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This document presents a summary of the facility-wide quarterly groundwater monitoring conducted during the October 2010 through July 2011 time frame. Included in the report are:

- Summary of the groundwater elevations and water level measurements taken for each of the wells sampled.
- Results of well inspections conducted in October 2010.
- Summary of well repair activities in 2011.
- Analytical summary tables.
- Discussion of analytes detected above the identified clean levels.

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FINAL
FACILITY-WIDE GROUNDWATER MONITORING PROGRAM

ANNUAL REPORT FOR 2011

RAVENNA ARMY AMMUNITION PLANT,
RAVENNA, OHIO

MARC Contract Number W912QR-04-D-0036
Delivery Order No. 0006

Prepared for:

U.S. Army Corps of Engineers
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Prepared by:

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February 23, 2011

FWGWMP Annual Report 2011
Final
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OHARNG – Camp Ravenna/ENV – Ohio Army National Guard Site/Environmental
RVAAP – Ravenna Army Ammunition Plant
USAEC – U.S. Army Environmental Center
USACE – U.S. Army Corps of Engineers
NGB – National Guard Bureau
Ohio EPA – Ohio Environmental Protection Agency
EQM – Environmental Quality Management, Inc.

CONTRACTOR'S STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Environmental Quality Management, Inc. (EQM) has completed the *Final Facility-Wide Groundwater Monitoring Program Annual Report for 2011.* Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in this project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions was verified. This included review of data quality objectives; technical assumptions, methods, procedures, and materials used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing United States Corps of Engineers policy.

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Senior Project Geologist

2/22/12
Date

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2/22/12
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LIST OF GENERAL ACRONYMS

AGS	Above Ground Surface
amsl	Above Mean Sea Level
AOC	Area of Concern
BGS	Below Ground Surface
BTOC	Below top of Casing
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
COPC	Chemical of Potential Concern
DFFO	Director's Final Findings and Orders
DOD	Department of Defense
EPA	Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
FS	Feasibility Study
FWCUGs	Facility-wide Cleanup Goals
FWGWMP	Facility-wide Groundwater Monitoring Program
FWSAP	Facility-wide Sampling and Analysis Plan
GOCO	Government Owned, Contractor Operated
GSA	General Services Administrations
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
IRP	Installation Restoration Program
IDW	Investigation Derived Waste
µg/L	Microgram per Liter
MARC	Multiple Award Remediation Contract
MCL	Maximum Contaminant Level
MMRP	Military Munitions Response Program
mw	Monitoring Well
NGB	National Guard Bureau
ntu	Nephelometric turbidity unit
OHARNG	Ohio Army National Guard
PBA	Performance Based Acquisition
PCB	Polychlorinated Biphenyl
PQLs	Practical Quantitation Limits
PRGs	Preliminary Remediation Goals
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
RLs	Reporting Limits
ROD	Record of Decision
RBC	Risk-based Cleanup
RSL	Regional Screening Levels
RVAAP	Ravenna Army Ammunition Plant
SVOC	Semi-volatile Organic Compound
TA	TestAmerica
TCE	Trichloroethylene

LIST OF GENERAL ACRONYMS
(continued)

TNT	Trinitrotoluene
USACE	U.S. Army Corps of Engineer
USEPA	United States Environmental Protection Agency
USP&FO	United States Property and Fiscal Officer
VOC	Volatile Organic Compound

LIST OF AREA OF CONCERN ACRONYMS

ASY	Atlas Scrap Yard
B12	Building 1200
BKG	Background
CBL	C-Block
CBP	Central Burn Pits
CP	Cobbs Pond
DA2	Demolition Area #2
EBG	Erie Burning Grounds
FBQ	Fuze and Booster Quarry
LNW	Landfill North of Winklepeck
LL	Load Line
MBS	Mustard Burial Site
NACA	National Advisory Committee for Aeronautics
NTA	NACA Test Area
RQL	Ramsdell Quarry Landfill
SCF	Sharon Conglomerate Formation
WBG	Winklepeck Burning Grounds

EXECUTIVE SUMMARY

Past Department of Defense (DOD) activities at the Ravenna Army Ammunition Plant (RVAAP) in Ravenna, Ohio, date to 1940 and include the manufacturing, loading, handling, and storage of military explosives and ammunition. Residual contamination from these early activities at RVAAP has been identified in groundwater beneath the facility. Currently, the approximately 21,683-acre facility is primarily used for military training.

The U.S. Army Corps of Engineers (USACE) is performing Comprehensive Environmental Response Compensation and Liability Act (CERCLA) closure at the former RVAAP under the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). The overall goal is to remediate the RVAAP installation so all of the property can be transferred to the National Guard Bureau (NGB) and be used by the OHARNG as a military training site. Activities conducted under the IRP include monitoring of an extensive network (now 243 wells) of groundwater monitoring wells at the RVAAP facility. To date all 243 current Facility-Wide Groundwater Monitoring Program (FWGWMP) wells at the facility have been sampled and analyzed a minimum of four quarters. Monitoring of the facility-wide groundwater is specified as a requirement of the Ohio EPA's "Director's Final Findings and Orders" (DFFOs). The DFFOs were issued to the U.S. Department of the Army on June 10, 2004.

In 2004 the U.S. Army and the Ohio Environmental Protection Agency (EPA) finalized the FWGWMP Plan, which details the requirements of the program for the 243 existing wells. The FWGWMP was initiated in 2005 with three consecutive quarters of FWGWMP well sampling. Quarterly sampling has continued through the current monitoring event (October 2011). In addition, five Resource Conservation and Recovery Act (RCRA) wells located at Ramsdell Quarry Landfill (RQLmw-007, RQLmw-008, and RQLmw-009) and Demolition Area 2 (DETmw-003 and DETmw-004) are sampled on a semiannual basis. By agreement with the U.S. Army and the Ohio EPA and in accordance with Amendment No. 1 to the FWGWMP Plan, this Annual Report for 2011 summarizes the October 2010, as well as the January, April, and July 2011 sampling events.

The following activities were conducted by Environmental Quality Management, Inc. (EQM) during the 2011 annual reporting period:

- Performed groundwater sampling of select wells on a quarterly basis.
  - In October 2010, 41 wells, including the five RCRA wells were sampled.
  - In January 2011, 49 wells were sampled.
  - In April 2011, 42 wells, including the five RCRA wells, were sampled.
  - In July 2011, 36 wells were sampled.

- Immediately prior to the October 2010 sampling event, gauged water levels in the 243 RVAAP monitoring wells. This information was used to generate updated potentiometric maps.
- Performed laboratory analyses and data validation for the collected samples.
- Reduced quarterly data and preparation of individual sampling event reports.
- Prepared the requisite Investigation-Derived Waste (IDW) characterization and disposal report.
- Prepared the 2011 Annual Report, including the overall program review requirement.
- Performed maintenance on selected groundwater monitoring wells between July and October 2011. Specific maintenance items included: replacing well caps and locks, clearing brush and trees from around wells, repairing cracks in concrete pads, stabilizing concrete pads, reapplying well numbers on protective casings, and replacing sand packing around well casings.

During this reporting period, aluminum (10 wells), arsenic (56 wells), chromium (one well), iron (64 wells), lead (two wells), manganese (88 wells), nitrate as nitrite (one well), and vanadium (one well) were reported at concentrations exceeding their respective Maximum Contaminant Levels (MCLs) and/or Region 9 Preliminary Remediation Goals (PRGs) during at least one sampling event from the 112 wells sampled. The following general observations were noted regarding the inorganic constituents: 1) the MCL for aluminum was exceeded in 10 wells, and the aluminum PRG was exceeded in one well during one sampling event; 2) all arsenic concentrations exceeded the PRG and 59% exceeded the MCL; 3) the chromium concentration exceeded both the MCL and the PRG in one well; 4) the iron MCL was exceeded in all 64 wells, and the iron PRG was exceeded in eight wells; 5) the lead MCL was exceeded in two wells; there is no PRG for lead; 6) the manganese MCL was exceeded in all 88 wells, but less than 31% exceeded the PRG; 7) the nitrate-nitrite MCL and PRG were exceeded in one well; and 8) the vanadium PRG was exceeded in one well; there is no MCL for vanadium.

Trichloroethene (TCE; two wells), carbon tetrachloride (one well), and chloroform (one well) were reported at concentrations exceeding their respective MCLs and/or PRGs during at least one sampling event. The following general observations were noted regarding the volatile organic compounds (VOCs): 1) TCE was identified at concentrations exceeding the Region 9 PRG but not the MCL in two wells; 2) carbon tetrachloride exceeded the PRG but not the MCL in one well; 3) chloroform exceeded the PRG in one well; there is no MCL for this VOC. The presence of TCE in well LL2mw-265 is the first reported detection of this VOC at Load Line 2. Although, the reported concentration of TCE in LL2mw-265 did not exceed the MCL at this location, it did exceed the corresponding Facility-Wide Cleanup Goals (FWCUGs) in groundwater for Resident Farmer – Adult and Child pursuant to *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio* [Science Applications International Corporation (SAIC), March 2010]. Under the 2nd screening step for qualifying site chemicals at RVAAP, TCE qualifies as a new chemical of potential

concern (COPC) in Load Line 2. Note that TCE is already a listed COPC for facility-wide groundwater at RVAAP.

During this reporting period, bis(2-ethylhexyl)phthalate was reported in two wells at concentrations exceeding the Region 9 PRG and MCL during at least one sampling event.

During the 2011 reporting period, alpha-BHC (six wells), beta-BHC (three wells), and heptachlor (one well) were reported at concentrations exceeding their respective PRGs during at least one sampling event. There are no established MCLs for the alpha-BHC or beta-BHC. The MCL for heptachlor (0.4 µg/L) was not exceeded. The compound alpha-BHC was first identified in well LL3mw-234 in July 2008 at a concentration exceeding the PRG; it re-occurred in this well during the 2011 reporting period. It was not previously listed as a COPC in Load Line 3. The detected concentration of alpha-BHC in SCFmw-002 in April 2011 was the first occurrence of this compound in any of the deep Sharon Conglomerate wells. At both locations, alpha-BHC was identified above the PRG and also exceeded the FWCUG for Resident Farmer – Adult (SAIC, March 2010). The reported concentration in well SCFmw-002 also exceeded the FWCUG for Resident Farmer – Child (SAIC, March 2010). Under the 2nd screening step for qualifying site chemicals at RVAAP, alpha-BHC qualifies as a new COPC in Load Line 3 and the deep Sharon Conglomerate wells. Note that alpha-BHC is already a listed COPC for facility-wide groundwater at RVAAP.

During this reporting period, 2,4,6-trinitrotoluene (TNT; five wells), 2-nitrotoluene (three wells), and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX; 10 wells) were reported at concentrations exceeding their respective PRGs during at least one sampling event. There are no MCLs for these explosives and propellants. The compound 2-nitrotoluene was first identified at concentrations exceeding its Region 9 PRG value in Load Line 1 in July 2010 (LL1mw-083) and in Ramsdell Quarry Landfill in April 2007 (RQLmw-009). Although the historical and recent detections at these two areas of concern (AOCs) exceeded the PRG, they did not exceed the FWCUGs developed by SAIC (March 2010). Consequently, 2-nitrotoluene is not a COPC at Load Line 1 or Ramsdell Quarry Landfill.

Perchlorates were sampled from discrete wells in Load Line 1 (five wells), Load Line 2 (three wells), Load Line 3 (one well), and Load Line 4 (two wells). No perchlorates were detected at levels exceeding the Region 9 PRG of 3.6 µg/L or the Drinking Water Equivalent Level (DWEL) of 24.5 µg/L.

As presented in the *Draft 2010 Addendum to the Facility-Wide Groundwater Monitoring Program Plan (FWGWMPP) RVAAP-66 Facility-Wide Groundwater* (USACE, November 15, 2010) the Army has proposed, with concurrence from the Ohio EPA and the OHARNG, to move from an area-specific approach to a facility-wide wide approach for the groundwater (RVAAP-66 facility-wide groundwater). This will provide a more focused approach for achieving the goals of the FWGWMP.

In order to accomplish the goal for a facility-wide approach for groundwater, the following activities are anticipated to be completed in support of a signed Record of Decision (ROD):

- The installation and sampling of additional monitoring wells at the facility in support the Remedial Investigation/Feasibility Study (RI/FS) and eventual ROD.

