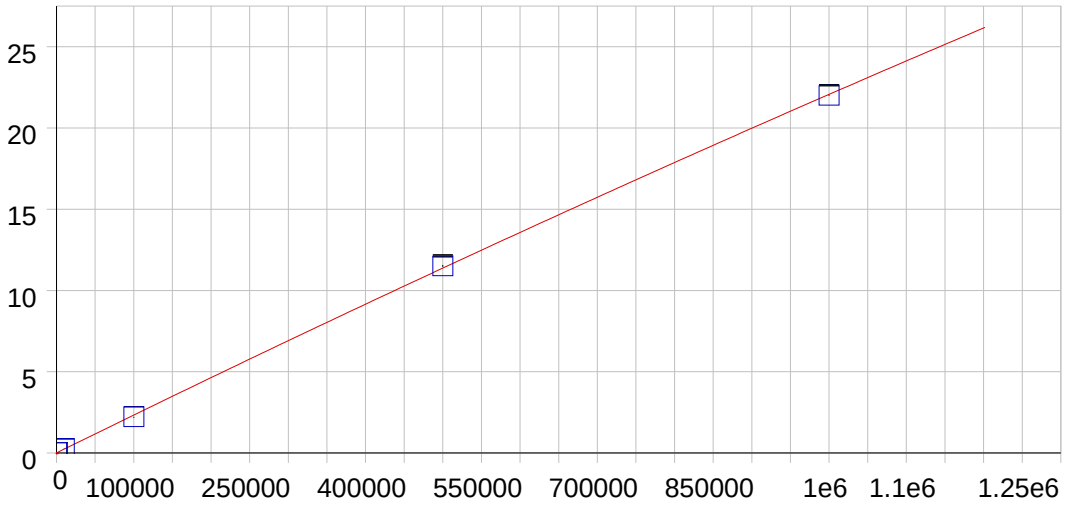


Be 313.042 {108}

Date of Fit:	08/29/2011 12:32:04	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000094	Re-Slope:	1.000000
A1 (Gain):	0.000598	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999996	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.149627		
Predicted MQL:	0.498758		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03110	.031	.000	.00011	.000	1
CalibStd=10	10.000	9.7926	-.207	-2.07	.00595	.000	1
CalibStd=100	100.00	100.02	.021	.021	.05986	.000	1
CalibStd=0.5	.50000	.59020	.090	18.0	.00045	.000	1
CalibStd=5	5.0000	4.9759	-.024	-.481	.00307	.000	1
CalibStd=0.2	.25000	.33888	.089	35.6	.00030	.000	1

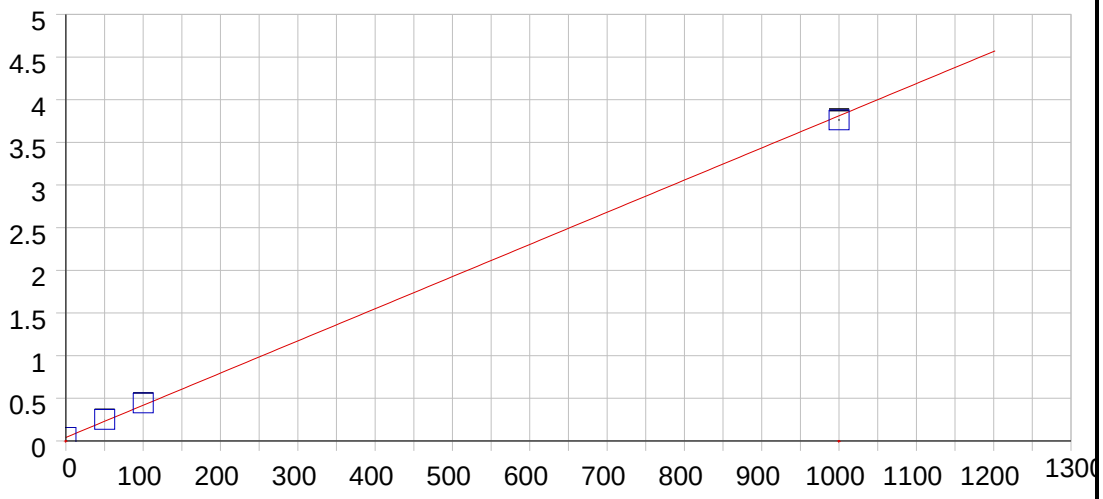


Ca 317.933 {106}

Date of Fit:	08/29/2011 13:12:57	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.003474	Re-Slope:	1.000000
A1 (Gain):	0.000023	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999858	Status:	OK.
Std Error of Est:	0.000828		
Predicted MDL:	4.101702		
Predicted MQL:	13.672341		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00347	.000	1
CalibStd=100	10000.	11135.	1140.	11.4	.26422	.015	1
CalibStd=100	100000.	95413.	-4590.	-4.59	2.2267	.003	1
CalibStd=500	500000.	506050.	6050.	1.21	11.511	.062	1
CalibStd-100	1000000.	997280.	-2720.	-.272	22.014	.036	1
CalibStd=100	1000.0	1108.6	109.	10.9	.02945	.000	1

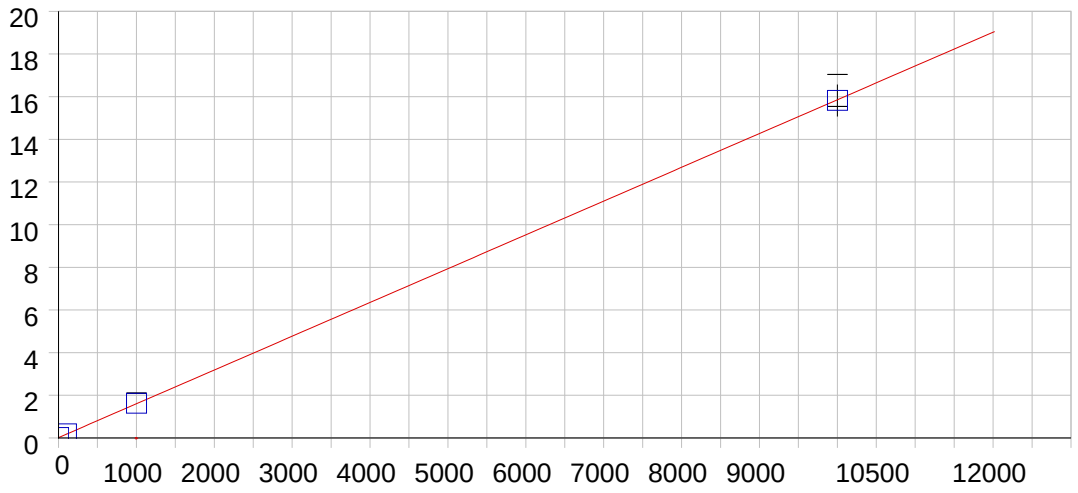


Ca 393.366 { 86}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.041665	Re-Slope:	1.000000
A1 (Gain):	0.003770	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999411	Status:	OK.
Std Error of Est:	0.001387		
Predicted MDL:	0.053403		
Predicted MQL:	0.178009		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00875	-.009	.000	.04163	.001	1
CalibStd=50	50.000	55.853	5.85	11.7	.25223	.001	1
CalibStd=100	1000.0	987.07	-12.9	-1.29	3.7628	.010	1
CalibStd=100	100.00	107.08	7.08	7.08	.44536	.001	1

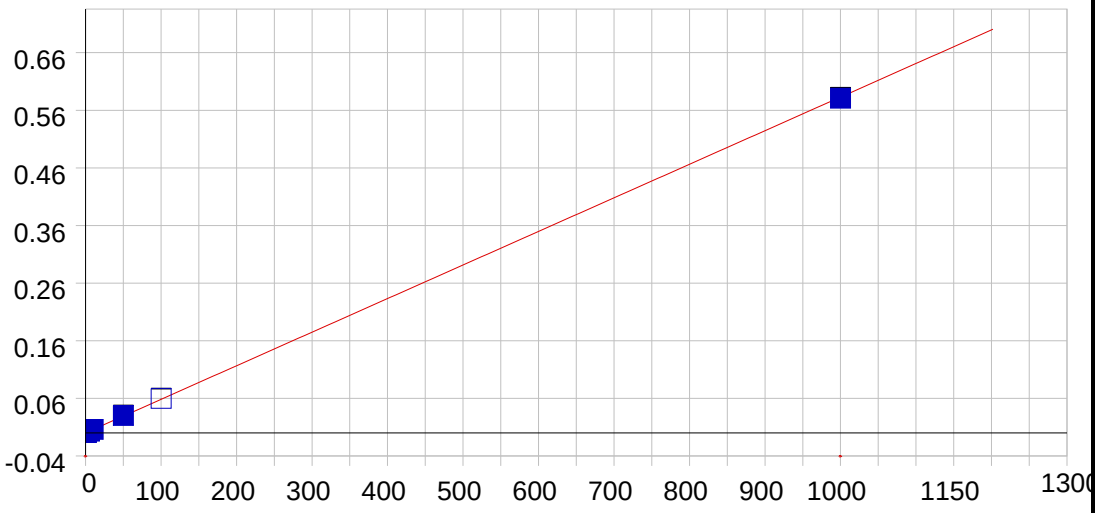


Ca 396.847 { 85}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.017759	Re-Slope:	1.000000
A1 (Gain):	0.001584	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999951	Status:	OK.
Std Error of Est:	0.000739		
Predicted MDL:	0.102495		
Predicted MQL:	0.341649		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01042	-.010	.000	.01774	.000	1
CalibStd=100	10000.	9978.0	-22.0	-.220	15.821	.748	1
CalibStd=100	100.00	109.38	9.38	9.38	.19099	.000	1
CalibStd=100	1000.0	1012.7	12.7	1.27	1.6216	.005	1

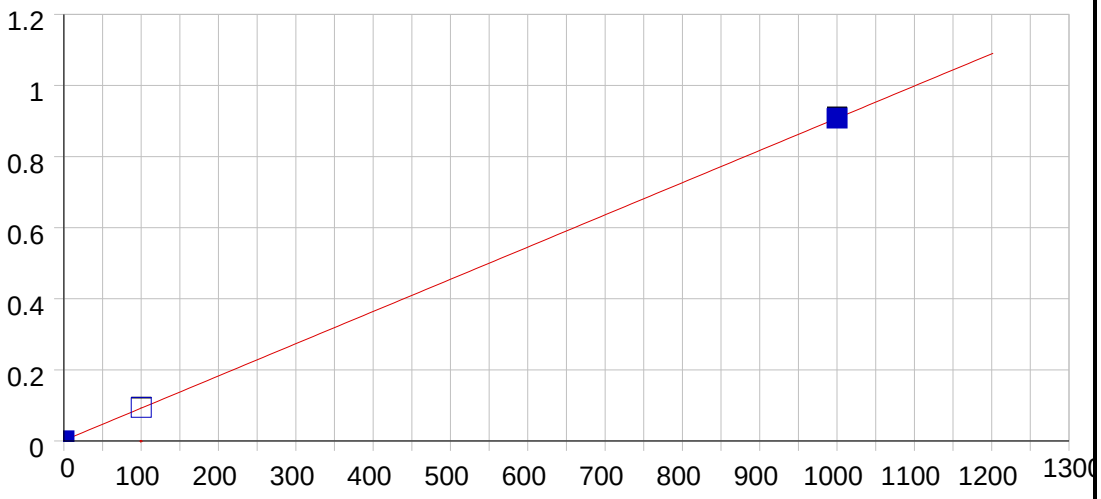


Cd 226.502 {449}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000583	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999940	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.092774		
Predicted MQL:	0.309245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00013	.000	.000	-.00003	.000	1
CalibStd=50	50.000	51.654	1.65	3.31	.03008	.000	1
CalibStd=1	1.0000	1.1066	.107	10.7	.00062	.000	1
CalibStd=0.5	.50000	.55520	.055	11.0	.00029	.000	1
CalibStd=5	5.0000	5.0055	.006	.110	.00289	.000	1
CalibStd=100	100.00	102.25	2.25	2.25	.05958	.000	1
CalibStd=10	10.000	9.9612	-.039	-.388	.00578	.000	1
CalibStd=100	1000.0	995.97	-4.03	-.403	.58065	.001	1

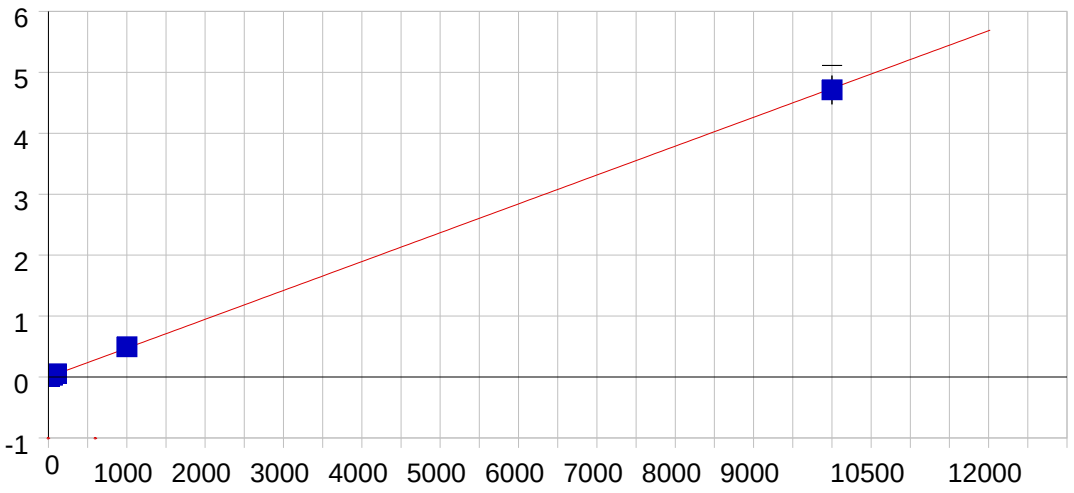


Cd 228.802 {447}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.001697	Re-Slope:	1.000000
A1 (Gain):	0.000906	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.002264		
Predicted MDL:	0.083007		
Predicted MQL:	0.276692		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.6668	-1.67	.000	.00019	.000	1
CalibStd=100	1000.0	999.81	-.185	-.019	.90767	.003	1
CalibStd=100	100.00	101.85	1.85	1.85	.09399	.001	1

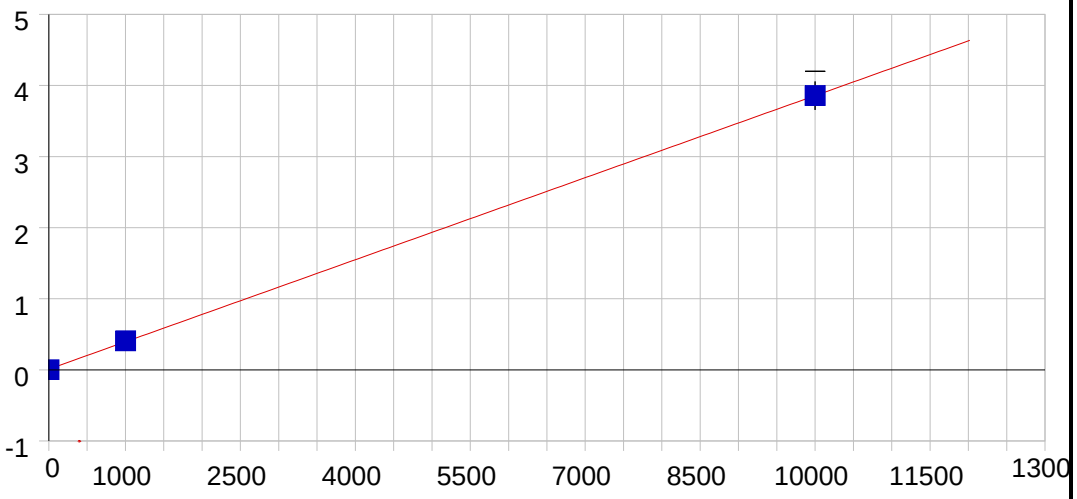


Co 228.616 {447}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000474	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999872	Status:	OK.
Std Error of Est:	0.000067		
Predicted MDL:	0.141655		
Predicted MQL:	0.472182		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00134	-.001	.000	.00001	.000	1
CalibStd=50	50.000	54.135	4.14	8.27	.02561	.000	1
CalibStd=10	10.000	10.421	.421	4.21	.00495	.000	1
CalibStd=5	5.0000	5.1588	.159	3.18	.00245	.000	1
CalibStd=100	100.00	107.54	7.54	7.54	.05098	.000	1
CalibStd=100	1000.0	1040.6	40.6	4.06	.49323	.001	1
CalibStd=100	10000.	9947.1	-52.9	-.529	4.7107	.237	1

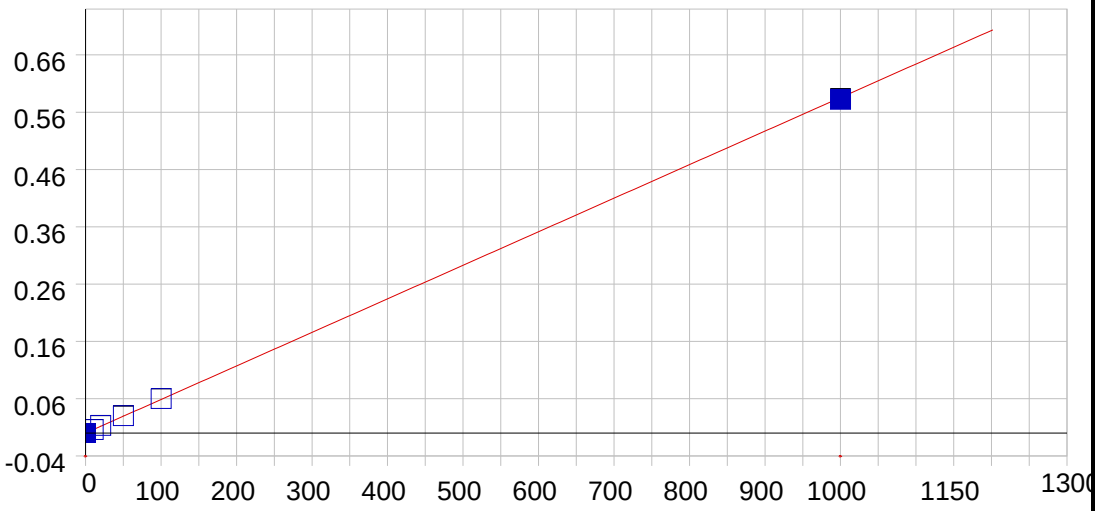


Co 238.892 {141}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.010079	Re-Slope:	1.000000
A1 (Gain):	0.000385	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999987	Status:	OK.
Std Error of Est:	0.015111		
Predicted MDL:	0.260539		
Predicted MQL:	0.868463		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-26.201	-26.2	.000	.00000	.000	1
CalibStd=100	1000.0	1029.1	29.1	2.91	.40596	.000	1
CalibStd=100	10000.	9997.1	-2.91	-.029	3.8558	.200	1

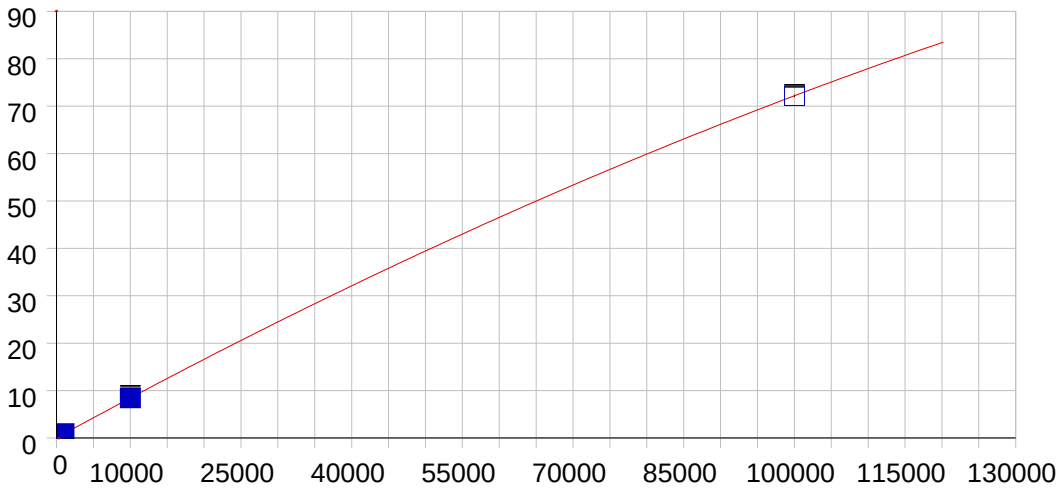


Cr 267.716 {126}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000586	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999855	Status:	OK.
Std Error of Est:	0.000042		
Predicted MDL:	0.268699		
Predicted MQL:	0.895663		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00149	-.001	.000	.00000	.000	1
CalibStd=10	10.000	9.9956	-.004	-.044	.00585	.000	1
CalibStd=50	50.000	51.255	1.26	2.51	.03001	.000	1
CalibStd=100	1000.0	994.40	-5.60	-.560	.58227	.001	1
CalibStd=20	20.000	22.152	2.15	10.8	.01297	.000	1
CalibStd=100	100.00	102.20	2.20	2.20	.05984	.000	1

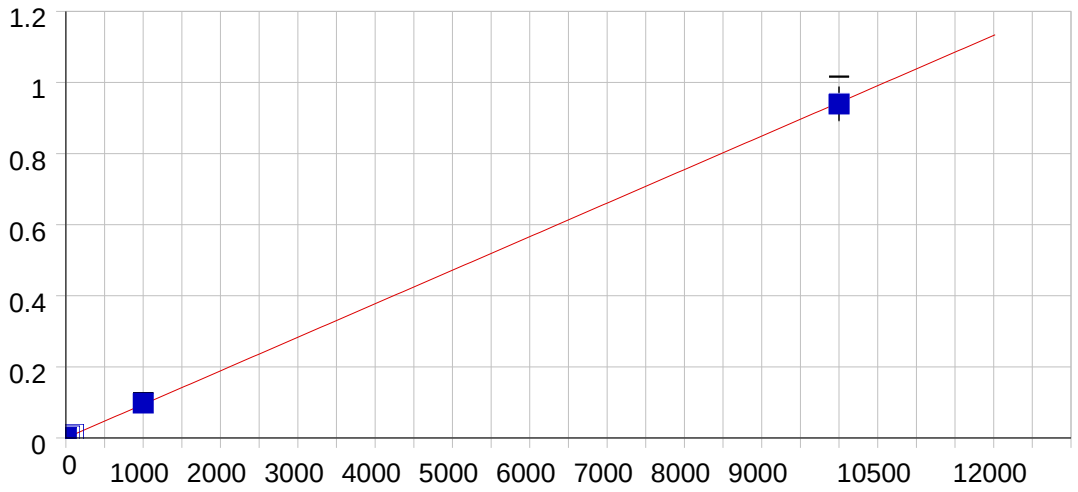


Cr 283.563 {119}

Date of Fit:	08/29/2011 12:52:14	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.017185	Re-Slope:	1.000000
A1 (Gain):	0.000856	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.004777		
Predicted MDL:	0.188625		
Predicted MQL:	0.628750		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.01358	.000	1
CalibStd=50	50.000	48.398	-1.60	-3.20	.05859	.000	1
CalibStd=100	100.00	100.06	.065	.065	.10278	.000	1
CalibStd=100	1000.0	1006.5	6.47	.647	.87755	.000	1
CalibStd=100	10000.	9999.3	-.723	-.007	8.4446	.438	1
CalibStd-100	100000.	100000.	.009	.000	72.193	.267	1

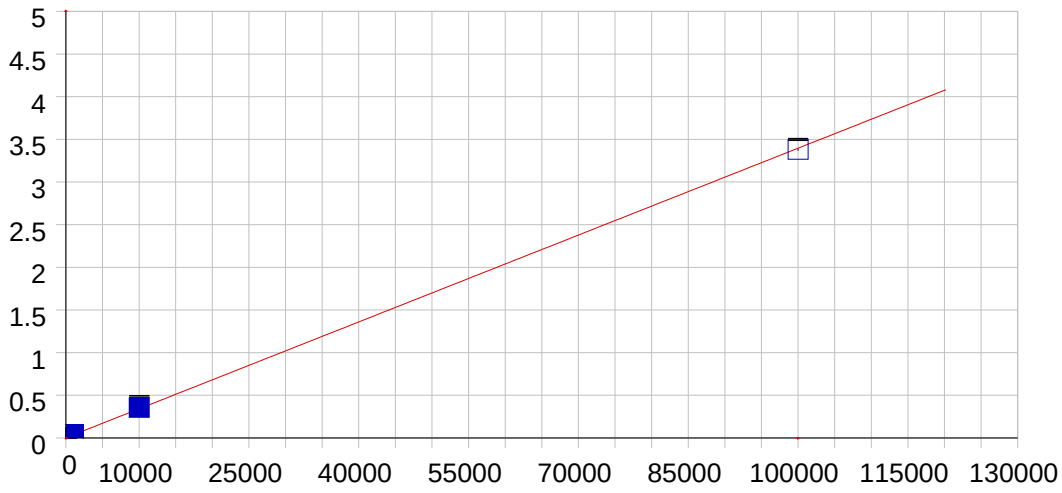


Cu 224.700 {450}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000094	Re-Slope:	1.000000
A1 (Gain):	0.000094	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999870	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	0.623931		
Predicted MQL:	2.079770		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00260	-.003	.000	.00009	.000	1
CalibStd=100	1000.0	1035.4	35.4	3.54	.09801	.001	1
CalibStd=50	50.000	55.540	5.54	11.1	.00534	.000	1
CalibStd=100	100.00	108.83	8.83	8.83	.01036	.000	1
CalibStd=10	10.000	10.303	.303	3.03	.00107	.000	1
CalibStd=100	10000.	9950.0	-50.0	-.500	.94114	.048	1

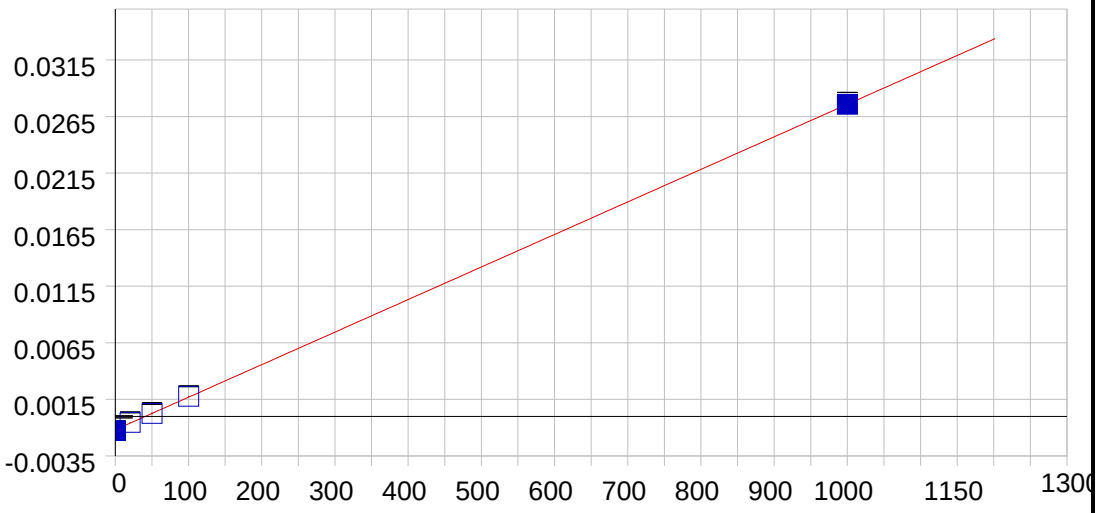


Cu 324.754 {104}

Date of Fit:	08/29/2011 12:52:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002265	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999903	Status:	OK.
Std Error of Est:	0.000043		
Predicted MDL:	3.963330		
Predicted MQL:	13.211101		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01194	-.012	.000	.00226	.000	1
CalibStd=100	1000.0	1029.8	29.8	2.98	.03721	.000	1
CalibStd=50	50.000	56.206	6.21	12.4	.00417	.000	1
CalibStd=100	100.00	104.76	4.76	4.76	.00582	.000	1
CalibStd=100	10000.	10418.	418.	4.18	.35586	.022	1
CalibStd-100	100000.	99541.	-459.	-.459	3.3808	.012	1

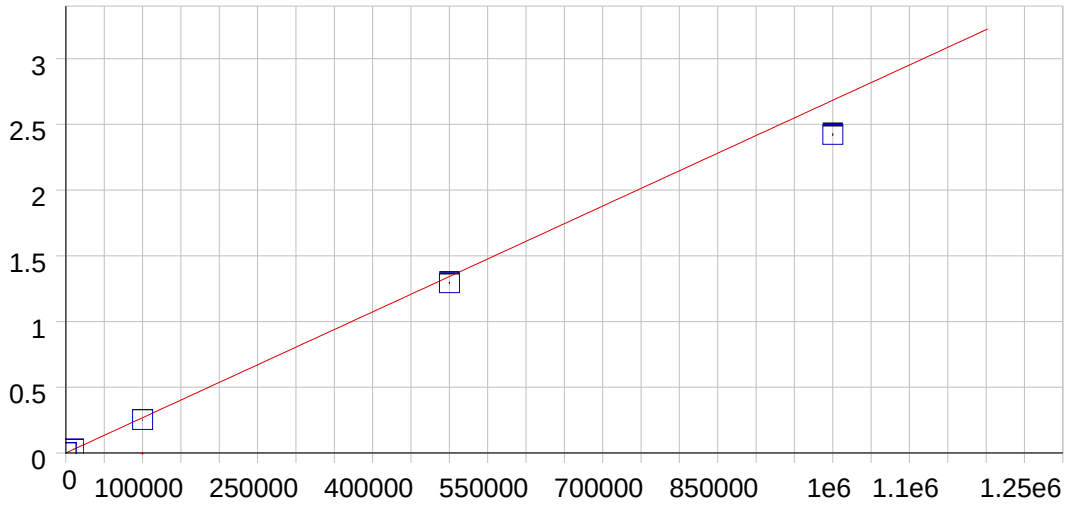


Cu 327.396 {103}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.001184	Re-Slope:	1.000000
A1 (Gain):	0.000029	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000073		
Predicted MDL:	5.456978		
Predicted MQL:	18.189927		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.4700	-3.47	.000	-.00128	.000	1
CalibStd=20	20.000	22.454	2.45	12.3	-.00054	.000	1
CalibStd=50	50.000	49.936	-.064	-.128	.00025	.000	1
CalibStd=100	100.00	102.50	2.50	2.50	.00176	.000	1
CalibStd=10	10.000	8.8624	-1.14	-11.4	-.00093	.000	1
CalibStd=100	1000.0	999.72	-.285	-.028	.02758	.000	1

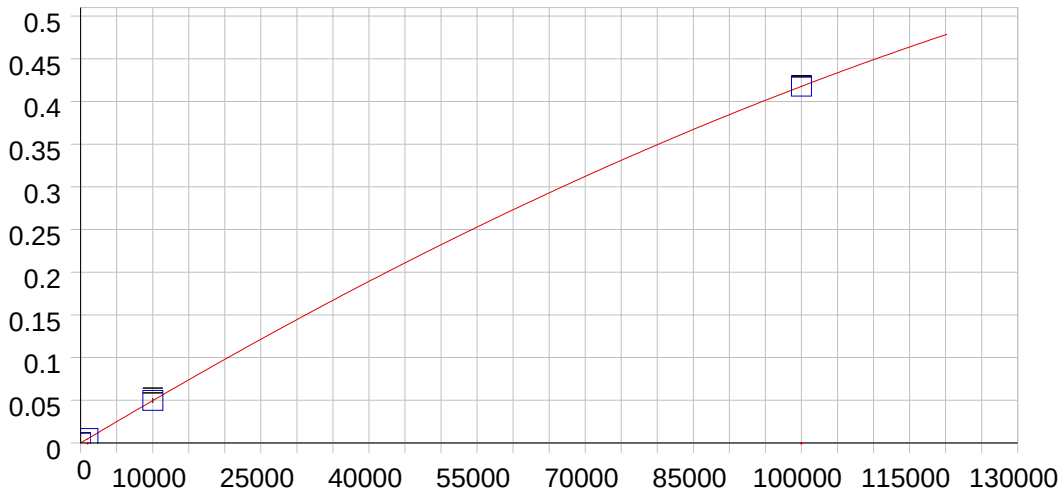


Fe 234.349 {144}

Date of Fit:	08/29/2011 13:12:57	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000051	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999841	Status:	OK.
Std Error of Est:	0.000098		
Predicted MDL:	16.081770		
Predicted MQL:	53.605899		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00005	.000	1
CalibStd=100	10000.	11176.	1180.	11.8	.03004	.002	1
CalibStd=500	500000.	482100.	-17900.	-3.58	1.2937	.007	1
CalibStd=100	100000.	94411.	-5590.	-5.59	.25339	.000	1
CalibStd-100	1000000.	902810.	-97200.	-9.72	2.4226	.009	1
CalibStd=100	1000.0	1109.5	110.	11.0	.00303	.000	1

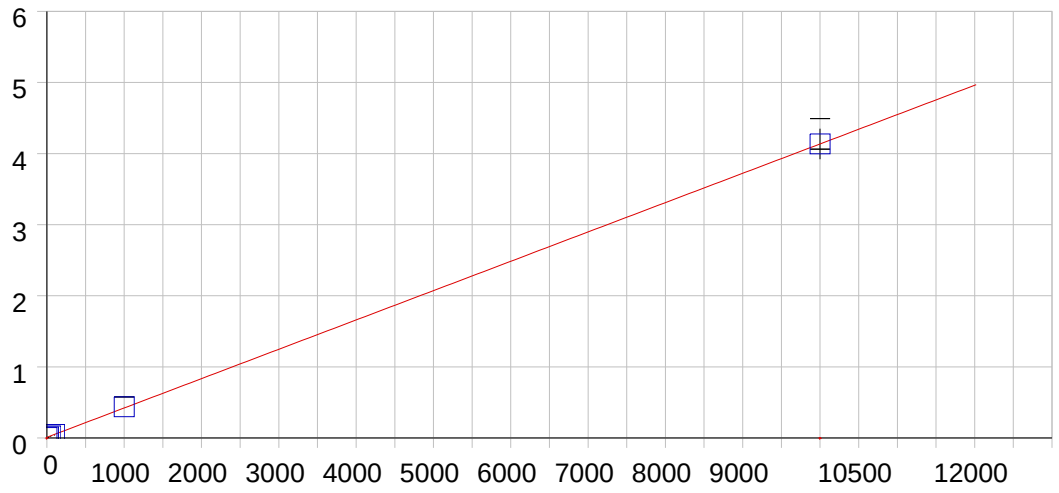


Fe 239.562 {141}

Date of Fit:	08/29/2011 12:59:17	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.000086	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.010000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	9.795504		
Predicted MQL:	32.651681		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	2.6169	2.62	.000	.00010	.000	1
CalibStd=100	1000.0	997.26	-2.74	-.274	.00500	.000	1
CalibStd=100	10000.	10000.	.298	.003	.04961	.003	1
CalibStd=100	100000.	100000.	-.004	.000	.41776	.001	1

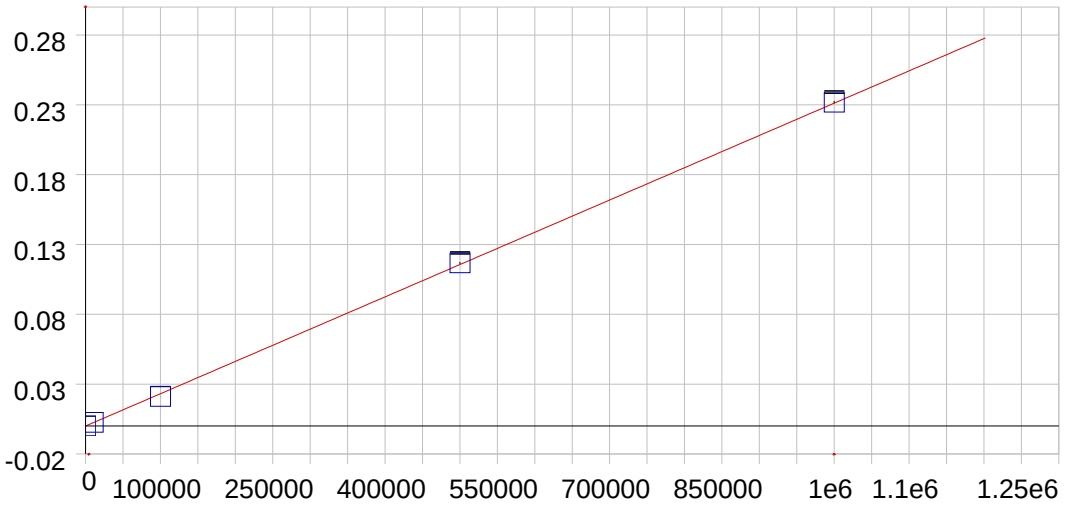


Fe 259.940 {130}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.009258	Re-Slope:	1.000000
A1 (Gain):	0.000413	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999991	Status:	OK.
Std Error of Est:	0.007694		
Predicted MDL:	0.294081		
Predicted MQL:	0.980269		

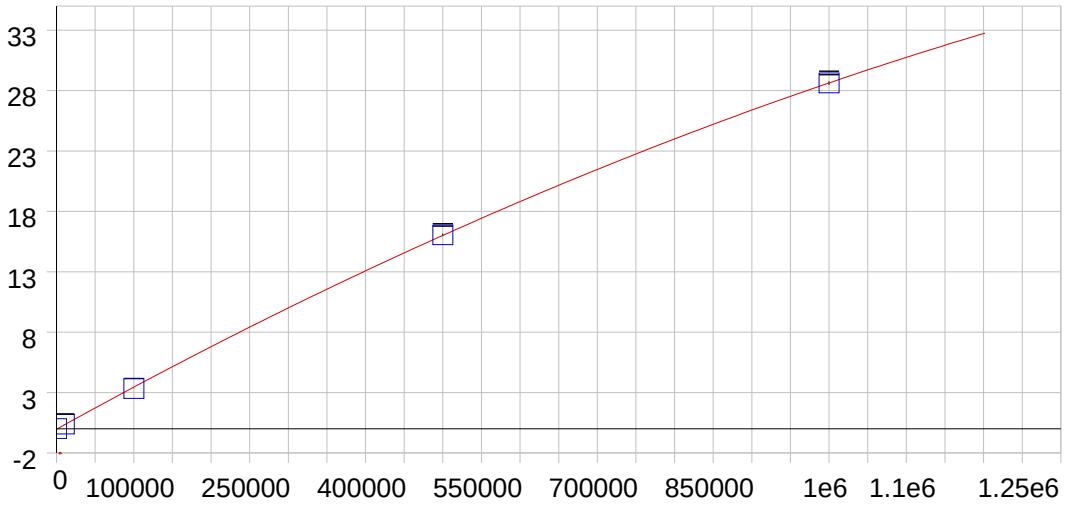
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-9.4903	-9.49	.000	.00534	.000	1
CalibStd=100	1000.0	1033.8	33.8	3.38	.43584	.000	1
CalibStd=50	50.000	42.558	-7.44	-14.9	.02682	.000	1
CalibStd=100	100.00	94.235	-5.77	-5.77	.04814	.000	1
CalibStd=20	20.000	12.195	-7.81	-39.0	.01429	.000	1
CalibStd=100	10000.	9996.7	-3.27	-.033	4.1343	.215	1



Mg 202.582 {466}

Date of Fit:	08/29/2011 13:12:57	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000004		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999703		Status:	OK.	
Std Error of Est:	0.000029				
Predicted MDL:	77.457669				
Predicted MQL:	258.192231				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.36855	-.369	.000	.00000	.000	1
CalibStd=100	100000.	91209.	-8790.	-8.79	.02109	.000	1
CalibStd=500	500000.	504990.	4990.	.997	.11675	.001	1
CalibStd=100	10000.	11121.	1120.	11.2	.00257	.000	1
CalibStd-100	1000000.	1002700.	2680.	.268	.23181	.001	1

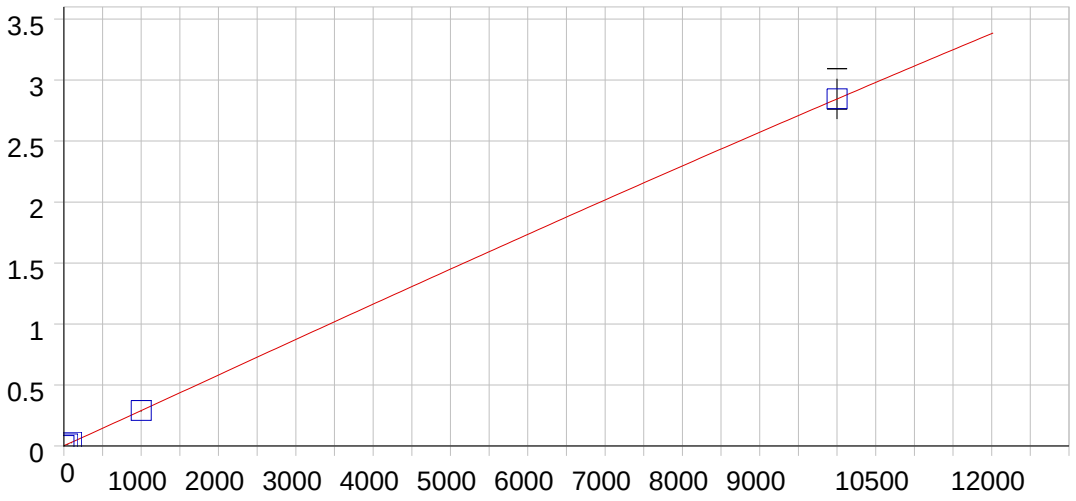


Mg 279.079 {121}

Date of Fit:	08/30/2011 10:08:19	Type of Fit:	Curvilinear	Weighting:	None

A0 (Offset):	-0.033761	Re-Slope:	1.000000
A1 (Gain):	0.000036	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.106089		
Predicted MDL:	2.488877		
Predicted MQL:	8.296257		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	949.56	950.	.000	-.00004	.000	1
CalibStd=100	100000.	96305.	-3700.	-3.70	3.3230	.010	1
CalibStd=500	500000.	501500.	1500.	.301	16.056	.101	1
CalibStd=100	10000.	11667.	1670.	16.7	.37966	.019	1
CalibStd-100	1000000.	999560.	-436.	-.044	28.628	.142	1

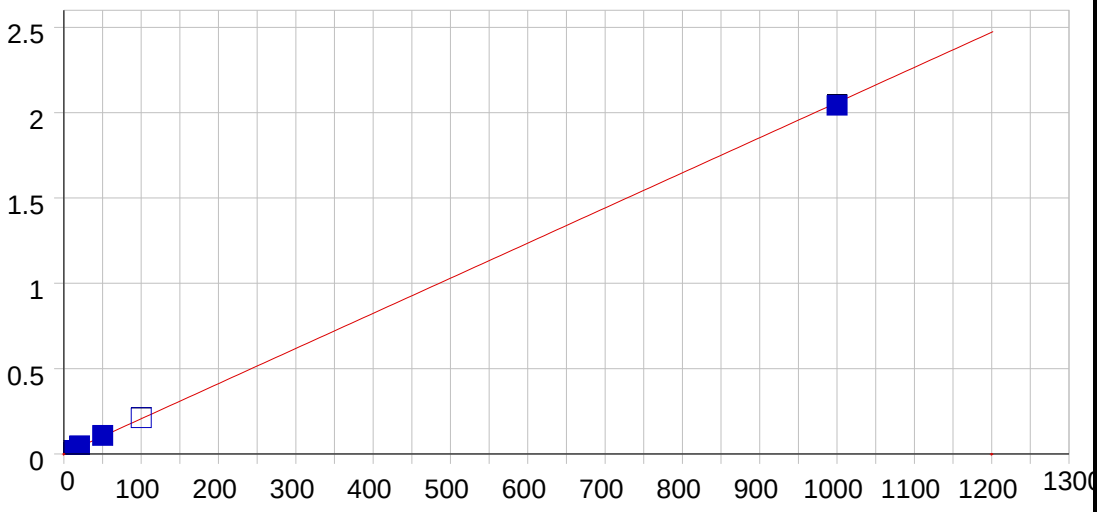


Mg 280.270 {120}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.002842	Re-Slope:	1.000000
A1 (Gain):	0.000252	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.020000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000023		
Predicted MDL:	0.203751		
Predicted MQL:	0.679169		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00048	.000	.000	.00284	.000	1
CalibStd=100	1000.0	999.82	-.176	-.018	.29001	.000	1
CalibStd=100	10000.	10000.	.012	.000	2.8454	.165	1
CalibStd=100	100.00	101.06	1.06	1.06	.03071	.000	1
CalibStd=50	50.000	49.096	-.904	-1.81	.01619	.000	1

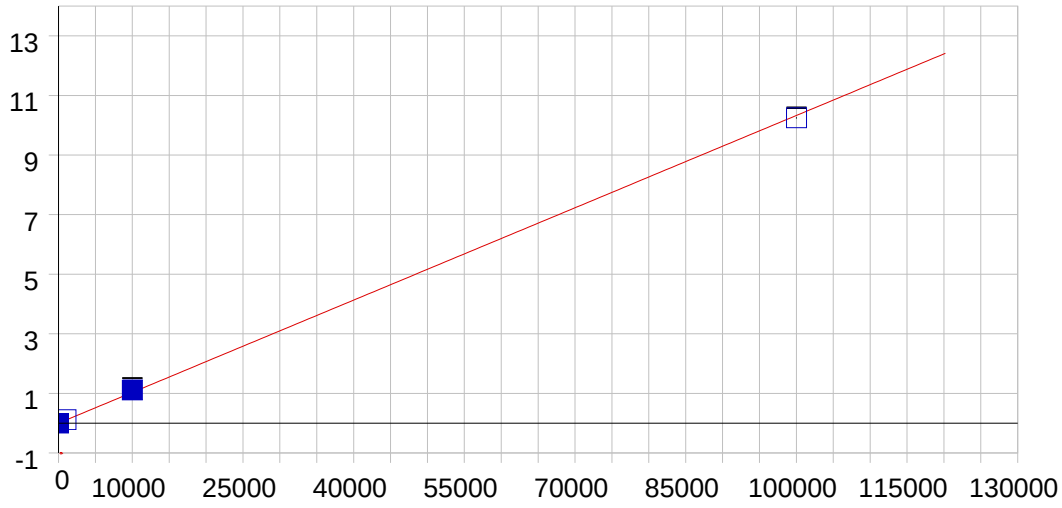


Mn 257.610 {131}

Date of Fit:	08/29/2011 12:38:29	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000422	Re-Slope:	1.000000
A1 (Gain):	0.002059	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999770	Status:	OK.
Std Error of Est:	0.000127		
Predicted MDL:	0.038651		
Predicted MQL:	0.128838		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00111	-.001	.000	.00042	.000	1
CalibStd=10	10.000	10.169	.169	1.69	.02136	.000	1
CalibStd=50	50.000	52.084	2.08	4.17	.10766	.001	1
CalibStd=20	20.000	22.507	2.51	12.5	.04676	.000	1
CalibStd=100	100.00	102.83	2.83	2.83	.21213	.000	1
CalibStd=5	5.0000	5.0861	.086	1.72	.01089	.000	1
CalibStd=100	1000.0	992.32	-7.68	-.768	2.0435	.003	1

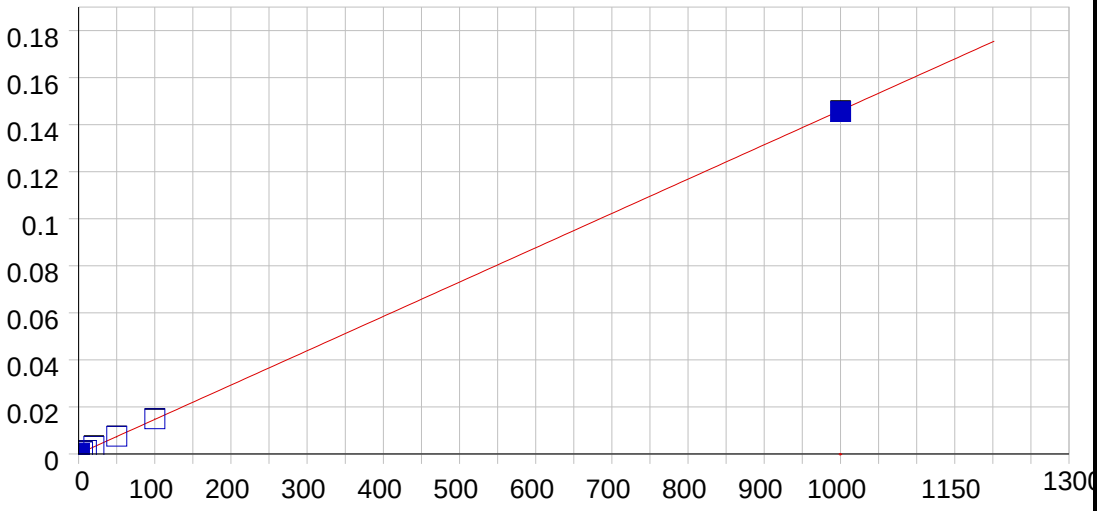


Mn 259.373 {130}

Date of Fit:	08/29/2011 12:52:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000015	Re-Slope:	1.000000
A1 (Gain):	0.000103	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999693	Status:	OK.
Std Error of Est:	0.001205		
Predicted MDL:	0.867390		
Predicted MQL:	2.891298		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.14401	-.144	.000	-.00003	.000	1
CalibStd=100	10000.	10744.	744.	7.44	1.1108	.064	1
CalibStd-100	100000.	99178.	-822.	-.822	10.243	.021	1
CalibStd=100	1000.0	1077.9	77.9	7.79	.11131	.000	1

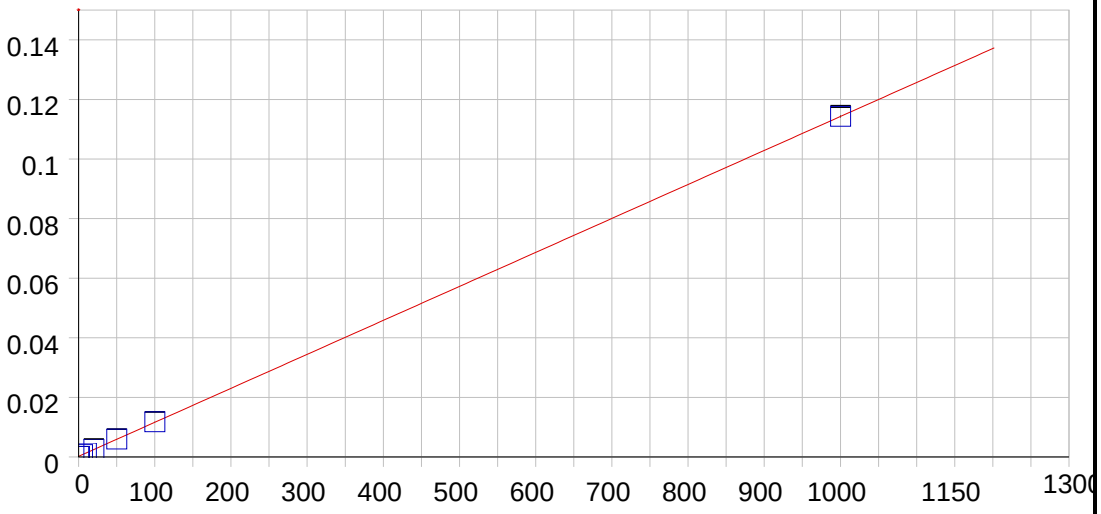


Mo 202.030 {467}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000096	Re-Slope:	1.000000
A1 (Gain):	0.000146	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999899	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.256737		
Predicted MQL:	0.855789		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00005	.000	.000	.00010	.000	1
CalibStd=50	50.000	50.700	.700	1.40	.00750	.000	1
CalibStd=1	1.0000	.87214	-.128	-12.8	.00022	.000	1
CalibStd=20	20.000	21.832	1.83	9.16	.00328	.000	1
CalibStd=10	10.000	9.9456	-.054	-.544	.00155	.000	1
CalibStd=100	100.00	101.61	1.61	1.61	.01493	.000	1
CalibStd=5	5.0000	4.8255	-.174	-3.49	.00080	.000	1
CalibStd=100	1000.0	996.22	-3.78	-.378	.14550	.000	1

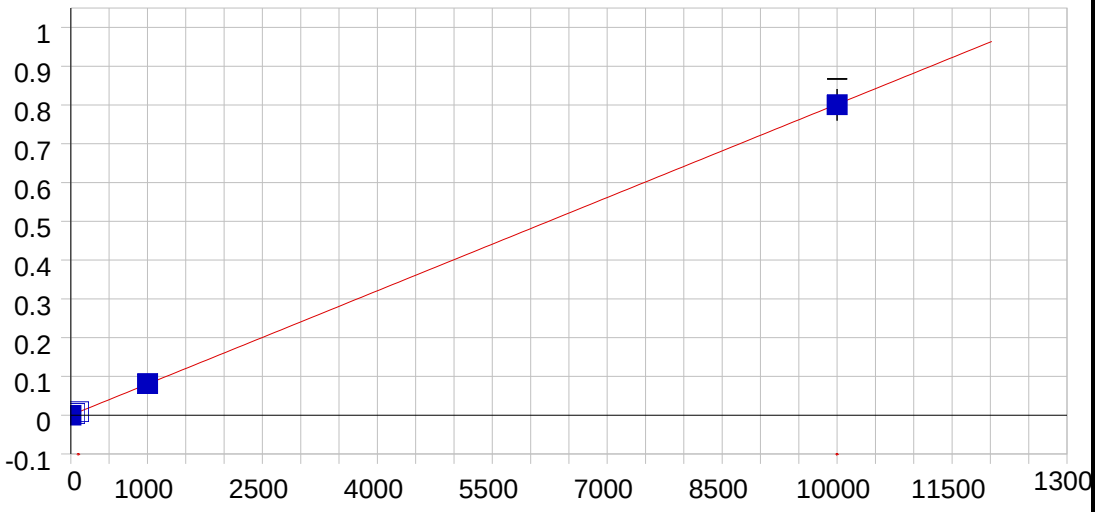


Mo 203.844 {465}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000218	Re-Slope:	1.000000
A1 (Gain):	0.000114	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999998	Status:	OK.
Std Error of Est:	0.000094		
Predicted MDL:	0.400593		
Predicted MQL:	1.335309		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.53235	-.532	.000	.00016	.000	1
CalibStd=50	50.000	50.404	.404	.808	.00597	.000	1
CalibStd=1	1.0000	.33527	-.665	-66.5	.00026	.000	1
CalibStd=20	20.000	21.008	1.01	5.04	.00261	.000	1
CalibStd=10	10.000	9.2578	-.742	-7.42	.00127	.000	1
CalibStd=100	100.00	101.17	1.17	1.17	.01176	.000	1
CalibStd=5	5.0000	4.5016	-.498	-9.97	.00073	.000	1
CalibStd=100	1000.0	999.85	-.147	-.015	.11427	.000	1

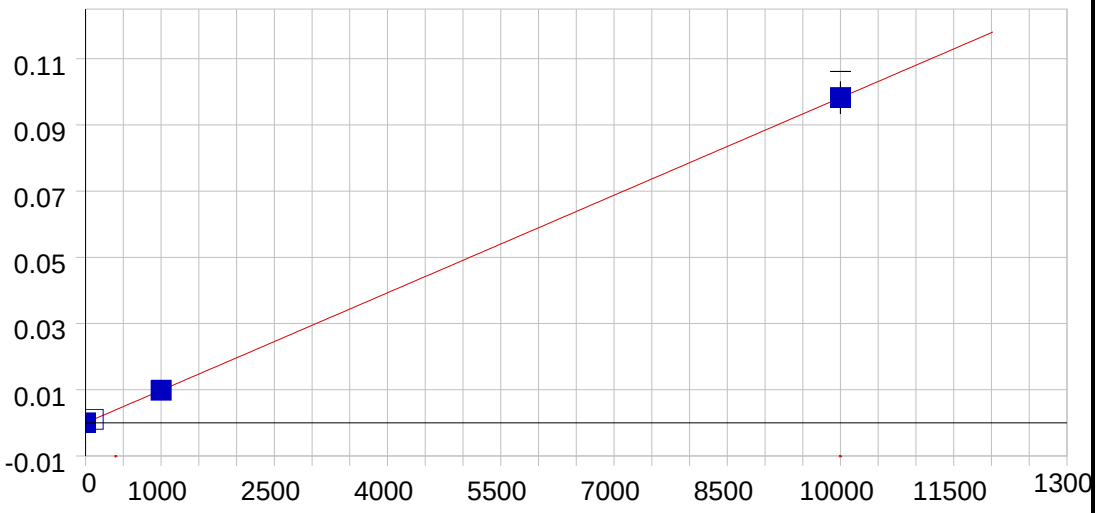


Mo 204.598 {465}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000080	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999979	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.501875		
Predicted MQL:	1.672918		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00444	-.004	.000	.00000	.000	1
CalibStd=100	1000.0	1013.2	13.2	1.32	.08125	.000	1
CalibStd=100	10000.	9980.7	-19.3	-.193	.80040	.041	1
CalibStd=50	50.000	51.606	1.61	3.21	.00414	.000	1
CalibStd=100	100.00	104.54	4.54	4.54	.00838	.000	1

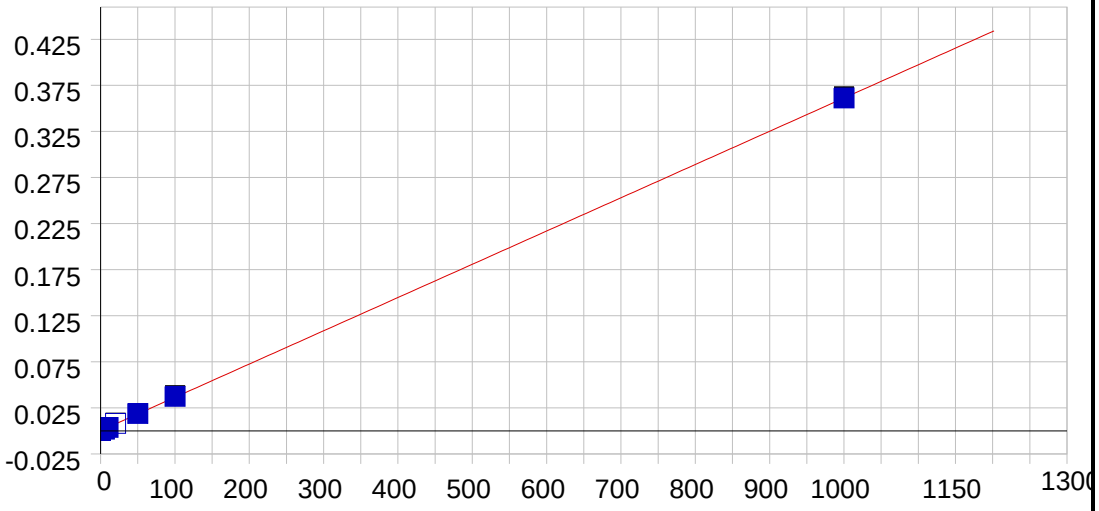


Ni 221.647 {452}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000028		
Predicted MDL:	2.345466		
Predicted MQL:	7.818221		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.9271	-2.93	.000	-.00003	.000	1
CalibStd=100	10000.	9999.9	-.055	-.001	.09823	.005	1
CalibStd=100	100.00	102.71	2.71	2.71	.00101	.000	1
CalibStd=100	1000.0	1000.3	.276	.028	.00982	.000	1

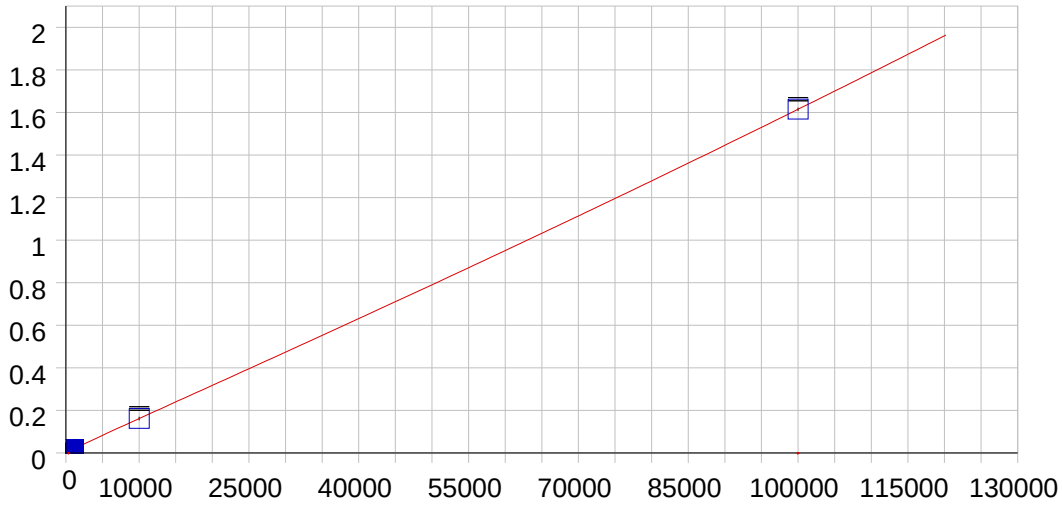


Ni 231.604 {445}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000381	Re-Slope:	1.000000
A1 (Gain):	0.000361	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000584		
Predicted MDL:	0.214729		
Predicted MQL:	0.715762		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.4965	-1.50	.000	-.00016	.000	1
CalibStd=50	50.000	50.689	.689	1.38	.01868	.000	1
CalibStd=20	20.000	21.288	1.29	6.44	.00806	.000	1
CalibStd=10	10.000	8.8479	-1.15	-11.5	.00357	.000	1
CalibStd=100	100.00	102.33	2.33	2.33	.03731	.000	1
CalibStd=5	5.0000	3.6185	-1.38	-27.6	.00169	.000	1
CalibStd=100	1000.0	999.73	-.275	-.027	.36117	.001	1

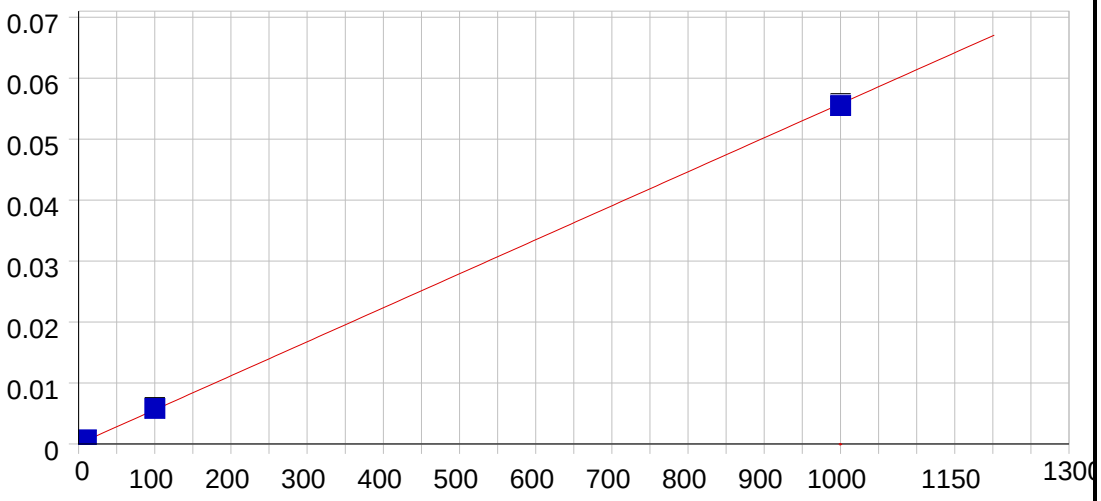


Pb 216.999 {455}

Date of Fit:	08/29/2011 12:52:14	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	0.000104	Re-Slope:	1.000000
A1 (Gain):	0.000023	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	0.960000		
Correlation:	1.000000	Status:	Warning Positive Curvature
Std Error of Est:	0.000000		
Predicted MDL:	2.337713		
Predicted MQL:	7.792376		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00005	.000	1
CalibStd=100	1000.0	1003.5	3.49	.349	.01771	.000	1
CalibStd=100	10000.	9999.5	-.457	-.005	.16151	.008	1
CalibStd-100	100000.	100000.	.005	.000	1.6150	.008	1

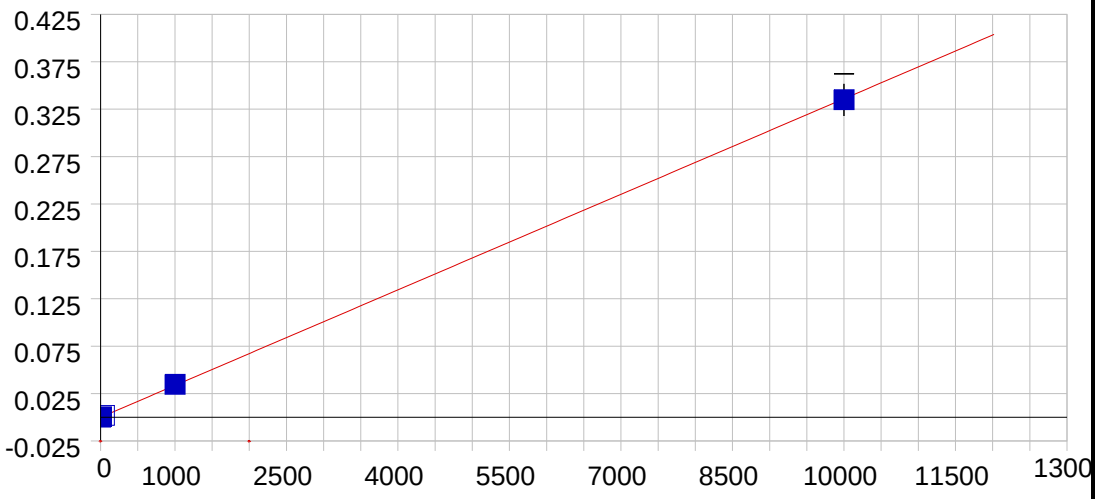


Pb 220.353 {453}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000024	Re-Slope:	1.000000
A1 (Gain):	0.000056	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999789	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.972941		
Predicted MQL:	3.243135		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00168	-.002	.000	.00002	.000	1
CalibStd=10	10.000	11.167	1.17	11.7	.00065	.000	1
CalibStd=100	100.00	103.54	3.54	3.54	.00581	.000	1
CalibStd=5	5.0000	5.9451	.945	18.9	.00036	.000	1
CalibStd=100	1000.0	994.35	-5.65	-.565	.05563	.000	1

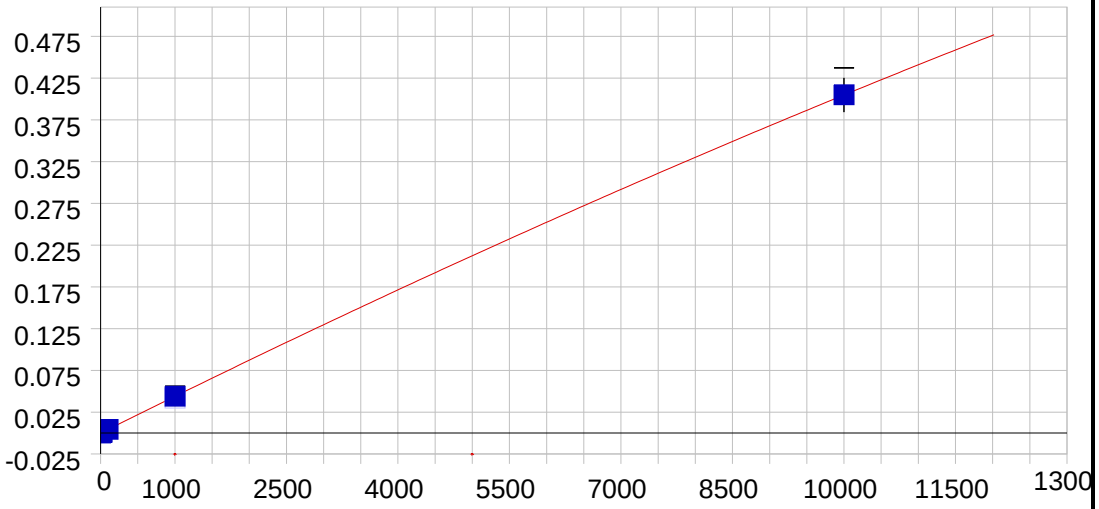


Sb 206.833 {463}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000018	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999930	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	1.306250		
Predicted MQL:	4.354166		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00230	-.002	.000	-.00002	.000	1
CalibStd=100	1000.0	1028.9	28.9	2.89	.03456	.000	1
CalibStd=10	10.000	11.081	1.08	10.8	.00035	.000	1
CalibStd=50	50.000	54.823	4.82	9.65	.00182	.000	1
CalibStd=100	10000.	9965.2	-34.8	-.348	.33484	.017	1

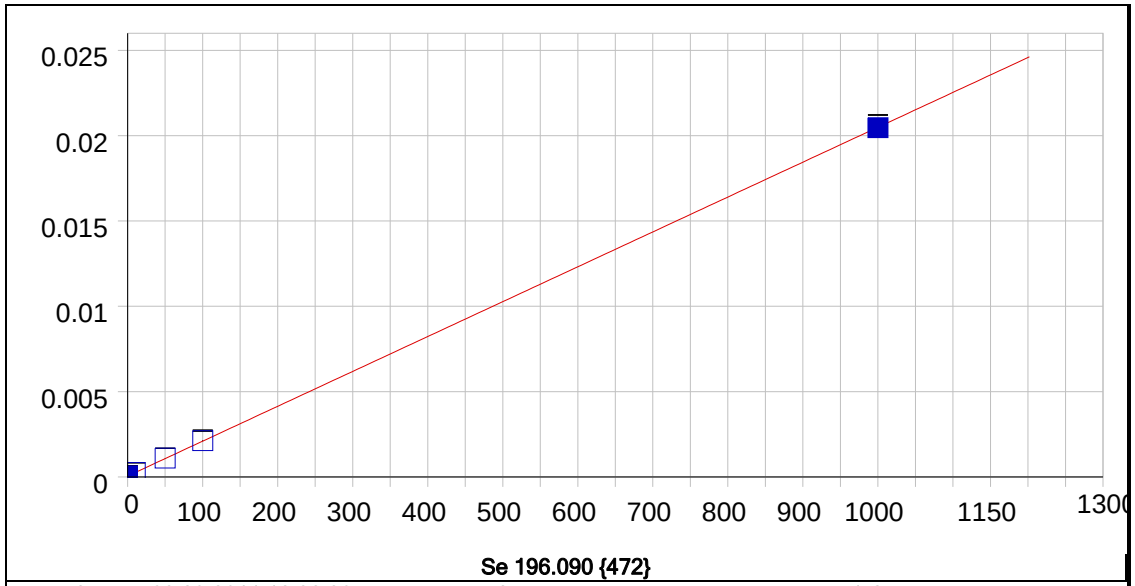


Sb 217.581 {455}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Full Fit	Weighting:	None

A0 (Offset):	-0.000091	Re-Slope:	1.000000
A1 (Gain):	0.000044	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000097		
Predicted MDL:	1.494571		
Predicted MQL:	4.981903		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00019	.000	1
CalibStd=100	1000.0	999.87	-.135	-.013	.04173	.000	1
CalibStd=20	20.000	21.976	1.98	9.88	.00084	.000	1
CalibStd=10	10.000	9.4331	-.567	-5.67	.00031	.000	1
CalibStd=100	100.00	100.86	.857	.857	.00417	.000	1
CalibStd=100	10000.	10000.	.001	.000	.40470	.020	1

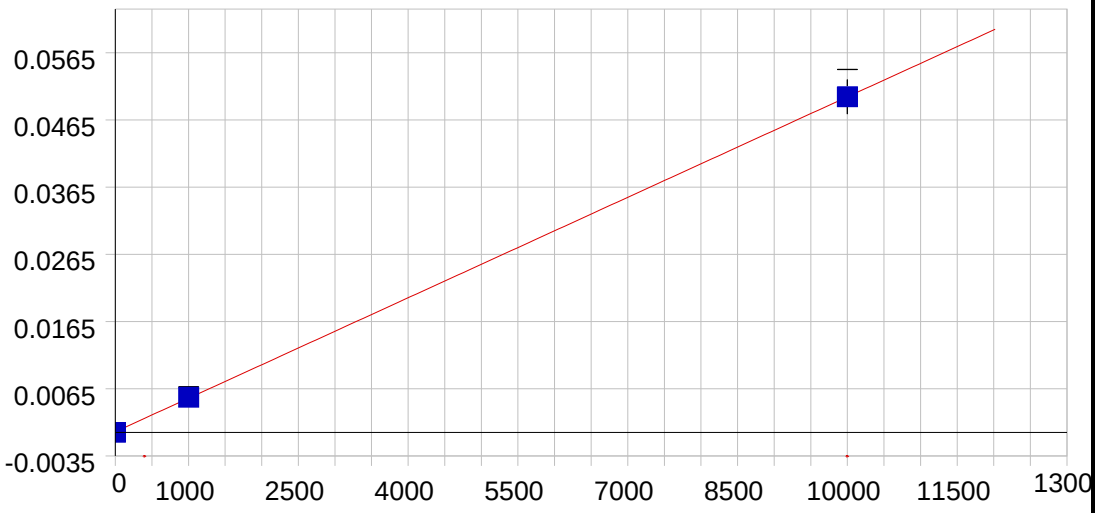


Se 196.090 {472}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000053	Re-Slope:	1.000000
A1 (Gain):	0.000020	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999979	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	1.866901		
Predicted MQL:	6.223002		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00011	.000	.000	.00005	.000	1
CalibStd=50	50.000	50.866	.866	1.73	.00109	.000	1
CalibStd=100	1000.0	998.29	-1.71	-.171	.02045	.000	1
CalibStd=10	10.000	9.6140	-.386	-3.86	.00025	.000	1
CalibStd=100	100.00	101.23	1.23	1.23	.00212	.000	1

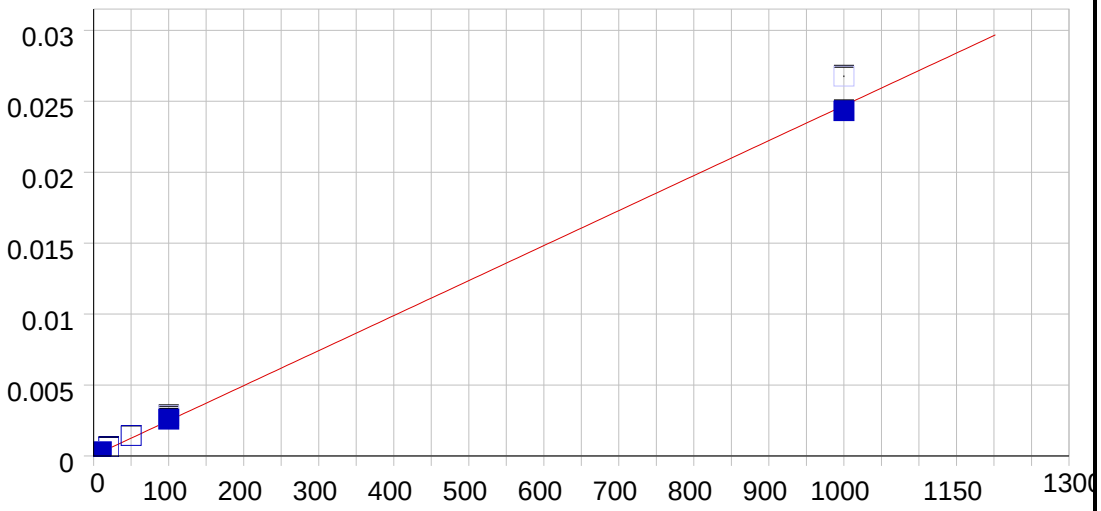


Se 206.279 {463}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000105	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000173		
Predicted MDL:	10.567627		
Predicted MQL:	35.225423		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-23.122	-23.1	.000	-.00001	.000	1
CalibStd=100	1000.0	1025.7	25.7	2.57	.00522	.000	1
CalibStd=100	10000.	9997.4	-2.57	-.026	.04995	.003	1

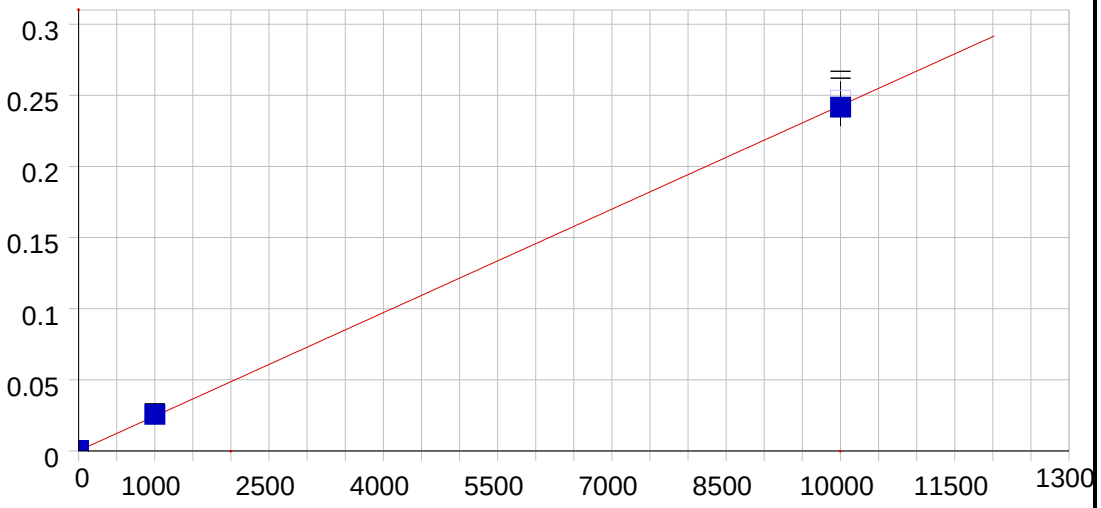


Tl 190.856 {477}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000020	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999082	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	1.246261		
Predicted MQL:	4.154202		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00449	-.004	.000	.00002	.000	1
CalibStd=50	50.000	57.234	7.23	14.5	.00143	.000	1
CalibStd=100	1000.0	984.81	-15.2	-1.52	.02677	.000	1
CalibStd=20	20.000	24.793	4.79	24.0	.00063	.000	1
CalibStd=100	100.00	103.83	3.83	3.83	.00283	.000	1
CalibStd=10	10.000	10.418	.418	4.18	.00030	.000	1

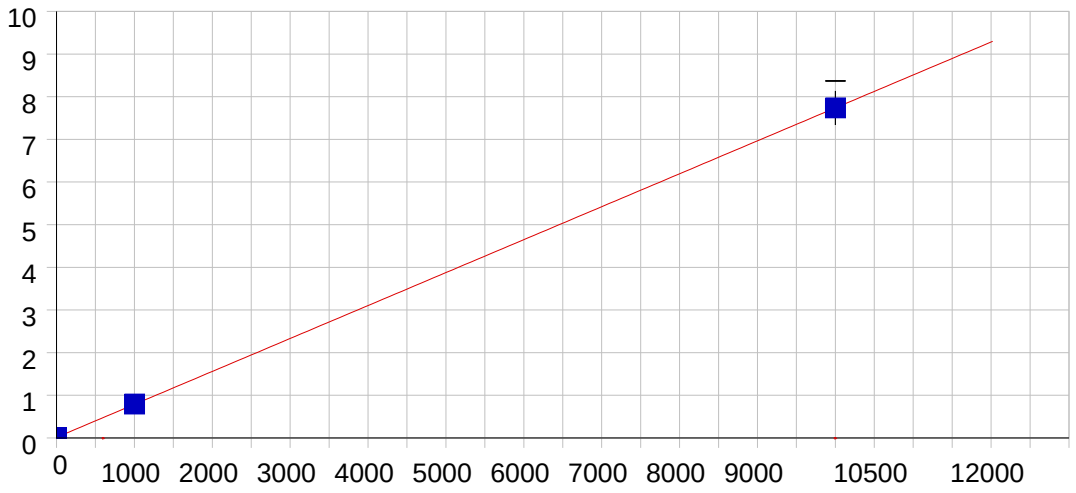


Tl 276.787 {122}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000191	Re-Slope:	1.000000
A1 (Gain):	0.000024	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999893	Status:	OK.
Std Error of Est:	0.000066		
Predicted MDL:	7.147716		
Predicted MQL:	23.825719		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.04253	-.043	.000	.00019	.000	1
CalibStd=100	1000.0	1047.1	47.1	4.71	.02559	.000	1
CalibStd=100	10000.	9953.8	-46.2	-.462	.24650	.013	1