- Changes to the current monitoring schedule and analytes to be sampled. The current FWGWMP schedule involves quarterly sampling of a subset of all wells present at RVAAP. It appears from these data that the initial investigative phase for the existing wells has been completed [i.e., there is an understanding of the impacts of specific AOC sources to individual wells at the facility]. As a result, USACE and the Ohio EPA desire that the site move from an AOC-based approach to a facility-wide approach for groundwater. Based on this perspective, it will be proposed that the facility-wide groundwater monitoring schedule be modified from a quarterly to semiannual basis, which would still be sufficient to assess potential adverse effects to human health and the environment during the RI/FS process.

- It should be noted that the end use of groundwater at RVAAP has not, as yet, been determined. Ongoing activities in pursuit of the Record of Decision for facility-wide groundwater will better determine the ultimate future use and possible restrictions associated with groundwater at RVAAP.

- Prepare and submit the RI Work Plan.

- Prepare the RI Report, which will include groundwater modeling, refining the facility-wide groundwater conceptual site model, and conducting a human health baseline risk assessment for facility-wide groundwater exposure.

- Prepare and complete the FS.

- Preparation and completion of the Proposed Plan, including the public hearing and comment period.

- Prepare and complete the ROD.

SECTION 1

INTRODUCTION

1.1 Facility Description

Past Department of Defense (DOD) activities at the Ravenna Army Ammunition Plant (RVAAP) date to 1940 and include the manufacturing, loading, handling and storage of military explosives and ammunition. Until 1999, the RVAAP was identified as a 21,419-acre installation. The property boundary was resurveyed by the Ohio Army National Guard (OHARNG) over a 2-year period from 2002 and 2003 and the actual total acreage of the property was found to be 21,683.289 acres. As of February 2006, a total of 20,403 acres of the former 21,683 acre RVAAP have been transferred to the United States Property and Fiscal Officer (USP&FO) for Ohio for use by the OHARNG as a military training site. The current RVAAP consists of 1,280 acres in several distinct parcels scattered throughout the confines of the OHARNG Camp Ravenna Joint Military Training Center (Camp Ravenna). The RVAAP and Camp Ravenna are collocated on contiguous parcels of property and the Camp Ravenna perimeter fence completely encloses the remaining parcels of the RVAAP. Camp Ravenna is in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east-northeast of the city of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the city of Newton Falls (Figure 1-1). The RVAAP portions of the property are solely located within Portage County. Camp Ravenna (inclusive of the RVAAP) is a parcel of property approximately 17.7 kilometers (11 miles) long and 5.6 kilometers (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see Figures 1-1 and 1-2). Camp Ravenna is surrounded by several communities: Windham on the north; Garrettsville 9.6 kilometers (6 miles) to the northwest; Newton Falls 1.6 kilometers (1 mile) to the southeast; Charlestown to the southwest; and Wayland 4.8 kilometers (3 miles) to the south. When the RVAAP was operational Camp Ravenna did not exist and the entire 21,683-acre parcel was a government-owned, contractor-operated (GOCO) industrial facility. The RVAAP Installation Restoration Program (IRP) encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP, and therefore references to the RVAAP in this document are considered to be inclusive of the historical extent of the RVAAP, which is inclusive of the combined acreages of the current Camp Ravenna and RVAAP, unless otherwise specifically stated.

1.2 Project Description

In 2004 the U.S. Army and the Ohio Environmental Protection Agency (EPA) finalized the Facility-Wide Groundwater Monitoring Program (FWGWMP) Plan, which details the requirements of the program. The FWGWMP was initiated in 2005 with three consecutive quarters of FWGWMP well sampling. Quarterly sampling has continued through the current monitoring event (October 2011).

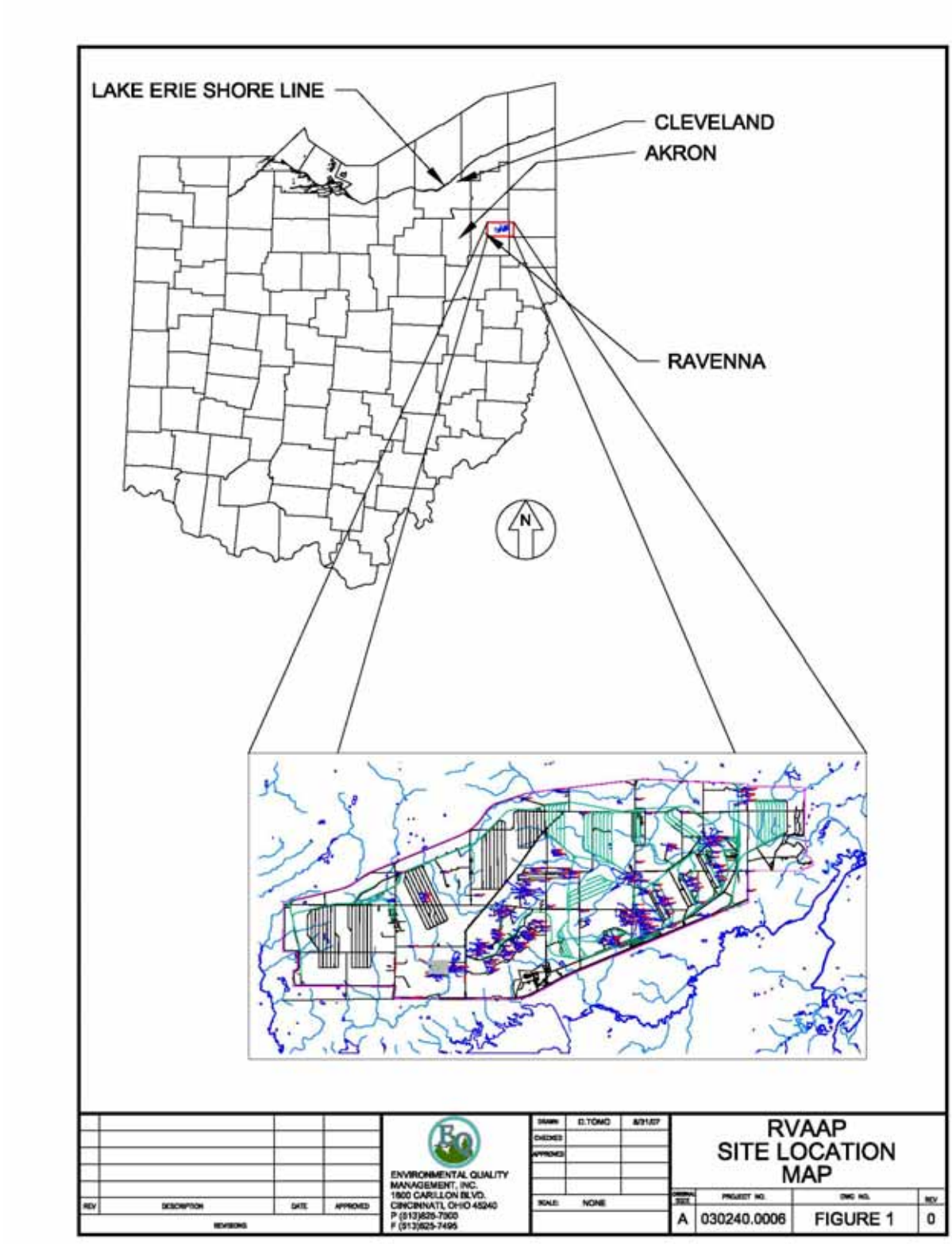

Figure 1-1. RVAAP General Location Map

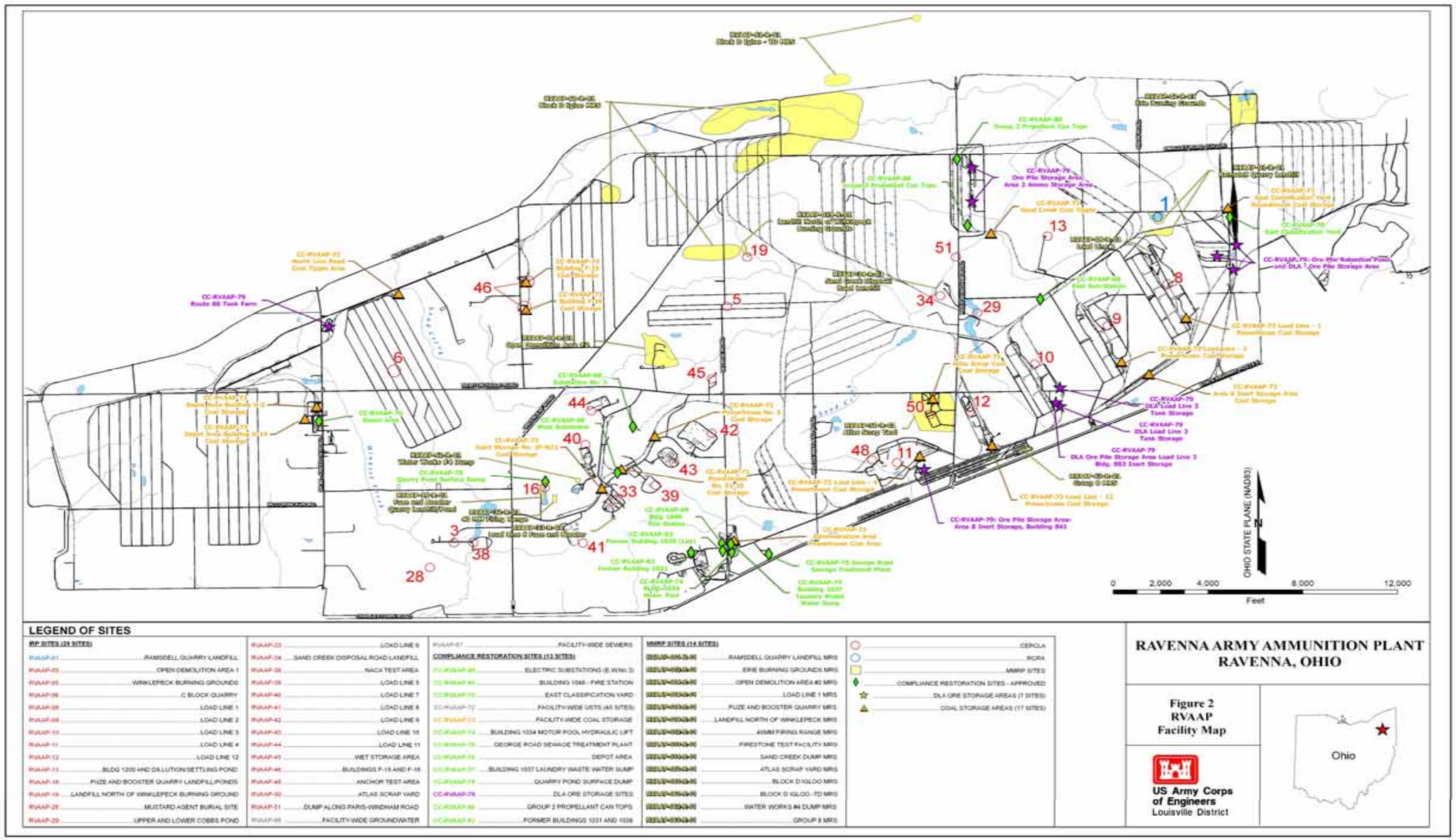

Figure 1-2. RVAAP Facility Map

The initial FWGWMP wells identified for monitoring were sampled once every quarter, with the exception of the five Resource Conservation and Recovery Act (RCRA) wells, which include Ramsdell Quarry Landfill (RQL) wells RQLmw-007, RQLmw-008, and RQLmw-009 and Demolition Area 2 (DA2) wells DETmw-003 and DETmw-004. The RQL and DA2 wells are sampled twice a year.

Details of the program design and requirements are contained in the *RVAAP Facility-Wide Groundwater Monitoring Program Plan,* Portage Environmental, September 2004. This document contains the Facility-Wide Sampling and Analysis Plan (FWSAP), Site Safety and Health Plan, and Quality Assurance Project Plan addenda that pertain to the proposed work. Additional details pertaining to performance of field and laboratory activities are contained in the *Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC, February 2011). As detailed in the FWGWMP Plan, the initial monitoring program consisted of the sampling of 36 wells specified in Table 4-1 of the FWGWMP Plan. Fourteen of these wells were "Background Wells," and the remaining wells were situated at various Areas of Concern (AOCs) at RVAAP. The first sampling event for this project was conducted in April 2005. The final assessment monitoring event for the initial well sampling and analysis was completed in October 2007. The current monitoring schedule and list of wells are presented in Section 1.5.