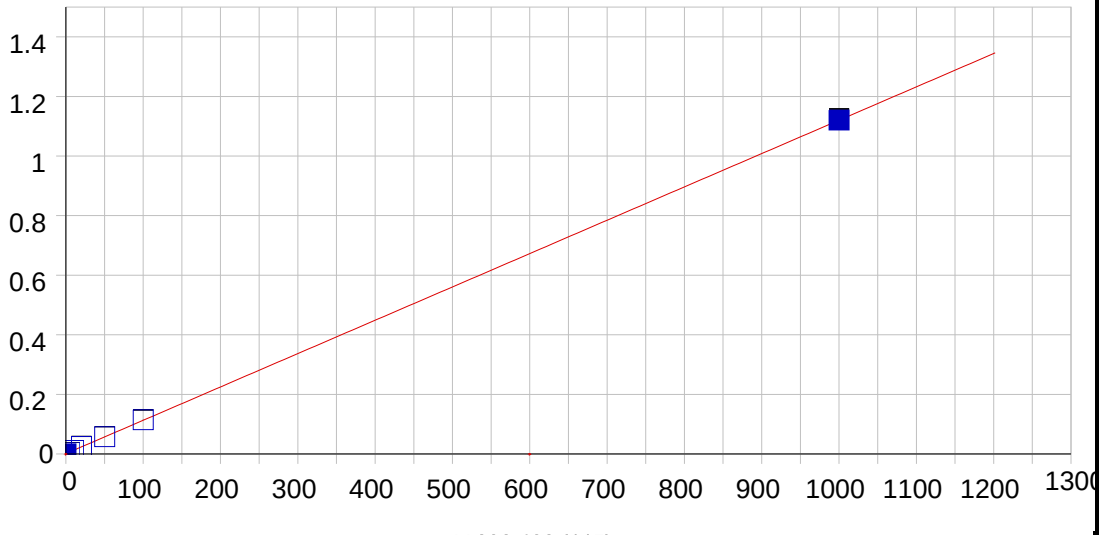


V 290.882 {116}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.015050	Re-Slope:	1.000000
A1 (Gain):	0.000772	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000182		
Predicted MDL:	0.295003		
Predicted MQL:	0.983344		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00368	-.004	.000	.01505	.000	1
CalibStd=100	1000.0	1004.1	4.09	.409	.79062	.000	1
CalibStd=100	10000.	9995.9	-4.09	-.041	7.7360	.398	1

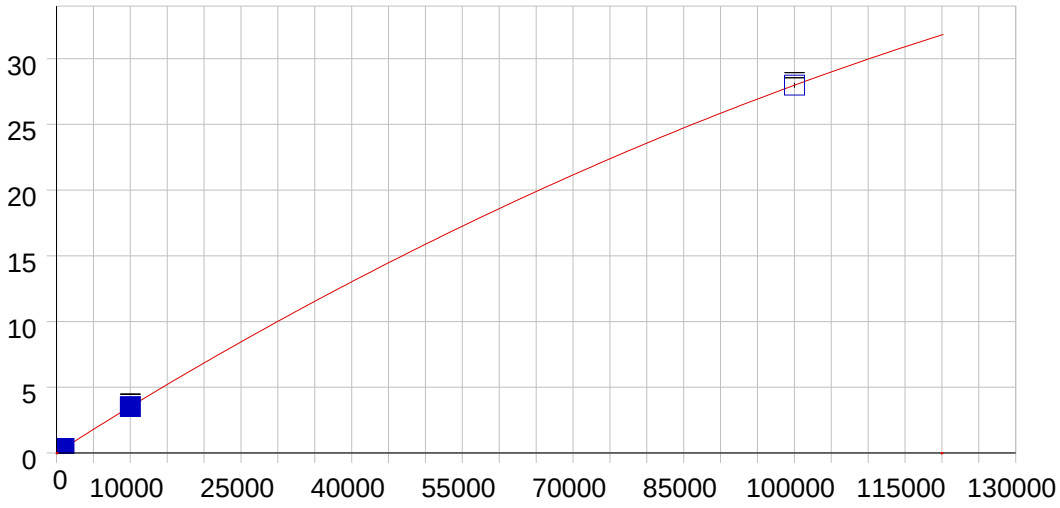


V 292.402 {115}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.001148	Re-Slope:	1.000000
A1 (Gain):	0.001119	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.001126		
Predicted MDL:	0.201432		
Predicted MQL:	0.671441		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.93140	-.931	.000	.00011	.000	1
CalibStd=50	50.000	50.366	.366	.732	.05751	.000	1
CalibStd=100	1000.0	999.86	-.141	-.014	1.1200	.004	1
CalibStd=20	20.000	21.231	1.23	6.15	.02491	.000	1
CalibStd=5	5.0000	4.1925	-.807	-16.1	.00584	.000	1
CalibStd=10	10.000	9.1840	-.816	-8.16	.01143	.000	1
CalibStd=100	100.00	101.10	1.10	1.10	.11428	.000	1

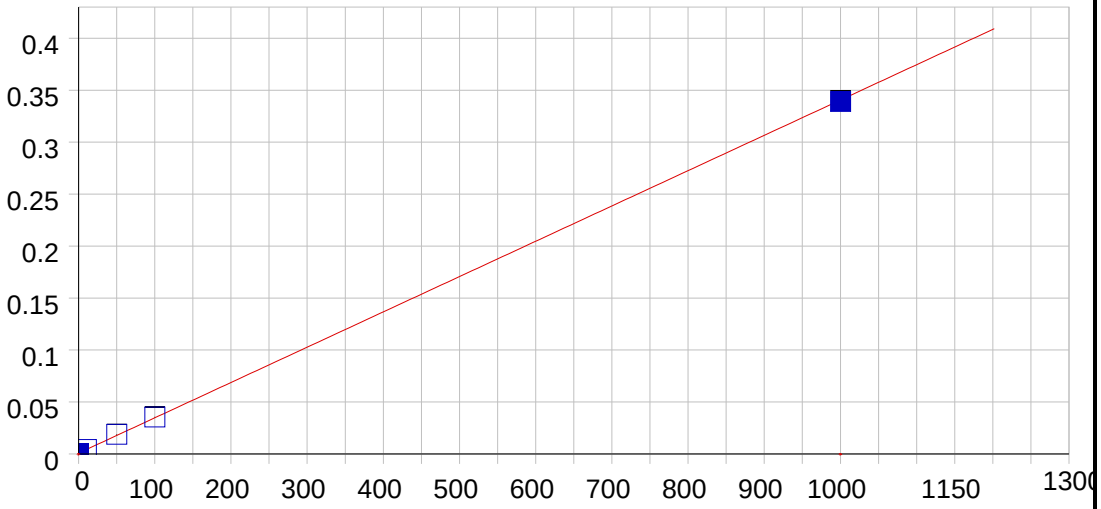


Zn 206.200 {463}

Date of Fit:	08/29/2011 12:52:14	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.000751	Re-Slope:	1.000000
A1 (Gain):	0.000394	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	0.990000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.118644		
Predicted MQL:	0.395479		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalibStd=100	10000.	9998.6	-1.44	-.014	3.5215	.174	1
CalibStd-100	100000.	100000.	.226	.000	27.976	.198	1
Blank	.00000	.00000	.000	.000	.00075	.000	1
CalibStd=100	1000.0	1001.2	1.20	.120	.36841	.001	1

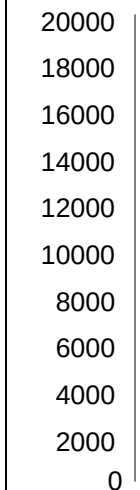


Zn 213.856 {458}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000797	Re-Slope:	1.000000
A1 (Gain):	0.000340	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999898	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.109497		
Predicted MQL:	0.364990		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00061	-.001	.000	.00080	.000	1
CalibStd=100	100.00	101.90	1.90	1.90	.03542	.000	1
CalibStd=50	50.000	52.963	2.96	5.93	.01879	.000	1
CalibStd=10	10.000	9.8790	-.121	-1.21	.00415	.000	1
CalibStd=100	1000.0	995.26	-4.74	-.474	.33901	.001	1

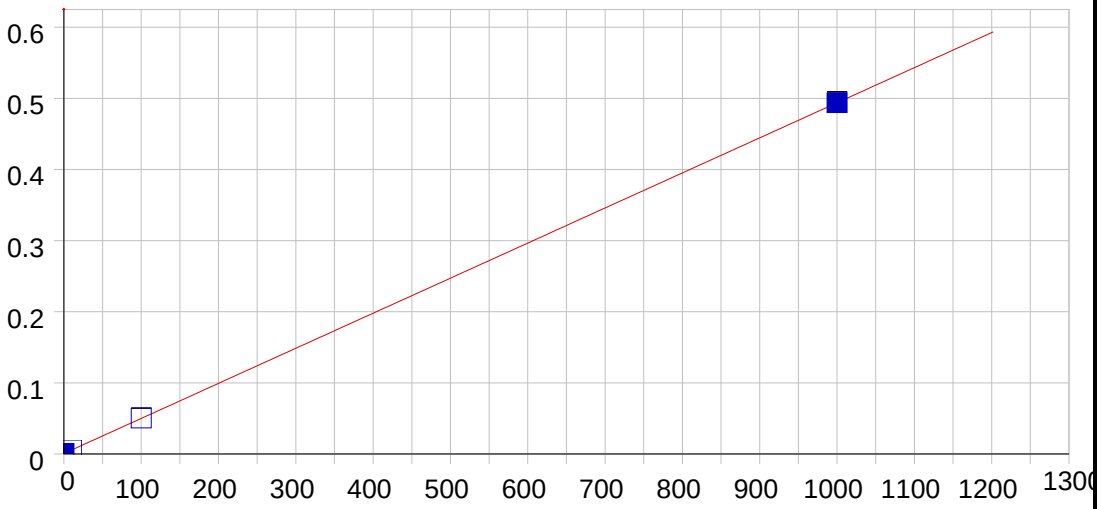


Y 360.073 { 94}*

Date of Fit:	08/29/2011 11:39:46	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	18868.	85.5	1

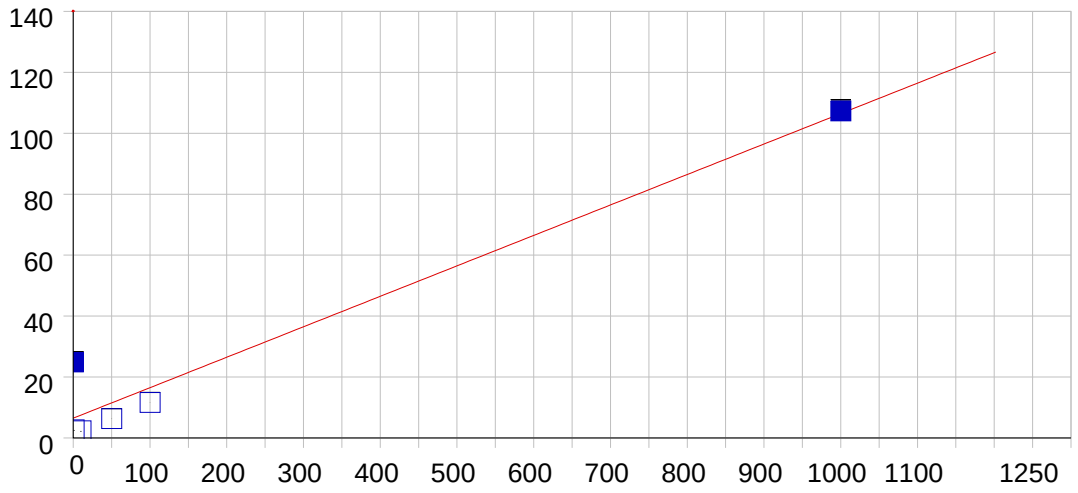


B 249.773 {135}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000622	Re-Slope:	1.000000
A1 (Gain):	0.000493	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000297		
Predicted MDL:	0.299261		
Predicted MQL:	0.997537		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.31318	-.313	.000	.00047	.000	1
CalibStd=10	10.000	9.6660	-.334	-3.34	.00539	.000	1
CalibStd=100	100.00	100.72	.715	.715	.05030	.000	1
CalibStd=100	1000.0	999.93	-.068	-.007	.49402	.001	1

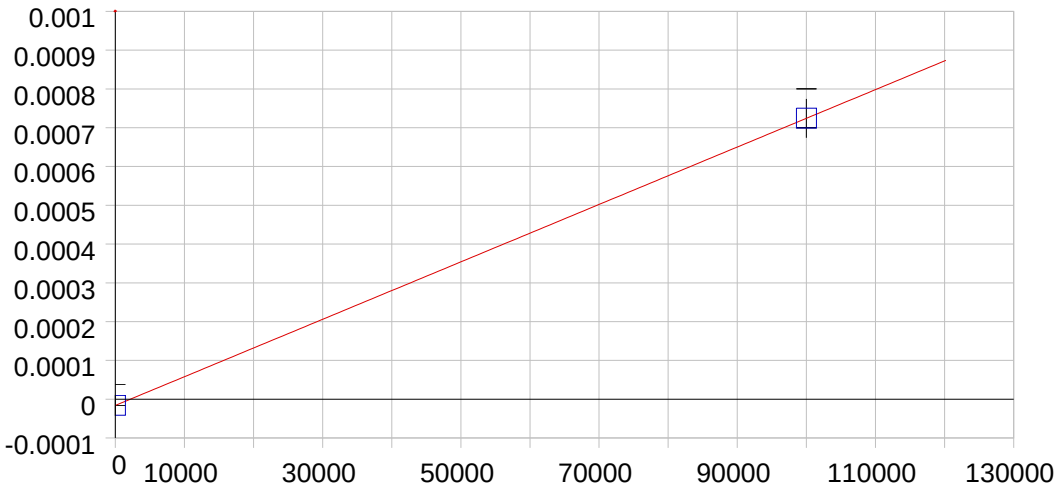


Li 670.784 { 50}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	6.498287	Re-Slope:	1.000000
A1 (Gain):	0.099964	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.973651	Status:	OK.
Std Error of Est:	10.391708		
Predicted MDL:	0.013866		
Predicted MQL:	0.046220		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	183.97	184.	.000	24.888	.196	1
CalibStd=10	10.000	-41.880	-51.9	-519.	2.3118	.007	1
CalibStd=50	50.000	-1.8335	-51.8	-104.	6.3150	.032	1
CalibStd=100	100.00	51.217	-48.8	-48.8	11.618	.034	1
CalibStd=100	1000.0	1008.0	8.03	.803	107.27	.450	1
CalibStd=1	1.0000	-38.498	-39.5	-3950.	2.6499	.002	1

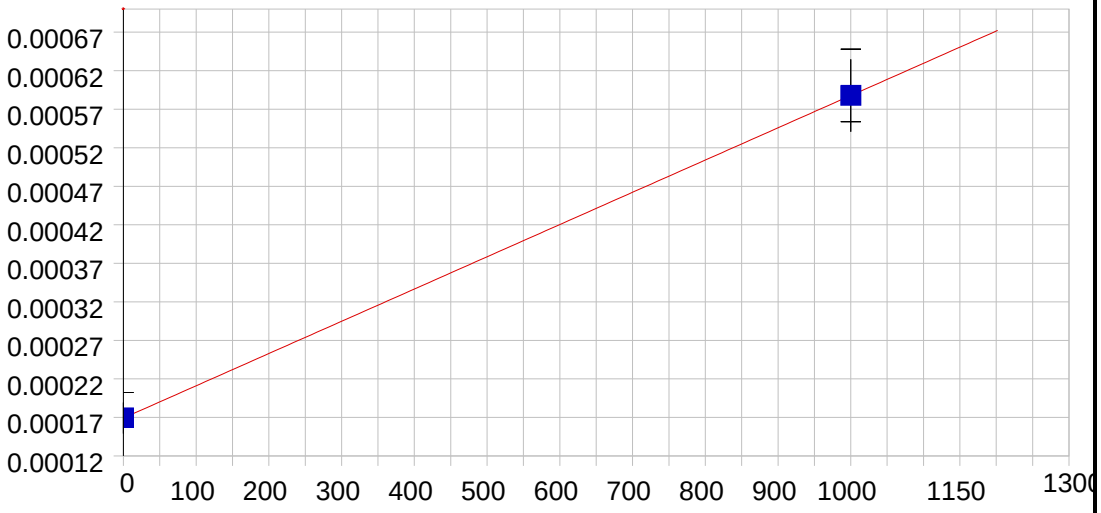


Na 330.298 {102}

Date of Fit:	08/29/2011 12:59:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	20656.12052		
Predicted MQL:	68853.73506		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00002	.000	1
CalibStd=100	100000.	100000.	.000	.000	.00072	.000	1

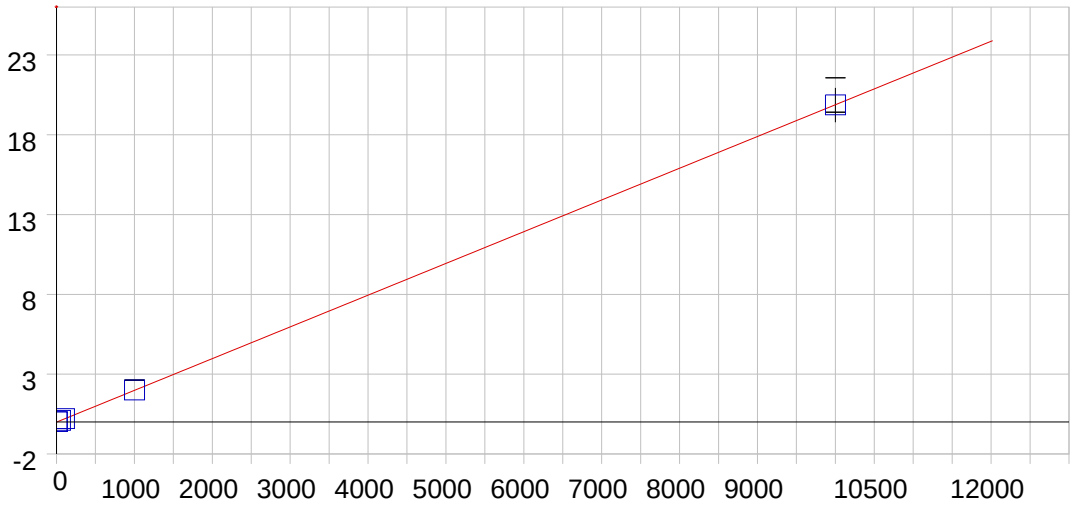


Si 251.611 {134}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000169	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	220.368091		
Predicted MQL:	734.560303		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00017	.000	1
CalibStd=100	1000.0	1000.0	.000	.000	.00059	.000	1

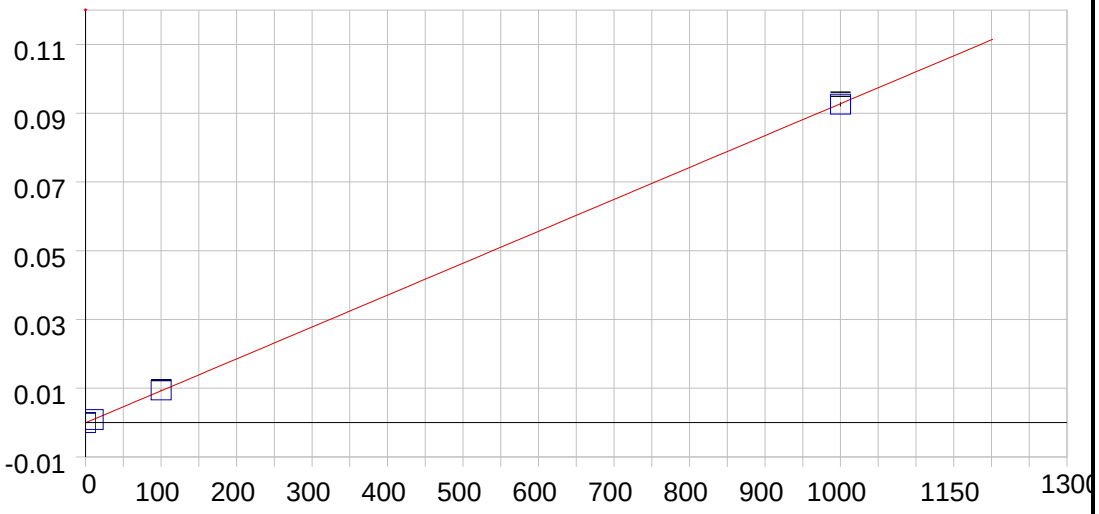


Sr 407.771 { 83}

Date of Fit:	08/29/2011 12:45:11	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.004190	Re-Slope:	1.000000
A1 (Gain):	0.001989	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999986	Status:	OK.
Std Error of Est:	0.000041		
Predicted MDL:	0.104553		
Predicted MQL:	0.348509		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00004	.000	.000	-.00419	.000	1
CalibStd=1	1.0000	.87397	-.126	-12.6	-.00245	.000	1
CalibStd=5	5.0000	4.9547	-.045	-.906	.00566	.000	1
CalibStd=10	10.000	10.095	.095	.948	.01589	.000	1
CalibStd=50	50.000	52.135	2.14	4.27	.09949	.001	1
CalibStd=100	100.00	104.01	4.01	4.01	.20266	.001	1
CalibStd=100	1000.0	1005.8	5.82	.582	1.9961	.005	1
CalibStd=100	10000.	9988.1	-11.9	-.119	19.860	1.08	1



Ti 334.941 {101}

Date of Fit:	08/29/2011 12:38:30	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000046	Re-Slope:	1.000000
A1 (Gain):	0.000093	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999974	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	1.235438		
Predicted MQL:	4.118125		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00004	.000	.000	-.00005	.000	1
CalibStd=10	10.000	9.7609	-.239	-2.39	.00086	.000	1
CalibStd=100	100.00	102.20	2.20	2.20	.00944	.000	1
CalibStd=100	1000.0	998.04	-1.96	-.196	.09259	.001	1

Sample Name: Blank Acquired: 08/29/2011 11:33:04 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3092	Al3961	As1890	As1937	Ba4554	Ba4934	Be2348	Be3130	Ca3179	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.002**	**.000**	**.000**	**.000**	**.008**	**-.001**	**.000**	**.000**	**.003**	**.042**
Stddev	.00	.000	.000	.000	.000	.000	.000	.000	.00	.000	.000	.001
%RSD	27.0	9.18	6.19	74.3	55.9	149.	.423	16.8	39.4	25.1	.696	1.70

Elem	Ca3968	Cd2265	Cd2288	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.018**	**.000**	**.000**	**.000**	**.000**	**.000**	**.014**	**.000**	**.002**	**.000**	**.000**	**.005**
Stddev	.000	.00	.000	.000	.00	.00	.000	.000	.000	.000	.000	.000
%RSD	1.36	72.6	6.02	676.	2010.	2230.	.642	34.3	5.47	63.2	40.0	1.95

Elem	Mg2025	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.003**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.00	.000	.000	.00	.000	.000	.00	.00	.000	.000	.00
%RSD	334.	148.	2.91	8.34	179.	19.8	962.	33.7	9.33	20.2	63.1	150.

Elem	Sb2175	Se1960	Se2062	Tl1908	Tl2767	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.015**	**.000**	**.001**	**.001**
Stddev	.00	.000	.00	.000	.000	.000	.000	.000	.000
%RSD	15.3	32.3	97.5	82.0	52.0	.534	88.2	1.58	7.10

Int. Std.	Y_3600
Units	Cts/S
Avg	**18868.**
Stddev	85.
%RSD	.45298

Sample Name: CalibStd=0.25 Acquired: 08/29/2011 11:39:49 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	3.82

Int. Std.	Y_3600
Units	Cts/S
Avg	**18821.**
Stddev	46.
%RSD	.24398

Sample Name: CalibStd=0.5 Acquired: 08/29/2011 11:46:26 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265
Units	Cts/S	Cts/S
Avg	**.000**	**.000**
Stddev	.000	.000
%RSD	13.8	8.18

Int. Std.	Y_3600
Units	Cts/S
Avg	**18685.**
Stddev	52.
%RSD	.27926

Sample Name: CalibStd=1 Acquired: 08/29/2011 11:53:03 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Cd2265	Mo2020
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.001**	**.000**
Stddev	.000	.000	.000
%RSD	1070.	4.65	15.9

Int. Std.	Y_3600
Units	Cts/S
Avg	**18604.**
Stddev	49.
%RSD	.26138

Sample Name: CalibStd=5 Acquired: 08/29/2011 11:59:40 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Ba4554	Be3130	Cd2265	Co2286	Mn2576	Mo2020	Ni2316	Pb2203	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**.255**	**.003**	**.003**	**.002**	**.011**	**.001**	**.002**	**.000**	**.006**
Stddev	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	5.83	5.53	.484	1.23	.577	1.52	.809	7.05	3.93	8.19	5.10

Int. Std.	Y_3600
Units	Cts/S
Avg	**18546.**
Stddev	81.
%RSD	.43696

Sample Name: CalibStd=10 Acquired: 08/29/2011 12:06:17 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Cd2265	Co2286	Cr2677	Cu2247	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.005**	**.000**	**.000**	**.501**	**.006**	**.006**	**.005**	**.006**	**.001**	**.021**	**.002**	**.004**
Stddev	.000	.000	.000	.002	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.64	2.56	4.57	.482	2.41	.699	2.04	2.04	4.55	.262	1.27	1.35

Elem	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.000**	**.000**	**.000**	**.011**	**.004**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	.974	5.18	11.4	5.83	4.50	2.50	1.30

Int. Std.	Y_3600
Units	Cts/S
Avg	**18744.**
Stddev	32.
%RSD	.17087

Sample Name: CalibStd=20 Acquired: 08/29/2011 12:12:53 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Ba4554	Cr2677	Fe2599	Mn2576	Mo2020	Ni2316	Sb2175	Tl1908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**1.10**	**.013**	**.014**	**.047**	**.003**	**.008**	**.001**	**.001**	**.025**
Stddev	.000	.01	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.68	.459	1.10	1.30	.436	.612	.928	11.8	3.28	.545

Int. Std.	Y_3600
Units	Cts/S
Avg	**18616.**
Stddev	48.
%RSD	.25532

Sample Name: CalibStd=50 Acquired: 08/29/2011 12:19:24 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	As1937	Ba4554	Ca3933	Cd2265	Co2286	Cr2677	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.001**	**2.53**	**.252**	**.030**	**.026**	**.030**	**.059**	**.005**	**.004**	**.027**	**.016**
Stddev	.000	.000	.01	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.35	3.35	.539	.328	.285	.328	.758	.605	1.02	2.05	.737	.126

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.108**	**.007**	**.004**	**.019**	**.002**	**.001**	**.001**	**.058**	**.019**
Stddev	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.481	.172	.120	.327	.916	1.36	.399	.531	.358

Int. Std.	Y_3600
Units	Cts/S
Avg	**18567.**
Stddev	70.
%RSD	.37742

Sample Name: CalibStd=100 Acquired: 08/29/2011 12:25:49 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	As1890	As1937	Ba4554	Be2348	Be3130	Ca3933	Ca3968	Cd2265	Cd2288	Co2286	Cr2677
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.055**	**.001**	**.003**	**5.02**	**.004**	**.060**	**.445**	**.191**	**.060**	**.094**	**.051**	**.060**
Stddev	.000	.000	.000	.02	.000	.000	.001	.000	.000	.001	.000	.000
%RSD	.158	1.59	1.48	.391	1.05	.440	.211	.163	.753	.653	.681	.262

Elem	Cr2835	Cu2247	Cu3247	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2203	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.103**	**.010**	**.006**	**.048**	**.031**	**.212**	**.015**	**.008**	**.001**	**.037**	**.006**	**.004**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.173	.438	2.75	.379	.168	.145	.603	.465	1.66	.954	1.17	1.32

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.003**	**.114**	**.035**
Stddev	.000	.000	.000	.000
%RSD	1.46	1.83	.356	.732

Int. Std.	Y_3600
Units	Cts/S
Avg	**18572.**
Stddev	37.
%RSD	.20049

Sample Name: CalibStd=1000 Acquired: 08/29/2011 12:32:08 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3092	Al3961	As1890	As1937	Ba4934	Be2348	Ca3179	Ca3933	Ca3968	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.016**	**.009**	**.024**	**.005**	**.027**	**1.25**	**.042**	**.029**	**3.76**	**1.62**	**.581**	**.908**
Stddev	.000	.000	.000	.000	.000	.00	.000	.000	.01	.01	.001	.003
%RSD	.808	1.85	1.10	.493	.377	.315	.311	.080	.268	.295	.251	.294

Elem	Co2286	Co2388	Cr2677	Cr2835	Cu2247	Cu3247	Fe2343	Fe2395	Fe2599	Mg2802	Mn2576	Mn2593
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.493**	**.406**	**.582**	**.878**	**.098**	**.037**	**.003**	**.005**	**.436**	**.290**	**2.04**	**.111**
Stddev	.001	.000	.001	.000	.001	.000	.000	.000	.000	.000	.00	.000
%RSD	.244	.004	.134	.013	.619	.356	.742	.209	.095	.050	.137	.101

Elem	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	Tl2767
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.145**	**.081**	**.010**	**.361**	**.018**	**.056**	**.035**	**.042**	**.020**	**.005**	**.027**	**.026**
Stddev	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.155	.505	.135	.234	.371	.280	.240	.342	.822	.753	.202	1.03

Elem	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.791**	**1.12**	**.368**	**.339**
Stddev	.000	.00	.001	.001
%RSD	.060	.340	.265	.244

Int. Std.	Y_3600
Units	Cts/S
Avg	**18501.**
Stddev	58.
%RSD	.31359

Sample Name: CalibStd=10000 Acquired: 08/29/2011 12:38:34 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	As1890	Ba4934	Ca3179	Ca3968	Co2286	Co2388	Cr2835	Cu2247	Cu3247	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.073**	**.251**	**.053**	**12.6**	**.230**	**15.8**	**4.71**	**3.86**	**8.44**	**.941**	**.356**	**.030**
Stddev	.004	.015	.003	.7	.012	.7	.24	.20	.44	.048	.022	.002
%RSD	6.10	5.88	5.03	5.89	5.43	4.73	5.04	5.20	5.19	5.11	6.08	5.87

Elem	Fe2395	Fe2599	Mg2025	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Sb2175	Se2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.050**	**4.13**	**.003**	**.201**	**2.85**	**1.11**	**.800**	**.098**	**.162**	**.335**	**.405**	**.050**
Stddev	.003	.22	.000	.010	.17	.06	.041	.005	.008	.017	.020	.003
%RSD	5.73	5.20	5.49	4.93	5.80	5.75	5.09	4.98	5.21	5.07	5.06	5.15

Elem	Tl2767	V_2908	Zn2062
Units	Cts/S	Cts/S	Cts/S
Avg	**.246**	**7.74**	**3.52**
Stddev	.013	.40	.17
%RSD	5.41	5.15	4.93

Int. Std.	Y_3600
Units	Cts/S
Avg	**17744.**
Stddev	902.
%RSD	5.0819

Sample Name: CalibStd-100k Acquired: 08/29/2011 12:45:15 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Cr2835	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**72.2**	**3.38**	**10.2**	**1.61**	**28.0**
Stddev	.3	.01	.0	.01	.2
%RSD	.369	.353	.208	.479	.709

Int. Std.	Y_3600
Units	Cts/S
Avg	**18281.**
Stddev	47.
%RSD	.25822

Sample Name: CalibStd=100000 Acquired: 08/29/2011 12:52:18 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3092	Al3961	Ca3179	Fe2343	Fe2395	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.612**	**2.13**	**1.89**	**.253**	**.418**	**.021**	**1.76**
Stddev	.002	.01	.01	.000	.001	.000	.01
%RSD	.305	.213	.258	.121	.179	.299	.479

Int. Std.	Y_3600
Units	Cts/S
Avg	**18013.**
Stddev	71.
%RSD	.39262

Sample Name: CalibStd=500000 Acquired: 08/29/2011 12:59:22 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**12.2**	**9.72**	**1.29**	**.117**	**8.49**
Stddev	.1	.06	.01	.001	.09
%RSD	.581	.645	.574	.619	1.03

Int. Std.	Y_3600
Units	Cts/S
Avg	**17029.**
Stddev	101.
%RSD	.59417

Sample Name: CalibStd-1000k Acquired: 08/29/2011 13:06:11 Type: Cal
Method: DOD Calibration 1(v287) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3179	Fe2343	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**23.6**	**22.0**	**2.42**	**.232**	**28.6**
Stddev	.3	.0	.01	.001	.1
%RSD	1.11	.163	.387	.389	.495

Int. Std.	Y_3600
Units	Cts/S
Avg	**16236.**
Stddev	63.
%RSD	.38910

Sample Name: icv Acquired: 08/29/2011 13:26:05 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be3130	Ca3968	Cd2265	Co2286	Cr2677	Cu2247	Fe2395
Avg	**48.4**	**11900.**	**2070.**	**2030.**	**49.8**	**10100.**	**50.1**	**527.**	**202.**	**265.**	**5080.**
Stddev	.4	53.	13.	11.	.2	50.	.3	4.	1.	2.	20.
%RSD	.790	.443	.605	.531	.497	.496	.500	.753	.470	.721	.389
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Elem	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**10600.**	**499.**	**515.**	**497.**	**500.**	**533.**	**2030.**	**2150.**	**500.**	**510.**
Stddev	109.	2.	3.	4.	4.	.	9.	10.	2.	3.
%RSD	1.02	.413	.554	.714	.807	.082	.437	.473	.421	.632
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_3600
Avg	**18359.**
Stddev	80.
%RSD	.43773

Sample Name: icb Acquired: 08/29/2011 13:32:34 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**-.068**	**11.6**	**.426**	**-.065**	**.118**	**9.71**	**.042**	**-.117**	**.024**	**.141**	**.653**	**11.4**
Stddev	.096	.6	1.24	.012	.150	.34	.047	.040	.142	.485	.251	.6
%RSD	141.	5.43	292.	18.5	127.	3.49	111.	34.0	601.	343.	38.5	5.38
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**.087**	**.375**	**-1.45**	**.159**	**.079**	**-.598**	**1.58**	**-.884**	**-.785**
Stddev	.028	.141	.03	.803	.251	1.36	1.23	.112	.094
%RSD	32.2	37.6	2.16	506.	317.	227.	77.9	12.7	11.9
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**18284.**
Stddev	35.
%RSD	.19303

Sample Name: icsa Acquired: 08/29/2011 13:53:25 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4554	Be3130	Ca3179	Cd2265	Co2286	Cr2677	Cu2247
Avg	**.000**	**495000.**	**-.447**	**.000**	**-.027**	**511000.**	**-.005**	**-.065**	**.000**	**.000**
Stddev	.263	677.	3.40	.021	.065	1350.	.731	.070	.230	10.4
%RSD	.000	.137	761.	23e15	241.	.264	14600.	108.	2720000.	2480000.
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Fe2343	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avg	**477000.**	**509000.**	**.000**	**.000**	**-.012**	**.000**	**.000**	**.000**	**-1.60**	**.000**
Stddev	192.	1860.	.115	.14	.467	1.22	3.45	1.72	.30	.12
%RSD	.040	.365	32600.	3080000.	3990.	622000.	2410000.	403000.	18.5	119000.
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit										
Low Limit										

Elem	Zn2138
Avg	**.000**
Stddev	.561
%RSD	282000.
Check ?	Chk Pass
High Limit	
Low Limit	

Sample Name: icsa Acquired: 08/29/2011 13:53:25 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	**16600.**
Stddev	40.
%RSD	.23955

Sample Name: icsab Acquired: 08/29/2011 14:00:17 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1890	Ba4934	Be2348	Ca3179	Cd2288	Co2286	Cr2677	Cu3247
Avg	**497.**	**516000.**	**537.**	**542.**	**515.**	**536000.**	**487.**	**452.**	**464.**	**557.**
Stddev	2.	1790.	4.	1.	11.	2310.	3.	3.	2.	3.
%RSD	.359	.346	.817	.222	2.18	.431	.584	.615	.484	.597
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Fe2343	Mg2025	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2924
Avg	**485000.**	**528000.**	**526.**	**504.**	**432.**	**575.**	**508.**	**551.**	**425.**	**487.**
Stddev	722.	1540.	4.	3.	2.	8.	4.	10.	4.	2.
%RSD	.149	.292	.751	.662	.485	1.48	.801	1.80	1.01	.395
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Elem	Zn2062
Avg	**468.**
Stddev	3.
%RSD	.669
Check ?	None
Value	
Range	

Sample Name: icsab Acquired: 08/29/2011 14:00:17 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_3600
Avg	**16635.**
Stddev	53.
%RSD	.31972

Sample Name: pdss962085 Acquired: 08/29/2011 14:07:12 Type: Unk
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.06**	**446000.**	**386.**	**3580.**	**32.8**	**422000.**	**24.9**	**334.**	**6420.**	**1310.**
Stddev	.15	1390.	4.	6.	.2	2040.	.3	1.	20.	3.
%RSD	7.36	.311	1.06	.176	.634	.483	1.25	.370	.305	.234

Elem	Fe2343	Mg2025	Mn2593	Mo2020	Ni2316	Pb2169	Sb2068	Se1960	Tl1908	V_2908
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**772000.**	**127000.**	**56100.**	**51.1**	**605.**	**22400.**	**61.7**	**32.0**	**27.9**	**576.**
Stddev	2290.	245.	176.	.7	2.	35.	1.7	2.6	3.3	2.
%RSD	.297	.193	.314	1.40	.324	.156	2.71	8.07	12.0	.301

Elem	Zn2062
Units	ug/L
Avg	**3240.**
Stddev	12.
%RSD	.379

Int. Std.	Y_3600
Units	Cts/S
Avg	**17365.**
Stddev	35.
%RSD	.19878

Sample Name: 962086 Acquired: 08/29/2011 14:14:12 Type: Unk
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 10
Comment:

Elem	Ag3280	Al3961	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu2247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.025**	**95700.**	**59.6**	**837.**	**10.7**	**252000.**	**-3.29**	**37.6**	**1610.**	**30.8**
Stddev	.196	3140.	1.2	30.	.5	8210.	.38	.6	65.	6.2
%RSD	796.	3.28	1.93	3.55	4.75	3.26	11.6	1.55	4.06	20.1

Elem	Fe2343	Mg2025	Mn2593	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**161000.**	**45400.**	**7610.**	**7.95**	**92.9**	**325.**	**13.9**	**12.5**	**1.97**	**83.6**
Stddev	5140.	2100.	259.	.36	1.6	6.	1.2	3.1	1.89	3.3
%RSD	3.20	4.64	3.40	4.58	1.69	1.97	8.73	24.7	96.2	3.97

Elem	Zn2138
Units	ug/L
Avg	**390.**
Stddev	5.
%RSD	1.20

Int. Std.	Y_3600
Units	Cts/S
Avg	**18052.**
Stddev	62.
%RSD	.34501

Sample Name: 962087 Acquired: 08/29/2011 14:21:13 Type: Unk
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 10
Comment:

Elem	Ag3280	Al3092	As1937	Ba4934	Be3130	Ca3179	Cd2265	Co2286	Cr2835	Cu3247
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.169**	**71800.**	**49.2**	**653.**	**7.54**	**215000.**	**1.17**	**32.4**	**2150.**	**112.**
Stddev	.263	578.	.7	5.	.13	2450.	.20	.4	48.	5.
%RSD	156.	.804	1.51	.815	1.73	1.14	17.4	1.16	2.22	4.06

Elem	Fe2343	Mg2025	Mn2593	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**112000.**	**36200.**	**6330.**	**7.83**	**79.4**	**344.**	**20.7**	**6.85**	**2.18**	**65.9**
Stddev	1130.	601.	53.	.29	1.2	4.	1.9	.67	1.18	1.4
%RSD	1.01	1.66	.842	3.73	1.48	1.06	9.10	9.75	54.3	2.14

Elem	Zn2138
Units	ug/L
Avg	**353.**
Stddev	3.
%RSD	.811

Int. Std.	Y_3600
Units	Cts/S
Avg	**17896.**
Stddev	108.
%RSD	.60489

Sample Name: ccv1 Acquired: 08/29/2011 15:16:17 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3092	As1890	Ba4934	Be2348	Ca3179	Cd2288	Co2388	Cr2835	Cu3247	Fe2395	Mg2025
Avg	**469.**	**4720.**	**5260.**	**5060.**	**484.**	**5440.**	**516.**	**5340.**	**5230.**	**5070.**	**4730.**	**5640.**
Stddev	1.	27.	21.	18.	4.	19.	2.	18.	18.	21.	22.	83.
%RSD	.231	.573	.389	.348	.754	.343	.449	.338	.352	.422	.467	1.48
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Pb2169	Sb2175	Se2062	Tl2767	V_2908	Zn2062
Avg	**5090.**	**5320.**	**4920.**	**5310.**	**5360.**	**5320.**	**5340.**	**5250.**	**5220.**
Stddev	15.	21.	34.	23.	18.	17.	18.	25.	21.
%RSD	.298	.402	.683	.439	.339	.317	.334	.482	.403
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**17544.**
Stddev	61.
%RSD	.34653

Sample Name: ccv2 Acquired: 08/29/2011 15:22:38 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**49.5**	**545.**	**514.**	**488.**	**46.3**	**492.**	**50.3**	**537.**	**499.**	**543.**	**523.**	**481.**
Stddev	1.4	10.	12.	12.	.9	12.	1.1	12.	14.	12.	13.	12.
%RSD	2.74	1.81	2.35	2.53	1.92	2.50	2.19	2.19	2.83	2.17	2.53	2.47
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**503.**	**511.**	**509.**	**509.**	**532.**	**510.**	**513.**	**503.**	**508.**
Stddev	12.	12.	11.	10.	13.	9.	12.	13.	11.
%RSD	2.43	2.26	2.20	2.00	2.52	1.81	2.34	2.56	2.25
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**17498.**
Stddev	360.
%RSD	2.0554

Sample Name: ccb Acquired: 08/29/2011 15:35:44 Type: QC
Method: DOD Calibration 1(v287) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: Prep Batch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba4554	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2247	Fe2599	Mg2802
Avg	**.013**	**-1.59**	**.873**	**-.115**	**.051**	**10.9**	**-.018**	**.166**	**.071**	**-.471**	**-16.5**	**-4.89**
Stddev	.124	1.76	1.51	.004	.163	.2	.028	.175	.214	.349	.2	.11
%RSD	989.	111.	173.	3.69	319.	1.49	161.	106.	299.	74.0	1.29	2.18
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924	Zn2138
Avg	**.308**	**.620**	**-.685**	**.807**	**-.171**	**-.187**	**.062**	**-.858**	**.597**
Stddev	.017	.205	.198	.434	.764	1.41	.484	.130	.076
%RSD	5.57	33.1	28.9	53.7	448.	750.	782.	15.2	12.8
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_3600
Avg	**17483.**
Stddev	56.
%RSD	.31872

METALS
LOGBOOK
DOCUMENTS

MICP WATER QSM Analytical Run
78423 on 9/1/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	966487							MICP WATER QSM				
				ICV					0			
	966489							MICP WATER QSM				
				ICB					0			
	966491							MICP WATER QSM				
				ICSA					0			
	966492							MICP WATER QSM				
				ICSAB					0			
	965157							ICP TOTAL QSM				
				LCSW					38309			
	965156							ICP TOTAL QSM				
				MBW					38309			
	966498							MICP WATER QSM				
				CCV2					0			
	966500							MICP WATER QSM				
				CCB					0			
86608	962088		8/15/2011 1245			SHAW E&I INC	RVAAP MMRP LL1	ICP TOTAL QSM		GW	**4**	
		LL1-718-RB							38309			
	966501							ICP TOTAL QSM				
				L	962088				0			
	965369		8/15/2011 1245					ICP TOTAL QSM				
		LL1-718-RB		DUP	962088				38309			
	965370		8/15/2011 1245					ICP TOTAL QSM				
		LL1-718-RB		MSW	962088				38309			
	965371		8/15/2011 1245					ICP TOTAL QSM				
		LL1-718-RB		MSDW	965370				38309			
	966506							ICP TOTAL QSM				
				PDSW	962088				0			
86739	965074		8/22/2011 0950			SHAW E&I INC	RVAAP MMRP BDI	ICP TOTAL QSM		GW	**4**	
		BDI-008-RB							38309			
	966507							ICP TOTAL QSM				
				L	965074				0			
	965372		8/22/2011 0950					ICP TOTAL QSM				
		BDI-008-RB		DUP	965074				38309			
	965373		8/22/2011 0950					ICP TOTAL QSM				
		BDI-008-RB		MSW	965074				38309			
	966779							ICP TOTAL QSM				
				CCV2					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
78423 on 9/1/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	966780							MICP WATER QSM				
				CCB					0			
	965374		8/22/2011 0950					ICP TOTAL QSM				
		BDI-008-RB		MSDW	965373				38309			
	966781							ICP TOTAL QSM				
				PDSW	965074				0			
86740	965146		8/22/2011 1215			SHAW E&I INC	RVAAP MMRP RQL	ICP TOTAL QSM		GW	**4**	
		RQL-078-RB							38309			
	966782							ICP TOTAL QSM				
				L	965146				0			
	965375		8/22/2011 1215					ICP TOTAL QSM				
		RQL-078-RB		DUP	965146				38309			
	965376		8/22/2011 1215					ICP TOTAL QSM				
		RQL-078-RB		MSW	965146				38309			
	965377		8/22/2011 1215					ICP TOTAL QSM				
		RQL-078-RB		MSDW	965376				38309			
	966783							ICP TOTAL QSM				
				PDSW	965146				0			
	966784							MICP WATER QSM				
				CCV2					0			
	966785							MICP WATER QSM				
				CCB					0			

30 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP SOIL QSM Analytical Run
78472 on 9/1/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	967602							MICP SOIL QSM				
				ICV					0			
	967603							MICP SOIL QSM				
				ICB					0			
	967604							MICP SOIL QSM				
				ICSA					0			
	967605							MICP SOIL QSM				
				ICSAB					0			
	967614							MICP SOIL QSM				
				CCV1					0			
	967615							MICP SOIL QSM				
				CCV2					0			
	967616							MICP SOIL QSM				
				CCB					0			
	965959							ICP QSM				
				LCSS					38322			
	965958							ICP QSM				
				MBS					38322			
86608	962085		8/15/2011 1315			SHAW E&I INC	RVAAP MMRP LL1	ICP QSM		S	**4**	
		LL1SS-715(I)-0001-SS		Designated MS/MSD					38322			
	967617							ICP QSM				
				L	962085				0			
	967618							MICP SOIL QSM				
				CCV1					0			
	967619							MICP SOIL QSM				
				CCV2					0			
	967620							MICP SOIL QSM				
				CCB					0			
	965960		8/15/2011 1315					ICP QSM				
		LL1SS-715(I)-0001-SS		DUP	962085				38322			
	965961		8/15/2011 1315					ICP QSM				
		LL1SS-715(I)-0001-SS		MSS	962085				38322			
	965962		8/15/2011 1315					ICP QSM				
		LL1SS-715(I)-0001-SS		MSDS	965961				38322			
	967621							ICP QSM				
				PDSS	962085				0			
86608	962086		8/15/2011 1330			SHAW E&I INC	RVAAP MMRP LL1	ICP QSM		S	**4**	
		LL1SS-716(I)-0001-SS							38322			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP SOIL QSM Analytical Run
78472 on 9/1/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962087		8/15/2011 1350		SHAW E&I INC	RVAAP MMRP LL1	ICP QSM		S	**4**	
		LL1SS-717(I)-0001-SS						38322			
	967622						MICP SOIL QSM				
				CCV1				0			
	967623						MICP SOIL QSM				
				CCV2				0			
	967624						MICP SOIL QSM				
				CCB				0			
	968456						MICP SOIL QSM				
				ICV				0			
	968457						MICP SOIL QSM				
				ICB				0			
	968458						MICP SOIL QSM				
				ICSA				0			
	968459						MICP SOIL QSM				
				ICSAB				0			
	967621						ICP QSM				
RERUN				PDSS 962085				0			
86608	962086		8/15/2011 1330		SHAW E&I INC	RVAAP MMRP LL1	ICP QSM		S	**4**	
RERUN		LL1SS-716(I)-0001-SS						38322			
86608	962087		8/15/2011 1350		SHAW E&I INC	RVAAP MMRP LL1	ICP QSM		S	**4**	
RERUN		LL1SS-717(I)-0001-SS						38322			
	968460						MICP SOIL QSM				
				CCV1				0			
	968461						MICP SOIL QSM				
				CCV2				0			
	968462						MICP SOIL QSM				
				CCB				0			

33 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 9/1/2011

Prep Batch **38,309**

Prepped By:: LJF

Date Prepped: 8/23/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	965156	MBW		ICP TOTAL QSM	LIQUID	50		50		
	965156	MBW		ICP TOTAL LIST 2 QSM	LIQUID	50		50		
	965157	LCSW		ICP TOTAL QSM	LIQUID	50		50		
	965157	LCSW		ICP TOTAL LIST 2 QSM	LIQUID	50		50		
86608	962088			ICP TOTAL QSM	GROUND WATER	50		50	Y	
86739	965074			ICP TOTAL QSM	GROUND WATER	50		50	Y	
86740	965146			ICP TOTAL LIST 2 QSM	GROUND WATER	50		50	Y	
	965146			ICP TOTAL QSM	GROUND WATER	50		50	Y	
	965369	DUP	962088	ICP TOTAL QSM	GROUND WATER	50		50		
	965370	MSW	962088	ICP TOTAL QSM	GROUND WATER	50		50		
	965371	MSDW	965370	ICP TOTAL QSM	GROUND WATER	50		50		
	965372	DUP	965074	ICP TOTAL QSM	GROUND WATER	50		50		
	965373	MSW	965074	ICP TOTAL QSM	GROUND WATER	50		50		
	965374	MSDW	965373	ICP TOTAL QSM	GROUND WATER	50		50		
	965375	DUP	965146	ICP TOTAL LIST 2 QSM	GROUND WATER	50		50		
	965375	DUP	965146	ICP TOTAL QSM	GROUND WATER	50		50		
	965376	MSW	965146	ICP TOTAL LIST 2 QSM	GROUND WATER	50		50		

Distibution:

C:\LIMSREPS\PREPWRKSHT.RPT

PREP WORKSHEET
on 9/1/2011

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	965376	MSW	965146	ICP TOTAL QSM	GROUND WATER	50		50		
	965377	MSDW	965376	ICP TOTAL LIST 2 QSM	GROUND WATER	50		50		
	965377	MSDW	965376	ICP TOTAL QSM	GROUND WATER	50		50		

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____
Notes:_____

PREP WORKSHEET
on 9/1/2011

Prep Batch **38,322**

Prepped By:: AMA

Date Prepped: 8/24/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	965958	MBS		ICP QSM	SOLID	50	2.0			
	965959	LCSS		ICP QSM	SOLID	50	2.0			
86608	962085	*		ICP QSM	SOIL	50	2.0		Y	
	962086			ICP QSM	SOIL	50	2.0		Y	
	962086			ICP QSM	SOIL	50	2.0		Y	
	962087			ICP QSM	SOIL	50	2.0		Y	
	962087			ICP QSM	SOIL	50	2.0		Y	
	965960	DUP	962085	ICP QSM	SOIL	50	2.0			
	965961	MSS	962085	ICP QSM	SOIL	50	2.0			
	965962	MSDS	965961	ICP QSM	SOIL	50	2.0			

Control Spike/Control Spike Dup Reference Number:_____ Methanol Supplier/Lot #:_____

Notes:_____

Distibution:

C:\LIMSREPS\PREPWRKSHT.RPT

Analyst: LSF

Metals Digestion Summary - CT Laboratories Baraboo, WI

Date: 08/23/11 Time: 1500

Prep Batch#	Sample ID#	Matrix*	Prep Method**	Sample Amt (g or ml)	Final Vol. (ml)	Blk	Dup	MS	MSD	Spike/LCS /LFB info	Acid ID#
38308	LCSW	QC	3010	50mL	50mL	X				1mlM10359, 0.5mlM10234, 0.5mlM10378	AB532 AB533
↓	962716	WW	↓	↓10mL	↓			X	X	1mlM10359, 0.5mlM10234, 0.5mlM10378	↓
					08/23/11 LSF						
38309	LCSW	QC	3010	50mL	50mL	X				0.1mlM9924, 1mlM10359, 0.5mlM10232	AB534 AB533
↓	962088	GW	↓	↓	↓	↓	X	X	X	0.1mlM9924, 1mlM10359, 0.5mlM10232	↓
	965071	↓					X	X	X	0.1mlM9924, 1mlM10359, 0.5mlM10232	
↓	965146	↓	↓	↓	↓	↓	X	X	X	0.1mlM9924, 1mlM10359, 0.5mlM10232	↓
					08/23/11 LSF						

Method Temperature Verification		*SO,SL,WW,GW,TCLP,SPLP,ASTM, other **3005,3010,3020,3050,3060		Review Date/Initials:	
Block Used:	B	Initial Block Temp (C):	92°C	Digestion Tube Lot #:	10120
Cell #		Final Block Temp (C):	93°C	Comments:	

Analyst: AMA

Metals Digestion Summary - CT Laboratories Baraboo, WI

Date: 08/24/11 Time: 1345

Prep Batch#	Sample ID#	Matrix*	Prep Method**	Sample Amt (g or ml)	Final Vol. (ml)	Blk	Dup	MS	MSD	Spike/LCS /LFB info	Acid ID#
38320	LCSS	QC	3050	0.50g	50mL	X				0.1mL M9931 1mL M10359, 0.5mL M10387	AB 532, 533, 535
	962200	SL		2.00g				1.99g X	2.01g X	0.1mL M9931 1mL M10359, 0.5mL M10387	
	965326	SO		0.58g				0.59g X	0.60g X	0.1mL M9931 1mL M10359, 0.5mL M10387	
						08/24/11	AMA				
38321	LCSS	QC	3050	0.50g	50mL	X				1mL M10359	AB 532, 533, 535
	964184	SO		0.57g				0.59g X	0.58g X	1mL M10359	
	964214			0.58g							
	964215			0.58g							
	964216			0.57g							
						08/24/11	AMA				
38322	LCSS	QC	3050 QSm	2.0g	50mL	X				1mL M10359, 0.5mL M10232	AB 532, 533 535
	962085	SO		2.0g			2.0g X	2.0g X	2.0g X	1mL M10359, 0.5mL M10232	
	962086			2.0g							
	962087			2.0g							
				08/24/11 AMA							

Method Temperature Verification		*SO,SL,WW,GW,TCLP,SPLP,ASTM,other **3005,3010,3020,3050,3060		Review Date/Initials:	
Block Used:	A	Initial Block Temp (C):	94°C	Digestion Tube Lot #:	1012120
Cell #		Final Block Temp (C):	92°C	Comments:	

V1588

ICAP 6000/6500 Data Review Checklist	Analysis Date: 8-24-11		Data File: 00results		Date of review: 8/24/11
Cal Std ID: 110093 LIMS #: 78423	Analyst: ZH		Reviewer: RJ		Approved? (Yes) No
QC Parameters: (6010) / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: (≥ 0.995) r ≥ 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	—		✓		
3) ICB: < 3X IDL (<LOD) / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	~~NO~~ MB-24-11				
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	—		✓		CCV2 used for All Lines.
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)	—		✓		
10) CCV3/CCB3	—		✓		
11) CCV4/CCB4	—		✓		
12) CCV5/CCB5					
13) CCV6/CCB6					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID#: 38309 Dig. Meth. 3010	—		✓		
LCS - generated limits or project specific limits	—		✓		
MB - <LOD or ≤ ½ RL	—		✓		Dup (965146) Sb Failed = Invalid = No Flag.
Spiked samples in batch:					
a) 962088 matrix = GW	✓		✓		
b) 965058 matrix = GW	—		✓		
c) 965146 matrix = GW	—		✓		
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 8-25-11		Data File: V1590 DOD results	Date of review: 8/30/11
Cal Std ID: M10293 LIMS #: 28472	Analyst: [illegible]		Reviewer: RD	Approved? Yes No

QC Parameters: 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	~~✓~~ no	8-29-11			
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)	✓		✓		
10) CCV3/CCB3	✓		✓		
11) CCV4/CCB4					
12) CCV5/CCB5					
13) CCV6/CCB6					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID#: 38322 Dig. Meth. 3050	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	Ca > LOD + ½ RL ok sample >10x Mg, Mn >LOD<½ RL ok samples >10x
Spiked samples in batch:					
a) 967085 matrix = SO	✓	✓	✓	✓	L fail Ca, Mg, Mn
b) matrix =					
c) matrix =					MS fail Pb, Mn
PDS: ±15% / 20% / 25% Sample#: 967085	✓		✓		MSDS fail Mg, Mn
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					PDS fail Mn, Pb 8-30-11 added more spike ok pass
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					

CT Laboratories Instrument Run Log

Instrument ID: ICP 6000

Date	Time Start/End	Analyst	Method	LIMS# or Sample #	Sequence I.D.	Nebulizer Pressure	Cal Std ID	Wavelenth Check	Comments
8-8-11	0930/1227	[illegible]	Na,K	77932, 77930	N08082011	280	M10325	X196622 see Journal	V44
8-9-11	0819/0933	[illegible]	L2	77833	L208092011	280	M10332	↓	V26
08-11-11	1104/1612	GLE/[illegible]	L2	78032, 78033	L208112011	280	M10332	↓	V27
8-16-11	0956/1434	[illegible]	Nak, L2	78092 78161 78163	NakL208162011	280	M10332 M10325	196622 See Journal	V45 V28
08-18-11	12:02/00:20	GLE	L2	78233, 78216, 78214, 78212, 78176, 78174	L208182011	280	M10332	↓	V29
08-19-11	1134/1742	GLE	L2	78233, 78212, 78214 78216	L208192011	280	M10332	↓	V30
08-22-11	0901/1042	[illegible]	Na,K	78329, 78324 78247	Nak 08222011	280	M10325	↓	V47
8-23-11	0748/1932	[illegible]	DOD results	78325 78346 78327 78327 78326	D08232011	280	M10293	↓	V1[illegible]6
8-24-11	1251/0040	[illegible]	DOD results	78175 78423 78428 78431 78425 78429	D08242011	280	M10293	196622 see Journal	V1588
8-25-11	1306/0147	[illegible]	DOD results	78175 78473 78471 78502 78472 78501	D08252011	280	M10293	↓	V1590
8-26-11	0855/1212	[illegible]	L2 Nak	78424 78474 78535 78503 78426	N08262011	290	M10332 10325	↓	V31
8-29-11	1231/1628	[illegible]	Nak, L2	78570 78571	NL2 082911	290	M10325 M10332	↓	V49, V32
8-31-11	0912/1005	[illegible]	Nak	78640	N08312011	290	M10325	196622 See Journal	V50
9-2-11	1045/1512	[illegible]	Nak, L2	78723, 78743 78727	N09022011	290	M10325 M10332	196622 See Journal	V51, V33, V52

CT Laboratories Instrument Run Log

Instrument ID: ICP 6500

Date	Time Start/End	Analyst	Analytes	LIMS run or Samples Analyzed	Sequence ID	Cal Std ID	Neb Pressure	Comments
8-12-11	1120 / 1434	A	DOD results	78030 78031	D08122011	M10293	310	V267, V268
8-16-11	0842 / 1911	A	DOD results	78091 78115, 78089, 78114, 78164, 78162	D08162011	M10293	310	V270, V271
8-18-11	1009 / 8-19-11 1111	A	DOD results	78091, 78215 78203 78211, 78217 78246 78173, 78175 78213	D08182011	M10293	310	~~V272~~ ~~V274~~ V276
8-19-11	1357 / 1854	A	DOD results	78215 78211, 78213	D08182011	M10293	310	V273
8-22-11	1322 / 1857	A	DOD results	78346 78323 78325, 78175 78431 78425, 78429, 78428	D08222011	M10293	310	V277
8-26-11	0852 / 2317	A	DOD results	78530 78534, 33 32, 31	D08262011	M10293	310	V281, V283, V284 V285
8-29-11	1310 / 0349 2004	A	DOD Results	~~78543, 31~~ 78432, 78600 78568 78569, 78567, 78572	D08292011	M10293	310	V286 V287, V289
8-30-11	1345 / 8-30-11 2228	A	DOD results	78530-11 78589, 88 78569 78600, 78534 78572, 78568	D08302011	M10293	300	V292
8-31-11	1005 / 2015	A	DOD results	78532 78531 78680, 78641 78639 78677	D08312011	8-31-11 M10293	270	V293, V294

Type	Date/Time	Message	User name	Application	Sequence Name
	08/23/2011 16:07:56	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:14:25	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:20:55	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:27:31	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:34:07	Running 963002 (59)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:40:54	Running 963003 (60)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:47:42	Running 963004 (61)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 16:54:28	Running 963005 (62)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:01:02	Running 963006 (63)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:07:31	Running 963007 (64)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:14:02	Running l963007 (65)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:20:35	Running dup963007 (66)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:27:05	Running msw963007 (67)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:33:19	Running msdw963007 (68)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:39:33	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:46:01	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:52:33	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 17:59:09	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:05:45	Running pdsw963007 (69)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:12:23	Running 963008 (70)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:19:01	Running 963009 (71)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:25:27	Running 963010 (72)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:32:13	Running 963011 (73)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:39:01	Running mbs38269 (3)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:45:37	Running 963851 (4)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:52:39	Running 963852 (5)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 18:59:30	Running 963853 (6)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:06:19	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:12:50	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:19:19	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:25:49	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:32:22	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/23/2011 19:38:56	Plasma off	NAH	iTEVA Control Center	
	08/23/2011 19:38:56	Plasma extinguished successfully	NAH	Analyst	
	08/23/2011 19:38:58	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 07:06:44	Plasma On	NAH	iTEVA Control Center	
	08/24/2011 07:06:48	Plasma ignition successful	NAH	Analyst	
	08/24/2011 07:07:27	D33534 - Debug:Wavelength check : x = 2.304, y =1.401	NAH	Analyst	
	08/24/2011 12:37:46	Autosampler Run Started	NAH	Analyst	
	08/24/2011 12:37:46	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:38:06	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:44:40	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:51:06	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:51:16	Autosampler Run Started	NAH	Analyst	
	08/24/2011 12:51:16	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:51:37	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 12:58:12	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:04:47	Running CalibStd=0.5 (3)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:11:22	Running CalibStd=1 (4)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:17:38	Running CalibStd=5 (5)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:24:14	Running CalibStd=10 (6)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:30:49	Running CalibStd=20 (7)	NAH	Analyst	S_DOD Calibration 1

Type	Date/Time	Message	User name	Application	Sequence Name
	08/24/2011 13:37:21	Running CalibStd=50 (8)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:43:48	Running CalibStd=100 (9)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:50:11	Running CalibStd=1000 (10)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 13:56:33	Running CalibStd=10000 (11)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:03:28	Running CalibStd-100k (12)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:10:39	Running CalibStd=100000 (13)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:17:28	Running CalibStd=500000 (14)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:24:34	Running CalibStd-1000k (15)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:31:44	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:38:17	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:44:49	Running icv (16)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:51:29	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 14:58:04	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:04:40	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:11:11	Running icsa (20)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:18:21	Running icsab (21)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:25:17	Running 961730 (1)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:32:22	Running dup961730 (2)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:39:26	Running lcsw38315/07 (3)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:46:03	Running mbw38315/07 (4)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:52:39	Running 963391 (5)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 15:59:16	Running msw963391 (6)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:05:50	Running msdw963391 (7)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:12:26	Running 963392 (8)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:19:04	Running lcsw38309 (9)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:25:42	Running mbw38309 (10)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:32:19	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:38:54	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:45:24	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:52:00	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 16:58:37	Running 962088 (11)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:05:14	Running l962088 (12)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:11:50	Running dup962088 (13)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:18:26	Running msw962088 (14)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:25:04	Running msdw962088 (15)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:31:43	Running pdsw962088 (16)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:38:21	Running 965074 (17)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:44:56	Running l965074 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:51:32	Running dup965074 (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 17:58:08	Running msw965074 (20)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:04:46	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:11:21	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:17:53	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:24:29	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:31:05	Running msdw965074 (21)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:37:45	Running pdsw965074 (22)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:44:25	Running 965146 (23)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:51:02	Running l965146 (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 18:57:40	Running dup965146 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:04:17	Running msw965146 (26)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:10:56	Running msdw965146 (27)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:17:34	Running pdsw965146 (28)	NAH	Analyst	S_DOD Calibration 1

Type	Date/Time	Message	User name	Application	Sequence Name
	08/24/2011 19:24:12	Running 964261 (29)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:31:08	Running msw964261 (30)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:37:45	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:44:19	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:50:52	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 19:57:27	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:04:02	Running msdw964261 (31)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:10:40	Running 964267 (32)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:17:32	Running 964268 (33)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:24:29	Running 964269 (34)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:31:26	Running 964270 (35)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:38:24	Running 964271 (36)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:45:19	Running 964272 (37)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:52:14	Running 964273 (38)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 20:59:11	Running 964274 (39)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:06:05	Running 964275 (40)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:13:01	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:19:36	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:26:09	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:32:44	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:39:20	Running lcsw38307/08 (41)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:46:00	Running mbw38307/08 (42)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:52:36	Running 962716 (43)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 21:59:25	Running msw962716 (44)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:06:02	Running msdw962716 (45)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:12:40	Running 962742 (46)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:19:26	Running 962782 (47)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:26:08	Running msw962782 (48)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:32:47	Running msdw962782 (49)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:39:25	Running 962788 (50)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:46:07	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:52:43	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 22:59:15	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:05:51	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:12:27	Running 962789 (51)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:19:10	Running 962790 (52)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:25:51	Running 962791 (53)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:32:34	Running 962793 (54)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:39:24	Running 962794 (55)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:46:15	Running 962795 (56)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:53:03	Running 962796 (57)	NAH	Analyst	S_DOD Calibration 1
	08/24/2011 23:59:53	Running 962964 (58)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:06:40	Running 963308 (59)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:13:35	Running 963700 (60)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:20:18	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:26:52	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:33:24	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:40:00	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:46:36	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:53:08	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 00:59:44	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 01:06:14	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1

Type	Date/Time	Message	User name	Application	Sequence Name
	08/25/2011 01:12:47	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 01:19:21	Plasma off	NAH	iTEVA Control Center	
	08/25/2011 01:19:21	Plasma extinguished successfully	NAH	Analyst	
	08/25/2011 01:19:23	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 06:46:00	Failed to connect to Analytical database.	NAH	iTEVA Control Center	
	08/25/2011 06:46:00	SQL Error 0x80004005 occurred.	NAH	iTEVA Control Center	
	08/25/2011 06:46:13	SQL Error 0x80004005 occurred.	NAH	iTEVA Control Center	
	08/25/2011 06:46:13	Failed to connect to Analytical database.	NAH	iTEVA Control Center	
	08/25/2011 06:46:22	SQL Error 0x80004005 occurred.	NAH	Analyst	
	08/25/2011 06:46:22	Failed to connect to Analytical database.	NAH	Analyst	
	08/25/2011 06:46:22	SQL Error 0x80004005 occurred.	NAH	Analyst	
	08/25/2011 06:46:22	Failed to connect to SQL server	NAH	Analyst	
	08/25/2011 11:31:12	Plasma On	NAH	iTEVA Control Center	
	08/25/2011 11:31:16	Plasma ignition successful	NAH	Analyst	
	08/25/2011 11:31:55	D33534 - Debug:Wavelength check : x = 2.278, y =1.400	NAH	Analyst	
	08/25/2011 12:19:09	Autosampler Run Started	NAH	Analyst	
	08/25/2011 12:19:09	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:19:28	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:26:01	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:32:37	Running CalibStd=0.5 (3)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:39:11	Running CalibStd=1 (4)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:45:47	Running CalibStd=5 (5)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:52:23	Running CalibStd=10 (6)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 12:59:00	Running CalibStd=20 (7)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:04:51	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:06:12	Autosampler Run Started	NAH	Analyst	
	08/25/2011 13:06:12	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:06:32	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:13:07	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:13:49	Closing will close the method and all associated samples.	NAH	Analyst	
	08/25/2011 13:19:43	Running CalibStd=0.5 (3)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:23:42	Closing will close the method and all associated samples.	NAH	Analyst	
	08/25/2011 13:26:20	Running CalibStd=1 (4)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:32:56	Running CalibStd=5 (5)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:39:32	Running CalibStd=10 (6)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:46:09	Running CalibStd=20 (7)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:52:42	Running CalibStd=50 (8)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 13:59:10	Running CalibStd=100 (9)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:05:32	Running CalibStd=1000 (10)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:11:55	Running CalibStd=10000 (11)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:18:50	Running CalibStd-100k (12)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:19:42	Closing will close the method and all associated samples.	NAH	Analyst	
	08/25/2011 14:19:45	Closing will close the method and all associated samples.	NAH	Analyst	
	08/25/2011 14:26:05	Running CalibStd=100000 (13)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:32:54	Running CalibStd=500000 (14)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:40:01	Running CalibStd-1000k (15)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:47:14	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 14:53:46	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:00:18	Running icv (16)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:06:52	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:13:27	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:20:02	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1

Type	Date/Time	Message	User name	Application	Sequence Name
	08/25/2011 15:26:35	Running icsa (20)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:33:43	Running icsab (21)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:40:41	Running 961730 (61)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:47:56	Running dup961730 (62)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 15:55:12	Running 961734 (60)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:01:54	Running lcswtclp blk (1)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:08:33	Running mbwtclp blk (2)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:15:07	Running 964066 (3)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:22:00	Running MSW964066 (4)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:28:37	Running 964068 (5)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:35:28	Running 964070 (6)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:42:20	Running 964072 (7)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:49:13	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 16:55:41	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:02:05	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:08:40	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:15:17	Running 964074 (8)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:22:11	Running 964076 (9)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:29:03	Running 964078 (10)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:35:56	Running 964080 (11)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:42:50	Running 964082 (12)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:49:43	Running 964084 (13)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 17:56:36	Running 964086 (14)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:03:28	Running 964088 (15)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:10:21	Running 964090 (16)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:17:14	Running 964092 (17)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:24:06	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:30:35	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:36:58	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:43:34	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:50:10	Running 964094 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 18:57:02	Running 964226 (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:03:36	Running L964226 (20)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:10:21	Running MSW964226 (21)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:16:59	Running MSDW964226 (22)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:23:37	Running 965327 (23)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:30:57	Running LCSS38321 (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:37:15	Running MBS38321 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:43:50	Running 964184 (26)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:50:35	Running L964184 (27)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 19:57:17	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:03:46	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:10:16	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:16:51	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:23:28	Running MSS964184 (28)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:30:09	Running MSDS964184 (29)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:36:49	Running PDSS964184 (30)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:43:24	Running 964214 (31)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:50:11	Running 964215 (32)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 20:56:57	Running 964216 (33)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:03:34	Running LCSS38322 (34)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:10:05	Running MBS38322 (35)	NAH	Analyst	S_DOD Calibration 1

Type	Date/Time	Message	User name	Application	Sequence Name
	08/25/2011 21:16:42	Running 962085 (36)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:23:56	Running L962085 (37)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:30:58	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:37:26	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:43:56	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:50:32	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 21:57:08	Running DUP962085 (38)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:04:21	Running MSS962085 (39)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:11:36	Running MSDS962085 (40)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:18:51	Running PDSS962085 (41)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:25:54	Running 962086 (42)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:33:14	Running 962087 (43)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:40:37	Running LCSS38320 (44)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:46:51	Running MBS38320 (45)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 22:53:28	Running 962200 (46)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:00:07	Running MSS962200 (47)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:06:27	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:12:56	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:19:28	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:26:04	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:32:41	Running MSDS962200 (48)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:39:02	Running 965326 (49)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:46:30	Running MSS965326 (50)	NAH	Analyst	S_DOD Calibration 1
	08/25/2011 23:53:40	Running MSDS965326 (51)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:00:50	Running 965797 (52)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:07:44	Running 965798 (53)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:14:37	Running 965799 (54)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:21:32	Running 965800 (55)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:28:12	Running 965801 (56)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:35:06	Running 965803 (57)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:42:00	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:48:30	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 00:55:03	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:01:38	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:08:15	Running MSW965803 (58)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:14:54	Running MSDW965803 (59)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:21:31	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:28:03	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:34:32	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:41:03	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:47:36	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 01:54:09	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 08:55:28	Autosampler Run Started	NAH	Analyst	
	08/26/2011 08:55:28	Sequence Started	NAH	Analyst	S_Sodium and Pota
	08/26/2011 08:55:48	Running Blank (1)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 08:58:26	Running CalibStd-0.5 (2)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:00:53	Running CalibStd-1.0 (3)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:03:20	Running CalibStd-5.0 (4)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:05:48	Running CalibStd-10.0 (5)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:08:17	Running CalibStd-50 (6)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:10:45	Running CalibStd-100 (7)	NAH	Analyst	S_Sodium and Pota
	08/26/2011 09:13:13	Running CalibStd-200 (8)	NAH	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	08/26/2011 21:17:38	Running 965847	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:24:24	Running 965849 (40)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:31:10	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:37:39	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:44:08	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:50:46	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 21:57:22	Running 965851 (41)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:04:08	Running 965853 (42)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:10:55	Running 965855 (43)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:17:42	Running 965857 (44)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:24:28	Running 965859 (45)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:31:15	Running 965861 (46)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:38:02	Running 965863 (47)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:44:49	Running 965865 (48)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:51:35	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 22:58:14	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 23:04:35	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 23:11:04	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 23:17:38	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/26/2011 23:24:13	Plasma off	NAH	iTEVA Control Center	
	08/26/2011 23:24:13	Plasma extinguished successfully	NAH	Analyst	
	08/26/2011 23:24:15	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 06:50:02	Plasma On	NAH	iTEVA Control Center	
	08/29/2011 06:50:06	Plasma ignition successful	NAH	Analyst	
	08/29/2011 06:50:45	D33534 - Debug:Wavelength check : x = -2.107, y =1.583	NAH	Analyst	
	08/29/2011 09:21:28	Autosampler Run Started	NAH	Analyst	
	08/29/2011 09:21:28	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:21:48	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:28:29	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:35:14	Running CalibStd=0.5 (3)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:41:50	Running CalibStd=1 (4)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:48:26	Running CalibStd=5 (5)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 09:55:04	Running CalibStd=10 (6)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:01:38	Running CalibStd=20 (7)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:08:09	Running CalibStd=50 (8)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:14:33	Running CalibStd=100 (9)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:21:00	Running CalibStd=1000 (10)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:27:21	Running CalibStd=10000 (11)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:34:03	Running CalibStd-100k (12)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:41:05	Running CalibStd=100000 (13)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:48:03	Running CalibStd=500000 (14)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 10:54:52	Running CalibStd-1000k (15)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:01:39	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:08:11	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:14:44	Running icv (16)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:21:12	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:27:47	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:32:38	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:32:43	Sequence Started	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:32:43	Autosampler Run Started	NAH	Analyst	
	08/29/2011 11:33:04	Running Blank (1)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:39:02	Closing will close the method and all associated samples.	NAH	Analyst	

Type	Date/Time	Message	User name	Application	Sequence Name
	08/29/2011 11:39:49	Running CalibStd=0.25 (2)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:46:26	Running CalibStd=0.5 (3)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:53:03	Running CalibStd=1 (4)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 11:59:40	Running CalibStd=5 (5)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:06:17	Running CalibStd=10 (6)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:12:53	Running CalibStd=20 (7)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:19:24	Running CalibStd=50 (8)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:25:49	Running CalibStd=100 (9)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:32:08	Running CalibStd=1000 (10)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:38:34	Running CalibStd=10000 (11)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:45:15	Running CalibStd-100k (12)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:52:18	Running CalibStd=100000 (13)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 12:59:22	Running CalibStd=500000 (14)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:06:11	Running CalibStd-1000k (15)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:13:00	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:19:33	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:26:05	Running icv (16)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:32:34	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:40:10	Running icb (17)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:46:47	Running MRL (23)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 13:53:25	Running icsa (20)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:00:17	Running icsab (21)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:07:12	Running pdss962085 (1)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:14:12	Running 962086 (2)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:21:13	Running 962087 (3)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:28:07	Running lcsw38367 (4)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:35:48	Running mbw38367 (5)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:42:25	Running 966575 (6)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:49:11	Running l966575 (7)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:55:58	Running dup966575 (8)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 14:57:09	Closing will close the method and all associated samples.	NAH	Analyst	
	08/29/2011 15:02:45	Running msw966575 (9)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:09:31	Running msdw966575 (10)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:16:17	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:22:38	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:29:06	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:35:44	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:42:22	Running pdsw966575 (11)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:48:57	Running 966577 (12)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 15:55:44	Running 966579 (13)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:02:30	Running 966581 (14)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:09:16	Running 966583 (15)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:16:02	Running 966585 (16)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:22:47	Running 966587 (17)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:29:33	Running 966589 (18)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:36:19	Running 966591 (19)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:43:05	Running 966593 (20)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:49:52	Running ccv1 (25)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 16:56:13	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 17:02:41	Running cal blk (24)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 17:09:19	Running ccb (19)	NAH	Analyst	S_DOD Calibration 1
	08/29/2011 17:15:56	Running 966595 (21)	NAH	Analyst	S_DOD Calibration 1

13

to mark
#10068

mark
10068

d 114mL
L 10N
L D.I. H_2O
12

241 and
#M10210)

3)

10326 (a)) in

1L
ml 10N
0 and

#M10431 GE	08/29/11	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10432 GE	08/29/11	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10433 GE	08/29/11	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10432) into 100ml = 3.0ug/L Hg
#M10434 GE	08/29/11	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10435 GE	08/29/11	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10432) into 100ml = 0.2ug/L Hg
#M10436 GE	08/29/11	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10437 GE	08/29/11	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water. 9 08/29/11 GE
#M10438 GE	08/29/11	Potassium Permanganate:	50g ~~Potassium Permanganate~~ (#M9903) dissolved into 1000 mL of D.I. H_2O Exp. 02/28/12
#M10439	08/30/11	TCLP Extraction Fluid #1:	Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.534) and 128.6 mL 10N NaOH (#M10296). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05 Exp: 08/30/12

#M10418 08/16/11 Mg 10,000 µg/mL, CPI International Lot No. 11G018, Exp. 02-10-13 GAE

#M10419 08/17/11 SPLP Extraction Fluid #1: Into a 20L carboy, add D.I. H_2O to mark and adjust pH to 4.20±0.05 with #M10068 GAE

#M10420 08/18/11 SPLP Extraction Fluid #1: Into a 20L carboy, add D.I. H_2O to mark and adjust pH to 4.20±0.05 with #M10068 GAE

#M10421 08/21/11 TCLP Extraction Fluid #1: Fill a 20L carboy with 8L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB. 534) and 128.6mL 10N NaOH (#M10296). Dilute to 20L with D.I. H_2O and mix. pH=4.93±0.05. Exp. 08/21/12 GAE

#M10422 08/22/11 I5F NaCl Hydroxylamine Sulfate reagent: Dissolve 60g NaCl (#M9574) and 60g Hydroxylamine Sulfate (#M10210) in 500mL milli-Q H_2O. Exp: 02/22/12 GAE

#M10423 08/22/11 I5F	Hg Working Stds: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10424 08/22/11 I5F	Hg Alt Source Working Std: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10425 08/22/11 I5F	Hg ICV / LCSW (0.2% HNO_3, HCl)	3.0ml of 100ug/L Hg (#M10424) into 100ml = 3.0ug/L Hg
#M10426 08/22/11 I5F	Hg CCV (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10427 08/22/11 I5F	Hg MRL: (0.2% HNO_3, HCl)	0.2ml of 100ug/L Hg (#M10424) into 100ml = 0.2ug/L Hg
#M10428 08/22/11 I5F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO_3 (AB: 533)
#M10429 08/22/11 I5F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (#M10326 @) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M10430 8/24/11 I5F TCLP Extraction Fluid #1: Fill a 20L carboy with 18L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB. 534) and 128.6mL 10N NaOH (#M10296). Dilute to 20L with D.I. H_2O and mix. pH=4.93±0.05 8/24/11 I5F Exp: 08/24/12

#M104045 08/08/1113E	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M104105 08/08/1113E Na Hydroxylamine Sulfate Reagent: Dissolve 60g NaCl (#M9574a) and 60g Hydroxylamine Sulfate (#M9831) in 500mL milli-Q H2O.
Exp: 02/08/12

#M104106 8-9-11 Environmental Express Y 10,000 mg/L Lot# 1104607
ex Feb 2013

#M104107 08/15/1113E	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M104108 08/15/1113E	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M104109 08/15/1113E	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 104108) into 100ml = 3.0ug/L Hg
#M104110 08/15/1113E	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M104111 08/15/1113E	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 104108) into 100ml = 0.2ug/L Hg
#M104112 08/15/1113E	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M104113 08/15/1113E	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M104114 08-16-11 GE Turbidity Working Stds; Into 20mL pipet from #M10200 (200 NTU)

Gel Ex Stds	
3.88	2.0mL into 18mL D.I. H_2O = 20 NTU
50.7	10 mL into 10mL D.I. H_2O = 100 NTU
521	20mL into 0mL D.I. H_2O = 200 NTU

(Exp. Sep-12)

#M104115 08-16-11 GE Cu 10,000 µg/mL, CPI International Lot No. 11F031, Exp. 02-10-13

#M104116 08-16-11 GE Al 10,000 µg/mL, CPI International Lot No. 11F262, Exp. 02-10-13

#M104117 08-16-11 GE Fe 10,000 µg/mL, CPI International Lot No. 11F186, Exp. 02-10-13

#M10389 08/01/11 I5F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10390 08/01/11 I5F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10391 08/01/11 I5F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10390) into 100ml = 3.0ug/L Hg
#M10392 08/01/11 I5F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#10393 08/01/11 I5F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10390) into 100ml = 0.2ug/L Hg
#M10394 08/01/11 I5F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10395 08/01/11 I5F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M10396 08/05/11 GE — Tin (II) Chloride Dihydrate Fisher Scientific Lot No. 122260

#M10397 08/08/11 I5F — Potassium Permanganate Soln: 50g potassium permanganate (#M9703) dissolve into 1000ml of D.I. H2O. Exp: 02/08/12

#M10398 08/08/11 I5F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10399 08/08/11 I3F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10400 08/08/11 I3F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10399) into 100ml = 3.0ug/L Hg
#M10401 08/08/11 I3F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10402 08/08/11 I3F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10399) into 100ml = 0.2ug/L Hg
#M10403 08/08/11 I3F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)

#M10379 07/26/11 BF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10380 07/26/11 BF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10381 07/26/11 BF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 10380) into 100ml = 3.0ug/L Hg
#M10382 07/26/11 BF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10383 07/26/11 BF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 10380) into 100ml = 0.2ug/L Hg
#M10384 07/26/11 BF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10385 07/26/11 BF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M10386 07/27/11 AMA — TCLP Extraction Fluid #1 – Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB-534) and 128.6mL 10N NaOH (#M10043). Dilute to 20L with D.I. H_2O and mix. pH=4.93 ± 0.05. Exp. 07/27/12

#M10387 07/28/11 GLE — 10,000 ±30 µg/mL K. CPI International Lot No. 11G005 Expires: 01-22-13

#M10388 07/29/11 BF — Potassium Permanganate Sol'n: 50g potassium permanganate (#M9903) dissolve into 1,000 mL of D.I. H_2O. Exp: 01/29/12

#M10371 07/18/1113F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg	#M10379 07/26
#M10372 07/18/1113F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg	#M10380 07/26/
#M10373 07/18/1113F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10372) into 100ml = 3.0ug/L Hg	#M10381 07/26/11
#M10374 07/18/1113F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg	#M10382 07/26/11
#M10375 07/18/1113F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10372) into 100ml = 0.2ug/L Hg	#M10383 07/26/1115
07/18/1113F #M10376 07/18/1115F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)	#M10384 07/26/11
#M10377 07/18/1115F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.	#M10385 07/26/

#M10378 07/25/1115F TCLP Extraction Fluid #1 – Fill a 20L Carboy with 19L ~~D.7~~ 07/25/1115F D.7. H_2O. Add 114mL Glacial Acetic Acid (AB: 532) and 128.6mL 10N NaOH (#M10043). Dilute to 20L with D.7. H_2O and mix. pH = 4.93 ± 0.05 Exp: 07/25/1115F 07/25/1115F 07/25/1115F

#M10386 07/2 AMF

#M10387 07/2 GE

#M10388 07/2

#M10361 07/14/11 SF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10362 07/14/11 SF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10363 07/11/11 SF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10362) into 100ml = 3.0ug/L Hg
#M10364 07/11/11 SF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10365 07/11/11 SF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10362) into 100ml = 0.2ug/L Hg
#M10366 07/11/11 SF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10367 07/11/11 SF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

) in

#M10368 07/13/11 AMA TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB: 534) and 128.6mL 10N NaOH (#M10294). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05. Exp: 07/13/12

#M10369 07/15/11 SF NaCl Hydroxylamine Sulfate Reagent: Dissolved 60g NaCl (#M9571) and 60g Hydroxylamine Sulfate (#M0210) in 5ml Milli-Q H_2O

Exp: 01/15/12

~~#M10370 07/15/11 SF~~
~~#M1037~~ 07/15/11 SF Potassium Permanganate Soln: 50g Potassium Permanganate (#M9703) dissolve into 1,000mL of D.I. H_2O.