1.2.1 Annual Report

By agreement with the U.S. Army and the Ohio EPA and in accordance with Amendment No. 1 to the FWGWMP Plan, the Annual Report for 2011 summarizes the October 2010, as well as the January, April, and July 2011 sampling events.

Amendment No. 1 changed the annual reporting period from January 1 – December 31 to October 1 – September 30. The change to the program was made so that the Annual Report for 2006 would include monitoring activities performed in the 4th quarter of 2005, and the 1st, 2nd, and 3rd quarters of 2006. Subsequent annual monitoring periods would also follow this pattern, such as the 2007 annual report, which covers the fourth quarter of 2006 and the first, second, and third quarters of 2007. This change was made because it was discovered that requiring the 4th quarter data to be included in the current years' Annual Report did not allow sufficient time to collect and analyze samples, verify and validate data, assess results, and still make the December deadline (Milestone date) for including these results in the Annual Report.

The results of the sampling events covered under this Annual Report are presented in the following documents:

- *Facility-Wide Groundwater Monitoring Program, Report on the October 2010 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio* dated March 16, 2011.

- *Facility-Wide Groundwater Monitoring Program, Report on the January 2011 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio* dated July 15, 2011.
- *Facility-Wide Groundwater Monitoring Program, Report on the April 2011 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio* dated September 7, 2011.
- *Facility-Wide Groundwater Monitoring Program, Report on the July 2011 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio* dated October 10, 2011.

The results for the October 2011 sampling event will be submitted in a separate document and will be summarized in the Annual Report for 2012.

1.3 Summary of the Scope of Work for 2010-11

Environmental Quality Management, Inc. (EQM) was contracted (MARC Contract Number W912QR-04-D-0036) by the U.S. Army Corps of Engineers, Louisville District (USACE) to conduct the 2007 FWGWMP monitoring program beginning in April 2007. The objective of this project is to continue quarterly monitoring under the RVAAP Facility-Wide Groundwater Monitoring Program. The following tasks were performed in accordance with specifications contained in the FWGWMP Plan, the FWSAP, and the Scope of Work written by the USACE:

- Performed groundwater sampling of select wells on a quarterly basis. The wells sampled are identified in Section 1.5.1 of this report. The wells were sampled by EQM. The RCRA wells at Ramsdell Quarry (RQLmw-007, RQLmw-008, and RQLmw-009) and at Demolition Area 2 (DET-3 and DET-4) were also sampled during this timeframe (October 2010 and April 2011).
- Water-level measurements from the 243 RVAAP monitoring wells were measured immediately prior to the October 2010 sampling event and were used to generate updated potentiometric maps. The next scheduled water-level measurement event for all wells is October 2011, which will be reported in the 2012 Annual Report.
- Performed laboratory analyses and data validation for the collected samples.
- Reduced quarterly data and preparation of individual sampling event reports.
- Prepared the requisite Investigation-Derived Waste (IDW) characterization and disposal report.
- Prepared the 2011 Annual Report, including the overall program review requirement.
- Performed maintenance on selected groundwater monitoring wells.

1.4 Annual Report Requirements and Report Presentation

This report presents the FWGWMP 2011 Annual Report. The report is structured in the following way:

- Section 1 – Introduction
- Section 2 – Summary of Monitoring Wells Installed or Abandoned in 2011
- Section 3 – Summary of Annual FWGWMP Events
- Section 4 – Summary and Assessment of Annual FWGWMP Analytical Results
- Section 5 – FWGWMP Annual Recommendations/Review
- Section 6 – References

The appendices contain the following items:

- Appendix A – Correspondence Documenting the Change in Wells to be Sampled
- Appendix B – List of Wells Sampled
- Appendix C – Water Level Measurement Field Sheets
- Appendix D – Well Inspection Sheets
- Appendix E – Time-Trend Graphs
- Appendix F – Maps of FWGWMP Study Areas
- Appendix G - Reporting Limits that Currently Do Not Meet the RVAAP Quality Assurance Project Plan (QAPP) Practical Quantitation Limits (PQLs) and/or Region 9 Preliminary Remediation Goals (PRGs)
- Appendix H - Correspondence & Comment/Response Tables

The following lists the information required for the annual report as detailed in Section 5.2 of the FWGWMP Plan, as well as where this information is presented in this report:

- An evaluation of the current groundwater flow direction(s) based on water-level elevation data collected in October 2010 is discussed in Section 3.1.
- An evaluation of the trends of contamination detected in groundwater, as well as an assessment of the effectiveness of any groundwater remediation activities is presented in Section 4.0.
- The plots of concentration trends are presented in Appendix E and are discussed in Section 4.0.
- The facility map is presented in Section 1.0. The monitoring well network map and groundwater flow maps are presented in Plates 1, 2, 3, and 4. Additional FWGWMP monitoring well locations are shown in Appendix F.
- The results of the monitoring well inspections are presented in Appendix D and summarized in Section 3.2.
- FWGWMP annual recommendations and review are presented in Section 5.0.

1.5 Changes to the FWGWMP in 2011

The following changes were made to the FWGWMP during sampling and analysis for the 2011 reporting period.

1.5.1 Changes to Wells Being Monitored

On October 22, 2007 the USACE submitted to the Ohio Environmental Protection Agency (EPA) the *Draft Proposal to Update the Facility-Wide Ground Water Monitoring Program* (USACE, October 2007) at the Ravenna Army Ammunition Plant. This proposal presented recommendations for modifications to the FWGWMP, the Director's Final Findings and Orders, and the Conceptual Plan in Appendix F of the Findings and Orders as presented below.

Section 3.1.2.2 of the FWGWMP Plan establishes a protocol for adding and removing wells from the FWGWMP: "Future wells installed as part of individual AOC investigations conducted under the ongoing Comprehensive Environmental Response Compensation and Liability Act (CERCLA) process at RVAAP will be evaluated for incorporation into the FWGWMP upon completion of at least four quarterly groundwater sampling events to be conducted as part of the Remedial Investigation (RI) phase at each AOC. The frequency of the initial sampling events may be other than quarterly if agreed upon by the Army and Ohio EPA." Based on this protocol the USACE notified the Ohio EPA on December 12, 2007, that the wells to be sampled would be changed effective with the January 2008 monitoring event. The Ohio EPA provided concurrence with this change in an email dated January 8, 2008. The Ohio EPA was notified of an additional change on February 27, 2008, increasing the number of wells to be sampled for the April 2008 event. The Ohio EPA was notified on March 21, 2008, that the number of FWGWMP wells to be sampled in April 2008 (and the July 2008, October 2008, and January 2009 events) would be increased to 132 plus the five RCRA wells sampled semi-annually (in order to complete four quarters of sampling for each of the 132 wells).

Beginning with the April 2009 sampling event, the remaining wells on the list contained in the *Draft Proposal to Update the Facility-Wide Ground Water Monitoring Program* (USACE, October 2007) were sampled. This sampling was completed with the January 2010 monitoring event.

A revised list of wells to be sampled during 2010-2011 was submitted to the Ohio EPA in early 2010. The list of wells to be sampled and scheduling issues were discussed with the Ohio EPA in a telephone conference verified in a subsequent email on May 26, 2010. A copy of the email and the well sampling schedule for 2010-2011 is presented in Appendix A.

Additionally, the wells to be sampled and the analytes to be analyzed during the July 2011 monitoring event were discussed with the Ohio EPA in emails in July 2011. For the summer groundwater monitoring event it was agreed to monitor the wells and analytes presented in Table 4-2 of the *2010 Addendum to the Facility-Wide Groundwater*

Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater (USACE, 2010). A copy of the email and the well sampling schedule for 2010-2011 is presented in Appendix A.

The lists of FWGWMP wells monitored for each of the four quarters (October 2010, January 2011, April 2011, and July 2011) are presented in Appendix B.

No other changes to the FWGWMP were implemented during the 2010-11 reporting period.

1.6 Changes to the FWGWMP in 2012

The existing well monitoring schedule as presented in Appendix A will be followed going into the October 2011 monitoring event as described in Section 1.5. As presented in Section 5, the Army, in agreement with the Ohio EPA, has initiated moving from an area-specific approach to a facility-wide wide approach for the groundwater (RVAAP-66 facility-wide groundwater). In support of this approach, the Army has initiated activities to be conducted in the latter half of 2011 in support of an eventual Record of Decision (ROD) for the facility-wide groundwater. These activities include addendums to the FWGWMP Plan to install additional groundwater monitoring wells as well as proposing revisions to the overall groundwater monitoring schedule and analytes. Additional details concerning these changes are presented in Section 5.

SECTION 2

SUMMARY OF WELLS INSTALLED OR ABANDONED IN 2011

No FWGWMP wells were installed or abandoned during the 2011 reporting period.

SECTION 3

SUMMARY OF 2010-11 FWGWMP EVENTS

3.1 Groundwater Elevation Monitoring

Groundwater elevations were measured at all 243 RVAAP monitoring wells between October 4-6 and 15, 2011. The locations of monitoring wells at RVAAP are shown on Plate 1. The water-level measurement field sheets are presented in Appendix C. Additionally, groundwater elevation measurements are also obtained each time a groundwater sample is collected as part of the FWGWMP, although the measurements from the quarterly sampling events are not used to produce the potentiometric maps.

Water-level measurements were measured in accordance with procedures in Section 4.3.3.1 of the *Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC, February 2011). Water-level measurements were made from the top of the inner casing to the top of the groundwater surface using an electronic measuring tape. The depth to the bottom of the well from the top of the inner casing also was measured with the electronic measuring tape. Depth-to-water and groundwater elevations for the RVAAP wells are presented in Table 3-1. Well construction details and depth-to-well bottom measurements are presented in Table 3-2.

Each monitoring well was inspected at the time of water-level measurement and the results are discussed in Section 3.2. The monitoring well inspection sheets are presented in Appendix D**.**

The potentiometric maps created from the groundwater measurements obtained from all RVAAP monitoring wells in October 2010 are presented on Plates 2, 3, and 4. The potentiometric maps were generated from the October 2010 water-level measurements taken from all 243 facility wells. Additionally, the groundwater elevations from the deep Sharon Conglomerate wells were evaluated and determined not to be representative of either the Homewood aquifer or the upper portion of the Sharon aquifer. These wells were installed with their screened intervals positioned at the basal portion of the Sharon Conglomerate sandstone. Therefore, the groundwater elevations collected from these wells were used to determine the potentiometric contours for a separate map (Plate 4) as described below.