Exp: 01/15/12

#M10351 07/07/11 05 07/07/11 SF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10352 07/07/11 05 07/07/11 SF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10353 07/07/11 05 07/07/11 SF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10352) into 100ml = 3.0ug/L Hg
#M10354 07/07/11 05 07/07/11 SF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10355 07/07/11 05 07/07/11 SF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10352) into 100ml = 0.2ug/L Hg
#M10356 07/07/11 05 07/07/11 SF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10357 07/07/11 SF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M10358 07/07/11 05 07/07/11 SF Potassium Permanganate Soln: 50g potassium permanganate (#M9903) Exp: 01/07/11 05U 07/07/11 SF dissolve into 1,000ml of D.I. H2O. 07/08/11 SF

#M10359 7-8-11 Spex Certiprep lot # 7-192cr
7 & 2 Custom Assurance Std.

#M10360 07/11/11 Potassium persulfate: 50g potassium persulfate (#M9814) dissolved into 1,000mL D.I. H2O Exp: 01/11/12

#M10341 06/23/11 AMA — Potassium Permanganate soln – 50g Potassium Permanganate (#M9903) dissolved into 1000mL D.I. H_2O. Exp. 12/23/11
**Note: Potassium Permanganate made up on 06/22/11. AMA

#M10342 06/27/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10343 06/27/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10344 06/27/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10343) into 100ml = 3.0ug/L Hg
#M10345 06/27/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10346 06/27/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10343) into 100ml = 0.2ug/L Hg
#M10347 06/27/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)
#M10348 06/27/11 AMA	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M10326 (a)) in 70 mL HCl (AB: 532). Bring up to volume with D.I. Water.

#M10349 06/27/11 LSF — NaCl Hydroxylamine sulfate reagent: Dissolve 60g NaCl (#M9574) and 60g Hydroxylamine Sulfate (#M10210) in 500mL Milli-Q H_2O. Exp: 06/27/11 LSF 12/27/11

#M10350 06/29/11 GLG — TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB-539) and 128.6mL 10N NaOH (#M10296). Dilute to 20L with D.I. H_2O and mix. pH=4.93±0.05. Exp. 06/29/12

#M 10330 6-22-11 5000ug/L CCV1 Into 1 Liter Vol flask pipet 50mls #M10341
1% HNO3 #M10064, 5mls #M9930, 5mls #M10278 Bring up to mark with
1% HCL DI H2O. ex 11/11.

#M10331 06/22/11 Stannous Chloride Reagent - Into a 1000 mL vol. flask, dissolve 100g Stannous #M10342
GE Chloride (#M10326a) in 70 mL HCL (AB-532) AMA
Bring up to volume with D.I. H2O. Exp. 12-22-11

#M10332 6-23-11 Working stds List 2. Into 5; One Liter vol flasks pipet
Respectfully
1% HCL 1ug/L → .01mls M10064 & .001mls M9925 #M10343
1% HNO3 10ug/L → .1 mls M10064 & .01mls M9925 AMA
100ug/L → 1mls M10064 & .1mls M9925
also CCV → 1000ug/L → 10mls M10064 & 1mls M9925 #M10344
10,000 ug/L → 100mls M10064 & 10mls M9925 AMA
Bring up to Mark with DI H2O ex 11/11. #M10345
AMA

#M10333 ICV/LCSW List 2 Into 1 Liter vol flask pipet 6-23-11 #M10346
1% HCL 6-23-11 5.0 mls of M9923, M9929, M9926, M10140, M9933. Bring AMA
1% HNO3 up to Mark with DI H2O ex 11/11 #M10347
AMA
#M10348
AMA

#M10334 Custum Assurance Std. 100ug/L Spex lot # 3-61 YP.
6-23-11 #M10349

#M10335 06/23/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10336 06/23/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10337 06/23/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10336) into 100ml = 3.0ug/L Hg
#M10338 06/23/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10339 06/23/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10336) into 100ml = 0.2ug/L Hg
#M10340 06/23/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 532) with 1part HNO3 (AB: 533)

**Note: ALL Hg standards made up/prepped on 06/22/11. AMA

#M10350
GE

#M10325 06/16/11 Working standards for Sodium and Potassium: Into 7, 200mL Volumetric flasks, pipet from #M10311 and #M10315.
AMA
2.5% HNO_3
2.5% HCL
- Bring up to mark with D.I. H_2O
- Exp. 12/08/12

for The 0.5mg/L std - 0.1mls each
1.0 mg/L std - 0.2mls each
5.0mg/L std - 1.0mls each
10.0 mg/L std - 2.0mls each
50.0mg/L std - 10.0mls each
100.0 mg/L std - 20mls each, also used for continuing calibration standard (ccv)
200.0 mg/L std - 40.0mls each

#M10326 06-16-11 Tin (II) Chloride Dihydrate Fisher Lot No. 108259
GE

#M10327 06/20/11
AMA
1% HNO_3
1% HCL

MRL Std
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MRL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	10	M10310	1000	0.5	12/08/12
Al	400	M9866	10000	2	10/15/11
Ba	10	M10143	1000	0.5	09/09/12
Be	4	M9930	1000	0.2	11/15/11
Cd	5	M10278	1000	0.25	11/25/12
Co	10	M9928	1000	0.5	11/15/11
Cr	10	M10139	10000	0.05	09/09/12
Cu	10	M10144	10000	0.05	09/09/12
Mg	500	M10282	10000	2.5	11/25/12
Mn	10	M10141	10000	0.05	09/09/12
Mo	10	M9931	1000	0.5	11/15/11
Ni	10	M9927	1000	0.5	11/15/11
Pb	10	M10142	10000	0.05	09/09/12
Sb	20	M10280	1000	1	11/25/12
V	10	M10285	1000	0.5	11/25/12
Zn	10	M10284	10000	0.05	11/25/12
K	5000	M9863	10000	25	10/15/11
Na	1000	M9932	10000	5	11/15/11
As	10	M10281	1000	0.5	11/25/12
Ca	500	M9865	10000	2.5	10/15/11
Fe	300	M10276	10000	1.5	11/25/12
Se	10	M10277	1000	0.5	11/25/12
Tl	20	M9922	1000	1	11/15/11
Sr	10	M9926	1000	0.5	11/15/11
Ti	10	M9923	1000	0.5	11/15/11
Li	20	M9929	1000	1	11/15/11
Sn	10	M10140	1000	0.5	09/09/12
B	10	M10275	1000	0.5	11/25/12
Si	30	M9956	1000	1.5	11/30/11
W	50	M9924	1000	2.5	11/15/11

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M10328 06/20/11 CCV 2: Jep DoD cal, Into a 1L volumetric flask, pipet 5mLs ~~#M9815~~ #M10064 6/20/11 AMA and
AMA
1% HNO_3
1% HCL
0.5mL #M9815. Bring up to mark with D.I. H_2O.
Exp. 08/30/11

#M10329 06-22-11 ICSAB. into 500ml vol. flask pipet 50mls of M9955, 25mls 1% HNO_3 #M10064, 2.5mls M9815, 5mls M9545, 0.5mls M9933. Bring up to Mark with DI H_2O. ex 8/11.

#M10321 06/15/11

AMA

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

2% HNO_3

2% HCl

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4	M10310	1000	0.2
Al	9.6	M9866	10000	0.048
As	32	M10281	1000	1.6
Ba	2	M10143	1000	0.1
Be	1.6	M9930	1000	0.08
Ca	56	M9865	10000	0.28
Cd	1.6	M10278	1000	0.08
Co	9.6	M9928	1000	0.48
Cr	5.6	M10139	10000	0.028
Cu	16	M10144	10000	0.08
Fe	72	M10276	10000	0.36
Mg	32	M10282	10000	0.16
Mn	6	M10141	10000	0.03
Mo	9.6	M9931	1000	0.48
Ni	4.8	M9927	1000	0.24
Pb	10	M10142	10000	0.05
Sb	32	M10280	1000	1.6
Se	16	M10277	1000	0.8
Tl	19.2	M9922	1000	0.96
V	3.2	M10285	1000	0.16
Zn	12	M10284	10000	0.06

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp: 10/15/11

#M10322 06/15/11

AMA

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

2% HNO_3

2% HCl

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	14.4	M9929	1000	0.72
Sn	20	M9925	1000	1
Sr	3.2	M9926	1000	0.16
Ti	9.6	M9923	1000	0.48
W	24	M9924	1000	1.2

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp: 11/15/11

#M10323 06/15/11 3050 LOQ Spiking Solution, Base Spike preparation 50X

AMA

Into a 1000mL volumetric flask, pipet the following:

2% HNO_3

2% HCl

K	2640	M9863	10000	13.2
Na	960	M9932	10000	4.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp: 10/15/11

#M10324 06/15/11 3050 LOQ Spiking Solution, Base Spike preparation 50X

AMA

Into a 1000 mL volumetric flask, pipet the following:

2% HNO_3

2% HCl

B	52	M10275	1000	2.6
Si	192	M9956	1000	9.6

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp: 11/30/11

#M10317 06/15/11

AMA

2% HNO_3

2% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4	M10310	1000	0.2
Al	36	M9866	**10000**	0.18
As	24	M10281	1000	1.2
Ba	1.8	M10143	1000	0.09
Be	0.6	M9930	1000	0.03
Ca	100	M9865	**10000**	0.5
Cd	2	M10278	1000	0.1
Co	4	M9928	1000	0.2
Cr	4	M10139	**10000**	0.02
Cu	7	M10144	**10000**	0.035
Fe	100	M10276	**10000**	0.5
Mg	40	M10282	**10000**	0.2
Mn	4	M10141	**10000**	0.02
Mo	7	M9931	1000	0.35
Ni	6	M9927	1000	0.3
Pb	4	M10142	**10000**	0.02
Sb	12	M10280	1000	0.6
Se	13	M10277	1000	0.65
Tl	15	M9922	1000	0.75
V	5	M10285	1000	0.25
Zn	10	M10284	**10000**	0.05

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 10/15/11

7)

9785C) in

#M10318 06/15/11

AMA

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

2% HNO_3

2% HCl

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	10	M9929	1000	0.5
Sn	10	M9925	1000	0.5
Sr	2	M9926	1000	0.1
Ti	8	M9923	1000	0.4
W	36	M9924	1000	1.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 11/15/11

#M10319 06/15/11 "

AMA

3010 LOQ Spiking solution, Base spike preparation 50x :

Into a 1000mL volumetric flask, pipet the following:

2% HNO_3

2% HCl

K	0.5	M9863	**10000**	0.0025
Na	0.6	M9932	**10000**	0.003

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 m. digestion tube for a digested working standard.

Exp. 10/15/11

#M10320 06/15/11 3010 LOQ Spiking solution, Base Spike preparation 50x

AMA

Into a 1000mL volumetric flask, pipet the following:

2% HNO_3

2% HCl

B	16	M10275	1000	0.8
Si	200	M9956	1000	10

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 11/30/11

#M10302 06/13/11 3F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10304 06/13/11 5F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10305 06/13/11 5F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 10304) into 100ml = 3.0ug/L Hg
#M10306 06/13/11 5F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10307 06/13/11 5F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 10304) into 100ml = 0.2ug/L Hg
#M10308 06/13/11 5F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 529) with 1part HNO3 (AB: 527)
#M10309 06/13/11 5F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785C) in 70 mL HCl (AB: 529). Bring up to volume with D.I. Water.

#M10317 c
AMA

#M10318 a
AMA

#M10319 c
AMA

#M10320 c
AMA

#M10310 06/15/11 Ag 1000 µg/mL CPI Lot NO. 11E160 Exp. 12/08/12
AMA

#M10311 06/15/11 K 1000 µg/mL CPI Lot NO. 11D019 Exp. 12/08/12
AMA

#M10312 06/15/11 Mg 10,000 µg/mL CPI Lot NO. 11B221 Exp. 12/08/12
AMA

#M10313 06/15/11 K 1000 µg/mL CPI Lot NO. 11D019 Exp. 12/08/12
AMA

#M10314 06/15/11 Fe 10,000 µg/mL CPI Lot NO. 11C277 Exp. 12/08/12
AMA

#M10315 06/15/11 Na 1000 µg/mL CPI Lot NO. 11C114 Exp. 12/08/12
AMA

#M10316 06/15/11 Na 1000 µg/mL CPI Lot NO. 11C114 Exp. 12/08/12
AMA

#M10296 06/09/11 AMA — 10N NaOH : Into a 1L Vol. flask, add 400g NaOH (#M9497) and bring up to volume with D.I. H_2O. Exp. 06/09/12

#M10297 06/09/11 AMA — Tclp Extraction fluid #1 : Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.534) and 128.6mL 10N NaOH (#M10296). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05. Exp. 06/09/12

#M10298 06/09/11 GAE — TCLP Extraction Fluid #2: Into a 20L carboy, pipet 114mL Glacial Acetic Acid (AB.534). Bring up to volume (20L) with D.I. H_2O. pH = 2.88 ± 0.05 Exp. 06/09/12

#M10299 06/09/11 GAE — NaCl Hydroxylamine Sulfate Reagent - Dissolve 60g NaCl (#M9574B) and 60g Hydroxylamine Sulfate (#M10210) in 500mL Milli-Q. Exp. 12/09/11

#M10300 6-10-11 A — B. S. IOU ortho 500 ml vol flask pipet 5.0mls of #M00064 + .5mls of M99150. Bring up to mark with DI H_2O ex 1/12

#M10301 06/13/11 GAE — GFAA Stability Working Std 1% HNO_3 Exp. 11-15-11 — Into a 200mL vol. flask, partially filled with D.I. H_2O, pipet the following and then bring up to volume with D.I. H_2O.
2.4mL of 1000 mg/L As (#M10281) = 12,000 µg/L As
0.16mL of 10,000 mg/L Pb (#M10142) = 8,000 µg/L Pb
7.2mL of 1000 mg/L Se (#M10277) = 36,000 µg/L Se
4.0mL of 1000 mg/L Sb (#M9610) = 20,000 µg/L Sb
1.12mL of 1000 mg/L Tl (#M9922) = 5600 µg/L Tl

#M10302 06/13/11 GAE — GFAA Instrument Stability Check Standard: 1% HNO_3 Exp. 11-15-11 — Into a 1000mL vol. flask, partially filled with D.I H_2O pipet 1.0mL of #M10301 and bring up to volume with D.I. H_2O.

5
15th

#M10292 06/07/11 Boron + Silicon Working Standards : Into 5, 200mL vol. flasks, pipet from Standards #M10275 + #M9956.
AMA

- Bring up to mark with D.I. H_2O.
- Exp. 11/30/11

10 µg/L → 0.002mL of #M10275 + #M9956.
50 µg/L → 0.01mL of #M10275 + #M9956.
200 µg/L → 0.04mL of #M10275 + #M9956.
1,000 µg/L → 0.2mL of #M10275 + #M9956.
2,000 µg/L → 0.4mL of #M10275 + #M9956.
10,000 µg/L → 2.0mL of #M10275 + #M9956.

#M10293 #M10293
JT
6-7-11

ICAP Working Standards: 5% HNO3 5%HCL

Pipette the following respectively:

0.25 std= 0.25 mls of standard 100 ug/L into 1000 ml volumetric flask = 0.25ug/L
0.50 std = 0.50 mls of standard 100 ug/L into 1000ml volumetric flask= 0.50ug/L
1.0 std =1.0 mls of standard 100ug/L into 1000 ml volumetric flask =1.00ug/L
5.0 std = 5.0 mls of standard 100ug/L into 1000 ml volumetric flask =5.00 ug/L
10 std = 10.0 mls of standard 100ug/L into 1000 ml volumetric flask =10.0 ug/L
20 std = 20.0 mls of standard 100ug/L into 1000 ml volumetric flask =20.0 ug/L
50 std = 50.0 mls of standard 100ug/L into 1000 ml volumetric flask =50.0 ug/L
100 std = 1.0 mls of #M9815 (ex 8/11) and 1.0 mls of #M10064 (ex 1/12) into 1000 ml volumetric flask= 100 ug/L
1000 std = 10.0 mls of #M9815 (ex 8/11) and 10.0 mls of #M10064 (ex 1/12) into 1000 ml volumetric flask= 1000 ug/L
10,000 std =100 mls #M10064 (ex 1/12) 10 mls of Be #M9930 (ex11/11) and Cd #M10278 (ex 11/12) =10,000 ug/L
100k std = 10 mls of Cu #M10144 (ex 9/12), 10 mls of Mn #M10141 (ex 9/12), 10 mls of Cr #M10139 (ex 9/12), 10 mls Pb #M10142 (ex 9/12) 10 mls Zn #M10284 (ex 11/12) = 100,000 ug/L
100,000 std = 10 mls of Mg #M10282 (ex 11/12) , 10 mls of Fe #M10276 (ex 11/12) ,10 mls of Ca #M9865(ex 10/11),10 mls Al #M9866 (ex 10/11) into 1000 ml vol flask = 100,000 ug/L
500,000 std = 50 mls of Mg #M10282 (ex 11/12), 50 mls of Fe #M10276 (ex 11/12),50 mls of Ca #M9865 (ex 10/11),50 mls Al #M9866 (ex 10/11) into 1000 ml vol flask = 500,000 ug/L
1000k std =100 mls of Mg #M10282 (ex 11/12) , 100 mls of Fe #M10276 (ex 11/12) ,100 mls of Ca #M9865 (ex 10/11),100 mls Al #M9866 (ex 10/11) into 1000 ml vol flask = 1,000,000 ug/L std

Bring the 1000 ml volumetric up to mark with DI H2O

ex 10/11

#M10294 JT 6-7-11 5%HNO3 + HCL — ICSAB Into 500 ml Vol flask Pipet 50mls #M9955 2.5 mls #M9815 + 2.5 mls #M10064 Bring up to mark with DI H_2O. ex 9/11

5 JT 6/7/11

#M10295 HNO3 + HCL 6-7-11 JT — ICSA Into 500 ml Vol flask pipet 50 mls #M9955 Bring up to mark with DI H_2O.

#M10283 06/03/11 Na 1,000 µg/mL CPI Lot No. 11C114 Exp. 11/25/12
AMA

#M10284 06/03/11 Zn 10,000 µg/mL CPI Lot No. 11D067 Exp. 11/25/12
AMA

#M10285 06/03/11 V 1,000 µg/mL CPI Lot No. 11B146 Exp. 11/25/12
AMA

#M10286 06/07/11 GFAA LOD/LOQ Water Working Std: Into a 100 mL vol. flask, partially filled with D.I. H_2O, pipet the following and bring up to volume with D.I. H_2O.
GJE (1% HNO_3)
Expires: 11-15-11
1.5 mL Sb (1000 mg/L) #M10280 = 15,000 µg/L Sb
1.0 mL As (1,000 mg/L) #M10281 = 10,000 µg/L As
2.0 mL Se (1,000 mg/L) #M10277 = 20,000 µg/L Se
0.045 mL Pb (10,000 mg/L) #M10142 = 4,500 µg/L Pb
0.4 mL Tl (1,000 mg/L) #M9922 = 4,000 µg/L Tl

#M10287 06/07/11 GFAA LOD/LOQ Water Ag Working Std: Into a 100 mL vol. flask, partially filled with D.I. H_2O, pipet the following and bring up to volume with D.I. H_2O.
GJE (1% HNO_3)
Expires: 06-15-11
1.0 mL Ag (1,000 mg/L) #M9608 = 10,000 µg/L Ag

#M10288 06/07/11 GFAA LOD/LOQ Water Spiking Sol'n: Into a 1 L vol. flask, pipet 10 mL of #M10286 and 1 mL #M10287.
GJE (1% HNO_3)
Expires: 06-15-11 (Ag only)

#M10289 06/07/11 GFAA LOD/LOQ Soil Working Std: Into a 200 mL vol. flask, partially filled with D.I. H_2O, pipet the following and bring up to volume with D.I. H_2O.
GJE (1% HNO_3)
Expires: 11-15-11
1.2 mL Sb (1000 mg/L) #M10280 = 6,000 µg/L Sb
3.2 mL As (1000 mg/L) #M10281 = 16,000 µg/L As
3.2 mL Se (1,000 mg/L) #M10277 = 16,000 µg/L Se
0.08 mL Pb (10,000 mg/L) #M10142 = 4,000 µg/L Pb
1.0 mL Tl (1,000 mg/L) #M9922 = 5,000 µg/L Tl

#M10290 06/07/11 GFAA LOD/LOQ Soil Ag Working Std: Into a 200 mL vol. flask, partially filled with D.I. H_2O, pipet the following and bring up to volume with D.I. H_2O.
GJE (1% HNO_3)
Expires: 06-15-11
1.2 mL Ag (1000 mg/L) #M9608 = 6,000 µg/L Ag

#M10291 06/07/11 GFAA LOD/LOQ Soil Spiking Sol'n: Into a 1 L vol. flask, pipet 10 mL of #M10289 and 1 mL #M10290. Bring up to volume with D.I. H_2O.
GJE Expires: 06-15-11 (Ag only)
(1% HNO_3)

#M10269 05/27/11 Hg Aqua Regia Reagent: "carefully" in hood, mix 3 parts HCL (AB:532) with 1 part HNO_3 (AB:533).
AMA

#M10270 05/27/11 Stannous chloride Reagent: Into a 1000mL volumetric flask, dissolve 100g Stannous chloride (#M9785F) in 70mL HCL (AB:532). Bring up to volume with D.I. H_2O.
AMA

#M10271 05/27/11 GF Potassium Persulfate: 50g potassium persulfate (#M9897) dissolved into 1000mL D.I. H_2O Exp: 10-27-11

#M10272 05/31/11 SF Potassium Permanganate sol'n: 50g potassium permanganate (#M9903) dissolved into 1000mL of D.I. H_2O. Exp: 11/31/11

#M10273 06/03/11 AMCO clear Turbidity standard 2.0 NTU Lot NO. C141288 Expires 05/2012
AMA

#M10274 06/03/11 Custom Assurance Standard 20,000mg/L Ca, 10,000mg/L Mg, Na SPEX certiPrep Lot NO. 3-30YP Exp. 05/30/2012
AMA

#M10275 06/03/11 B 1,000µg/mL CPI Lot NO. 11C049 Exp. 11/25/12
AMA

#M10276 06/03/11 Fe 10,000µg/mL CPI Lot NO. 11C277 Exp. 11/25/12
AMA

#M10277 06/03/11 Se 1,000µg/mL CPI Lot NO. 10L065 Exp. 11/25/12
AMA

#M10278 06/03/11 Cd 1,000µg/mL CPI Lot NO. 11B116 Exp. 11/25/12
AMA

#M10279 06/03/11 K 1,000µg/mL CPI Lot NO. 11D019 Exp. 11/25/12
AMA

#M10280 06/03/11 Sb 1,000µg/mL CPI Lot NO. 10K242 Exp. 11/25/12
AMA

#M10281 06/03/11 As 1,000µg/mL CPI Lot NO. 11E058 Exp. 11/25/12
AMA

#M10282 06/03/11 Mg 10,000µg/mL CPI Lot NO. 11B035 Exp. 11/25/12
AMA

#M10283 06/
AMA

#M10284 06/0
AMA

#M10285 06/0
AMA

#M10286 06/0
GVE

#M10287 06/
GVE

#M10288 0
GVE

#M10289 06/0
GVE

#M10290 0
GVE

#M10291 0
GVE

the following
h milli-Q H_2O.
)
)

#M10261 05/23/11 SF 5% HNO_3
5% HCL

3051 MDL Spiking Solution

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
K	400	M9863	10000	2
Na	200	M9932	10000	1

Expires 10-15-11

#M10262 05/24/11 GLE 3015 Na, K Spiking Solution: (5% HNO_3, 5% HCL) Into a 1L vol. flask, pipet the following and bring up to volume with MilliQ water. Exp. 10-15-11

05/24/11 GLE { ~~0.35~~ mL 2.5mL of 10,000 mg/L Na (#M9932) = 25 mg/L Na
~~0.~~ 2.5mL of 10,000 mg/L K (#M9863) = 25 mg/L K

#M10263 05/24/11 GLE 3051 Na, K Spiking Solution: (5% HNO_3, 5% HCL) Into a 1L vol. flask, pipet the following and bring up to volume with MilliQ water. Expires 10-15-11.

2.5mL of 10,000 mg/L Na (#M9932) = 25 mg/L
5.0mL of 10,000 mg/L K (#M9863) = 50 mg/L

Hg

#M10264 05/27/11 AMA Hg Working stds.: (0.2% HNO_3, HCL)
1.0mL of 1000 mg/L Hg (#M9954) into 100mL = 10 mg/L Hg
1.0mL of 10 mg/L Hg into 100mL = 100 µg/L Hg
0.5mL of 100 µg/L Hg into 100mL = 0.5 µg/L Hg
1.0mL of 100 µg/L Hg into 100mL = 1.0 µg/L Hg
2.0mL of 100 µg/L Hg into 100mL = 2.0 µg/L Hg
4.0mL of 100 µg/L Hg into 100mL = 4.0 µg/L Hg
5.0mL of 100 µg/L Hg into 100mL = 5.0 µg/L Hg
10.0mL of 100 µg/L Hg into 100mL = 10.0 µg/L Hg

L Hg

#M10265 05/27/11 AMA Hg Alt. Source Working std: (0.2% HNO_3, HCL)
1.0mL of 1000 mg/L Hg (#M9063) into 100mL = 10 mg/L Hg
1.0mL of 10 mg/L Hg into 100mL = 100 µg/L Hg

#M10266 05/27/11 AMA Hg ICV/LCSW: (0.2% HNO_3, HCL)
3.0mL of 100 µg/L Hg (#M10265) into 100mL = 3.0 µg/L Hg

g/L Hg

#M10267 05/27/11 AMA Hg CCV: (0.2% HNO_3, HCL)
1.0mL of 1000 mg/L Hg (#M9954) into 100mL = 10 mg/L Hg
1.0mL of 10 mg/L Hg into 100mL = 100 µg/L Hg
3.0mL of 100 µg/L Hg into 100mL = 3.0 µg/L Hg

w/1 part

#M10268 05/27/11 AMA Hg MRL: (0.2% HNO_3/HCL)
0.2mL of 100 µg/L Hg (#M10265) into 100mL = 0.2 µg/L Hg

us Chloride
with D.I. H_2O.

#M10253 05/18/11 LSF — 3051 MDL Spiking solution: Into a 1000mL Vol. flask pipet the following and then bring up to volume with milli-Q H2O

Exp: 06/15/11 — 1% HNO_3

- 2mL Al 10,000 mg/L (#M9866)
- 1mL Ni 1,000 mg/L (#M9927)
- 0.5mL V 1,000 mg/L (#M9612)
- 1mL Fe 10,000 mg/L (#M9864)

#M10254 05/19/11 LSF — 5% HCl, 5% HNO_3

3051 MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	5	M9929	1000	0.25
Sn	5	M9925	1000	0.25
Sr	1	M9926	1000	0.05
Ti	5	M9923	1000	0.25
W	10	M9924	1000	0.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires : 11/15/2011

#M10255 05/23/11 LSF — Hg working stds: (0.2% HNO_3, HCl)

- 1.0mL of 1000mg/L Hg (#M9954) into 100mL = 10mg/L Hg
- 1.0mL of 10mg/L Hg into 100mL = 100ug/L Hg
- 0.5mL of 100ug/L Hg into 100mL = 0.5ug/L Hg
- 1.0mL of 100ug/L Hg into 100mL = 1.0 ug/L Hg
- 2.0mL of 100ug/L Hg into 100mL = 2.0 ug/L Hg
- 4.0mL of 100ug/L Hg into 100mL = 4.0 ug/L Hg
- 5.0mL of 100ug/L Hg into 100mL = 5.0 ug/L Hg
- 6.0mL of 100ug/L Hg into 100mL = 100 ug/L Hg

#M10256 05/23/11 LSF — Hg AHS Source working std: (0.2% HNO_3, HCl) 05/23/11 LSF

- 1.0mL of 1000mg/L Hg (#M9963) into 100mL = 10mg/L Hg 05/23/11 LSF
- 1.0mL of 10mg/L into 100mL = 100ug/L Hg

#M10257 05/23/11 LSF — Hg ICV/LCSW (0.2% HNO_3, HCl) 05/23/11 LSF

- 3.0mL of 100ug/L Hg (#M10256) into 100mL = 3.0ug/L Hg

#M10258 05/23/11 LSF — Hg CCV (0.2% HNO_3 HCl) 05/23/11 LSF

- 1.0mL of 1000mg/L Hg (#M9954) into 100mL = 10mg/L Hg
- 1.0mL of 10 mg/L Hg into 100mL = 100 ug/L Hg

#M10259 05/23/11 LSF — Hg MRL: (0.2% HNO_3, HCl)

- 0.2mL of 100ug/L Hg (#M10256) into 100mL = 0.2 ug/L Hg

#M10259 05/23/11 LSF — Hg Aqua Regia Reagent: "Carefully" in ~~mood~~ (400g) mix 3 parts HCl (AB.529) w/ 1 part HNO_3 (AB.527) 05/23/11 LSF

#M10260 05/23/11 LSF — Stannous Chloride Reagent: Into a 100mL volumetric flask, dissolve 10g Stannous Chloride (#M9955C) in 70mL HCl (AB.529) Bring up to volume with DI H_2O

#M10240 05/10/11 TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial
GVE Exp. 05-10-12 Acetic Acid (AB-516) and 128.6mL 10N NaOH (#M10043).
Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05

#M10241 05/11/11 Stannous Chloride, Ricca Chemical Company Lot No. 1104175
GVE Exp. April 2013

#M10242 05/13/11 Potassium Persulfate: 50g Potassium persulfate (#M9814) dissolved into
L3F 1000mL D.I. H_2O.
Exp. 11/13/11

#M10243 05/13/11 L3F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10244 05/13/11 L3F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10245 05/13/11 L3F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10244) into 100ml = 3.0ug/L Hg
#M10246 05/13/11 L3F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10247 05/13/11 L3F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10244) into 100ml = 0.2ug/L Hg
#M10248 05/13/11 L3F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 529) with 1part HNO3 (AB: 527)
#M10249 05/13/11 L3F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785C) in 70 mL HCl (AB: 529). Bring up to volume with D.I. Water.

#M10250 05/16/11 Potassium Permanganate soln – 50g Potassium Permanganate (#M9903)
AmA dissolved into 1000mL D.I. H_2O. Exp. 11/16/11

#M10251 05/16/11 NaCl Hydroxylamine Sulfate Reagent – Dissolve 60g NaCl (#M9574b) and
AmA 60g Hydroxylamine Sulfate (#M10210)
in 500mL Milli-Q H_2O. Exp. 11/16/11

#M10252 05/18/11 TCLP Extraction fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial
AmA Acetic Acid (AB-534) and 128.6mL 10N NaOH (#M10043).
Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05

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#M10225 05/02/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10226 05/02/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10227 05/02/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10226) into 100ml = 3.0ug/L Hg
#M10228 05/02/11 LSF	Hg CCV: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10229 05/02/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10226) into 100ml = 0.2ug/L Hg
#M10230 05/02/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 529) with 1part HNO3 (AB: 527)
#M10231 05/02/11 LSF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785C) in 70 mL HCl (AB: 529). Bring up to volume with D.I. Water.

#M10232 05/06/11 : Custom Assurance Standard 20,000 mg/L Ca, 10000 mg/L Mg, Na
GAE Spex CertiPrep Lot No. 2-176YP Exp. 04-30-12

#M10233 05/09/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10234 05/09/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10235 05/09/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10234) into 100ml = 3.0ug/L Hg
#M10236 05/09/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10237 05/09/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10234) into 100ml = 0.2ug/L Hg
#M10238 05/09/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 529) with 1part HNO3 (AB: 527)
#M10239 05/09/11 LSF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785C) in 70 mL HCl (AB: 529). Bring up to volume with D.I. Water.

#M10215 04/26/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10216 04/26/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10217 04/26/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10216) into 100ml = 3.0ug/L Hg
#M10218 04/26/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10219 04/26/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10216) into 100ml = 0.2ug/L Hg
#M10220 04/26/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 529) with 1part HNO3 (AB: 527)
#M10221 04/26/11 AMA	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785C) in 70 mL HCl (AB: 529). Bring up to volume with D.I. Water.

#M10222 04/27/11 GE TCLP Extraction Fluid #2: Into a 20L carboy, pipet 114mL Glacial Acetic Acid (AB:516) Bring up to volume (20L) with D.I. H_2O. pH: 2.88±0.05 Exp. 04/27/12

#M10223 04/29/11 LSF TCLP Extraction Fluid #1 Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB:516) and 128.6mL 10N NaOH (#M10043). Dilute to 20L with D.I. H_2O and mix. pH 4.93±0.05

Exp: 04/29/12

#M10224 MRL 5-2-11

MRL Std
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MRL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	
Ag	10	m9608	1000	0.5	11-Jun
Al	400	m9866	**10000**	2	11-Oct
Ba	10	m10143	1000	0.5	12-Sep
Be	4	m9930	1000	0.2	11-Nov
Cd	5	m9620	1000	0.25	11-Jun
Co	10	m9928	1000	0.5	11-Nov
Cr	10	m10139	1000	0.5	12-Sep
Cu	10	m10144	**10000**	0.05	12-Sep
Mg	500	m9719	**10000**	2.5	11-Jul
Mn	10	m10141	10000	0.05	12-Sep
Mo	10	M9302	1000	0.5	11-Nov
Ni	10	m9927	1000	0.5	11-Nov
Pb	10	m10142	**10000**	0.05	12-Sep
Sb	20	m9610	1000	1	11-Jun
V	10	m9612	1000	0.5	11-Jun
Zn	10	m9718	1000	0.5	11-Jun
K	5000	m9863	**10000**	25	11-Oct
Na	1000	m9932	**10000**	5	11-Nov
As	10	m9609	1000	0.5	11-Jun
Ca	500	m9865	**10000**	2.5	11-Oct
Fe	300	m9864	**10000**	1.5	11-Oct
Se	10	m9611	1000	0.5	11-Jun
Ti	20	m9922	1000	1	11-Nov
Sr	10	m9926	1000	0.5	11-Nov
Ti	10	m9923	1000	0.5	11-Nov
Li	20	m9929	1000	1	11-Nov
Sn	10	m10140	1000	0.5	12-Sep
B	10	m9628	1000	0.5	11-Jun
Si	30	m9956	1000	1.5	11-Nov
W	50	m9924	1000	2.5	11-Nov

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M10203 04/18/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10204 04/18/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10205 04/18/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10204) into 100ml = 3.0ug/L Hg
#M10206 04/18/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10207 04/18/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10204) into 100ml = 0.2ug/L Hg
#M10208 04/18/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 524) with 1part HNO3 (AB: 527)
#M10209 04/18/11 LSF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785) in 70 mL HCl (AB: 524). Bring up to volume with D.I. Water.

#M10210 04/26/11 GLE Hydroxylamine Sulfate Fisher Lot No. 103492 500g

#M10211 04/26/11 GLE GFAA Base Std (25µg/L) (5% HCL, 2% HNO_3) Pipet 25mL of #M10184 into a 1L vol flask and bring up to volume with Milli-Q H_2O. Exp. 04-01-12

#M10212 04/26/11 GLE GFAA Alt. Source Std (10µg/L) (5% HCL, 2% HNO_3) Pipet 50mL of #M10185 into a 1L vol. flask and bring up to volume with Milli-Q H_2O. Exp. 04-01-12

#M10213 04/26/11 GLE GFAA CCV Std (10µg/L) (5% HCL, 2% HNO_3) Pipet 10mL of #M10184 into a 1L vol. flask and bring up to volume with Milli-Q H_2O. Exp. 04-01-12

#M10214 04/26/11 AMA Potassium Permanganate soln — 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. H_2O. Exp. 10/26/11

#M10215 04/ AMA

#M10216 04/21 AMA

#M10217 04/2 AMA

#M10218 04/ AMA

#M10219 04/ AMA

#M10220 04/ AMA

#M10221 04/ AMA

#M10222 0 GLE

#M10196 04/12/11 AmA — Hg Aqua Regia Reagent: "Carefully" in hood, mix 3 parts HCl (AB: 524) with 1part HNO3 (AB: 527)

#M10197 04/12/11 AmA — Stannous Chloride Reagent: Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL HCl (AB: 524). Bring up to volume with D.I. Water. C 04/12/11 AmA

#M10198 04/12/11 AmA — Potassium Permanganate soln – 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. H_2O. Exp. 10/12/11

#M10199 04/12/11 AmA — NaCl Hydroxylamine Sulfate ~~soln~~ 04/12/11 AmA Reagent – Dissolve 60g NaCl (#M9574(A)) and 60g Hydroxylamine Sulfate (#M9831) in 500mL Milli-Q H_2O. Exp. 10/12/11

#M10200 04/13/11 GdE — Hach StablCal Std 200 NTU Lot No. A0260 Exp. Sep-12

#M10201 04/13/11 GdE — Turbidity Working Stds: Into 20 mL's pipet from #M10200 (200 NTU)

Gel Ex Stds:

4.31	2.0mL into 18mL D.I. H_2O = 20 NTU
51.1	10mL into 10mL D.I. H_2O = 100 NTU
522	20mL into 0mL D.I. H_2O = 200 NTU
	(Exp. Sep-12)

#M10202 04/14/11 GdE — TCLP Extraction Fluid #1: Fill a 20 L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB-516) and 128.6mL 10N NaOH (#M10043), Dilute to 20L with D.I. H_2O & mix, pH = 4.93 ± 0.05 Exp. 04/14/12

#M10184 04/06/10 GFAA Working Base Std (1000µg/L) (1% HNO_3) Pipet 10mL of #M10147 into a 1L vol. flask & bring up to volume with MilliQ water Exp. 04-01-12
GJE

#M10185 04/06/10 GFAA Alt Source Working Std (200µg/L) (1% HNO_3) Pipet 20mL of ~~#M94~~ #M10146 into a 1L vol. flask and bring up to volume with MilliQ H_2O. Exp 04-01-12
GJE

#M10186 04/06/10 GFAA Base Std (25µg/L) (1% HNO_3) Pipet 25mL of #M10184 into a 1L vol. flask and bring up to volume with MilliQ H_2O. Exp. 04-01-12
GJE

#M10187 04/06/10 GFAA Alt. Source Std (10µg/L) (1% HNO_3) Pipet 50mL of #M10185 into a 1L vol. flask and bring up to volume with MilliQ H_2O. Exp. 04-01-12
GJE

#M10188 04/06/10 GFAA CCV Std (10µg/L) (1% HNO_3) Pipet 10mL of #M10184 into a 1L vol. flask and bring up to volume with MilliQ H_2O. Exp. 04-01-12
GJE

#M10189 04/06/10 XSPIKE1-250 Spex CertiPrep Lot No. 6-137CR Exp. 03-30-12
GJE

#M10190 04/06/10 TCLP Extraction Fluid #2: Into a 20L carboy, pipet 114mL Glacial Acetic Acid (AB516). Bring up to volume (20L) with D.I. H_2O. pH: 2.88 ± 0.05
GJE Exp. 04/06/11

#M10191 04/12/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10192 04/12/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10193 04/12/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10192) into 100ml = 3.0ug/L Hg
#M10194 04/12/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10195 04/12/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10192) into 100ml = 0.2ug/L Hg

#M10196 AMA
#M10197 AMA
#M10198 AMA
#M10199 AMA
#M10200 GJE
#M10201 GJE
#M10202 GJE

#M10176 03/31/11 3050LCQ ✓
AMA

5% HNO_3
5% HCl

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
K	2640	M9863	10000	13.2
Na	960	M9932	10000	4.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 10/15/2011

4/5/11 AMA

#M10177 04/05/11
AMA

Hg Working Stds:
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg
1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg
2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg
4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg
5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg
10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg

#M10178 04/05/11
AMA

Hg Alt Source Working Std:
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg
1.0ml of 10mg/L into 100ml = 100ug/L Hg

#M10179 04/05/11
AMA

Hg ICV / LCSW
(0.2% HNO3, HCl)

3.0ml of 100ug/L Hg (#M10178) into 100ml = 3.0ug/L Hg

#M10180 04/05/11
AMA

Hg CCV
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg

#M10181 04/05/11
AMA

Hg MRL:
(0.2% HNO3, HCl)

0.2ml of 100ug/L Hg (#M10178) into 100ml = 0.2ug/L Hg

#M10182 04/05/11
AMA

Hg Aqua Regia Reagent:

"Carefully" in hood, mix 3 parts HCl (AB: 524) with 1part HNO3 (AB: 526)

#M10183 04/05/11
AMA

Stannous Chloride Reagent:

Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL HCl (AB: 524). Bring up to volume with D.I. Water.

#M10174 03/31/11 3050 LOQ ✓

AMA

5% HNO_3

5% HCl

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	52	M9628	1000	2.6
Si	192	~~M9545~~	1000	9.6
		M9956		
		03/31/11		
		AMA		

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 6/15/2011

#M10175 03/31/11 3050 LOD ✓

AMA

5% HNO_3

5% HCl

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
K	1320	M9863	**10000**	6.6
Na	480	M9932	**10000**	2.4

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 10/15/2011

M10176 03

AMA

#M10172 03/31/11 3050LOQ ✓

AMA

5% HNO_3

5% HCL

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	14.4	M9929	1000	0.72
Sn	20	M9925	1000	1
Sr	3.2	M9926	1000	0.16
Ti	9.6	M9923	1000	0.48
W	24	M9924	1000	1.2

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

#M10173 03/31/11 3050LOD ✓

AMA

5% HNO_3

5% HCL

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	26	M9628	1000	1.3
Si	96	~~M9545~~ M9956	1000	4.8
		03/31/11 AMA		

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 6/15/2011

#M10170 03/31/11 3010 LOQ ✓

AmA

5% HNO_3

5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
K	500	M9863	**10000**	2.5
Na	600	M9932	**10000**	3

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 10/15/2011

#M10172 o

AmA

#M10171 03/31/11 3050 LOD ✓

AmA

5% HNO_3

5% HCl

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	7.2	M9929	1000	0.36
Sn	10	M9925	1000	0.5
Sr	1.6	M9926	1000	0.08
Ti	4.8	M9923	1000	0.24
W	12	M9924	1000	0.6

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

#M10173 o

AmA

LAB 03/29/11 3010 LOD ✓

AMA

5% HNO_3

5% HCL

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	8	M9628	1000	0.4
Si	100	~~M9545~~ M9956 03/29/11 AMA	1000	5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 6/15/11

M10169 03/31/11 3010 LOD ✓

AMA

5% HNO_3

5% HCL

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
K	250	M9863	10000	1.25
Na	300	M9932	10000	1.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 10/15/2011

#M101666 03/29/11 3010LODV

AMA

5% HNO_3

5% HCl

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	5	M9929	1000	0.25
Sn	5	M9925	1000	0.25
Sr	1	M9926	1000	0.05
Ti	4	M9923	1000	0.2
W	12	M9924	1000	0.6

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

#M101667 03/29/11 3010LOQV

AMA

5% HNO_3

5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	16	M9628	1000	0.8
Si	200	~~M9545~~ M9956	1000	10
		03/29/11 ~~AMA~~		

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 6/15/11

#M101669 03/31

AMA

#M10158 03/24/11 3010 LOQ ✓

AMA

5% HNO_3

5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	10	M9929	1000	0.5
Sn	10	M9925	1000	0.5
Sr	2	M9926	1000	0.1
Ti	8	M9923	1000	0.4
W	36	M9924	1000	1.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

~~03/28/11 L3F~~

#M10158 03/28/11 L3F

Hg Working Stds:
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg
1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg
2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg
4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg
5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg
10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg

#M10160 03/28/11 L3F

Hg Alt Source Working Std:
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg
1.0ml of 10mg/L into 100ml = 100ug/L Hg

#M10161 03/28/11 L3F

Hg ICV / LCSW
(0.2% HNO3, HCl)

3.0ml of 100ug/L Hg (#M 10160) into 100ml = 3.0ug/L Hg

#M10162 03/28/11 L3F

Hg CCV
(0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg

#M10163 03/28/11 L3F

Hg MRL:
(0.2% HNO3, HCl)

0.2ml of 100ug/L Hg (#M 10160) into 100ml = 0.2ug/L Hg

#M10164 03/28/11 L3F

Hg Aqua Regia Reagent:

"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 525)

#M10165 03/28/11 L3F

Stannous Chloride Reagent:

Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

#M10155 03/22/11 3010 LOQ ✓

AMA

5% HNO_3

5% HCL

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4	M9608	1000	0.2
Al	36	M9866	**10000**	0.18
Ba	1.8	M9518	1000	0.09
Be	0.9	M9930	1000	0.045
Cd	2	M9620	1000	0.1
Co	4	M9928	1000	0.2
Cr	4	M9519	**10000**	0.02
Cu	7	M9522	**10000**	0.035
Mg	40	M9719	**10000**	0.2
Mn	4	M9520	**10000**	0.02
Mo	7	M9931	1000	0.35
Ni	6	M9927	1000	0.3
Pb	4	M9521	**10000**	0.02
Sb	12	M9610	1000	0.6
V	5	M9612	1000	0.25
Zn	10	M9718	**10000**	0.05
As	24	M9609	1000	1.2
Ca	100	M9865	**10000**	0.5
Fe	100	M9864	**10000**	0.5
Se	13	M9611	1000	0.65
Tl	15	M9922	1000	0.75

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 4/30/2011

#M10156 03/23/11 TCLP Extraction Fluid #1 - Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB-516) and 128.6mL 10N NaOH (#M10043). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05. Exp. 03/23/12

#M10157 03/24/11 3050 LOQ ✓

AMA

5% HNO_3

5% HCL

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4	M9608	1000	0.2
Al	9.6	M9866	**10000**	0.048
Ba	2	M9518	1000	0.1
Be	0.96	M9930	1000	0.048
Cd	1.6	M9620	1000	0.08
Co	9.6	M9928	1000	0.48
Cr	6	M9519	**10000**	0.03
Cu	16	M9522	**10000**	0.08
Mg	32	M9719	**10000**	0.16
Mn	6	M9520	**10000**	0.03
Mo	9.6	M9931	1000	0.48
Ni	4.8	M9927	1000	0.24
Pb	10	M9521	**10000**	0.05
Sb	32	M9610	1000	1.6
V	3.2	M9612	1000	0.16
Zn	12	M9718	**10000**	0.06
As	32	M9609	1000	1.6
Ca	56	M9865	**10000**	0.28
Fe	72	M9864	**10000**	0.36
Se	16	M9611	1000	0.8
Tl	19.2	M9922	1000	0.96

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 4/30/2011

#M10155

#M10158 0

#M10160 0

#M10161 0

#M10162

#M10163

#M10164 0

#M10165

3

10145 ICV/LCSW Cood Cal. DuHol Liter flask. piped 10mls #M10065, 2mls
3-18-11 # M9955, 0.5 mls # 9931 Bring up to Mark with DI H_2O ex Nov 2011

M10146 03/21/11 Inorganic Ventures, CT1-GFCAL-1, Lot No. E2-MEB366120
GUE 10 µg/mL As, Cr3, Pb, Sb, Se, Tl, 1 µg/mL Ag, Cd Exp. 04-01-12

M10147 03/21/11 Inorganic Ventures, CT1-SPK-1, Lot No. E2-MEB366121
GUE 100 µg/mL As, Cr3, Pb, Sb, Se, Tl, 15 µg/mL Ag, 5 µg/mL Cd Exp. 04-01-12

M10148 03/21/11 L3F	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
M10149 03/21/11 L3F	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
M10150 03/21/11 L3F	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10149) into 100ml = 3.0ug/L Hg
M10151 03/21/11 L3F	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
M10152 03/21/11 L3F	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 10149) into 100ml = 0.2ug/L Hg
M10153 03/21/11 L3F	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 525)
M10154 03/21/11 L3F	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

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ring

#M10131 03/14/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10132 03/14/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10133 03/14/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10132) into 100ml = 3.0ug/L Hg
#M10134 03/14/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10135 03/14/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10132) into 100ml = 0.2ug/L Hg
#M10136 03/14/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 525)
#M10137 03/14/11 LSF	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

#M10138 3-17-11 ICV/LCSW (DOD cal) Ondo 1 Liter vol flask. pipet 10mL #M10065, 3mL #M9955, 0.5mL #M9931 Bring up to mark with DI H_2O. ex NOV 2011.
TA

#M10139 03/21/11 Cr 10,000 µg/mL CPI Lot No. 10E013 Exp. 09-09-12
GLE

#M10140 03/21/11 Sn 1,000 µg/mL CPI Lot No. 10K034 Exp. 09-09-12
GLE

#M10141 03/21/11 Mn 10,000 µg/mL CPI Lot No. 11A002 Exp. 09-09-12
GLE

#M10142 03/21/11 Pb 10,000 µg/mL CPI Lot No. 10D176 Exp. 09-09-12
GLE

#M10143 03/21/11 Ba 1,000 µg/mL CPI Lot No. 11B128 Exp. 09-09-12
GLE

#M10144 03/21/11 Cu 10,000 µg/mL CPI Lot No. 10F007 Exp. 09-09-12
GLE

#M10122 03/08/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10123 03/08/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10124 03/08/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10123) into 100ml = 3.0ug/L Hg
#M10125 03/08/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10126 03/08/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10123) into 100ml = 0.2ug/L Hg
#M10127 03/08/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 525)
#M10128 03/08/11 AMA	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

#M10129 03/09/11 GME — GFAA 3050 LOD/LOQ Working Std: Into a 200mL vol. flask, pipet the following and then bring up to volume with D.I. H_2O
1% HNO_3
Exp. 04-30-11

0.12mL Ag 1000mg/L (#M9608)
1.2mL Sb 1000mg/L (#M9610)
3.2mL Se 1000mg/L (#M9611)
1.0mL Tl 1000mg/L (#M9922)
0.08mL Pb 10,000mg/L (#M9521)
3.2mL As 1000mg/L (#M9609)

#M10130 03/09/11 GME — GFAA 3050 LOD/LOQ Spiking Solution: Pipet 10mL of #M10129 into a 1L vol. flask. Bring up to volume with D.I. H_2O. Exp. 04-30-11
1% HNO_3

#M10118 03/04/11 3010 LOD Spiking Solution
CSF

5% HNO_3
5% HCl

Exp: 04/30/11

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2.1	M9608	1000	0.105
Al	18	M9866	10000	0.09
Ba	0.87	M9518	1000	0.0435
Be	0.3	M9930	1000	0.015
Cd	0.9	M9620	1000	0.045
Co	2.1	M9928	1000	0.105
Cr	1.8	M9519	10000	0.009
Cu	3.6	M9522	10000	0.018
Mg	18	M9719	10000	0.09
Mn	2.1	M9520	10000	0.0105
Mo	3.6	M9931	1000	0.18
Ni	3	M9927	1000	0.15
Pb	4.2	M9521	10000	0.021
Sb	6	M9610	1000	0.3
V	2.4	M9612	1000	0.12
Zn	4.8	M9718	10000	0.024
As	12	M9609	1000	0.6
Ca	51	M9865	10000	0.255
Fe	48	M9864	10000	0.24
Se	6.6	M9611	1000	0.33
Tl	7.5	M9922	1000	0.375

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M10119 03/04/11 3010 LOQ Spiking Solution
CSF

5% HNO_3
5% HCl

Exp: 04/30/11

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4.2	M9608	1000	0.21
Al	36	M9866	10000	0.18
Ba	1.74	M9518	1000	0.087
Be	0.6	M9930	1000	0.03
Cd	1.8	M9620	1000	0.09
Co	4.2	M9928	1000	0.21
Cr	3.6	M9519	10000	0.018
Cu	7.2	M9522	10000	0.036
Mg	36	M9719	10000	0.18
Mn	4.2	M9520	10000	0.021
Mo	7.2	M9931	1000	0.36
Ni	6	M9927	1000	0.3
Pb	8.4	M9521	10000	0.042
Sb	12	M9610	1000	0.6
V	4.8	M9612	1000	0.24
Zn	9.6	M9718	10000	0.048
As	24	M9609	1000	1.2
Ca	102	M9865	10000	0.51
Fe	96	M9864	10000	0.48
Se	13.2	M9611	1000	0.66
Tl	15	M9922	1000	0.75

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M10120 03/08/11 Potassium Persulfate soln - 50g Potassium Persulfate (#M9814) dissolved into 1000mL
AMA
D.I. H_2O. Exp. 09/08/11

#M10121 03/08/11 Potassium Permanganate soln - 50g Potassium Permanganate (#M8969) dissolved into 1000mL
AMA
D.I. H_2O. Exp. 09/08/11

#M10122 03/08/11
AMA

#M10123 03/08/11
AMA

#M10124 03/08/11
AMA

#M10125 03/08/11
AMA

#M10126 03/08/11
AMA

#M10127 03/08/11
AMA

#M10128 03/08/11
AMA

#M10114 03/03/11 3010 QSM LOD/LOQ Working Std.: Into a 1000 mL vol. flask, pipet the following and then bring up to volume with D.I. H_2O. Exp. 04-30-11
GE (1% HNO_3)

1.6mL As 1,000 mg/L (#M9609)
2.0mL Sb 1,000 mg/L (#M9610)
0.5mL Tl 1,000 mg/L (#M9922)
2.8mL Se 1,000 mg/L (#M9611)
0.06mL Pb 10,000 mg/L (#M9521)
0.16mL Ag 1,000 mg/L (#M9608)

#M10115 03/03/11 3010 LODV Solution: Into a 1000 mL vol. flask, pipet 1.0mL of #M10114 and bring up to volume with D.I. H_2O. Exp. 04-30-11.
GE (1% HNO_3)

#M10116 03/03/11 3010 LOQV Solution: Into a 1000mL vol. flask, pipet 2.0mL of #M10114 and bring up to volume with D.I. H_2O. Exp. 04-30-11.
GE (1% HNO_3)

#M10117 03/04/11 SF 3050 LOQ spiking Solution
5% HNO_3
5% HCl Exp: 04/30/11

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	4.2	M9608	1000	0.21
Al	10.2	M9866	**10000**	0.051
Ba	1.8	M9518	1000	0.09
Be	0.9	M9930	1000	0.045
Cd	1.5	M9620	1000	0.075
Co	8.4	M9928	1000	0.42
Cr	5.4	M9519	**10000**	0.027
Cu	16.2	M9522	**10000**	0.081
Mg	36	M9719	**10000**	0.18
Mn	6	M9520	**10000**	0.03
Mo	9	M9931	1000	0.45
Ni	4.8	M9927	1000	0.24
Pb	10.2	M9521	**10000**	0.051
Sb	30	M9610	1000	1.5
V	3	M9612	1000	0.15
Zn	11.4	M9718	**10000**	0.057
As	30	M9609	1000	1.5
Ca	60	M9865	**10000**	0.3
Fe	72	M9864	**10000**	0.36
Se	15	M9611	1000	0.75
Tl	18	M9922	1000	0.9

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

of

#M10110 03/03/11 3050 LOD ✓
AMA 5% HNO_3
5% HCL

3050 LOD Spiking Solution
Base SPIKE PREPARATION 2.0g

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2.1	M9608	1000	0.105
Al	5.1	M9866	**10000**	0.0255
Ba	0.9	M9518	1000	0.045
Be	0.45	M9930	1000	0.0225
Cd	0.75	M9620	1000	0.0375
Co	4.2	M9928	1000	0.21
Cr	2.7	M9519	**10000**	0.0135
Cu	8.1	M9522	**10000**	0.0405
Mg	18	M9719	**10000**	0.09
Mn	3	M9520	**10000**	0.015
Mo	4.5	M9931	1000	0.225
Ni	2.4	M9927	1000	0.12
Pb	5.1	M9521	**10000**	0.0255
Sb	15	M9610	1000	0.75
V	1.5	M9612	1000	0.075
Zn	5.7	M9718	**10000**	0.0285
As	15	M9609	1000	0.75
Ca	30	M9865	**10000**	0.15
Fe	36	M9864	**10000**	0.18
Se	7.5	M9611	1000	0.375
Tl	9	M9922	1000	0.45

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES:04-30-2011

#M10114 G

#M10115 G

#M10116

#M10117 5% HCl 5% HNO_3

#M10111 03/03/11 3050 CSM LOD/LOQ Working Std. Into a 200 mL vol. flask, pipet the following and then bring up to volume with D.I. H_2O. Exp. 04-30-11
GE (1% HNO_3)
0.08 mL Ag 1000 mg/L (#M9608)
2.6 mL Sb 1000 mg/L (#M9610)
3.6 mL Se 1000 mg/L (#M9611)
0.6 mL Tl 1000 mg/L (#M9922)
0.1 mL Pb 10,000 mg/L (#M9521)
2.6 mL As 1000 mg/L (#M9609)

#M10112 03/03/11 3050 LOD/LOQ Spiking Solution: Into a 1000 mL vol. flask, pipet 10 mL of #M10111 and bring up to volume with D.I. H_2O. Exp. 04-30-11
GE (1% HNO_3)

#M10113 03/03/11 3050 LOQ ✓ Spiking Solution: Into a 1000 mL vol. flask, pipet 20 mL of #M10111 and bring up to volume with D.I. H_2O. Exp. 04-30-11
GE (1% HNO_3)

#M10101 02/25/11 GFAA 3015 MDL Solution: Into 1L volumetric flask pipet 0.4mL of #M9472. Bring up to volume with D.I. H2O.
1% HNO3 Exp: 04/01/2011

#M10102 02/25/11 ICP 3015 MDL Solution: Into 1L volumetric flask pipet 40mL of #M10,015. Bring up to volume with D.I. H2O.
1% HNO3
1% HCl Exp: 04/30/2011

#M10103 03/01/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10104 03/01/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10105 03/01/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10104) into 100ml = 3.0ug/L Hg
#M10106 03/01/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10107 03/01/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10104) into 100ml = 0.2ug/L Hg
#M10108 03/01/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 523)
#M10109 03/01/11 AMA	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

#M10090 02/21/11 LSF Potassium Permanganate Soln: 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. 02/21/11 LSF 02/21/11 LSF
Exp' 08/02/11 LSF

#M10091 02/21/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10092 02/21/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10093 02/21/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10092) into 100ml = 3.0ug/L Hg
#M10094 02/21/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10095 02/21/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10092) into 100ml = 0.2ug/L Hg
#M10096 02/21/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 521) with 1part HNO3 (AB: 523)
#M10097 02/21/11 GLE	Stannous Chloride Reagent:	Into a 1000 mL volumetric flask, dissolve 100g Stannous Chloride (# M9785D) in 70 mL (AB-521). Bring up to volume with D.I. Water.

#M10098 02/21/11 LSF NaCl Hydroxlamine Sulfate Reagent: Dissolve 60g NaCl (#M8969) dissolved 02/21/11 LSF and 60g Hydroxlamine Sulfate (#M9831) in 500ml Milli-Q H2O. Exp' 08/21/11

#M10099 02/22/11 GLE GFAA Stability Working Standard: 1% HNO3 exp. 04-30-11
Into a 02/22/11 GLE 200 mL vol. flask, partially filled with D.I. H2O, pipet the following and then bring up to volume with D.I. H2O.
2.4mL of 1,000 mg/L As (#M9609) = 12,000 µg/L As
0.16mL of 10,000 mg/L Pb (#M9521) = 8,000 µg/L Pb
7.2mL of 1,000 mg/L Se (#M9611) = 36,000 µg/L Se
4.0mL of 1,000 mg/L Sb (#M9610) = 20,000 µg/L Sb
1.12mL of 1,000 mg/L Tl (#M9922) = 5,600 µg/L Tl

#M10100 02/22/11 GLE GFAA Instrument Stability Check Standard: 1% HNO3 exp. 04-30-11
Into a 1000 mL vol. flask, partially filled with D.I. H2O, pipet 1 mL of #M10099 and bring up to volume with D.I. H2O.

#M10077 02/11/11 SPLP Extraction Fluid #1 - Into a 20L carboy, add D.I. H_2O to mark and adjust pH to 4.20 ± 0.05 with M10068.
AMA

#M10078 02/14/11 GE	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10079 02/14/11 GE	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10080 02/14/11 GE	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M) into 100ml = 3.0ug/L Hg
#M10081 02/14/11 GE	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10082 02/14/11 GE	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M) into 100ml = 0.2ug/L Hg
#M10083 02/14/11 GE	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 518) with 1part HNO3 (AB: 519)

#M10084 02/14/11 SPLP Extraction Fluid #1: Into a 20L carboy add D.I. H_2O to mark and adjust pH to 4.20 ± 0.05 with #M10068.
GE exp. 02-14-12

#M10085 02/15/11 Stannous chloride Reagent : Into a 1000mL vol. flask, dissolve 100g Stannous chloride (#M9785c) in 70mL HCL (AB·521) Bring up to volume with D.I. H_2O. Exp. 02/15/12
AMA

#M10086 02/15/11 TCLP Extraction fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB·516) and 128.6mL 10N NaOH (#M10043). Dilute to 20L with D.I. H_2O and mix. pH= 4.93 ± 0.05. Exp. 02/15/12
AMA

#M10087 02/17/11 10N NaOH : Into a 1L vol. flask, add 400g NaOH (#M9497) and bring up to volume with D.I. H_2O. Exp. 02/17/12
AMA

#M10088 02/17/11 TCLP Extraction Fluid #2: Into a 20L carboy, pipet 114mL Glacial Acetic Acid (AB·516). Bring up to 20L with D.I. H_2O. pH = 2.88 ± 0.05
GE exp. 02-17-12

#M10089 02/12/11 TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB·516) & 128.6mL 10N NaOH (#M10043). Dilute to 20L with
GE

#M10066 02/03/11 TCLP Extraction Fluid #1 – fill a 20L carboy with 19L D.I. H_2O. Add 114mL of
AMA Glacial Acetic Acid (AB·516) and 128.6mL 10N NaOH
(#M10043). Dilute to 20L with D.I. H_2O and mix.
The pH= 4.93 ±0.05.
Exp. 02/03/12

#M10067 02/08/11 SPLP Extraction Fluid #1: Into a 20L carboy, add D.I. H_2O to mark
GVE Exp. 02/08/12 and adjust pH to 4.20±0.05 with M10068

#M10068 02/08/11 SPLP Ext. Fluid Acid Mixture: Into a 200mL vol. flask, add 12g H_2SO_4
GVE Exp. 02/08/12 (AB·510) and 8g Conc. HNO_3 (AB·522).
Bring up to volume with D.I. H_2O.

#M10069 02/08/11 GVE	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10070 02/08/11 GVE	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10071 02/08/11 GVE	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10070) into 100ml = 3.0ug/L Hg
#M10072 02/08/11 GVE	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10073 02/08/11 GVE	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10070) into 100ml = 0.2ug/L Hg
#M10074 02/08/11 GVE	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 518) with 1part HNO3 (AB: 519)

#M10075 02/09/11 TCLP Extraction Fluid #1 – fill a 20L carboy with 19L D.I. H_2O. Add 114mL
AMA Glacial Acetic Acid (AB·516) and 128.6mL 10N NaOH
(#M10043). Dilute to 20L with D.I. H_2O and mix.
The pH = 4.93±0.05.
Exp. 02/09/12

#M10076 02/10/11 TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add
GVE 114mL Glacial Acetic Acid (AB·516) and 128.6mL
10N NaOH (#M10043). Dilute to 20L with D.I.
H_2O and mix. pH = 4.93±0.05 Exp. 02/10/12

#M10077 0:
AMA

#M10078 0:

#M10054 ICV ICP Dou Cal. Into 1000 ml vol flask pipet 20ml
%HNO3 1-24-11 #M9455 1ml. of #M9866, #M9719, #M9865, #M9864, Bring
%HCl " up to mark w/ DI H_2O. ex March 2011.

#M10055 01/31/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10056 01/31/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10057 01/31/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 10056) into 100ml = 3.0ug/L Hg
#M10058 01/31/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10059 01/31/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 10056) into 100ml = 0.2ug/L Hg
#M10060 01/31/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 518) with 1part HNO3 (AB: 519)

#M10061 02/01/11 AMA Nacl Hydroxylamine Sulfate Reagent - Dissolve 60g Nacl (#M9574 (A)) and 60g Hydroxylamine sulfate (#M9831) in 500mL Milli-Q H_2O. Exp. 08/02/11
02/01/11 AMA

#M10062 02/01/11 AMA Potassium Permanganate soln - 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. H_2O. Exp. 08/02/11
02/01/11 AMA

#M10063 02/01/11 GE Stannous Chloride Reagent: Into a 1000 mL vol. flask dissolve 100g Stannous Chloride (#M9785C) in 70 mL HCL (AB. 518). Bring up to volome with D.I. H_2O. Exp. 02-01-12

#M10064 02/01/11 GE Custom Assurance Standard Spex CertiPrep Lot No. 27-49JB Expires: 01-30-12

#M10065 02/01/11 GE Spike Sample Standard I Spex CertiPrep Lot No. 42-80AS Expires 01-30-12

of both mix.

#M10051 01/24/11 LSF
3010 LOQ Check spiking Solution
5% HNO_3 5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	8	M9608	1000	0.4
Al	208	M9866	10000	1.04
Ba	1.8	M9518	1000	0.09
Be	0.86	M9930	1000	0.043
Cd	1.6	M9620	1000	0.08
Co	8.6	M9928	1000	0.43
Cr	4.2	M9519	10000	0.021
Cu	7.6	M9522	10000	0.038
Mg	88	M9719	10000	0.44
Mn	4.2	M9520	10000	0.021
Mo	2.4	M9931	1000	0.12
Ni	8.4	M9927	1000	0.42
Pb	9.8	M9521	10000	0.049
Sb	32	M9610	1000	1.6
V	6.8	M9612	1000	0.34
Zn	23.6	M9718	10000	0.118
K	1800	M9863	10000	9
Na	680	M9932	10000	3.4
As	24	M9609	1000	1.2
Ca	100	M9865	10000	0.5
Fe	54	M9864	10000	0.27
Se	14	M9611	1000	0.7
Tl	9.6	M9922	1000	0.48

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 4/30/2011

#M10052 01/24/11 LSF
3010 LOQ check spiking solution
5% HNO_3 5% HCl

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	60	M9628	1000	3
Si	216	M9545	1000	10.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 6/15/2011

#M10053 01/24/11 LSF TCLP Extraction Fluid #1: Fill a 20L carboy w/ 11.9L D.I. H_2O. Add 11.4 mL of Glacial Acetic Acid (AB516) and 128.6 mL 10N NaOH (#M9744). Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05

Exp. 01/24/12

#M10054
50% HNO_3 1-24-11
5% HCl JA

#M10055 01/3

#M10056 01/31

#M10057 01/31/

#M10058 01/31/11

#M10059 01/31/11

#M10060 01/31/11

#M10061 02/01/11
AMA

#M10062 02/01/11
AMA

#M10063 02/01/1
GE

#M10064 02/01/11
GE

#M10065 02/01/11
GE

#M100 49 01/21/11 LSF
3050 LOQ Check Spiking Solution
5% HNO3 5% HCl

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	8	m9929	1000	0.4
Sn	6.4	m9925	1000	0.32
Sr	3.04	m9926	1000	0.152
Ti	9.6	m9923	1000	0.48
W	28	m9924	1000	1.4

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

#M0050 01/21/11 LSF
3050 LOQ Check Spiking Solution
5% HNO3 5% HCl

3050 QSM MDL Spiking Solution (2.0g)
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	54	M9628	1000	2.7
Si	112	M9545	1000	5.6

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 06/15/2011

#M10046 1-19-11 CCV I Standard (DOOcal method) Into 1 Liter vol flask
2
5% HNO_3 5% HCl pipet 50 mls of #M9816 and 5mls #M9815 Bring up to mark with DI H_2O. ex Aug 2011

#M10047 1-19-11 ICV (DOOcal method) Into 1 Liter vol flask
2
5% HNO_3 pipet 10mls #M9934 + 20 mls #M9955 *. Bring up
5% HCl to Mark with DI H_2O. ex NOV/11 * + 0.07 mls #M9608
0.5 mls #M9931

#M10048 01/21/11 LSF
3050 LOQ Check Spiking Solution
5% HNO_3 5% HCl

3050 LOQ-Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	8.8	M9608	1000	0.44
Al	9.6	M9866	10000	0.048
Ba	1.92	M9518	1000	0.096
Be	0.96	M9930	1000	0.048
Cd	1.68	M9620	1000	0.084
Co	3.92	M9928	1000	0.196
Cr	10	M9519	10000	0.05
Cu	15.2	M9522	10000	0.076
Mg	28.8	M9719	10000	0.144
Mn	4.8	M9520	10000	0.024
Mo	3.84	M9931	1000	0.192
Ni	4.8	M9927	1000	0.24
Pb	9.6	M9521	10000	0.048
Sb	21.6	M9610	1000	1.08
V	5.6	M9612	1000	0.28
Zn	19.2	M9718	10000	0.096
K	5760	M9863	10000	28.8
Na	2080	M9932	10000	10.4
As	36	M9609	1000	1.8
Ca	36	M9865	10000	0.18
Fe	72	M9864	10000	0.36
Se	16.8	M9611	1000	0.84
Tl	22.4	M9922	1000	1.12

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 4/30/2011

#M10049
3050 LOQ
5% HNO_3

#M10050 01/2
3050 LOQ C
5% HNO_3

#M10035 01/17/11 GEE — Grad Dissolved MDL Solution: 1% HNO_3 — Into a 50mL vol. flask, pipet 5mL of #M9812 and bring up to volume with D.I. H_2O. Exp. 04-01-11

#M10036 01/17/11 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10037 01/17/11 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10038 01/17/11 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M) into 100ml = 3.0ug/L Hg
#M10039 01/17/11 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10039 01/17/11 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M) into 100ml = 0.2ug/L Hg
#M10040 01/17/11 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 518) with 1part HNO3 (AB: 519)

#M10041 01/17/11 LSF Potassium Permanganate Soln: 50g Potassium permanganate (#M8166) dissolved into 1000 mL D.I. H_2O. Exp: 07/17/11 LSF

#M10042 01/17/11 LSF Potassium Persulfate: 50g Potassium persulfate (#M9010) dissolved into 1000mL D.I. H_2O. Exp: 07/17/11 LSF

#M10043 01/17/11 GEE — 10N NaOH — Into a 1L vol. flask, add 400g NaOH (#M9437) and bring up to volume with D.I. H_2O. Exp. 01/17/12

#M10044 01/17/11 — TCLP Extraction Fluid #1: exp. 01-17-12 — Fill a 20L Carboy w/ 19L D.I. H_2O, Add 114mL of Glacial Acetic Acid (AB-516) and 128.6 mL 10N NaOH (#M10043). Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93±0.05

#M10045 01/18/11 GEE — Stannous Chloride Reagent: Into a 1000 mL vol. flask, dissolve 100g Stannous Chloride (# [illegible]) in 70 mL HCL (AB-516). Bring up to volume with D.I. H_2O. Exp. 01-18-12

#M10024 01/07/11 Pd/Mg Matrix Modifier: Into a 50mL vol. flask, pipet 15mL #M9346 and 5mL of #M9957. Bring up to volume with MilliQ H_2O. Exp. 01-08-11
GE

#M10025 01/10/11 TCLP Extraction Fluid #1: Fill a 20L carboy w/ 19L D.I. H_2O. Add 114mL of Glacial Acetic Acid (AB.516) and ~~18~~ 01/11/10 128.6mL 10N NaOH (#M9794). Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05
LBF
Exp: 01/10/12

#M10026 01/10/11 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M10027 01/10/11 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M10028 01/10/11 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M10027) into 100ml = 3.0ug/L Hg
#M10029 01/10/11 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M10030 01/10/11 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M10027) into 100ml = 0.2ug/L Hg
#M10031 01/10/11 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 518) with 1part HNO3 (AB: 519)

#M10032 01/11/11 Matrix Modifier 1% Pd in 8% (wt/wt) HNO_3 + Tr HCl
GE
Env. Exp. Lot No. 1008518 Exp. 01-06-12

#M10033 01/11/11 Pd/Mg Matrix Modifier: Into a 50mL vol. flask, pipet 15mL #~~M9346~~ GE 01/11/11 M10032 and 5mL #M9957 Bring up to volume with MilliQ H_2O. Exp. 011-30-11
GE

#M10034 1/11/11 Li+2 LOQ
DD

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	8.4	m9929	1000	0.42
Sn	12.4	m9925	1000	0.62
Sr	6	m9926	1000	0.3
Ti	3.6	m9923	1000	0.18
W	56	m9924	1000	2.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES 11/15/2011

#M10,020 01/05/11 3050 MDL
AMA 5% HNO_3
5% HCl

3050 MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	5	m9929	1000	0.25
Sn	5	m9925	1000	0.25
Sr	2.5	m9926	1000	0.125
Ti	5	m9923	1000	0.25
W	5	m9924	1000	0.25

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 11/15/11

#M10,021 01/05/11 3050 QSM MDL
AMA 5% HNO_3
5% HCl

3050 QSM MDL Spiking Solution (2.0g)
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2.5	M9608	1000	0.125
Al	5	M9866	10000	0.025
Ba	2	M9518	1000	0.1
Be	0.5	M9930	1000	0.025
Cd	1	M9620	1000	0.05
Co	5	M9928	1000	0.25
Cr	5	M9519	10000	0.025
Cu	10	M9522	10000	0.05
Mg	25	M9719	10000	0.125
Mn	5	M9520	10000	0.025
Mo	5	M9931	1000	0.25
Ni	2.5	M9927	1000	0.125
Pb	5	M9521	10000	0.025
Sb	20	M9610	1000	1
V	2.5	M9612	1000	0.125
Zn	10	M9718	10000	0.05
K	1000	M9863	10000	5
Na	500	M9932	10000	2.5
As	10	M9609	1000	0.5
Ca	50	M9865	10000	0.25
Fe	20	M9864	10000	0.1
Se	10	M9611	1000	0.5
Tl	10	M9922	1000	0.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 04/30/11

#M10,022 01/05/11 3050 QSM MDL
AMA 5% HNO_3
5% HCl

3050 QSM MDL Spiking Solution (2.0g)
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	20	M9628	1000	1
Si	100	M9545	1000	5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 06/15/11

#M10,023 01/05/11 3050 QSM MDL
AMA 5% HNO_3
5% HCl

3050 QSM MDL Spiking Solution (2.0g)
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	5	m9929	1000	0.25
Sn	5	m9925	1000	0.25
Sr	1	m9926	1000	0.05
Ti	5	m9923	1000	0.25
W	5	m9924	1000	0.25

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 11/15/11

1-11-11

#M10,016 01/05/11 3010 Dissolved MDL
AMA 5% HNO_3
5% HCL

3010 Dissolved MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	10	M9628	1000	0.5
Si	50	M9545	1000	2.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 06/15/11

#M10,020
AM

#M10,017 01/05/11 3010 Dissolved MDL
AMA 5% HNO_3
5% HCL

3010 Dissolved MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	2.5	M9929	1000	0.125
Sn	5	M9925	1000	0.25
Sr	2.5	M9926	1000	0.125
Ti	5	M9923	1000	0.25
W	5	M9924	1000	0.25

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 11/15/11

#M10,021 c
AMA.

#M10,018, 01/05/11 3050 MDL
AMA 5% HNO_3
5% HCL

3050 MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	5	M9608	1000	0.25
Al	10	M9866	10000	0.05
Ba	2	M9518	1000	0.1
Be	0.5	M9930	1000	0.025
Cd	0.5	M9620	1000	0.025
Co	2.5	M9928	1000	0.125
Cr	5	M9519	10000	0.025
Cu	10	M9522	10000	0.05
Mg	25	M9719	10000	0.125
Mn	5	M9520	10000	0.025
Mo	2.5	M9931	1000	0.125
Ni	5	M9927	1000	0.25
Pb	5	M9521	10000	0.025
Sb	10	M9610	1000	0.5
V	5	M9612	1000	0.25
Zn	5	M9718	10000	0.025
K	500	M9863	10000	2.5
Na	500	M9932	10000	2.5
As	20	M9609	1000	1
Ca	25	M9865	10000	0.125
Fe	20	M9864	10000	0.1
Se	20	M9611	1000	1
Tl	10	M9922	1000	0.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp. 04/30/11

#M10,022 01
AMA

#M10,019 01/05/11 3050 MDL
AMA 5% HNO_3
5% HCL

3050 MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	20	M9628	1000	1
Si	100	M9545	1000	5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Exp: 6/15/11

#M10,023 01
AMA

1-11-11

#M10,011 01/04/11 3010 Qsm MDL
AMA 5% HNO_3
5% HCL

3010 QSM MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	20	M9628	1000	1
Si	100	M9545	1000	5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 06/15/11

#M10,012 01/04/11 3010 Qsm MDL
AMA 5% HNO_3
5% HCL

3010 QSM MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	5	M9929	1000	0.25
Sn	5	M9925	1000	0.25
Sr	2.5	M9926	1000	0.125
Ti	5	M9923	1000	0.25
W	5	M9924	1000	0.25

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 11/15/11

M10013 1-4-11 ICSA ~~Into 500 liter vol M9955 pipet 50~~ TA 1-4-10
TA Into 500 ml vol flask pipet 50 mls #M9955 and Bring up to mark with DI H_2O ex 11/11.

M10014 1-5-10 CCV2 ICP dedcal, into 1 liter vol flask pipet 5 mls #M9816
TA + 0.5 mls #M9815 Bring up to mark w/ DI H_2O. ex 8/11.