Plate 2 represents facility-wide groundwater flow in wells completed into the unconsolidated aquifer. The unconsolidated aquifer includes glacial till, glacial outwash, alluvium, and soil. Plate 2 illustrates that the potentiometric surface (i.e., water table) of the unconsolidated aquifer is a subdued expression of the surface topography of the RVAAP. Groundwater potentiometric elevation decreases approximately 207 feet from west to east across RVAAP, with a maximum measured elevation of 1,137.10 feet above mean sea level (amsl) at well BKGmw-005 in the northwest portion of the facility and a

Table 3-1. Depth to Water and Potentiometric Elevation (October 2010)

RVAAP Area	Well ID	Monitored Zone	TOC Elevation (ft, amsl)	October 2010 Depth to Water (ft, BTOC)	Potentiometric Elevation October 2010 (ft, amsl)
Background	BKGmw-004	Unconsolidated	967.66	14.69	952.97
	BKGmw-005	Unconsolidated	1151.94	14.84	1137.10
	BKGmw-006	Sharon	1028.88	23.61	1005.27
	BKGmw-008	Sharon	972.90	20.19	952.71
	BKGmw-010	Sharon	1006.18	20.74	985.44
	BKGmw-012	Sharon	1000.07	12.98	987.09
	BKGmw-013	Unconsolidated	989.09	13.23	975.86
	BKGmw-015	Sharon	1040.40	50.58	989.82
	BKGmw-016	Unconsolidated	1100.92	7.79	1093.13
	BKGmw-017	Unconsolidated	1135.30	21.28	1114.02
	BKGmw-018	Sharon	1045.56	16.61	1028.95
	BKGmw-019	Unconsolidated	1110.74	21.62	1089.12
	BKGmw-020	Unconsolidated	1067.50	12.56	1054.94
	BKGmw-021	Unconsolidated	974.66	19.60	955.06
Load Line 1	LL1mw-063	Sharon	994.84	29.78	965.06
	LL1mw-064	Unconsolidated	935.10	3.95	931.15
	LL1mw-065	Unconsolidated	944.41	15.00	929.41
	LL1mw-067	Sharon	980.36	21.35	959.01
	LL1mw-078	Sharon	995.84	34.80	961.04
	LL1mw-079	Sharon	997.87	35.41	962.46
	LL1mw-080	Sharon	996.27	16.35	979.92
	LL1mw-081	Sharon	998.92	33.86	965.06
	LL1mw-082	Sharon	1006.45	36.34	970.11
	LL1mw-083	Sharon	995.20	36.16	959.04
	LL1mw-084	Sharon	998.73	33.15	965.58
	LL1mw-085	Sharon	996.84	38.08	958.76
Load Line 2	LL2mw-059	Sharon	966.67	15.37	951.30
	LL2mw-060	Sharon	961.57	12.18	949.39
	LL2mw-261	Sharon	1011.40	8.00	1003.40
	LL2mw-262	Sharon	1012.62	11.71	1000.91
	LL2mw-263	Sharon	1011.47	11.72	999.75
	LL2mw-264	Sharon	1011.88	11.09	1000.79
	LL2mw-265	Sharon	961.24	11.87	949.37
	LL2mw-266	Sharon	1016.28	14.88	1001.40
	LL2mw-267	Sharon	1014.81	12.21	1002.60
	LL2mw-268	Sharon	1017.28	16.69	1000.59
	LL2mw-269	Sharon	1011.62	19.31	992.31
	LL2mw-270	Sharon	1010.18	11.53	998.65
Load Line 3	LL3mw-232	Sharon	1000.41	23.74	976.67
	LL3mw-233	Sharon	1004.36	28.93	975.43
	LL3mw-234	Sharon	1006.56	12.23	994.33
	LL3mw-235	Sharon	1009.94	22.24	987.70
	LL3mw-236	Sharon	1011.17	19.85	991.32
	LL3mw-237	Sharon	1005.57	20.92	984.65
	LL3mw-238	Sharon	1006.91	17.91	989.00
	LL3mw-239	Sharon	1003.50	27.87	975.63
	LL3mw-240	Sharon	1007.52	28.92	978.60
	LL3mw-241	Sharon	994.65	15.67	978.98
	LL3mw-242	Sharon	999.32	19.04	980.28
	LL3mw-243	Sharon	991.16	18.70	972.46

Table 3-1. Depth to Water and Potentiometric Elevation (October 2010)

RVAAP Area	Well ID	Monitored Zone	TOC Elevation (ft, amsl)	October 2010 Depth to Water (ft, BTOC)	Potentiometric Elevation October 2010 (ft, amsl)
Load Line 4	LL4mw-193	Unconsolidated	982.92	8.25	974.67
	LL4mw-194	Unconsolidated	983.76	11.52	972.24
	LL4mw-195	Unconsolidated	982.59	12.51	970.08
	LL4mw-196	Unconsolidated	984.55	14.55	970.00
	LL4mw-197	Unconsolidated	985.46	15.43	970.03
	LL4mw-198	Unconsolidated	983.42	11.38	972.04
	LL4mw-199	Unconsolidated	977.28	8.74	968.54
	LL4mw-200	Unconsolidated	987.93	19.05	968.88
Load Line 5	LL5mw-001	Homewood	1127.92	22.02	1105.90
	LL5mw-002	Homewood	1128.68	22.81	1105.87
	LL5mw-003	Unconsolidated	1127.70	21.55	1106.15
	LL5mw-004	Homewood	1125.81	19.96	1105.85
	LL5mw-005	Homewood	1129.42	23.52	1105.90
	LL5mw-006	Homewood	1128.00	22.14	1105.86
Load Line 6	LL6mw-001	Unconsolidated	1124.16	16.79	1107.37
	LL6mw-002	Unconsolidated	1129.36	22.98	1106.38
	LL6mw-003	Homewood	1125.38	18.16	1107.22
	LL6mw-004	Homewood	1125.39	18.88	1106.51
	LL6mw-005	Homewood	1120.47	13.65	1106.82
	LL6mw-006	Unconsolidated	1124.37	16.42	1107.95
	LL6mw-007	Homewood	1115.62	9.59	1106.03
Load Line 7	LL7mw-001	Homewood	1129.64	22.66	1106.98
	LL7mw-002	Homewood	1129.55	19.53	1110.02
	LL7mw-003	Homewood	1120.84	13.70	1107.14
	LL7mw-004	Homewood	1126.32	17.18	1109.14
	LL7mw-005	Homewood	1135.87	24.09	1111.78
	LL7mw-006	Homewood	1123.56	13.73	1109.83
Load Line 8	LL8mw-001	Unconsolidated	1121.46	14.20	1107.26
	LL8mw-002	Unconsolidated	1124.51	21.52	1102.99
	LL8mw-003	Unconsolidated	1119.05	15.82	1103.23
	LL8mw-004	Unconsolidated	1115.75	14.39	1101.36
	LL8mw-005	Homewood	1115.73	15.95	1099.78
	LL8mw-006	Homewood	1117.17	21.47	1095.70
Load Line 9	LL9mw-001	Homewood	1134.62	17.28	1117.34
	LL9mw-002	Homewood	1127.30	16.59	1110.71
	LL9mw-003	Homewood	1135.76	15.45	1120.31
	LL9mw-004	Homewood	1131.83	22.63	1109.20
	LL9mw-005	Homewood	1130.93	18.41	1112.52
	LL9mw-006	Homewood	1129.88	21.32	1108.56
	LL9mw-007	Homewood	1119.99	11.56	1108.43
Load Line 10	LL10mw-001	Homewood	1132.77	26.06	1106.71
	LL10mw-002	Homewood	1127.13	19.31	1107.82
	LL10mw-003	Homewood	1130.28	21.72	1108.56
	LL10mw-004	Homewood	1122.39	15.23	1107.16
	LL10mw-005	Homewood	1125.67	17.53	1108.14
	LL10mw-006	Unconsolidated	1123.83	14.95	1108.88

Table 3-1. Depth to Water and Potentiometric Elevation (October 2010)

RVAAP Area	Well ID	Monitored Zone	TOC Elevation (ft, amsl)	October 2010 Depth to Water (ft, BTOC)	Potentiometric Elevation October 2010 (ft, amsl)
Load Line 11	LL11mw-001	Unconsolidated	1100.16	13.34	1086.82
	L L11mw-002	Unconsolidated	1080.00	5.49	1074.51
	LL11mw-003	Unconsolidated	1088.48	4.59	1083.89
	LL11mw-004	Unconsolidated	1084.72	1.32	1083.40
	LL11mw-005	Unconsolidated	1079.40	11.14	1068.26
	LL11mw-006	Unconsolidated	1086.50	8.23	1078.27
	LL11mw-007	Unconsolidated	1082.00	16.14	1065.86
	LL11mw-008	Unconsolidated	1087.74	5.57	1082.17
	LL11mw-009	Unconsolidated	1091.54	6.34	1085.20
	LL11mw-010	Unconsolidated	1082.68	7.26	1075.42
Load Line 12	LL12mw-088	Unconsolidated	981.06	8.08	972.98
	LL12mw-107	Unconsolidated	980.15	7.60	972.55
	LL12mw-113	Sharon Shale	980.18	9.33	970.85
	LL12mw-128	Unconsolidated	978.24	11.34	966.90
	LL12mw-153	Unconsolidated	977.85	8.35	969.50
	LL12mw-154	Unconsolidated	979.06	11.12	967.94
	LL12mw-182	Unconsolidated	984.42	13.22	971.20
	LL12mw-183	Sharon Shale	982.98	14.76	968.22
	LL12mw-184	Unconsolidated	983.16	14.37	968.79
	LL12mw-185	Unconsolidated	981.31	10.69	970.62
	LL12mw-186	Sharon Shale	978.31	8.84	969.47
	LL12mw-187	Unconsolidated	979.94	12.59	967.35
	LL12mw-188	Unconsolidated	980.63	8.35	972.28
	LL12mw-189	Sharon Shale	978.04	9.61	968.43
	LL12mw-242	Unconsolidated	981.20	12.63	968.57
	LL12mw-243	Unconsolidated	980.79	10.53	970.26
	LL12mw-244	Unconsolidated	980.65	13.05	967.60
	LL12mw-245	Unconsolidated	980.04	9.17	970.87
	LL12mw-246	Unconsolidated	984.83	18.69	966.14
Atlas Scrap Yard	ASYmw-001	Sharon	981.13	14.04	967.09
	ASYmw-002	Sharon	985.24	16.33	968.91
	ASYmw-003	Sharon	982.21	14.90	967.31
	ASYmw-004	Sharon	979.66	12.11	967.55
	ASYmw-005	Sharon	979.80	10.50	969.30
	ASYmw-006	Sharon	983.01	15.63	967.38
	ASYmw-007	Unconsolidated	984.16	16.36	967.80
	ASYmw-008	Unconsolidated	978.85	7.99	970.86
	ASYmw-009	Sharon	982.70	14.53	968.17
	ASYmw-010	Unconsolidated	981.05	13.85	967.20
Building 1200	B12mw-010	Sharon	1005.92	20.12	985.80
	B12mw-011	Sharon	1006.70	21.99	984.71
	B12mw-012	Sharon	1006.32	21.82	984.50
C-Block Quarry	CBLmw-001	Homewood	1181.08	45.50	1135.58
	CBLmw-002	Homewood	1175.24	40.11	1135.13
	CBLmw-003	Homewood	1175.06	38.50	1136.56
	CBLmw-004	Homewood	1174.84	38.15	1136.69

Table 3-1. Depth to Water and Potentiometric Elevation (October 2010)

RVAAP Area	Well ID	Monitored Zone	TOC Elevation (ft, amsl)	October 2010 Depth to Water (ft, BTOC)	Potentiometric Elevation October 2010 (ft, amsl)
Central Burn Pits	CBPmw-001	Unconsolidated	975.84	15.10	960.74
	CBPmw-002	Unconsolidated	970.04	11.77	958.27
	CBPmw-003	Unconsolidated	974.67	15.29	959.38
	CBPmw-004	Unconsolidated	971.13	12.75	958.38
	CBPmw-005	Unconsolidated	971.59	13.82	957.77
	CBPmw-006	Unconsolidated	967.64	9.80	957.84
	CBPmw-007	Unconsolidated	976.37	18.48	957.89
	CBPmw-008	Unconsolidated	973.19	18.03	955.16
Cobbs Pond	CPmw-001	Unconsolidated	975.26	7.37	967.89
	CPmw-002	Unconsolidated	972.31	4.58	967.73
	CPmw-003	Unconsolidated	972.92	2.38	970.54
	CPmw-004	Unconsolidated	981.20	12.85	968.35
	CPmw-005	Unconsolidated	973.58	13.34	960.24
	CPmw-006	Unconsolidated	965.13	8.86	956.27
Demolition Area 2	DETmw-001B	Unconsolidated	1065.85	25.41	1040.44
	DETmw-002	Unconsolidated	1061.24	33.05	1028.19
	DETmw-003	Unconsolidated	1036.81	9.83	1026.98
	DETmw-004	Unconsolidated	1038.68	11.69	1026.99
	DA2mw-104	Unconsolidated	1073.89	22.72	1051.17
	DA2mw-105	Unconsolidated	1045.34	3.43	1041.91
	DA2mw-106	Unconsolidated	1043.79	7.19	1036.60
	DA2mw-107	Unconsolidated	1041.63	8.03	1033.60
	DA2mw-108	Unconsolidated	1032.36	6.67	1025.69
	DA2mw-109	Unconsolidated	1071.29	16.89	1054.40
	DA2mw-110	Unconsolidated	1063.78	11.87	1051.91
	DA2mw-111	Unconsolidated	1042.12	4.65	1037.47
	DA2mw-112	Unconsolidated	1037.44	7.75	1029.69
	DA2mw-113	Unconsolidated	1037.11	8.69	1028.42
Erie Burning Grounds	EBGmw-123	Unconsolidated	947.82	10.68	937.14
	EBGmw-124	Unconsolidated	941.39	4.30	937.09
	EBGmw-125	Unconsolidated	949.89	12.90	936.99
	EBGmw-126	Unconsolidated	940.61	3.44	937.17
	EBGmw-127	Unconsolidated	943.07	6.06	937.01
	EBGmw-128	Unconsolidated	945.13	8.34	936.79
	EBGmw-129	Unconsolidated	944.36	7.72	936.64
	EBGmw-130	Unconsolidated	944.00	7.45	936.55
Fuze and Booster Quarry	FBQmw-166	Unconsolidated	1108.86	5.39	1103.47
	FBQmw-167	Unconsolidated	1115.90	6.32	1109.58
	FBQmw-168	Homewood	1133.91	13.77	1120.14
	FBQmw-169	Homewood	1120.58	8.34	1112.24
	FBQmw-170	Homewood	1142.26	21.40	1120.86
	FBQmw-171	Homewood	1143.55	22.53	1121.02
	FBQmw-172	Homewood	1150.09	29.61	1120.48
	FBQmw-173	Homewood	1165.94	45.70	1120.24
	FBQmw-174	Homewood	1139.97	20.17	1119.80
	FBQmw-175	Homewood	1140.73	20.67	1120.06
	FBQmw-176	Unconsolidated	1131.91	11.42	1120.49
	FBQmw-177	Homewood	1128.57	15.85	1112.72
Landfill North of Winklepeck	LNWmw-024	Unconsolidated	1038.00	14.78	1023.22
	LNWmw-025	Unconsolidated	1029.13	5.96	1023.17
	LNWmw-026	Unconsolidated	1027.80	12.88	1014.92
	LNWmw-027	Unconsolidated	1027.13	9.97	1017.16

Table 3-1. Depth to Water and Potentiometric Elevation (October 2010)

RVAAP Area	Well ID	Monitored Zone	TOC Elevation (ft, amsl)	October 2010 Depth to Water (ft, BTOC)	Potentiometric Elevation October 2010 (ft, amsl)
NACA Test Area	NTAmw-107	Unconsolidated	1080.30	13.34	1066.96
	NTAmw-108	Unconsolidated	1085.62	18.39	1067.23
	NTAmw-109	Unconsolidated	1079.84	12.85	1066.99
	NTAmw-110	Unconsolidated	1082.62	15.25	1067.37
	NTAmw-111	Unconsolidated	1080.94	6.05	1074.89
	NTAmw-112	Unconsolidated	1078.33	9.92	1068.41
	NTAmw-113	Unconsolidated	1075.68	8.00	1067.68
	NTAmw-114	Unconsolidated	1078.71	7.69	1071.02
	NTAmw-115	Unconsolidated	1089.65	15.75	1073.90
	NTAmw-116	Unconsolidated	1094.33	8.14	1086.19
	NTAmw-117	Unconsolidated	1094.54	16.13	1078.41
	NTAmw-118	Unconsolidated	1081.44	10.38	1071.06
Ramsdell Quarry Landfill	RQLmw-006	Sharon	995.39	37.82	957.57
	RQLmw-007	Sharon	965.91	10.90	955.01
	RQLmw-008	Sharon	966.08	10.69	955.39
	RQLmw-009	Sharon	964.58	9.65	954.93
	RQLmw-010	Sharon	982.14	29.35	952.79
	RQLmw-011	Sharon	976.57	25.46	951.11
	RQLmw-012	Sharon	977.65	24.99	952.66
	RQLmw-013	Sharon	980.71	29.01	951.70
	RQLmw-014	Sharon	973.49	23.19	950.30
	RQLmw-015	Sharon	991.26	34.78	956.48
	RQLmw-016	Sharon	996.60	38.20	958.40
	RQLmw-017	Sharon	991.23	32.55	958.68
Sharon Congolmerate	SCFmw-001	Sharon Conglomerate	1120.71	91.28	1029.43
	SCFmw-002	Sharon Conglomerate	984.56	21.06	963.50
	SCFmw-003	Sharon Conglomerate	958.47	9.94	948.53
	SCFmw-004	Sharon Conglomerate	944.17	1.95	942.22
	SCFmw-005	Sharon Conglomerate	960.80	13.48	947.32
	SCFmw-006	Sharon Conglomerate	965.92	18.97	946.95
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	1054.70	8.25	1046.45
	WBGmw-006	Unconsolidated	1014.66	10.19	1004.47
	WBGmw-007	Unconsolidated	1000.59	18.85	981.74
	WBGmw-008	Unconsolidated	1008.21	16.34	991.87
	WBGmw-009	Unconsolidated	1047.53	15.97	1031.56
	WBGmw-010	Unconsolidated	1069.85	9.43	1060.42
	WBGmw-011	Unconsolidated	1072.38	12.04	1060.34
	WBGmw-012	Unconsolidated	1079.11	25.85	1053.26
	WBGmw-013	Unconsolidated	1071.70	12.64	1059.06
	WBGmw-014	Unconsolidated	996.78	17.84	978.94
	WBGmw-015	Unconsolidated	1011.60	14.98	996.62
	WBGmw-016	Unconsolidated	997.03	18.69	978.34
	WBGmw-017	Unconsolidated	1006.62	11.00	995.62
Suspected Mustard Agent Burial Site	MBS-001	Unconsolidated	1082.20	18.19	1064.01
	MBS-002	Unconsolidated	1083.22	18.81	1064.41
	MBS-003	Unconsolidated	1084.45	19.44	1065.01
	MBS-004	Unconsolidated	1081.80	17.43	1064.37
	MBS-005	Unconsolidated	1082.42	18.45	1063.97
	MBS-006	Unconsolidated	1081.83	17.93	1063.90

TOC = top of casing
amsl = above mean sea level
BTOC = below top of casing

Table 3-2. Well Construction Details, Including October 2010 Depth to Bottom Measurements

RVAAP Area	Well ID	Ohio State Plane Easting	Ohio State Plane Northing	Ground Level Elevation[a]	Total Drilled Depth[b]	TOC Elevation[a]	Well Head Type[c]	Monitored Zone	Top of Screen (ft, BGS)	Bottom of Screen (ft, BGS)	Bottom of Inner Casing Plug or End Cap (ft, BGS)	Stickup height (ft, AGS)	Reported Bottom of Inner Casing (ft, BTOC)	Oct 2010 Measured Bottom of Inner Casing (ft, BTOC)	Sediment Accumulation (ft)	Description of Bottom
Background	BKGmw-004	2368852.97	569464.76	965.16	19.5	967.66	A	Unconsolidated	9.2	19.2	19.5	2.50	22.0	22.28	-0.28	Hard
	BKGmw-005	2340835.86	562288.45	1,149.44	19.0	1,151.94	A	Unconsolidated	8.2	18.2	18.5	2.50	21.0	20.90	0.10	Hard
	BKGmw-006	2358643.96	571910.47	1,026.38	35.1	1,028.88	A	Sharon	24.7	34.7	35.1	2.50	37.6	37.46	0.14	Soft
	BKGmw-008	2372741.08	569654.23	970.40	25.0	972.90	A	Sharon	14.7	24.7	25.0	2.50	27.5	27.40	0.10	Hard
	BKGmw-010	2371372.86	565540.54	1,003.80	22.0	1,006.18	A	Sharon	8.9	18.9	19.2	2.38	21.6	22.09	-0.49	Hard
	BKGmw-012	2367795.23	563918.86	997.57	59.8	1,000.07	A	Sharon	38.6	59.6	59.8	2.50	62.3	61.96	0.34	Medium
	BKGmw-013	2361627.39	558269.16	986.59	25.5	989.09	A	Unconsolidated	15.2	25.2	25.5	2.50	28.0	28.10	-0.10	Hard
	BKGmw-015	2361482.22	569339.87	1,037.90	51.0	1,040.40	A	Sharon	30.1	50.1	50.4	2.50	52.9	53.05	-0.15	Hard
	BKGmw-016	2342407.08	553983.50	1,098.42	19.0	1,100.92	A	Unconsolidated	8.4	18.5	18.6	2.50	21.1	21.15	-0.05	Hard
	BKGmw-017	2346115.35	562452.04	1,132.80	34.8	1,135.30	A	Unconsolidated	23.2	33.3	33.6	2.50	36.1	35.94	0.16	Medium
	BKGmw-018	2354993.91	570873.35	1,043.06	24.7	1,045.56	A	Sharon	14.5	24.5	24.7	2.50	27.2	27.57	-0.37	Hard
	BKGmw-019	2349882.14	559864.55	1,108.24	34.0	1,110.74	A	Unconsolidated	23.0	33.0	33.2	2.50	35.7	35.58	0.12	Hard
	BKGmw-020	2357856.24	558756.24	1,065.00	30.7	1,067.50	A	Unconsolidated	20.5	30.5	30.7	2.50	33.2	33.06	0.14	Hard
	BKGmw-021	2367622.95	571016.75	972.16	19.0	974.66	A	Unconsolidated	7.7	17.8	18.1	2.50	20.6	21.48	-0.88	Hard
Load Line 1	LL1mw-063	2376841.36	563650.53	992.20	27.4	994.84	A	Sharon	17.1	27.1	27.4	2.64	30.0	30.03	-0.03	Hard
	LL1mw-064	2380286.97	563118.74	932.32	18.4	935.10	A	Unconsolidated	8.0	18.0	18.4	2.78	21.1	21.01	0.09	Hard
	LL1mw-065	2380452.00	560916.92	941.53	20.5	944.41	A	Unconsolidated	10.2	20.2	20.5	2.88	23.4	23.20	0.20	Hard
	LL1mw-067	2376545.30	565201.14	977.55	22.8	980.36	A	Sharon	12.8	22.5	22.8	2.81	25.6	25.81	-0.21	Hard
	LL1mw-078	2376275.85	564623.87	993.40	38.7	995.84	A	Sharon	28.7	38.2	38.7	2.44	41.1	41.20	-0.10	Hard
	LL1mw-079	2376228.31	563739.63	995.30	29.5	997.87	A	Sharon	29.5	38.9	39.5	2.57	42.0	41.85	0.15	Hard
	LL1mw-080	2376845.07	562479.73	993.70	19.5	996.27	A	Sharon	9.5	19.0	19.5	2.57	22.0	22.28	-0.28	Hard
	LL1mw-081	2376672.66	563462.73	996.40	39.4	998.92	A	Sharon	29.4	38.9	39.4	2.52	41.9	41.92	-0.02	Hard
	LL1mw-082	2376977.38	562956.86	1,003.70	39.0	1,006.45	A	Sharon	28.9	38.5	39.0	2.75	41.8	41.50	0.30	Hard
	LL1mw-083	2377074.80	563612.75	992.80	39.3	995.20	A	Sharon	29.1	38.6	39.3	2.40	41.7	41.54	0.16	Medium
	LL1mw-084	2377316.02	563160.44	996.40	37.0	998.73	A	Sharon	26.7	36.3	37.0	2.33	39.3	39.19	0.11	Hard
	LL1mw-085	2377246.94	562046.25	994.30	42.1	996.84	A	Sharon	32.2	41.6	42.1	2.54	44.7	45.15	-0.45	Hard
Load Line 2	LL2mw-059	2375453.00	558020.00	964.33	19.5	966.67	A	Sharon	9.3	19.1	19.5	2.34	21.8	21.84	-0.04	Hard
	LL2mw-060	2375978.00	558022.00	958.93	18.3	961.57	A	Sharon	8.1	17.9	18.3	2.64	20.9	20.91	-0.01	Hard
	LL2mw-261	2373317.81	561898.25	1,009.55	22.5	1,011.40	A	Sharon	9.8	19.8	20.0	1.85	21.9	22.55	-0.65	Hard
	LL2mw-262	2373970.79	562219.87	1,011.12	21.2	1,012.62	A	Sharon	10.6	20.6	20.8	1.50	22.3	22.74	-0.44	Hard
	LL2mw-263	2374289.51	561591.19	1,009.42	22.2	1,011.47	A	Sharon	10.8	20.8	21.0	2.05	23.0	23.53	-0.53	Hard
	LL2mw-264	2374532.00	561173.60	1,010.10	20.5	1,011.88	A	Sharon	9.8	19.8	20.0	1.78	21.7	22.48	-0.78	Hard
	LL2mw-265	2375594.06	557972.91	959.47	22.5	961.24	A	Sharon	11.8	21.8	22.0	1.77	23.8	24.52	-0.72	Hard
	LL2mw-266	2373744.03	561981.86	1,014.09	20.5	1,016.28	A	Sharon	9.8	19.8	20.0	2.19	22.2	22.80	-0.60	Hard
	LL2mw-267	2373715.04	561393.22	1,012.81	20.5	1,014.81	A	Sharon	9.8	19.8	20.0	2.00	22.0	22.80	-0.80	Hard
	LL2mw-268	2374157.30	560831.04	1,015.47	28.8	1,017.28	A	Sharon	17.3	27.3	27.5	1.81	29.3	29.96	-0.66	Medium
	LL2mw-269	2374756.07	559484.12	1,009.49	28.0	1,011.62	A	Sharon	17.1	27.1	27.3	2.13	29.4	30.39	-0.99	Hard
	LL2mw-270	2372858.41	562655.93	1,009.93	20.5	1,010.18	A	Sharon	9.8	19.8	20.0	0.25	20.3	22.49	-2.19	Hard
Load Line 3	LL3mw-232	2369862.96	561365.91	998.59	37.8	1,000.41	A	Sharon	26.8	36.8	37.0	1.82	38.8	39.89	-1.09	Medium
	LL3mw-233	2369934.52	560750.41	1,002.47	31.1	1,004.36	A	Sharon	20.1	30.1	30.3	1.89	32.2	32.86	-0.66	Hard
	LL3mw-234	2370297.47	560058.89	1,004.47	20.5	1,006.56	A	Sharon	9.8	19.8	20.0	2.09	22.1	22.72	-0.62	Hard
	LL3mw-235	2370642.47	559812.63	1,008.05	21.2	1,009.94	A	Sharon	10.1	20.1	20.3	1.89	22.2	23.05	-0.85	Hard
	LL3mw-236	2371178.58	559866.75	1,008.94	25.5	1,011.17	A	Sharon	13.8	23.8	24.0	2.23	26.2	26.69	-0.49	Hard
	LL3mw-237	2371475.00	559328.09	1,003.57	23.9	1,005.57	A	Sharon	12.7	22.7	22.9	2.00	24.9	25.64	-0.74	Hard
	LL3mw-238	2370625.34	559569.06	1,004.75	20.7	1,006.91	A	Sharon	10.5	20.5	20.7	2.16	22.9	23.45	-0.55	Hard
	LL3mw-239	2370895.01	559101.39	1,001.70	35.7	1,003.50	A	Sharon	24.9	34.9	35.0	1.80	36.8	36.94	-0.14	Hard
	LL3mw-240	2371309.57	558204.34	1,005.60	35.5	1,007.52	A	Sharon	24.4	34.4	34.6	1.92	36.5	36.74	-0.24	Medium
	LL3mw-241	2370332.80	559298.09	992.41	23.8	994.65	A	Sharon	12.7	22.7	22.9	2.24	25.1	25.66	-0.56	Hard
	LL3mw-242	2371993.30	557034.21	997.39	20.5	999.32	A	Sharon	9.8	19.8	20.0	1.93	21.9	22.62	-0.72	Hard
	LL3mw-243	2371532.61	556688.92	989.36	24.5	991.16	A	Sharon	13.8	23.8	24.0	1.80	25.8	26.43	-0.63	Medium