#M10,015 01/05/11 3010 Dissolved MDL
AMA 5% HNO_3
5% HCL

3010 Dissolved MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	5	M9608	1000	0.25
Al	10	M9866	10000	0.05
Ba	2	M9518	1000	0.1
Be	0.5	M9930	1000	0.025
Cd	0.5	M9620	1000	0.025
Co	2.5	M9928	1000	0.125
Cr	5	M9519	10000	0.025
Cu	10	M9522	10000	0.05
Mg	5	M9719	10000	0.025
Mn	2.5	M9520	10000	0.0125
Mo	2.5	M9931	1000	0.125
Ni	2.5	M9927	1000	0.125
Pb	10	M9521	10000	0.05
Sb	20	M9610	1000	1
V	2.5	M9612	1000	0.125
Zn	1.3	M9718	10000	0.0065
K	500	M9863	10000	2.5
Na	500	M9932	10000	2.5
As	20	M9609	1000	1
Ca	20	M9865	10000	0.1
Fe	20	M9864	10000	0.1
Se	20	M9611	1000	1
Tl	20	M9922	1000	1

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard

Exp. 04/30/11

#M10,008 01/04/11 3010 LOQ
AMA 5% HNO_3
5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2	M9608	1000	0.1
Al	26	M9866	10000	0.13
Ba	1.8	M9518	1000	0.09
Be	0.86	M9930	1000	0.043
Cd	0.4	M9620	1000	0.02
Co	4.3	M9928	1000	0.215
Cr	4.2	M9519	10000	0.021
Cu	3.8	M9522	10000	0.019
Mg	11	M9719	10000	0.055
Mn	4.2	M9520	10000	0.021
Mo	2.4	M9931	1000	0.12
Ni	4.2	M9927	1000	0.21
Pb	4.9	M9521	10000	0.0245
Sb	16	M9610	1000	0.8
V	1.7	M9612	1000	0.085
Zn	5.9	M9718	10000	0.0295
K	900	M9863	10000	4.5
Na	340	M9932	10000	1.7
As	24	M9609	1000	1.2
Ca	100	M9865	10000	0.5
Fe	54	M9864	10000	0.27
Se	14	M9611	1000	0.7
Tl	9.6	M9922	1000	0.48

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 04/30/11

#M10,009 01/04/11 3010 LOQ
AMA 5% HNO_3
5% HCl

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Li	4.2	m9929	1000	0.21
Sn	6.2	m9925	1000	0.31
Sr	3	m9926	1000	0.15
Ti	1.8	m9923	1000	0.09
W	28	m9924	1000	1.4

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 11/15/11

#M10,010 01/04/11 3010 QSM MDL
AMA 5% HNO_3
5% HCl

3010 QSM MDL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	5	M9608	1000	0.25
Al	10	M9866	10000	0.05
Ba	2	M9518	1000	0.1
Be	0.5	M9930	1000	0.025
Cd	0.5	M9620	1000	0.025
Co	2.5	M9928	1000	0.125
Cr	5	M9519	10000	0.025
Cu	5	M9522	10000	0.025
Mg	25	M9719	10000	0.125
Mn	5	M9520	10000	0.025
Mo	2.5	M9931	1000	0.125
Ni	5	M9927	1000	0.25
Pb	10	M9521	10000	0.05
Sb	10	M9610	1000	0.5
V	2.5	M9612	1000	0.125
Zn	2.5	M9718	10000	0.0125
K	500	M9863	10000	2.5
Na	500	M9932	10000	2.5
As	10	M9609	1000	0.5
Ca	50	M9865	10000	0.25
Fe	20	M9864	10000	0.1
Se	10	M9611	1000	0.5
Tl	10	M9922	1000	0.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 04/30/11

1-11-11 JD

#M10,011 c
AMA

#M10,012
AMA

M10013
JA

#M10014
JA

#M10,015 01
AMA

MA10,006 01/04/11 3050 LOQ
AMA 5% HNO_3
5% HCL

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2.24	M9608	1000	0.112
Al	9.6	M9866	**10000**	0.048
Ba	1.92	M9518	1000	0.096
Be	0.96	M9930	1000	0.048
Cd	0.84	M9620	1000	0.042
Co	1.96	M9928	1000	0.098
Cr	2.52	M9519	**10000**	0.0126
Cu	15.2	M9522	**10000**	0.076
Mg	28.8	M9719	**10000**	0.144
Mn	4.8	M9520	**10000**	0.024
Mo	1.92	M9931	1000	0.096
Ni	2.44	M9927	1000	0.122
Pb	9.6	M9521	**10000**	0.048
Sb	10.8	M9610	1000	0.54
V	1.36	M9612	1000	0.068
Zn	4.8	M9718	**10000**	0.024
K	1440	M9863	**10000**	7.2
Na	520	M9932	**10000**	2.6
As	18	M9609	1000	0.9
Ca	36	M9865	**10000**	0.18
Fe	72	M9864	**10000**	0.36
Se	16.8	M9611	1000	0.84
Tl	5.6	M9922	1000	0.28

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 4/30/11

MA10,007 01/04/11 3050 LOD
AMA 5% HNO_3
5% HCL

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	60	M9628	1000	3
Si	216	M9545	1000	10.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expires: 6/15/11

#M9998 12/28/10 AMA — Hg Working Stds: (0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg
1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg
2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg
4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg
5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg
10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg

#M9999 12/28/10 AMA — Hg Alt Source Working Std: (0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg
1.0ml of 10mg/L into 100ml = 100ug/L Hg

#M10,000 12/28/10 AMA — Hg ICV / LCSW (0.2% HNO3, HCl)

3.0ml of 100ug/L Hg (#M9999) into 100ml = 3.0ug/L Hg

#M10,001 12/28/10 AMA — Hg CCV (0.2% HNO3, HCl)

1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg

#M10,002 12/28/10 AMA — Hg MRL: (0.2% HNO3, HCl)

0.2ml of 100ug/L Hg (#M9999) into 100ml = 0.2ug/L Hg

#M10,003 12/28/10 AMA — Hg Aqua Regia Reagent:

"Carefully" in hood, mix 3 parts HCl (AB: 514) with 1part HNO3 (AB: 515)

#M10,004 12/29/10 AMA — Stannous chloride Reagent : Into a 1000mL vol. flask, dissolve 100g stannous chloride (#M9785(f)) in 70mL HCl (AB-518). Bring up to volume with D.I. H_2O. Exp. 12/29/11

#M10,006 01/6 AMA

#M10,007 01 AMA

#M10,005 MRL
12-29-10
ex 4/11

MRL Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MRL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	20	M9608	1000	1
Al	400	M9866	10000	2
Ba	10	M9518	1000	0.5
Be	4	M9930	1000	0.2
Cd	5	M9620	1000	0.25
Co	10	M9928	1000	0.5
Cr	10	M9579	10000	0.05
Cu	10	M9522	10000	0.05
Mg	500	M9719	10000	2.5
Mn	10	M9520	10000	0.05
Mo	10	M9931	1000	0.5
Ni	10	M9927	1000	0.5
Pb	10	M9521	10000	0.05
Sb	20	M9610	1000	1
V	10	M9612	1000	0.5
Zn	10	M9718	10000	0.05
K	5000	M9863	10000	25
Na	1000	M9932	10000	5
As	20	M9609	1000	1
Ca	500	M9865	10000	2.5
Fe	300	M9864	10000	1.5
Se	20	M9611	1000	1
Tl	20	M9922	1000	1
Si	100	M9545	1000	5
B	20	M9628	1000	1
Li	20	M9929	1000	1
W	50	M9924	1000	2.5
Ti	10	M9923	1000	0.5
Sr	10	M9926	1000	0.5
Sn	50	M9925	1000	2.5

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard

M9989 12/20/10 AMA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
M9990 12/20/10 AMA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
M9991 12/20/10 AMA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9990) into 100ml = 3.0ug/L Hg
M9992 12/20/10 AMA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
M9993 12/20/10 AMA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9990) into 100ml = 0.2ug/L Hg
M9994 12/20/10 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 514) with 1part HNO3 (AB: 515)

M9995 12/20/10 AMA — Potassium Permanganate soln: 5g Potassium Permanganate (#M8949) dissolved into 1000mL D.I. H_2O. Exp. 06/20/11

M9996 12/20/10 AMA — Nacl Hydroxylamine Sulfate Reagent: Dissolve 60g Nacl (M9574(A)) and 60g Hydroxylamine sulfate (M9931) in 500mL Milli-Q H_2O. Exp. 06/20/11

M9997 12/20/10 AMA — LOD/LOQ Spiking Soln: 1.0mL of 1000mg/L Hg (#M9954) into 100mL = 10mg/L Hg
(0.2% HNO_3, HCl) 1.0mL of 10mg/L Hg into 100mL = 100µg/L Hg
1.0mL of 100µg/L Hg into 100mL = 1.0µg/L Hg

#M9982 12/15/10 TCLP Extraction Fluid #1: Fill a 20L Carboy with 19L D.I. H_2O. Add
GE Exp. 12-15-11 114mL Glacial Acetic Acid (AB-516) and
128.6mL NaOH 10N (#M9744). Dilute to 20L
w/ D.I. H_2O & mix. pH = 4.93 ± 0.05

#M9983 12-16-10 AA Working stds List 2 Into (5) 1 Liter Vol flasks pipet
5% HNO_3 from #M9816 1ug/L → .01mls #M9816, .001mls #M9933
5% HCL #M9933 10ug/L → .1mls #M9816, .01mls #M9933
100ug/L → 1.0mls #M9816, .1mls #M9933
1000ug/L → 10mls #M9816, 1.0mls #M9933
10,000ug/L → 100mls #9816, 10mls #M9933
Bring up to mark w/ DI H_2O ex 8/11

#M9984 ICV Listd 2 Into 1 Liter Vol flasks pipet
5% HCL 12-16-10 0.5mls of #M9929, #M9924, #M9926, #M9923, #M9925
5% HNO_3 AA Bring up to mark with DI H_2O. ex NOV 2011

#M9985 LOD 3010
12-16-10 AA
5% HCL, HNO_3

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
li	0.5	m9929	1000	0.025
sn	0.9	m9925	1000	0.045
sr	1	m9926	1000	0.05
ti	0.5	m9923	1000	0.025
w	4	m9924	1000	0.2

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M9986 LOQ 3010
12-16-10 AA
5% HNO_3, HCL

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
li	4.2	m9929	1000	0.21
sn	6.2	m9925	1000	0.31
sr	3	m9926	1000	0.15
ti	1.8	m9923	1000	0.09
w	28	m9924	1000	1.4

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M9987 LOD 3050
12-16-10 AA
5% HCL, HNO_3

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
li	1	m9929	1000	0.05
sn	1	m9925	1000	0.05
sr	0.24	m9926	1000	0.012
ti	0.8	m9923	1000	0.04
w	4	m9924	1000	0.2

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M9988 LOQ 3050
12-16-10 AA
5% HCL HNO_3

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
li	4	m9929	1000	0.2
sn	3.2	m9925	1000	0.16

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a

#M9989 AM
#M9990 1 AMA
#M9991 1 AMA
#M9992 AMA
#M9993 1 AMA
#M9994 1 AMA
#M9995 AMA
#M9996 1 AMA
#M9997 1 AMA

#M9979 GVE
12/08/10

GFAA Soil LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOD (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	0.12	M9608	1000	0.006
Pb	0.8	M9521	**10000**	0.004
Sb	1.2	M9610	1000	0.06
As	3.2	M9609	1000	0.16
Se	3.2	M9611	1000	0.16
Tl	1	M9922	1000	0.05

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES: 04-30-11

#M9980 GVE
12/08/10

GFAA Soil LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	LOQ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	0.42	M9608	1000	0.021
Pb	1.3	M9521	**10000**	0.0065
Sb	1.9	M9610	1000	0.095
As	5.4	M9609	1000	0.27
Se	5.2	M9611	1000	0.26
Tl	1.6	M9922	1000	0.08

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES: 04-30-11

#M9981 TCLP Extraction Fluid #1: Fill a 20L carboy w 119L D.I. H2O. Add 114ml Glacial Acetic Acid (AB.516) and 128.6ml 10N NaOH (#M9636) Dilute to 20L w DI H2O and mix pH=4.93 ± 0.05
12/09/10 15F
Exp: 12/09/11

#M9977 GE 12/08/10

GFAA Water LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	0.04	M9608	1000	0.002
Pb	0.8	M9521	**10000**	0.004
Sb	1.8	M9610	1000	0.09
As	1.2	M9609	1000	0.06
Se	3.2	M9611	1000	0.16
Tl	0.8	M9922	1000	0.04

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES: 04-30-11

#M9978 GE 12/08/10

GFAA Water LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

LOQ 12/09/10 GE

Analyte	~~MDL~~ (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	0.26	M9608	1000	0.013
Pb	1.3	M9521	**10000**	0.0065
Sb	3.1	M9610	1000	0.155
As	1.8	M9609	1000	0.09
Se	5.2	M9611	1000	0.26
Tl	1.6	M9922	1000	0.08

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES: 04-30-11

M9975 LOD 3050
12-8-10

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	0.68	M9608	1000	0.034
Al	1.6	M9866	**10000**	0.008
Ba	0.32	M9518	1000	0.016
Be	0.16	M9930	1000	0.008
Cd	0.24	M9620	1000	0.012
Co	0.6	M9928	1000	0.03
Cr	0.76	M9519	**10000**	0.0038
Cu	2.4	M9522	**10000**	0.012
Mg	4.8	M9719	**10000**	0.024
Mn	0.8	M9520	**10000**	0.004
Mo	0.56	M9931	1000	0.028
Ni	0.72	M9927	1000	0.036
Pb	1.6	M9521	**10000**	0.008
Sb	3.2	M9610	1000	0.16
V	0.44	M9612	1000	0.022
Zn	1.6	M9718	**10000**	0.008
K	440	M9863	**10000**	2.2
Na	160	M9932	**10000**	0.8
As	5.2	M9609	1000	0.26
Ca	6	M9865	**10000**	0.03
Fe	12	M9864	**10000**	0.06
Se	2.8	M9611	1000	0.14
Tl	1.6	M9922	1000	0.08

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

M9976 LOQ 3050
12-8-10

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2.24	M9608	1000	0.112
Al	4.8	M9866	**10000**	0.024
Ba	1.08	M9518	1000	0.054
Be	0.48	M9930	1000	0.024
Cd	0.84	M9620	1000	0.042
Co	1.96	M9928	1000	0.098
Cr	2.52	M9519	**10000**	0.0126
Cu	8	M9522	**10000**	0.04
Mg	16	M9719	**10000**	0.08
Mn	2	M9520	**10000**	0.01
Mo	1.92	M9931	1000	0.096
Ni	2.44	M9927	1000	0.122
Pb	5.6	M9521	**10000**	0.028
Sb	10.8	M9610	1000	0.54
V	1.36	M9612	1000	0.068
Zn	4.8	M9718	**10000**	0.024
K	1440	M9863	**10000**	7.2
Na	520	M9932	**10000**	2.6
As	18	M9609	1000	0.9
Ca	20	M9865	**10000**	0.1
Fe	40	M9864	**10000**	0.2
Se	16.8	M9611	1000	0.84
Tl	5.6	M9922	1000	0.28

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

184
#m9971
12/8/10 LOD3050 B, Si

3050 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	18	m9915	1000	0.9
Si	16	m9628	1000	0.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES

#M9972 LOQ 3050 B, Si
12/8/10

3050 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	26	m9915	1000	1.3
Si	56	m9628	1000	2.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

EXPIRES

#M9973
12-8-10
LOD 3010

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	1	M9608	1000	0.05
Al	4	M9866	10000	0.02
Ba	0.26	M9518	1000	0.013
Be	0.13	M9930	1000	0.0065
Cd	0.11	M9620	1000	0.0055
Co	1.3	M9928	1000	0.065
Cr	0.7	M9519	10000	0.0035
Cu	1.2	M9522	10000	0.006
Mg	3	M9719	10000	0.015
Mn	0.7	M9520	10000	0.0035
Mo	0.4	M9931	1000	0.02
Ni	0.6	M9927	1000	0.03
Pb	1.5	M9521	10000	0.0075
Sb	4	M9610	1000	0.2
V	0.5	M9612	1000	0.025
Zn	1.8	M9718	10000	0.009
K	300	M9863	10000	1.5
Na	100	M9932	10000	0.5
As	4	M9609	1000	0.2
Ca	15	M9865	10000	0.075
Fe	9	M9864	10000	0.045
Se	2.3	M9611	1000	0.115
Tl	1.6	M9922	1000	0.08

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M9974
12-8-10
LOQ 3010

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
Ag	2	M9608	1000	0.1
Al	26	M9866	10000	0.13
Ba	1.8	M9518	1000	0.09
Be	0.86	M9930	1000	0.043
Cd	0.4	M9620	1000	0.02
Co	4.3	M9928	1000	0.215
Cr	2	M9519	10000	0.01
Cu	3.8	M9522	10000	0.019
Mg	11	M9719	10000	0.055
Mn	2	M9520	10000	0.01
Mo	1.2	M9931	1000	0.06
Ni	4.2	M9927	1000	0.21
Pb	4.9	M9521	10000	0.0245
Sb	16	M9610	1000	0.8
V	1.7	M9612	1000	0.085
Zn	5.9	M9718	10000	0.0295
K	900	M9863	10000	4.5
Na	340	M9932	10000	1.7
As	13	M9609	1000	0.65
Ca	100	M9865	10000	0.5
Fe	29	M9864	10000	0.145
Se	14	M9611	1000	0.7
Tl	5	M9922	1000	0.25

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

#M9962 12/07/10 AmA — Hg Working Stds: (0.2% HNO3, HCl)
- 1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
- 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
- 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg
- 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg
- 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg
- 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg
- 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg
- 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg

#M9963 12/07/10 AmA — Hg Alt Source Working Std: (0.2% HNO3, HCl)
- 1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg
- 1.0ml of 10mg/L into 100ml = 100ug/L Hg

#M9964 12/07/10 AmA — Hg ICV / LCSW (0.2% HNO3, HCl)
- 3.0ml of 100ug/L Hg (#M9963) into 100ml = 3.0ug/L Hg

#M9965 12/07/10 AmA — Hg CCV (0.2% HNO3, HCl)
- 1.0ml of 1000mg/L Hg (#M9954) into 100ml=10mg/L Hg
- 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
- 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg

H2O, rinse

#M9966 12/07/10 AmA — Hg MRL: (0.2% HNO3, HCl)
- 0.2ml of 100ug/L Hg (#M 9963) into 100ml = 0.2ug/L Hg

14ml

#M9967 12/07/10 AmA — Hg Aqua Regia Reagent:
- "Carefully" in hood, mix 3 parts HCl (AB: 514) with 1part HNO3 (AB: 515)

1
2. H2O

#M9968 12/08/10 GG — Stannous Chloride Reagent: Into a 1000 mL vol. flask, dissolve 100g Stannous Chloride (#M9785F) in 70 mL HCL (AB-514). Bring up to volume with D.I. H2O. Exp. 12-08-11

14ml
L
O

#M9969 12-8-10 3010 LOD B, Si

3010 LOD Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	10	m9915	1000	0.5
Si	36	m9628	1000	1.8

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard. EXPIRES

cial

#M9970 12-8-10 3010 LOQ B, Si

3010 LOQ Spiking Solution
Base SPIKE PREPARATION 50x

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	MDL (ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L
B	18	m9915	1000	0.9
Si	118	m9628	1000	5.9

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard. EXPIRES

#M9954 12/02/10 Hg 1000 mg/L Spex CertiPrep Lot No. CL5-49Hg
GVE Expires 11-30-11

#M9955 12/02/10 Interferents A Spex CertiPrep Lot No. 42-6AS
GVE Expires: 11-30-11

#M9956 12/02/10 Si 1000 mg/L Spex CertiPrep Lot No. 15-172S1
GVE Expires: 11-30-11

#M9957 12/02/10 Magnesium Nitrate Matrix Modifier Solution (20,000 mg/L Mg)
GVE Spex CertiPrep Lot No. I-169MG2, Expires 11-30-11

#M9958 12/02/10 1N HCl for TCLP: Into a 1L vol. flask, partially filled with Milli-Q H_2O, add 83mL of conc. HCl (AB.) and bring up to volume with milli-Q H_2O.
LSF
Exp: 12/02/11

#M9959 12/02/10 TCLP Extraction Fluid #1: Fill a 20L carboy w/ 11L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.468) and 128.6mL 10N NaOH (#M9636) Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05
15F
Exp: 12/02/11

#M9960 12/02/10 TCLP Extraction Fluid #1: Fill a 20L carboy w/ 11L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB. 516) and 128.6mL 10N NaOH (#M9636) Dilute to 20L w/ D.I. H_2O and mix pH = 4.93 ± 0.05
15F
Exp: 12/02/11

#M9961 12/03/10 TCLP Extraction Fluid #2: ~~Fill~~ 12/03/10 GVE Into a 20L carboy, pipet 114mL Glacial Acetic Acid (~~#~~ 12/03/10 GVE AB·516). Bring up to 20L with D.I. H_2O. pH = 2.88 ± 0.05
GVE Exp. 12-03-11

M9962 12/
AMA

M9963 12/07
AMA

M9964 12/07
AMA

M9965 12/0
AMA

M9966 12/0
AMA

M9967 12/0
AMA

M9968 12/
GVE

M9969

M99

#M9930 11/23/10 Be 1000 mg/L Spex CertiPrep Lot No. 15-127BE Exp. 11-15-11
GvE

#M9931 11/23/10 Mo 1000 mg/L Spex CertiPrep Lot No. 15-110MO Exp. 11-15-11
GvE

#M9932 11/23/10 Na 10,000 mg/L Spex CertiPrep Lot No. AE12-119NA Exp. 11-15-11
GvE

#M9933 11/23/10 W 1000 µg/mL SCP Science Lot No. SC0301406 Exp. 08/2012
GvE

#M9934 11/28/10 Spike Sample Standard 1 Lot No. 42-80As Exp. 11-15-11
GvE

#M9935 11/23/10 AmA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9936 11/23/10 AmA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9937 11/23/10 AmA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9936) into 100ml = 3.0ug/L Hg
#M9938 11/23/10 AmA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9939 11/23/10 AmA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9936) into 100ml = 0.2ug/L Hg
#M9940 11/23/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 514) with 1part HNO3 (AB: 515)

#M9941 11/23/10 AmA NaCl Hydroxylamine Sulfate Reagent: Dissolve 60g NaCl (#M9574(1)) and 60g Hydroxylamine Sulfate (#M9831) in 500mL Milli-Q H_2O. Exp. 05/23/11

#9942 11/24/10 GvE Stannous Chloride Reagent: Into a 1000mL vol. flask, dissolve 100g Stannous Chloride (#M9785b) in 70mL HCL (AB.514). Bring up to volume with DI H_2O. Exp. 11-24-11

#M9943

#M9944 Gv

#M9945 11 GvE

#M9946 GvE

#M9947 GvE

#M9948 11 GvE

#M9949 11 GvE

#M9950 GvE 11/23/10 GvE

#M9951 Tc

#M9952 TCl

#M9953 TCN 01/01/10 GvE

#M9916 10/16/10 AmA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9917 11/16/10 AmA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9918 11/16/10 AmA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9917) into 100ml = 3.0ug/L Hg
#M9919 11/16/10 AmA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9920 11/16/10 AmA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9917) into 100ml = 0.2ug/L Hg
#M9921 11/16/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 508) with 1part HNO3 (AB: 511)

#M9922 11/23/10 Tl 1000 mg/L Spex Certiprep Lot No. 16-113TL Exp. 11-15-11
GvE

Stannous
38).
11-10-11

#M9923 11/23/10 Ti 1000 mg/L Spex CertiPrep Lot No. 16-128TI Exp. 11-15-11
GvE

2 (200 NTU)

#M9924 11/23/10 GvE 11-23-10 W 1000 mg/L Spex CertiPrep Lot No. 16-117W Exp. 11-15-11
GvE

NTU

NTU

#M9925 11/23/10 Sn 1000 mg/L Spex CertiPrep Lot No. CL5-45SN Exp. 11-15-11
GvE

#M9926 11/23/10 Sr 1000 mg/L Spex CertiPrep Lot No. 16-71SR Exp. 11-15-11
GvE

#M9927 11/23/10 Ni 1000 mg/L Spex CertiPrep Lot No. 15-121NI Exp. 11-15-11
GvE

#M9928 11/23/10 Co 1000 mg/L Spex CertiPrep Lot No. CL5-52CO Exp. 11-15-11
GvE

#M9929 11/23/10 Li 1000 mg/L Spex CertiPrep Lot No. 16-61LI Exp. 11-15-11
GvE

#M9906 11/09/10 Potassium Permanganate Sol'n : 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. H_2O. Exp. 05/09/11
AmA

M9907 11/09/10 AmA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
M9908 11/09/10 AmA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
M9909 11/09/10 AmA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9908) into 100ml = 3.0ug/L Hg
M9910 11/09/10 AmA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
M9911 11/09/10 AmA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9908) into 100ml = 0.2ug/L Hg
M9912 11/09/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 508) with 1part HNO3 (AB: 511)

#M9913 11/10/10 GvE Stannous Chloride Reagent: Into a 1000 mL Vol. flask, dissolve 100g Stannous Chloride (#M97856) in 70mL HCl (AB-508). Bring up to volume with D.I. H_2O. Exp. 11-10-11

#M9914 11/12/10 GvE Turbidity Working Stds: Into 20 mLs pipet from #M8730 (200 NTU)
Gel Ex Stds:
4.95 — 2.0mL into 18mL D.I H_2O = 20 NTU
58.3 — 10mL into 10mL D.I. H_2O = 100 NTU
539 — 20mL into 0mL D.I H_2O = 200 NTU
(Exp. 12/10)

#M9915 11/12/10 GvE Silicon Standard 1000-ppm Fisher Chemical Lot No. 102251
Expires 04/12

#M9916 11/16/10 AmA Hg Wo (0.2% H

#M9917 11/16/10 AmA Hg Alt S (0.2% H

#M9918 11/16/10 AmA Hg ICV (0.2% H

#M9919 11/16/10 AmA Hg CCV (0.2% H

#M9920 11/16/10 AmA Hg MRL (0.2% H

#M9921 11/16/10 AmA Hg Aqu

#M9922 11/23/10 GvE Tl

#M9923 11/23/10 GvE Ti

#M9924 11/23/10 GvE 11-23-10 GvE W

#M9925 11/23/10 GvE Sn

#M9926 11/23/10 GvE Sr

#M9927 11/23/10 GvE Ni

#M9928 11/23/10 Co

#M9896 11/02/10 AmA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
M9897 11/02/10 AmA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9898 11/02/10 AmA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9897) into 100ml = 3.0ug/L Hg
#M9899 11/02/10 AmA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9900 11/02/10 AmA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9897) into 100ml = 0.2ug/L Hg
#M9901 11/02/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 508) with 1part HNO3 (AB: 511)

#M9902 11/07/10 CEL TCLP Extraction Fluid#1: Fill a 20L carboy w/ 11L D.I. H_2O. Add 114ml Glacial Acetic Acid (AB: 968) and 128.6ml 10N NaOH (#M9636) Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05 11/07/10 AmA

EXP: 11/07/11

#M9903 11/08/10 GE Potassium Permanganate: ~~50g~~ 11-08-10 One Fisher Scientific Lot No. 102677

#M9904 11/8/10 JA

Working Standards for Sodium and Potassium; into seven, 250 ml volumetric flasks pipette from #M9661 and #M9660.

For the 0.5 mg/L std– 0.1 mls each
1.0 mg/L std – 0.2 mls each
5.0 mg/L std – 1.0 mls each
10.0 mg/L std – 2.0 mls each
50.0 mg/L std - 10.0 mls each
100 mg/L std -20.0 mls each also used for Continuing Calibration Standard (CCV)
200 mg/L std -40.0 mls each
Bring up to mark with DI H2O. expires June 2011.

#M9905 11-8-10 JA

Initial Calibration Standard (ICV) Into 500 ml volumetric pipette 5 mls of #M9863 and #M9280 and bring up to mark with DI H2O. expires Dec 2010

#M9860 10/05/10 Potassium Permanganate Soln: 50g Potassium Permanganate (#M8969) dissolved into 1000mL ~~Milli-Q~~ D.I H_2O. Exp. 04/05/11 10/05/10 AmA
AmA

#M9861 10/05/10 ~~Make~~ NaCl Hydroxylamine Sulfate Reagent: Dissolve 60g NaCl (#M9083(6)) and 60g Hydroxylamine Sulfate (#M9831) in 500mL Milli-Q H_2O. Exp. 04/05/11 10/05/10 AmA
AmA

#M9862 10/06/10 Stannous Chloride Reagent: Into a 1000mL vol flask, dissolve 100g Stannous Chloride (#M9785a) in 70mL HCl (AB-508). Bring up to volume with D.I. H_2O. Exp. 10-06-11
CAE

#M9863 10-11-10 Potassium 10,000 mg/L Spex Certiprep Lot # ~~AE12-99K~~
A

#M9864 10-11-10 Iron 10,000 mg/L ~~Spex Certiprep~~ Lot # PLFe2-3X
A

#M9865 10-11-10 Calcium 10,000 mg/L Spex Certiprep Lot # PLCa2-3X
A

#M9866 10-11-10 Aluminum 10,000mg/L Spex Certiprep Lot # AB12-227AL
A

#M9867 10-11-10 Boron working Stds & Silicon ppet from Stds #M9628 & M9545 into 5, 200mL Vol flasks
A
~~5% HNO3~~ A
~~5% HCl~~ 10-11-10
Bring up to mark with DI H_2O ex 6/11

10 ug/L → .002 mls M9628 + M9545
50 ug/L → .01 mls M9628 + M9545 10-11-10
200 ug/L → .04 mls M9628 + M9545
1000 ug/L → .2 mls M9628 + M9545
2000 ug/L → .4 mls M9628 + M9545
10,000 ug/L → 2.0 mls M9628 + M9545

Al, Fe, Mg, Ca ~~Mixed~~ — 500,000 ug/L use #M9817 500,000 ug/L Std.

#M9868 10-11-10 Boron & Silicon ICV/LCSW into 200mL Vol flask ppt 2mls M9816 & .2mls M9448 Bring up to ~~10-11-10~~ mark with DI H_2O.
A 10-11-10
~~5% HNO3~~ ex 1/11

#M9869 10-11-10 Boron & Silicon CCV into 200 mL Vol. flask ppet 0.1mls M9545 & M9628. Bring up to mark with DI H_2O ex 6/11.
A

#M9848 09/28/10 Potassium Permanganate soln: 50g Potassium Permanganate (#M8969) dissolved into 1000mL D.I. H_2O. Exp. 03/29/11
AmA

#M9849 09/29/10 Stannous Chloride Reagent: Into a 1000mL vol. flask, dissolve 100g Stannous Chloride (#M9785a) in 70mL HCl (AB508). Bring up to mark with D.I. H_2O. Exp. 09/29/11
GVE

#M9850 9-30-10 ICSAB Into 500 ml vol flask pipet 50mls #M9807, 2.5mls of M9816 & M9815 Bring up to Mark with DI H_2O. exp 10/11.
2% HNO_3
5% HCl

#M9851 10/04/10 TCLP Extraction Fluid #1: Fill a 20L Carboy w/ 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.499) and 128.6mL 10N NaOH (#M9743). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05
GVE

#M9852 10/05/10 TCLP Extraction Fluid #1: Fill a 20L Carboy w/ 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.499) and 128.6mL 10N NaOH (#M9743). Dilute to 20L with D.I. H_2O and mix. pH = 4.93 ± 0.05.
JSP

#M9853 10/05/10 Nickel Nitrate Matrix Modifier Solution Specpure Lot No. 03-16909J Expires Sept. 2011
GVE

#M9854 10/05/10 AmA	Hg Working Stds: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9855 10/05/10 AmA	Hg Alt Source Working Std: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9856 10/05/10 AmA	Hg ICV / LCSW (0.2% HNO_3, HCl)	3.0ml of 100ug/L Hg (#M9855) into 100ml = 3.0ug/L Hg
#M9857 10/05/10 AmA	Hg CCV (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9858 10/05/10 AmA	Hg MRL: (0.2% HNO_3, HCl)	0.2ml of 100ug/L Hg (#M9855) into 100ml = 0.2ug/L Hg
#M9859 10/05/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 508) with 1part HNO_3 (AB: 509)

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#M9834 09/21/10 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9835 09/21/10 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9836 09/21/10 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 9835) into 100ml = 3.0ug/L Hg
#M9837 09/21/10 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9838 09/21/10 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 9835) into 100ml = 0.2ug/L Hg
#M9839 09/21/10 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 503) with 1part HNO3 (AB: 505)

#M9840 9-23-10 LL Environmental Express Yttrium 10,000ug/L. Lot# 1018805

#M9841 09/23/10 TCLP Extraction Fluid#1: Fill a 20L Carboy w/19L D.I. H2O. Add 114ml Glacial Acetic Acid (AB.468) and 128.6ml 10N NaOH (#M9636). Dilute to 20L w/D.I. H2O and mix. pH = 4.93 ± 0.05
LSF
Exp: 09/23/11

#M9842 09/28/10 AmA	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9843 09/28/10 AmA	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9844 09/28/10 AmA	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9843) into 100ml = 3.0ug/L Hg
#M9845 09/28/10 AmA	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9846 09/28/10 AmA	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9843) into 100ml = 0.2ug/L Hg
#M9847 09/28/10 AmA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 508) with 1part HNO3 (AB: 509)

#M9809 ICV/LCSW Na, K, ert to 500mL vol flask pipet 50mL #M9616e1 + 50 mL M9616e0. Bring up to mark with DI H_2O. ex 6/30/11
9-7-10 JA

#M9810 GLE Stannous Chloride Reagent: Into a 1000 mL vol. flask, dissolve 100g Stannous Chloride (#M9785a) in 70 mL HCL (AB:503). Bring up to mark with D.I. H_2O. Exp. 09/08/11
09/08/10

#M9811 GLE GFAA Base Std (25µg/L) 1% HNO_3 Pipet 25mL of #M9482 into a 1L Vol. flask and bring up to volume with Mi.li.Q H_2O. Exp. 04-01-11
09/09/10

#M9812 GLE GFAA Alt. Source Std (10µg/L) 1% HNO_3 Pipet 50mL of #M9483 into a 1L Vol flask and bring up to volume with Mi.li.Q H_2O. Exp. 04-01-11
09/09/10

#M9813 GLE GFAA CCV Std. (10µg/L) 1% HNO_3 Pipet 10mL of #M9482 into a 1L Vol. flask and bring up to volume with Mi.li.Q H_2O, Exp. 04-01-11
09/09/10

#M9814 GLE Potassium Persulfate Fisher Scientific Lot No. 095982 500g
09/09/10

#M9815 JA Custom Assurance Standard Ag, Be, Cd 100 µg/L Lot # 25-77JB ex August 30, 2011. (Spex Certiprep)
9-13-10 JA 9-14-10

#M9816 JA Custom Assurance Std Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn 100mg/L Lot #25-76JB ex August 30, 2011. (Spex Certiprep)
9-14-10

#M9817 ICAP Working Standards
9-14-10 5% HNO_3 5%HCL

Standard name	Pipet the following respectively:
0.25	0.25 mls of standard 100 ug/L into 1000 ml volumetric flask = 0.25 ug/L std
0.5	0.50 mls of standard 100 ug/L into 1000ml volumentric flask= 0.50 ug/L std
1	1.0 mls of standard 100ug/L into 1000 ml volumentrc flask =1.00 ug/L std
5	5.0 mls of standard 100ug/L into 1000 ml volumentrc flask =5.00 ug/L std
10	10.0 mls of standard 100ug/L into 1000 ml volumentrc flask =10.0 ug/L std
20	20.0 mls of standard 100ug/L into 1000 ml volumentrc flask =20.0 ug/L std
50	50.0 mls of standard 100ug/L into 1000 ml volumentrc flask =50.0 ug/L std
100	1.0 mls of #M9815(ex 8/11) and 1.0 mls of #M9816 (ex 8/11) into 1000 ml volumectric flask= 100 ug/L std
500	5.0 mls of #M9815(ex 8/11) and 5.0 mls of #M9816 (ex 8/11) into 1000 ml volumetric flask= 500 ug/L std
1000	10.0 mls of #M9815(ex 8/11) and 10.0 mls of #M9816 (ex 8/11) into 1000 ml volumetric flask= 1000 ug/L std

#M9817 cont...

07/27/10 GvE

#M9722 TCLP Extraction Fluid #1: Fill a 20L carboy w/ 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB: 468) and 128.6mL 10N NaOH (#M9636) Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05
07/26/10 LSF
Exp: 07/26/11

#M9722 07/27/10 AMA	Hg Working Stds: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
M9723 07/27/10 AMA	Hg Alt Source Working Std: (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
M9724 07/27/10 AMA	Hg ICV / LCSW (0.2% HNO_3, HCl)	3.0ml of 100ug/L Hg (#M9723) into 100ml = 3.0ug/L Hg
M9725 07/27/10 AMA	Hg CCV (0.2% HNO_3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
M9726 07/27/10 AMA	Hg MRL: (0.2% HNO_3, HCl)	0.2ml of 100ug/L Hg (#M9723) into 100ml = 0.2ug/L Hg
M9727 07/27/10 AMA	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 489) with 1part HNO_3 (AB: 490)
M9728 07/27/10 AMA	Potassium Persulfate	Dissolve 10 g of Potassium Persulfate (#M9010) into 200 mL DI Water

M9729 07/27/10 AMA — Potassium Persulfate: 50g Potassium Persulfate (#M9010) dissolved into 1000mL D.I. H_2O. Exp 01/27/11

#M9730 07/27/10 GvE — Amco Clear Turbidity Standard 2.0 NTU Lot No. C035744 Expires 07/11

M9731 07/28/10 AMA — Stannous chloride Reagent: Into a 1000mL vol. flask, dissolve 100g stannous chloride (#M9405(c)) in 70mL HCl (AB: 496). Bring up to mark with D.I. H_2O. Exp. 07/28/11

M9732 07/29/10 LSF — TCLP Extraction Fluid #1: Fill a 20L carboy w/ 19L D.I. H_2O. Add 114ml Glacial Acetic Acid (AB: 468) and 128.6mL 10N NaOH (#M9636) Dilute to 20L w/ D.I. H_2O and mix. pH = 4.93 ± 0.05
Exp: 07/29/11

#M9733 08/03/10 LSF Exp:

#M9734 08/03/10 LSF NaCl

#M9735 08/03/10 LSF E

#M9736 08/03/10 AMA Hg Working S (0.2% HNO3,

#M9737 08/03/10 AMA Hg Alt Source (0.2% HNO3,

#M9738 08/03/10 AMA Hg ICV / LCS (0.2% HNO3

#M9739 08/03/10 AMA Hg CCV (0.2% HNO3

#M9740 08/03/10 AMA Hg MRL: (0.2% HNO3

#M9741 08/03/10 AMA Hg Aqua Reg

#M9742 08/03/10 AMA Potassium P

#M9743 08/04/10 LSF 10N Exp: 08/0

#M9744 08/05/10 LSF 10N Exp: 08/0

#M9648 6/24/10 AMA — 3050 ICP MDL Spiking Solution: Into a 1L vol. flask, pipet the following (1% HNO_3, HCl) and bring up to volume with D.I. H_2O.
Exp. 4/30/11
1mL AS 1000mg/L (#M9609)
0.025mL Pb 10,000 mg/L (#M9521)

#M9649 6-28-10 A — Continuing Calibration Verification (CCV) into 1 Liter volumetric flask 5% HCl 5% HNO_3 prep'd 10 mls #M9455, 1ml M9218, M9373, M9374 & 0.5 mls M9219. Bring up to mark with DI H_2O. ex 10/10.

#M9650 AMA 6/28/10	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9651 AMA 6/28/10	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9652 AMA 6/28/10	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M9651) into 100ml = 3.0ug/L Hg
#M9653 AMA 6/28/10	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9654 AMA 6/28/10	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M9651) into 100ml = 0.2ug/L Hg
#M9655 AMA 6/28/10	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 489) with 1part HNO3 (AB: 490)
#M9656 AMA 6/28/10	Potassium Persulfate	Dissolve 10 g of Potassium Persulfate (#M9010) into 200 mL DI Water

#M9657 AMA 6/28/10 — NaCl Hydroxylamine Sulfate Reagent: Dissolve 60g NaCl (#M9082(b)) and 60g Hydroxylamine Sulfate (#M9249) in 500mL Milli-Q H_2O. Exp 12/28/10

#M9658 A 6-29-10 — Quality Control Std #21 Spex Certiprep lot# 19-50JB. exp 6/30/11.

#M9659 A 6-29-10 — Fe 10,000mg/L Spex Certiprep lot # AB12-31FE.

M9660 A 6-29-10 — 1000 mg/L Potassium Spex Certiprep lot # 16-26K. ex 6/30/11.

#M9661 6-29-10 — 1000 mg/L Cadmium Spex Certiprep lot # 15-97Cd ex 6/30/11 BDS.

M9604 cont...

Sr	10	m9300	1000	0.5
Ti	10	m9277	1000	0.5
Li	20	m9278	1000	1
Sn	10	m9279	1000	0.5
B	10	m9140	1000	0.5
Si	30	m9448	1000	1.5

Bring up to mark with DI H_2O.

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

ex6-30-2010

#M9613 06/08/10 LSF

#M9614 06/08/10 LSF

#M9615 06/08/10 LSF

#M9616 06/08/10 LSF

#M9617 06/08

#M9618 06/08

#M9619 06/08

M9605 MRL working std into 500ml vol flask prod 6-1-10 10 mls of #M9604 Bring up to mark with DI H_2O ex 6-30-10.

M9606 06/05/10 LSF TCLP Extraction Fluid #1: Fill a 20L carboy w/19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.4687) and 128.6mL 1aN NaOH (#M9495). Dilute to 20L w/D.I. H_2O and mix. pH: 4.93 ± 0.05

Exp. 06/05/11

#M9607 06/07/10 GLE Interferents A Spex CertiPrep Lot No. 8-79GS Exp. 06-15-11
5,000 mg/L Al, Ca, Mg 2000 mg/L Fe

#M9608 06/07/10 GLE Silver 1,000 mg/L Spex CertiPrep Lot No. 15-162AG Exp. 06-15-11

#M9609 06/07/10 GLE Arsenic 1,000 mg/L Spex CertiPrep Lot No. 15-64AS Exp. 06-15-11

#M9610 06/07/10 GLE Antimony 1,000 mg/L Spex CertiPrep Lot No. 15-174SB Exp. 06-15-11

#M9611 06/07/10 GLE Selenium 1,000 mg/L Spex CertiPrep Lot No. 15-188SE Exp. 06-15-11

#M9612 06/07/10 GLE Vanadium 1,000 mg/L Spex CertiPrep Lot No. 16-11V Exp. 06-15-11

#M9537 05/05/10 LSF	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9538, 05/05/10 LSF	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9539 05/05/10 LSF	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 9538) into 100ml = 3.0ug/L Hg
#M9540 05/05/10 LSF	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9541 05/05/10 LSF 05/05/10 LSF	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 9538) into 100ml = 0.2ug/L Hg
#M9542 05/05/10 LSF	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 484) with 1part HNO3 (AB: 486)
#M9543 05/05/10 LSF	Potassium Persulfate	Dissolve 10 g of Potassium Persulfate (#M9010) into 200 mL DI Water

#M9544 05/05/10 GUE Hg Spiking Solution: Pipet 1.0mL of 1000 mg/L Hg (#M9063) → 100mL = 10mg/L Hg
10mL of 10mg/L Hg → 100mL = 1000 µg/L Hg

#M9545 05/07/10 GUE Silicon 1000 ppm Fisher Lot No. 102251 Exp. 04/2012

#M9546 05/10/10 GUE	Hg Working Stds: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg 1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg 2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg 4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg 5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg 10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg
#M9547 05/10/10 GUE	Hg Alt Source Working Std: (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9063) into 100ml = 10mg/L Hg 1.0ml of 10mg/L into 100ml = 100ug/L Hg
#M9548 05/10/10 GUE	Hg ICV / LCSW (0.2% HNO3, HCl)	3.0ml of 100ug/L Hg (#M 9547) into 100ml = 3.0ug/L Hg
#M9549 05/10/10 GUE	Hg CCV (0.2% HNO3, HCl)	1.0ml of 1000mg/L Hg (#M9257) into 100ml=10mg/L Hg 1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg 3.0ml of 100ug/L Hg into 100ml = 3.0ug/L Hg
#M9550 05/10/10 GUE	Hg MRL: (0.2% HNO3, HCl)	0.2ml of 100ug/L Hg (#M 9547) into 100ml = 0.2ug/L Hg
#M9551 05/10/10 GUE	Hg Aqua Regia Reagent:	"Carefully" in hood, mix 3 parts HCl (AB: 489) with 1part HNO3 (AB: 490)
#M9552 05/10/10 GUE	Potassium Persulfate	Dissolve 10 g of Potassium Persulfate (#M9010) into 200 mL DI Water

5-14-10

#M9062 GLE 07/11/09 TCLP Extraction Fluid #1: Fill a 20L Carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.446) and 128.6mL 10N NaOH (#M9033) Dilute to 20L with D.I. H_2O and mix. The pH = 4.93 ± 0.05.
Exp. 7-12 to 07/14/09 GLE

#M9063 GLE Mercury Standard (1mg/mL) in 10% HNO_3. ACROS Organics Lot No. A0254552 Exp. 07/28/14

M9064 AMA 07/13/09 TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.446) and 128.6mL 10N NaOH (#M9033) Dilute to 20L with D.I. H_2O and mix. The pH = 4.93 ± 0.05.
Exp. 7/13/10

M9065 AMA 07/13/09 TCLP Extraction Fluid #1: Fill a 20L carboy with 19L D.I. H_2O. Add 114mL Glacial Acetic Acid (AB.446) and 128.6mL 10N NaOH. (#M9033) Dilute to 20L with D.I. H_2O and mix. The pH = 4.93 ± 0.05.
Exp. 7/13/10

#M9066 GLE 07/14/09 Potassium Persulfate: 50g Potassium Persulfate (#8228) dissolved into 1000mL D.I. H_2O. Exp. 01/14/10

M9067 GLE 07/14/09 Hg Working Stds: (0.2% HNO3, HCl)
1.0ml of 1000mg/L Hg (#M8724) into 100ml = 10mg/L Hg
1.0ml of 10mg/L Hg into 100ml = 100ug/L Hg
0.5ml of 100ug/L Hg into 100ml = 0.5ug/L Hg
1.0ml of 100ug/L Hg into 100ml = 1.0ug/L Hg
2.0ml of 100ug/L Hg into 100ml = 2.0ug/L Hg
4.0ml of 100ug/L Hg into 100ml = 4.0ug/L Hg
5.0ml of 100ug/L Hg ino 100ml =5.0ug/L Hg
10.0ml of 100ug/L Hg into 100ml = 10.0ug/L Hg

M9068 GLE 07/14/09 Hg Alt Source Working Std: (0.2% HNO3, HCl)
1.0ml of 1000mg/L Hg (#M8564) into 100ml = 10mg/L Hg
1.0ml of 10mg/L into 100ml = 100ug/L Hg

M9069 GLE 07/14/09 Hg ICV/CCV/LCSW: (0.2% HNO3, HCl)
3.0ml of 100ug/L Hg (#M 9068) into 100ml = 3.0ug/L Hg

M9070 GLE 07/14/09 Hg MRL:
0.2ml of 100ug/L Hg (#M 9068) into 100ml = 0.2ug/L Hg

M9071 GLE 07/14/09 Hg Aqua Regia Reagent:
"Carefully" in hood, mix 3 parts HCl (AB: 439) with 1part HNO3 (AB: 440)

M9072 GLE 07/14/09 Hg Water MDL ✓ (0.2% HNO_3, HCL) 0.04mL of 100µg/L Hg (#M9068) into 100mL = 0.04µg/L Hg

M9073 GLE 07/14/09 Hg LOQ ✓ Water (0.2% HNO_3, HCL) 0.13mL of 100µg/L Hg (#M9068) into 100mL = 0.13µg/L Hg

#M9074 GLE 07/14/09 Soil Hg MDL ✓ 0.03mL of 100µg/L Hg (#M9068) into 100mL = 0.03µg/L Hg

#M9075 GLE 07/14/09 Soil Hg

#M9076 AMA 07/20/09 Hg (0.2

#M9077 AMA 07/20/09 Hg (0.2

#M9078 AMA 7/20/09 Hg (0.2

#M9079 AMA 7/20/09 Hg

#M9080 AMA 7/20/09 Hg

#M9081 AMA 7/20/09 NaCL Hyd

#M9082 GLE 07/20/09 Sodium C

#M9083 GLE 07/20/09 Tin (II) Ch

#M9084 AMA 07/21/09 Potassium

#M9085 AMA 7/21/09 TCLP Extrac Exp. 7

#M9086 AMA 7/21/09 10N NaOH

#M9087 AMA 7/21/09 TCLP Extra Exp. 7/21

INORGANIC
CLP FORMS
DOCUMENTS

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	GROUND WATER	SDG No.:	86608
% Solids:		Lab Sample ID:	962088
Analytical Method:	EPA 9040C	Date Received:	08/16/2011
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78438	Analysis Date/Time	08/24/2011 13:15
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	5.90					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1-718-RB

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	GROUND WATER	SDG No.:	86608
% Solids:		Lab Sample ID:	962088
Analytical Method:	EPA 9056M	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78280	Analysis Date/Time	08/20/2011 22:19
Analytical Prep Batch #:	38218	Prep. Date/Time:	08/17/2011 09:00
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
9004-70-0	Nitrocellulose	1.1	U	1.1	1.1	3.3	3.3

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.1	Lab Sample ID:	962085
Analytical Method:	L-Kahn/9060A	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78601	Analysis Date/Time	08/30/2011 07:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	CCV - W23192	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	30000		310	920	1800	1800

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.1	Lab Sample ID:	962085
Analytical Method:	EPA 8000C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78350	Analysis Date/Time	08/22/2011 12:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	%

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
SOLID	Solids, Percent	98.1					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.1	Lab Sample ID:	962085
Analytical Method:	EPA 9056M	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78541	Analysis Date/Time	08/26/2011 16:29
Analytical Prep Batch #:	38286	Prep. Date/Time:	08/22/2011 08:00
ICAL Calibration #:		Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
9004-70-0	Nitrocellulose	13	U	M	13	50	100	100

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.1	Lab Sample ID:	962085
Analytical Method:	EPA 9045D	Date Received:	08/16/2011
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78480	Analysis Date/Time	08/22/2011 16:45
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.68					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	L-Kahn/9060A	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78601	Analysis Date/Time	08/30/2011 07:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	CCV - W23192	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	36000		300	910	1800	1800

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	EPA 8000C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78350	Analysis Date/Time	08/22/2011 12:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	%

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
SOLID	Solids, Percent	98.8					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	EPA 9045D	Date Received:	08/16/2011
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78480	Analysis Date/Time	08/22/2011 16:45
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	8.61					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-716(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.8	Lab Sample ID:	962086
Analytical Method:	EPA 9056M	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78541	Analysis Date/Time	08/26/2011 17:14
Analytical Prep Batch #:	38286	Prep. Date/Time:	08/22/2011 08:00
ICAL Calibration #:		Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
9004-70-0	Nitrocellulose	13	U	13	50	100	100

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	L-Kahn/9060A	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78601	Analysis Date/Time	08/30/2011 07:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	CCV - W23192	Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	42000		310	910	1800	1800

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	EPA 8000C	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78350	Analysis Date/Time	08/22/2011 12:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	%

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
SOLID	Solids, Percent	98.5					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	EPA 9045D	Date Received:	08/16/2011
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78480	Analysis Date/Time	08/22/2011 16:45
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	8.83					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

LL1SS-717(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix (soil/water):	SOIL	SDG No.:	86608
% Solids:	98.5	Lab Sample ID:	962087
Analytical Method:	EPA 9056M	Date Received:	08/16/2011
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	78541	Analysis Date/Time	08/26/2011 17:29
Analytical Prep Batch #:	38286	Prep. Date/Time:	08/22/2011 08:00
ICAL Calibration #:		Concentration Units:	mg/kg

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
9004-70-0	Nitrocellulose	13	U	13	50	100	100

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78280

Lab Sample ID: 963990

Calibration Source:

SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Nitrocellulose	8/20/11 20:01	7.000	7.001	100	90	110	IC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78280

Lab Sample ID: 963992

Calibration Source:

SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Nitrocellulose	8/20/11	23:35	7.000	6.976	100	90	110	IC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78541

Lab Sample ID: 967943

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Nitrocellulose	8/26/11	15:43	7.000	6.835	98	90	110	IC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78541

Lab Sample ID: 967944

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Nitrocellulose	8/26/11	18:59	7.000	6.861	98	90	110	IC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601

Lab Sample ID: 968714

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Total Organic Carbon	8/30/11	07:48	400000	435600	109	90	110	TOC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601

Lab Sample ID: 968717

Calibration Source:

SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Total Organic Carbon	8/30/11	07:48	400000	375700	94	90	110	TOC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601

Lab Sample ID: 968722

Calibration Source: SPEX, Ultra and Mallinkrodt

ICAL Calibration #:

Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)	M
Total Organic Carbon	8/30/11	07:48	400000	366100	92	90	110	TOC

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601 Lab Sample ID: 968718

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Total Organic Carbon	08/30/2011 07:48	0			900	TOC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601 Lab Sample ID: 968723

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Total Organic Carbon	08/30/2011 07:48	0			900	TOC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78280 Lab Sample ID: 963991

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Nitrocellulose	08/20/2011 20:16	0			0.12	IC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78280 Lab Sample ID: 963993

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Nitrocellulose	08/20/2011 23:50	0			0.12	IC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78541 Lab Sample ID: 967945

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Nitrocellulose	08/26/2011 19:15	0			0.12	IC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78601 Lab Sample ID: 968716

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Total Organic Carbon	08/30/2011 07:48	0	U	301	900	TOC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78280 Lab Sample ID: 962737

Analytical Prep Batch # 38218 Preparation Date/Time: 08/17/2011 09:00

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Nitrocellulose	08/20/2011 21:48	0	U	1.0	1.5	IC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

SDG No.: 86608

Analytical Run #: 78541 Lab Sample ID: 964053

Analytical Prep Batch # 38286 Preparation Date/Time: 08/22/2011 08:00

ICAL Calibration #: Concentration Units: mg/kg

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	M
Nitrocellulose	08/26/2011 16:14	0	U	13	50	IC

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOLID	SDG No.:	86608
% Solids for Sample:	98.1	Concentration Units:	mg/kg
Sample No	964055	Parent Sample No.:	962085
Analytical Prep Batch #	38286	Analytical Preparation Date/Time:	08/22/2011 08:00
Analytical Run #:	78541	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 08/26/2011 Analysis Time: -------- 16:44

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Nitrocellulose	70-130	323		BDL	U	500	65		IC	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

LL1SS-715(I)-0001-SS

Lab Name:	CT Laboratories	Contract:	SHAW E&I INC-RVAAP MMRP LL1
Matrix:	SOLID	SDG No.:	86608
% Solids for Sample:	98.1	Concentration Units:	mg/kg
Sample No	964056	Parent Sample No.:	964055
Analytical Prep Batch #	38286	Analytical Preparation Date/Time:	08/22/2011 08:00
Analytical Run #:	78541	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 08/26/2011 Analysis Time: -------- 16:59

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Nitrocellulose	70-130	315		BDL	U	500	63		IC	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOLID

SDG No.: 86608

% Solid for Sample: 98.1

Concentration Units: %

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 78350

ICAL Calibration #:

Sample #: 965118

Parent Sample #: 962085

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Solids, Percent	08/22/2011	12:00	8	98.1		98.2		0		GRA

CT LABORATORIES
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6

DUPLICATES

Sample Description

DA2SS-213-0001-SS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP

Matrix: SOLID

SDG No.: 86608

% Solid for Sample: 88.9

Concentration Units: mg/kg

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 78601

ICAL Calibration #:

Sample #: 968719

Parent Sample #: 962137

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	08/30/2011	07:48	30	7900		7960		1		TOC

CT LABORATORIES
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6

DUPLICATES

Sample Description

DA2SS-213-0001-SS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP

Matrix: SOLID

SDG No.: 86608

% Solid for Sample: 88.9

Concentration Units: mg/kg

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 78601

ICAL Calibration #:

Sample #: 968720

Parent Sample #: 962137

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	08/30/2011	07:48	30	7900		7700		3		TOC

CT LABORATORIES
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6

DUPLICATES

Sample Description

DA2SS-213-0001-SS

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP

Matrix: SOLID

SDG No.: 86608

% Solid for Sample: 88.9

Concentration Units: mg/kg

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 78601

ICAL Calibration #:

Sample #: 968721

Parent Sample #: 962137

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	08/30/2011	07:48	30	7900		7190		10		TOC

CT LABORATORIES
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6

DUPLICATES

Sample Description

LL1-718-RB

Lab Name: CT Laboratories

Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: LIQUID

SDG No.: 86608

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 78438

ICAL Calibration #:

Sample #: 965767

Parent Sample #: 962088

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	08/24/2011	13:15	1	5.90		5.90		0		ELEC

CT LABORATORIES
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6

DUPLICATES

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories
Contract: SHAW E&I INC-RVAAP MMRP LL1
Matrix: SOLID
SDG No.: 86608
% Solid for Sample: 98.1
Concentration Units: S.U.
Analytical Prep Batch # 1
Analytical Preparation Date/Time
Analytical Run #: 78480
ICAL Calibration #:
Sample #: 966488
Parent Sample #: 962085

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	08/22/2011	16:45	1	7.68		7.68		0		ELEC

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description

LL1SS-715(I)-0001-SS

Lab Name: CT Laboratories | Contract: SHAW E&I INC-RVAAP MMRP LL1

Matrix: SOLID | SDG No.: 86608

% Solid for Sample: 98.1 | Concentration Units: mg/kg

Analytical Prep Batch #: 38286 | Analytical Preparation Date/Time: 08/22/2011 08:00

Analytical Run #: 78541 | ICAL Calibration #:

Sample #: 964056 | Parent Sample #: 964055

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim	RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Nitrocellulose	08/26/2011 16:59	20	323		315		2		IC

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: mg/L

Analytical Run #: 78280 Sample No.:#: 962738

Analytical Prep Batch #: 38218 Preparation Date/Time: 08/17/2011 09:00

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Nitrocellulose	08/20/2011 21:33	70-130	4.76		5.27	90		IC

CT LABORATORIES
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7-2

Sample No:

LABORATORY CONTROL SAMPLE - SOLID

LCS

Lab Name: CT Laboratories Contract SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: mg/kg

Analytical Run #: 78601 Sample No.:#: 968715

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Organic Carbon	08/30/2011 07:48	84-113	404000		400000	101		TOC

CT LABORATORIES
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7-2

Sample No:

LABORATORY CONTROL SAMPLE - SOLID

LCS

Lab Name: CT Laboratories Contract: SHAW E&I INC-RVAAP MMRP LL1

LCS Source: SPEX and Ultra SDG No.: 86608

Concentration Units: mg/kg

Analytical Run #: 78541 Sample No.:#: 964054

Analytical Prep Batch #: 38286 Preparation Date/Time: 08/22/2011 08:00

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Nitrocellulose	08/26/2011 15:59	70-130	404		500	81		IC

INORGANICS
RAW DATA
DOCUMENTS

Schedule File: C:\Instrument Archives\Sequences\System 2\W26655.sch

Line	Sample	Sample Type	Level
1	LEVEL 1	Calibration St	1
2	LEVEL 2	Calibration St	2
3	LEVEL 3	Calibration St	3
4	LEVEL 4	Calibration St	4
5	LEVEL 5	Calibration St	5
6	LEVEL 6	Calibration St	6
7	LEVEL 7	Calibration St	7
8	LEVEL 8	Calibration St	8
9	ICV W26601 W26438	Sample	
10	ICB	Sample	

Calibration Update Report

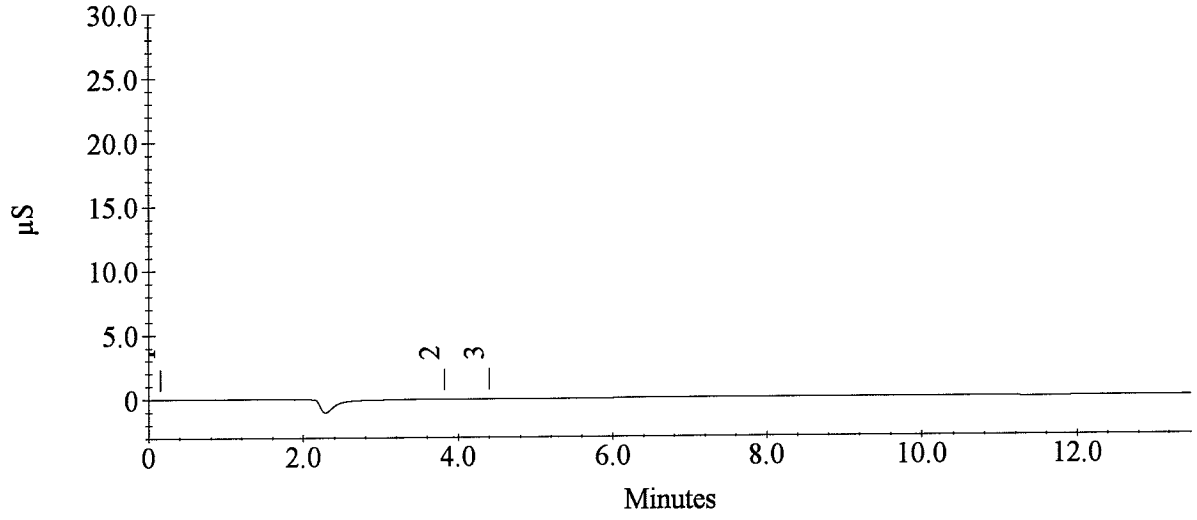
Sample Name : LEVEL 1
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 1_001.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 11:49:30
Calibration Date : 07/12/2011 12:03:03
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
3	Chloride	4.40	0	4413	4413

LEVEL 1



Calibration Update Report

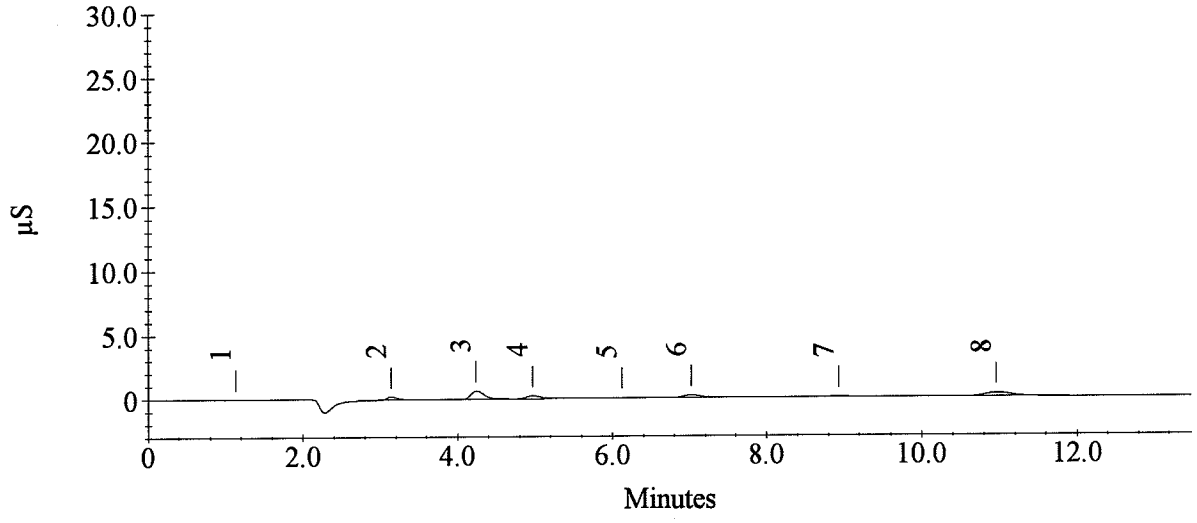
Sample Name : LEVEL 2
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 2_002.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 12:05:14
Calibration Date : 07/12/2011 12:18:45
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
2	Fluoride	3.13	0	17440	17440
3	Chloride	4.23	0	74374	74374
4	Nitrite	4.97	0	29833	29833
5	Bromide	6.12	0	5261	5261
6	Nitrate	7.02	0	36413	36413
7	O.Phos	8.93	0	12760	12760
8	Sulfate	10.95	0	72402	72402

LEVEL 2



Calibration Update Report

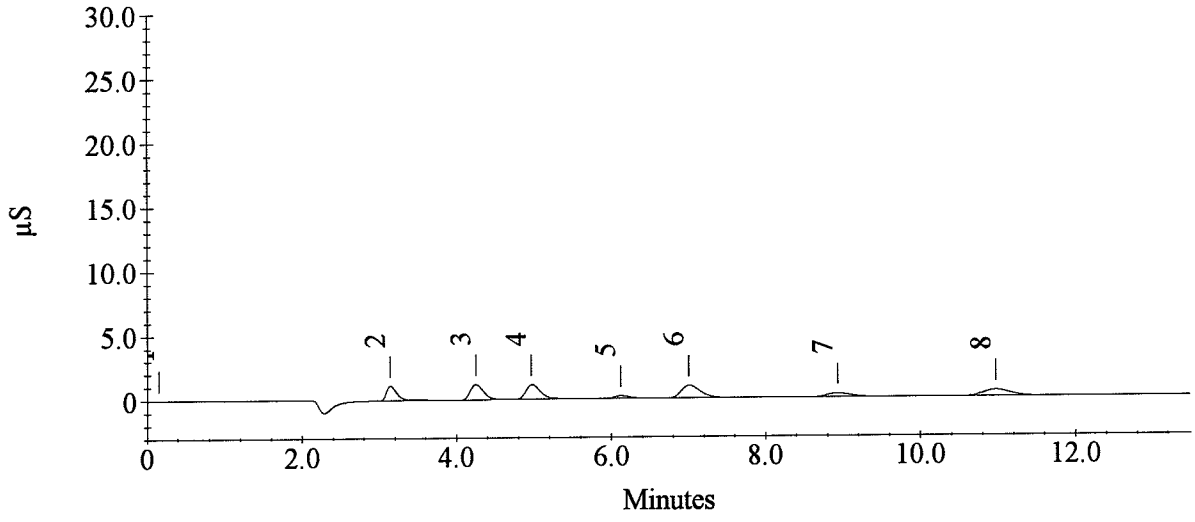
Sample Name : LEVEL 3
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 3_003.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 12:20:57
Calibration Date : 07/12/2011 12:34:27
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
2	Fluoride	3.13	0	108595	108595
3	Chloride	4.25	0	138473	138473
4	Nitrite	4.97	0	149857	149857
5	Bromide	6.12	0	29626	29626
6	Nitrate	7.00	0	171338	171338
7	O.Phos	8.93	0	62742	62742
8	Sulfate	10.97	0	122885	122885

LEVEL 3



Calibration Update Report

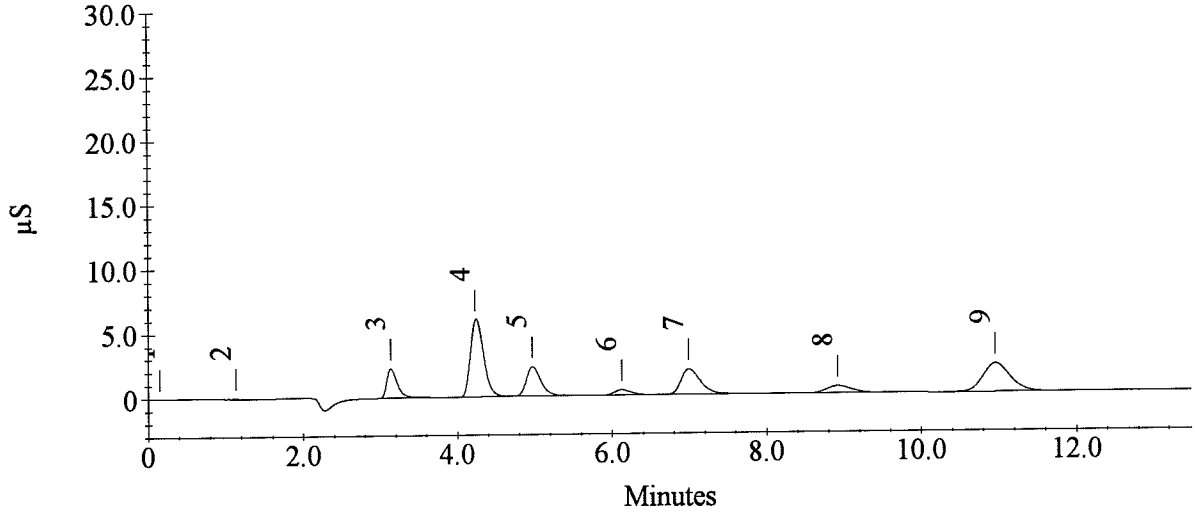
Sample Name : LEVEL 4
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 4_004.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 12:36:39
Calibration Date : 07/12/2011 12:50:13
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
3	Fluoride	3.13	0	204160	204160
4	Chloride	4.23	0	705557	705557
5	Nitrite	4.97	0	294982	294982
6	Bromide	6.12	0	59828	59828
7	Nitrate	6.98	0	344098	344098
8	O.Phos	8.92	0	125383	125383
9	Sulfate	10.95	0	545452	545452

LEVEL 4



Calibration Update Report

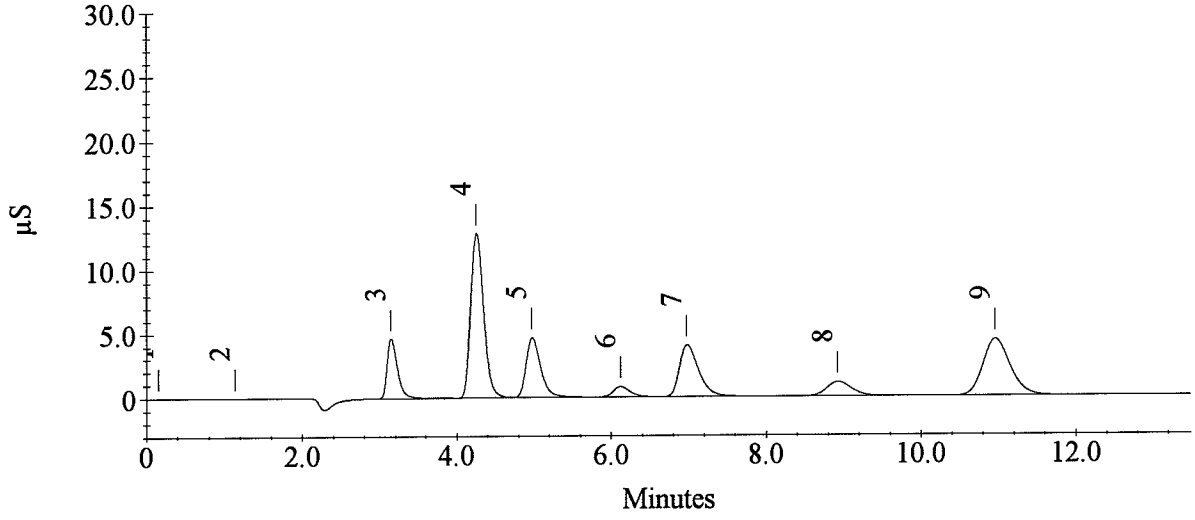
Sample Name : LEVEL 5
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 5_005.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 12:52:25
Calibration Date : 07/12/2011 13:05:56
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
3	Fluoride	3.13	0	438253	438253
4	Chloride	4.25	0	1504952	1504952
5	Nitrite	4.97	0	599379	599379
6	Bromide	6.12	0	116509	116509
7	Nitrate	6.97	0	694760	694760
8	O.Phos	8.92	0	247127	247127
9	Sulfate	10.95	0	1082741	1082741

LEVEL 5



Calibration Update Report

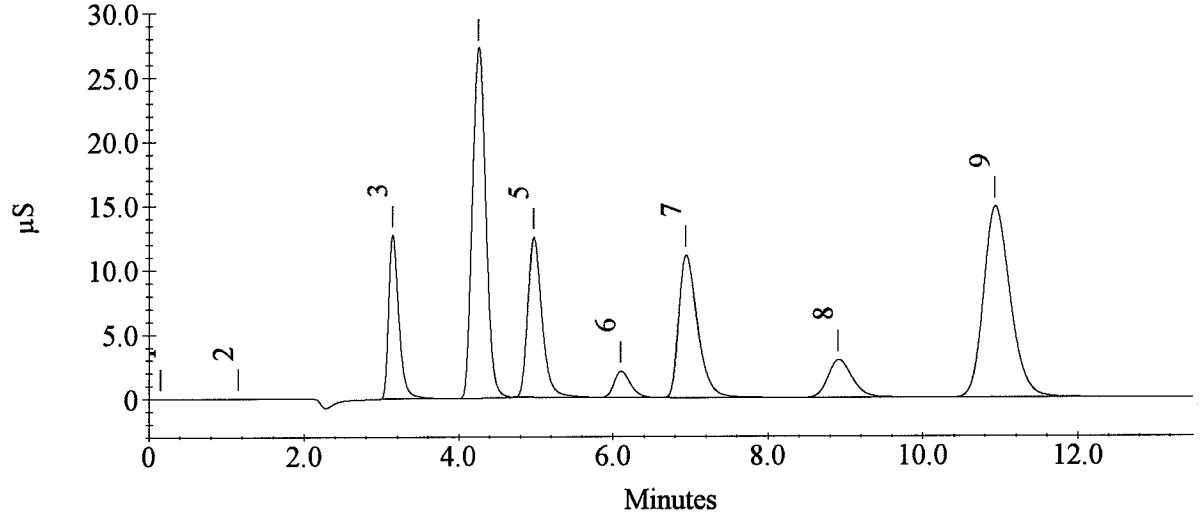
Sample Name : LEVEL 6
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 6_006.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 13:08:07
Calibration Date : 07/12/2011 13:21:43
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
3	Fluoride	3.13	0	1155418	1155418
4	Chloride	4.25	0	3281481	3281481
5	Nitrite	4.97	0	1590585	1590585
6	Bromide	6.10	0	294670	294670
7	Nitrate	6.93	0	1876673	1876673
8	O.Phos	8.90	0	639498	639498
9	Sulfate	10.92	0	3547355	3547355

LEVEL 6



Calibration Update Report

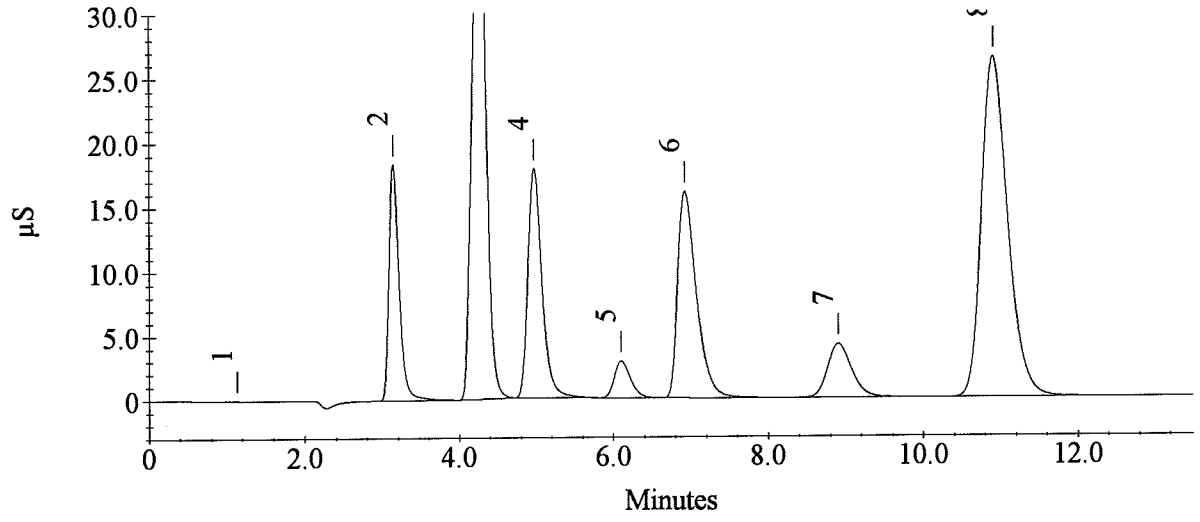
Sample Name : LEVEL 7
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 7_007.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 13:23:56
Calibration Date : 07/12/2011 13:37:26
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
2	Fluoride	3.13		1672898	
3	Chloride	4.25	0	5210473	5210473
4	Nitrite	4.97		2282551	
5	Bromide	6.10		416129	
6	Nitrate	6.92	0	2727232	2727232
7	O.Phos	8.90		912434	
8	Sulfate	10.90	0	6285820	6285820

LEVEL 7



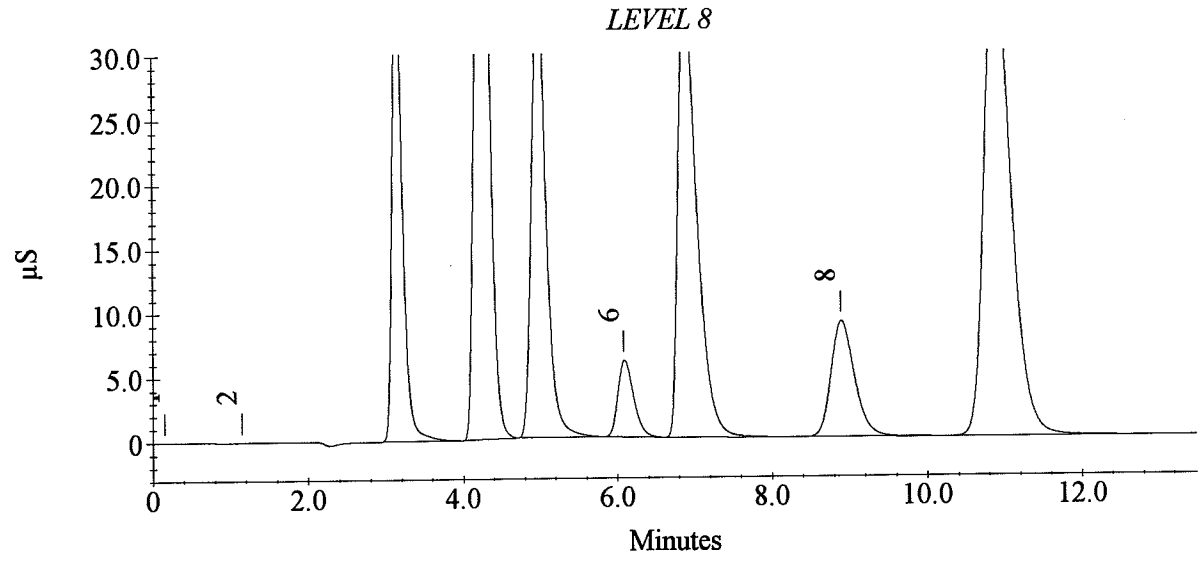
Calibration Update Report

Sample Name : LEVEL 8
Data File Name : c:\instrument archives\data\system 2\w26655\LEVEL 8_008.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Schedule File Name : c:\instrument archives\sequences\system 2\w26655.sch
Date Time Collected : 07/12/2011 13:39:37
Calibration Date : 07/12/2011 13:53:08
System Operator : EJC

Peak Information : All Components

Peak #	Component Name	Retention Time	Cal Response (Previous)	Cal Response (Measured)	Cal Response (New)
3	Fluoride	3.13		3433073	
4	Chloride	4.27	0	7037915	7037915
5	Nitrite	4.98		4666776	
6	Bromide	6.08		841960	
7	Nitrate	6.88		5874251	
8	O.Phos	8.88		1895172	
9	Sulfate	10.88	0	9075158	9075158



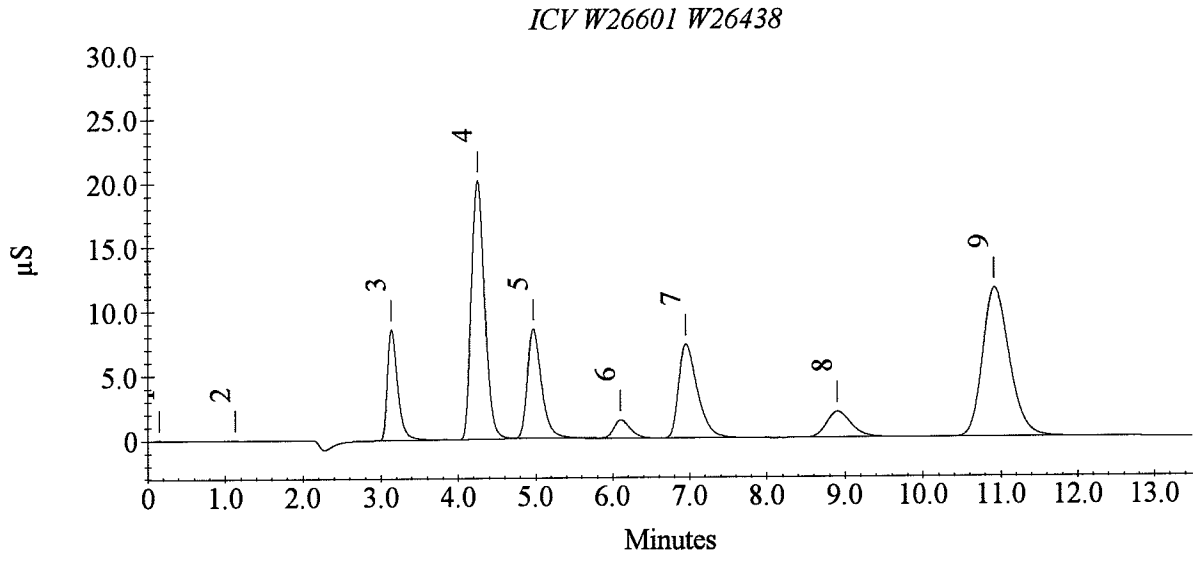
Sample Analysis Report

Sample Name : ICV W26601 W26438
Data File Name : c:\instrument archives\data\system 2\w26655\ICV W26601 W26438_009.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 07/12/2011 13:55:20
System Operator : EJC

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
3	Fluoride	3.13	3.4647	791624	85469	
4	Chloride	4.25	14.0790	2379856	201013	
5	Nitrite	4.97	3.4990	1101599	84744	
6	Bromide	6.10	3.4963	205850	13896	
7	Nitrate	6.95	3.3188	1255559	72712	
8	O.Phos	8.90	3.5182	447643	19972	
9	Sulfate	10.92	22.5304	2799389	115624	



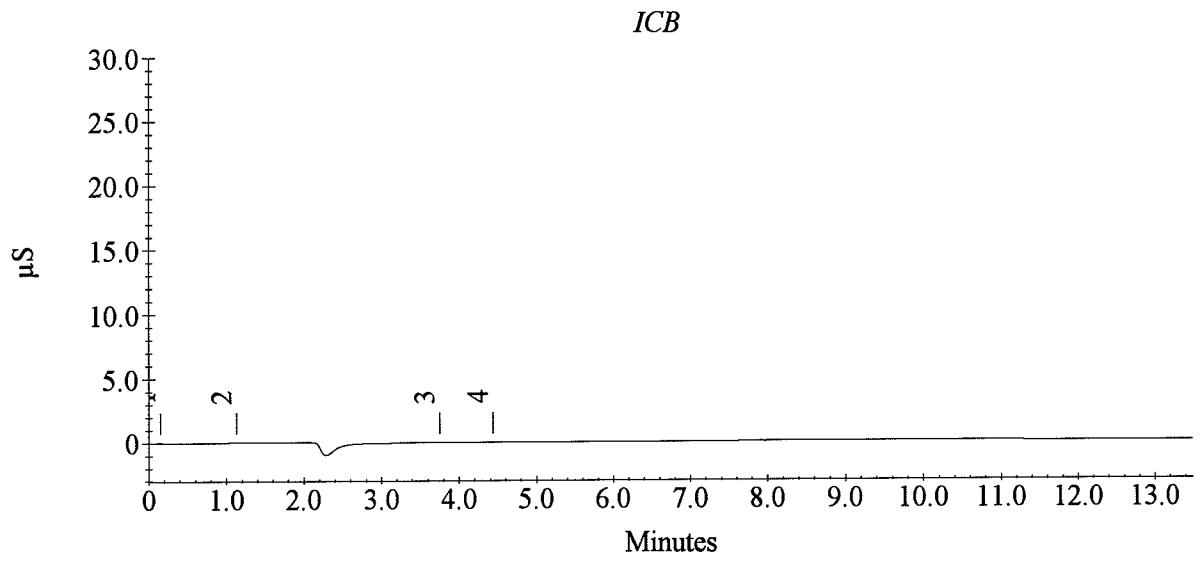
Sample Analysis Report

Sample Name : ICB
Data File Name : c:\instrument archives\data\system 2\w26655\ICB_010.DXD