Table 3-2. Well Construction Details, Including October 2010 Depth to Bottom Measurements

RVAAP Area	Well ID	Ohio State Plane Easting	Ohio State Plane Northing	Ground Level Elevation[a]	Total Drilled Depth[b]	TOC Elevation[a]	Well Head Type[c]	Monitored Zone	Top of Screen (ft, BGS)	Bottom of Screen (ft, BGS)	Bottom of Inner Casing Plug or End Cap (ft, BGS)	Stickup height (ft, AGS)	Reported Bottom of Inner Casing (ft, BTOC)	Oct 2010 Measured Bottom of Inner Casing (ft, BTOC)	Sediment Accumulation (ft)	Description of Bottom
Load Line 4	LL4mw-193	2364237.44	554959.74	980.88	21.9	982.92	A	Unconsolidated	11.3	21.3	21.5	2.04	23.5	24.36	-0.86	Soft
	LL4mw-194	2364584.76	555088.18	981.87	22.0	983.76	A	Unconsolidated	11.3	21.3	21.5	1.89	23.4	23.64	-0.24	Hard
	LL4mw-195	2365198.84	555045.69	980.83	21.0	982.59	A	Unconsolidated	10.3	20.3	20.5	1.76	22.3	22.90	-0.60	Soft
	LL4mw-196	2365297.28	555212.59	982.56	20.0	984.55	A	Unconsolidated	9.2	19.2	19.4	1.99	21.4	21.90	-0.50	Medium
	LL4mw-197	2365385.95	555396.55	983.79	21.7	985.46	A	Unconsolidated	10.8	20.8	21.0	1.67	22.7	23.71	-1.01	Medium
	LL4mw-198	2364991.12	555440.99	981.61	22.0	983.42	A	Unconsolidated	10.3	20.3	20.5	1.81	22.3	22.36	-0.06	Medium
	LL4mw-199	2365421.66	554621.06	975.20	22.0	977.28	A	Unconsolidated	10.3	20.3	20.5	2.08	22.6	23.30	-0.70	Medium
	LL4mw-200	2365904.12	554579.72	985.97	23.5	987.93	A	Unconsolidated	12.6	22.6	23.0	1.96	25.0	25.26	-0.26	Medium
Load Line 5	LL5mw-001	2354625.07	554319.25	1,125.00	24.0	1,127.92	A	Homewood	14.0	24.0	24.0	2.92	26.9	27.10	-0.20	Hard
	LL5mw-002	2354571.52	554604.01	1,125.80	25.0	1,128.68	A	Homewood	15.0	25.0	25.0	2.88	27.9	27.58	0.32	Hard
	LL5mw-003	2354964.47	554535.41	1,124.70	21.0	1,127.70	A	Unconsolidated	11.0	21.0	21.0	3.00	24.0	24.05	-0.05	Hard
	LL5mw-004	2355006.44	554073.73	1,122.90	22.4	1,125.81	A	Homewood	12.0	22.0	22.0	2.91	24.9	25.44	-0.54	Soft
	LL5mw-005	2354422.02	554152.73	1,126.50	27.8	1,129.42	A	Homewood	17.0	27.0	27.0	2.92	29.9	29.73	0.17	Hard
	LL5mw-006	2354730.78	553984.82	1,125.10	24.5	1,128.00	A	Homewood	14.0	24.0	24.0	2.90	26.9	27.17	-0.27	Medium
Load Line 6	LL6mw-001	2353153.23	554214.84	NA	18.0	1,124.16	F	Unconsolidated	7.0	17.0	17.0	0.00	17.0	17.56	-0.56	Hard
	LL6mw-002	2353820.09	553589.88	NA	23.0	1,129.36	F	Unconsolidated	12.5	22.5	22.5	0.00	22.5	24.49	-1.99	Hard
	LL6mw-003	2353048.68	553544.34	NA	23.4	1,125.38	A	Homewood	12.5	22.5	22.5	3.35	25.9	25.64	0.26	Soft
	LL6mw-004	2353368.79	553431.82	NA	23.0	1,125.39	A	Homewood	12.5	22.5	22.5	2.58	25.1	24.54	0.56	Hard
	LL6mw-005	2353194.52	553170.76	NA	19.9	1,120.47	A	Homewood	9.5	19.5	19.5	2.96	22.5	22.12	0.38	Medium
	LL6mw-006	2352419.15	553165.28	NA	20.0	1,124.37	A	Unconsolidated	7.0	17.0	17.0	0.00	17.0	17.73	-0.73	Hard
	LL6mw-007	2353354.89	552677.17	NA	20.0	1,115.62	F	Homewood	9.5	19.5	19.5	0.00	19.5	19.30	0.20	Hard
Load Line 7	LL7mw-001	2352192.91	554925.77	1,126.90	30.0	1,129.64	A	Homewood	19.5	29.5	29.5	2.74	32.2	33.02	-0.82	Hard
	LL7mw-002	2351918.23	555126.55	1,126.70	26.5	1,129.55	A	Homewood	15.0	25.0	25.0	2.85	27.8	27.26	0.54	Hard
	LL7mw-003	2352351.04	555417.04	1,118.23	31.5	1,120.84	A	Homewood	21.0	31.0	31.0	2.61	33.6	33.63	-0.03	Hard
	LL7mw-004	2352035.20	555581.14	1,123.30	29.5	1,126.32	A	Homewood	19.5	29.5	29.5	3.02	32.5	32.32	0.18	Hard
	LL7mw-005	2351741.47	555581.80	1,133.30	28.2	1,135.87	A	Homewood	18.0	28.0	28.0	2.57	30.6	30.43	0.17	Hard
	LL7mw-006	2351879.92	555990.59	1,120.70	28.0	1,123.56	A	Homewood	17.5	27.5	27.5	2.86	30.4	30.41	-0.01	Hard
Load Line 8	LL8mw-001	2351666.10	552607.06	1,118.69	24.0	1,121.46	A	Unconsolidated	14.0	24.0	24.0	2.77	26.8	27.50	-0.70	Soft
	LL8mw-002	2351010.33	552408.18	1,121.67	30.4	1,124.51	A	Unconsolidated	20.0	30.0	30.0	2.84	32.8	32.55	0.25	Hard
	LL8mw-003	2351359.25	552231.14	1,116.30	21.0	1,119.05	A	Unconsolidated	10.5	20.5	20.5	2.75	23.3	22.96	0.34	Hard
	LL8mw-004	2351261.83	551807.58	1,112.73	20.5	1,115.75	A	Unconsolidated	10.0	20.0	20.0	3.02	23.0	22.71	0.29	Hard
	LL8mw-005	2351748.32	551522.48	1,112.51	24.0	1,115.73	A	Homewood	14.0	24.0	24.0	3.22	27.2	26.92	0.28	Soft
	LL8mw-006	2351483.58	551296.77	1,114.33	24.2	1,117.17	A	Homewood	14.0	24.0	24.0	2.84	26.8	27.01	-0.21	Hard
Load Line 9	LL9mw-001	2355817.04	556125.81	NA	21.6	1,134.62	A	Homewood	10.5	20.5	20.5	2.78	23.3	23.39	-0.09	Hard
	LL9mw-002	2355907.76	556755.11	NA	21.0	1,127.30	A	Homewood	10.0	20.0	20.0	2.42	22.4	22.81	-0.41	Hard
	LL9mw-003	2356635.21	556445.31	NA	22.0	1,135.76	A	Homewood	11.5	21.5	21.5	2.30	23.8	24.25	-0.45	Hard
	LL9mw-004	2357338.76	556002.00	NA	33.0	1,131.83	A	Homewood	22.0	32.0	32.0	2.91	34.9	34.74	0.16	Hard
	LL9mw-005	2356505.95	557063.36	NA	20.6	1,130.93	A	Homewood	10.0	20.0	20.0	3.30	23.3	23.56	-0.26	Hard
	LL9mw-006	2357446.67	556434.79	NA	26.8	1,129.88	A	Homewood	16.0	26.0	26.0	2.90	28.9	28.89	0.01	Hard
	LL9mw-007	2357024.34	557000.56	NA	19.0	1,119.99	F	Homewood	8.5	18.5	18.5	0.00	18.5	18.24	0.26	Hard
Load Line 10	LL10mw-001	2355272.22	555816.25	1,130.00	28.0	1,132.77	A	Homewood	17.0	27.0	27.0	2.77	29.8	29.51	0.29	Hard
	LL10mw-002	2355710.51	555523.36	1,124.40	28.0	1,127.13	A	Homewood	17.0	27.0	27.0	2.73	29.7	29.72	-0.02	Hard
	LL10mw-003	2355389.92	555494.71	1,127.40	26.4	1,130.28	A	Homewood	16.0	26.0	26.0	2.88	28.9	28.50	0.40	Hard
	LL10mw-004	2355438.20	555236.59	1,119.60	31.2	1,122.39	A	Homewood	21.0	31.0	31.0	2.79	33.8	33.48	0.32	Hard
	LL10mw-005	2355943.55	555380.53	1,122.90	27.0	1,125.67	A	Homewood	16.5	26.5	26.5	2.77	29.3	29.20	0.10	Hard
	LL10mw-006	2355654.80	554995.25	1,121.20	24.0	1,123.83	A	Unconsolidated	13.5	23.5	23.5	2.63	26.1	26.45	-0.35	Hard

Table 3-2. Well Construction Details, Including October 2010 Depth to Bottom Measurements

RVAAP Area	Well ID	Ohio State Plane Easting	Ohio State Plane Northing	Ground Level Elevation[a]	Total Drilled Depth[b]	TOC Elevation[a]	Well Head Type[c]	Monitored Zone	Top of Screen (ft, BGS)	Bottom of Screen (ft, BGS)	Bottom of Inner Casing Plug or End Cap (ft, BGS)	Stickup height (ft, AGS)	Reported Bottom of Inner Casing (ft, BTOC)	Oct 2010 Measured Bottom of Inner Casing (ft, BTOC)	Sediment Accumulation (ft)	Description of Bottom
Load Line 11	LL11mw-001	2352778.89	557505.03	1,097.46	23.0	1,100.16	A	Unconsolidated	11.4	21.4	21.4	2.70	24.1	23.43	0.67	Hard
	L L11mw-002	2353354.28	558310.52	1,080.29	20.0	1,080.00	F	Unconsolidated	6.3	16.3	16.3	-0.29	16.0	16.51	-0.51	Hard
	LL11mw-003	2352737.87	557999.62	1,088.45	17.0	1,088.48	F	Unconsolidated	5.9	15.9	15.9	0.03	15.9	16.01	-0.11	Hard
	LL11mw-004	2352737.24	558164.36	1,084.60	17.0	1,084.72	F	Unconsolidated	6.1	16.1	16.1	0.12	16.2	16.12	0.08	Hard
	LL11mw-005	2352847.56	558501.02	1,079.60	17.0	1,079.40	F	Unconsolidated	6.2	16.2	16.2	-0.20	16.0	16.50	-0.50	Hard
	LL11mw-006	2352521.36	558263.28	1,086.61	17.0	1,086.50	F	Unconsolidated	5.6	15.6	15.6	-0.11	15.5	15.80	-0.30	Medium
	LL11mw-007	2352094.81	558189.71	1,079.22	23.0	1,082.00	A	Unconsolidated	12.4	22.4	22.4	2.78	25.2	25.41	-0.21	Hard
	LL11mw-008	2352388.60	557981.17	1,087.90	17.0	1,087.74	F	Unconsolidated	5.6	15.6	15.6	-0.16	15.4	15.67	-0.27	Hard
	LL11mw-009	2352577.18	557901.18	1,088.38	17.0	1,091.54	F	Unconsolidated	6.7	16.7	16.7	-0.10	16.6	19.48	-2.88	Hard
	LL11mw-010	2352039.00	557675.43	1,080.22	22.0	1,082.68	A	Unconsolidated	10.9	20.9	20.9	2.46	23.4	23.40	0.00	Hard
Load Line 12	LL12mw-088	2368667.75	556393.79	978.94	29.0	981.06	A	Unconsolidated	14.8	24.8	25.0	2.12	27.1	27.27	-0.17	Hard
	LL12mw-107	2368595.67	556759.02	978.03	33.0	980.15	A	Unconsolidated	20.7	30.7	31.0	2.12	33.1	33.70	-0.60	Hard
	LL12mw-113	2368223.73	558345.37	977.67	23.0	980.18	A	Sharon Shale	12.3	22.3	22.5	2.51	25.0	21.45	3.55	Soft
	LL12mw-128	2368293.20	557371.54	976.21	34.0	978.24	A	Unconsolidated	21.1	31.1	31.3	2.03	33.3	34.03	-0.73	Medium
	LL12mw-153	2368138.87	557823.23	975.34	26.0	977.85	A	Unconsolidated	12.3	22.3	22.5	2.51	25.0	24.80	0.20	Hard
	LL12mw-154	2368183.88	557754.56	977.00	29.0	979.06	A	Unconsolidated	16.4	26.4	26.6	2.06	28.7	28.65	0.05	Hard
	LL12mw-182	2368853.20	555890.35	982.20	36.1	984.42	A	Unconsolidated	25.2	35.2	35.5	2.22	37.7	38.12	-0.42	Soft
	LL12mw-183	2369224.36	556068.15	980.59	36.0	982.98	A	Sharon Shale	23.3	33.3	33.6	2.39	36.0	36.35	-0.35	Hard
	LL12mw-184	2368997.48	556399.46	980.96	29.5	983.16	A	Unconsolidated	18.8	28.8	29.0	2.20	31.2	31.40	-0.20	Hard
	LL12mw-185	2368829.86	556946.75	979.09	24.0	981.31	A	Unconsolidated	10.8	20.8	21.0	2.22	23.2	23.30	-0.10	Hard
	LL12mw-186	2367912.39	559065.95	976.34	23.0	978.31	A	Sharon Shale	8.8	18.8	19.0	1.97	21.0	21.05	-0.05	Hard
	LL12mw-187	2368524.14	557633.10	977.90	29.0	979.94	A	Unconsolidated	17.2	27.2	27.4	2.04	29.4	29.95	-0.55	Hard
	LL12mw-188	2367908.82	558132.59	978.46	20.5	980.63	A	Unconsolidated	9.8	19.8	20.0	2.17	22.2	22.13	0.07	Soft
	LL12mw-189	2367945.92	558569.27	976.17	18.5	978.04	A	Sharon Shale	7.5	17.5	17.7	1.87	19.6	19.96	-0.36	Soft
	LL12mw-242	2368545.29	558020.51	978.40	26.3	981.20	A	Unconsolidated	15.5	25.5	25.5	2.80	28.3	28.81	-0.51	Soft
	LL12mw-243	2368190.04	557376.32	978.10	24.0	980.79	A	Unconsolidated	13.0	23.0	23.0	2.69	25.7	24.92	0.78	Soft
	LL12mw-244	2368751.42	557377.17	978.10	30.0	980.65	A	Unconsolidated	19.5	29.5	29.5	2.55	32.1	31.35	0.75	Soft
	LL12mw-245	2368370.74	557044.55	977.50	29.0	980.04	A	Unconsolidated	18.0	28.0	28.0	2.54	30.5	29.92	0.58	Soft
	LL12mw-246	2369432.17	556658.89	982.00	32.0	984.83	A	Unconsolidated	21.5	31.5	31.5	2.83	34.3	35.05	-0.75	Hard
Atlas Scrap Yard	ASYmw-001	2366260.85	558404.04	978.40	22.0	981.13	A	Sharon	11.0	21.0	21.0	2.73	23.7	23.18	0.52	Hard
	ASYmw-002	2366170.86	557887.86	982.00	20.0	985.24	A	Sharon	10.0	19.5	19.5	3.24	22.7	22.97	-0.27	Medium
	ASYmw-003	2366651.49	558015.94	979.70	21.5	982.21	A	Sharon	11.0	21.0	21.0	2.51	23.5	23.45	0.05	Hard
	ASYmw-004	2367166.04	557640.81	977.10	27.8	979.66	A	Sharon	17.0	27.0	27.0	2.56	29.6	29.86	-0.26	Hard
	ASYmw-005	2367448.16	557783.01	977.60	25.0	979.80	A	Sharon	14.0	24.0	24.0	2.20	26.2	27.24	-1.04	Hard
	ASYmw-006	2366746.73	557257.72	980.20	27.0	983.01	A	Sharon	16.0	26.0	26.0	2.81	28.8	28.97	-0.17	Hard
	ASYmw-007	2366834.49	556818.08	981.40	28.0	984.16	A	Unconsolidated	16.0	26.0	26.0	2.76	28.8	28.98	-0.18	Hard
	ASYmw-008	2367475.07	557087.66	976.20	26.0	978.85	A	Unconsolidated	15.0	25.0	25.0	2.65	27.7	27.32	0.38	Hard
	ASYmw-009	2366631.94	557603.68	979.90	22.0	982.70	A	Sharon	11.5	21.5	21.5	2.80	24.3	24.25	0.05	Soft
	ASYmw-010	2366985.37	557270.61	978.20	28.0	981.05	A	Unconsolidated	17.0	27.0	27.0	2.85	29.8	31.20	-1.40	Hard
Building 1200	B12mw-010	2371292.81	565827.43	1,002.72	21.0	1,005.92	A	Sharon	10.0	20.0	20.0	3.20	23.2	22.90	0.30	Hard
	B12mw-011	2371416.15	565687.82	1,003.76	24.7	1,006.70	A	Sharon	14.0	24.0	24.0	2.94	26.9	26.81	0.09	Hard
	B12mw-012	2371430.41	565828.01	1,003.43	22.3	1,006.32	A	Sharon	12.0	22.0	22.0	2.89	24.9	24.90	0.00	Hard
C-Block Quarry	CBLmw-001	2343657.08	559403.12	1,178.50	50.0	1,181.08	A	Homewood	39.0	49.0	49.0	2.58	51.6	51.17	0.43	Medium
	CBLmw-002	2343845.22	559044.48	1,172.50	45.3	1,175.24	A	Homewood	34.5	44.5	44.5	2.74	47.2	47.34	-0.14	Soft
	CBLmw-003	2343970.00	559695.52	1,172.22	44.0	1,175.06	A	Homewood	33.0	43.0	43.0	2.84	45.8	44.86	0.94	Hard
	CBLmw-004	2343688.76	559951.58	1,172.08	45.0	1,174.84	A	Homewood	34.0	44.0	44.0	2.76	46.8	47.01	-0.21	Medium
Central Burn Pits	CBPmw-001	2367095.37	561616.01	972.71	32.3	975.84	A	Unconsolidated	21.8	31.8	31.8	3.13	34.9	34.90	0.00	Soft
	CBPmw-002	2367295.66	561865.83	967.33	30.0	970.04	A	Unconsolidated	19.5	29.5	29.5	2.71	32.2	31.85	0.35	Hard
	CBPmw-003	2366768.68	561944.14	972.04	25.0	974.67	A	Unconsolidated	14.5	24.5	24.5	2.63	27.1	30.22	-3.12	Soft
	CBPmw-004	2366978.80	562123.80	968.58	27.5	971.13	A	Unconsolidated	17.0	27.0	27.0	2.55	29.5	29.68	-0.18	Medium
	CBPmw-005	2366919.66	562311.88	968.83	25.0	971.59	A	Unconsolidated	14.5	24.5	24.5	2.76	27.3	27.36	-0.06	Soft
	CBPmw-006	2367243.68	562311.87	965.01	23.0	967.64	A	Unconsolidated	12.5	22.5	22.5	2.63	25.1	25.25	-0.15	Soft
	CBPmw-007	2366512.62	562006.41	973.47	30.0	976.37	A	Unconsolidated	19.5	29.5	29.5	2.90	32.4	32.01	0.39	Hard
	CBPmw-008	2366757.21	562668.84	970.57	25.5	973.19	A	Unconsolidated	15.0	25.0	25.0	2.62	27.6	27.96	-0.36	Medium

Table 3-2. Well Construction Details, Including October 2010 Depth to Bottom Measurements