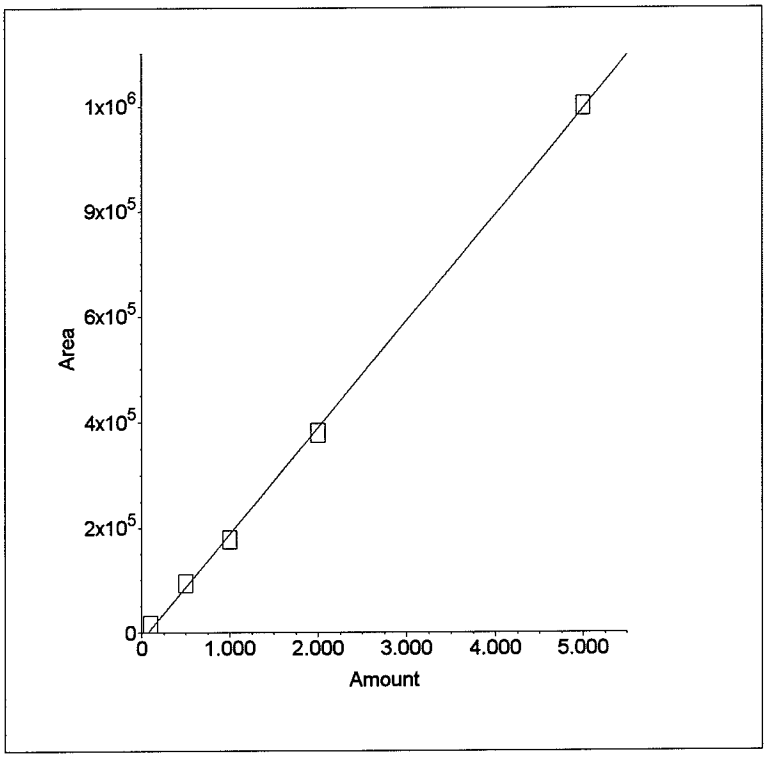
Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 07/12/2011 14:11:02
System Operator : EJC

Peak Information : Found Components

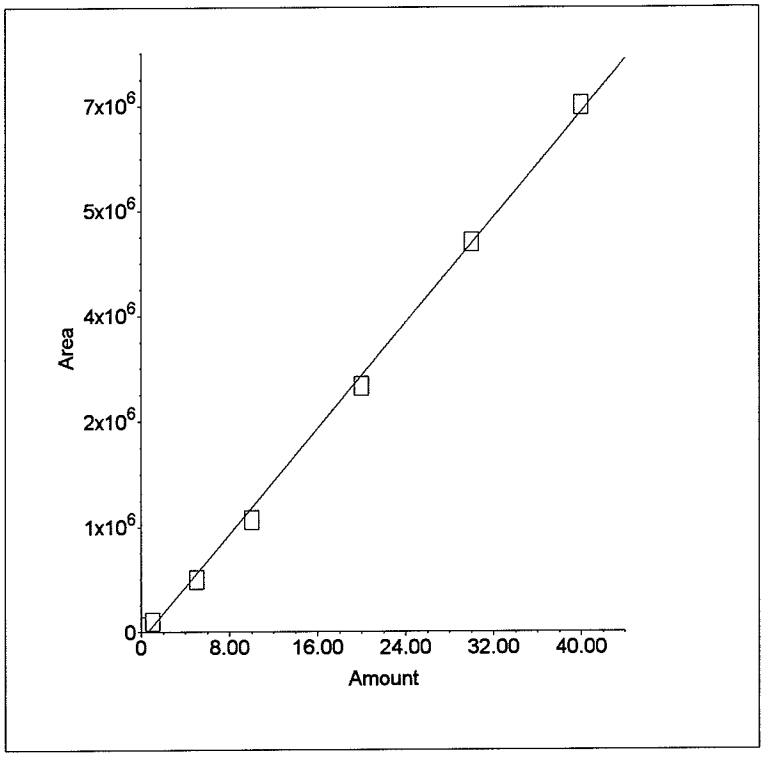
Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
4	Chloride	4.43	0.6039	3848	210	



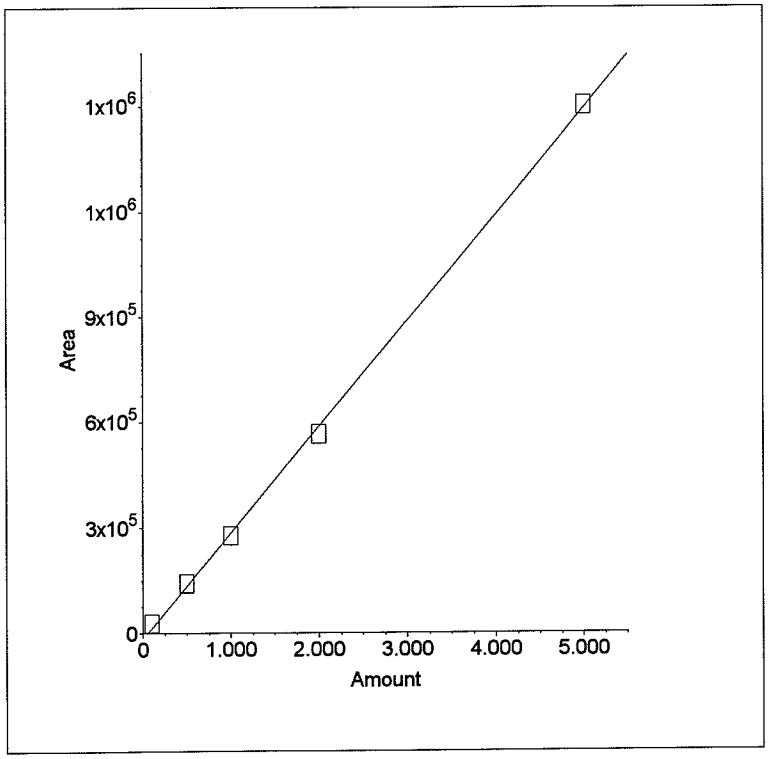
1. Component:Fluoride
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.999390
Amt=4.288e-006*Resp+0.06994



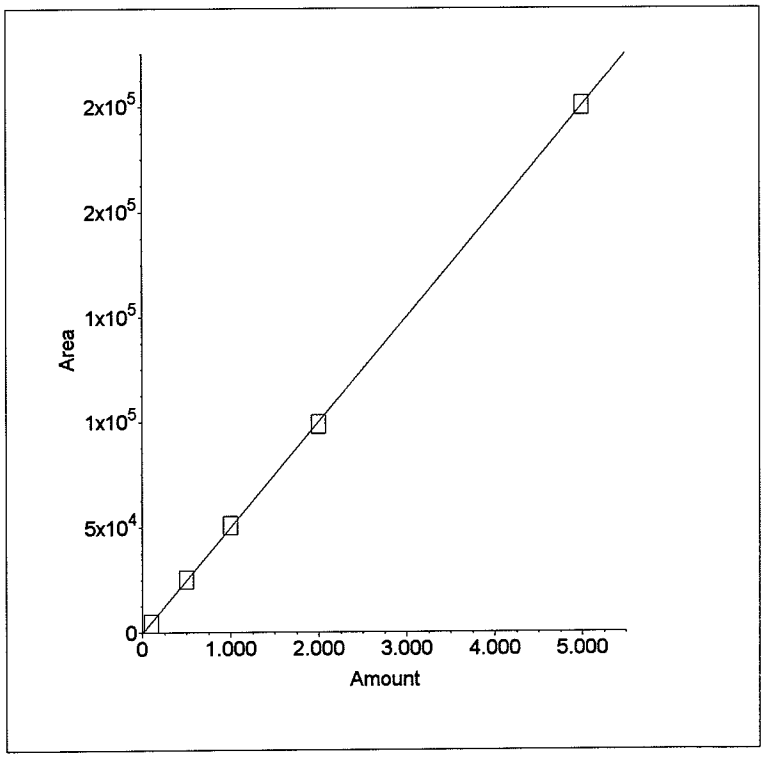
2. Component:Chloride
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.998367
Amt=5.671e-006*Resp+0.5821



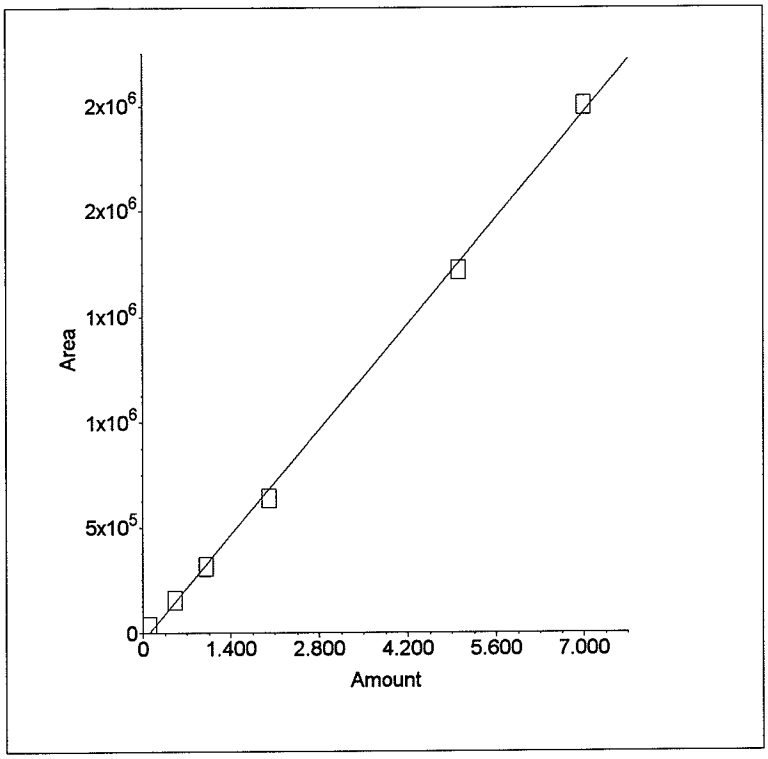
3. Component:Nitrite
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.999404
Amt=3.128e-006*Resp+0.05278



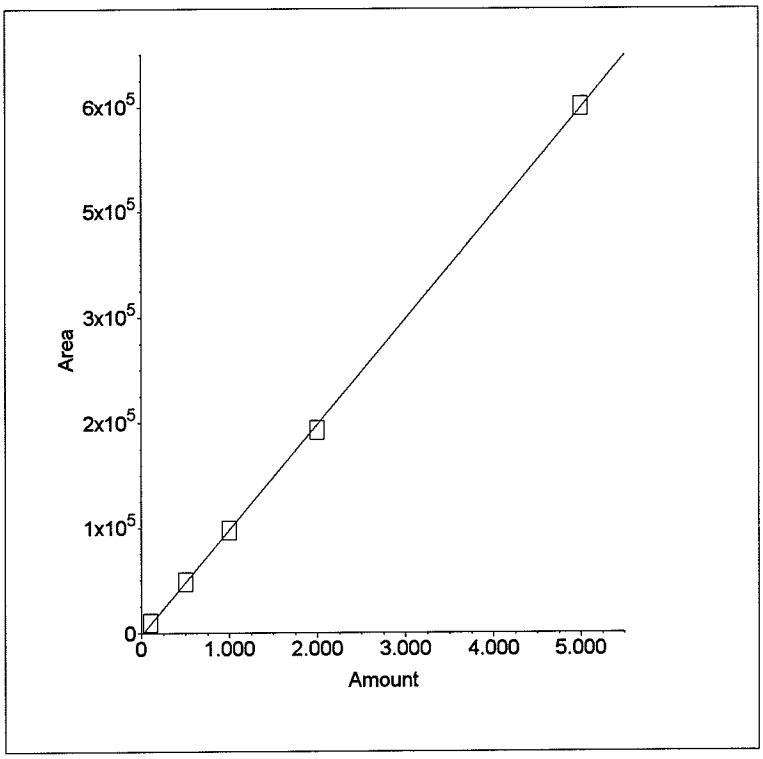
4. Component:Bromide
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.999946
Amt=1.697e-005*Resp+0.002916



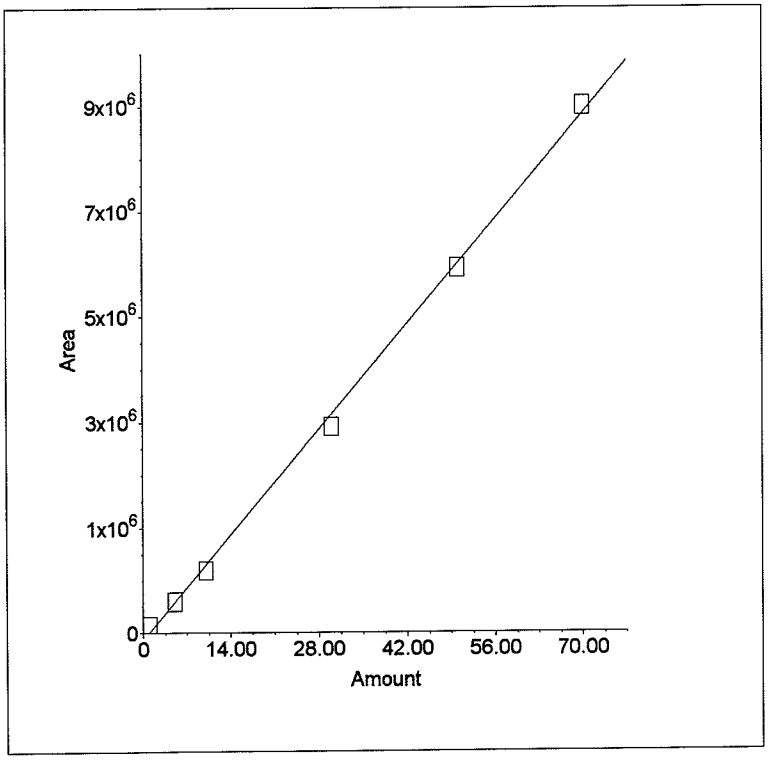
5. Component:Nitrate
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.998941
Amt=2.563e-006*Resp+0.1012



6. Component:O.Phos
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.999794
Amt=7.813e-006*Resp+0.02056



7. Component:Sulfate
Standard:External Fit Type:Linear
Origin:Ignore Calibration:Area
r^2=0.998573
Amt=7.735e-006*Resp+0.878



Instrument: *DX-120, System 2*

Cal. File: *W26655*

ICV *W26601* W26438

Analyst: *EJC*

Date: *7/12/2011*

Calibration Concentrations

Analyte	Cal Level 1 Conc. (mg/L)	Cal Level 2 Conc. (mg/L)	Cal Level 3 Conc. (mg/L)	Cal Level 4 Conc. (mg/L)	Cal Level 5 Conc. (mg/L)	Cal Level 6 Conc. (mg/L)	Cal Level 7 Conc. (mg/L)	Cal Level 8 Conc. (mg/L)	ICV Conc. (mg/L)
Fluoride	0.0	0.1	0.5	1.0	2.0	5.0			3.5
Chloride	0.0	0.5	1.0	5.0	10.0	20.0	30.0	40.0	15.0
Nitrite	0.0	0.1	0.5	1.0	2.0	5.0			3.5
Bromide	0.0	0.1	0.5	1.0	2.0	5.0			3.5
Nitrate	0.0	0.1	0.5	1.0	2.0	5.0	7.0		3.5
O-Phoshorous	0.0	0.1	0.5	1.0	2.0	5.0			3.5
Sulfate	0.0	0.5	1.0	5.0	10.0	30.0	50.0	70.0	25.0

Level Not Used

Schedule File: C:\Instrument Archives\Sequences\System 2\78172.sch

Line	Sample	Sample Type	Level	Method
52	CCV W26885 W26764	Sample		w26655.met
53	CCB	Sample		w26655.met
58	LCSWX10 W26796	Sample		w26655.met
59	MBWX10	Sample		w26655.met
61	962088X10	Sample		w26655.met

Line	Sample	Sample Type	Level	Method
66	CCV W26885 W26764	Sample		w26655.met
67	CCB	Sample		w26655.met

Sample Analysis Report

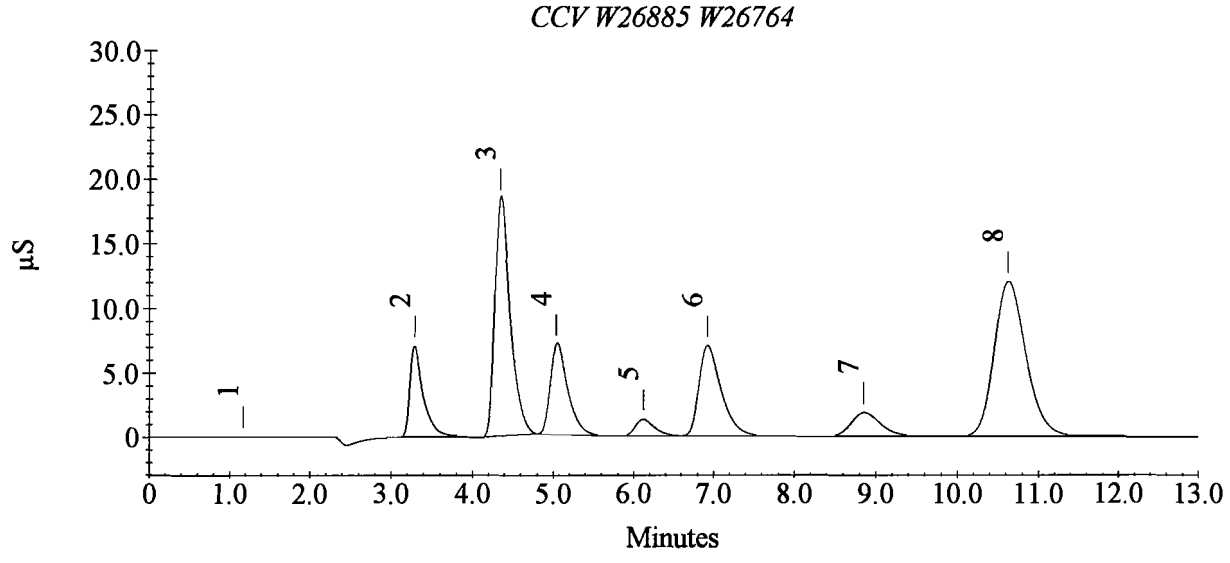
Sample Name : CCV W26885 W26764
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78172\CCV W26885 W26764_052.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 20:01:42
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
2	Fluoride	3.28	3.5334	807626	70740	
3	Chloride	4.33	14.6325	2477447	183773	
4	Nitrite	5.03	3.3834	1064633	69918	
5	Bromide	6.12	3.6774	216521	13000	
6	Nitrate	6.92	3.6178	1372248	70447	
7	O.Phos	8.85	3.7350	475395	18566	
8	Sulfate	10.62	26.1798	3271209	120414	

7.0012



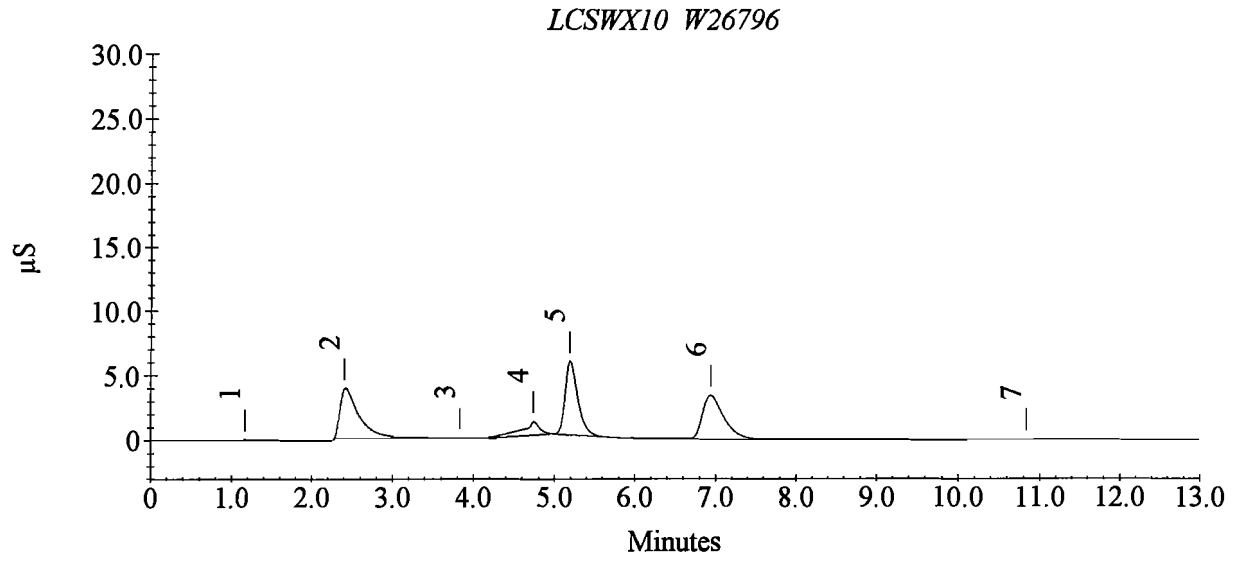
Sample Analysis Report

Sample Name : LCSWX10 W26796
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78172\LCSWX10 W26796_058.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 21:33:16
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
5	Nitrite	5.18	1.9830	617005	56655	
6	Nitrate	6.93	1.6952	622015	33871	
7	Sulfate	10.83	0.9243	5994	241	



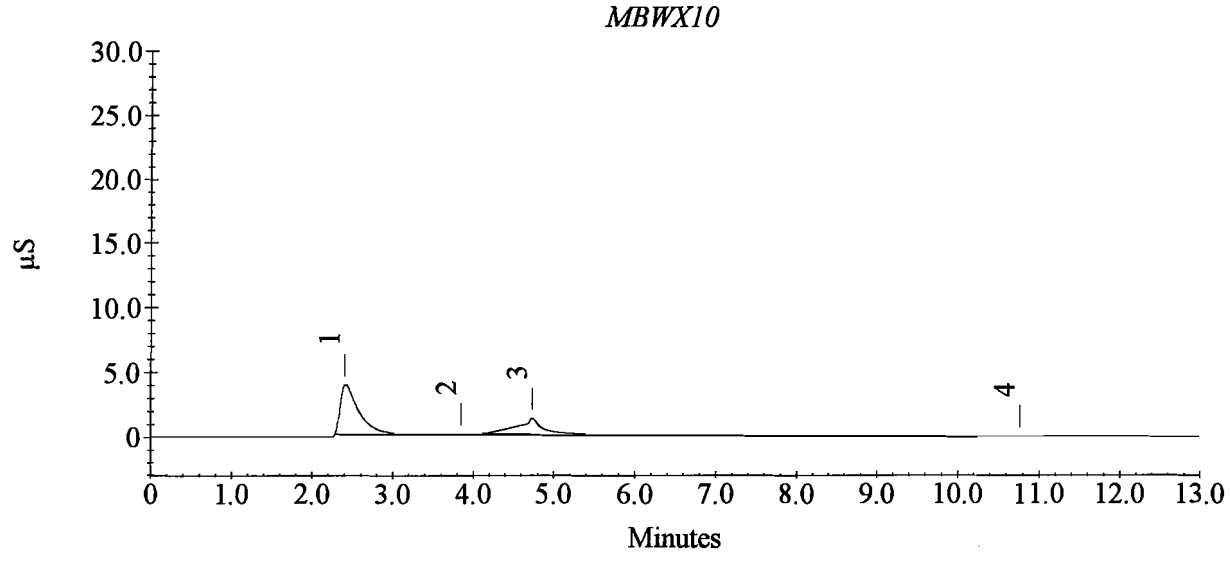
Sample Analysis Report

Sample Name : MBWX10
Data File Name : c:\instrument archives\data\system 2\78172\MBWX10_059.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 21:48:33
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
2	Chloride	3.85	0.6108	5057	328	
4	Sulfate	10.77	0.9382	7786	308	



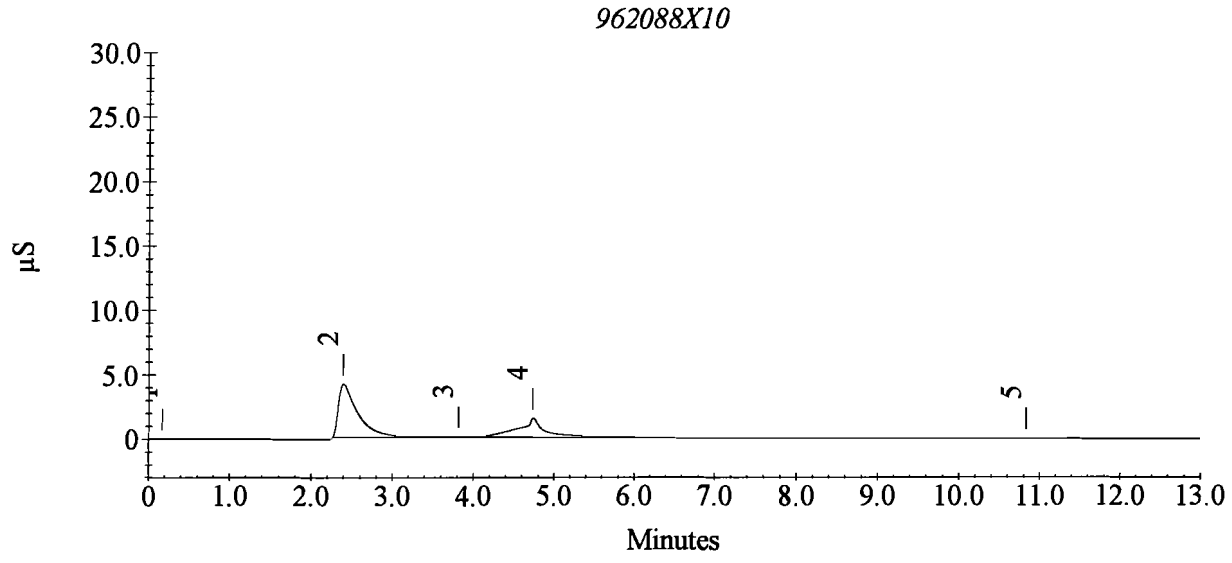
Sample Analysis Report

Sample Name : 962088X10
Data File Name : c:\instrument archives\data\system 2\78172\962088X10_061.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 22:19:04
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
5	Sulfate	10.83	0.9247	6035	257	



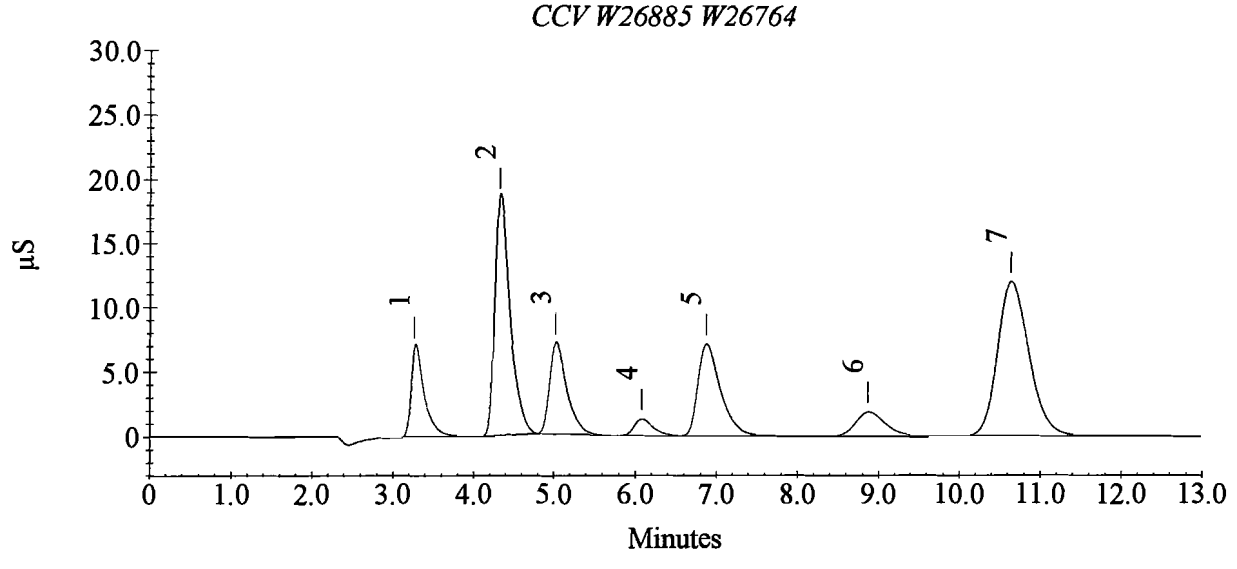
Sample Analysis Report

Sample Name : CCV W26885 W26764
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78172\CCV W26885 W26764_066.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 23:35:20
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
1	Fluoride	3.27	3.5366	808372	69687	
2	Chloride	4.32	14.6043	2472476	184685	
3	Nitrite	5.02	3.3663 16.9760	1059173	70521	
4	Bromide	6.08	3.6334	213926	13026	
5	Nitrate	6.87	3.6097	1369084	70895	
6	O.Phos	8.87	3.7322	475037	18529	
7	Sulfate	10.63	26.1012	3261050	119813	



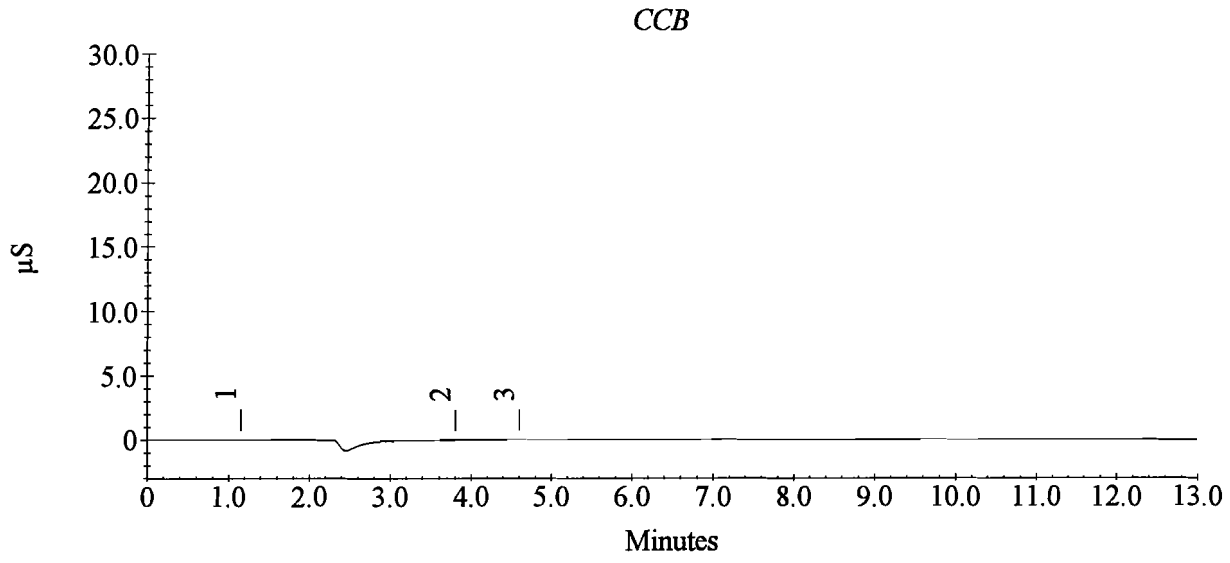
Sample Analysis Report

Sample Name : CCB
Data File Name : c:\instrument archives\data\system 2\78172\CCB_067.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/20/2011 23:50:36
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
3	Chloride	4.60	0.6121	5296	218	



Schedule File: C:\Instrument Archives\Sequences\System 2\78541.sch

Line	Sample	Sample Type	Level	Method
1	CCV W26885 W26764	Sample		w26655.met
2	LCSSX10 W26796	Sample		w26655.met
3	MBSX10	Sample		w26655.met
4	962085X10	Sample		w26655.met
5	MSS962085X10	Sample		w26655.met
6	MSDS962085X10	Sample		w26655.met
7	962086X10	Sample		w26655.met
8	962087X10	Sample		w26655.met
14	CCV W26885 W26764	Sample		w26655.met
15	CCB	Sample		w26655.met

Sample Analysis Report

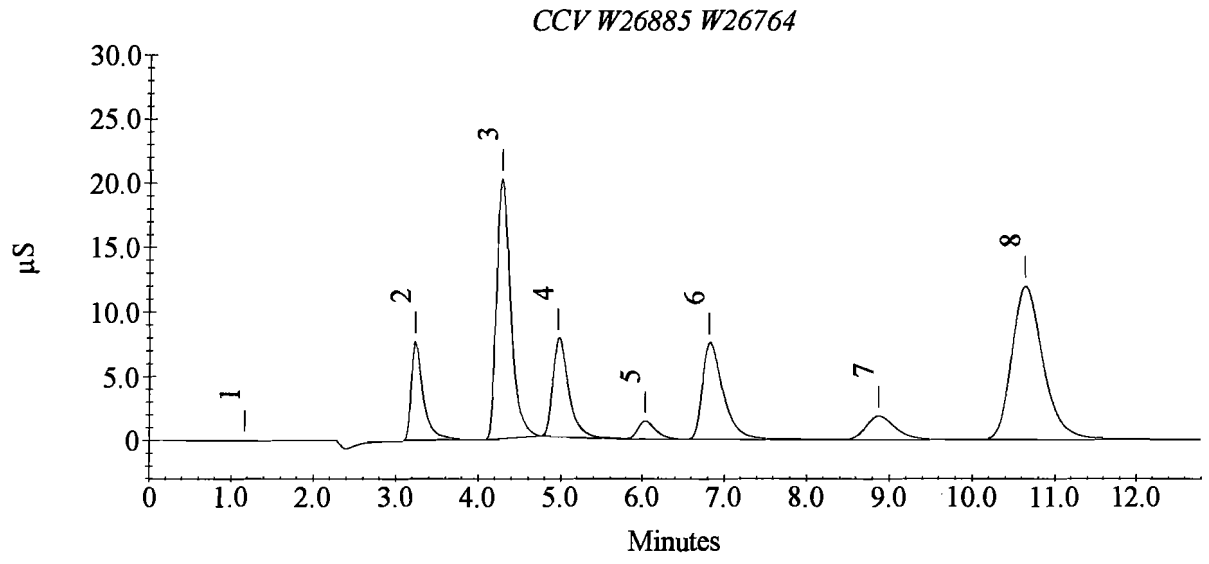
Sample Name : CCV W26885 W26764
Data File Name : c:\instrument archives\data\system 2\78541\CCV W26885 W26764_001.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 15:43:35
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
2	Fluoride	3.23	3.4491	787984	76695	
3	Chloride	4.28	14.1723	2396312	201132	
4	Nitrite	4.97	3.2864	1033631	75875	
5	Bromide	6.03	3.5129	206826	13916	
6	Nitrate	6.82	3.5491	1345430	74706	
7	O.Phos	8.87	3.6489	464368	18471	
8	Sulfate	10.63	25.4847	3181342	118901	

6.8355



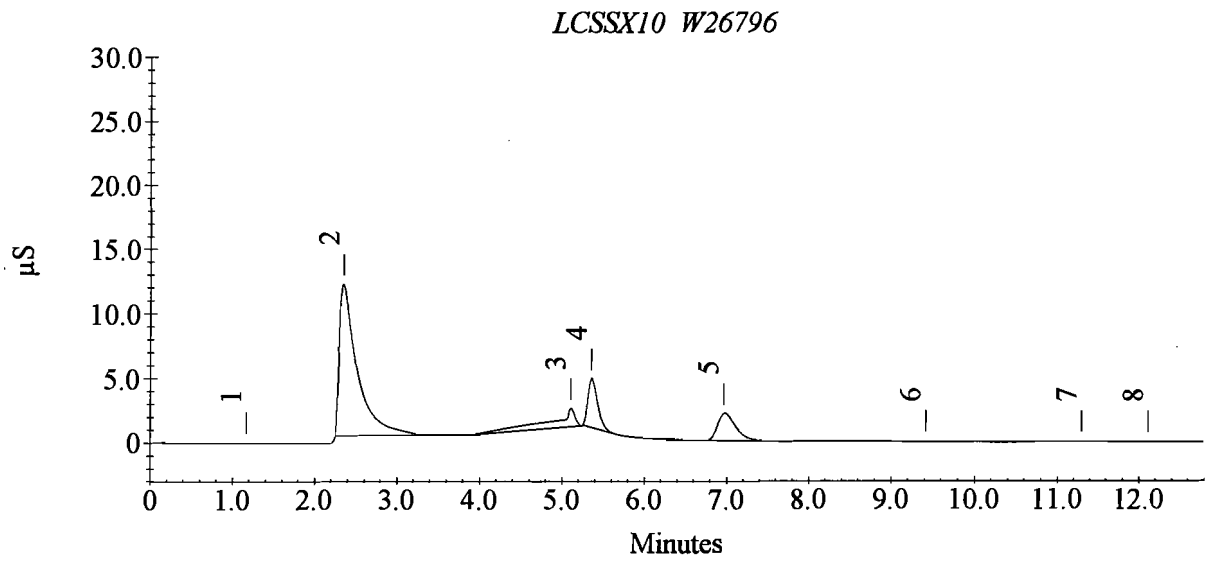
Sample Analysis Report

Sample Name : LCSSX10 W26796
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78541\LCSSX10 W26796_002.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 15:59:01
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
4	Nitrite	5.35	1.0462 ~ 1.9709	317534	37280	
5	Nitrate	6.97	0.9247 /	321344	20978	
6	O.Phos	9.42	0.2263	26328	729	
7	Sulfate	11.30	1.0928	27780	727	



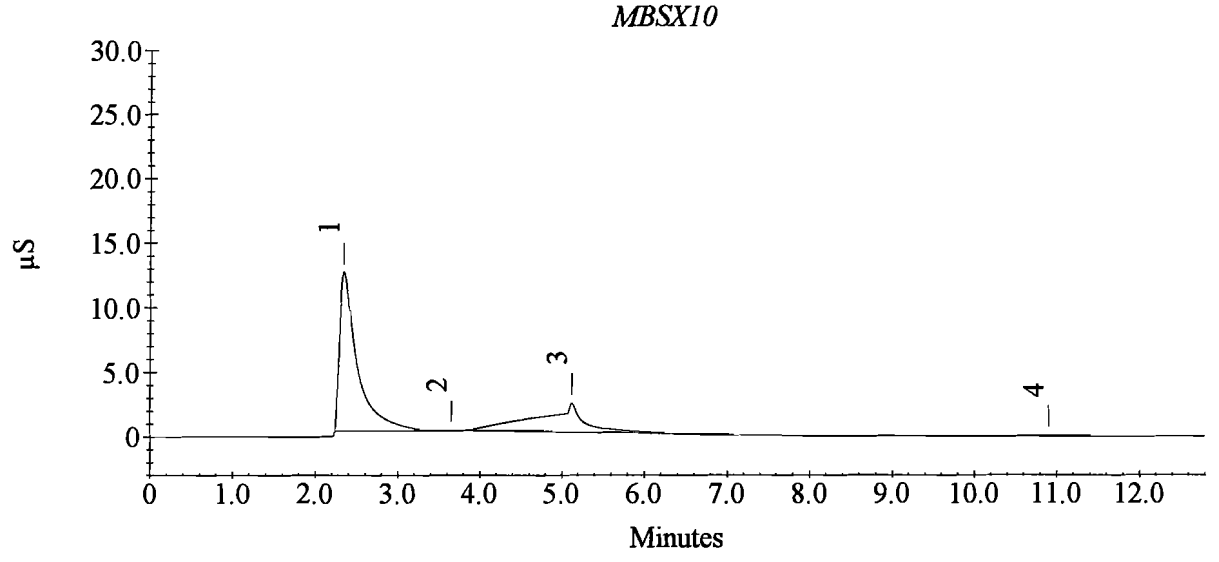
Sample Analysis Report

Sample Name : MBSX10
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78541\MBSX10_003.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 16:14:04
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
4	Sulfate	10.90	0.9932	14901	460	



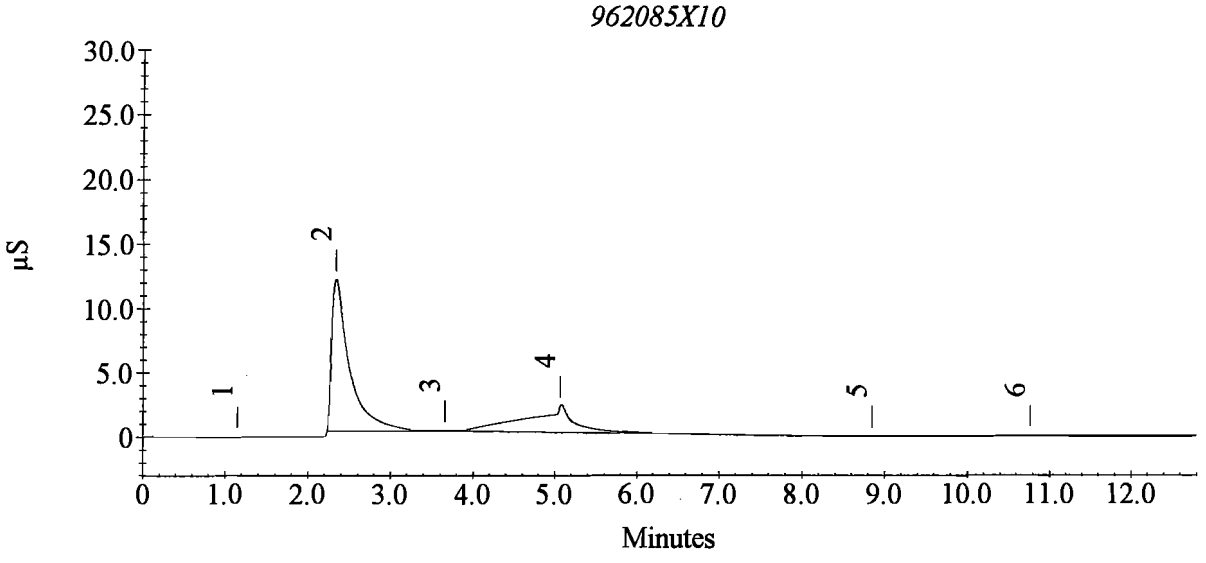
Sample Analysis Report

Sample Name : 962085X10
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78541\962085X10_004.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 16:29:09
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
5	O.Phos	8.85	0.0468	3359	97	
6	Sulfate	10.77	0.9805	13253	487	



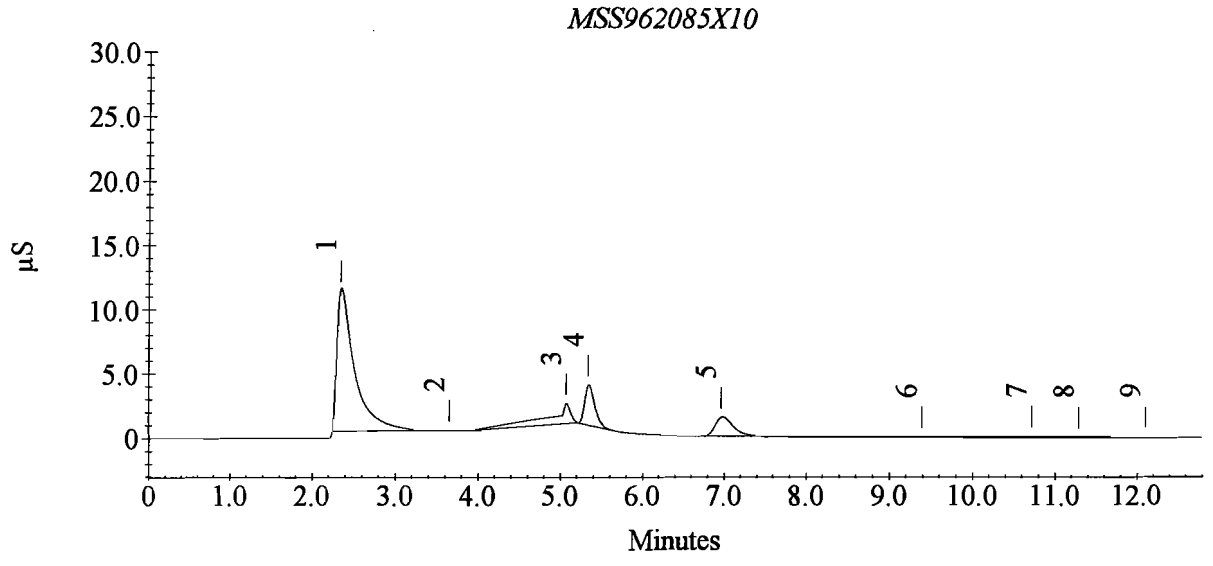
Sample Analysis Report

Sample Name : MSS962085X10
Data File Name : c:\instrument archives\data\system 2\78541\MSS962085X10_005.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 16:44:13
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
4	Nitrite	5.33	0.8947 1.5753	269133	30943	
5	Nitrate	6.97	0.6806	226091	14668	
6	O.Phos	9.38	0.0528	4127	232	
7	Sulfate	10.72	1.0061	16566	796	



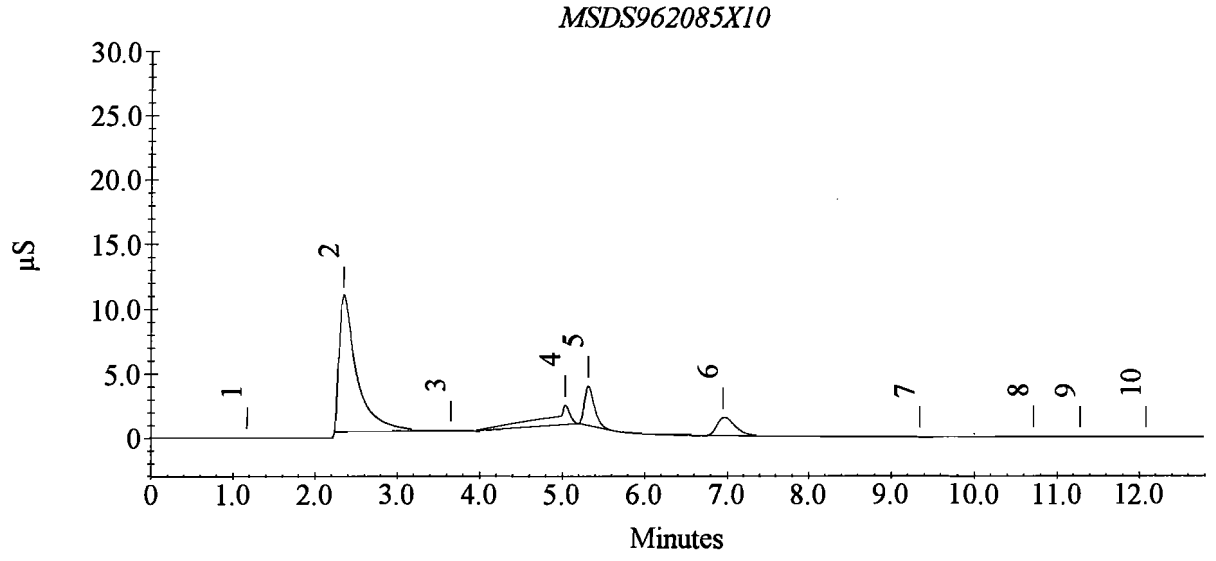
Sample Analysis Report

Sample Name : MSDS962085X10
Data File Name : c:\instrument archives\data\system 2\78541\MSDS962085X10_006.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 16:59:18
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
5	Nitrite	5.32	0.8742 1.5395	262578	30444	
6	Nitrate	6.95	0.6653	220112	14189	
7	O.Phos	9.35	0.0478	3490	211	
8	Sulfate	10.72	0.9890	14353	670	



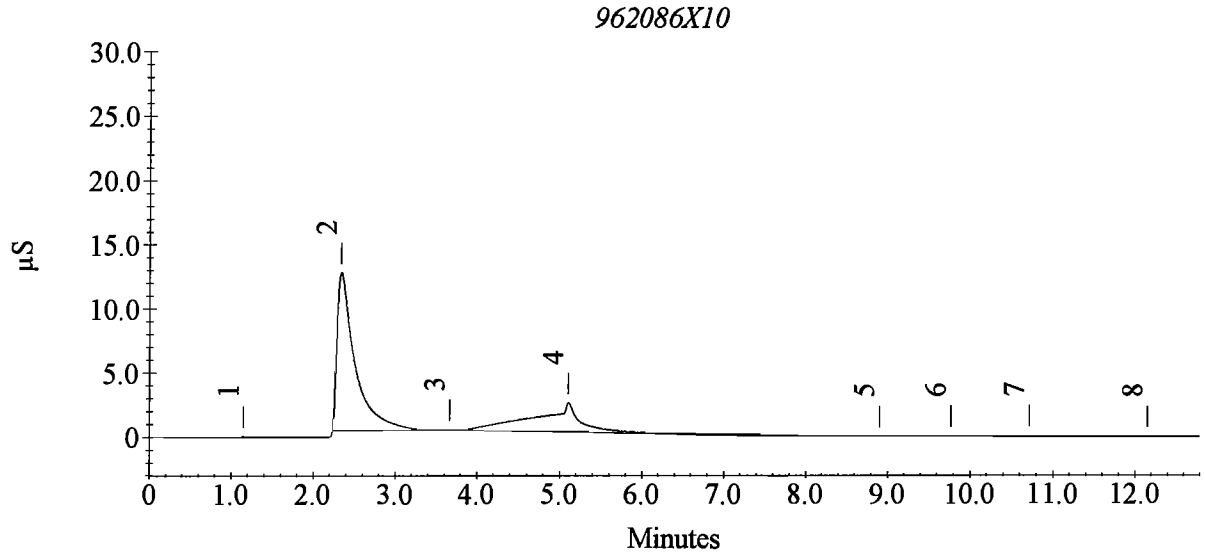
Sample Analysis Report

Sample Name : 962086X10
Data File Name : c:\instrument archives\data\system 2\78541\962086X10_007.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 17:14:23
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
5	O.Phos	8.90	0.0486	3590	141	
7	Sulfate	10.72	1.0997	28667	966	



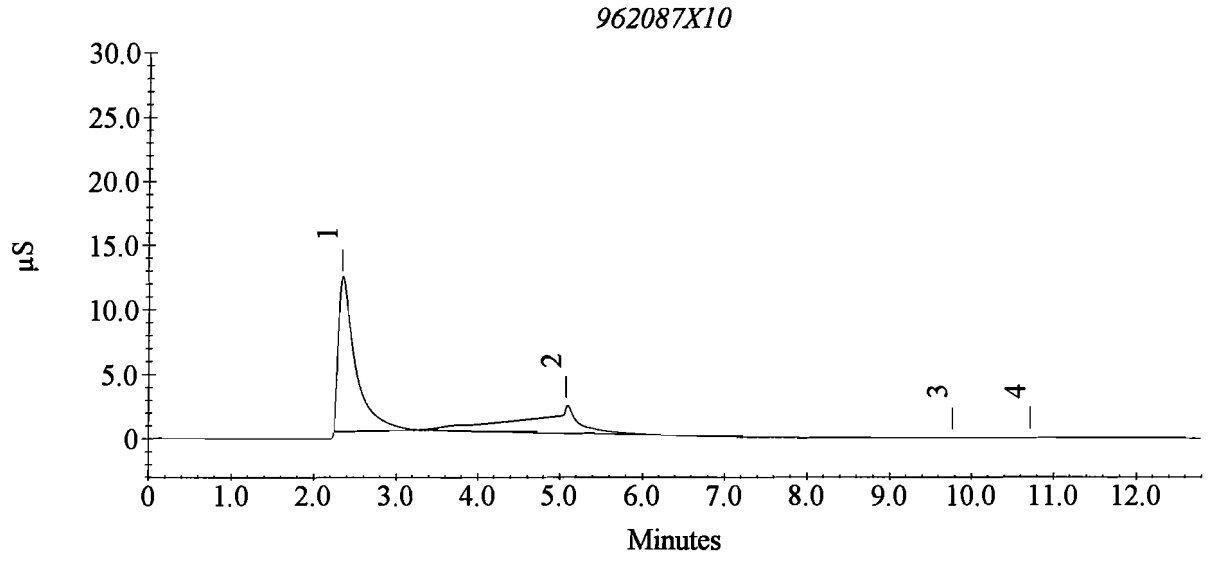
Sample Analysis Report

Sample Name : 962087X10
Data File Name : c:\instrument archives\data\system 2\78541\962087X10_008.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 17:29:28
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
4	Sulfate	10.72	1.0573	23179	811	



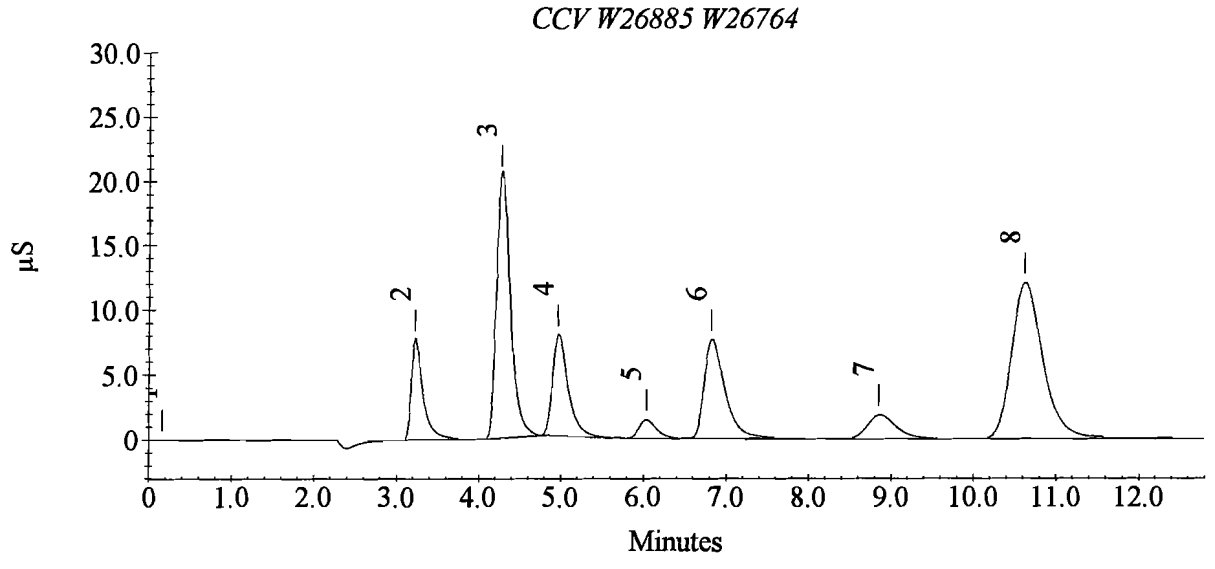
Sample Analysis Report

Sample Name : CCV W26885 W26764
Data File Name : C:\INSTRUMENT ARCHIVES\DATA\SYSTEM 2\78541\CCV W26885 W26764_014.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 18:59:59
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
2	Fluoride	3.22	3.4461	787283	76931	
3	Chloride	4.27	14.2735	2414146	203467	
4	Nitrite	4.97	3.2948	1036322	77999	
5	Bromide	6.03	3.5452 / 6.8607	208727	14187	
6	Nitrate	6.82	3.5659	1352004	76051	
7	O.Phos	8.85	3.5858	456291	18407	
8	Sulfate	10.62	25.5581	3190835	120592	



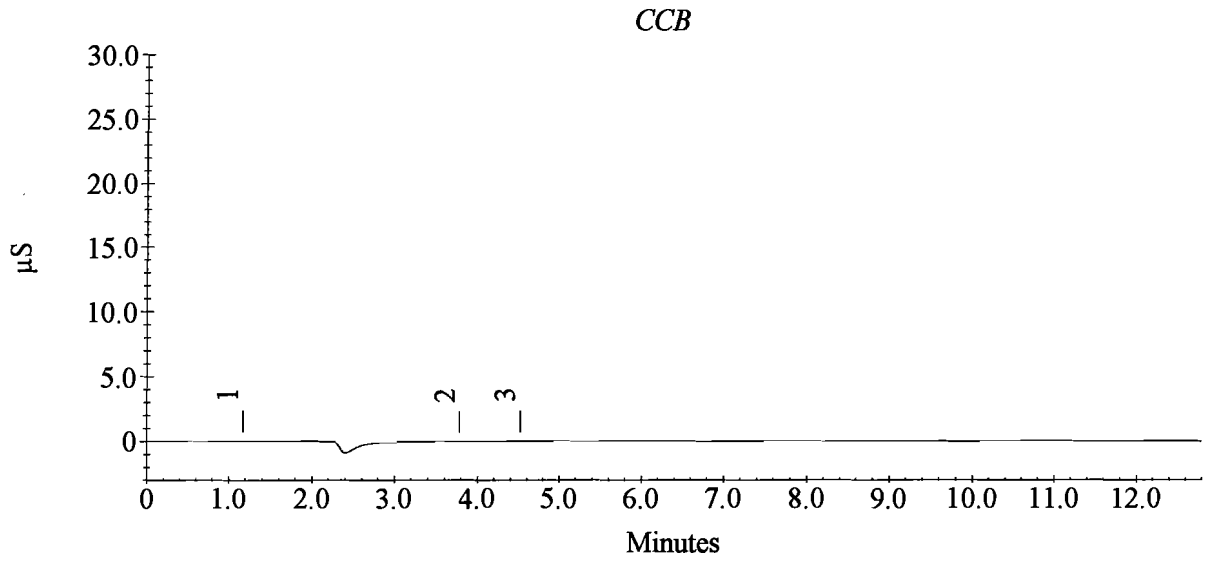
Sample Analysis Report

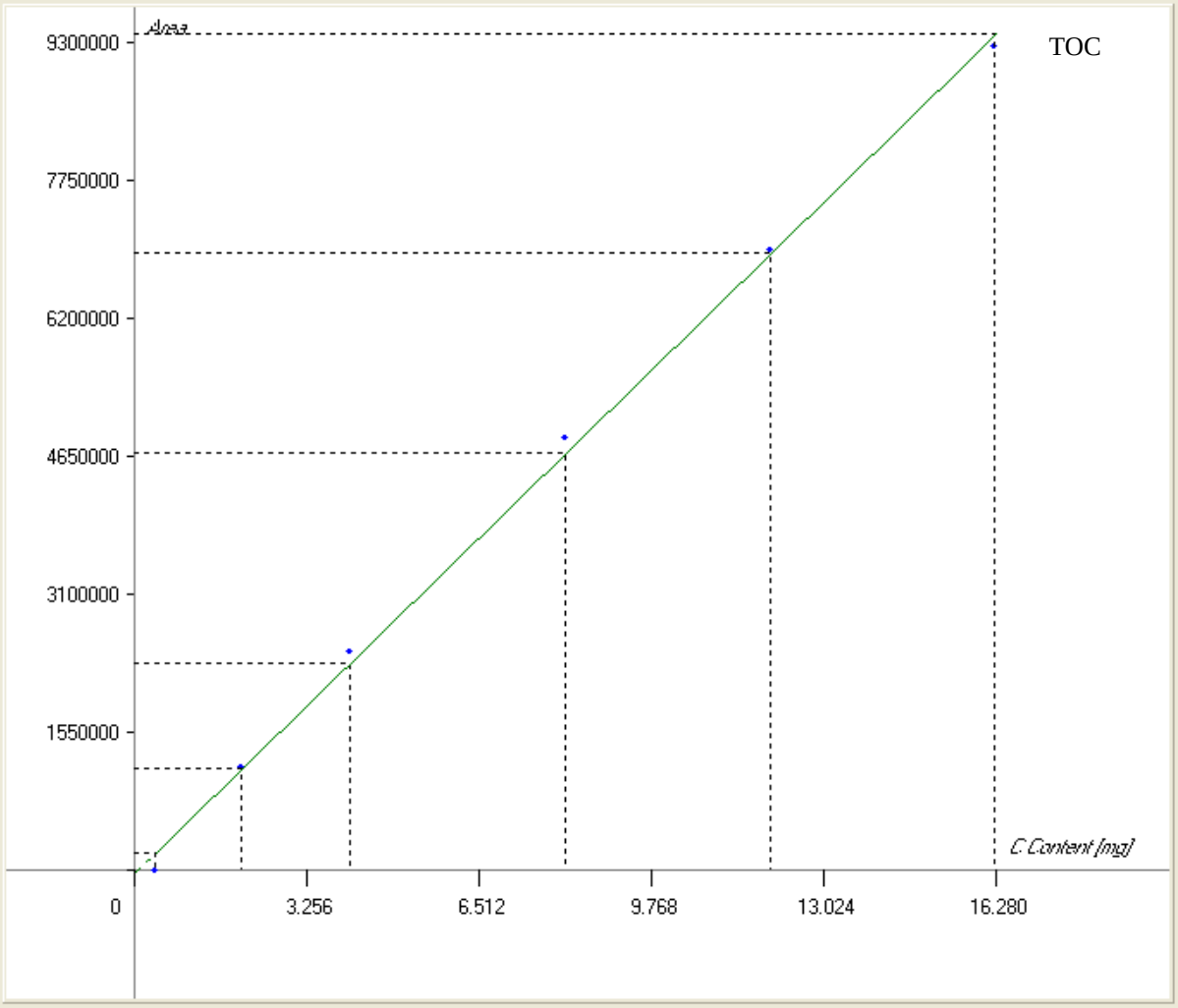
Sample Name : CCB
Data File Name : c:\instrument archives\data\system 2\78541\CCB_015.DXD

Method File Name : c:\instrument archives\methods\system 2\w26655.met
Date Time Collected : 08/26/2011 19:15:04
System Operator : RLD

Peak Information : Found Components

Peak #	Component Name	Retention Time	Amount	Peak Area	Peak Height	Limit Exceeded
3	Chloride	4.52	0.5965	2546	133	





TOC

Cursor Position

Content	Area
15.271 mg	3778125

A2	0
A1	579465
A0	-25265
Correlation	0.99917
Order	1
Range	High
Highest Standard C Content	16.28 mg
Area	9276744

☐ Confidence Intervals 95%

☐ Detection/Determination 95%

Conc.	Area	Sel.
16.28	9276744	☑
12.04	6975405	☑
8.16	4872966	☑
4.08	2465549	☑
2.04	1174749	☑
0.4	0	☑

• Used Value
• Ignored Value

CurveNo: 1 CurveType: TC

<- -> Print... Exit

Analysis Name W26941 082311.adb

Template Name	W26941 082311.tdb
Method Name	N / A
Operator	BMS
Date	Tuesday, August 23, 2011
Time	17:27
Start Oven Temp.	242 °C
Start Cooler Temp.	2 °C
Version	1.90 Release
Info	ICAL - W26941 ICV - W23772

Element	Integration Time
Carbon	150 s
SampleTimeTC	450 s
SampleTimeIC	250 s

No	Type	FileName	Date/Time	Max. Area	Max Cont.	Order	Correlation	Sel.	Range
1	TC	This Analysis	Aug 23 2011, 17:27	9276744	16.28	1	0.99917	Yes	High
	A2: 0		*A1: 579465.210165854*		*A0: -25265.1728552901*				

Inj. Order	Position	Type	Identification	Range
1	1	Unknown	BLANK	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**368873.12**	**10598067**	**49.7 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	368873.12	10598067	1	242	2	-	Yes

Inj. Order	Position	Type	Identification	Range
2	2	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**394416.42**	**9276744**	**40.7 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	394416.42	9276744	1	241	2	-	Yes

Inj. Order	Position	Type	Identification	Range
3	3	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**401370.78**	**6975405**	**30.1 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	401370.78	6975405	1	242	2	-	Yes

Inj. Order	Position	Type	Identification	Range
4	4	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**414363.74**	**4872966**	**20.4 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	414363.74	4872966	1	243	2	-	Yes

Inj. Order	Position	Type	Identification	Range
5	5	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**421418.69**	**2465549**	**10.2 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	421418.69	2465549	1	244	2	-	Yes

Inj. Order	Position	Type	Identification	Range
6	6	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**406058.71**	**1174749**	**5.1 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	406058.71	1174749	1	245	2	-	Yes

Inj. Order	Position	Type	Identification	Range
7	7	Standard	DEXTROSE STANDARD	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**0.00**	**0**	**1 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	0	0	1	246	2	-	Yes

Inj. Order	Position	Type	Identification	Range
8	8	Unknown	ICV	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**423577.07**	**7878166**	**32.2 mg**

			Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
			1	423577.07	7878166	1	247	2	-	Yes
9	9	Unknown	ICB							High
		TC		**0.00**	**0**			**1 mg**		
			Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
			1	0.00	0	0	247	2	-	Yes

Analysis Name 083011 78601 78603 78367.adb

Template Name 083011 78601 78603.tdb
Method Name N / A
Operator BMS

Date Tuesday, August 30, 2011
Time 7:48

Start Oven Temp. 234 °C
Start Cooler Temp. 2 °C

Version 1.90 Release
Info CCV - W23192
LCSS - W23772

Element	Integration Time
Carbon	150 s
SampleTimeTC	300 s
SampleTimeIC	250 s

No	Type	FileName	Date/Time	Max. Area	Max Cont.	Order	Correlation	Sel.	Range
1	TC	W26941 082311	Aug 23 2011, 17:27	9276744	16.28	1	0.99917	Yes	High
	A2: 0		*A1: 579465.210165854*		*A0: -25265.1728552901*				

Inj. Order	Position	Type	Identification	Range
1	1	Unknown	CCV	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**435610.27**	**7597849**	**30.2 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	435610.27	7597849	1	235	2	-	Yes

Inj. Order	Position	Type	Identification	Range
2	2	Unknown	LCSS	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**404422.47**	**7075502**	**30.3 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	404422.47	7075502	1	237	2	-	Yes

Inj. Order	Position	Type	Identification	Range
3	3	Unknown	MBS	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**0.00**	**0**	**1 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	0	0	0	239	2	-	Yes

Inj. Order	Position	Type	Identification	Range
4	4	Unknown	961720	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**19068.54**	**2757013**	**251.8 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	19068.54	2757013	1	242	2	-	Yes

Inj. Order	Position	Type	Identification	Range
5	5	Unknown	961721	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**18888.62**	**2769069**	**255.3 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	18888.62	2769069	1	244	2	-	Yes

Inj. Order	Position	Type	Identification	Range
6	6	Unknown	962085	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**29905.83**	**4378132**	**254.1 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	29905.83	4378132	1	245	2	-	Yes

Inj. Order	Position	Type	Identification	Range
7	7	Unknown	962086	High

Injection Type	Conc.(mg/kg)	Area	Weight
TC	**35251.72**	**5081521**	**250.0 mg**

Sample	Conc.(mg/kg)	Area	Curve	Oven	Cooler	Edited	Selected
1	35251.72	5081521	1	245	2	-	Yes

Inj. Order	Position	Type	Identification	Range
8	8	Unknown	962087	High

		TC		**41279.08**	**6088633**			**255.6 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	41279.08	6088633	1	246	2	-	Yes
9	9		Unknown	962133						High
		TC		**4759.97**	**1381160**			**509.9 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	4759.97	1381160	1	247	2	-	Yes
10	10		Unknown	962134						High
		TC		**3051.38**	**876853**			**510.2 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	3051.38	876853	1	247	2	-	Yes
11	11		Unknown	962135						High
		TC		**3268.70**	**928791**			**503.7 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	3268.70	928791	1	248	2	-	Yes
12	12		Unknown	962136						High
		TC		**2020.27**	**591564**			**526.9 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	2020.27	591564	1	248	2	-	Yes
13	13		Unknown	962137						High
		TC		**7035.79**	**2046256**			**508.1 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	7035.79	2046256	1	248	2	-	Yes
14	14		Unknown	CCV						High
		TC		**375659.33**	**6766398**			**31.2 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	375659.33	6766398	1	248	2	-	Yes
15	15		Unknown	CCB						High
		TC		**0.00**	**0**			**1 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	0	0	0	249	2	-	Yes
16	16		Unknown	DUP962137						High
		TC		**7079.83**	**2030914**			**501.2 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	7079.83	2030914	1	249	2	-	Yes
17	17		Unknown	DUP962137						High
		TC		**6841.12**	**2016293**			**515.0 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	6841.12	2016293	1	249	2	-	Yes
18	18		Unknown	DUP962137						High
		TC		**6390.38**	**1882522**			**515.2 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	6390.38	1882522	1	249	2	-	Yes
19	19		Unknown	962143						High
		TC		**2830.63**	**834226**			**524.0 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	2830.63	834226	1	249	2	-	Yes
20	20		Unknown	962144						High
		TC		**3472.61**	**1016481**			**517.7 mg**		
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**
			1	3472.61	1016481	1	249	2	-	Yes

27	26		Unknown	CCV									High
		TC		**366070.08**	**6635456**					**31.4 mg**			
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**			
			1	366070.08	6635456	1	250	2	-	Yes			

29	28		Unknown	MBS /CCB									High
		TC		**0.00**	**0**					**1 mg**			
			Sample	**Conc.(mg/kg)**	**Area**	**Curve**	**Oven**	**Cooler**	**Edited**	**Selected**			
			1	0.00	0	0	250	2	-	Yes			

pH Bench Sheet

DATE:_8/24/11_____ ANALYST:_ MML

INSTRUMENT: ***Mettler Toledo Seven Easy*** LIMS#:____ 78438

SLOPE:__98%.___

	SAMPLE#	MATRIX	pH	TEMP (C)	COMMENTS:
	Buffer 7		7.02		
1	962088	GW	5.90	5.5	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
	Buffer 7		7.02		

DUPLICATE SUMMARY:

Sample #	MATRIX	pH Sample	pH Duplicate	% Difference
962088	GW	5.90	5.90	—

pH Bench Sheet

DATE:_8/22/11_____ ANALYST:_ LEM

INSTRUMENT: ***Mettler Toledo Seven Easy*** LIMS#:_____ 78480

SLOPE:____ 100

	SAMPLE#	MATRIX	pH	TEMP (C)	COMMENTS
	Buffer 7		7.01		
1	962085	S	7.68	23.0	
2	962086	S	8.61	22.8	
3	962087	S	8.83	23.6	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
	Buffer 7		7.04		

DUPLICATE SUMMARY:

Sample #	MATRIX	pH Sample	pH Duplicate	% Difference
962085	S	7.68	7.68	—

TOTAL SOLIDS (PERCENT)

LIMS #: 78350

Start Date:	**08/22/2011**	**Start Time:**	12:00		**Analyst:**	APG
	Sample ID#	**Dish#**	**Tared Weight g** *(D)*	**Wet Weight g** *(E)*	**Dry Weight g** *(F)*	**RESULTS % TOTAL SOLIDS**
1)	962086	P5570	2.61	15.38	15.23	98.8%
2)	962087	P5571	2.59	15.55	15.36	98.5%
3)						0.0%
4)						0.0%
5)						0.0%
6)						0.0%
7)						0.0%
8)						0.0%
9)						0.0%
10)						0.0%
11)						0.0%
12)						0.0%
13)						0.0%
14)						0.0%
15)						0.0%
16)						0.0%
17)						0.0%
18)						0.0%
19)						0.0%
*20)	962085	P5573	2.60	17.44	17.16	98.1%
Dup 20)	962085	P5572	2.60	18.31	18.03	98.2%

Dry Weight = Sample + Dish (gms)		* 2nd Reading,	17.17	
Wet Weight = Sample + Dish (gms)			Set RPD:	0%
	Balance: XD-2200			
			*mg Difference	10

Stop Date:	8/23/2011
Stop Time:	9:00

Calculations

*2nd reading must be within 50mg of the 1st

% Total Solids = ((*F-D*)/(*E-D*))*100

RPD, % = Absolute value of…((Sample-Dup % TS)/(Average%TS))*100

INORGANICS
LOGBOOK
DOCUMENTS

WNITROCELLULOSE IC Analytical Run
78280 on 8/21/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	963990							WNITROCELLULOSE IC				
		Nitrocellulose			CCV				0			
	963991							WNITROCELLULOSE IC				
		Nitrocellulose			CCB				0			
	962738							NITROCELLULOSE QSM				
		Nitrocellulose			LCSW				38218			
	962737							NITROCELLULOSE QSM				
		Nitrocellulose			MBW				38218			
	961722		8/12/2011	1315				NITROCELLULOSE QSM		GW	4	
		Nitrocellulose							38218			
86608	962088		8/15/2011	1245		SHAW E&I INC	RVAAP MMRP	NITROCELLULOSE QSM		GW	4	
		Nitrocellulose							38218			
	963992							WNITROCELLULOSE IC				
		Nitrocellulose			CCV				0			
	963993							WNITROCELLULOSE IC				
		Nitrocellulose			CCB				0			

8

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 8/19/2011

Prep Batch **38,218**

Prepped By:: BMS

Date Prepped: 8/17/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	962737	MBW		NITROCELLULOSE QSM	LIQUID	15.0		950		LCSW- Spiked 0.952 of DI H2O w/ 1.0ml of W26796
	962738	LCSW		NITROCELLULOSE QSM	LIQUID	15.0		950		
	961722			NITROCELLULOSE QSM	GROUND WATER	15.0		920	N	
86608	962088			NITROCELLULOSE QSM	GROUND WATER	15.0		920	N	

Control Spike/Control Spike Dup Reference Number: W26796

~~Methanol~~ Acetone Supplier/Lot #: JTBaker/JT14E52

RO 8/19/11

Notes:

Data Validation Checklist

LIMS #: 78172, 78279, 78280 & 78281	Method: Nitrocellulose by Ion Chromatography (Nitrite & Nitrate)			
Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved
8/20/11	BMS/RS	RD	8/21/11	(Yes) ... No

Instructions: Complete one checklist per *analytical run*. Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	Acceptance Criteria	Analyst Review		Independent Review		Comments: (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. Was the calibration performed using the required number of standards?	Minimum three plus a blank	✓		✓		
2. Is the standard prep log number noted on the analytical report bench sheet?	---	✓		✓		
3. Was the correlation coefficient acceptable?	≥ .995	✓		✓		
4. Were the ICV and ICB run immediately after the calibration check standard?	---	✓		✓		
5. Was the ICV recovery acceptable?	90 – 110 % or contract/program specific	✓		✓		
6. Was the ICB result acceptable?	< LOD or contract/program specific	✓		✓		
7. Were the CCV's and the CCB's analyzed at the required frequency?	1 / 10 samples or contract/program specific	✓		✓		
8. Were the CCV recoveries acceptable?	90 – 110 % or contract/program specific	✓		✓		
9. Were the CCB results acceptable?	< LOD or program/project specific	✓		✓		
10. Was the MB analyzed at the required frequency?	1 / 20 samples or contract/program specific	✓		✓		
11. Were the MB results acceptable?	< LOD or contract/program specific	✓		✓		
12. Was a LCS run at the required frequency?	1 / 20 samples or contract/program specific	✓		✓		
13. Was the LCS recovery acceptable?	Within in-house or contract/program specific limits	✓		✓		
14. Was the MS and/or MSD (when required) prepared at the required frequency?	1per 20 samples per matrix or contract/program specific	✓		✓		

15. Was the MS (and/or MSD) recovery acceptable?	Within In-house or contract/program specific limits		✓		✓	ms/msd's = ↓ = "M" Flag.
16. If applicable was the RPD between the MS and MSD acceptable?	Within in house or contract/program specific limits	✓		✓		
17. Was a sample duplicate prepared at the required frequency?	Contract/program specific or 1 per 20 samples (1 / 10 for SDWA samples)	NA		NA		
18. Was the duplicate within precision limits?	Within in-house or contract/program specific limits	↓		↓		
19. Were all chromatograms checked to ensure accurate peak identification?	---	✓		✓		
20. Are all samples on the job lists accounted for?	---	✓		✓		

WNITROCELLULOSE IC Analytical Run
78541 on 8/27/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	967943							WNITROCELLULOSE IC				
		Nitrocellulose			CCV				0			
	964054							NITROCELLULOSE QSM				
		Nitrocellulose			LCSS				38286			
	964053							NITROCELLULOSE QSM				
		Nitrocellulose			MBS				38286			
86608	962085		8/15/2011	1315		SHAW E&I INC	RVAAP MMRP LL1	NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose			*				38286			
	964055		8/15/2011	1315				NITROCELLULOSE QSM				
		Nitrocellulose			MSS	962085			38286			
	964056		8/15/2011	1315				NITROCELLULOSE QSM				
		Nitrocellulose			MSDS	964055			38286			
86608	962086		8/15/2011	1330		SHAW E&I INC	RVAAP MMRP LL1	NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			
86608	962087		8/15/2011	1350		SHAW E&I INC	RVAAP MMRP LL1	NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			
	962110		8/12/2011	1523				NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			
	962111		8/12/2011	1555				NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			
	962112		8/13/2011	0850				NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			
	962113		8/13/2011	0858				NITROCELLULOSE QSM		S	**4**	
		Nitrocellulose							38286			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WNITROCELLULOSE IC Analytical Run
78541 on 8/27/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	962114		8/13/2011	1034				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	967944							WNITROCELLULOSE IC				
		Nitrocellulose			CCV				0			
	967945							WNITROCELLULOSE IC				
		Nitrocellulose			CCB				0			
	962115		8/13/2011	1203				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962116		8/13/2011	1207				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962117		8/13/2011	1413				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962118		8/13/2011	0838				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962119		8/13/2011	0919				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962120		8/13/2011	1005				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962121		8/13/2011	1110				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962122		8/13/2011	1205				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962123		8/13/2011	1341				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WNITROCELLULOSE IC Analytical Run
78541 on 8/27/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	962124		8/13/2011	1435				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	967946							WNITROCELLULOSE IC				
		Nitrocellulose			CCV				0			
	967947							WNITROCELLULOSE IC				
		Nitrocellulose			CCB				0			
	962125		8/13/2011	1537				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	962126		8/13/2011	1625				NITROCELLULOSE QSM		S	4	
		Nitrocellulose							38286			
	967954							WNITROCELLULOSE IC				
		Nitrocellulose			CCV							
	967955							WNITROCELLULOSE IC				
		Nitrocellulose			CCB							

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Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 8/26/2011

Prep Batch **38,286**

Prepped By:: BMS

Date Prepped: 8/22/2011

Date Entered:

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	964053	MBS		NITROCELLULOSE QSM	SOLID	25.0	10.0			
	964054	LCSS		NITROCELLULOSE QSM	SOLID	25.0	10.0			
86608	962085	*		NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962086			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962087			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962110			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962111			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962112			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962113			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962114			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962115			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962116			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962117			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962118			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962119			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962120			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962121			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	

LCSS: Spiked 10g of silica sand w/ 1.0ml of W26796

ms/msd: Spiked 10g of sample w/ 1.0ml of W26796

PREP WORKSHEET
on 8/26/2011

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	Partial List	Notes
	962122			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962123			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962124			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962125			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	962126			NITROCELLULOSE QSM	SOIL	25.0	10.0		N	
	964055	MSS	962085	NITROCELLULOSE QSM	SOIL	25.0	10.0			
	964056	MSDS	964055	NITROCELLULOSE QSM	SOIL	25.0	10.0			

RD 8/26/11

Control Spike/Control Spike Dup Reference Number: iw26796

Methanol Supplier/Lot #: Fisher / 093227

Notes: Acetone Supplier/Lot #: JT Baker / J14E52

Distibution: C:\LIMSREPS\PREPWRKSHT.RPT

Data Validation Checklist

LIMS #: 78541 & 78542	Method: Nitrocellulose by Ion Chromatography (Nitrite & Nitrate)			
Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved
8/26/11	BMS/RS	RS	8/27/11	(Yes) ... No

Instructions: Complete one checklist per *analytical run*. Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	Acceptance Criteria	Analyst Review		Independent Review		Comments: (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. Was the calibration performed using the required number of standards?	Minimum three plus a blank	✓		✓		
2. Is the standard prep log number noted on the analytical report bench sheet?	---	✓		✓		
3. Was the correlation coefficient acceptable?	≥ .995	✓		✓		
4. Were the ICV and ICB run immediately after the calibration check standard?	---	✓		✓		
5. Was the ICV recovery acceptable?	90 – 110 % or contract/program specific	✓		✓		
6. Was the ICB result acceptable?	< LOD or contract/program specific	✓		✓		
7. Were the CCV's and the CCB's analyzed at the required frequency?	1 / 10 samples or contract/program specific	✓		✓		
8. Were the CCV recoveries acceptable?	90 – 110 % or contract/program specific	✓		✓		
9. Were the CCB results acceptable?	< LOD or program/project specific	✓		✓		
10. Was the MB analyzed at the required frequency?	1 / 20 samples or contract/program specific	✓		✓		
11. Were the MB results acceptable?	< LOD or contract/program specific	✓		✓		
12. Was a LCS run at the required frequency?	1 / 20 samples or contract/program specific	✓		✓		
13. Was the LCS recovery acceptable?	Within in-house or contract/program specific limits	✓		✓		
14. Was the MS and/or MSD (when required) prepared at the required frequency?	1per 20 samples per matrix or contract/program specific	✓		✓		

15. Was the MS (and/or MSD) recovery acceptable?	Within In-house or contract/program specific limits		✓		✓	Low recoveries = "M" flag
16. If applicable was the RPD between the MS and MSD acceptable?	Within in house or contract/program specific limits	✓		✓		
17. Was a sample duplicate prepared at the required frequency?	Contract/program specific or 1 per 20 samples (1 / 10 for SDWA samples)	NA		NA		
18. Was the duplicate within precision limits?	Within in-house or contract/program specific limits	↓		↓		
19. Were all chromatograms checked to ensure accurate peak identification?	---	✓		✓		
20. Are all samples on the job lists accounted for?	---	✓		✓		

DX120 Run Log

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	System (1 or 2)	Calibration ID #	Data File	COMMENTS (Spike ID #s)	Total Conduct-ivity	Pressure (PSI)	Flow (mL/min)
8/18/11	1321	8/19/11	0435	CES	78253, 78249, 250, 251	2	W26655/P	78253	W26728 W26795	18.600	1714	1.03
8/19/11	12:41	8/20/11	01:11	CES	78293, 78294 78281	2	|	78288	⊥	18.610	1672	1.05
8/19/11	12:38	8/19/11	19:16	CES	78286, 287	1	~~W26~~ W25967A	78286	W26824, 823 822	19.207	1565	1.04
8/20/11	07:03	8/21/11	05:56	RD	78172, 78279, 78280, 78281	2	W26655	78172	W25296 W26764	18.744	1755	1.03
8/22/11	1219	8/23/11	0226	CES	78357, 78356, mul 78358, ~~78369~~	2	W26655/P	78357	W26728 W26795	18.159	1712	1.03
8/23/11	1100	8/24/11	0358	mul	78406, 78405 78369 78404, 78415, 416	2	W26655	78406	|	18.11	1706	1.03
8/23/11	1241	8/23/11	1935	mul	78411, 78417	1	LLW25967A	78411	W26822 W26823 W26824	18.6	1542	1.04
8/24/11	1315	8/24/11	2354	EJC	78452, 78447, 78446	1	⊥	78446	⊥	18.64	1552	1.01
8/24/11	1258	8/25/11	0403	EJC	78448, 78443, 78444, 78445	2	W26655	78448	W26950 + W26795	18.06	1707	1.03
8/25/11	1004	8/26/11	2000	CES	78452, 78447 78446, 497, 496	1	LLW25967A	78452	W26824 W26823 W26822	18.607	1534	1.02
8/25/11	1232	08/26/11	0237	CES	78588, 498, 497 499, 500	2	~~W26655~~ W26655 CES 8/25/11	78497	~~W26655~~ W26950 W26795	18.09	1717	1.03
8/26/11 ~~8/25/11~~ EJC 8/26/11	23:47			EJC/CES	78564, 78565	1	W25099 VFA	78564	0.05 W25097 → SML	124.53	1645	1.21
8/26/11	11:40	8/26/11	15:11	EJC	78547, 78548	2	W26655	78547	W26950 + W26795	18.01	1702	1.03
8/26/11	15:43	8/27/11	04:03	RD	78541 + 78542	2	W26655	78541	W26764	17.985	1723	1.03

New Calibration Info

System 1	
Calib. (ID/Date)	
Flow (mL/min)	
Press. (psi)	
Analyte	**Ret. Time**
Fluoride	
Chloride	
Nitrite	
Bromide	
Nitrate	
o-Phos.	
Sulfate	

System 2	
Calib. (ID/Date)	
Flow (mL/min)	
Press. (psi)	
Analyte	**Ret. Time**
Fluoride	
Chloride	
Nitrite	
Bromide	
Nitrate	
o-Phos.	
Sulfate	

Reviewed By: _____

W26980 [illegible] 8/29/11 — Cr^{+6} 5 Cal: Into 5 seperate 50mL vol. pipet 0, 1, 2.5, 5, 10mL W26141 & brought to vol. w/ Dig soln. W26981

W26981 [illegible] 8/29/11 — Cr^{+6} S Dig Soln: Into a 2L vol. dissolve 40g NaOH W26953 & 60g sodium carbonate anhydrous W26912 & brought to vol. w/ DI H_2O exp: 8/29/12

W26982 [illegible] 8/29/11 — Cr^{+6} S LCS: Into a 100mL vol. pipet 10mL W26145 & brought to vol. w/ Dig Soln. W26981 tv: 500 µg/L

W26983 CES 8/29/11 — COD LCS/ICV - Into a 500mL vol dissolved 0.17g KHP W19521 & filled to vol w/ dI H_2O. Tv = 400mg/L exp 11/29/11

W26984 CES — COD CCV - Into a 500mL vol dissolved 0.17g KHP W23082 & filled to vol w/ dI H_2O. TV = 400mg/L exp 11/29/11

W26985 [illegible] 8/29/11 — Cr^{+6} S DPC: Into a 100mL vol. dissolve 0.5g DPC W25133 in Acetone cat#9254-03 Lot# J14E52 exp: 8/30/11

W26986 [illegible] 8/29/11 — Ascorbic Acid Reagent into a 500ml Vol. dissolved 30g Ascorbic W26816 & 0.5g SDS W25587 & brought to Vol. w/ DI H_2O exp 8/30/11

W26987 [illegible] 8/29/11 — T Phos. carrier into a 1L Vol. dissolved 31.7g potassium Sulfate W26412 & Volumetrically added 48ml H_2SO_4 W26977 & brought to Vol. w/ DI H_2O exp 9/29/11

W26988 CES 8/30/11 — Cr^{+6} LCS - Into a 50mL vol pipetted 5mL W26145 & filled to vol w/ dig soln W26981.

W26989 [illegible] 8/30/11 — IC CCV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC CCV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride W 24612, Phosphate W 25444, Bromide W 25936, and Nitrate W 25398, 15 ml 1000 mg/L Chloride W 26507, and 25 ml 1000 mg/L Sulfate W 26573 and brought to volume with Milli-Q DI H_20. EXP (1 Month): 9/7/11

Page

Read and Understood By

Signed Date Signed Date

W26970 ESC 8/25/11 LL NO_3 CCV: Into a 200mL vol. pipetted 0.2mL NO_3 W25398 & brought to vol. w/ Milli Q DI H_2O exp: 9/26/11

W26971 KWS 8-26-11 Ammonium Persulfate - Into a 200 mL Vol. flask dissolved 80g W26400 and brought to vol. w/ DI H_2O. Exp. 9-2-11

W26972 ESC 8/26/11 VFA LOQWV: tv = 0.8mg/L Into a 100mL vol. pipetted 0.08mL CCV mixed stock W25099 & W26348 ESC 8/26/11 2.5mL Elvet Conc. W26348 & brought to vol. w/ Milli Q DI H_2O exp: 9/2/11

W26973 ESC 8/26/11 VFA LOQWV: tv = 2.5mg/L Into a 100mL vol. pipetted 0.25mL CCV mixed stock W25099 & 2.5mL Elvet Conc. W26348 & brought to vol. w/ Milli Q DI H_2O exp: 9/2/11

W26974 KWS 8-26-11 TKN/TPHOS Digestion Solution
Into a 2L volumetric flask dissolved 266g potassium sulfate W_____ and volumetrically added 400mL H_2SO_4 W_____ and 50mL Mercuric Sulfate Solution W_____ and brought to volume with DI H_2O.
EXP(1 month):_____

W26975 KWS 8-26-11 W Mercuric Sulfate soln- Into a 200 mL vol. flask dissolved 16g and vol. added 20mL H_2SO_4 W _____ and brought to vol. w/ DI H_2O. Exp. 9-26-11

W26976 KWS 8-26-11 Fisher Ammonium Peroxydisulfate Cat # A682-500 LOT # 116272 Exp. 8-26-16

W26977 KWS 8-26-11 Fisher Sulfuric Acid Cat # A300S-212 LOT # 111682

W26978 CES 8/29/11 TKN CCV- Into a 250mL vol pipetted 1.25mL W26803 & filled to vol w/ milliQ H_2O. exp 9/27/11 TV = 20mg/L

W26979 CES 8/29/11 TKN LCS- Into a 250mL vol pipetted 12.5mL W26804 - filled to vol w/ milliQ H_2O. exp 9/27/11 TV = 50mg/L

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

W26952 BMS 08/25/11 — 5N NaOH - Into a 1L volumetric flask, dissolved 200g of NaOH pellets (W26444) and brought to volume with DI H_2O. Exp. 08/25/12

W26953 BMS 08/25/11 — Sodium Hydroxide - Fisher cat.# 5318-3, lot# 111357

*W26954 EJC 8/25/11 — NH_3 Distilled ICAL

All levels pipetted into volumetric flasks and brought to volume with Boric Diluent W 26859. EXP (1 Week): 9/1/11

Level	mLs ICAL/CCV Stock Standard 1,000 mg/L W 26652	Final Volume (mL)	True Value (mg/L)
1	0.4	50	8.00
2	0.2	50	4.00
3	0.1	50	2.00
4	0.05	50	1.00
5	0.025	50	0.50
6	0.01	100	0.10
7	0	50	0.00

*W26955 EJC 8/25/11 — NH_3 Sodium Hypochloride

Into a 500mL volumetric flask volumetrically added 250mL Bleach W 26866 and brought to volume with DI H_2O. EXP(24 hours): 8/26/11

*W26956 EJC 8/25/11 — Sodium Phenolate Color Reagent

Into a 500mL volumetric flask dissolved 16g NaOH W 26953 and volumetrically added 44mL phenol W 26516 and brought to volume with DI H_2O. EXP(1 week): 9/1/11

*W26957 EJC 8/25/11 — Boric Diluent

Into a 2L volumetric flask volumetrically added 200mL boric receiving solution W 26864 and brought to volume with DI H_2O. EXP(1 month): 9/25/11

*W26958 EJC 8/25/11 — KCl extraction soln: Into a 500mL vol. dissolved 75g KCl W 26398 + brought to vol. w/ DI H_2O exp: 9/25/11

*W26959 EJC 8/25/11 — NH_3 LCSS: Into a 50mL vol. flask pipetted 0.25 mL W26743 + brought to vol. w/ KCl soln W26958 tv = 5mg/L

Continued on Page

Read and Understood By

Signed Date Signed Date

W26942 KWB 8-23-11 NH3 LCS - Into a 250 mL vol-flask pipetted 1.25 mL W26743 and brought to vol. w/ DI H_2O. Exp. 8-30-11

W26943 KWB 8/24/11 Cr+6: Into 200mL vol. dissolve 1.0g DPC W25133 in Acetone JT Baker Lot#: J14E52 Cat#: 9254-03 exp: 8/25/11

W26944 KWB 8-24-11 LL T. Phos Dilunt - Into a 2L vol. flask vol. added 50mL W26902 and pipetted 14.4 mL H_2SO_4 W25793 BTV w/ DI H_2O. Exp. 8-31-11

W26945 KWB 8-24-11 LL T. Phos Molybdate - Into a 1L vol-flask vol. added 213mL Mol. stock W26827 and tartrate 72mL W26774 BTV w/ DI H_2O. Exp. ~~8-31-11~~ KWB 8-24-11 9-24-11

W26946 KWB 8-24-11 LL T. Phos Ascorbic - Into a 500 mL vol. flask dissolved 30g Ascorb W26816 and 1.5g SDS W25587 and BTV w/ DI H_2O. Exp. 8-25-11

W26947 KWB 8-24-11 LL T. Phos ICAL Working - Into a 200 mL vol. flask pipetted 2mL W25444 and brought to vol. w/ DI H_2O. Exp. 8-31-11

W26948 KWB 8-24-11 LL T. Phos ICAL - Into seven 50 mL vol. flasks pipetted 1, 0.5, 0.25, 0.125, 0.05, 0.025 and 0 mL W26947. BTV w/ W26944. exp. 8-31-11

W26949 KWB 8-24-11 LL T. Phos ICV - Into a 100 mL vol. flask pipetted 0.48 mL W26903 and brought to vol. w/ Diluent W26944. Exp. 8-31-11

W26950 ESC 8/24/11 IC Nitrite and Fluoride Spike Standard (128 mg/L Nitrite and 32 mg/L Fluoride)
Into a ~~100~~ 200 mL ESC 8/24/11 volumetric flask pipetted ~~12.8~~ 25.6 mL ESC 8/24/11 1000 mg/L Nitrite W25160 and ~~3.2~~ 6.4 mL ESC 8/24/11 1000 mg/L Fluoride W 24612 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 9/7/11

W26951 ESC 8/24/11 IC LCS/ICV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC LCS/ICV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) W 25762 and brought to volume with Milli-Q DI H_2O.
EXP (1 Month): 9/24/11

Read and Understood By

Signed Date Signed Date

W26814 EJC 8/8/11 — NH_3 LCS Into a 500mL vol. pipetted 2.5mL W26743 & brought to vol. w/ DI H_2O tr: 5 mg/L exp: 8/15/11

W26815 CES 8/8/11 — Ascorbic Reagent - Into a 500mL vol dissolved 30g Ascorbic W26329 + 0.5g SDS W25587 + filled to vol w/ dI H_2O exp 8/9/11

W26816 CES 8/8/11 — Ascorbic - Fisher cat# BP351-500 lot # 110872

W26817 BMS 08/08/11 — TOCS IDC's - ~30 mg Dextrose (W23772).

W26818 CES 8/9/11 — TKN hypochlorite - Into a 1L vol volumetrically added 60mL bleach W26564 + filled to vol w/ dI H_2O exp 8/10/11

W26819 mul 8-9-11 — IC LCS/ICV Nitrite Standard (7 mg/L) *Diluted 1:1 daily with IC LCS/ICV Mixed Standard to equal a value of 3.5 mg/L Nitrite
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite W 25893 and brought to volume with Milli-Q DI H_2O. EXP (1 month): 9-9-11

W26820 mul 8-9-11 — LL IC NO_2 + Poy LCS into a 100ml Vol pipetted 0.1ml NO_2 W25893 + 0.02ml poy W26886 + brought to Vol. w/ MilliQ H_2O exp 9-9-11

W26821 mul 8-9-11 — LL IC NO_3 LCS into a 100ml Vol. pipetted 0.1ml NO_3 W25916 + brought to Vol. w/ MilliQ H_2O exp 9-9-11

W26822 mul 8-9-11 — LL NO_2 spike into a 100ml Vol. pipetted 5ml W25893 + brought to Vol. w/ MilliQ H_2O exp 9-9-11

mul 8-9-11 W26823 ~~W288~~ mul 8-9-11 — LL NO_3 spike into a 100ml Vol pipetted 5ml W25916 + brought to Vol. w/ MilliQ H_2O exp 9-9-11

W26824 mul 8-9-11 — LL IC poy spike into a 100ml Vol. pipetted 3ml W26612 + brought to Vol. w/ MilliQ H_2O exp 9-9-11

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W26785 KWB 8-1-11 Alk LCS – Into a 200 mL vol. flask pipetted 30 mL W26784 and brought to vol. w/ CO_2 Free DI H_2O. TV + 375. Exp. 9-1-11

W26786 KWB 8-2-11 TKN Hypochlorite – Into a 500 mL vol. flask vol. added 30 mL Bleach W26564 and brought to vol. w/ DI H_2O. Exp. 8-3-11

W26787 KWB 8-2-11 TKN Buffer – Into a 2L vol. flask dissolved 34g EDTA W26589 60g Sodium Phos Dibasic Hepthydrate W26664 and 130g NaOH W26444 and brought to vol. w/ DI H_2O. Exp. 9-2-11

W26788 KWB 8-2-11 0.8N NaOH – Into a 1L vol. flask dissolved 32g NaOH W26444 and brought to vol. w/ DI H_2O. Exp. 9-2-11

W26789 CES 8/2/11 2% H_2SO_4 – Into a 250 mL vol pipetted 5 mL H_2SO_4 W25871 + filled to vol w/ dI H_2O. exp 8/2/12

W26790 CES 8/2/11 1N NaOH – Into a 250 mL vol dissolved 10g NaOH W26444 + filled to vol w/ dI H_2O exp 8/2/12

W26791 CES 8/2/11 10% H_2SO_4 CES 8/2/11 ~~NaOH~~ – Into a 250 mL vol pipetted 25 mL H_2SO_4 W25871 ~~dissolved 100g NaOH W26444~~ + filled to vol w/ dI H_2O. exp 8/2/12

W26792 CES 8/2/11 ~~50N NaOH~~ – Into a ~~250~~ 50 mL vol dissolved ~~300g~~ 60g NaOH W26444 + filled to vol w/ dI H_2O. exp 8/2/12 CES 8/2/11

W26793 CES – Ricca Alkaline – Iodide – Azide cat # 540-32 lot # 101051 exp 10/2012

W26794 dell 8/2/11 Abraxis Atrazine Kit Lot # 11F7699 Cat # 500001 exp: 12/12

W26795 CES 8/2/11 IC Mixed Spike Standard (64 mg/L Bromide, Nitrate, and Phosphate, 256 mg/L Chloride and Sulfate)

Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Bromide W25936, Nitrate W25398, and Phosphate W25444 and 25.6 mL 1000 mg/L Chloride W26507 and Sulfate W25463 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 9/2/11

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W26759 ESC 7/28/11 Sodium Phenolate Color Reagent
Into a 500mL volumetric flask dissolved 16g NaOH W 26444 and volumetrically added 44mL phenol W 26516 and brought to volume with DI H_2O.
EXP(1 week): 8/4/11

W26760 ESC 7/28/11 NH_3 Distilled ICAL
All levels pipetted into volumetric flasks and brought to volume with Boric Diluent W 26753. EXP (1 Week): 8/4/11

Level	mLs ICAL/CCV Stock Standard 1,000 mg/L W 26652	Final Volume (mL)	True Value (mg/L)
1	0.4	50	8.00
2	0.2	50	4.00
3	0.1	50	2.00
4	0.05	50	1.00
5	0.025	50	0.50
6	0.01	100	0.10
7	0	50	0.00

W26761 ESC 7/28/11 NH_3 Undistilled ICAL (2.5mg/L)
Into a 100mL volumetric flask pipetted 0.25mL NH_3/TKN CCV/ICAL Stock Standard 1000mg/L W 26652 and brought to volume with H_2SO_4 Diluent W 26754.
EXP(1 week): 8/4/11

W26762 ESC 7/28/11 NH_3 Undistilled CCV (1.25mg/L)
Into a 100mL volumetric flask pipetted 0.125mL NH_3/TKN CCV/ICAL Stock Standard 1000mg/L W 26652 and brought to volume with H_2SO_4 Diluent W 26754. EXP(1 week): 8/4/11

W26763 ESC 7/28/11 NH_3 Undistilled ICV/LCS (1.25mg/L)
Into a 100mL volumetric flask pipetted 0.125mL NH_3/TKN ICV/LCS Stock Standard 1000mg/L W 26743 and brought to volume with H_2SO_4 Diluent W 26754. EXP(1 week): 8/4/11

W26764 CES 7/28/11 IC CCV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC CCV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride W 24612, Phosphate W 25444, Bromide W 25936, and Nitrate W 25398, 15 ml 1000 mg/L Chloride W 26507, and 25 ml 1000 mg/L Sulfate W 25463 and brought to volume with Milli-Q DI H_20. EXP (1 Month): 8/28/11

W26739 ESC 7/25/11 LL NO_3 CCV: Into a 200mL vol. pipetted 0.2mL NO_3 W25398 & brought to vol. w/ Milli Q DI H_2O exp: 8/25/11

W26740 Lee 7/25/11 Sulfide Stk. LCS ✓ 1000mg/L into a 200mL volumetric flask. dissolve 1.5g W22510 & brought to volume w/ 0.25 NaOH W26729 exp: 8/25/11

W26741 Lee 7/25/11 LCS Sulfide: Into a 200mL vol. Flask pipet 1mL W26740. Brought to vol. w/ DI H_2O exp: 7/26/11

W26742 ESC 7/25/11 LL IC LOQ ✓: Into a 100mL vol. pipetted 0.6mL W26737 & brought to vol. w/ Milli Q DI H_2O. tv = 0.06 mg/L NO_3

W26743 KWB 7-26-11 Spex Certiprep Ammonia Nitrogen Standard 1000 mg/L Expires 04-15-2012

W26744 KWB 7-26-11 NH_3 LCS - Into a 500 mL vol. flask pipetted 2.5mL W26743 and brought to vol. w/ DI H_2O Exp. 8-2-11

W26745 mm 7-26-11 0.8N NaOH into a 1L Vol. dissolved 32g NaOH W26444 & brought to Vol. w/ DI H_2O exp 8-26-11

W26746 mm 7-26-11 TKN hypochlorite into a 500mL Vol. volumetrically added 30mL bleach W26564 & brought to Vol. w/ DI H_2O exp 7-27-11

W26747 ESC 7/26/11 Sulfide LCS: Into a 200mL vol. pipetted 1mL W26740 & brought to vol. w/ DI H_2O exp: 7/27/11

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W26722 KMB LL T. Phos ICAL working std - Into a 100 mL vol. flask
7-22-11 pipetted 1mL W25444 and brought to vol. w/ DI H_2O. Exp-7-29-11

W26723 KMB LL T Phos ICAL - Into seven 100 mL vol. flasks pipetted 2mL, 1mL,
7-22-11 0.5, 0.25, 0.1, 0.05 and 0 mL W26722 and brought to vol. w/
Diluent W26720. Exp. 7-29-11

W26724 KMB LL T. Phos ICV - Into a 100 mL vol. flask pipetted 0.481mL
7-22-11 W26705 and brought to vol. w/ Diluent W26720. Exp. 7-29-11

*W26725 LLM
7/22/11

TKN/TPHOS Digestion Solution
Into a 2L volumetric flask dissolved 266g potassium sulfate W 26412 and volumetrically added 400mL H_2SO_4 W 25871 and 50mL Mercuric Sulfate Solution W 26726 and brought to volume with DI H_2O.
EXP(1 month): 8/22/11

*W26726 LLM
7/22/11

Mercuric Sulfate Soln: Into a 200mL vol. dissolve 16g W25437 & volumetrically add 20mL W25871 & brought to vol. w/ DI H_2O exp: 8/22/11

W26727
CES
7/23/11

IC LCS/ICV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC LCS/ICV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) W 25762 and brought to volume with Milli-Q DI H_2O.
EXP (1 Month): 8/23/11

W26728
CES
7/23/11

IC Nitrite and Fluoride Spike Standard (128 mg/L Nitrite and 32 mg/L Fluoride)
Into a 100 mL volumetric flask pipetted 12.8 mL 1000 mg/L Nitrite W 25160 and 3.2 mL 1000 mg/L Fluoride W 24612 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 8/23/11

W26729 ~~CES~~ LLM
~~7/23/11~~ 7/26/11

0.25 M Sodium Hydroxide
Into a 2 L volumetric flask dissolved 60 g sodium hydroxide W 26444 brought to volume with DI H20, then brought to final volume of 6 L in a large c with DI H20. EXP (1 Month): 8/25/11

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W26683 KMB 7-14-11 CN LCS/ICV Working Standard (10mg/L)
Into a 100 mL volumetric flask pipetted 1 mL CN LCS/ICV Stock Standard 1000 mg/L W 26467 and brought to volume with 0.25 M NaOH W 26682.
EXP (1 week): 7-21-11

W26684 KMB 7-14-11 CN LCS/ICV (50 µg/L)
Into a 200 mL volumetric flask pipetted 1 mL CN LCS/ICV Working Standard 10,000 µg/L W 26683 and brought to volume with 0.25 M NaOH W 26682.
EXP (1 week): 7-21-11

W26685 KMB 7-14-11 CN ICAL/CCV Working Standard (10mg/L)
Into a 100 mL volumetric flask pipetted 1 mL CN ICAL/CCV Stock Standard 1000 mg/L W 25703 and brought to volume with 0.25 M NaOH W 26682.
EXP (1 week): 7-21-11

W26686 7-14-11 KMB CN ICAL
All levels pipetted into volumetric flasks and brought to volume with 0.25 M NaOH W 26682. EXP (1 Week): 7-21-11

Level	mLs ICAL/CCV Working Standard 10,000 µg/L W	Final Volume (mL)	True Value (µg/L)
1	2	200	100
2	0.75	100	75
3	0.5	100	50
Level	mLs 100 µg/L standard (level 1)	Final Volume (mL)	True Value (µg/L)
4	15	50	30
5	20	100	20
6	5	50	10

W26687 EJC 7/14/11 NH_3 Nitroprusside: Into a 500mL vol. dissolved 0.25 g W26339+ brought to vol. w/ DI H_2O exp: 8/14/11

W26688 EJC 7/14/11 IC CCV Nitrite Standard (7 mg/L) *Diluted 1:1 daily with IC CCV Mixed Standard to equal a value of 3.5 mg/L Nitrite
Into a 500 mL volumetric flask piepetted 3.5 mL 1000 mg/L Nitrite W25160 and brought to volume with Milli-Q DI H_2O. EXP (1 month): 8/14/11

W26689 EJC 7/15/11 P Pyridine Color Reagent
Into a 500 mL volumetric flask dissolved 7.5 g barbituric acid W_____, volumetrically added 37.5 mL pyridine W_____, and pipetted 7.5 mL hydrochloric acid W_____ and brought to volume with DI H_2O.
EXP (1 week): _____

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W26675 EJC 7/13/11 — NH_3 EDTA Buffer: Into a 1 L vol. dissolved 50g EDTA W26589 & 4g NaOH W26444 & brought to vol. w/ DI H_2O exp: 8/13/11

W26676 EJC 7/13/11 — Phenate Soln: Into a 500mL vol. volumetrically added 44mL phenol W26516 & dissolved 16g NaOH W26444 & brought to vol. w/DI H_2O exp: 7/20/11

W26677 EJC 7/13/11 w/Diluent W26674 — NH_3 Dist. MDL study: Into 8 seperate 100mL vols. pipetted 0.4mL W26673 & brought to vol. ~~w/DI H_2O~~ Diluent W26674 EJC 7/13/11 ~~w/DI H_2O~~ EJC 7/13/11 tv = 0.2 mg/L NH_3 & NO_2

W26678 EJC 7/13/11 — NH_3 Hypochlorite: Into a 500mL vol. volumetrically added 25mL Bleach W26564 & brought to vol. w/ DI H_2O exp: 7/14/11

W26679 KMB 7-13-11

NH_3 Distilled ICAL

All levels pipetted into volumetric flasks and brought to volume with Boric Diluent W 26386. EXP (1 Week): 7-20-11

Level	mLs ICAL/CCV Stock Standard 1,000 mg/L W 26652	Final Volume (mL)	True Value (mg/L)
1	0.4	50	8.00
2	0.2	50	4.00
3	0.1	50	2.00
4	0.05	50	1.00
5	0.025	50	0.50
6	0.01	100	0.10
7	0	50	0.00

W26680 EJC 7/13/11 — LL IC NO_2+OPhos CCV: Into a 200mL vol. pipetted 0.2 mL NO_2 W25160 & 0.04mL PO_4^- W25444 & brought to vol. w/ Milli Q DI H_2O exp: 8/3/11

W26681 KMB 7-14-11 — 7.5% Glassware Detergent - Mixed 1 Bottle (3.8L) Contrad Cat # 6002 with 1.27L DI H_2O. Exp. 7-14-12

*W26682 KMB 7-14-11

0.25 M Sodium Hydroxide

Into a 2 L volumetric flask dissolved 60 g sodium hydroxide W 26444 and brought to volume with DI H20, then brought to final volume of 6 L in a large carboy with DI H20. EXP (1 Month): 8-14-11

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W26655 mnl 7-12-11 IC ICAL

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_2O.

	1	2	3	4	5	6	7	8
mLs Mixed Std 50mg/L W26654	0	0.2	1.0	2.0	4.0	10.0	14.0	28.0
mLs Chloride 1000mg/L W26507	0	0.05	0.1	0.5	1.0	2.0	3.0	4.0
mLs Sulfate 1000mg/L W25463	0	0.05	0.1	0.5	1.0	3.0	5.0	7.0

EXP (48 Hours):

W26656 KMB 7-12-11 TKN Buffer - Into a 2L vol flask dissolved 34g EDTA W26589, 60g Sodium Phosphate Dibasic HEPTAhydrate W24776 and 130g NaOH W26444 and brought to vol. w/DI H_2O. Exp. 8-12-11

W26657 KMB 7-12-11 TKN Hypochlorite - Into a 500mL vol. flask volumetrically added 30 mL Bleach W26564 and brought to vol. w/DI H_2O. Exp. 7-13-11

W26658 mnl 7-12-11 Rosolic Acid Into a flask dissolved 0.2g W23623 into 4ml LN NaOH W26383 + added 16ml milliQ H_2O exp 8-12-11

W26659 BMS 07/12/11 TOCW CCV (50mg/L) - Into a 100 mL vol., pipetted 5.0 mL of W26489 and brought to volume with MilliQ H_2O. Exp. 08/12/11

W26660 BMS 07/12/11 TOCW ICV/LCSW (50mg/L) - Into a 100 mL vol., pipetted 5.0 mL of W26490 and brought to volume with MilliQ H_2O. Exp. 08/12/11

W26661 mnl 7-12-11 Anions known PT Std. Alk = 48.7, Cl = 30.3, cond. = 615, F = 3.96 NO_3 = 5.7, SO_4 = 147, TDS = 410

W26662 mnl 7-12-11 Bromide known PT STD into a 1L vol. pipetted 5ml vial stock std cat# 769 + brought to vol. w/milliQ H_2O TV = 3.143

W26663 mnl 7-12-11 Bromide blind PT into a 1L vol. pipetted 5ml 941557 & brought to vol. w/MilliQ H_2O

W26664 KMB 7-12-11 Fisher Sodium Phosphate Dibasic Heptahydrate Cat# BP 331-500 LOT # 102216 Exp. 7-12-16

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~~W26647~~
~~W26647~~ EJC
7/11/11

Boric Acid Receiving Solution
Into a 1 L volumetric flask dissolved 20g Boric Acid W 25121 and brought to volume with DI H_2O. EXP (1 month): 8/11/11

EJC 7/11/11

~~W26648~~
~~W26648~~ EJC
7/11/11

10 M NaOH: Into a 250mL vol. dissolved 100g NaOH W26444 + brought to vol. w/DI H_2O exp: 8/11/11

W26649
7/11/11

Microcystin Tube Elisa Kit (40T) Abraxis
product code: 520012 exp. date: 6/12 Lot#: 11F71667

W26650 KMB
7-12-11

TKN/T. Phos Diluent - Into a 2L vol. flask volumetrically added 480mL Dig Soln W26587 and BTV w/ DI H_2O. Exp 8-12-11

W26651 KMB
7-12-11

TKN/T. Phos 250 mg/L Std - Into a 100 mL vol. flask pipetted 25mL Each of N Std. 1000mg/L W26652 and P Std. W25444 and brought to vol. w/Diluent W26650. Exp. 8-12-11

W26652 KMB
7-12-11

TKN/NH_3 Stock Standard 1000mg/L SCP Science Cat# 250-220-16 Lot# S1101077027 Exp. Jul 12, 2012

W26653 KMB
7-12-11

TKN/T. Phos ICAL using W26651 To vol. w/Diluent W26650

A -	8 mL	⟶	100 mL	=	21 mg/L corrected Std. value
B -	20 mL	⟶	500 mL	=	10.5
C -	2.8	⟶	100 mL		7.35
D -	2				5.25
E -	0.8				2.10
F -	0.4				1.05
G -	0.2				0.525
H -	0.04				0.105
I -	0				0

Exp. 8-12-11

W26654 IC ICAL Mixed Standard (50 mg/L):
emml
7-12-11
Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite W25160, Fluoride W24612 Bromide W25936, Nitrate W25398, and Phosphate W25444 and brought to volume with Milli-Q DI H_2O.
EXP (48 Hours): 7-14-11

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W26605 EJC 7/6/11 — NH_3 Nitroprusside: Into a 500 mL vol. dissolved 0.25g W26339 & brought to vol. w/DI H_2O exp: 8/6/11

W26606 EJC 7/6/11 — NH_3 hypochlorite: Into a 500 mL vol. volumetrically added 280 mL Bleach W26564 & brought to vol. w/DI H_2O exp: 7/7/11

W26607 EJC 7/6/11 — H_2SO_4 Diluent: Into a 2L vol. volumetrically added 4 mL H_2SO_4 W25793 & brought to vol. w/DI H_2O exp: 8/6/11

W26608 EJC 7/6/11 — Undig NH_3 MDL study: Tv = 0.075 mg/L Into 8 seperate 100 mL vol. pipetted 1.5 mL W26561 & brought to vol. w/DI H_2O

W26609 KMB 7-6-11 — LL IC NO_3 LCS - Into a 100 mL vol. flask pipetted 0.1 mL W25916 and brought to vol. w/Milli Q H_2O Exp. 8-6-11

W26610 KMB 7-6-11 — LL IC NO_2 + PO_4^- LCS - Into a 100 mL vol. flask pipetted 0.1 mL NO_2^- W25893 and 0.02 mL PO_4^- W26886 and brought to vol. w/Milli Q H_2O. Exp. 8-6-11

W26611 EJC 7/6/11 — NH_3 Distilation Reagent: Into a 1 L vol. dissolved 5g EDTA ~~W26032~~ W26589 EJC 7/6/11 & 140g NaOH W26444 & brought to vol. w/DI H_2O exp: 8/6/11

W26612 KMB 7-6-11 — LL IC PO_4^- Spike - Into a 100 mL vol. flask pipetted 3 mL W25444 and brought to vol w/Milli Q H_2O. Exp. 8-6-11

W26613 KMB 7-6-11 — LL IC NO_2^- Spike - Into a 100 mL vol. flask pipetted 5 mL W25160 and brought to vol. w/Milli Q H_2O. Exp. 8-6-11

W26614 KMB 7-6-11 — LL IC NO_3^- Spike - Into a 100 mL vol. flask pipetted 5 mL W25398 and brought to vol. w/Milli Q H_2O. Exp. 8-6-11

W26615 CEJ 7/6/11 — Na nitroprusside / Na salicylate - Into a 1L vol dissolved 150g salicylate W25866 & 1g nitroprusside W22481 & filled to vol w/ dI H_2O. exp 8/6/11

W26616 CEJ 7/6/11 — NH_3 hypochlorite - Into a 500 mL vol. vol added 30 mL bleach W26564 & filled to vol w/ dI H_2O. exp 7/7/11

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W26594 EJC 7/5/11 — NaOH/NaCl: Into a 500mL vol. dissolved 80g NaCl W25607 & 10g NaOH W26444 & brought to vol. w/ DI H_2O exp: 8/5/11

W26595 EJC 7/5/11 — Ascorbic Reagent: Into a 500mL vol. dissolved 30g Ascorbic W26329 & 0.5g SDS W25587 & brought to vol. w/ DI H_2O exp: 8/6/11 EJC 7/5/11

W26596 EJC 7/5/11 — TKN/TPhos ICV: Into a 100mL vol. pipetted 0.952mL NH_3 W26500 & PO_4^- W26886 & brought to vol. w/ Dilvet W26522 exp: 7/27/11

W26597 EJC 7/5/11 — NH_3 LCS: Into a 200mL vol. pipetted 1mL W26501 & filled to vol. w/ DI H_2O exp 7/12/11

W26598 EJC 7/5/11 — Molybdate Color Reagent: Into a 1 L vol. volumetrically added 72mL W26228 & 213mL W26321 & brought to vol. w/ DI H_2O exp: 7/12/11

W26599 EJC 7/5/11 — Sulfric NH_3 soln: Into a 500mL vol. pipetted 0.15mL H_2SO_4 W25793 & brought to vol. w/ DI H_2O exp: 8/5/11

W26600 EJC 7/5/11 — P. aeruginosa ATCC 27853 lot # 353-69.2 exp 06/2012

W26601 KWS 7-6-11 — IC LCS/ICV Nitrite Standard (7 mg/L) *Diluted 1:1 daily with IC LCS/ICV Mixed Standard to equal a value of 3.5 mg/L Nitrite
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite W 25160 and brought to volume with Milli-Q DI H_2O. EXP (1 month): 8-6-11

W26602 EJC 7/6/11 — Dishwasher Acid: Into a 2L vol. dissolved 820g sodium citrate DREM Cat#SX0445-5 Lot#47277915 & brought to vol. w/ DI H_2O exp: 7/6/12 EJC 7/6/11

W26603 EJC 7/6/11 — TKN Buffer - Into a 2L vol dissolved 34g EDTA W26589 60g sodium phosphate dibasic W24771 & 130g NaOH W26444 & filled to vol w/ DI H_2O. exp 8/6/11

W26604 EJC 7/6/11 — NH_3 Phenolate Reagent: Into a 500mL vol. volumetrically added 44mL W26516 & dissolved 16g NaOH W26444 & brought to vol. w/ DI H_2O exp: 7/13/11

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W26574 RS 7/1/11 — IC Mixed Spike Standard (64 mg/L Bromide, Nitrate, and Phosphate, 256 mg/L Chloride and Sulfate)
Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Bromide W 25936, Nitrate W 25398, and Phosphate W 25444 and 25.6 mL 1000 mg/L Chloride W 26507 and Sulfate W 25463 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 8/1/11

W26575 ESC 7/1/11 — NH_3 Sulfuric Soln: Into a 1 L vol. pipetted 0.3mL H_2SO_4 W25793 & brought to vol. w/ DI H_2O exp: 8/1/11

W26576 ESC 7/1/11 — NH_3 Hypochlorite: Into a 500mL vol. volumetrically added 250mL Bleach W26564 & brought to vol. w/ DI H_2O exp: 7/2/11

W26577 ESC 7/1/11 — NH_3 H_2SO_4 Dilut: Into a 2L vol. pipetted 4mL H_2SO_4 W25793 & brought to vol. w/ DI H_2O, exp: 8/1/11

W26578 CES 7/1/11 — 4AAP+ Into a 250mL vol dissolved 0.16 g W21892 + filled to vol w/ dI H_2O exp 7/8/11

W26579 CES 7/1/11 — Phenolics Buff - Into a 500mL vol flask dissolved $K_3Fe(CN)_6$ W22607, 1.55g Boric acid W25121, 1.875g KCl W25187 + vol. added 23.5mL 1 N NaOH W26001 + filled to vol w/ dI H_2O. exp 7/8/11

W26580 CES 7/1/11 — DPC color reagent - Into a 100 mL vol dissolved 0.5g DPC W25133 in acetone Baker cat# 9254-03 lot J14E52 exp 7/2/11

W26581 CES 7/1/11 — Chloramine T

Chloramine-T Reagent
Into a 500 mL volumetric flask dissolved 2 g chloramine-T W25957 and brought to volume with DI H_2O. EXP (24hr): 7/2/11

W26582 ESC 7/1/11 — NH_3 Nitroprusside: Into a 500mL vol. dissolved 0.25g W26331 + brought to vol. w/ DI H_2O. exp: ~~8/1/11~~ ESC 7/1/11

W26583 ESC 7/1/11 — NH_3 Phenol Reagent: Into a 500mL vol. volumetrically added 44mL W26516 & dissolved 16g NaOH W26444 & brought to vol. w/ DI H_2O exp: 7/8/11

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W26563 EJC 6/30/11 — H_2SO_4 Dilvent: Into a 2L vol. pipetted 4mL H_2SO_4 W25793 & brought to vol. w/ DI H_2O exp: 7/30/11

W26564 EJC 6/30/11 — Valley View Bleach 5.25% Sodium Hypochorite MI1-09 CT 0819 WI-1 264 BB 09/11

W26565 KMB 6-30-11 — Cr^{+6} Color Reagent - Into a 500mL vol flask dissolved 0.2g DPC W25133 in 100mL propanol W22263 and vol added 300mL DI H_2O and 40mL H_2SO_4 W25871 and brought to vol. w/ DI H_2O. Exp. 7-30-

W26566 CES 6/30/11 — Cr^{+6} Soil Dig Sdn - Into 2L vol dissolved 40 g NaOH W264 & 60 g sodium carbonate anhydrous W25136 - filled to vol w/ dI H_2O exp 6/3/

W26567 CES 6/30/11 — Cr^{+6} Soil Ical - Into 5 50mL vol pipetted 0, 1, 2.5, & 10mL W26141 filled to vol w/ W26566

W26568 CES 6/30/11 — Cr^{+6} Soil LCS - Into a 50mL vol pipetted 5mL W26143 & filled to vol w/ dig sdn W26566

W26569 KMB 6-30-11 — CN LCS working - Into a 100mL vol. flask pipetted 1mL W25894 and brought to vol w/ 0.25N NaOH W26477. TV = 10,000 ug/L exp. 7-21-

W26570 KMB 6-30-11 — CN LCS - Into a 200mL vol. flask pipetted 1mL W26569 and brought to vol. w/ 0.25N NaOH W26477. TV = 50 mg/L

W26571 KMB 6-30-11 — Cr^{+6} LOQ Check - Into a 50mL vol. flask pipetted 6mL W26142 and brought to vol. w/ DI H_2O. TV = 24 mg/L

W26572 KMB 6-30-11 — Cr^{+6} LOD check - Into a 50mL vol. flask pipetted 3mL W26142 and brought to vol. w/ DI H_2O. TV = 12 mg/L

~~W26572~~ W26573 RD 7/1/11 — Sulfate: 1000 mg/L Stock Std. Accu Spec, Cat # 250-220701, Lot # S110126016, Exp: 7/1/12

2-8-11 end

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W26505 6-27-11 KMB CN Buffer Reagent
Into a 500 mL volumetric flask dissolved 48.5 g potassium phosphate monobasic W 24609 and brought to volume with DI H_2O.
EXP (1 month): 7-27-11

W26506 6-27-11 KMB Chloramine-T Reagent
Into a 500 mL volumetric flask dissolved 2 g chloramine-T W 25957 and brought to volume with DI H_20. EXP (24hr): 6-28-11

W26507 mml 6-27-11 Cloride Std. 1000mg/L Accu Spec cat# 250-220-371 lot# S110110006 exp 6-27-12

W26508 mml 6-27-11 IC CCV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC CCV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride W 24612, Phosphate W 25444, Bromide W 25936, and Nitrate W 25398, 15 ml 1000 mg/L Chloride W 26507, and 25 ml 1000 mg/L Sulfate W 25463 and brought to volume with Milli-Q DI H_20. EXP (1 Month): 7-27-11

W26509 KMB 6-27-11 Sulfide LCS- Into a 200 mL vol. flask pipetted 1mL W26361 and brought to vol. w/DI H_2O. Exp. 6-28-11

W26510 EJC 6/27/11 NH_3 Hypochlorite: Into a 500mL vol. volumetrically added 250mL Bleach W26019 + brought to vol. w/DI H_2O.

W26511 EJC 6/27/11 NH_3 Dig 9-point MDL study: Into 8 seperate 100mL vols pipetted 0.15mL 50mg/L NH_3 W26442 + brought to vol. w/ DI H_2O tv= 0.075 mg/L N

W26512 BMS 06/28/11 TOCW CCV: Into a 100mL vol., pipetted 5.0mL W26489 and brought to volume with Milli Q DI H_2O. tv= 50mg/L Exp. 07/28/11

W26513 EJC 6/28/11 NH_3 EDTA Soln: Into a 1 L vol. dissolved 50g EDTA W26032 + 4g NaOH W26444 + brought to vol. w/ DI H_2O exp: 7/28/11

W26514 EJC 6/28/11 Phenol Soln: Into a 500 mL vol. dissolved 41.5g Phenol W26424 + 16g NaOH W26444 + brought to vol. w/DI H_2O exp: 7/5/11

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W26430 6-20-11 TOC ICal into 8 ~~100~~ 50 mL Vol pipetted 0, 0.25, 0.5, 1.25, 2.5, 5, 7.5 & 12.5 mL 1000 mg/L stock W25489 & brought to Vol. w/ milliQ H_2O exp 6-20-11

W26431 6-20-11 TOC ICV/LCS into a 50 mL Vol. pipetted 5 mL 1000 mg/L stock W25490 & brought to Vol. w/ milliQ H_2O

W26432 - TOCW MDL Study - Into 4 100 mL vol pipetted 0.1 mL W25490 - filled to vol w/ milliQ H_2O. exp 7/18/11

W26433 KMS 6-21-11 NH_3 LCS - Into a 200 mL Vol. flask pipetted 1 mL W26267 and brought to vol. w/ DI H_2O. Exp. 6-27-11

W26434 CES 6/21/11 TOCW LCS/ICV - Into a 200 mL vol pipetted 15 mL W25490 - filled to vol w/ milli Q H_2O. 7/13/11

W26434 CES 6/21/11 TOC IDC BMS - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. 6/28/11 exp

W26435 CES 6/21/11 TOC IDC CES - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O 6/28/11 exp

W26436 CES 6/21/11 TOC IDC NML - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. 6/28/11 exp CES 6/21/11

W26437 CES 6/21/11 TOC IDC ESC - Into ~~40~~ 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. exp 6/28/11

W26438 CES 6/21/11 IC LCS/ICV mixed - Into a 500 mL vol

IC LCS/ICV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC LCS/ICV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride

Into a 500 mL volumetric flask pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) W25762 and brought to volume with Milli-Q DI H_2O.

EXP (1 Month): 6/21/11

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W26420 mwl 6-19-11 NH_3 Distillation reagent into a 1L Vol. dissolved 5g EDTA W26032 + 140g NaOH + brought to Vol. w/ DI H_2O exp 6-26-11

W26421 mwl 6-19-11 NH_3 Sulfuric Acid Soln. into a 1L Vol. pipetted 0.3ml H_2SO_4 W + brought to Vol. w/ DI H_2O exp 6-26-11

W26422 mwl 6-19-11 5% EDTA Soln. into a 1L Vol. dissolved 50g EDTA W26032 + 4g NaOH W25634 + brought to Vol. w/ DI H_2O exp 6/26/11

W26423 mwl 6-19-11 Phenolate Soln. into a 500ml Vol. dissolved 41.5g Phenol W26424 while stirring added 16g NaOH W25634 cooled + brought to Vol. w/ DI H_2O exp 6/26/11

W26424 mwl 6-19-11 Phenol crystals Em Science cat# PX0510-1 lot# 43015306

W26425 mwl 6-19-11 Sodium Nitroprusside Soln. into a 500ml Vol. dissolved 0.25g Nitroprusside W26339 + brought to Vol. w/ DI H_2O exp 6-26-11

W26426 KMB 6-20-11 Ascorbic Acid - into a 500mL vol. flask dissolved 30g Ascorbic W26329 and 0.5g SDS W25587 and brought to vol. w/ DI H_2O. Exp. 6-21-11

W26427 CES 6/20/11 IC LOQW - Into a 100mL vol pipetted 0.02mL W25936 Br, 0.2mL W24670 Cl, 0.01mL W24612 Fl, 0.015mL NO_3 W25398, 0.02mL W25160 NO_2, 0.025mL W25444 ophos, 0.2mL SO_4 W25463 + filled to vol w/ milliQ H_2O. exp 6/22/11

W26428 CES 6/20/11 IC LOQW - Into a 100mL vol pipetted 0.04mL Br W25936, 0.4mL W24670 Cl, 0.05mL W24612 Fl, 0.07mL NO_3 W25398, 0.04mL NO_2 W25160, 0.05mL ophos W25444, 0.4mL SO_4 W25463 + filled to vol w/ milliQ H_2O. exp 6/22/11

W26429 KMB 6-20-11 TLN Hypochlorite - Into a 500mL vol. flask vol. added 30mL Bleach W26019 and BTV w/ DI H_2O. Exp. 6-21-11

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W26410 CES 6/17/11 — LCDS-TKN/TPhos - Into a 100mL vol volumetrically added 50mL W26409 & filled to vol w/ dI H2O. exp 6/24/11.

W26411 CES 6/17/11 — TKN/TPhos Dig Soln - Into a 2L vol dissolved 266g ~~CES~~ 6/17/11 Mercuric sulfate W26412 & volumetrically added 50mL W26230 - 400mL H2SO4 & filled to vol w/ dI H2O. exp 7/17/11

W26412 - CES 6/17/11 — Potassium sulfate - ~~Fisher~~ CES 6/17/11 EMD cat # PX1595-6 lot # A0116821-016

W26413 CES 6/18/11 — IC Nitrite and Fluoride Spike Standard (128 mg/L Nitrite and 32 mg/L Fluoride) Into a 100 mL volumetric flask pipetted 12.8 mL 1000 mg/L Nitrite W25160 and 3.2 mL 1000 mg/L Fluoride W24612 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 7/18/11

W26414 mwl 6/19/11 — NO_2+NO_3 Buffer into a 1L Vol. dissolved 50g Ammonium chloride W23266. Adjusted pH to 8.2 with Ammonium Hydroxide W26415 & brought to vol. w/ DI H_2O exp 6/26/11

W26415 mwl 6/19/11 — Ammonium Hydroxide Fisher cat# A669C-212 Lot# 002433

W26416 mwl 6/19/11 — N-(1Naphthyl)ethylenediamine dihydrochloride, pa Acros cat# 20690-0250 lot# B0130071

W26417 mwl 6/19/11 — Sulfanilamide Alfa Aesar cat# 36412 lot# H18K14

W26418 mwl 6/19/11 — NO_2+NO_3 Color reagent into a 1L Vol. volumetrically added 150ml Phosphoric acid W22080, dissolved 10g Sulfanilamide + 0.5g W26416 & brought to Vol. w/ DI H_2O exp 7-3-11

W26419 mwl 6/19/11 — Potassium chloride Soln. into a 500ml Vol. dissolved 75g KCl W25187 & brought to Vol. w/ DI H_2O exp 7/19/11

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W26353 EJC 6/10/11 VFA ICV/LCS: Into a 100mL vol. pipetted 1mL W25094 + brought to vol. w/ Elvent W26349. ~~tv~~ EJC 6/10/11

W26354 EJC 6/10/11 VFA LOQWV: Into a 50mL vol. pipetted 4mL W26353 + brought to vol. w/ Elvent W26349 tv = 0.8 mg/L

W26355 EJC 6/10/11 VFA LOQWV: Into a 50mL vol. pipetted 12.5mL W26353 + brought to vol. w/ Elvent W26349 tv = 2.5 mg/L

W26356 CES 6/13/11 NH_3 Distilled LCS/ICV (5mg/L)
Into a ~~200~~ 500mL volumetric flask pipetted 2.5 ~~1mL~~ NH_3/TKN LCS/ICV Stock 1000mg/L W26267 and brought to volume with DI H_2O. EXP(1 week): 6/20/11

W26357 KMB 6-13-11 Ascorbic Acid + Into a 500mL Vol. flask dissolved 30g W26329 and 0.5g SDS W25587 and BTV w/DI H_2O. Exp. 6-14-11

W26358 KMB 6-13-11 TSS LCS - Into a 1L vol. flask added 0.4g Diatomaceous Earth W24339 and BTV w/DI H_2O. exp: ~~6-13-11~~ KMB 6-13-11 7-13-11

W26359 EJC 6/13/11 IC CCV Nitrite Standard (7 mg/L) *Diluted 1:1 daily with IC CCV Mixed Standard to equal a value of 3.5 mg/L Nitrite
Into a 500 mL volumetric flask piepetted 3.5 mL 1000 mg/L Nitrite W25160 and brought to volume with Milli-Q DI H_2O. EXP (1 month): 7/13/11

W26360 CES 6/13/11 Boric Acid Receiving Solution
Into a 1 L volumetric flask dissolved 20g Boric Acid W 25121 and brought to volume with DI H_2O. EXP (1 month): 7/13/11

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W26342 EJC 6/9/11 — NH_3 LOQSV: Into a 50mL vol. pipetted 0.025 mL W26267 + brought to vol. w/ KCl soln W26340. tv = 5mg/kg

W26343 EJC 6/9/11 — NH_3 LODSV: Into a 50mL vol. pipetted 0.0125mL W26267 + brought to vol. w/ KCl soln. W26340 tv = 2.5mg/kg

W26344 EJC 6/9/11 — NH_3 H_2SO_4 LOQWV: Into a 100mL vol. pipetted 4mL W26286 + brought to vol. w/ H_2SO_4 Diluent W26346 tv = 0.1mg/L

W26345 EJC 6/9/11 — NH_3 H_2SO_4 LODWV: Into a 100mL vol. pipetted 50mL W26344 + brought to vol. w/ H_2SO_4 Diluent W26346 tv = 0.05mg/L

W26346 EJC 6/9/11 — NH_3 H_2SO_4 Diluent: Into a 2L vol. pipetted 4mL H_2SO_4 W25871 + brought to vol. w/ DI H_2O. exp: 7/9/11

W26347 EJC 6/10/11 — IC Mixed Spike Standard (64 mg/L Bromide, Nitrate, and Phosphate, 256 mg/L Chloride and Sulfate)

Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Bromide W25936, Nitrate W25398, and Phosphate W25444 and 25.6 mL 1000 mg/L Chloride W24670 and Sulfate W25463 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 6/30/11

W26348 EJC 6/10/11 — Stock Heptafluorobutyric Acid: Into a 1L vol. added 21.40g W26351 + brought to vol. w/ Milli-Q DI H_2O exp: 6/10/12

W26349 EJC 6/10/11 — VFA Eluent: Into a 2L vol. added 50mL W26348 + brought to vol. w/ Milli Q DI H_2O

W26350 EJC 6/10/11 — VFA Regenerate: Into a 2L vol. pipetted 10mL W25116 + W25668 + brought to vol. w/ Milli Q DI H_2O made 2 batches = 4L

W26351 EJC 6/10/11 — Hept Fluorobutyric Acid Aldrich Cat# 16419-4 Lot# STBB0403 exp: 6/10/16

W26352 EJC 6/10/11 — VFA ICAL: Into 100mL + to vol. w/ Eluent W26349

	1	2	3	4	5	6	7	8
W25093	0	0.1	0.2	0.5	1.0	2.5	5	10

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W25980 CED 4/13/11 LL TPhos LCS - Into a 100 mL vol pipetted W25979 + filled to vol w/ dI H_2O. EXP 4/20/11 TV=50 µg/L

W25981 mml 4/13/11 Alk ICV/ICal Stock 2500 mg/L Into a 500ml Vol. dissolved 1.325g Na_2CO_3 W21099 + brought to Vol. w/ CO_2 free DI H_2O exp 5/13/11

W25982 4/13/11 Alk ICal mls W25981 to Vol. w/ CO_2 free DI H_2O

A	30
B	25
C	20
D	15
E	10
F	5
G	3
H	1
I	0

100

exp 5/13/11

W25983 mml 4-13-11 KHP Buffer Into a beaker dissolved 2.5g KHP W23982 in 450ml CO_2 free DI H_2O volumetrically added 42.5ml 0.1m HCL W24882 + adj. ph to 3.1 ± 0.05 exp 4-20-11

W25984 mml 4-13-11 Methyl orange Reagent into a 500ml Vol. added 50ml Methyl orange Soln. W23178 + brought to Vol. w/ CO_2 free DI H_2O exp 5-13-11

W25985 CED 4/13/11 Sulfide LCS - Into a 200mL vol pipetted 1mL W25953 + filled to vol w/ dI H_2O EXP 4/14/11

W25986 EJC 4/13/11 IC ICAL Mixed Standard (50 mg/L):
Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite W25160, Fluoride W 24612 Bromide W25936, Nitrate W25398, and Phosphate W25444 and brought to volume with Milli-Q DI H_2O.
EXP (48 Hours): 4/15/11

W25987 EJC 4/13/11 IC ICAL
Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_2O.

	1	2	3	4	5	6	7	8
mLs Mixed Std 50mg/L W25986	0	0.2	1.0	2.0	4.0	10.0	14.0	28.0
mLs Chloride 1000mg/L W254670	0	0.05	0.1	0.5	1.0	2.0	3.0	4.0
mLs Sulfate 1000mg/L W25463	0	0.05	0.1	0.5	1.0	3.0	5.0	7.0

EXP (48 Hours): 4/15/11 EJC 4-13-11

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W25962 mwl 4-11-11

CN ICAL

All levels pipetted into volumetric flasks and brought to volume with 0.25 M NaOH W 25963 . EXP (1 Week): 4-18-11

Level	mLs ICAL/CCV Working Standard 10,000 µg/L W25960	Final Volume (mL)	True Value (µg/L)
1	2	200	100
2	0.75	100	75
3	0.5	100	50
Level	mLs 100 µg/L standard (level 1)	Final Volume (mL)	True Value (µg/L)
4	15	50	30
5	20	100	20
6	5	50	10

W25963 mwl 4-11-11 0.25N NaOH into a 2L Vol. dissolved 60g NaOH W25634 + brought up to 6L in a Carboy exp 5-11-11

W25964 mwl 4-11-11 CN ICV into a 200ml Vol. pipetted 1ml W25961 + brought to Vol. w/ NaOH W25963 exp 4-18-11

W25965 KMB LL IC NO_2 + NO_3 Working Std. - Into a 100mL Vol. flask pipetted 5mL NO_2^- 1000mg/L W25160 and 5mL NO_3^- 1000mg/L W25398 and brought to Vol. w/ Milli Q H_2O. Exp 4-13-11 TV=50mg/L

W25966 KMB LL IC O.Phos Working Std. - Into a 100mL vol. flask pipetted 5mL O.Phos 1000 mg/L W25444 and brought to vol. w/ Milli Q H_2O TV = 50 mg/L Exp. 4-13-11.

W25967 KMB IC LL ICAL - Brought to Vol. w/ Milli Q H_2O. Exp. 4-13-11 4-11-11

Level	1	2	3	4	5	6	7	8
mL W25965	0	0.02	0.04	0.2	0.4	1.0	2.0	4.0
mL W25966	0	0.02	0.02	0.04	0.06	0.1	0.2	0.4
Final Vol.	50	100	100	100	100	100	100	100

W25968 mwl 4-11-11 NaOH/NaCl into a 500ml Vol. dissolved 80g NaCl W25607 + 10g NaOH W25634 + brought to Vol. w/ DI H_2O exp ~~4-11-11~~ 5-11-11 4-11-11 mwl

W25969 mwl 4-12-11 Ascorbic Acid Reagent into a 500ml Vol. dissolved 30g Ascorbic W25898 + 0.5g SDS W25587 + brought to Vol. w/ DI H_2O exp 4-13-11

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W25936 ESL 4-6-11 Bromide 1000 mg/L stock. Accu SPEC Cat# 250-220-236 Lot# SC0193203 rec. 3-31-11 exp: 4/6/12

W25937 ESL 4-6-11 IC CCV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC CCV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride W24612, Phosphate W25444, Bromide W25936, and Nitrate W25398, 15 ml 1000 mg/L Chloride W24670, and 25 ml 1000 mg/L Sulfate W25463 and brought to volume with Milli-Q DI H_2O. EXP (1 Month): 5-6-11

W25938 ESL 4-6-11 LL IC NO_2 spike: Into a 100mL vol. pipetted 5mL W25893 + brought to vol. w/ Milli Q DI H_2O exp. 5-6-11 50mg/L

W25939 CES 4/7/11 Phenolics Buffer - Into a 500mL vol dissolved 1g $K_3Fe(CN)_6$ W22607, 1.55g Boric Acid W25121, 1.875g KCl W25187, - volumetrically added 23.5mL 1N NaOH W25663 + filled to vol w/ dI H_2O. exp 4/10/11

W25940 CES 4/7/11 4AAP - Into a 250mL vol dissolved 0.16g W21897 + filled to vol w/ dI H_2O. exp 4/10/11

W25941 CES 4/7/11 Boric Diluent - Into a 2L vol volumetrically added 200mL Boric rec soln W25855 + filled to vol w/ dI H_2O. exp 5/2/11

W25942 CES 4/7/11 NH_3 Distilled ICAL
All levels pipetted into volumetric flasks and brought to volume with Boric Diluent W 25941. EXP (1 Week): 4/14/11

Level	mLs ICAL/CCV Stock Standard 1,000 mg/L W 24192	Final Volume (mL)	True Value (mg/L)
1	0.4	50	8.00
2	0.2	50	4.00
3	0.1	50	2.00
4	0.05	50	1.00
5	0.025	50	0.50
6	0.01	100	0.10
7	0	50	0.00

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W25886 EJC 3/30/11 — IC PO_4^- 1000mg/L stock standard: Spex CertiPrep Cat # AS-P04P9-2X Lot # 2-84P04P-2 exp: 2/28/12

W25887 EJC 3/30/11 — LL TPhos LCS: Into a 100mL vol. pipetted 0.5mL W25885 & brought to vol. w/ DI H_2O. tv = 50mg/L exp: 4/6/11

W25888 EJC 3/30/11 — Ammonium Persulfate: Into a 200mL vol. dissolved 80g W25269 & brought to vol. w/ DI H_2O exp: 4/6/11

W25889 EJC 3/30/11 — Sodium Phenolate Color Reagent
Into a 500mL volumetric flask dissolved 16g NaOH W 25634 and volumetrically added 44mL phenol W 25671 and brought to volume with DI H_2O. EXP(1 week): 4/6/11

W25890 EJC 3/30/11 — NH_3 Buffer
Into a 500mL volumetric flask dissolved 25g EDTA W 25196 and volumetrically added 112.5mL 1N NaOH W 25891 and brought to volume with DI H_2O. EXP(1 month): 4/30/11

W25891 EJC 3/30/11 — 1N NaOH: Into a 500mL vol. dissolved 20g W25634 & brought to vol. w/ DI H_2O exp: 4/30/11

W25892 CES 3/31/11 — IC LCS/ICV Nitrite Standard (7 mg/L) *Diluted 1:1 daily with IC LCS/ICV Mixed Standard to equal a value of 3.5 mg/L Nitrite
Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite W 25893 and brought to volume with Milli-Q DI H_20. EXP (1 month): May (5-1-11)

W25893 CES 3/31/11 — Certi Prep Nitrite - 1000mg/L - Cat AS NO2N9-2Y Lot # 2-63 NO2N-2 exp 12/30/11

W25894 LMB 3-31-11 — CN⁻ Standard Spex Certiprep Cat # RSCN9-2X/2Y LOT # 42-29AS 1000 mg/L Expires 6-30-11

W25895 LMB 3-31-11 — CN LCS/ICV Working Standard (10mg/L)
Into a 100 mL volumetric flask pipetted 1 mL CN LCS/ICV Stock Standard 1000 mg/L W25894 and brought to volume with 0.25 M NaOH W25873
EXP (1 week): 4-7-11

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W25755 NH_3 H_2SO_4 Diluent
3/16/11 CES
Into a 2L volumetric flask pipetted 4mL H_2SO_4 W 25482 and brought to volume with DI H_2O. EXP(1 month): 4/16/11

W25756
3/16/11
CES
NH_3 Undistilled ICAL (2.5mg/L)
Into a 100mL volumetric flask pipetted 0.25mL NH_3/TKN CCV/ICAL Stock Standard 1000mg/L W 24182 and brought to volume with H_2SO_4 Diluent W 25755.
EXP(1 week): 3/23/11

W25757
3/16/11
CES
NH_3 Undistilled CCV (1.25mg/L)
Into a 100mL volumetric flask pipetted 0.125mL NH_3/TKN CCV/ICAL Stock Standard 1000mg/L W 24182 and brought to volume with H_2SO_4 Diluent W 25755. EXP(1 week): 3/23/11

W25758
3/16/11
CES
NH_3 Undistilled ICV/LCS (1.25mg/L)
Into a 100mL volumetric flask pipetted 0.125mL NH_3/TKN ICV/LCS Stock Standard 1000mg/L W 25674 and brought to volume with H_2SO_4 Diluent W 25755. EXP(1 week): 3/23/11

W25759 ESC
3/16/11
TOCW LOQWV: (1.5mg/L) Into a 25mL vol. pipetted 0.75mL W25713 + brought to vol. w/ Milli Q DI H_2O.

W25760 ESC
3/16/11
TOCW LOQCWV (3mg/L) Into a 25mL vol. pipetted 1.5mL W25713 + brought to vol. w/ Milli Q DI H_2O.

W25761 KMB
3-16-11
IC LCS/ICV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC LCS/ICV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride
Into a 500 mL volumetric flask pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) W 25762 and brought to volume with Milli-Q DI H_2O.
EXP (1 Month): 4-16-11

W25762 KMB
3-16-11
Spex Certiprep Custom Ion Standard Cat # VCTWI-3.500
LOT # 17-8VY SO_4^- 1250mg/L, Cl^- 750mg/L, Br^-, F^-, NO_3^-, PO_4^- 175mg/L. Expires 12-30-11

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W25462 JTG 1-5-11 — H_2SO_4 Diluent - into a 2 L vol pipetted 4mL H_2SO_4 W24986 & BTV w/ DI H_2O. exp: 2-5-11

W25463 EJC 1/5/11 — Sulfate 1000mg/L stock standard: Accu Spec Cat# 250-220-~~701~~ 701 Lot# SC0108308 exp: 1/5/12 ~~EJC 1/5/11~~

W25464 EJC 1/5/11 — ~~In~~ IC MDL Stdy #2: Into 8 seperate 100mL vols pipetted 0.4mL SO_4^{-2} W2563 + 0.3mL Cl^- W24670 & brought to vol. w/ Milli Q DI H_2O. fv = 4mg/L SO_4 & 3mg/L Cl^-

W25465 JTG 1-6-11 — B.O.D Standard 198 ppm: GGA standard. North Central labs. lot # B12D101013B1 exp: 10-13-11

W25466 KMB 1-7-11 — Mercuric Sulfate Soln - Into a 250 mL Vol. flask dissolved 20g W23724 and added 25mL H_2SO_4 W24986 and BTV w/ DI H_2O. Expires 2-7-11

W25467 KMB 1-7-11 — Digestion Soln TKN/Phos - Into a 2L VF dissolved 266g Potassium Sulfate W24726 and volumetrically added 50mL Mercuric Sulfate W25466 and 400mL H_2SO_4 W24986. BTV w/ DI H_2O. Exp. 2-7-11

W25468 CES 1-10-11 — NH_3 LCS - In to a 50mL vol pipetted 2.5mL W25392 + filled to vol w/ DI H_2O exp 1-12-11

W25469 JTG 1-10-11 — Ascorbic Acid Reagent: into a 500mL VF dissolved 30g ascorbic acid W25403 & 0.5g SDS W23748 & BTV w/ DI H_2O. exp 1-11-11

W25470 JTG 1-10-11 — TKN/TPhos dilvent: into a 2L vol. added 480mL dig soln. W25467 & BTV w/ DI H_2O. exp: 2-16-11 JTG 1-10-11

W25471 KMB 1-10-11 — IC NO_2 COV - Into a 500mL VF pipetted 3.5mL W25160 and Brought to vol. w/ Milli Q H_2O. Exp. 2-10-11

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W25438 JTG 1-3-11 TKN Hypochlorite: into a 500mL VF added 30mL bleach W25416 + BTV w/ DI H_2O. exp: 1-4-11

W25439 OES 1/3/11 Na Tetraborate - Into a 500mL vol dissolved 4.75g tetraborate W23610, filled to vol w/ DI H_2O. exp 2/3/11 (ES) 1/3/11

W25440 OES 1/3/11 Borate Buffer - Into a 1L vol added 500mL W25439, 98mL 0.1 N NaOH W24556 & filled to vol w/ DI H_2O. exp 2/3/11

W25441 KMB 1-3-11 Potassium Dichromate Solution - In a large beaker volumetrically added 334 mL H_2SO_4 W24986 to dissolve 66.6g Mercuric Sulfate W25437 with heating/Stirring. Cooled and dissolved 20.42 g Potassium Dichromate previously dried W18819A and Brought to final vol. of 2L w/ DI H_2O. Exp 1-3-12

W25442 KMB 1-3-11 COD ICAL - Into Eight 100 mL VFs pipetted 0, 1, 2.5, 5, 10 25, 50 and 75mL of 1000 mg/L Stock W24917 and BTV w/DI H_2O. Exp 2-3-11

W25443 KMB 1-3-11 IC Mixed CCV - Into a 500mL VF pipetted 3.5mL 1000mg/L F^- W24612, NO_3^- W25398, Br^- W23469, PO_4^- W23289, 15mL Cl^- W24670, 25mL W23936 and BTV w/ Milli Q H_2O. Expires 2-3-11

W25444 KMB 1-3-11 SCP AccuSpec Phosphate Standard 1000 mg/L Cat #250-220-610 Lot # SC0210390 Expires 1-3-12

W25445 KMB 1-3-11 IC MDL Study - Into Eight 100 mL VFs pipetted 0.02mL 1000mg/L F^- W24612, NO_2^- W25160, Br^- W23469, NO_3^- W25398, and PO_4^- W25444 and 0.4 mL Cl^- W24670 and SO_4^- W23936 and BTV w/ Milli Q H_2O. Exp. 1-5-11.

W25446 JTG 1-4-11 TOCS MDL Study: into 8 weigh boats added ≈ 2mg Dextrose W23192.

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W25394 EJC 12/23/10 ~~Into 8 s~~ TKN/TPhos MDLS study. Into 8 seperate 100mL vol. flasks pipetted 10mL W25391 & brought to vol. w/ DI H_2O tv = 1mg/L = 100mg/kg based on 0.2g solid + 20mL H_2O

W25395 CES 12/27/10 TKN hypo chlorite – Into a 500mL vol volumetrically added 30mL bleach W24742 + filled to vol w/ DI H_2O exp 12/28/10

W25396 CES 12/27/10 TKN/TPhos ICV- Into a 100mL vol pipetted 0.952mL W25392 ~ 0.952mL W23501 + filled to vol w/ dilute W25325. exp ~~+2~~ as of 12/29/10 1/27/11

W25397 KMB 12-27-10 NH_3 LCS- Into a 200mL VF pipetted 1mL W25392 and BTV w/DI H_2O. Exp. 1-3-11

W25398 KMB 12-27-10 AccuSpec Nitrate Standard 1000mg/L Cat# 250-220-521 LOT # SC0208355 Exp: 1-3-12 Added Expiration- KMB 1-3-11

W25399 KMB 12-28-10 TSS LCS- Into a 1L VF added 0.4g Diatomaceous Earth W24339 and BTV w/DI H_2O. Exp. 1-28-11.

W25400 JTG 12-28-10 Molybdate color reagent: into a 1L VF added 213mL Am. molybdate ~~W25018~~ W25080 JTG 12-28-10 + 72mL Am Pot tart W25004 + BTV w/ DI H_2O. exp: 1-28-11

W25401 JTG 12-28-10 T.phos carrier: into a 1L VF dissolved 31.7g potassium sulfate W24726 + 48mL H_2SO_4 W24986 + BTV w/ DI H_2O. exp: 1-28-11

W25402 JTG 12-28-10 Ascorbic Acid reagent: into a 500mL VF JTG 12-28-10 dissolved 30g Ascorbic W24793 ~~W25405~~ + 0.5g SDS W23748 + BTV w/ DI H_2O. exp 12-29-10

JTG 12-28-10

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W25286 KMB 12-9-10 LL T.Phos ICAL - Into seven 100mL VFs pipetted 2, 1, 0.5, 0.1, ~~0.05~~ 0.05 KMB 12-9-10 and 0mL W25285 and BTV w/ Diluent W25283. x:12-9

W25287 JTG 12-9-10 COD MDL Study: into 8 100mL VF pipetted 5mL W24917 + BTV w/ DI H_2O. exp: 12-10-10

W25288 JTG 12-9-10 COD LOD: into a 100mL VF pipetted 2.5mL W24917 + BTV w/ DI H_2O. exp: 12-10-10

W25289 JTG 12-9-10 COD LOQ: into a 100mL VF pipetted 5mL W24917 + BTV w/ DI H_2O. exp: 12-10-10

W25290 EJC 12/9/10 TOCW CCV: Into a 200mL vol. pipetted 10mL W24189 & brought to vol. w/ Milli Q DI H_2O tv=50mg/L exp: 1/9/11

W25291 EJC 12/9/10 TOCW LCS: Into a 100mL vol. pipetted 5mL W24326 & brought to vol. w/ Milli Q DI H_2O tv=50mg/L exp: 1/9/10

W25292 KMB 12-9-10 Cr^{+6} MDL Study - Into Eight 50mL VF pipetted 7.5mL W23666 and BTV w/ DI H_2O. Exp. ~~1-9-11~~ 1-9-11 KMB 12-9-10 TV=15ug/L

W25293 RS 12/9/10 5N NaOH - Into a 500mL Volumetric Flask dissolved 100g of NaOH Pellets (W24679) & brought to volume w/ DI H_2O. Exp 12/9/11.

W25294 KMB 12-9-10 Cr^{+6} LOQ check Q4 - Into a 50mL VF pipetted 12.5mL W2 and BTV w/ DI H_2O. TV= 25ug/L exp. 1-9-11

W25295 KMB 12-9-10 Cr^{+6} LOD Check Q4 - Into a 50mL VF pipetted 4mL W23666 and BTV w/ DI H_2O. TV= 8 ug/L exp. 1-9-11

W25296 RS 12/9/10 Nitrocellulose Spiking Std - In a 100mL Volumetric Flasks added 0.5006 g of VOTO43537 & brought to volume w/ Acetone (JT Baker, Cat# 9254-03, Lot# J14E52). Exp: 12/9/11

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mml 3-8-11

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W25153 KMB 11-24-10 — NH_3 H_2SO_4 LOD ~ - Into a 100mL VF pipetted 0.01mL W24182 and BTV w/ Dilunt W25055. Exp. 12-1-10 TV = 0.10mg/L

W25154 ESC 11/24/10 — Cr^{+6} Soil DPC: Into a 200mL vol. dissolved 1g W25133 in acetone JT Baker, Lot # 30E21 Cat # 9254-03 & to vol. w/ acetone exp: 11/25/10

W25155 ESC 11/24/10 — TKN/TPhos LCS: Into a 1L vol. pipetted 10mL W23501 & W25114 & brought to vol. w/ DI H_2O exp: 12/22/10

W25156 JTA 11-29-10 — TSS LCS: into a 1L vol. dissolved 0.4g W24339 & BTV w/ DI H_2O. exp: 12-29-10

W25157 CES 11/29/10 — TKN/TPhos dulunt - Into a 2L vol volumetrically added 480 mL dig soln W25103 ~ filled to vol w/ dI H_2O. exp 12/29/10

W25158 CES 11/29/10 — TKN/TPhos 250mg/L Ical/CCV Std - Into a 100mL vol pipetted 25mL W24182 ~ W23289 ~ filled to vol w/ dI H_2O. exp 12/29/10

W25159 CES 11/29/10 — TKN/TPhos Ical using W25158 ~ to vol w/ W25152.

		into
A	8	100
B	20	500
C	28	100
D	2.0	
E	0.8	
F	0.4	
G	0.2	
H	0.04	
I	0	

W25160 KMB 11-29-10 — AccuSpec Nitrite Standard 1000 mg/L Cat # 250-220-551 LOT # SC0193201 Expires 11-29-11.

W25161 CES 11/29/10 — TKN hypochlorite - Into a 500mL vol pipetted 50mL bleach W24747 ~ filled to vol w/ dI H_2O. exp 11/30/10

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W25135 CES 11/23/10 IC Eluent Conc - Into a 1L vol dissolved 185.5 g sodium carbonate W25136 + 42g sodium bicarbonate + filled to vol w/ milli Q H_2O. exp 11/23/11 W25134

W25136 CES 11/23/10 Sodium Carbonate Anhydrous - EMD cat # SX0395-1 lot # TA21BZEMS exp 11/23/15

* W25137 ESC 11/23/10 Alk ICV/LCS stock 2500mg/L: Into a 500mL vol. dissolved 1.325g Na_2CO_3 W20910 + brought to vol. w/ CO_2 free DI H_2O exp: 12/23/10

* W25138 ESC 11/23/10 Alk ICV: Into a 100mL vol. pipetted 3mL W25137 + brought to vol. w/ CO_2 free DI H_2O exp: 12/23/10 tv = 75 mg/L

* W25139 ESC 11/23/10 Alk LCS: Into a 200mL vol. pipetted 30mL W25137 + brought to vol. w/ CO_2 free DI H_2O exp: 12/23/10 tv = 375 mg/L

* W25140 ESC 11/23/10 Alk CCV/ICAL stock 2500mg/L: Into a 500mL vol. dissolved 1.325g Na_2CO_3 W21099 + brought to vol. w/ CO_2 free DI H_2O exp: 12/23/10

* W25141 ESC 11/23/10 Alk ICAL: pipetted W25140 + to vol. w/ CO_2 free DI H_2O exp 12/23/10

A	30mLs	100mL final vol
B	25	
C	20	
D	15	
E	10	
F	5	
G	3	
H	1	
I	0	

* W25142 ESC 11/23/10 KHP Buffer: Into a beaker dissolved 2.5g KHP W23082 into 450mL CO_2 free DI H_2O + volumetrically added 42.5mL 0.1N HCL W24882 + adjusted pH to 3.1 ± 0.05 exp: 11/30/10

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W25124 KMB 11-22-10	NH_3 Soil LCS- Prepped 11-17-10 Pipetted 0.25mL W24913 into 50mL KCl Ext. Soln-W25047. Exp. 11-24-10
W25125 JTG 11-23-10	Cr^{+6} Dig soln: into a 2L vol. dissolved 60g sodium Carbonate anhydrous W20910 + 40g NaOH W24679 + BTV w/ DI H_2O. exp: 11-23-11
W25126 JTG 11-23-10	Cr^{+6} Ical: into 5 50mL VF pipetted 0, 1, 2.5, 5, and 10mL W23661 & BTV w/ dig soln W25125 exp: 11-24-10
W25127 JTG 11-23-10	Cr^{+6} ICV/LCS: into a 50mL VF pipetted 5mL W23663 & BTV w/ Dig soln W25125 exp: 11-24-10
W25128 JTG 11-23-10	Cr^{+6} soil DPC: into a 200mL vol. dissolved 1g ~~W1[illegible]~~ JTG 11-23-10 W25133 in acetone JT Baker lot# H30E21 cat # 9254-03 exp: 11-24-10 & BTV w/ acetone.
W25129 CES 11/23/10	IC Mixed LCS/ICV- Into a 500mL vol pipetted 20mL W23432 & filled to vol w/ milliQ H_2O exp 12/23/10
W25130 CES 11/23/10	IC NO_2 LCS- Into a 500mL vol pipetted 3.5mL W23500 & filled to vol w/ milliQ H_2O. exp 12/23/10
W25131 ESC 11/23/10 ESC 11/23/10	Ascorbic Acid Reagent: Into a 500mL vol. dissolved 30g Ascorbic acid W24793 + 0.5g SDS W23748 + brought to vol. w/ DI H_2O exp: 11/24/10
W25132 ESC 11/23/10	TKN/TPhos ICV: Into a 100mL vol. pipetted 0.952mL W25114 & W23501 & brought to vol. w/ Diluent W25039 exp: 12/22/10 tv=10mg/L
W25133 JTG 11-23-10	1,5-Diphenylcarbazide Lot # 096686 Fisher. cat # D85-25 exp: 11-23-15
W25134 CES 11/23/10	Sodium Bicarbonate. Fisher cat# S233-500 lot # 104706 exp 11/23/15

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W25113 CES 11/22/10 — TKN hypochlorite - Into a 500mL vol pipetted 30mL bleach - filled to vol w/ dI H_2O. exp 11/22/10

W25114 CES 11/22/10 — NH_3/TKN LCS Stock - Into a 1L vol dissolved 3.819g NH_4Cl W23266 - 2mL H_2SO_4 W24543, filled to vol w/ dI H_2O. exp 12/22/10

W25115 CES 11/22/10 — TKN/TPhos ICV - Into a 100mL vol pipetted 0.952mL W25114 + W23501 + filled to vol w/ diluent W25039 exp 12/22/10

W25116 KMB 11/22/10 — Tetrabutylammonium Hydroxide Solution Sigma-Aldrich lot# 0001447903 cat# 426326

W25117 KMB 11/22/10 — VFA Regenerant into a 2L Vol. pipetted 10mL W25116 + brought to Vol. w/ milliQ H_2O

W25118 KMB 11/22/10 — VFA Eluent into a 2L Vol. added 50mL W23340 + brought to Vol. w/ milliQ H_2O

W25119 KMB 11-22-10 — NH_3 LCS - Into a 250mL VF pipetted 1.25mL W25114 and BTV w/ DI H_2O. EXP. 11-29-10

W25120 CES 11/22/10 — Phenol Buffer - Into a 500mL vol dissolved 1g $K_3Fe(CN_6)$ W22607 1.55g Boric Acid ~~W21756~~ W25121, 1.875g KCl W22919, vol. added 23.5mL 1N NaOH W24865, filled to vol w/ dI H_2O. exp 11/25/10

W25121 CES 11/22/10 — Boric Acid - Fisher cat A78-500 lot # 094003A

W25122 CES 11/22/10 — 4-AAP Reagent - Into a 500mL vol dissolved 0.32g 4AAP W21897 + filled to vol w/ dI H_2O. exp 11/23/10

W25123 CES 11/22/10 — 0.8N NaOH - Into a 1L vol dissolved 32g NaOH W24679 + filled to vol w/ dI H_2O exp 12/22/10

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W25093 mml 11-18-10 CCV for VFA into a 100ml Vol. weighed the following + brought to Vol. w/ MilliQ H_2O

Acetic Acid AB279 0.1060 Pyruvic Acid W21927 0.1012
Formic Acid W21931 0.1014 Propionic Acid W21929 0.1020
85% Lactic Acid W21928 0.1158 Butyric Acid W21930 0.1042

W25094 mml 11-18-10 ICV for VFA's - into a 100ml Vol. weighed the following + brought to Vol. w/ MilliQ H_2O

Acetic Acid AB279 0.1063 Pyruvic Acid W21927 0.1020
Formic Acid W21931 0.1014 Propionic Acid W24929 0.1057
85% Lactic Acid W21928 0.1176 Butric Acid W21930 0.1042

W25095 ESC 11-18-10 IC LOQWV: Into a 100mL vol. pippetted 0.03 mL NO_3 W22939 + brought to vol. w/ MilliQ DI H_2O tv = 0.3 mg/L NO_3 exp: 12-18-10

W25096 ESC 11-18-10 IC LOQWV: Into a 100mL vol. pipetted 0.04 mL NO_3 W22939 + brought to vol. w/ MilliQ DI H_2O tv = 0.4 mg/L NO_3 exp 12-18-10

W25097 mml 11-18-10 VFA ICV/LCS into a 100ml Vol. pipetted 1ml W25094 + brought to Vol. w/ Eluent W25098 - stock std.

W25098 mml 11-18-10 VFA Eluent into a 2L Vol. added 50ml W23340 + brought to Vol. w/ MilliQ H_2O

W25099 mml 11-18-10 VFA Ical - into 100ml + to Vol. w/ Eluent W25098

1	2	3	4	5	6	7	8
0	0.1	0.2	0.5	1.0	2.5	5	10

W25100 KMB 11-19-10 LCS Phenolics - Into a 200 mL VF pipetted 0.1 mL W21956 and Brought to Vol. w/ DI H_2O. Exp. 11-26-10

W25101 KMB 11-19-10 Phenolics ICAL Working - Into a 100 mL VF pipetted 1 mL W22840 and BTV w/ DI H_2O. Exp. 11-26-10.

11-19-10 mml

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W24610 JTG 9-7-10 — NH_3 LCS: into a 200 mL vol. pipetted 1 mL W24422 + BTV w/ DI H_2O. exp: ~~9-14-10~~ 9/13/10 EJC 9/8/10

W24611 CES 9/7/10 — Ascorbic reagent — Into a 500mL vol dissolved 30g W24361 + 0.5g SDD W23748 + filled to vol w/ dI H_2O. exp 9/8/10 e

W24612 EJC 9/7/10 — Fl^- 1000mg/L Std: AccuSPEC Cat# 250-220-40x Lot# SC0152785 exp: 9/7/11

W24613 EJC 9/7/10 — IC NO_2 + F Spike: Into a 100mL vol. pipetted 12.8 mL NO_2 W22679 & 3.2 mL F^- W24612 + brought to vol. w/ Milli Q H_2O exp: 10/7/10

W24614 EJC 9/7/10 — IC Mixed CCV: Into a 500mL vol. pipetted 3.5mL F^- W24612, NO_3^- W22939, Br^- W23469, PO_4 W23289, 15mL Cl^- W22942, & 25mL SO_4^- W23936 + brought to vol. w/ Milli Q H_2O exp: 10/7/10

W24615 JTG 9-7-10 — Rosalic Acid: into a small flask dissolved 0.2g rosalic Acid W23623 in 4mL 1M NaOH ~~W24271~~ W24573 + added 16mL dI Milli Q H_2O. exp: 10-7-10 9-7-10 JTG

W24616 EJC 9/7/10 — TOCW ICAL using 24189 & to vol. w/ Milli Q H_2O exp: 9/14/10

1	0mLs	→ 25mLs	=	0 mg/L
2	0.25	→ ↓	=	10 mg/L
3	1.25	→ ↓	=	50 mg/L
4	2.5	→ ↓	=	100 mg/L

W24617 EJC 9/8/10 — NH_3 LCS: Into a ~~20~~ EJC 9/8/10 100mL vol. pipetted 0.5mL W24422 & brought to vol. w/ DI H_2O exp: ~~9/15/10~~ 9/13/10 EJC 9/8/10

W24618 mml 9/8/10 — TKN Buffer: ~~into~~ a 2L Vol. dissolved 34g EDTA W24388 60g Sodium phosphate W24247 + 130g NaOH W23614 + brought to Vol. w/ dI H_2O exp 10/8/10

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		1	2	3	4	5	6
Standard Prep	Log ID # Concentration	Dilution Prep Solvent Lot #	Prep	Final Conc.	Exp. Date	Prep By / Date	ID #
8260 ICV	⑩ V540 2000 ug/mL	JT Baker Lot # H46E44	1500 uL of ⑩ + 300 uL of ⑫ + 3250 uL + 2 mL MeOH	600 ug/L	9/20/10	AP 6 9/13/10	VOC04 3535
Sp. Kingstd	⑫ V571 1000 ug/mL						
8260 CCV	⑩ V516 2000 ug/mL ⑫ V570 1000/1000 ug/mL						VOC04 3536
Calib. Std.	⑬ V572 1000 ug/mL						
Nitrocellulose Stock (neat)	W13325 (Cellulose Nitrate - 70% in IPA)	N/A	Dried overnight @ 75°C	Neat	6/24/11	RD 9/17/10	VOC04 3537
Nitrocellulose Spiking Std.	VOC04 3537 (oven dried)	Acetone, JT-Baker, Cat# 9254-03 Lot # J14E52	0.5007g to Volume in 100mL Vol. Flask	5000 mg/L	3/17/11	RD 9/17/11	VOC04 3538
8020 Istd./Sstd.	V559 2000 ug/mL	J.T. Baker MeOH Lot # H46E44	1 mL of each into 25 mL MeOH	80 ug/mL	09/21/11	BMS 09/21/10	VOC04 3539
8020 CCV std	V560 2000 ug/mL						
8020 ICV/spikingStd	V500 1000 ug/mL		1 mL into 10 mL MeOH	100 ug/mL	03/21/11	BMS 09/21/10	VOC04 3540
8260 BFB	V567 1000 ug/mL		1 mL into 10 mL MeOH	100 ug/mL	03/21/11	BMS 09/21/10	VOC04 3541
8260 ISTD	V			50 ug/mL	10/1/10	AP 6 9/24/10	VOC04 3542
8260 SSTD	V			80 ug/mL			VOC04 3543
8260 ISTD/SSTD	⑩ V ⑫ V ⑬ V			100 ug/mL			VOC04 3544
8260 ICV/Spiking std	⑩ V ⑫ V ⑬ V			80 ug/mL			VOC04 3545
8260 CCV/Calib. Std.	⑩ V ⑫ V ⑬ V			100 ug/mL			VOC04 3546
				100 ug/mL			VOC04 3547

ID #	Standard Prep	Log ID # Concentration	Dilution Solvent Lot #	Prep	Final Conc	Exp. Date	Prep By Date	ID #
VOC04	8260	① V510 2500 ug/mL	JT Baker Lot # A48836	120 uL of ① + 150 uL of ② + 2730 uL of MeOH	100 ug/mL	5/31/10	5/24/10	VOC04
457	SSTD	② V539 2000 ug/mL					APC	3471
VOC04	8260	① V544 ② V510 2500 ug/mL		320 uL of ① & ② + 400 uL of ③ to 10 mL FV MeOH	80 ug/mL			VOC04
458	ISTD/SSTD	③ V539 2000 ug/mL						3472
VOC04	8260 IW/	① V540 2000 ug/mL ② V547 1000/10000 ug/mL		150 uL of ① + 300 uL of ② & ③ + 2250 uL of MeOH	100 ug/mL			VOC04
459	Spiking std.	③ V549 1000 ug/mL						3473
VOC04	8260 CCV/	① V516 2000 ug/mL ② V548 1000/10000 ug/mL			100 ug/mL			VOC04
460	Calib. std.	③ V550 1000 ug/mL						3474
VOC04	8260	V502		750 uL of V502 + 2925 uL of MeOH	50 ug/mL	6/15/10	6/8/10	VOC04
461	BFB	2000 ug/mL					APG	3475
VOC04	8260	V553		320 uL of V553 to 10 mL FV w/ MeOH	80 ug/mL			VOC04
462	ISTD	2500 ug/mL						3476
VOC04	8260	① V543 2500 ug/mL		PA 6/14/10 120 uL of ① + 150 uL of ② + 2730 uL of MeOH	100 ug/mL			VOC04
463	SSTD	② V539 2000 ug/mL						3477
VOC04	8260	① V553 2500 ug/mL ② V543 2500 ug/mL		320 uL of ① + 320 uL of ② + 400 uL of ③ to 10 mL FV w/ MeOH	80 ug/mL			VOC04
464	ISTD/SSTD	③ V539 2000 ug/mL						3478
VOC04	8260 IW/	① V540 2000 ug/mL		150 uL of ① + 300 uL of ② + 300 uL of ③ + 2250 uL of MeOH	100 ug/mL			VOC04
465	Spiking std.	② V547 1000/10000 ug/mL ③ V549 1000 ug/mL						3479
VOC04	8260 CCV/	① V516 2000 ug/L			100 ug/mL			VOC04
466	Calib. std	② V548 1000/10000 ug/mL ③ V550 1000 ug/mL						3480
VOC04	8260 VMS3	VOC04 3476		2.0 mL of VOC04 3476 to 10 mL FV w/ MeOH	16 ug/mL			VOC04
3467	ISTD	80 ug/mL						3481
	8260 VMS3	VOC04 3478		2.0 mL of VOC04 3478 to 10 mL FV w/ MeOH	16 ug/mL			3a VOC04
	ISTD/SSTD	80 ug/mL						3482
	Nitrocellulose Std	Cellulose Nitrate Aldrich (Dri2O) 70% in EPA 103°C - W13325 -	Acetone JT Baker Lot # H12E11	0.4169 g of W13325 into 100 mL Acetone	4169 mg/L	12/11/10	RD 6/11/10	VOC04 3483
VOC04								
3468	8260	V502		750 uL of STD + 2925 uL of MeOH	50 ug/mL	6/30/10	6/23/10	VOC04
VOC04	BFB	2000 ug/mL					APG	3484
3469	8260	V553		320 uL of STD to 10 mL FV MeOH	80 ug/mL			VOC04
VOC04	ISTD	2500 ug/mL						3485
3470	8260	① V543 2500 ug/mL		120 uL of ① + 150 uL of ② + 2730 uL of MeOH	100 ug/mL			VOC04
	SSTD	② V539 2000 ug/mL						3486

WORGANIC CARBON Solids QSM Analytical Run
78601 on 8/31/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	961720		8/12/2001 1200					ORGANIC CARBON QSM		S	4	
		FTFSS-004(I)-0001-SS		Designated MS/MSD								
	961721		8/12/2001 1230					ORGANIC CARBON QSM		S	4	
		FTFSS-005(I)-0001-SS										
86608	962085		8/15/2011 1315			SHAW E&I INC	RVAAP MMRP LL1	ORGANIC CARBON QSM		S	4	
		LL1SS-715(I)-0001-SS		Designated MS/MSD								
86608	962086		8/15/2011 1330			SHAW E&I INC	RVAAP MMRP LL1	ORGANIC CARBON QSM		S	4	
		LL1SS-716(I)-0001-SS										
86608	962087		8/15/2011 1350			SHAW E&I INC	RVAAP MMRP LL1	ORGANIC CARBON QSM		S	4	
		LL1SS-717(I)-0001-SS										
	962133		8/14/2011 1040					ORGANIC CARBON QSM		S	4	
		DA2SS-209-0001-SS										
	962134		8/14/2011 1040					ORGANIC CARBON QSM		S	4	
		DA2SS-210-0001-SS										
	962135		8/14/2011 1107					ORGANIC CARBON QSM		S	4	
		DA2SS-211-0001-SS										
	962136		8/14/2011 1145					ORGANIC CARBON QSM		S	4	
		DA2SS-212-0001-SS										
	962137		8/14/2011 1200					ORGANIC CARBON QSM		S	4	
		DA2SS-213-0001-SS										
	962143		8/14/2011 1315					ORGANIC CARBON QSM		S	4	
		DA2SS-214-0001-SS										
	962144		8/15/2011 1032					ORGANIC CARBON QSM		S	4	
		DA2SS-216-0001-SS										
	968714							WORGANIC CARBON Solids Q				
				CCV								
	968715							WORGANIC CARBON Solids Q				
				LCSS								
	968716							WORGANIC CARBON Solids Q				
				MBS								
	968717							WORGANIC CARBON Solids Q				
				CCV								
	968718							WORGANIC CARBON Solids Q				
				CCB								
	968719		8/14/2011 1200					ORGANIC CARBON QSM				
		DA2SS-213-0001-SS		DUP	962137							
	968720		8/14/2011 1200					ORGANIC CARBON QSM				
		DA2SS-213-0001-SS		DUP	962137							

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WORGANIC CARBON Solids QSM Analytical Run
78601 on 8/31/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	968721		8/14/2011 1200				ORGANIC CARBON QSM				
		DA2SS-213-0001-SS		DUP 962137							
	968722						WORGANIC CARBON Solids Q				
				CCV							
	968723						WORGANIC CARBON Solids Q				
				CCB							

22 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Validation Checklist

(TOC Solids)

LIMS #: 78601, 78603, & 78767	Method: Total Organic Carbon: Lloyd Khan Method/ 9060A			
Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved
8/30/11	BMS/RD	RD	8/30/11	(Yes) ... No

Instructions: Complete one checklist per *analytical run*. Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments: (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. Were the samples acidified prior to analysis?	No effervesence	✓		✓		
2. Was a calibration curve performed using the required number of standards?	3 standard levels and 1 blank	✓				
3. Was the correlation coefficient acceptable?	≥ 0.995	✓				
4. Was the ICV standard run at the beginning of the run prior to sample analysis?	---	✓				
5. Was the ICV recovery acceptable?	90 – 110 %	✓				
6. Was the ICB result acceptable?	< LOD	✓				
7. Were the CCV's and the CCB's analyzed at the required frequency?	1 per 10 analyses	✓				
8. Were the CCV recoveries acceptable?	90 – 110 %	✓				
9. Were the CCB results acceptable?	< LOD	✓				
10. Were all standards used before the indicated expiration date?	---	✓				
11. Were all positive results that were reported within the calibration's range?	---	✓				
12. Was the LCS recovery acceptable?	Within in-house or project/program specific limits	✓				
13. Was the MB result acceptable?	< LOD or project/ program specific	✓				
14. Were the appropriate number of samples analyzed in quadruplicate?	1 per 20 samples	✓				
15. Was the %RSD on the replicated sample acceptable?	±30 %	✓		✓		

TOC Instrument Run Logbook

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	Matrix (S or W)	Calibration ID #	COMMENTS
8/1/11	1652	8/2/11	0852	CES	77728, 7779, 77780	W	Cal	W26430
8/2/11	1518	8/3/11	0906	CES	77825, 77826, 77828	W	Cal 1	W26430
8/3/11	1647	~~0857 8/4/11~~	0657	CES	77867, 77868	W	Cal 1	W26430
~~8/5/11~~ 8/4/11	1529	8/5/11	1940	CES	77883, 884, 889	W	Cal 1	W26430
08/08/11	09:42	08/08/11	14:36	BMS	77935	S	1	W26831
08/09/11	13:36	08/09/11	23:26	BMS	77997, 77998	W	1	W26430
08/10/11	09:06	08/10/11	13:00	BMS	77448, 78013, 78014	S	1	W26831
08/12/11	09:43	08/12/11	12:33	BMS	Ical W26855	W	W26855	
08/15/11	14:03	08/16/11	01:54	BMS	78141, 78142	W	W26855	
08/16/11	10:13	08/16	~~OP-2~~ 8/16/11 BMS 13:25	APG	78166	S	1	W26831
08/18/11	09:06	8/18/11	18:48	APG/BMS	78196, 78197	W	W26855	
08/19/11	15:15	08/20/11	08:20	APG/BMS	78198, 78199, 78289	W	W26855	
08/22/11	14:59	08/23/11	08:46	BMS	78343, 78344, 77898	W	W26855	
8/26/11	8:00	8/26/11	17:00	APG	78236, 78366	S	W26855	
8/27/11	1326	8/29/11	6112	CES	78550, 552, 553, 554, 55	W	W26430	
08/30/11	07:48	08/30/11	14:00	BMS	78367, 78601, 78603	S	W26855	

Reviewed By:_____

W26931 ESC 8/23/11 TKN Hypochlorite: Into a 500mL vol. volumetrically added 30mL Bleach W26866 & brought to vol. w/DI H_2O exp: 8/24/11

W26932 ESC 8/23/11 Na Nitroprusside/Na Salicylate: Into a 1L vol. dissolved 150g salicylate W26826 & 1g nitroprusside W26339 & brought to vol. w/ DI H_2O exp: 9/23/11

W26933 ESC 8/23/11 0.8N NaOH: Into a 1L vol. dissolved 32g NaOH W26444 & brought to vol. w/ DI H_2O exp: 9/23/11

W26934 ESC 8/23/11 EDTA: Macron Chemicals Cat# 4931-04 Lot# KI9477 exp: 8/23/16

W26935 LeM 8/23/11 Cr^{+6} ICAL: Into 5 seperate 50mL vol. pipet 0, 1, 2.5, 5, 10mL W26145 & brought to vol. w/ W26911 Dig Soln.

W26936 LeM 8/23/11 Cr^{+6} LCSS: Into ~~1000~~ 200 mL vol. pipet 20mL W26141 & brought to vol. w/ Dig soln W26911 tv=500µg/L LeM 8/23/11

W26937 CES 8/23/11 8/24-23/11 Dishwasher acid - Into a 2L vol dissolved 820g sodium citrate ... refilled to vol w/ DI H_2O exp 8/23/12

W26938 mml 8/23/11 Chloramine-T Reagent
Into a 500 mL volumetric flask dissolved 2 g chloramine-T W 25957 and brought to volume with DI H_2O. EXP (24hr): 8/24/11

W26939 mml 8/23/11 Pyridine Color Reagent
Into a 500 mL volumetric flask dissolved 7.5 g barbituric acid W 25947, volumetrically added 37.5 mL pyridine W 25823, and pipetted 7.5 mL hydrochloric acid W 26266 and brought to volume with DI H_2O.
EXP (1 week): 8-30-11

W26940 LeM 8/23/11 Cr^{+6} Into a 200mL vol. dissolve 1.0g DPC W25133 in Acetone JTBaker Lot# J14E52 cat# 9254-03 exp: 8/24/11

W26941 Bms 08/23/11 TOCS Ical: Weighed 0, ~5mg, ~10mg, ~20mg, ~30mg, ~40mg, and ~50mg Dextrose W23192

Continued on Page

Read and Understood By

Date Signed Date

Notebook No. _____

PROJECT _____ Continued From Page _____

W26825 CES 8/9/11 — Na nitroprusside / Na salicylate - Into a 1L vol dissolved 150g salicylate W26826, 1g nitroprusside & filled to vol w/ dI H_2O. exp 9/9/11

W26826 CES 8/9/11 — Sodium Salicylate - Fisher cat# S395-500 lot # 107704

W26827 CES 8/9/11 — Ammonium Molybdate Stock - Into a 1L vol dissolved 40g W25824 & filled to vol w/ dI H_2O. exp ~~10/8/11~~ 10/8/11 prepreped 8/8/11 stir for 4 hours

W26828 CES 8/9/11 — 0.8 N NaOH - Into a 1L vol dissolved 32g NaOH W26444 & filled to vol w/ dI H_2O exp 9/9/11

W26829 EJC 8/10/11 — TKN/TPHOS Digestion Solution
Into a 2L volumetric flask dissolved 266g potassium sulfate W 26412 and volumetrically added 400mL H_2SO_4 W 25871 and 50mL Mercuric Sulfate Solution W 26726 and brought to volume with DI H_2O.
EXP(1 month): 9/10/11

W26830 EJC 8/10/11 — Ascorbic Reagent: Into a 500mL vol. dissolved 30g Ascorbic W26816 & 0.5g SDS W25587 & brought to vol. w/ DI H_2O exp: 8/11/11

W26831 BMS 08/10/11 — TOCS Ical (Prepped 06/27/11). Pt1 ≈ 0, Pt2 ~ 10 mg, Pt3 ~ 20 mg, Pt4 ~ 40 mg, Pt5 ~ 50 mg of Dextrose (W23192).

W26832 EJC 8/10/11 — TKN/TPhos Diluent: Into a 2 L vol. volumetrically added 480mL dig soln W 26829 & brought to vol. w/ DI H_2O exp: 9/10/11

W26833 BMS 08/10/11 — TOCS LOD CHECK (900 mg/kg) - ~ 2 mg Dextrose (W23192)

W26834 BMS 08/10/11 — TOCS LOQ CHECK (1800 mg/kg) - ~ 4 mg Dextrose (W23192) - 4 reps

W26835 EJC 8/11/11 — Ascorbic Reagent: Into a 500mL vol. dissolved 30g Ascorbic W26816 + 0.5g SDS W25587 & brought to vol. w/ DI H_2O exp: 8/12/11

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

W26703 BMS 07/21/11 — 35% Phosphoric Acid: Into a 500mL vol., volumetrically added 125 mL Phosphoric acid W22080 and brought to volume with milli Q H_2O. Exp. 07/21/12

W26704 KMB 7-21-11 — Ammonium Persulfate – Into a 200 mL vol. flask dissolved 80g W26400 and brought to vol. w/DI H_2O. Exp 7-28-11

W26705 KMB 7-21-11 — LL T. Phos LCS Working Std - Into a 100 mL vol. flask pipetted 1mL W26886 and brought to vol. w/DI H_2O. Exp. 7-28-11

W26706 KMB 7-21-11 — LL T. Phos LCS - Into a 200mL vol. flask pipetted 1mL W26705 and brought to vol. w/DI H_2O. Exp. 7-28-11

W26707 mml 7-21-11 — Phenolics Buffer into a 500 Vol. dissolved 1g $K_3Fe(CN)_6$ W22607 1.55g Boric Acid W25121, 1.875g KCL W25187 + Vol. added 23.5ml 1N NaOH W26383 + brought to Vol. w/DI H_2O exp 7-28-11

W26708 mml 7-21-11 — 4-Aminoantipyrine into a 250ml vol. dissolved 0.16g 4-AAP + brought to Vol. w/DI H_2O exp 7-22-11

W26709 BMS 07/21/11 — TOCS LOD Check (300mg/kg) - 0.6 mg Dextrose W23192

W26710 BMS 07/21/11 — TOCS LOQ Checks (1000 mg/kg) - 2 mg Dextrose W23192

W26711 mml 7/21/11 — Ascorbic Acid Reagent into a 250 ml vol. dissolved 1.5g Ascorbic W26329 + 0.25g SDS W25587 + brought to Vol. w/DI H_2O exp 7-22-11

W26712 mml 7/21/11 — TKN Hypochlorite into a 250ml Vol. volumetrically added 15ml bleach W26569 + brought to Vol. w/DI H_2O exp 7-22-11

W26713 CES 7/21/11 — LL NO_3 working std - Into a 100mL vol pipetted 10mL W25914 + filled to vol w/ milliQ H_2O. TV = 10mg/L

W26714 CES ~~7/21/11~~ 7/21/11 — NO_3 LL LOQ - Into a 100mL vol pipetted 0.4mL W26713 + filled to volw/ milliQ H_2O exp 7/23/11 TV = 0.4mg/L

CES

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Read and Understood By

Signed Date Signed Date

W26430 6-20-11 TOC ICal into 8 ~~100~~ 50 mL Vol. pipetted 0, 0.25, 0.5, 1.25, 2.5, 5, 7.5 & 12.5 mL 1000 mg/L stock W25489 & brought to Vol. w/ milliQ H_2O exp 6-20-11

W26431 6-20-11 TOC ICV/LCS into a 50 mL Vol. pipetted 5 mL 1000 mg/L stock W25490 & brought to Vol. w/ milliQ H_2O

W26432 - TOC MDL Study - Into 3 100 mL vol pipetted 0.1 mL W25490 - filled to vol w/ milliQ H_2O. exp 7/18/11

W26433 KWS 6-21-11 NH_3 LCS - Into a 200 mL Vol. flask pipetted 1 mL W26267 and brought to vol. w/ DI H_2O. Exp. 6-22-11

W26434 CES 6/21/11 TOC LCS/ICV - Into a 200 mL vol pipetted 15 mL W25490 - filled to vol w/ milli Q H_2O. 7/13/11

W26434 CES 6/21/11 TOC IDC BMS - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. 6/28/11 exp

W26435 CES 6/21/11 TOC IDC CES - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O 6/28/11 exp

W26436 CES 6/21/11 TOC IDC NML - Into 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. 6/28/11 exp CES 6/21/11

W26437 CES 6/21/11 TOC IDC ESC - Into ~~40~~ 4 100 mL vol pipetted 7.5 mL W25490 - filled to vol w/ milliQ H_2O. exp 6/28/11

W26438 CES 6/21/11 IC ICS/ICV mixed - Into a 500 mL vol

IC LCS/ICV Mixed Standard (7 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 50 mg/L Sulfate, and 30 mg/L Chloride) *Diluted 1:1 daily with IC LCS/ICV Nitrite Standard to equal a value of 3.5 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 25 mg/L Sulfate, and 15 mg/L Chloride

Into a 500 mL volumetric flask pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) W25762 and brought to volume with Milli-Q DI H_2O.
EXP (1 Month): 6/21/11

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

W24145 EJC 7/7/10 — 2 N HCL: Into a 500mL vol. volumetrically added 83.5mL HCl W23543 + brought to vol. w/ Milli Q H_2O exp: 7/7/11

W24146 EJC 7/7/10 — 25% Phosphoric Acid: Into a 500mL vol. volumetrically added 125mL Phosphoric Acid W22080 + brought to vol. w/ Milli Q H_2O exp 7/7/11

W24147 ES 7/7/10 — LL LOQW Working - Into a 100mL vol pipetted 1mL NO_2 W22679 + 1mL W22939 + filled to vol w/ milliQ H_2O exp 7/8/10 TV = 10mg/L

W24148 ES 7/7/10 — LL LOQW - Into a 100mL vol pipetted 0.34mL W24147 + filled to vol w/ milliQ H_2O exp 7/8/10 TV = 0.034mg/L

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Read and Understood By

Signed | Date | Signed | Date

W23771 CE NH_3 (H_2O) LOQ check - Into a 100mL vol pipetted 0.016mL
5/12/10 W21863 - filled to vol w/ H_2SO_4 dilut W23710. exp 5/12/10

W23772 mul Dextrose, Anhydrous lot# K40352008 cat# DX0145-11
5/12/10 EMD

W23773 CE H_2SO_4 Dilut - Into a 2L Wlumetrically adde
5/12/10 4mL H_2SO_4 W23910 - filled to vol w/ DI H_2O. 6/12/10 exp

W23774 CE Phenolate color reagent - Into a 500mL vol dissolved
5/12/10 16g NaOH W23614, 7 volumetrials added 94mL
three W22610 - filled to vol w/ DI H_2O exp 5/19/10

W23775 mul TOCS LOD check: into a weigh boat added ≈ 1mg Dextrose
5/12/10 W23192

W23776 mul TOCS LOQ check into a weigh boat added ≈ 3mg
5/12/10 Dextrose W23192

5/13/10 MWD W23777 MWD Cr^{+6} LODW (8ug/L) - Into a 100mL vol. pipetted 0.08mL
~~5/12/10~~ 5/13/10 W23663 } brought to vol. w/ DI H_2O. exp. 4-29-11

5/13/10 MWD W23778 MWD Cr^{+6} LOQW (25ug/L) - Into a 100mL vol. pipetted 0.25mL
~~5/12/10~~ 5/13/10 W23663 } brought to vol. w/ DI H_2O. exp. 4-29-11

5/13/10 CE

Continued ~~on~~ Page

Read and Understood By

Signed Date Signed Date

W23189 CES CN Ical working - Into a 100mL vol pipetted 1mL
2/18/10 W20743 2 filled to vol w/ 0.25N NaOH W23139.
preped 2/17/10

W23190 CES CN Ical using W23189 2 filled to vol w/ W23139.
2/18/10 preped 2/17/10
~~2mL → 100 = 200 µg/L~~ CES 2/18/10
2mL → 200 = 100 µg/L
0.5mL → 100 = 50 µg/L
using the 100 µg/L std
30mL → 100 = 30 µg/L
10mL → 50 = 20 µg/L
5mL → 50 = 10 µg/L

W23192 mkl Dextrose (D-Glucose) Anhydrous Fisher cat# D16-500
2/18/10 lot# 090078 exp 2/18/15

W23193 CES TC MDLW study - Into 8 100mL vol. pipetted 0.3mL W23086
2/18/10 + filled to vol w/ milliQ H2O. TV = 3.0 mg/L preped 2/17/10 CES

W23194 CES Sulfide LCS. Into a 200mL vol pipetted 1mL W23004
2/18/10 & filled to vol w/ dI H2O.

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Read and Understood By

Signed Date Signed Date

W22074 ESC 8/26/09 NH_3 LOQS ✓: Into a 100mL vol. 4.6mL W22055 was pipetted + brought to vol. w/ KCL extraction soln W22076 true value = 0.23

W22075 ESC 8/26/09 NH_3 LCSS: Into a 100mL vol 0.5mL W22007 was pipetted + brought to vol. w/ KCL extraction soln. W22076

W22076 ESC 8/26/09 KCL Extraction Soln: Into a 1L 150g KCL W20236 was dissolved + brought to vol. w/ DI H_2O exp: 9/26/09

W22077 ESC 8/26/09 NH_3 Hypochlorite: Into a beaker 150mL Bleach W21850 + 150mL DI H_2O were volumetrically added exp: 8/27/09

W22078 CES 8/26/09 25% ophos Acid - Into a 500mL vol volumetrically added 125mL phosphoric acid W20403 & filled to vol w/ DI H_2O.

W22079 ESC 8/26/09 Potassium Chloride: Fisher Cat # P217-500 Lot # 073552 recieved 12/22/08

W22080 CES 8/26/09 Phosphoric Acid - JT Baker cat # 0260-04 Lot # T01806.

W22081 ESC 8/26/09 CN LCS Working Std: Into a 100mL vol. pipetted 1mL W21585 + filled to vol. w/ 0.25 NaOH W21922

W22082 ESC 8/26/09 CN LCS: Into a 200mL vol. 2mL W22081 was pipetted + brought to vol. w/ 0.25 NaOH W21922

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Read and Understood By

Signed	Date	Signed	Date

WPH Analytical Run
78438 on 8/24/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962088	LL1-718-RB	8/15/2011 1245		SHAW E&I INC	RVAAP MMRP LL1	PH		GW	4	
	965767	LL1-718-RB	8/15/2011 1245	DUP 962088			PH				

2 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Validation Checklist

LIMS #: 78438	Method: pH EPA 150.1			
Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved
8-24-11	mwl	[illegible]	8/25/11	(Yes) .. No

Instructions: Complete one checklist per *analytical run*. Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	Acceptance Criteria	Analyst Review		Independent Review		Comments: (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. Was the calibration slope recorded on the bench sheet?	---	✓		✓		
2. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	✓		✓		
3. Were the duplicates within acceptable limits?	Differ by ≤ 0.10 pH units	✓		✓		
4. Are all samples on the job lists accounted for?	---	✓		✓		

WPH Analytical Run
78480 on 8/25/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962085	8/15/2011	1315		SHAW E&I INC	RVAAP MMRP LL1	PH		S	**4**	
		LL1SS-715(I)-0001-SS		Designated MS/MSD							
86608	962086	8/15/2011	1330		SHAW E&I INC	RVAAP MMRP LL1	PH		S	**4**	
		LL1SS-716(I)-0001-SS									
86608	962087	8/15/2011	1350		SHAW E&I INC	RVAAP MMRP LL1	PH		S	**4**	
		LL1SS-717(I)-0001-SS									
	966488	8/15/2011	1315				PH				
		LL1SS-715(I)-0001-SS		DUP 962085							

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Validation Checklist

LIMS #: 78480	Method: pH EPA 150.1			
Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved
8-22-11	LEM	MM	8-25-11	(Yes) . No

Instructions: Complete one checklist per *analytical run*. Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	Acceptance Criteria	Analyst Review		Independent Review		Comments: (indicate reference to an attachment if necessary)
		Yes	No	Yes	No	
1. Was the calibration slope recorded on the bench sheet?	---	Y		Y		
2. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix					
3. Were the duplicates within acceptable limits?	Differ by ≤ 0.10 pH units					
4. Are all samples on the job lists accounted for?	---					

Daily pH Calibration & Maintenance Logbook

		pH Buffer Reference ID #			----3 Point Calibration----					
Date	Analyst	pH 7	pH 4	pH 10	1St Buffer	2nd Buffer	3rd Buffer	Slope %	Temp. °C	Comments / Maintenance Performed (if any)
7/20/11	Lee	W25179	W25180	W25951	7.01	4.00	DOA	9%	21.9	
7/21/11	CES				7.01	4.00	10.07	99	21.6	
7-25-11	KMB				7.02	4.01	10.06	100	20.6	
7/27/11	CES				7.02	4.00	10.06	100	20.4	
7/28/11	Lee				7.01	4.00	10.04	98%	21.9	
8/3/11	Lee				7.00	4.00	10.04	95%	20.6	
8/4/11	EJC				7.02	4.00	10.05	99	20.9	
8/8/11	EJC				7.02	4.00	10.05	98	20.5	
8-9-11	KMB				7.02	4.02	10.06	97	20.8	
8-9-11	KMB				7.02	4.00	10.06	97	20.7	
8/10/11	Lee				7.02	4.00	10.04	98	20.5	
8/12/11	Lee				7.02	4.00	10.04	95%	20.9	
8/15/11	Lee				7.02	4.00	10.06	93%	19.7	
8/16/11	EJC				7.02	4.00	10.05	103	20.8	
8/17/11	Lee				7.01	4.00	10.04	98%	21.5	
8/18/11	EJC				7.02	4.00	10.05	98	20.8	
8/19/11	EJC				7.01	4.00	10.03	100	22.9	
8/22/11	Lee				7.03	4.00	10.05	100.0	20.7	
8-23-11	KMB				7.02	4.00	10.05	99	20.7	
8/24/11	Lee				7.02	4.00	10.05	98	20.6	
8/25/11	mm				7.02	4.00	10.05	97	21.3	

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Test (Analyte)	Sample Run # (s) / Prep Batch # (s)	Comments:
8/8/11 EJC	1340	1440	NH_3	38116	
8-9-11 KMB	0915	0930	NH_3	38126	
8/9/11 Lem	1030	1115	pH	77979, ~~77990~~ Lem	
8-9-11 KMB	1240	1300	NH_3	38131	
8/9/11 Lem	1300	1315	pH	77990	
8/9/11 Lem	1530	1615	pH	77981	
8/10/11 Lem	1040	1130	NH_3	38143	
8/12/11 Lem	1130	1200	pH	78083	
8/12/11 Lem	~~13~~ 8/12/11 1530	1550	pH	78084	
8/15/11 Lem	1045	1130	NH_3	38187	
8/15/11 Lem	1445	1530	NH_3	38188	
8/16/11 EJC	1100	1145	NH_3	38202	
8/16/11 Lem	1706	1736	pH	78153	
8/17/11 Lem	1600	1700	Cr^{+6} Soil	38217	
8/18/11 EJC	1550	1715	pH	78270 & 78269	
8/19/11 EJC	1600	1630	Cr^{+6}	38249	
8/22/11 Lem	1400	1445	pH	78335, 78339	
8/22/11 Lem	1530	1630	pH	78333, 78334, 78342 Lem 8/22/11, 78515	
8/22/11 Lem	1645	1800	pH	78382, 78383, ~~78~~ 78381, 78480	
8-23-11 KMB	1030	1050	NH_3	38304	
8-23-11 KMB	1445	1510	NH_3	38305	

Reviewed By:_____

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Test (Analyte)	Sample Run # (s) / Prep Batch # (s)	Comments:
Dan 8/24/11 8/23/11 8/24/11	Dan 8/24/11 1045 0930		Cr^{+6}	383060	
8/24/11 mwd	1315	1615	Ph	78435, 78437, 38, 39, 40, 41	
8/25/11 mwd	1600	1730	Ph	78524, 25, 26, 27, 28	
8/29/11 dan	1530	1600	Cr^{+6}	38413	

Reviewed By:_____

* W25951 ESC 4-8-11 — PH 10 Buffer: Ricca Chemical Cat# 1601-1 Lot# 40077763 exp: January 2012

AW25952 ESC 4-10-11 — Phenylarsine Oxide Solution 0.025N. Fisher Scientific Cat# SP65-1 Lot# 105514 exp: 10/2011

* W25953 ESC 4-10-11 — Sulfide LCS stock 1000mg/L: Into a 200mL vol. dissolved 1.5g Sodium Sulfide W25510 + brought to vol. w/ 0.25N NaOH W25873 exp: 5-10-11

* W25954 ESC 4-10-11 — Sulfide LCS (5mg/L) Into a 200mL vol. pipetted 1mL W25953 + brought to vol w/ DI H_2O exp: 4/11/11

Continued on Page

Read and Understood By

Signed Date Signed Date

*W25173 ESC 11/30/10 LL IC NO_2 spike: Into a 200mL vol. pipetted 10mL W23500 & brought to vol. w/ Milli Q DI H_2O tv= 50mg/L exp: 12/30/10

*W25174 ESC 11/30/10 LL IC PO_4^- spike: Into a 200mL vol. pipetted 6mL W23501 + brought to vol. w/ Milli Q DI H_2O tv= 30mg/L exp: 12/30/10

W25175 ESC 11/30/10 LL IC LODWV: Into a 200mL vol. pipetted ~~0.02~~ 0.033 ESC 11/30/10 mL W25174, 0.04mL W25172 & W25173 & brought to vol. w/ Milli Q DI H_2O tv= 0.005mg/L PO_4^- & 0.02mg/L NO_2 + NO_3 exp: ~~N/e~~ 12/1/10 EDC 11/30/10

W25176 ESC 11/30/10 LL IC LOQW ✓: Into a 200mL vol. pipetted 0.107mL W25174 & 0.4mL W25172 & W25173 & brought to vol. w/ Milli Q DI H_2O tv= 0.016mg/L PO_4^- & 0.2mg/L NO_2 + NO_3 exp: 12/1/10

W25177 ESC 11/30/10 IC LODS ✓: Into a 500mL vol. pipetted 0.015mL Fl W24612 & NO_2 W22679, 0.025mL Br W23469 & NO_3 W22939, 0.05mL PO_4^- W23289, 0.75mL Cl^- W24670, & 0.55mL SO_4^- W23936, & brought to vol. w/ MilliQ DI H_2O tv= ~~0.03~~ 0.3 mg/kg ESC 11/30/10 Fl & NO_2, 0.5mg/kg Br & NO_3, 0.8mg/kg NO_2+NO_3, 1mg/kg PO_4^-, 15mg/kg Cl^-, 11mg/kg SO_4 exp: 12/1/10

W25178 ESC 11/30/10 IC LOQS ✓: Into a 100mL vol. pipetted 0.01mL Br W23469, 0.02mL Fl W24612 & NO_2 W22679, 0.04mL NO_3 W22939, 0.052mL PO_4 W23289, 0.37mL SO_4^- W23936, & 0.48mL Cl^- W24670 & brought to vol. w/ Milli Q DI H_2O, tv= ~~0.1~~ ESC 11/30/10 mg/kg Br, 2mg/kg NO_2 & Fl, 4mg/kg NO_3, 5.2mg/kg PO_4, 6mg/kg NO_2+NO_3, 37mg/kg SO_4, & 48mg/kg Cl exp: 12/1/10

W25179 JTB 12-1-10 PH 7.0 Buffer. MG Scientific cat # 1551-1 4L. lot # 4010642 exp: Oct 2012

W25180 JTB 12-1-10 PH 4.00 Buffer 4L. MG Scientific cat # 1501-1 lot # 4011071 exp: Nov. 2012

ATS 12/1/10

Continued on Page

Read and Understood By

Signed Date Signed Date

W23964 CES 6/7/10 CN Buffer - Into a 500mL vol dissolved 48.5g potassium phosphate Monobasic W23209 ✓ filled to vol w/ dI H_2O exp 7/7/10.

W23965 CES 6/7/10 Chloramine T - Into a 500mL vol dissolved 2g W22491 ✓ filled to vol w/ dI H_2O. exp 6/8/10

W23966 ESC 6/7/10 NH_3 LCS: Into a 200mL vol. pipetted 1mL W23736 & brought to vol. w/ DI H_2O exp: 6/14/10

W23967 CES 6/7/10 Buffer 10. MG Scientific cat # H300-11, lot 191 2019 exp May 2011

W23968 ESC 6/8/10 Borate Buffer: Into a 1L vol. volumetrically added 500mL Na Tetraborate ~~W23609~~ W23969 & 88mL 0.1N NaOH W22412 & filled to vol. w/ DI H_2O exp: 7/8/10

W23969 ESC 6/8/10 Na Tetraborate: Into a 1L vol. dissolved 9.5g Na Tetraborate W23610 & filled to vol. w/ DI H_2O exp: 7/8/10

W23970 ESC 6/8/10 KMB NH_3 ~~DW~~ Dist Blind Spike: Into a 50mL vol. flask pipetted 0.15mL NH_3 LCS stock W23736 & brought to vol. w/ DI H_2O ESC 6/8/10

W23971 MWD 6/8/10 IC Mixed ICV/LCS - Into a 500mL vol. pipetted 20mL LCS Stock W23432 & brought to vol. w/ MilliQ H_2O. exp - 7-8-10

Continued on Page

Read and Understood By

Signed | Date | Signed | Date

WSOLIDS Analytical Run
78350 on 8/23/2011

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
86608	962085	8/15/2011	1315		SHAW E&I INC	RVAAP MMRP LL1	SOLIDS,PERCENT		S	**4**	
		LL1SS-715(I)-0001-SS		Designated MS/MSD							
86608	962086	8/15/2011	1330		SHAW E&I INC	RVAAP MMRP LL1	SOLIDS,PERCENT		S	**4**	
		LL1SS-716(I)-0001-SS									
86608	962087	8/15/2011	1350		SHAW E&I INC	RVAAP MMRP LL1	SOLIDS,PERCENT		S	**4**	
		LL1SS-717(I)-0001-SS									
	965118	8/15/2011	1315				SOLIDS,PERCENT				
		LL1SS-715(I)-0001-SS		DUP 962085				0			

4 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

	Method: Total Solids SM2540B&G / Percent Solids SW846-5030A				
LIMS Run #(s)	**Analysis Date**	**Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
78350 78351 78352 78353 78354	8/22/2011	APG	RLD	8/23/2011	Yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Were samples analyzed within hold time?	14 days or program/project specific	Yes		Yes		Qualify data prepared after hold time
2. Were samples dried overnight?	> 8hours	Yes		Yes		If No: place samples back into oven for mimium of 8 hours of total dry time.
3. Were drying start and stop times recorded?	---	Yes		Yes		If No: record times and temperatures
4. Were duplicates analyzed at the appropriate frequency?	1 per 20 of similar matrix or at program/project specific frequency	Yes		Yes		If No: reprep samples with appropreate frequency for a duplicate.
5. Were the duplicates within acceptable limits?	Within in-house or program/project specific QC limits	Yes		Yes		IF No: reprep and reanalyze samples or qualify parent sample result (Y).
6. Are all samples on the job lists accounted for?	---	Yes		Yes		If No: analyze samples that were were missed.

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

CT LABORATORIES

delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 86608
Client: SHAW E&I INC

Print Date / Time: 08/16/2011 09:20
Received Date / Time / By: 08/16/2011 0830 MDS

Project Name: RVAAP MMRP
Project #: 136147

Log-In Date / Time / By: 08/16/2011 0919 JLS
PM: ETK

Coolers: 3610
Custody Seals Present : **Y**

Temperature: 3.3 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: UPS
Adequate Packaging: **Y**

Numbers: DATED AND SIGNED
Tracking Number: 1Z10487E1594694924
Temp Blank Enclosed? **Y**

Notes: SAMPLES REC'D IN GOOD CONDITION ON ICE. 1 CUSTODY SEAL INTACT, DATED 8-15-11 AND SIGNED BY CHRISTOPHER JONES. ANALYSIS REQUIRED NOT CLEAR ON COC- CHB VERIFIED WITH QAPP AND CLIENT TESTS LOGGED IN LIMS

Sample ID / Description	Container Type	Cond. Code	pH OK?	Tests	Filtered?
962085 LL1SS-715(I)-0001-SS					
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*FOR LABEL ONLY*) = 3				
962085 LL1SS-715(I)-0001-SS					
	MISC	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*MISC*) = 1				
962086 LL1SS-716(I)-0001-SS					
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*FOR LABEL ONLY*) = 3				
962086 LL1SS-716(I)-0001-SS					
	MISC	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*MISC*) = 1				
962087 LL1SS-717(I)-0001-SS					
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	FOR LABEL ONLY	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*FOR LABEL ONLY*) = 3				
962087 LL1SS-717(I)-0001-SS					
	MISC	1		%SOL,ICP,pH,TOC ,EXPL,	
	Total # of Containers of Type (*MISC*) = 1				

Sample ID / Description	Container Type	Cond. Code	pH OK?	Tests	Filtered?

962088 LL1-718-RB

AMBER GL	1		EXPL
AMBER GL	1		EXPL
AMBER GL	1		EXPL
AMBER GL	1		EXPL

Total # of Containers of Type (*AMBER GL*) = 4

.....

962088 LL1-718-RB

HNO3	1	Y	ICP

Total # of Containers of Type (*HNO3*) = 1

.....

962088 LL1-718-RB

UNPRES PL	1		pH

Total # of Containers of Type (*UNPRES PL*) = 1

.....

Condition Code	*Condition Description*
1	Sample Received OK

Rev. 9/2009

CHAIN OF CUSTODY

Page 5 of

Company: Shaw E&I
Project Contact: David Crispo
Telephone: 617.589.8146
Project Name: RVAAP MMRP
Project #: 136147
Location: Ravenna, OH
Sampled By: Christyn Jones

CT LABORATORIES
Folder #: 86608
Company: SHAW E&I INC
Project: RVAAP MMRP
Logged By: JLS PM: ET

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other MMRP

PO #

Report To: David Crispo
EMAIL: david.crispo@shawgrp.com
Company: Shaw E&I
Address: 100 Technology Ctr Dr Stoughton MA 02072

Invoice To:*
EMAIL:
Company: per Shaw P.O.
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions
Geochem samples include Ca, Mn, Mg

Matrix:
GW - groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed:
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

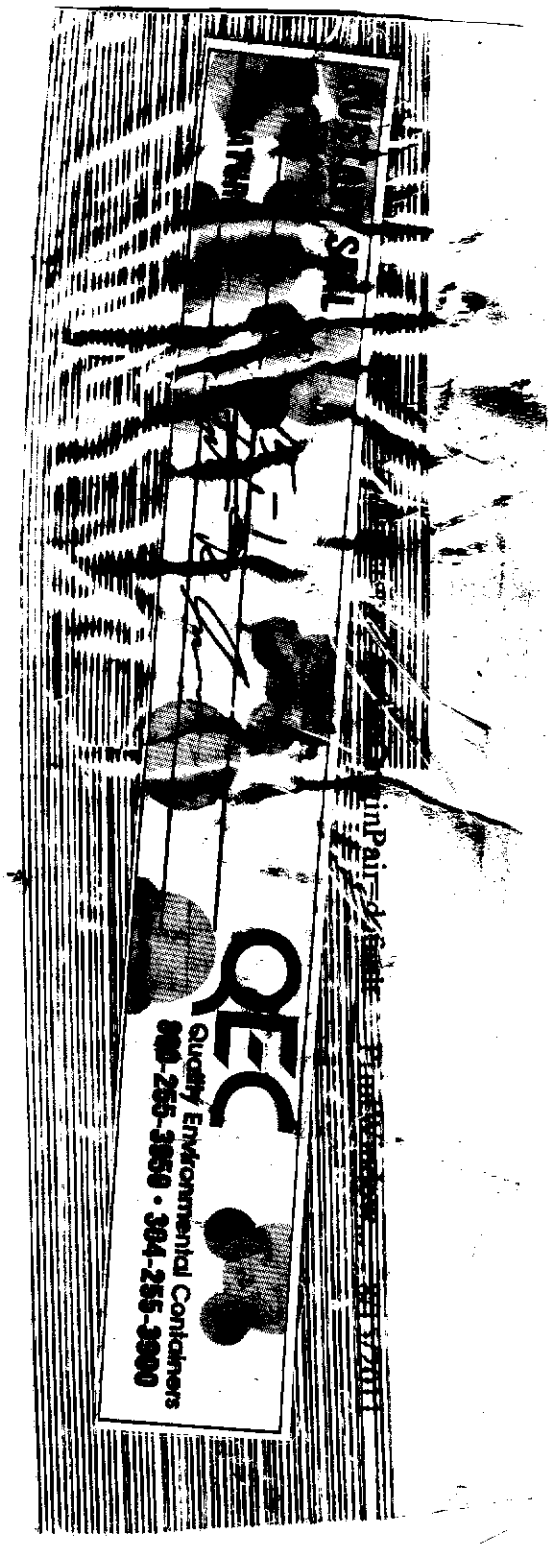
Collection Date	Collection Time	Matrix	Grab/ Comp	Sample ID Description	Filtered? Y/N	ANALYSES REQUESTED: Lead	Geochem Metals	Explosives	Nitrocellulose	TOC	pH	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
						Fill in Spaces with Bottles per Test								
8-15	1315	S	DSM	LL155-715(I)-0001-SS	NA	X	X	X	X	X	X	1	X	962085
8-15	1330	S	DSM	LL155-716(I)-0001-SS	"	X	X	X	X	X	X	1		962086
8-15	1350	S	DSM	LL155-717(I)-0001-SS	↓	X	X	X	X	X	X	1		962087
8-15	1245	W	G	LL1-718-RB	N	X		X	X		X	3		962088

Relinquished by: [signature]
Date/Time: 8-15-11 1600
Received By: UPS
Date/Time:

Received by:
Date/Time
Received for Laboratory by: [signature]
Date/Time: 8/16/11 0919

Lab Use Only
Ice Present (Yes) No
Temperature 3.3
Cooler # 3610

MOS 8/16/11
8:30



CHRISTOPHER JONES
207-251-6830
RAVENNA AAP - SHAW E&I
8451 STATE ROUTE 5
RAVENNA OH 44266

40 LBS

1 OF 3

DWT: 30,24,20

SHIP TO:
INCOMING SAMPLES
608-356-2760
CT LABORATORIES
1230 LANGE COURT
BARABOO WI 53913-3109

WI 539 0-10

UPS EARLY A.M.

TRACKING #: 1Z 104 87E 15 9469 4924

1+

BILLING: P/P

Reference: 00501.136147.4701.0200120
Senders Name: Chris Jones

GS 13.6.06. WXPIE80 18.0A 07/2011

TM

MDS 8/16/11
8:30
3.3°C
Cooler 3610

Folder #: 86608

PM LOGIN CONFIRMATION

Company: SHAW E&I INC **Contract #:** 2385 **Project:** RVAAP MMRP **Proj #:** 136147

PO Number: 565418 **Invoice #:** 86781 **Project Manager:** *ETK*

Date Received: 08/16/11 **Log Date:** 8/16/2011 **Projected Sample Disposal Date:** 45 **days from receipt date**

Report To: DAVID CRISPO
CC: Maqsud.Rahman@shawgrp.com
100 TECHNOLOGY CENTER DRIVE
STOUGHTON, MA 02072
Phone: 617.589.8146: Fax:
Rep. E-Mail david.crispo@shawgrp.com

Invoice To :ACCOUNTS PAYABLE
CC: apinvoices@shawgrp.com
PO BOX 98519
BATON ROUGE, LA 70884
Phone: Fax:
EMail:

Collected By:
Collector's Phone: 617.589.8146

Arrival Temperature: oC

SAMPLE #: 962085 DESCR: LL1SS-715(I)-0001-SS MATRIX: SOIL SAMPLED: 8/15/2011 Time: 1315 CLIENT SAMPLE #:

TEST#	TEST	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
8	SOLIDS,PERCENT			***DESIGNATED MATRIX SPIKE***	8/29/2011	8/28/2011		Logged
203	PH			***DESIGNATED MATRIX SPIKE***		8/28/2011		Logged
817	ICP QSM			***DESIGNATED MATRIX SPIKE***	2/11/2012	8/28/2011		NeedPrep
		Calcium						
		Lead						
		Magnesium						
		Manganese						
891	EXPLOSIVES NITROGUAN			***DESIGNATED MATRIX SPIKE***		8/28/2011		NeedPrep
906	8330B EXPLOSIVES QSM			***DESIGNATED MATRIX SPIKE***		8/28/2011		NeedPrep
946	HOMOGEN/M.I. PREP			***DESIGNATED MATRIX SPIKE***		8/28/2011		Logged
990	ORGANIC CARBON QSM			***DESIGNATED MATRIX SPIKE***	8/29/2011	8/28/2011		Logged
1042	NITROCELLULOSE QSM			***DESIGNATED MATRIX SPIKE***		8/28/2011		NeedPrep

Folder #: 86608 **Company:** *SHAW E&I INC* **Project:** RVAAP MMRP

SAMPLE #: 962086 **DESCR:** LL1SS-716(I)-0001-SS **MATRIX:** SOIL **SAMPLED:** 8/15/2011 **Time:** 1330 **CLIENT SAMPLE #:**

TEST#	TEST	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
8	SOLIDS,PERCENT				8/29/2011	8/28/2011		Logged
203	PH					8/28/2011		Logged
817	ICP QSM				2/11/2012	8/28/2011		NeedPrep
		Calcium						
		Lead						
		Magnesium						
		Manganese						
891	EXPLOSIVES NITROGUAN					8/28/2011		NeedPrep
906	8330B EXPLOSIVES QSM					8/28/2011		NeedPrep
946	HOMOGEN/M.I. PREP					8/28/2011		Logged
990	ORGANIC CARBON QSM				8/29/2011	8/28/2011		Logged
1042	NITROCELLULOSE QSM					8/28/2011		NeedPrep

SAMPLE #: 962087 **DESCR:** LL1SS-717(I)-0001-SS **MATRIX:** SOIL **SAMPLED:** 8/15/2011 **Time:** 1350 **CLIENT SAMPLE #:**

TEST#	TEST	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
8	SOLIDS,PERCENT				8/29/2011	8/28/2011		Logged
203	PH					8/28/2011		Logged
817	ICP QSM				2/11/2012	8/28/2011		NeedPrep
		Calcium						
		Lead						
		Magnesium						
		Manganese						
891	EXPLOSIVES NITROGUAN					8/28/2011		NeedPrep
906	8330B EXPLOSIVES QSM					8/28/2011		NeedPrep
946	HOMOGEN/M.I. PREP					8/28/2011		Logged
990	ORGANIC CARBON QSM				8/29/2011	8/28/2011		Logged
1042	NITROCELLULOSE QSM					8/28/2011		NeedPrep

Folder #: 86608 **Company:** *SHAW E&I INC* **Project:** RVAAP MMRP

SAMPLE #: 962088 **DESCR:** LL1-718-RB **MATRIX:** GROUND WATER **SAMPLED:** 8/15/2011 **Time:** 1245 **CLIENT SAMPLE #:**

TEST#	TEST	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH					8/28/2011		Logged
848	ICP TOTAL QSM				2/11/2012	8/28/2011		NeedPrep
		Total Lead						
891	EXPLOSIVES NITROGUAN					8/28/2011		NeedPrep
906	8330B EXPLOSIVES QSM					8/28/2011		NeedPrep
1042	NITROCELLULOSE QSM					8/28/2011		NeedPrep

Invoice Number: 86781 **Preliminary Invoice Estimate:** $ 1,380.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
8330B EXPLOSIVES QSM	GROUND WATER	1	$ 95.00	0.00	$ 95.00
8330B EXPLOSIVES QSM	SOIL	3	$ 95.00	0.00	$ 285.00
EXPLOSIVES NITROGUAN	GROUND WATER	1	$ 65.00	0.00	$ 65.00
EXPLOSIVES NITROGUAN	SOIL	3	$ 65.00	0.00	$ 195.00
HOMOGEN/M.I. PREP	SOIL	3	$ 75.00	0.00	$ 225.00
ICP QSM Calcium	SOIL	3	$ 5.00	0.00	$ 15.00
ICP QSM Lead	SOIL	3	$ 10.00	0.00	$ 30.00
ICP QSM Magnesium	SOIL	3	$ 5.00	0.00	$ 15.00
ICP QSM Manganese	SOIL	3	$ 5.00	0.00	$ 15.00
ICP TOTAL QSM Total Lead	GROUND WATER	1	$ 10.00	0.00	$ 10.00
NITROCELLULOSE QSM	GROUND WATER	1	$ 75.00	0.00	$ 75.00
NITROCELLULOSE QSM	SOIL	3	$ 75.00	0.00	$ 225.00
ORGANIC CARBON QSM	SOIL	3	$ 30.00	0.00	$ 90.00
PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00
PH	SOIL	3	$ 10.00	0.00	$ 30.00
SOLIDS,PERCENT	SOIL	3	$ 0.00	0.00	$ 0.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

Bottle Information

Container	# Containers	Tests
AMBER GL	**4**	EXPL
FOR LABEL ONLY	**9**	%SOL,ICP,pH,TOC ,EXPL,NC
HNO3	**1**	ICP
MISC	**3**	%SOL,ICP,pH,TOC ,EXPL,NC
UNPRES PL	**1**	pH

Appendix D
Investigation Derived Waste Management

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List of Attachments

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Attachment 2 IDW Waste Profile
Attachment 3 IDW Waste Manifest

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Acronyms and Abbreviations

ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
FSAP	Facility-Wide Sampling and Analysis Plan
IDW	Investigation-Derived Waste
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RVAAP	Ravenna Army Ammunition Plant
Shaw	Shaw Environmental & Infrastructure, Inc.
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
VISTA	VISTA Environmental Services Corporation
VOC	volatile organic compound
VQ	validation qualifier

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1.0 INVESTIGATION-DERIVED WASTE MANAGEMENT

Investigation-Derived Waste (IDW) generated during the remedial investigation activities conducted at the Ravenna Army Ammunition Plant (RVAAP), Ohio, under the Military Munitions Response Program included the following:

- Solid Waste (expendable waste debris) consisting of personal protective equipment (PPE)
- Solid Waste (used absorbent pads) derived from collection of residual liquids from decontamination of sampling equipment

All IDW generated during the remedial investigation activities was managed in accordance with sampling requirements of *Munitions Constituents Sampling and Analysis Plan and Quality Assurance Project Plan* (Shaw Environmental & Infrastructure, Inc. [Shaw], 2011) and Section 7.0 of the *Facility-Wide Sampling and Analysis Plan* (FSAP) (Science Applications International Corporation, 2001).

1.1 IDW Collection and Containerization

Characterization and classification of the different types of IDW was based on the specific protocol described below.

- **Expendable Waste Debris and Spent Absorbent Pads—**Expendable waste debris and spent absorbent pads considered to be potentially contaminated based on visual inspection and use of the waste material was placed in segregated trash bags and stored in a 55-gallon drum sealed with gasketed, ring-topped lid.

A summary of IDW generated is presented in **Table 1**.

Table 1
Summary of Investigation-Derived Waste

Drum ID Number	Container Size and Type	Contents and Volume	Generation Dates
Solid Waste			
Shaw-2012-01	55-gallon open top	PPE and spent absorbent pads (half-full)	8/12/2011–5/9/2012

PPE denotes personal protective equipment.

1.2 Waste Container Labeling

All containerized waste was labeled as specified in Section 7.2 of the FSAP. Label information on each container was written in indelible ink and included, at a minimum, the container number;

contents; source of the waste; source location; project name and site identification; physical characteristics of the waste; and generation dates. The label was placed on the side of the container at a location that was protected from damage or degradation.

1.3 IDW Field Staging

The drum containing IDW was staged at Building 1036. The drum was placed on a wooden pallet at Building 1036 and was labeled as, "On Hold Pending Analysis" until analytical results were received.

1.4 Weekly Inspection Inventories

Shaw contracted VISTA Environmental Services Corporation (VISTA) to conduct weekly inspection inventories of the containerized IDW in accordance with Section 40, Part 262 of the Code of Federal Regulations (40 CFR 262). The weekly inspections were performed by VISTA for the duration of the waste storage at the facility. Once analytical results were received by Shaw, VISTA placed the appropriate waste characterization label on the drum.

1.5 IDW Sampling

The IDW sample was analyzed by the following United States Environmental Protection Agency (EPA) methods:

Table 2
Investigation-Derived Waste Analysis Methods

Sample Name	Analysis	Methods
IDW-WC-0001	TCLP Metals TCLP SVOCs TCLP VOCs PCBs Explosives RCRA Characteristics[1]	6010C, 7470A 8270C 8260C 8082A 8330B 9045D, 1010, ASTM D5049, and ASTM D4978

[1] *RCRA Characteristics include analysis for reactive cyanide and sulfide, flashpoint and pH.*

ASTM denotes American Society for Testing and Materials.

PCB denotes polychlorinated biphenyl.

RCRA denotes Resource Conservation and Recovery Act.

SVOC denotes semivolatile organic compound.

TCLP denotes Toxicity Characteristic Leaching Procedure.

VOC denotes volatile organic compound.

The detected analytical results for each of the IDW samples are presented in **Table 3**. The IDW laboratory data report is presented in **Attachment 1** of this appendix.

1.6 Listed Waste Screening

A review of available historical documents and generator knowledge did not support that wastes generated met the listed description as defined in 40 CFR 261, Subpart D. Therefore, the IDW generated was not considered listed.

1.7 Characteristic Waste Screening

The solid waste was evaluated to determine if it exhibited characteristics of a hazardous waste. RCRA characterization was performed on the waste to determine if it was reactive, ignitable, or corrosive. To check for the characteristic of toxicity, the analytical results were compared to the RCRA Toxicity Characteristic Leaching Procedure (TCLP) regulatory levels. All detected analytes were below the toxicity limits and did not exhibit characteristics of a hazardous waste. (**Table 3**).

1.8 IDW Transport and Disposal

Based on the analytical data and the screening criteria discussed above, the drum containing expendable waste debris and used absorbent pads did not exhibit characteristics of a hazardous solid waste. All waste disposal documents were reviewed by the RVAAP Facility Manager prior to off-site disposal in accordance with the RVAAP Waste Management Guidelines. All generated waste was transported off-site for disposal at Vexor Technology, Inc. in Medina, Ohio. The drum was disposed as non-Department-of-Transportation Regulated, Nonhazardous Material. The approved waste profile and nonhazardous waste manifest are provided in **Attachment 2** and **Attachment 3** of this appendix, respectively.

Table 3
Detected Analytes in Investigation-Derived Waste Samples

Sample ID	Sample Date	Test Group	Method	Analyte	Result	VQ	Units	Characteristic Waste Evaluation	
								EPA Hazardous Waste Code	RCRA TCLP Level (mg/L)[1]
IDW-WC-0001	02-Oct-12	Metals	6010C	TCLP Barium	0.034		mg/L	D005	100
		Metals	6010C	TCLP Chromium	0.0006	J	mg/L	D007	5
		Metals	6010C	TCLP Lead	0.0065		mg/kg	D008	5
		Metals	6010C	TCLP Selenium	0.004	B	mg/kg	D010	1

[1] *Toxicity Characteristic Leaching Procedure, 40 CFR 261.24.*

CFR denotes Code of Federal Regulations.

EPA denotes United States Environmental Protection Agency.

mg/kg denotes milligrams per kilogram.

mg/L denotes milligrams per liter.

RCRA denotes Resource Conservation and Recovery Act.

TCLP denotes Toxicity Characteristic Leaching Procedure.

VQ denotes validation qualifier.

Validation Qualifiers:

J denotes the reported result is an estimated value.

B denotes analyte detected in associated method blank.

Attachment 1
IDW Laboratory Data Report

Shaw Environmental & Infrastructure, Inc.

CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

ANALYTICAL REPORT

SHAW E&I INC
DAVID CRISPO
100 TECHNOLOGY CENTER DRIVE
STOUGHTON, MA 02072

Copy: Maqsud.Rahman@shawgrp.com

Project Name: RVAAP MMRP
Project Phase:
Contract #: 2385
Project #: 136147
Folder #: 93596
Purchase Order #: 734474

Arrival Temperature: 2.0
Report Date: 10/22/2012
Date Received: 10/3/2012
Reprint Date: 10/22/2012

CT LAB#: 223573 Sample Description: IDW-WC-0001 Client Sample #: Sampled: 10/2/2012 1200

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results												
TCLP Arsenic	<0.0040	mg/L	0.0040	0.012	0.024	0.024	1.00	U	10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Barium	0.034	mg/L	0.00029	0.00090	0.0018	0.0018	1.00		10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Cadmium	<0.00030	mg/L	0.00030	0.0010	0.0020	0.0020	1.00	U	10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Chromium	0.0039	mg/L	0.00060	0.0020	0.0040	0.0040	1.00	J	10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Lead	0.0065	mg/L	0.0014	0.0020	0.0040	0.0040	1.00		10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Selenium	0.0040	mg/L	0.0022	0.0065	0.013	0.013	1.00	J B	10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Silver	<0.00070	mg/L	0.00070	0.0020	0.0040	0.0040	1.00	U	10/9/2012 08:00	10/12/12 15:25	NAH	EPA 6010C ^
TCLP Mercury	<0.000030	mg/L	0.000030	0.000060	0.00012	0.00012	1.00	U	10/9/2012 08:00	10/11/12 12:02	LJF	EPA 7470A
Organic Results												
TCLP 1,1-Dichloroethene	<0.024	mg/L	0.024	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP 1,2-Dichloroethane	<0.030	mg/L	0.030	0.050	0.10	0.10	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP 2-Butanone	<0.24	mg/L	0.24	0.25	0.50	0.50	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Benzene	<0.019	mg/L	0.019	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Carbon tetrachloride	<0.023	mg/L	0.023	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Chlorobenzene	<0.024	mg/L	0.024	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Chloroform	<0.015	mg/L	0.015	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^

Solid sample results reported on a Dry Weight Basis

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SHAW E&I INC
Project Name: RVAAP MMRP
Project Phase:
Project #: 136147

Contract #: 2385
Folder #: 93596
Page 2 of 5

CT LAB#: 223573 Sample Description: IDW-WC-0001 Client Sample #: Sampled: 10/2/2012 1200

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
TCLP Tetrachloroethene	<0.030	mg/L	0.030	0.050	0.10	0.10	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Trichloroethene	<0.021	mg/L	0.021	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP Vinyl chloride	<0.018	mg/L	0.018	0.025	0.050	0.050	100.00	U	10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C ^
TCLP 1,2 Dichloroethane-d4	112	% Recovery	70			120	1.00		10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C
TCLP Bromofluorobenzene	107	% Recovery	75			120	1.00		10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C
TCLP d8-Toluene	106	% Recovery	85			120	1.00		10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C
TCLP Dibromofluoromethane	113	% Recovery	85			115	1.00		10/12/2012 14:20	10/15/12 23:05	RLD	EPA 8260C
TCLP 1,4-Dichlorobenzene	<0.0019	mg/L	0.0019	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP 2,4,5-Trichlorophenol	<0.011	mg/L	0.011	0.020	0.050	0.050	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP 2,4,6-Trichlorophenol	<0.010	mg/L	0.010	0.020	0.050	0.050	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP 2,4-Dinitrotoluene	<0.0021	mg/L	0.0021	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP 2-Methylphenol	<0.0086	mg/L	0.0086	0.020	0.050	0.050	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP 3 & 4-Methylphenol	<0.014	mg/L	0.014	0.36	0.90	0.90	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Hexachlorobenzene	<0.0027	mg/L	0.0027	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Hexachlorobutadiene	<0.0018	mg/L	0.0018	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Hexachloroethane	<0.0022	mg/L	0.0022	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Nitrobenzene	<0.0016	mg/L	0.0016	0.0040	0.010	0.010	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Pentachlorophenol	<0.011	mg/L	0.011	0.020	0.050	0.050	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Pyridine	<0.0062	mg/L	0.0062	0.010	0.030	0.030	1.00	U	10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C ^
TCLP Surr: 2,4,6-Tribromophenol	87	% Recovery	40			125	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C
TCLP Surr: 2-Fluorobiphenyl	82	% Recovery	50			110	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C
TCLP Surr: 2-Fluorophenol	52	% Recovery	20			110	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C
TCLP Surr: Nitrobenzene-d5	83	% Recovery	40			110	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C
TCLP Surr: Phenol-d5	36	% Recovery	10			115	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C
TCLP Surr: Terphenyl-d14	84	% Recovery	50			135	1.00		10/9/2012 08:00	10/12/12 15:53	RPN	EPA 8270C

Solid sample results reported on a Dry Weight Basis

CT LAB#: 223575 Sample Description: IDW-WC-0001 Client Sample #: Sampled: 10/2/2012 1200

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results												
Solids, Percent	90.9	%					1.00			10/5/12 13:15	BMS	EPA 8000C
pH	9.05	S.U.					1.00			10/9/12 14:00	CER	EPA 9045D ^
Flashpoint	>140	Deg. F					1.00			10/10/12 15:30	EJC	EPA 1010 ^
Cyanide, Reactive	<22	mg/kg	22			22	1.00	U		10/12/12 09:00	EJC	ASTM D5049 ^
Sulfide Reactive	<110	mg/kg	110			110	1.00	U		10/8/12 16:00	EJC	ASTM D4978 ^
Organic Results												
Aroclor-1016	<11	ug/kg	11	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1221	<22	ug/kg	22	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1232	<30	ug/kg	30	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1242	<32	ug/kg	32	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1248	<32	ug/kg	32	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1254	<25	ug/kg	25	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Aroclor-1260	<13	ug/kg	13	33	110	110	1.00	U	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A ^
Surr: DCBP	26	% Recovery	60			125	1.00	S	10/11/2012 15:00	10/12/12 16:32	JJY	EPA 8082A
1,3,5-Trinitrobenzene	<0.25	mg/kg	0.25	0.59	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
1,3-Dinitrobenzene	<0.16	mg/kg	0.16	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
2,4,6-Trinitrotoluene	<0.18	mg/kg	0.18	0.39	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
2,4-Dinitrotoluene	<0.16	mg/kg	0.16	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
2,6-Dinitrotoluene	<0.14	mg/kg	0.14	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
2-Amino-4,6-dinitrotoluene	<0.18	mg/kg	0.18	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
2-Nitrotoluene	<0.18	mg/kg	0.18	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
3,5-Dinitroaniline	<0.18	mg/kg	0.18	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
3-Nitrotoluene	<0.22	mg/kg	0.22	0.59	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
4-Amino-2,6-dinitrotoluene	<0.16	mg/kg	0.16	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
4-Nitrotoluene	<0.20	mg/kg	0.20	0.39	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B

Solid sample results reported on a Dry Weight Basis

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SHAW E&I INC
Project Name: RVAAP MMRP
Project Phase:
Project #: 136147

Contract #: 2385
Folder #: 93596

CT LAB#: 223575 Sample Description: IDW-WC-0001 Client Sample #: Sampled: 10/2/2012 1200

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
HMX	<0.24	mg/kg	0.24	0.59	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
Nitrobenzene	<0.20	mg/kg	0.20	0.39	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
Nitroglycerin	<0.98	mg/kg	0.98	2.4	3.9	3.9	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
PETN	<1.2	mg/kg	1.2	2.4	3.9	3.9	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
RDX	<0.27	mg/kg	0.27	0.59	0.98	0.98	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
Tetryl	<0.18	mg/kg	0.18	0.39	0.59	0.59	1.00	U	10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B
1,2-Dinitrobenzene	99	% Recovery	74			128	1.00		10/11/2012 15:00	10/12/12 18:16	RED	EPA 8330B

Solid sample results reported on a Dry Weight Basis

Notes:
^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method. DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Eric T. Korthals
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Illinois NELAP ID# 002413
Kansas NELAP ID# E-10368
Kentucky ID# 0023
Pennsylvania NELAP ID# 68-04201
New Jersey NELAP ID# WI001
North Carolina ID# 674
Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 105-289
DoD-ELAP A2LA Cert # 3317.013
Alaska ID # UST-099
Louisiana ID # 115843
Virginia ID# 460203
ISO/IEC 17025-2005 A2LA Cert # 3317.01
GA EPD Stipulation ID 115843, Exp 6-30-13

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QC SUMMARY REPORT

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Soil

Analytical Run #:	88561	Analysis Date:	10/08/2012	Prep Batch #:		Matrix:	SOLID
CTLab #:	226712	Analysis Time:	16:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Sulfide Reactive	100	mg/kg			100	100	70 --- 130		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88561	Analysis Date:	10/08/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	226713	Analysis Time:	16:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Sulfide Reactive	2.00	mg/L			2.00	100	70 --- 130		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88561	Analysis Date:	10/08/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	226716	Analysis Time:	16:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Sulfide Reactive	2	mg/L		U	0		2		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Soil

Analytical Run #:	88690	Analysis Date:	10/12/2012	Prep Batch #:		Matrix:	SOLID
CTLab #:	229180	Analysis Time:	09:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Cyanide, Reactive	20.0	mg/kg			20.0	100	70 --- 130		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88690	Analysis Date:	10/12/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	229181	Analysis Time:	09:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Cyanide, Reactive	10.0				10.0	100	70 --- 130		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Soil

Analytical Run #:	88690	Analysis Date:	10/12/2012	Prep Batch #:		Matrix:	SOLID
CTLab #:	229182	Analysis Time:	09:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Cyanide, Reactive	20	mg/kg		U	0.00			8	

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88690	Analysis Date:	10/12/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	229183	Analysis Time:	09:00	Prep Date/Time:		Method:	
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Cyanide, Reactive	10			U	0			4	

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Soil

Analytical Run #:	88649	Analysis Date:	10/10/2012	Prep Batch #:		Matrix:	SOLID
CTLab #:	226783	Analysis Time:	15:30	Prep Date/Time:		Method:	SW1010
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Flashpoint	78.7	Deg. F			79.8	99	90 --- 110		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88649	Analysis Date:	10/10/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	226784	Analysis Time:	15:30	Prep Date/Time:		Method:	SW1010
Parent Sample #:		Analyst:	EJC	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Flashpoint	78.7	Deg. F			79.8	99	90 --- 110		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Duplicate

Analytical Run #:	88634	Analysis Date:	10/11/2012	Prep Batch #:	42371	Matrix:	TCLP
CTLab #:	225708	Analysis Time:	12:06	Prep Date/Time:	10/10/2012 09:30	Method:	SW7470
Parent Sample #:	223573	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Mercury	0.0000300	mg/L	BDL	U			0.12	0	20

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88634	Analysis Date:	10/11/2012	Prep Batch #:	42371	Matrix:	LIQUID
CTLab #:	225707	Analysis Time:	13:36	Prep Date/Time:	10/10/2012 09:30	Method:	SW7470
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Mercury	0.00287	mg/L			0.00300	96	80 --- 120		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88634	Analysis Date:	10/11/2012	Prep Batch #:	42371	Matrix:	LIQUID
CTLab #:	225706	Analysis Time:	12:00	Prep Date/Time:	10/10/2012 09:30	Method:	SW7470
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Mercury	0.00003	mg/L		U	0		00006		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Matrix Spike Duplicate Water

Analytical Run #:	88634	Analysis Date:	10/11/2012	Prep Batch #:	42371	Matrix:	TCLP
CTLab #:	225710	Analysis Time:	12:10	Prep Date/Time:	10/10/2012 09:30	Method:	SW7470
Parent Sample #:	225709	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Mercury	0.00164	mg/L	BDL		0.00200	82	80 --- 120	6	20

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Matrix Spike Water

Analytical Run #:	88634	Analysis Date:	10/11/2012	Prep Batch #:	42371	Matrix:	TCLP
CTLab #:	225709	Analysis Time:	12:08	Prep Date/Time:	10/10/2012 09:30	Method:	SW7470
Parent Sample #:	223573	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Mercury	0.00155	mg/L	BDL		0.00200	78	80 --- 120		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Duplicate

Analytical Run #:	88688	Analysis Date:	10/12/2012	Prep Batch #:	42396	Matrix:	TCLP
CTLab #:	226815	Analysis Time:	15:32	Prep Date/Time:	10/11/2012	Method:	SW6010
Parent Sample #:	223573	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Arsenic	0.00400	mg/L	BDL	U			24	0	20
Barium	0.0360	mg/L	34.4				1.80	5	20
Cadmium	0.000300	mg/L	BDL	U			2.0	0	20
Chromium	0.00368	mg/L	3.86				4.0	5	20
Lead	0.00667	mg/L	6.53				4.0	2	20
Selenium	0.00220	mg/L	3.96	U			13.0	200	20
Silver	0.000700	mg/L	BDL	U			4.0	0	20

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88688	Analysis Date:	10/12/2012	Prep Batch #:	42396	Matrix:	LIQUID
CTLab #:	226813	Analysis Time:	15:18	Prep Date/Time:	10/11/2012	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Arsenic	0.808	mg/L			0.800	101	80 --- 120		
Barium	0.862	mg/L			0.800	108	80 --- 120		
Cadmium	0.0211	mg/L			0.0200	106	80 --- 120		
Chromium	0.0793	mg/L			0.0800	99	80 --- 120		
Lead	0.199	mg/L			0.200	100	80 --- 120		
Selenium	0.805	mg/L			0.800	101	80 --- 120		
Silver	0.0209	mg/L			0.0200	104	80 --- 120		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88688	Analysis Date:	10/12/2012	Prep Batch #:	42396	Matrix:	LIQUID
CTLab #:	226812	Analysis Time:	15:21	Prep Date/Time:	10/11/2012	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Arsenic	0.004	mg/L		U	0		0.012		
Barium	0.00029	mg/L		U	0		00090		
Cadmium	0.0003	mg/L		U	0		.0010		
Chromium	0.0006	mg/L		U	0		.0020		
Lead	0.0014	mg/L		U	0		.0020		
Selenium	0.00404	mg/L			0		.0065		
Silver	0.000967	mg/L			0		.0020		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Matrix Spike Duplicate Water

Analytical Run #:	88688	Analysis Date:	10/12/2012	Prep Batch #:	42396	Matrix:	TCLP
CTLab #:	226817	Analysis Time:	15:38	Prep Date/Time:	10/11/2012	Method:	SW6010
Parent Sample #:	226816	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Arsenic	0.783	mg/L	BDL		0.800	98	80 --- 120	2	20
Barium	0.883	mg/L	0.034		0.800	106	80 --- 120	2	20
Cadmium	0.0173	mg/L	BDL		0.0200	86	80 --- 120	2	20
Chromium	0.0716	mg/L	0.0039		0.0800	85	80 --- 120	2	20
Lead	0.180	mg/L	0.0065		0.200	87	80 --- 120	1	20
Selenium	0.797	mg/L	0.0040		0.800	99	80 --- 120	1	20
Silver	0.0183	mg/L	BDL		0.0200	92	80 --- 120	5	20

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Matrix Spike Water

Analytical Run #:	88688	Analysis Date:	10/12/2012	Prep Batch #:	42396	Matrix:	TCLP
CTLab #:	226816	Analysis Time:	15:35	Prep Date/Time:	10/11/2012	Method:	SW6010
Parent Sample #:	223573	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Arsenic	0.797	mg/L	BDL		0.800	100	80 --- 120		
Barium	0.905	mg/L	0.034		0.800	109	80 --- 120		
Cadmium	0.0176	mg/L	BDL		0.0200	88	80 --- 120		
Chromium	0.0731	mg/L	0.0039		0.0800	86	80 --- 120		
Lead	0.182	mg/L	0.0065		0.200	88	80 --- 120		
Selenium	0.804	mg/L	0.0040		0.800	100	80 --- 120		
Silver	0.0193	mg/L	BDL		0.0200	96	80 --- 120		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88668	Analysis Date:	10/12/2012	Prep Batch #:	42382	Matrix:	LIQUID
CTLab #:	226133	Analysis Time:	15:32	Prep Date/Time:	10/10/2012 08:30	Method:	SW8270
Parent Sample #:		Analyst:	RPN	Prep Analyst:	JLH		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.0143	mg/L			0.0200	72	30 --- 100		30
2,4,5-Trichlorophenol	0.0175	mg/L			0.0200	88	50 --- 110		30
2,4,6-Trichlorophenol	0.0162	mg/L			0.0200	81	50 --- 115		30
2,4-Dinitrotoluene	0.0158	mg/L			0.0200	79	50 --- 120		30
2-Methylphenol	0.0146	mg/L			0.0200	73	40 --- 110		30
3 & 4-Methylphenol	0.0271	mg/L			0.0400	68	30 --- 110		30
Hexachlorobenzene	0.0101	mg/L			0.0200	50	50 --- 110		30
Hexachlorobutadiene	0.0134	mg/L			0.0200	67	25 --- 105		30
Hexachloroethane	0.0129	mg/L			0.0200	64	30 --- 95		30
Nitrobenzene	0.0165	mg/L			0.0200	82	45 --- 110		30
Pentachlorophenol	0.0178	mg/L			0.0200	89	40 --- 115		30
Pyridine	0.00109	mg/L			0.0200	5	1 --- 78		30

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88668	Analysis Date:	10/18/2012	Prep Batch #:	42382	Matrix:	LIQUID
CTLab #:	226132	Analysis Time:	10:35	Prep Date/Time:	10/10/2012 08:30	Method:	SW8270
Parent Sample #:		Analyst:	RPN	Prep Analyst:	JLH		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.00019	mg/L		U	0		.0005		
2,4,5-Trichlorophenol	0.0011	mg/L		U	0		.0025		
2,4,6-Trichlorophenol	0.0010	mg/L		U	0		.0025		
2,4-Dinitrotoluene	0.00021	mg/L		U	0		.0005		
2-Methylphenol	0.00086	mg/L		U	0		.0025		
3 & 4-Methylphenol	0.0014	mg/L		U	0		.0045		
Hexachlorobenzene	0.00027	mg/L		U	0		.0005		
Hexachlorobutadiene	0.00018	mg/L		U	0		.0005		
Hexachloroethane	0.00022	mg/L		U	0		.0005		
Nitrobenzene	0.00016	mg/L		U	0		.0005		
Pentachlorophenol	0.0011	mg/L		U	0		.0025		
Pyridine	0.00062	mg/L		U	0		.0015		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Soil

Analytical Run #:	88694	Analysis Date:	10/12/2012	Prep Batch #:	42357	Matrix:	SOLID
CTLab #:	225361	Analysis Time:	17:58	Prep Date/Time:	10/11/2012 15:00	Method:	SW8330B
Parent Sample #:		Analyst:	RED	Prep Analyst:	RED		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	1.91	mg/kg			2.00	96	70 --- 126		
1,3-Dinitrobenzene	1.92	mg/kg			2.00	96	74 --- 120		
2,4,6-Trinitrotoluene	1.90	mg/kg			2.00	95	63 --- 128		
2,4-Dinitrotoluene	1.99	mg/kg			2.00	100	69 --- 128		
2,6-Dinitrotoluene	1.98	mg/kg			2.00	99	68 --- 125		
2-Amino-4,6-dinitrotoluene	2.02	mg/kg			2.00	101	73 --- 123		
2-Nitrotoluene	1.94	mg/kg			2.00	97	75 --- 119		
3,5-Dinitroaniline	2.20	mg/kg			2.00	110	54 --- 124		
3-Nitrotoluene	2.09	mg/kg			2.00	104	77 --- 121		
4-Amino-2,6-dinitrotoluene	1.98	mg/kg			2.00	99	66 --- 127		
4-Nitrotoluene	2.02	mg/kg			2.00	101	74 --- 122		
HMX	1.96	mg/kg			2.00	98	66 --- 129		
Nitrobenzene	1.81	mg/kg			2.00	90	72 --- 126		
Nitroglycerin	7.75	mg/kg			8.00	97	66 --- 130		
PETN	7.28	mg/kg			8.00	91	65 --- 134		
RDX	1.93	mg/kg			2.00	96	72 --- 123		
Tetryl	1.92	mg/kg			2.00	96	2 --- 130		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Soil

Analytical Run #:	88694	Analysis Date:	10/12/2012	Prep Batch #:	42357	Matrix:	SOLID
CTLab #:	225360	Analysis Time:	17:39	Prep Date/Time:	10/11/2012 15:00	Method:	SW8330B
Parent Sample #:		Analyst:	RED	Prep Analyst:	RED		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	0.13	mg/kg		U			0.25		
1,3-Dinitrobenzene	0.08	mg/kg		U			0.15		
2,4,6-Trinitrotoluene	0.09	mg/kg		U			0.25		
2,4-Dinitrotoluene	0.08	mg/kg		U			0.15		
2,6-Dinitrotoluene	0.07	mg/kg		U			0.15		
2-Amino-4,6-dinitrotoluene	0.09	mg/kg		U			0.15		
2-Nitrotoluene	0.09	mg/kg		U			0.15		
3,5-Dinitroaniline	0.09	mg/kg		U			0.15		
3-Nitrotoluene	0.11	mg/kg		U			0.25		
4-Amino-2,6-dinitrotoluene	0.08	mg/kg		U			0.15		
4-Nitrotoluene	0.10	mg/kg		U			0.25		
HMX	0.12	mg/kg		U			0.25		
Nitrobenzene	0.10	mg/kg		U			0.25		
Nitroglycerin	0.5	mg/kg		U			1.0		
PETN	0.6	mg/kg		U			1.0		
RDX	0.14	mg/kg		U			0.25		
Tetryl	0.09	mg/kg		U			0.15		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Soil

Analytical Run #:	88712	Analysis Date:	10/12/2012	Prep Batch #:	42358	Matrix:	SOLID
CTLab #:	225365	Analysis Time:	15:52	Prep Date/Time:	10/11/2012 15:00	Method:	SW8082
Parent Sample #:		Analyst:	JJY	Prep Analyst:	RED		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Aroclor-1016	474	ug/kg			500	95	40 --- 140		30
Aroclor-1260	517	ug/kg			500	103	60 --- 130		30

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Soil

Analytical Run #:	88712	Analysis Date:	10/12/2012	Prep Batch #:	42358	Matrix:	SOLID
CTLab #:	225364	Analysis Time:	15:33	Prep Date/Time:	10/11/2012 15:00	Method:	SW8082
Parent Sample #:		Analyst:	JJY	Prep Analyst:	RED		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Aroclor-1016	10	ug/kg		U	0		50		
Aroclor-1221	20	ug/kg		U	0		50		
Aroclor-1232	27	ug/kg		U	0		50		
Aroclor-1242	29	ug/kg		U	0		50		
Aroclor-1248	29	ug/kg		U	0		50		
Aroclor-1254	23	ug/kg		U	0		50		
Aroclor-1260	12	ug/kg		U	0		50		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Lab Control Spike Water

Analytical Run #:	88733	Analysis Date:	10/15/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	229719	Analysis Time:	21:38	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	RLD	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1-Dichloroethene	1.09	mg/L			1.00	109	70 --- 130		
1,2-Dichloroethane	1.12	mg/L			1.00	112	70 --- 130		
2-Butanone	10.1	mg/L			10.0	101	30 --- 150		
Benzene	1.07	mg/L			1.00	107	80 --- 120		
Carbon tetrachloride	1.11	mg/L			1.00	111	65 --- 140		
Chlorobenzene	1.07	mg/L			1.00	107	80 --- 120		
Chloroform	1.14	mg/L			1.00	114	65 --- 135		
Tetrachloroethene	0.955	mg/L			1.00	96	45 --- 150		
Trichloroethene	1.09	mg/L			1.00	109	70 --- 125		
Vinyl chloride	1.32	mg/L			1.00	132	50 --- 145		

SHAW E&I INC **Project Name: RVAAP MMRP**

SDG #: 0 **Folder #: 93596** **Project Number: 136147**

Method Blank Water

Analytical Run #:	88733	Analysis Date:	10/15/2012	Prep Batch #:		Matrix:	LIQUID
CTLab #:	229721	Analysis Time:	22:07	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	RLD	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1-Dichloroethene	0.00024	mg/L		U	0		00025		
1,2-Dichloroethane	0.0003	mg/L		U	0		.0005		
2-Butanone	0.0024	mg/L		U	0		.0025		
Benzene	0.00019	mg/L		U	0		00025		
Carbon tetrachloride	0.00023	mg/L		U	0		00025		
Chlorobenzene	0.00024	mg/L		U	0		00025		
Chloroform	0.00015	mg/L		U	0		00025		
Tetrachloroethene	0.0003	mg/L		U	0		.0005		
Trichloroethene	0.00021	mg/L		U	0		00025		
Vinyl chloride	0.00018	mg/L		U	0		00025		

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 93596
Client: SHAW E&I INC

Print Date / Time: 10/03/2012 15:35
Received Date / Time / By: 10/03/2012 1259 JLS

Project Name: RVAAP MMRP
Project Phase: IDW

Log-In Date / Time / By: 10/03/2012 1259 JLS
Project #: 136147 PM: ETK

Coolers: 3637
Custody Seals Present : **Y**

Temperature: 2.0 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: UPS
Adequate Packaging: **Y**

Numbers: SIGNED-DATED
Tracking Number: 1Z6028W22210000350
Temp Blank Enclosed?

Notes: samples received intact and in good condition

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
223573 IDW-WC-0001	AMBER GL	1	/	8270
	Total # of Containers of Type (*AMBER GL*) = 1			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
223575 IDW-WC-0001	UNPRES GL	1	/	EXPL,PCB
	Total # of Containers of Type (*UNPRES GL*) = 1			

Condition Code	*Condition Description*
1	Sample Received OK

93596

Shaw Environmental & Infrastructure, Inc.

Rev. 9/2009

CHAIN OF CUSTODY

Page 1 of 1

Company: Shaw E&I
Project Contact: David Crispo
Telephone: 617 584-8146
Project Name: RVAAP MMRP
Project #: 136147
Location: BLDG 1036
Sampled By: D. CRISPO

CT LABORATORIES

Folder #: 93596
Company: SHAW E&I INC
Project: RVAAP MMRP
Logged By: JLS PM: ET

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other MMRP

PO #

Report To: David Crispo
EMAIL: david.crispo@shawgrp.com
Company: Shaw E&I
Address: 150 Royall Street Canton, MA 02021

Invoice To:*
EMAIL:
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions
Explosives analysis includes full list

Matrix:
GW - groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample ID Description	Filtered? Y/N	TCLP METALS	TCLP SVOCs	EXPLOSIVES*	PCBs	RCRA Characteristics	VOCs TCLP 10-3-12	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
						Fill in Spaces with Bottles per Test								
10/2/12	1100	W	C	IDW-WC-0001	—	X	X	X	X	X	X	2	—	~~223573/575~~ 223573/575

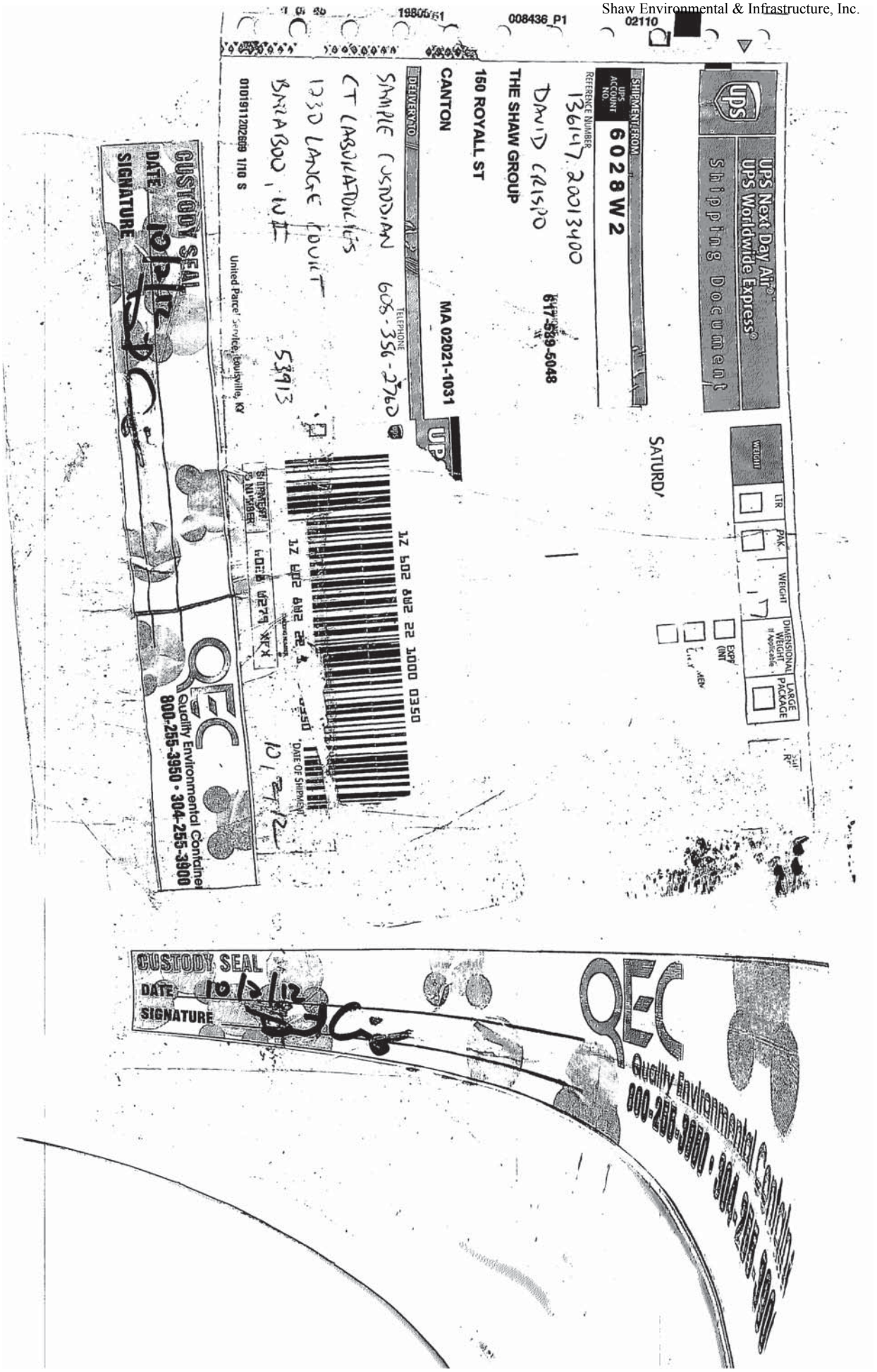
Turnaround Time
~~Normal~~ RUSH*
Date Needed:

Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By: DJC
Date/Time 10/2/12 1500
Received By: UPS
Date/Time 10/2/12 1500

Received by:
Date/Time
Received for Laboratory by:
Date/Time 10/3/12 1257

Lab Use Only
Ice Present Yes No
Temperature 2.0
Cooler # 3637


UPS Next Day Air®
UPS Worldwide Express®
Shipping Document
SATURDAY
SHIPMENT FROM
6028 W 2
817-589-5048
DAVID CRISP
THE SHAW GROUP
150 ROYALL ST
CANTON
MA 02021-1031
DELIVERY TO
SAMPLE CUSTODIAN
CT LABORATORIES
1230 LANGE COURT
BARABOO, WI
53913
608-356-2760
1Z 602 8W2 22 1000 0350
CUSTODY SEAL
DATE
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

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Attachment 2
IDW Waste Profile

VEXOR Technology, Inc.
955 West Smith Road
Medina, Ohio 44256
Phone: 330-721-9773
FAX: 330-721-9438
EPA ID# OHD 077772895

Shaw Environmental & Infrastructure, Inc.

MATERIAL CHARACTERIZATION

www.vexortechnology.com

Approval # _____
Sample # _____
Sales Rep _____
Date Submitted _____

Generator RAVENNA ARMY AMMO PLT.
Site Address 8451 S.R. 5
City RAVENNA State OH ZIP 44266
Phone 330 358 3005 Fax _____
EPA ID# OH5210020736 SIC Code _____
Technical Contact DAVID CRISPO
Title CONSULT e-mail david.crispo@shawgrp.com

Bill To Name EMERALD ENVIRONMENTAL
Site Address 1671 ST. CLAIR AVE
City KENT State OH ZIP 44240
Phone 330 677 0185 Fax 330 677 1567
Business Contact CHRIS ARCHACKI
Title _____ e-mail carchacki@emerald-environmental.com

MATERIAL DESCRIPTION

Name and Description of Material: PPE, SPENT ABSORBENT PADS
Process Generating Material: SAMPLING ACTIVITIES U.S. EPA Hazardous Waste: ___Yes X No
Proper DOT shipping name: NON DOT REGULATED MATERIAL
Method of Shipment: ☐ Bulk ☒ Drum ☐ Tote ☐ Cubic Yd Box ☐ Other/Explain: _____
Estimated Annual Volume: 1 Cubic Yards _____ Tons _____ Gallons _____ Drums X Container material (metal, plastic, etc.)
Frequency: ☒ One Time Only ☐ Daily ☐ Weekly ☐ Monthly ☐ Yearly ☐ Other- explain _____ Approx drum weight
Special Handling Instructions: NONE
Preferred Disposal Method: ☒ Landfill ☐ Waste to Energy ☐ Recycling ☐ VEF ☐ Other _____

MATERIAL PROPERTIES AT 78°F

a) Physical State: ☒ Solid ☐ Semi-solid ☐ Powder ☐ Liquid ☐ Phases
b) Reactivity: ☐ Water reactive ☐ Acid Reactive ☐ Alkaline Reactive ☐ Oxidizer ☐ Autosetting ☒ none
c) Flash Point, °F: ☐ ≤ 72 ☐ >72-100 ☐ >100-140 ☐ >140-200 ☐ >200 ☒ NA
d) S. G./Density _____ e) pH: ☐ ≤ 2 ☐ >2 – 6 ☐ >6 – 9 ☐ >9 – <12.5 ☐ ≥12.5 ☒ NA
f) Odor: ☒ None ☐ Mild ☐ Strong : Describe: _____ g) Color _____
h) Total Organic Halogen (TOX) ☒ 0 ppm ☐ >1000 ppm* If this material is considered a "USED OIL" and is to be managed as a USED OIL, please complete the "USED OIL" ADDENDUM and attach to this profile.
i) PCB Content: ☒ 0 ppm ☐ 1-49 ppm* ☐ equal to or > 50 ppm *Supporting analysis and documentation required.

MATERIAL COMPOSITION: List all components, add up to 100%.

Constituent	Range % (wt-vol)	
	Min	Max
PPE: TYVEKS, GLOVES, ETC.	25	75
ABSORBENT PADS	25	75
A combined total should equal 100%		

Above is based on: Generator Knowledge ☒ Analytical Data ☒ MSDS ☐
Please attach analysis, TCLP information and appropriate MSDS sheets.
SAMPLE SUBMITTED WITH THIS PROFILE: Yes ___ No X

CHEMICAL COMPOSITION: NA

Constituent	Range %	
	Min	Max
Sulfur		
Chlorine		
Bromine		
Fluorine		
Nitrogen		
Oxygen		
Carbon		
Ash		
Btu's		
Biomass		

Metals (other than RCRA)

Metal	ppm	Metal	ppm	Metal	ppm	Metal	ppm
Thallium	0	Antimony	0	Beryllium	0	Cobalt	0
Copper		Nickel		Vanadium		Tin	
Zinc		Iron		Manganese		Magnesium	
Molybdenum		Palladium					

MATERIAL CHARACTERIZATION

Approval # _____

*SAMPLED LIQUID ABSORBED IN PADS

RCRA CONTAMINANTS: ☒TCLP ☐TOTAL ☐NONE IN THIS SECTION

EPA #	NAME		REGULATORY LEVEL	ACTUAL	EPA#	NAME		REGULATORY LEVEL	ACTUAL
D004	Arsenic	☐	>5.0		D024	m-Cresol	☐	>200.0	
D005	Barium	☐	>100.0	.034 mg/L	D025	p-Cresol	☐	>200.0	
D006	Cadmium	☐	>1.0		D026	Cresol (total)	☐	>200.0	
D007	Chromium	☐	>5.0	.0039 mg/L	D027	1,4-Dichlorobenzene	☐	>7.5	
D008	Lead	☐	>5.0	.0065 mg/L	D028	1,2-Dichlorethane	☐	>0.5	
D009	Mercury	☐	>0.2		D029	1,2-Dichlorethylene	☐	>.13	
D010	Selenium	☐	>1.0	.0040 mg/L	D030	2,4-Dinitrotoluene	☐	>0.008	
D011	Silver	☐	>5.0		D031	Heptachlor	☐	>0.13	
D012	Endrin	☐	>0.02		D032	Hexachlorobenzene	☐	>0.5	
D013	Lindane	☐	>0.4		D033	Hexachloro-1,3-butadiene	☐	>0.5	
D014	Methoxychlor	☐	>10.0		D034	Hexachloroethane	☐	>3.0	
D015	Toxaphene	☐	>0.05		D035	Methyl Ethyl Ketone	☐	>200.0	
D016	2,4-D	☐	>10.0		D036	Nitrobenzene	☐	>2.0	
D017	2,4,5-TP (Silvex)	☐	>1.0		D037	Petachlorophenol	☐	>100.0	
D018	Benzene	☐	>0.5		D038	Pyridine	☐	>100.0	
D019	Carbon Tetrchloride	☐	>0.5		D039	Tetrchloroethylene	☐	>0.7	
D020	Chlordane	☐	>0.03		D040	Trichloroethylene	☐	>0.5	
D021	Chlorobenzene	☐	>100.0		D041	2,4,5-Trichlorophenol	☐	>400.0	
D022	Chloroform	☐	>6.0		D042	2,4,6-Trichlorophenol	☐	>2.0	
D023	o-Cresol	☐	>200.0		D043	Vinyl Chloride	☐	>0.2	

GENERATOR CERTIFICATION

I hereby certify that to the best of my knowledge and belief, the information contained herein is a true and accurate description of the material being offered for disposal.
Samples of this material submitted to VEXOR are representative of the material described in this profile. I further certify that by utilizing this profile, neither I nor any other employee of the company will deliver for treatment, processing or recycling or attempt to deliver for same any material that is classified as a hazardous waste, medical or infectious waste or any other material that this facility is prohibited from accepting by law.

Authorized Representative Name (Printed) Mark Patterson Company Ravenna AAP

Authorized Representative Signature: Mark Patterson

Title: Facility Manager Date: 11/8/12

For VEXOR Use Only

Reviewed by: _____ Date: _____ Second review: _____ Date:

Approved for treatment (please check and initial) _____ Special Handling (if yes, make process directions in notes): _____

Treatment	Solidification/Landfill	Waste to Energy	VEF	Water	Used oil	Recycling	Other (please note processing)
Check all that apply							

Rejected – reason: _____

Price: _____ per unit: _____ CS initial_____ Price approved by: _____ Date: _____

Notes: _____

Attachment 3
IDW Waste Manifest

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
OH5 210 020 736	1	330-677-0785	112812-01

GENERATOR

5. Generator's Name and Mailing Address
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266
Generator's Phone: 330-358-2920

Generator's Site Address (if different than mailing address)
Same

6. Transporter 1 Company Name: Emerald Environmental Services, Inc — U.S. EPA ID Number: OHR 000 102 053

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Vexor Technology
955 West Smith Road
Medina, Ohio 44256
Facility's Phone: 330-721-9773
U.S. EPA ID Number: OHD 077 772 895

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non DOT Regulated, Non Hazardous Material (PPE & Absorbents)	01	DM	20	P	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
9-1.) Approval # VEX24393 — Job Number 12-12018 for Shaw Environmental

14. **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.
Generator's/Offeror's Printed/Typed Name: Mark C. Patterson — Signature: Mark C. Patterson — Month 11 Day 28 Year 12

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Paul Herman — Signature: Paul Herman — Month 11 Day 28 Year 12
Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Daniel Kindall — Signature — Month 11 Day 28 Year 12

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

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Appendix E
Photograph Documentation Log



Load Line #1 Munitions Response Site (MRS): Piles of concrete rubble from demolition of former CB-14 slab. Picture taken facing the south side of the MRS.



Load Line #1 MRS: Terrain and vegetation at the MRS.



Load Line #1 MRS: Visual survey being performed at the MRS.

Appendix F
Ecological Risk Assessment Tables

Soil Ecological Screening Values
Ravenna Army Ammunition Plant, Ravenna, Ohio

COPEC	Log Kow	CAS Number	Ecological Screening Values for Soil							Is the ESV Protective of Food Chain Effects?
			EPA EcoSSL 2010 [a] (mg/kg)	ORNL PRGs 1997 [b] (mg/kg)	Region 5 ESLs 2003 [c] (mg/kg)	LANL ESLs 2010 [d] (mg/kg)	Talmage et al. 1999 [e] (mg/kg)	Persistent, Bioaccumulative, and Toxic Pollutant [f]	Recommended Soil Ecological Screening Value [g] (mg/kg)	
Explosives										
1,3,5-Trinitrobenzene	1.45	99-35-4	NA	NA	0.376	6.6	9.7	No (Log Kow < 3.0)	0.376	Yes
1,3-Dinitrobenzene	1.63	99-65-0	NA	NA	0.655	0.073	0.41	No (Log Kow < 3.0)	0.655	Yes
2,4,6-Trinitrotoluene	1.99	118-96-7	NA	NA	NA	6.4	5.6	No (Log Kow < 3.0)	6.4	Yes
2,4-Dinitrotoluene	2.18	121-14-2	NA	NA	1.28	0.52	NA	No (Log Kow < 3.0)	1.28	Yes
2,6-Dinitrotoluene	2.18	606-20-2	NA	NA	0.0328	0.37	NA	No (Log Kow < 3.0)	0.0328	Yes
Dinitrotoluene (2,4/2,6-) Mixture (ca)	2.18	25321-14-6	NA	NA	NA	NA	NA	No (Log Kow < 3.0)	NA	Yes
2-Amino-4,6-dinitrotoluene	1.84	35572-78-2	NA	NA	NA	2.1	80	No (Log Kow < 3.0)	2.1	Yes
2-Nitrotoluene	2.36	88-72-2	NA	NA	NA	2	NA	No (Log Kow < 3.0)	2	Yes
3-Nitrotoluene	2.36	99-08-1	NA	NA	NA	2.4	NA	No (Log Kow < 3.0)	2.4	Yes
3,5-Dinitroaniline	1.29	618-87-1	NA	NA	NA	NA	NA	No (Log Kow < 3.0)	NA	
4-Amino-2,6-dinitrotoluene	1.84	19406-51-0	NA	NA	NA	0.73	NA	No (Log Kow < 3.0)	0.73	Yes
4-Nitrotoluene	2.36	99-99-0	NA	NA	NA	4.4	NA	No (Log Kow < 3.0)	4.4	Yes
HMX	0.82	2691-41-0	NA	NA	NA	27	5.6	No (Log Kow < 3.0)	27	Yes
Nitrobenzene	1.81	98-95-3	NA	NA	1.31	2.2	NA	No (Log Kow < 3.0)	1.31	Yes
Nitroglycerin	1.51	55-63-0	NA	NA	NA	71	NA	No (Log Kow < 3.0)	71	Yes
Nitroguanidine	-1.72	556-88-7	NA	NA	NA	NA	NA	No (Log Kow < 3.0)	NA	
PETN	2.38	78-11-5	NA	NA	NA	8600	NA	No (Log Kow < 3.0)	8600	Yes
RDX	0.68	121-82-4	NA	NA	NA	7.5	15	No (Log Kow < 3.0)	7.5	Yes
Tetryl	1.64	479-45-8	NA	NA	NA	0.99	4.4	No (Log Kow < 3.0)	0.99	Yes
Metals										
Aluminum	NA	7429-90-5	Narrative	NA	NA	Narrative	NA	No (not EPA IBC)	NA	NA
Antimony	NA	7440-36-0	0.27	5	0.142	0.05	NA	No (not EPA IBC)	0.27	Yes
Arsenic	NA	7440-38-2	18	9.9	5.7	6.8		**Yes (EPA IBC)**	18	Yes
Barium	NA	7440-39-3	330	283	1.04	110	NA	No (not EPA IBC)	330	Yes
Beryllium	NA	7440-41-7	21	10	1.06	2.5		No (not EPA IBC)	21	Yes
Cadmium	NA	7440-43-9	0.36	4	0.00222	0.27	NA	**Yes (EPA IBC)**	0.36	Yes
Calcium	NA	7440-70-2	NA	NA	NA	NA	NA	No (not EPA IBC)	NA	
Cobalt	NA	7440-48-4	13	20	0.14	13		No (not EPA IBC)	13	Yes
Copper	NA	7440-50-8	28	60	5.4	15	NA	**Yes (EPA IBC)**	28	Yes
Chromium (as Cr^{3+})	NA	7440-47-3	26	0.4	0.4	2.3	NA	No (not EPA IBC)	26	Yes
Chromium (as Cr^{6+})	NA	18540-29-9	130	NA	NA	0.34	NA	**Yes (EPA IBC)**	130	Yes
Iron	NA	4739-89-6	Narrative	NA	NA	NA	NA	No (not EPA IBC)	NA	
Lead	NA	7439-92-1	11	40.5	0.0537	14	NA	**Yes (EPA IBC)**	11	Yes
Magnesium	NA	7439-95-4	NA	NA	NA	NA	NA	No (not EPA IBC)	NA	
Manganese	NA	7439-96-5	220	NA	NA	220	NA	No (not EPA IBC)	220	Yes
Mercury	NA	7439-97-6	NA	0.00051	0.1	0.013	NA	**Yes (OEPA PBT)**	0.00051	
Nickel	NA	7440-02-0	38	30	13.6	9.7	NA	**Yes (EPA IBC)**	38	Yes
Potassium										
Selenium	NA	7782-49-2	0.52	0.21	0.0276	0.52	NA	**Yes (EPA IBC)**	0.52	Yes
Silver	NA	7440-22-4	4.2	2	4.04	2.6	NA	**Yes (EPA IBC)**	4.2	Yes

Soil Ecological Screening Values
Ravenna Army Ammunition Plant, Ravenna, Ohio (continued)

COPEC	Log Kow	CAS Number	Ecological Screening Values for Soil							Is the ESV Protective of Food Chain Effects?
			EPA EcoSSL 2010 [a] (mg/kg)	ORNL PRGs 1997 [b] (mg/kg)	Region 5 ESLs 2003 [c] (mg/kg)	LANL ESLs 2010 [d] (mg/kg)	Talmage et al. 1999 [e] (mg/kg)	Persistent, Bioaccumulative, and Toxic Pollutant [f]	Recommended Soil Ecological Screening Value [g] (mg/kg)	
Explosives										
Sodium	NA		NA	NA	NA	NA	NA	No (not EPA IBC)	Nutrient	
Strontium	NA	7440-24-6	NA	NA	NA	96	NA	No (not EPA IBC)	NA	
Thallium	NA	7440-28-0	NA	1	0.0569	0.032	NA	No (not EPA IBC)	1	Yes
Vanadium	NA	7440-62-2	7.8	2	1.59	0.025	NA	No (not EPA IBC)	7.8	Yes
Zinc	NA	7440-66-0	46	8.5	6.62	48	NA	**Yes (EPA IBC)**	46	Yes
Volatile Organic Compounds										
Chloroethane	1.58	75-00-3	NA	NA	NA	NA	NA	No (Log Kow < 3.0)	NA	
Semivolatile Organic Compounds										
1,2,4-Trichlorobenzene	3.93	120-82-1	NA	20	11.1	0.27	NA	**Yes (Log Kow ≥ 3.0)**	20	No
1,2-Dichlorobenzene	3.28	95-50-1	NA	NA	2.96	0.92	NA	**Yes (Log Kow ≥ 3.0)**	2.96	Yes
1,3-Dichlorobenzene	3.28	541-73-1	NA	NA	37.7	0.73	NA	**Yes (Log Kow ≥ 3.0)**	37.7	Yes
1,4-Dichlorobenzene	3.28	106-46-7	NA	20	0.546	0.88	NA	**Yes (Log Kow ≥ 3.0)**	20	No
2,4,5-Trichlorophenol	3.45	95-95-4	NA	9	14.1	NA	NA	**Yes (Log Kow ≥ 3.0)**	9	No
2,4,6-Trichlorophenol	3.45	88-06-2	NA	4	9.94	NA	NA	**Yes (Log Kow ≥ 3.0)**	4	No
2,4-Dichlorophenol	2.8	120-83-2	NA	NA	87.5	NA	NA	No (Log Kow < 3.0)	87.5	Yes
2,4-Dimethylphenol	2.61	105-67-9	NA	NA	0.01	NA	NA	No (Log Kow < 3.0)	0.01	No
2,4-Dinitrophenol	1.73	51-28-5	NA	20	0.0609	NA	NA	No (Log Kow < 3.0)	20	No
2,4-Dinitrotoluene	2.18	121-14-2	NA	NA	1.28	0.52	NA	No (Log Kow < 3.0)	1.28	No
2,6-Dinitrotoluene	2.18	606-20-2	NA	NA	0.0328	0.37	NA	No (Log Kow < 3.0)	0.0328	No
2-Chloronaphthalene	3.81	91-58-7	NA	NA	0.0122	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.0122	Yes
2-Chlorophenol	2.16	95-57-8	NA	NA	0.243	0.39	NA	No (Log Kow < 3.0)	0.243	Yes
2-Methylnaphthalene	3.72	91-57-6	NA	NA	3.24	2.5	NA	**Yes (Log Kow ≥ 3.0)**	3.24	Yes
2-Methylphenol	2.06	95-48-7	NA	NA	40.4	0.67	NA	No (Log Kow < 3.0)	40.4	Yes
2-Nitroaniline	2.02	88-74-4	NA	NA	74.1	5.4	NA	No (Log Kow < 3.0)	74.1	Yes
2-Nitrophenol	1.91	88-75-5	NA	NA	1.6	NA	NA	No (Log Kow < 3.0)	1.6	Yes
3 & 4-Methylphenol	2.06	CASID30030	NA	NA	3.49	0.69	NA	No (Log Kow < 3.0)	3.49	Yes
3,3'-Dichlorobenzidine	3.21	91-94-1	NA	NA	0.646	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.646	Yes
3-Nitroaniline	1.47	99-09-2	NA	NA	3.16	NA	NA	No (Log Kow < 3.0)	3.16	Yes
4,6-Dinitro-2-methylphenol	2.27	534-52-1	NA	NA	0.144	NA	NA	No (Log Kow < 3.0)	0.144	Yes
4-Bromophenyl-phenyl ether	4.94	101-55-3	NA	NA	NA	NA	NA	**Yes (Log Kow ≥ 3.0)**	NA	
4-Chloro-3-methylphenol	2.7	59-50-7	NA	NA	7.95	NA	NA	No (Log Kow < 3.0)	7.95	Yes
4-Chloroaniline	1.72	106-47-8	NA	NA	1.1	1	NA	No (Log Kow < 3.0)	1.1	Yes
4-Chlorophenyl-phenyl ether	4.69	7005-72-3	NA	NA	NA	NA	NA	**Yes (Log Kow ≥ 3.0)**	NA	
4-Nitroaniline	1.47	100-01-6	NA	NA	21.9	NA	NA	No (Log Kow < 3.0)	21.9	Yes
4-Nitrophenol	1.91	100-02-7	NA	7	5.12	NA	NA	No (Log Kow < 3.0)	7	No
Acenaphthene	4.15	83-32-9	29	20	682	0.25	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Acenaphthylene	3.94	208-96-8	29	NA	682	120	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Anthracene	4.35	120-12-7	29	NA	1480	6.8	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Benzo(a)anthracene	5.52	56-55-3	1.1	NA	5.21	3	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Benzo(a)pyrene	6.11	50-32-8	1.1	NA	1.52	53	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes

Soil Ecological Screening Values
Ravenna Army Ammunition Plant, Ravenna, Ohio (continued)

COPEC	Log Kow	CAS Number	Ecological Screening Values for Soil							
			EPA EcoSSL 2010 [a] (mg/kg)	ORNL PRGs 1997 [b] (mg/kg)	Region 5 ESLs 2003 [c] (mg/kg)	LANL ESLs 2010 [d] (mg/kg)	Talmage et al. 1999 [e] (mg/kg)	Persistent, Bioaccumulative, and Toxic Pollutant [f]	Recommended Soil Ecological Screening Value [g] (mg/kg)	Is the ESV Protective of Food Chain Effects?
Explosives										
Benzo(b)fluoranthene	6.11	205-99-2	1.1	NA	59.8	18	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Benzo(g,h,i)perylene	6.7	191-24-2	1.1	NA	119	24	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Benzo(k)fluoranthene	6.11	207-08-9	1.1	NA	148	62	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Benzoic acid	1.87	65-85-0	NA	NA	NA	1	NA	No (Log Kow < 3.0)	1	Yes
Benzyl alcohol	1.08	100-51-6	NA	NA	65.8	120	NA	No (Log Kow < 3.0)	65.8	Yes
Bis(2-chloroethoxy)methane	1.3	111-91-1	NA	NA	0.302	NA	NA	No (Log Kow < 3.0)	0.302	Yes
Bis(2-chloroethyl)ether	1.56	111-44-4	NA	NA	23.7	NA	NA	No (Log Kow < 3.0)	23.7	Yes
Bis(2-chloroisopropyl)ether	2.39	108-60-1	NA	NA	19.9	NA	NA	No (Log Kow < 3.0)	19.9	Yes
Bis(2-ethylhexyl)phthalate	8.39	117-81-7	NA	NA	0.925	0.02	NA	**Yes (Log Kow ≥ 3.0)**	0.925	Yes
Butylbenzylphthalate	4.84	85-68-7	NA	NA	0.239	90	NA	**Yes (Log Kow ≥ 3.0)**	0.239	Yes
Carbazole	3.23	86-74-8	NA	NA	NA	0.00008	NA	**Yes (Log Kow ≥ 3.0)**	0.00008	Yes
Chrysene	5.52	218-01-9	1.1	NA	4.73	2.4	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Di-n-butylphthalate	4.61	84-74-2	NA	200	0.15	0.011	NA	**Yes (Log Kow ≥ 3.0)**	200	No
Di-n-octylphthalate	8.54	117-84-0	NA	NA	709	1.1	NA	**Yes (Log Kow ≥ 3.0)**	709	
Dibenzo(a,h)anthracene	6.7	53-70-3	1.1	NA	18.4	12	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Dibenzofuran	3.71	132-64-9	NA	NA	NA	6.1	NA	**Yes (Log Kow ≥ 3.0)**	6.1	Yes
Diethylphthalate	2.65	84-66-2	NA	100	24.8	100	NA	No (Log Kow < 3.0)	100	No
Dimethylphthalate	1.66	131-11-3	NA	NA	734	10	NA	No (Log Kow < 3.0)	734	Yes
Fluoranthene	4.93	206-44-0	29	NA	122	10	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Fluorene	4.02	86-73-7	29	NA	122	3.7	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Hexachlorobenzene	5.86	118-74-1	NA	NA	0.199	0.079	NA	**Yes (Log Kow ≥ 3.0)**	0.199	Yes
Hexachlorobutadiene	4.72	87-68-3	NA	NA	0.0398	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.0398	Yes
Hexachlorocyclopentadiene	4.63	77-47-4	NA	10	0.755	NA	NA	**Yes (Log Kow ≥ 3.0)**	10	No
Hexachloroethane	4.03	67-72-1	NA	NA	0.596	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.596	Yes
Indeno(1,2,3-cd)pyrene	6.7	193-39-5	1.1	NA	109	62	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Isophorone	2.62	78-59-1	NA	NA	139	NA	NA	No (Log Kow < 3.0)	139	Yes
N-Nitroso-di-n-propylamine	1.33	621-64-7	NA	NA	0.544	NA	NA	No (Log Kow < 3.0)	0.544	Yes
N-Nitrosodiphenylamine & Diphn	3.16	86-30-6	NA	NA	0.545	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.545	Yes
Naphthalene	3.17	91-20-3	29	NA	0.0994	1	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Nitrobenzene	1.81	98-95-3	NA	NA	1.31	2.2	NA	No (Log Kow < 3.0)	1.31	Yes
Pentachlorophenol	4.74	87-86-5	2.1	3	0.119	0.36	NA	**Yes (Log Kow ≥ 3.0)**	2.1	Yes
Phenanthrene	4.35	85-01-8	29	NA	45.7	5.5	NA	**Yes (Log Kow ≥ 3.0)**	29	Yes
Phenol	1.51	108-95-2	NA	30	120	0.79	NA	No (Log Kow < 3.0)	30	No
Pyrene	4.93	129-00-0	1.1	NA	78.5	10	NA	**Yes (Log Kow ≥ 3.0)**	1.1	Yes
Pesticides										
4,4'-DDD	5.87	72-54-8	0.021	NA	0.758	0.0063	NA	**Yes (Log Kow ≥ 3.0)**	0.021	Yes
4,4'-DDE	6	72-55-9	0.021	NA	0.596	0.11	NA	**Yes (Log Kow ≥ 3.0)**	0.021	Yes
4,4'-DDT	6.79	50-29-3	0.021	NA	0.0035	0.044	NA	**Yes (Log Kow ≥ 3.0)**	0.021	Yes
gamma Chlordane	6.26	5103-74-2	NA	NA	0.224	2.2	NA	**Yes (Log Kow ≥ 3.0)**	0.224	No
Heptachlor	5.86	76-44-8	NA	NA	0.00598	0.059	NA	**Yes (Log Kow ≥ 3.0)**	0.00598	Yes

Soil Ecological Screening Values
Ravenna Army Ammunition Plant, Ravenna, Ohio (continued)

COPEC	Log Kow	CAS Number	Ecological Screening Values for Soil							Is the ESV Protective of Food Chain Effects?
			EPA EcoSSL 2010 [a] (mg/kg)	ORNL PRGs 1997 [b] (mg/kg)	Region 5 ESLs 2003 [c] (mg/kg)	LANL ESLs 2010 [d] (mg/kg)	Talmage et al. 1999 [e] (mg/kg)	Persistent, Bioaccumulative, and Toxic Pollutant [f]	Recommended Soil Ecological Screening Value [g] (mg/kg)	
Explosives										
Lindane	4.26	58-89-9	NA	NA	0.005	0.0094	NA	**Yes (Log Kow ≥ 3.0)**	0.005	No
Methoxychlor	5.67	72-43-5	NA	NA	0.0199	5	NA	**Yes (Log Kow ≥ 3.0)**	0.0199	Yes
PCBs										
Aroclor 1016	5.69	12674-11-2	NA	0.371	0.000332	1	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1221	4.4	11104-28-2	NA	0.371	0.000332	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1232	4.4	11141-16-5	NA	0.371	0.000332	NA	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1242	6.34	53469-21-9	NA	0.371	0.000332	0.041	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1248	6.34	12672-29-6	NA	0.371	0.000332	0.0072	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1254	6.98	11097-69-1	NA	0.371	0.000332	0.041	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
Aroclor 1260	8.27	11096-82-5	NA	0.371	0.000332	0.14	NA	**Yes (Log Kow ≥ 3.0)**	0.371	No
General Chemistry										
Cyanide, Total	57-12-5	57-12-5	NA	NA	1.33	0.1	NA	NA	1.33	Yes
Nitrocellulose										
Nitrocellulose	-4.56	9004-70-0	NA	NA	NA	NA	NA	No (Log Kow < 3.0)	NA	NA
Total Organic Carbon										
Total Organic Carbon	NA	TOC (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	pH (Units)	NA	NA	NA	NA	NA	NA	NA	NA

[a] *EcoSSLs, (EPA, 2008) online updates from http://www.epa.gov/ecotox/ecossl/.*

[b] *ORNL: Efroymson, R.A., Suter II, G.W., Sample, B.E. and Jones, D.S., 1997.* Preliminary Remediation Goals for Ecological Endpoints, *ES/ER/TM-162/R2.*

[c] *ESLs, US EPA Region V, August 2003.*

[d] *LANL, Eco Risk Database, Release 2.5, October 2010.*

[e] *From* Nitroaromatic Munition Compounds: Environmental Effects and Screening Values, *Talmage et al., 1999, Rev. Environ. Contamin. Toxicol., 161: 1-156.*

[f] *Analyte identified as a PBT compound (OEPA DERR ERA Guidance, April 2008).*

[g] *The following hierarchy (based on OEPA DERR ERA Guidance, April 2008) was used to select the soil screening values:*

1. EPA EcoSSL (plants, invertebrates, wildlife)
2. ORNL (1997) [plants, invertebrates, wildlife]
3. USEPA Region 5 ESLs (2003)
4. LANL (2010) [various endpoints]
5. Talmage et al. (1999)

CAS denotes Chemical Abstract Service.
COPEC denotes contaminant of potential ecological concern.
DERR denotes Division of Environmental Response and Revitalization.
EcoSSL denotes Ecological Soil Screening Levels.
EPA denotes United Stated Environmental Protection Agency.

Appendix G
Munitions Response Site Prioritization Protocols Data Tables

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from DoD databases, such as RMIS. 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 found at the MRS (e.g., benzene, trichloroethylene), and any potentially exposed human and ecological receptors. Include a map of the MRS, if one is available.

Munitions Response Site (MRS) Name:	**Load Load #1 (RVAAP-008-R-01)**
Component:	US Army
Installation/Property Name:	**Ravenna Army Ammunition Plant**
Location (City, County, State):	Ravenna, Portage and Trumbull Counties, Ohio
UTM Coordinates (NAD83):	X = 498413.444463 Y = 4561825.177513
Site Name (RMIS ID):	OH213820736
Project Name (Project No.):	Ravenna Army Ammunition Plant Load Line #1 (RVAAP-008-R-01) Remedial Investigation
Date Information Entered/Updated:	1-Oct-2012
Point of Contact (Name/Phone):	Dave Cobb/617.589.5561

Project Phase ("X" only one):										
	PA		**SI**	**X**	**RI**		**FS**		**RD**
	RA-C		**RIP**		**RA-O**		**RC**		**LTM**

Media Evaluated ("X" all that apply):				
	Groundwater (human receptor)		**Sediment (human receptor)**
X	**Surface soil (human receptor)**		**Surface water (ecological receptor)**
	Sediment (ecological receptor)		**Surface water (human receptor)**

MRS Summary

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munition, if known) or munitions constituents (by type, if known) known or suspected to be present):

The Load Line #1 Munitions Response Site (MRS) consists of a 0.41-acre area located to the northwest side of the former building CB-14 where munitions and explosives of concern (MEC) consisting of triple-based propellants were observed on the ground surface and elevated lead concentrations constituting munitions constituents (MC) were detected in surface soil during the 2007 site inspection (SI) field activities. No MEC or munitions debris (MD) was identified at the MRS during the 2011 remedial investigation (RI) field activities (100 percent visual surveys); therefore, no MEC source is present. MC sampling activities were conducted during the RI field activities. Lead and nitroguanidine were found in exceedance of background and identified as site-related chemicals (SRCs). Subsequent human health and ecological risk assessments determined that unreasonable risk to receptors was not present. Based on the results of the RI no further action is recommended for the Load Line #1 MRS.

Description of Pathways for Human and Ecological Receptors:

The revised MEC conceptual site model (CSM) identifies incomplete pathways for all media and receptors at the MRS based on the lack of MEC source (RI Report, Section 9.1.5).

The conservatively identified MC SRCs detected at the MRS consisted of the lead and nitroguanidine in surface soil. Although a MEC source was not found, the MCs may have resulted from corrosion of the propellants due to exposure to the elements. None of the detected concentrations were determined to pose a hazard to human health or the environment. The MC CSM has been updated to reflect a lack of source and incomplete pathways for the receptors in the terrestrial environment (RI Report, Section 9.2).

Although SRCs were detected during the RI field work, the concentrations were considered low and it is unlikely that groundwater has been impacted. No groundwater samples were collected at the Load Line #1 MRS during the RI field work and the groundwater exposure pathway is considered incomplete (RI Report, Section 9.2).

Description of Receptors (Human and Ecological):

Human receptors identified for the Load Line #1 MRS include both current and anticipated future land users. Ecological receptors (biota) for the purposes of the revised MEC CSM, are identified as the listed species in Table 1-3 (RI Report) and unlisted mammals, birds, and wetland species known to be present at the RVAAP and may be present within the MRS based on the type of vegetation and hydrology identified in Sections 1.3.5 and 1.3.7 of the RI Report. Unlisted mammal, bird, and wetland species maybe present on either a permanent or transient basis.

The revised MEC CSM in this RI identifies RVAAP personnel, contract workers, regulatory personnel, and trespassers as current human receptors. Future land use receptor, the National Guard Trainee, has been identified in accordance with the Facility-Wide Human Health Risk Assessment Manual (USACE, 2005); herein, referred to as the HHRAM. Exposure scenarios for the National Guard Trainee are provided in the FWCUG Report (SAIC, 2010). Based on the FWCUG Report, the project team has determined that the National Guard Trainee is the most sensitive of the current and future human receptors that has the potential to be exposed to MEC or MC (RI Report, Section 9.1.4).

Table 1
EHE Module: Munitions Type Data Element Table

Directions: Below are eleven classifications of munitions and their descriptions. Annotate the score(s) that correspond with **all** munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms* , *physical evidence* , and *historical evidence* are defined in Appendix C of the MRSPP Primer (Draft, Dec 2005).

Classification	Description	Possible Score	Score
Sensitive	All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorous (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions].	30	
	All hand grenades containing energetic filler.		
	Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.		
High explosive (used or damaged)	All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."	25	
	All DMM containing a high-explosive filler that have been damaged by burning or detonation, or deteriorated to the point of instability.		
Pyrotechnic (used or damaged)	All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	20	
	All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have been damaged by burning or detonation, or deteriorated to the point of instability.		
High explosive (unused)	All DMM containing a high-explosive filler that have not been damaged by burning or detonation, or are not deteriorated to the point of instability.	15	
Propellant	All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	15	
	All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are damaged by burning or detonation, or deteriorated to the point of instability.		
Bulk secondary high explosives, pyrotechnics, or propellant	All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	10	
	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.		
Pyrotechnic (not used or damaged)	All DMM containing a pyrotechnic filler (i.e. red phosphorous), other than white phosphorous filler, that have not been damaged by burning or detonation, or are not deteriorated to the point of instability.	10	
Practice	All UXO that are practice munitions that are not associated with a sensitive fuze.	5	
	All DMM that are practice munitions that are not associated with a sensitive fuze and that have not been damaged by burning or detonation, or are not deteriorated to the point of instability.		
Riot control	All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3	
Small arms	All 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	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 below.

Following the RI field activities, no physical evidence of UXO or DMM (in the form of MEC and/or MD) has been identified. An explosive safety hazard is not anticipated to exist at the Load Line #1 MRS (RI Report, Section 9.1.1).

There is no physical evidence of UXO or DMM at the Load Line #1 MRS; as such, Tables 2-9 are not applicable and have been intentionally omitted according to Active-Army Guidance.

Tables 2 through 9 are intentionally omitted according to Army Guidance.

Table 10

Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 01 - 09, 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. Identify the appropriate range for the **EHE Module Total** at right.

5. Identify the **EHE Module Rating** that corresponds to the range selected and record this rating in the **EHE Module Rating** box at the lower right corner of this 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 01	0	0
Source of Hazard	Table 02	0	
Accessibility Factor Data Elements			
Location of Munitions	Table 03	0	0
Ease of Access	Table 04	0	
Status of Property	Table 05	0	
Receptor Factor Data Elements			
Population Density	Table 06	0	0
Population Near Hazard	Table 07	0	
Types of Activities/Structures	Table 08	0	
Ecological and/or Cultural Resources	Table 09	0	
EHE MODULE TOTAL			**0**

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. Annotate the score(s) that correspond to **all** 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 MRSPP Primer (Draft, Dec 2005).

Classification	Description	Possible Score	Score
CWM, explosive configuration either UXO or damaged DMM	The CWM known or suspected of being present at the MRS is (a) explosively configured CWM that are UXO (i.e. CWM/UXO), or (b) 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 explosively configured CWM/DMM that have not been damaged, or nonexplosively configured 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, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS is (a) nonexplosively configured CWM/DMM, or (b) bulk CWM/DMM (e.g., ton container).	15	
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941(toxic gas set M-1) or CAIS K942 (toxic gas set M-2/E11).	12	
CAIS (chemical agent identification sets)	Only 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 below.

There is no known historical or physical evidence of CWM being produced, stored, or used at the RVAAP or the MRS; as such, Tables 12-19 are not applicable and have intentionally omitted according to Active-Army Guidance.

Tables 12 through 19 are intentionally omitted according to Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:		Source	Score	Value
1. From Tables 11 - 19, record the data element scores in the **Score** boxes to the right.	**CWM Hazard Factor Data Elements**			
	CWM Configuration	Table 11	0	0
	Sources of CWM	Table 12	0	
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.	**Accessibility Factor Data Elements**			
	Location of CWM	Table 13	0	0
	Ease of Access	Table 14	0	
	Status of Property	Table 15	0	
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.	**Receptor Factor Data Elements**			
	Population Density	Table 16	0	0
	Population Near Hazard	Table 17	0	
	Types of Activities/Structures	Table 18	0	
	Ecological and/or Cultural Resources	Table 19	0	
	CHE MODULE TOTAL			**0**

	CHE Module Total	CHE Module Rating
4. Identify the appropriate range for the **CHE Module Total** at right.	92 to 100	A
	82 to 91	B
	71 to 81	C
	60 to 70	D
5. Identify the **CHE Module Rating** that corresponds to the range selected and record this rating in the **CHE Module Rating** box at the lower right corner of this table.	48 to 59	E
	38 to 47	F
	less than 38	G
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.	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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant [CAS No.]	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
		Total from Table 27	
		Sum the Ratios	

CHF Scale	CHF Value	
CHF > 100	H (High)	CHF = $\sum$ ([Max Conc of Contaminant] / [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).	

Migratory Pathway Factor

Directions: Annotate 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 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).	

Receptor Factor

Directions: Annotate 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).	

Place an "X" in the box to the right if there is 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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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 water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant [CAS No.]	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 = ∑ ([Max Conc of Contaminant] / [Comparison Value for Contaminant])

CONTAMINANT HAZARD FACTOR	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

Directions: Annotate 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 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).	

Receptor Factor

Directions: Annotate 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).	

Place an "X" in the box to the right if there is 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 site's sediment and their **comparison values** (from Appendix B, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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 for human endpoints present in the sediment, select the box at the bottom of the table.

Note: N/A

Contaminant [CAS No.]	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	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 = $\sum$ ([Max Conc of Contaminant] / [Comparison Value for Contaminant])

CONTAMINANT HAZARD FACTOR	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

Directions: Annotate 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 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 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).	

Receptor Factor

Directions: Annotate the value that corresponds most closely to the surface water 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).	
Place an "X" in the box to the right if there is 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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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 for ecological endpoints present in the surface water, select the box at the bottom of the table.

Note: Use either dissolved or total metals analyses.

Contaminant [CAS No.]	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 = $\sum$ ([Max Conc of Contaminant] / [Comparison Value for Contaminant])

CONTAMINANT HAZARD FACTOR	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

Directions: Annotate 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 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).	

Receptor Factor

Directions: Annotate 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).	

Place an "X" in the box to the right if there is 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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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 for ecological endpoints present in the sediment, select the box at the bottom of the table.

Note: N/A

Contaminant [CAS No.]	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	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 = $\sum$ ([Max Conc of Contaminant] / [Comparison Value for Contaminant])

CONTAMINANT HAZARD FACTOR	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

Directions: Annotate 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 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 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).	

Receptor Factor

Directions: Annotate the value that corresponds most closely to the surface water 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).	
Place an "X" in the box to the right if there is no known or suspected Sediment (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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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 **ratios** for each medium together, including additional 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.

Note: N/A

Contaminant [CAS No.]	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	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 = $\sum$ ([Max Conc of Contaminant] / [Comparison Value for Contaminant])

CONTAMINANT HAZARD FACTOR	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

Directions: Annotate 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 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).	

Receptor Factor

Directions: Annotate 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).	

Place an "X" in the box to the right if there is 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 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, Relative Risk Site Evaluation (RRSE) Primer, Summer 1997 - Revised) 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: For human exposures to groundwater and surface water, use dissolved, rather than total, metals analyses when both are available. Remember not to add ratios from different media.

Media	Contaminant [CAS No.]	Maximum Concentration	Units	Comparison Value	Units	Ratios
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
Surface soil			mg/kg		mg/kg	
				SUBTOTAL FOR SURFACE SOIL		0
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
Sediment			mg/kg		mg/kg	
				SUBTOTAL FOR SEDIMENT		0
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
Surface water			µg/L		µg/L	
				SUBTOTAL FOR SURFACE WATER		0
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
Groundwater			µg/L		µg/L	
				SUBTOTAL FOR GROUNDWATER		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 reference provided below, determine each medium's rating (A - G) and record the letter in the corresponding **Media Rating** box below.

Medium (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A - G)
Table 21 - Groundwater					
Table 22 - Surface Water (Human Endpoint)					
Table 23 - Sediment (Human Endpoint)					
Table 24 - Surface Water (Ecological Endpoint)					
Table 25 - Sediment (Ecological Endpoint)					
Table 26 - Surface Soil					
			HHE MODULE RATING		**No Known or Suspected MC Hazard**

DIRECTIONS (Continued):

4. Select the single highest **Media Rating** (A is the highest; G is the lowest) and enter the letter in the **HHE Module Rating** box below.

HHE Ratings (for reference only)	
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G

NOTE: An alternative module rating may be assigned when a module letter 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.

Alternative Module Ratings	
	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29

MRS Priority

DIRECTIONS: In the chart below, enter the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Enter 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 number in the **MRS or Alternative Priority** box 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	

Reference Table 10:		Reference Table 20:		Reference Table 28:	
EHE Module Rating	Priority	CHE Module Rating	Priority	HHE Module Rating	Priority
No Known or Suspected Explosive Hazard	No Known or Suspected Explosive Hazard	No Known or Suspected CWM Hazard	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	No Known or Suspected MC Hazard

MRS or Alternative Priority	No Longer Required

Appendix H
Responses to Ohio EPA Comments

DRAFT
REMEDIAL INVESTIGATION REPORT FOR RVAAP-008-R-01 LOAD LINE #1 MRS, VERSION 1.0
RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO
COMMENT RESPONSE TABLE
January 2, 2013

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA – Eileen Mohr (Received February 4, 2013)					
O-1	General LL1 and ASY # 1		Pursuant to the CERCLA process, the property owner usually can provide the expected land uses to assist in ensuring that the investigation addresses all receptors for both current and future land uses. Be advised that due to land use uncertainty, Ohio EPA may require additional work in the future to address data gaps. It is incumbent upon the Army to finalize land use at Camp Ravenna as soon as possible, otherwise additional work and schedule slippage may result. Response required from the Army.		Based on direction provided by the Army following the February 28 land use discussion with Ohio EPA, the anticipated future land uses for the Load Line 1 MRS will be "military training". These activities are applicable for the anticipated future receptor that is the National Guard Trainee.
O-2	General		It is the recollection of Ohio EPA that the wrong area for study was identified in the Site Inspection (SI) report. In July 2011, representatives from Shaw, Base Realignment and Closure Division (BRACD), Ohio EPA, and the former Ohio Army National Guard (OHARNG) installation commander met in the field and walked the correct MRS area. There is no mention in this Rl report that the incorrect area was		The area identified as the MRS at Load Line #1 is the area that CB&I was contracted to investigate under the MMRP. The Army is currently evaluating how to proceed with further investigation at the area identified by the Ohio EPA as not being included in the current MRS. Since the area identified during the July 2011 walkover by CB&I, Ohio EPA, BRAC and Tom Tadsen is not part of the current MRS, it is not considered to be appropriate to include as a discussion in the RI report. The current

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REMEDIAL INVESTIGATION REPORT FOR RVAAP-008-R-01 LOAD LINE #1 MRS, VERSION 1.0
RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO
COMMENT RESPONSE TABLE
January 2, 2013

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			studied, through no fault of the contractor, nor is there any indication that a modification will be made to the contract in order to investigate the correct area. While in theory Ohio EPA agrees with a No Further Action (NFA) designation for the area that was investigated, we cannot agree to closing out the MRS located at Load Line # 1 until we have written documentation from the Army that an investigation will occur at the correct MRS at Load Line #1. At some appropriate point in the revised text, there needs to be acknowledgement that the SI location was incorrectly noted and that additional investigation will occur at the correct area. [This comment is applicable throughout the entire document.]		MRS is a stand-alone site and any future actions at the area identified during the July 2011 walkover will need to be coordinated between the Army and Ohio EPA.
O-3	General		Ohio EPA reiterates the need to resolve outstanding risk assessment and land use issues. The LL1 document was not submitted to Ohio EPA's risk assessor for review for two basic reasons: 1. The wrong location is		Please see response to Comment O-1 regarding resolution of outstanding risk assessment and land use issues. The rationale for not submitting the document for risk assessment review is noted.

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REMEDIAL INVESTIGATION REPORT FOR RVAAP-008-R-01 LOAD LINE #1 MRS, VERSION 1.0
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			the subject of this report; and 2. The reported munitions constituent (MC) concentrations are below recognized standards (ex., for lead, the residential Regional Screening Level is 400 mg/kg, and the highest detected at this area was 109 mg/kg).		
O-4	General LL1 and ASY # 2		At some point in the text, please identify the members of the Project Team by name and organization. The project team is mentioned numerous times throughout the text. This is important, because it is the Project Team that is making decisions, such as not calculating a MEC Hazard Assessment (HA) score, etc. Please add to the revised text.		Reference to the "Project Team" will be removed from the document. All decisions made during the RI field activities were in accordance with the approved work plan or were based on the RI data results collected in the field.
O-5	General LL1 and ASY # 3		Remove disclaimer statement from the final document.		The Disclaimer Statement page will be removed from the document for the final version.
O-6	General		Please ensure that any changes to the body of the report are reflected in the Executive Summary (ES).		Changes to the body of the report will be reflected in the Executive Summary and the Summary and Conclusions sections.

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O-7	ES-1/lines 24-25 and ASY 10		Please add language to the text that clarifies why previous analytical results were not considered applicable to this Rl.		The following text will be added to lines 24-25: "Data collected during previous sampling events at the MRS were also reviewed for applicability for evaluation in the RI. Historical records indicate no samples were collected within the boundary of the 0.41-acre MRS boundary investigated during the RI during past Installation Restoration Program (IRP) sampling events, therefore evaluation and inclusion of IRP data was not applicable. The surface soil samples collected during the SI field activities were not included for evaluation in the RI since the RI data is considered to be representative of current conditions at the MRS in comparison to samples collected in 2007."
O-8	General LL1 and ASY 16		The text states that future land use will be "military training." Please cross-reference the first general comment in this letter. The text in this section does not provide enough information to determine reasonable anticipated future land use. Response required from the Army. [This comment is applicable throughout the entire document. Changes need to be made to all		Please see response to Comment O-1 regarding resolution of outstanding risk assessment and land use issues.

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			pertinent text sections.]		
O-9	General		In Chapter 4.0, where the Nature and Extent of contamination is discussed, the only data that are presented are the two constituents that were detected, i.e., lead and nitroguanidine. Samples were collected for explosives, geochemical parameters, propellants, TOC, and pH. It has been standard on all RVAAP projects that minimally a summary chart/table will be presented that has not only all of the constituents tested for, but the detections (if non-detect they are represented by a < sign with the detection limit), the facility-wide background, Regional Screening Levels (RSLs), and Clean-Up Goals (CUGs), etc. Ohio EPA expects the same type of data presentation for all of the MMRP projects. [This is also applicable to Chapters 5 and 6.]		Table 4-1 will be expanded to include a summary of all results including TOC and pH. A summary table of results is already presented in Appendix C; however, TOC and pH are not included. The table in Appendix C will be expanded to include TOC and pH and will also provide columns that include the facility-wide background screening levels, the most stringent final FWCUGs and/or the RSLs.
O-10			Typographical errors: a. pg. 2-7/line 3 - change "Responsibility" to		a. "Responsibility" will be changed to "Response" on pg. 2-7/line 3. b. "was" will be changed to "were" on pg. 3-

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			"Response." b. pg. 3-3/line 16 - change "was" to "were." c. pg. 3-6/line 25 - remove MEC footnote. d. throughout - normally call certain samples "equipment rinsate" vs. "equipment rinse." e. pg. 3-10/line 5 - insert the word "were" between results and reported. f. pg. 3-11/30 - change "resultants" to "resulting." g. pg. 5-4/8 - change "to exceed" to "exceeding."		3/line 16. c. The MEC footnote will be removed from beneath Table 3-2. d. The report will be revised to change “equipment rinse” samples to “equipment rinsate” samples. e. “were” will be added between “results” and “reported” on pg. 3-10/line 5. f. “resultants” will be revised to “resulting” on pg 3-11, line 30. g. “to exceed” will be revised to “exceeding” on pg 5-4/line 8.
O-11	General and ES-3/line 9		The text indicates that the Incremental Sampling Method (ISM) MC samples were collected from a 0 - 0.5 feet bgs interval. The approved work plan (work sheet # 18, footnote 3) indicates that surface soil samples were to be collected from an interval of 0-1.0 feet bgs. Please explain the deviation from the approved workplan, or provide the approved		The soil samples were collected in accordance with the work plan as described in Worksheet #17 which states that samples will be collected between 0 to 6 inches. The intent of the referenced footnote in Worksheet #18 is that surface soil, for sample method purposes (i.e., step probe in surface soil vs hand auger in subsurface), is defined as 0 to 1 foot bgs although the samples will be collected at lesser intervals (0 to 6 inches). This is inclusive of samples collected starting at ground surface or samples collected

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			field change order (FCO). Additionally, please note that Table 4-3, footnote # 1, on page 4-11, cross references facility-wide background. For facility-wide background, the depth interval is 0-1'bgs. Please clarify how the depth differences between the 0-0.5 - 0-1 ft bgs intervals are being rectified. [This issue appears numerous times in the draft text and tables.]		beneath uncovered MEC/MD items that may have been buried at depths greater than one foot. In other words, if a sample was collected at the bottom of a trench with buried MEC/MD, then the sample is collected as a surface soil sample using surface soil sampling methods (evaluation of the sample as a surface or subsurface sample would depend on the actual depth of the sample collected). The 0 to 6 inch interval was evaluated since most MC associated with munitions releases are not very mobile and would be expected to be found within this horizon. This 0 to 6-inch sample depth is consistent with the sampling performed for the SI activities under the MMRP. The facility-wide background interval for surface soil is defined as 0 to 1 foot bgs. The ISM samples at Load Line #1 were collected at 0 to 0.5-foot bgs; therefore, the background values overlap the ISM sample intervals and it is conservatively assumed that the background values for the 0 to 1 foot interval are also applicable for the ISM samples. The purpose of sample collection under the MMRP is to verify if MC associated with a MEC source or activity is present at a site. In the case of the Load Line #1 MRS, no MEC was found on the ground surface and since MC was not detected at concentrations that posed risks to likely

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					receptors, it is not expected that the remainder of the 0 to 1 foot sample interval has been impacted from the suspected MEC source.
O-12	ES- 4 - 5/lines 34 - 2		The text indicates that a subsurface investigation for MEC was not conducted. However, the text in later places (ex., pg. 2-9) talks about the reworking of the soil during demolition projects, the fact that the metal detector would not pick up propellant pieces, etc. As such, it is unclear as to how such strong statements can be made that the subsurface from both a MC and MEC perspective is not an issue. [This comment is applicable throughout the document. Changes need to be made to all pertinent text sections.]		The text on pg 2-9 is not meant to imply that the soil at the MRS has been completely reworked and that propellants may have been worked into the subsurface that may have resulted in MC impacts at depths greater than 1 foot. No soil removal or remediation has been performed at the MRS specifically but demolition of the adjacent slab foundations may have resulted in heavy equipment traffic and movement of surface soil over the MRS. If a significant amount of propellant nodules still remained at the MRS, then it would be expected that some would have been found on the ground surface during the RI field activities; however, no nodules were found and explosive constituents were not detected above the screening values in the soil samples. The text on pg 2-9 will be revised as follows: "This is applicable due to the demolition activities of the adjacent CB-14 building slab and remediation activities at locations near the MRS that may have resulted in vehicle and heavy equipment traffic and the disturbance of surface soils."

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O-13	Fig 1-1 and ASY 15		Location map. Please revise to indicate that the scale presented is solely for the upper map presented on this page.		This comment has already been incorporated into the Load Line #1 RI based Ohio EPA comments received for the Atlas Scrap Yard RI Report; therefore, no changes are required.
O-14	Fig 1-3		This is the topographic map for the MRS area and it uses a 5 ft. contour interval. Ohio EPA's recollection is that the installation was flown and we have information on a 2 ft. contour interval basis. Please locate this information and use in the revised report.		The topography map (Figure 1-3) will be revised to show 2 foot intervals.
O-15	pg. 1-9/ lines 6-8		Please use updated information from the Facility-Wide Groundwater Monitoring Program Plan (FWGMPP) if available.		The potentiometric map for the consolidated aquifer in the Final FWGWMP report (October 2012) indicates that the depth to groundwater is approximately 30 to 35 feet bgs. Therefore, reference to groundwater at approximately 32 feet bgs is consistent with current conditions. The 2012 Final FWGWP report will be included as the most current reference in the report for depth to groundwater.
O-16	Fig 1-4		This map uses 50 ft. contour intervals to depict the bedrock elevation. If available, please use		The bedrock intervals were taken from the REIMS. There is no other known available

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			a more appropriate contour interval.		source for bedrock contours.
O-17	pg. 1-13/ line 4 and ASY 17		Clarification requested. Please clarify that a "semiimproved administration area" is considered a habitat.		Reference to “semi-improved administration areas” as a habitat will be removed from line 4.
O-18	pg. 1-20/ line 4 and ASY 19		This section of the text discusses 11 areas of concern (AOCs) that were identified in the ASRs potentially containing MEC. Yet, the text lists 12 AOCs. Rectify the disconnect.		“11” has already been revised to “12” on pg 1-20/line 7 in the draft version of the Load Line #1 RI report in accordance with the comments received from the Ohio EPA on the Atlas Scrap Yard RI Report. Therefore, no additional text changes are required.
O-19	pg. 2-2/ lines 31-33		The text indicates that: Given the MRS history, "the presence of MEC in the subsurface was not anticipated, as no burial activities were known to occur." Yet, on page 2-9, there is reference to construction and remediation activities that have occurred at load Line # 1 and near the MRS, since 2007. There is the potential that re-working of the soil could have occurred due to heavy equipment operation, etc., and that there could be some MEC in the subsurface. While we agree that		Please see response to comment O-12.

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			the MC data from this Rl would be more applicable, the discrepancies in the text in terms of whether or not there could be MEC in the subsurface needs additional justification and detail in the revised document. [This also occurs in many other sections of the report.]		
O-20	pg. 2-5/lines 28-34 and ASY 22		The text references ARARs, TBCs, etc., and indicates that they will be provided in future CERCLA documents. Provide Ohio EPA with a timeframe for receipt.		The Army will address the concerns for submission of the ARARs, TBCs, etc. based on recommendations made following the evaluation of the RI results and conclusions by the stakeholders. Based on the decision outcome for the MRS based on this RI, the ARARs, TBCs, etc., may be required as part of a FS if further action is required or possibly an NFA ROD if no action is required.
O-21	pg. 3-3/ lines 16-18		The text indicates that the ISM MC samples were collected from a 0 - 0.5 ft bgs interval. The approved work plan (work sheet # 18, footnote 3) indicates that surface soil samples were to be collected from an interval of 0-1.0 feet bgs. In this section, the text indicates that there were no		Please see response to comment O-11. Based on the anticipated depth of sample collected (0 to 6 inches) as described in Worksheet #17, there were no deviations to the work plan.

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			deviations from the workplan. Please provide clarification.		
O-22	pg. 3-9/ section 3.2.4		This section discusses data validation and the text indicates that Shaw conducted 100% validation of the primary dataset. Please clarify why there wasn't an independent third party doing the validation. [This comment is also applicable to Appendix B,]		CB&I completed 100% data validation and the requirement for third party data validation by CB&I is not presented in the approved work plan.
O-23	pg. 3-16 and 3-17 /section 3.3		Please note that there has been a change in Ohio EPA's decontamination procedure. The new Standard Operating Procedure (SOP) can be used at future field work areas, i.e., the correct area of Load Line # 1, Ramsdell Quarry Landfill, and Sand Creek Dump. This SOP was previously transmitted to the Army by Ohio EPA.		CB&I received the applicable decontamination SOP from the Army on 2/7/13 and will incorporate it for future field work activities.
O-24	pg. 4-5/ lines 6-7		Please confirm that the toxicity definition is specific to contact and not other pathways as well, such as ingestion.		Per discussion with Angela Schmidt, the definition of toxicity for essential nutrient evaluation is as defined in the Facility-Wide Human Health Risk Assessment Manual and is based primarily on ingestion. The

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					following sentence will be added to the section to clarify this: "Recommended daily allowance and recommended daily intake values are available for most of the metals identified as essential nutrients."
O-25	pg. 5-3/line 33		The text indicates that the MRS-specific pH is 8.4. Cross reference general comment # 9, which indicates the requirement to present data such as this in data tables. [Also see page 10-3/line 4.]		Please see response to Comment #9. pH and TOC will be added to data summary tables in Section 4.0.
O-26	pg. 5-4/ lines 5-6		The text in this section indicates the location and depth of the nearest monitoring well. Please provide the source of the information.		The text on pg 5-4/lines 5-6 will be revised as follows: "The most recent groundwater elevations and sampling data were evaluated for evaluation of fate and transport (Environmental Quality Management, Inc., 2012). The depth to groundwater at the nearest well location to the MRS (approximately 400 feet to the southeast) is 32 feet bgs. Several inorganics were detected exceeding the screening criteria at Load Line 1; however,….."
O-27	pg. 6-		Add text to support why a MEC		MC evaluation is not a component of the

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	1/Section 6.0 and ASY # 38		HA was not conducted, given that a component of the MEC HA is MC and that MC has been found at the MRS in previous studies (as well as in this Rl, albeit at low concentrations). Additionally, provide details on the constitution of the "project team." (See general comment # 4.)		MEC HA unless it's present at concentrations that present an explosive hazard in accordance with the MEC HA guidance (EPA, 2008). The MEC HA only evaluates for human health and safety associated with potential exposure to MEC or if MC present at explosive concentrations. No MEC was found at the MRS and evaluation is not required. Although lead and nitroguanidine are identified as site-related chemicals, they were not detected at concentrations that present risks to likely receptors. Reference to "Project Team" will be removed and the text will be revised as follows: "Based on the findings of the RI field work, the calculation of a MEC HA score was not warranted for the Load Line #1 MRS."
O-28	Chapter 7.0		Human Health Risk Assessment - cross-reference general Comment# 3.		Please see response to Comment O-1.
O-29	Chapter 8.0		Ecological Risk Assessment - cross-reference general comment # 3.		Please see response to Comment O-1.
O-30	pg. 7-2/13-15		The text indicates that the 0-0.5 ft bgs depth is the interval where the maximum depth of propellants has historically been found. Please		The text states that the *0-0.5 foot* sample depth across the MRS is the focus of the HHRA since it is the maximum depth that *MC associated with the* propellants has

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			clarify what data was utilized to make this determination; specifically, did it include all Installation Restoration Program (IRP)/MMRP data?		historically been found. The source of this information was the e^2M Site Inspection Report which will be added as a reference at the end of this sentence.
O-31	pg. 7-2/28-32		Clarify in this section that the use of a geochemical evaluation would need prior approval from Ohio EPA.		The following text will be added to the bullet: "Use of geochemical evaluation would need prior approval from the Ohio EPA prior to implementation."
O-32	pg. 7-5/ Table 7-2	Pg 7-3	Please confirm there are no CUGs for lead and nitroguanidine, especially in light of the text on page 7-8/lines 4-6, which references FWCUGs for the Residential Farmer and the National Guard Trainee. Then the text on page 7-9/line 9 indicates that "several" substances detected at the MRS do not have final FWCUGs, which seemingly contradicts page 7-8. Please clarify.		There are no FWCUGs for lead or nitroguanidine; therefore, the text on pg 7-8/lines 4-8 will be revised as follows: "The Work Plan (Shaw, 2011) specifies that in addition to screening for the Residential Farmer (Adult and Child) and the National Guard Trainee, evaluation will also be made against the remaining OHARNG receptors in order to ensure that the most stringent receptor is identified. Based on this consideration, the receptors identified for COPC evaluation included the Residential Farmer (Adult and Child) and the National Guard Trainee, the most stringent OHARNG receptor identified based on the anticipated future land use. **Table 7-2** presents the screening results for COPCs for the Residential Farmer (Adult and

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					Child) and the National Guard Trainee in accordance with the FWCUG Report (SAIC, 2010). For both lead and nitroguanidine, no FWCUGs are available and the RSLs were used. The RSLs are based on the lower of values derived considering excess cancer risk of 1×10^{-6} (one in a million) and noncancer hazard considering an HQ of 1. The RSLs derived based on noncancer hazard were adjusted to an HQ of 0.1 in order to be consistent with the noncancer final FWCUGs. The RSL for lead, however, was not adjusted in this manner, since it was not derived using the hazard index approach. The RSL for lead in soil is based on the value recommended by the EPA as generally safe for residential settings. To establish COPCs, the MDCs for the SRCs were compared to the applicable screening criteria. Substances that are considered SRCs, and for which the MDC is greater than the RSL since no final FWCUGs are available, were considered COPCs. The entire MRS was adequately characterized to the anticipated depth that MC, if any, would be expected to be found (0 to 0.5 foot bgs) and no COPCs were identified for either the Residential Farmer (Adult and Child) or the National Guard Trainee. Therefore, an evaluation for COCs was not required."

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O-33	pgs. 7-2 through 7-7		Text information on a number of these pages seems to duplicate information already provided in Chapter 4.		Agreed. The text on pgs 7-2 to 7-7 will be streamlined to eliminate redundancy with the text in Section 4.0. This is already being implemented for the other MMRP RI reports going forward.
O-34	pg. 8-5/lines 30-32		This section indicates that much of the load line soil material has been removed, reworked, or used as cover as part of past demolition and remediation activities. This text further confuses whether or not the assertions that the 0-0.5' bgs is the appropriate interval to sample and whether or not there is MEC in the subsurface. Again, pg. 8-15/lines 15-18, seemingly contradict this section, [pg. 10-4/line 3 indicates that the propellants should be on the ground surface.] [The text throughout the document needs to be consistent.]		The text will be revised as follows: "No soil removal or remediation has been performed at the MRS specifically but demolition of the adjacent slab foundations may have resulted in heavy equipment traffic and disturbance of surface soil over the MRS which would likely decrease the attractiveness to burrowing receptors."
O-35	pg. 8-8/line 8	Pg 8-26	Define the common laboratory contamination evaluation. By whom was this conducted? Where is it documented? What contaminants are included?		Based on recent Army comments on the MMRP RI reports provided to CB&I, Section 8.0 will be streamlined in accordance with the "Unified Approach" for ERAs. Discussion regarding the data will be streamlined similar to the response to

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					comment O-33 and Section 8.4.3, "Media Evaluation" will become "Data Used in the SLERA" (Section 8.3.3.1). Reference to "laboratory contamination evaluation" will be removed and the referenced text in the comment will be revised as follows: "The MC analytical data were reviewed and evaluated for quality, usefulness, and uncertainty, as described in Section 4.2, "MC Data Evaluation." From the MC chemical results of samples described above, a selection process was performed to develop a subset of chemicals that are identified as COPECs."
O-36	pg. 8-14/ Figure 8-2		In the revised figure, please separate out the incomplete pathway from a not evaluated pathway.		Reference to "not evaluated" will be removed from the legend in Figure 8-2.
O-37	pg. 9-1/30 and pg. 9-5/ line 12		Please clarify how it was determined that there is "minimal uncertainty" that propellants exist in the subsurface. The text throughout the report not only is inconsistent with respect to the re-working of the soil in this area, but whether or not the geophysical techniques utilized will pick up the propellant. Additionally, the text says that the MEC clearance		The text throughout the report has been revised to indicate that no soil removal or remediation actions have occurred at the MRS; however, demolition of the adjacent slab foundations may have resulted in heavy equipment traffic and disturbance of surface soil over the MRS. Although the magnetometer is unable to detect non-ferrous items, if a significant quantity of propellant nodules were present at the MRS then it is expected that some would have been

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			activities did not identify any subsurface anomalies, yet, no physical subsurface investigation was conducted. It is unclear how conclusions are being drawn with seemingly contradicting information. This impacts on Figure 9-1 as well.		observed on the ground surface during the visual survey. The entire MRS was surveyed for propellants and no nodules were found, therefore the uncertainty is minimal that subsurface nodules are present at the MRS.
O-38	Figure 9-2		The figure key indicates that the 0-4 ft bgs interval is considered surface soil for the National Guard Trainee. At RVAAP, the 0-4 ft bgs interval was defined as "deep surface."		Figure 9-2 will be revised to differentiate “surface soil” from “deep surface soil” for the National Guard Trainee.
O-39	Appendix A and ASY # 50		Provide the email/correspondence subsequent to the June 07, 2011 memo that indicates the approval of this approach and sampling depth.		The Ohio EPA withdrew this comment at the Atlas Scrap Yard and Load Line #1 MMRP Technical Meeting between CB&I, ARNG, OHARNG, USACE and the Ohio EPA on March 7, 2013 since the sample locations were predetermined in the Work Plan.
O-40	Appendix A/Field Sampling Audit Checklist		a. pg. 4 (A-12) - the project files should contain information on the required analyses. b. pg. 4 (A-12) - the project files should contain information on the sample preservation. c. pg. 4 (A-12) - on the cross		a. Agreed. The reason why this box wasn’t checked as ‘yes’ is because the required analyses are contained within the bound SAP. The required analyses will be included with the project files b. Agreed. See response to comment a above.

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			contamination section, please reference the followon audit report. d. pg. 5 (A-13) - the first entry on this page should indicate that care is taken to avoid contact with the sample and sample container interiors. e. pg. 5 (A-13) - the last entry should be checked "yes," as sample preservation includes icing to cool samples to </= 4 deg C.		c. There was no follow-on audit after the sampling event since it was only a one day event. Issues were discussed with the sampling crew following the audit. d. Agreed. The box will be revised with an "X" under 'yes' for this line item. e. Agreed. The box will be revised with an "X" under 'yes' for this line item.
O-41	Appendix B		Add in the Chain of Custody forms to the appendix.		The Chain of Custody forms will be added to Appendix A – Field Documentation.
O-43	Appendix C		The table should include pH and TOC data. This table, or a similar one, should be placed in Chapter 4 of the text.		pH and TOC data will be added to the tables in Appendix C as discussed in the response to comment #9.
O-42	Appendix B		Page 1-1, line 19, indicates metals analyses were conducted for lead, aluminum, calcium, magnesium, and manganese. This list does not match line 3 on page 1-3.		"calcium" will be added to the footnote at the bottom of Table 1-1.
O-44	General		Throughout the document, please		"Vista" will be changed to "VISTA"

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			change Vista to VISTA		throughout the report and appendices.
O-45	Appendix G and ASY		On what basis was this MRS scored? Past IRP data does not show up in this appendix, nor does the data collected during this Rl effort. Please provide complete and accurate scoring summaries.		The MC constituents for lead and nitroguanidine that were detected during the RI field activities will be added to Table 26. Table 28 will still state "No Known or Suspected MC Hazard" since the ratios for maximum concentrations to screening criteria are so low. IRP data was not collected at this MRS and is therefore not applicable.
O-46	Appendix G - table A/ page G-1		The MRS summary indicates that no MEC source is present. Please provide justification for this statement. Please crossreference previous comments on this being the wrong area, seemingly contradictory information on surface and subsurface conditions (i.e., if they have been re-worked, whether or not the instrumentation utilized would pick up propellant signatures, etc.).		• The statement that no MEC is present at the MRS is based on the results of the RI field activities that were conducted in accordance with the work plan. The work plan provided a strategy for investigating potential MEC (i.e., propellants) and MC at the MRS and no MEC was found; therefore, it can be confidently stated that there is no MEC source at the MRS. A reference to the RI Report will be added at the end of this paragraph in Table A. • Please see response to Comment O-2 regarding the current MRS as being the wrong area. The area identified as the MRS at Load Line #1 is the area that CB&I was contracted to investigated under the MMRP.

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REMEDIAL INVESTIGATION REPORT FOR RVAAP-008-R-01 LOAD LINE #1 MRS, VERSION 1.0
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					• The magnetometer was used for surface clearance only and does not pick up non ferrous items such as propellants but discussions regarding the soil conditions at the MRS have been revised throughout the report for consistency as discussed in responses to comments 12, 34, and 37.
O-47	Appendix G - table 11/ page G-5		The text on the bottom of the page should indicate that RVAAP shows up on the Non-Stockpile CWM list. Please add this information to the report, unless the list has been revised to remove RVAAP.		The footnote at the bottom of Table 11 will be revised as follows: "The RVAAP is listed on the Non-Stockpile CWM List as a site with known or possible buried CWM; however, there is no known historical or physical evidence of CWM being produced, stored, or used at the MRS. As such, Tables 12-19 are not applicable and have intentionally been omitted according to active Army guidance."
O-48	Appendix G		Many of the tables presented in this appendix are missing data cells, etc. Additionally, many, if not all, do not have module scores, etc. Please provide official module sheets that are completed and scored appropriately.		CB&I provided the revised Appendix G in a change page letter dated January 30, 2013. On February 11, 2013, the Army provided a letter to CB&I from the Ohio EPA stating that the Ohio EPA had received the change pages for Appendix G but was not going to conduct a separate review. The change pages will be reviewed along with the revised document.

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O-49	Appendix G, Table 26		The HHE surface scoring module has no data entries. Please justify. Minimally, the two ISM samples collected as part of this field effort should appear on this table.		Please see response to comment O-45.

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Appendix I
Ohio EPA Approval Letter

Note: This is a placeholder page. Shaw will supply a signed authorization page to be inserted into the final hard copy document as soon as it becomes available. Replacement CDs that include the signed authorization page will also be supplied.