RVAAP Area	Well ID	Ohio State Plane Easting	Ohio State Plane Northing	Ground Level Elevation[a]	Total Drilled Depth[b]	TOC Elevation[a]	Well Head Type[c]	Monitored Zone	Top of Screen (ft, BGS)	Bottom of Screen (ft, BGS)	Bottom of Inner Casing Plug or End Cap (ft, BGS)	Stickup height (ft, AGS)	Reported Bottom of Inner Casing (ft, BTOC)	Oct 2010 Measured Bottom of Inner Casing (ft, BTOC)	Sediment Accumulation (ft)	Description of Bottom
Cobbs Pond	CPmw-001	2368948.81	560440.91	975.46	16.0	975.26	F	Unconsolidated	5.5	15.5	15.5	-0.20	15.3	14.78	0.52	Hard
	CPmw-002	2368239.23	560311.26	972.72	16.0	972.31	F	Unconsolidated	5.5	15.5	15.5	-0.41	15.1	15.03	0.07	Hard
	CPmw-003	2368796.49	560676.30	973.27	18.5	972.92	F	Unconsolidated	8.0	18.0	18.0	-0.35	17.6	17.75	-0.15	Hard
	CPmw-004	2368674.31	561843.46	978.51	20.0	981.20	A	Unconsolidated	9.5	19.5	19.5	2.69	22.2	22.59	-0.39	Hard
	CPmw-005	2367900.41	561846.78	970.71	40.0	973.58	A	Unconsolidated	29.5	39.5	39.5	2.87	42.4	43.24	-0.84	Hard
	CPmw-006	2367727.13	562830.13	962.97	18.5	965.13	A	Unconsolidated	8.0	18.0	18.0	2.16	20.2	20.70	-0.50	Hard
Demolition Area 2	DET-001B	2354959.47	560820.03	1,064.35	39.0	1,065.85	A	Unconsolidated	34.0	39.0	39.0	1.50	40.5	38.51	1.99	Hard
	DET-002	2355360.33	560664.71	1,060.24	39.0	1,061.24	A	Unconsolidated	34.0	39.0	39.0	1.00	40.0	42.01	-2.01	Hard
	DET-003	2355204.94	560456.10	1,035.81	15.0	1,036.81	A	Unconsolidated	7.0	12.0	12.0	1.00	13.0	16.03	-3.03	Soft / Medium
	DET-004	2355072.36	560454.22	1,037.68	11.0	1,038.68	A	Unconsolidated	6.0	11.0	11.0	1.00	12.0	13.81	-1.81	Hard
	DA2mw-104	2354773.79	561129.59	1,070.82	27.0	1,073.89	A	Unconsolidated	16.3	26.3	26.5	3.07	29.6	29.20	0.40	Medium
	DA2mw-105	2354557.62	560572.58	1,042.66	14.0	1,045.34	A	Unconsolidated	8.3	13.3	13.5	2.68	16.2	16.22	-0.02	Hard
	DA2mw-106	2354848.85	560560.49	1,041.19	16.0	1,043.79	A	Unconsolidated	8.3	15.3	15.5	2.60	18.1	16.78	1.32	Hard
	DA2mw-107	2354924.29	560480.05	1,039.18	15.0	1,041.63	A	Unconsolidated	8.8	13.8	14.0	2.45	16.5	16.85	-0.35	Hard
	DA2mw-108	2355604.43	560181.78	1,029.92	15.0	1,032.36	A	Unconsolidated	9.3	14.3	14.5	2.44	16.9	17.14	-0.24	Soft
	DA2mw-109	2354793.14	559897.89	1,068.66	24.0	1,071.29	A	Unconsolidated	11.3	21.3	21.5	2.63	24.1	24.30	-0.20	Soft
	DA2mw-110	2355195.91	559927.02	1,061.39	20.0	1,063.78	A	Unconsolidated	9.3	19.3	19.5	2.39	21.9	22.33	-0.43	Hard
	DA2mw-111	2354728.33	560222.94	1,039.63	12.6	1,042.12	A	Unconsolidated	7.1	12.1	12.3	2.49	14.8	14.80	0.00	Hard
	DA2mw-112	2355018.98	560378.36	1,034.87	15.0	1,037.44	A	Unconsolidated	8.8	13.8	14.0	2.57	16.6	17.05	-0.45	Hard
	DA2mw-113	2355153.13	560394.81	1,034.51	14.0	1,037.11	A	Unconsolidated	8.3	13.3	13.5	2.60	16.1	16.30	-0.20	Hard
Erie Burning Grounds	EBGmw-123	2380049.21	571747.04	945.59	32.0	947.82	A	Unconsolidated	21.0	31.0	31.5	2.23	33.7	34.80	-1.10	Hard
	EBGmw-124	2380030.24	571618.07	939.02	32.0	941.39	A	Unconsolidated	20.0	30.0	30.5	2.37	32.9	32.70	0.20	Soft
	EBGmw-125	2379679.20	571655.63	947.55	25.0	949.89	A	Unconsolidated	14.0	24.0	24.5	2.34	26.8	27.50	-0.70	Hard
	EBGmw-126	2380307.31	572348.81	938.20	28.0	940.61	A	Unconsolidated	15.2	25.2	25.5	2.41	27.9	27.85	0.05	Hard
	EBGmw-127	2380172.16	571083.61	940.21	30.0	943.07	A	Unconsolidated	19.0	29.0	29.5	2.86	32.4	32.88	-0.48	Hard
	EBGmw-128	2379892.79	570970.32	942.47	28.0	945.13	A	Unconsolidated	15.0	25.0	25.3	2.66	28.0	28.26	-0.26	Hard
	EBGmw-129	2379240.52	572035.68	941.97	29.0	944.36	A	Unconsolidated	16.0	26.0	26.0	2.39	28.4	31.05	-2.65	Medium
	EBGmw-130	2379220.69	570695.61	941.18	26.0	944.00	A	Unconsolidated	15.2	25.2	25.5	2.82	28.3	28.45	-0.15	Hard
Fuze and Booster Quarry	FBQmw-166	2349584.33	553123.86	1,104.87	16.0	1,108.86	A	Unconsolidated	5.5	15.5	15.5	3.99	19.5	19.83	-0.33	Hard
	FBQmw-167	2349675.45	553556.12	1,112.05	18.0	1,115.90	A	Unconsolidated	5.0	15.0	15.0	3.85	18.9	19.09	-0.19	Medium
	FBQmw-168	2350066.87	553620.85	1,131.27	19.5	1,133.91	A	Homewood	9.0	19.0	19.0	2.64	21.6	21.32	0.28	Soft
	FBQmw-169	2349730.90	553681.21	1,117.36	16.0	1,120.58	A	Homewood	5.0	15.0	15.0	3.22	18.2	18.18	0.02	Hard
	FBQmw-170	2350102.41	553975.40	1,139.67	30.5	1,142.26	A	Homewood	20.0	30.0	30.0	2.59	32.6	32.81	-0.21	Hard
	FBQmw-171	2350072.44	554230.93	1,140.49	30.0	1,143.55	A	Homewood	18.0	28.0	28.0	3.06	31.1	31.52	-0.42	Hard
	FBQmw-172	2349907.37	554322.17	1,145.71	33.0	1,150.09	A	Homewood	20.0	30.0	30.0	4.38	34.4	34.55	-0.15	Medium
	FBQmw-173	2350449.01	554491.35	1,162.43	50.0	1,165.94	A	Homewood	29.5	49.5	49.5	3.51	53.0	53.11	-0.11	Hard
	FBQmw-174	2350289.81	554142.44	1,135.78	22.5	1,139.97	A	Homewood	12.0	22.0	22.0	4.19	26.2	23.14	3.06	Hard
	FBQmw-175	2350297.98	553989.24	1,137.16	22.5	1,140.73	A	Homewood	12.0	22.0	22.0	3.57	25.6	25.89	-0.29	Medium
	FBQmw-176	2350219.45	553273.33	1,129.57	21.5	1,131.91	A	Unconsolidated	11.0	21.0	21.0	2.34	23.3	23.85	-0.55	Soft
	FBQmw-177	2350112.18	553321.94	1,125.73	22.5	1,128.57	A	Homewood	12.0	22.0	22.0	2.84	24.8	24.89	-0.09	Medium
Landfill North of Winklepeck	LNWmw-024	2358403.21	564825.89	1,035.30	24.0	1,038.00	A	Unconsolidated	10.0	20.0	20.0	2.70	22.7	22.61	0.09	Hard
	LNWmw-025	2358417.06	565071.92	1,027.20	19.0	1,029.13	A	Unconsolidated	8.0	18.0	18.0	1.93	19.9	20.41	-0.51	Hard
	LNWmw-026	2358952.24	564658.16	1,025.00	24.0	1,027.80	A	Unconsolidated	13.0	23.0	23.0	2.80	25.8	26.10	-0.30	Medium
	LNWmw-027	2358628.75	564517.41	1,024.40	25.0	1,027.13	A	Unconsolidated	14.0	24.0	24.0	2.73	26.7	27.00	-0.30	Hard
NACA Test Area	NTAmw-107	2345433.40	551697.29	1,077.65	23.0	1,080.30	A	Unconsolidated	12.0	22.0	22.0	2.65	24.6	24.15	0.45	Hard
	NTAmw-108	2345781.60	551916.22	1,083.22	23.0	1,085.62	A	Unconsolidated	12.0	22.0	22.0	2.40	24.4	24.41	-0.01	Hard
	NTAmw-109	2345997.72	551293.25	1,076.89	19.0	1,079.84	A	Unconsolidated	8.0	18.0	18.0	2.95	20.9	20.89	0.01	Soft
	NTAmw-110	2346438.94	551351.46	1,080.03	28.0	1,082.62	A	Unconsolidated	17.0	27.0	27.0	2.59	29.6	29.72	-0.12	Hard
	NTAmw-111	2346638.01	551538.60	1,078.07	20.0	1,080.94	A	Unconsolidated	9.5	19.5	19.5	2.87	22.4	22.02	0.38	Hard
	NTAmw-112	2346889.48	551712.14	1,075.36	23.9	1,078.33	A	Unconsolidated	13.9	23.9	23.9	2.97	26.9	26.60	0.30	Hard
	NTAmw-113	2347082.83	551488.52	1,072.61	27.5	1,075.68	A	Unconsolidated	17.0	27.0	27.5	3.07	30.6	29.82	0.78	Hard
	NTAmw-114	2347301.57	551592.94	1,075.61	20.0	1,078.71	A	Unconsolidated	9.5	19.5	19.5	3.10	22.6	22.77	-0.17	Hard
	NTAmw-115	2347581.16	551791.78	1,086.91	24.0	1,089.65	A	Unconsolidated	12.5	22.5	22.5	2.74	25.2	25.25	-0.05	Hard
	NTAmw-116	2348196.39	551748.00	1,091.68	22.0	1,094.33	A	Unconsolidated	10.0	20.0	20.0	2.65	22.6	22.55	0.05	Hard
	NTAmw-117	2347994.83	551584.57	1,091.67	25.0	1,094.54	A	Unconsolidated	14.5	24.5	24.5	2.87	27.4	27.50	-0.10	Hard
	NTAmw-118	2347609.41	551335.04	1,078.86	22.5	1,081.44	A	Unconsolidated	12.0	22.0	22.0	2.58	24.6	24.65	-0.05	Medium

Table 3-2. Well Construction Details, Including October 2010 Depth to Bottom Measurements

RVAAP Area	Well ID	Ohio State Plane Easting	Ohio State Plane Northing	Ground Level Elevation[a]	Total Drilled Depth[b]	TOC Elevation[a]	Well Head Type[c]	Monitored Zone	Top of Screen (ft, BGS)	Bottom of Screen (ft, BGS)	Bottom of Inner Casing Plug or End Cap (ft, BGS)	Stickup height (ft, AGS)	Reported Bottom of Inner Casing (ft, BTOC)	Oct 2010 Measured Bottom of Inner Casing (ft, BTOC)	Sediment Accumulation (ft)	Description of Bottom
Ramsdell Quarry Landfill	RQLmw-006	2375927.71	566091.26	993.52	42.1	995.39	A	Sharon	19.4	39.4	39.6	1.87	41.4	42.04	-0.64	Hard
	RQLmw-007	2375872.56	566544.36	963.86	18.7	965.91	A	Sharon	6.0	16.0	16.2	2.05	18.2	18.64	-0.44	Hard
	RQLmw-008	2376011.08	566327.94	963.82	18.7	966.08	A	Sharon	6.0	16.0	16.2	2.26	18.5	18.66	-0.16	Hard
	RQLmw-009	2376253.65	566351.20	962.60	18.8	964.58	A	Sharon	5.9	15.9	16.4	1.98	18.4	18.82	-0.42	Hard
	RQLmw-010	2376048.58	566857.39	980.04	35.4	982.14	A	Sharon	12.5	32.5	33.0	2.10	35.1	35.33	-0.23	Medium
	RQLmw-011	2376398.19	566819.66	974.60	35.4	976.57	A	Sharon	12.4	32.4	32.6	1.97	34.6	35.37	-0.77	Hard
	RQLmw-012	2376558.19	566551.95	975.12	30.5	977.65	A	Sharon	19.8	29.8	30.0	2.53	32.5	32.68	-0.18	Hard
	RQLmw-013	2376204.93	566928.09	978.04	34.4	980.71	A	Sharon	23.7	33.7	33.9	2.67	36.6	36.50	0.10	Hard
	RQLmw-014	2376519.38	566941.29	970.83	29.4	973.49	A	Sharon	18.6	28.6	28.9	2.66	31.6	31.55	0.05	Hard
	RQLmw-015	2375490.96	566560.90	989.19	40.1	991.26	A	Sharon	29.2	39.2	39.5	2.07	41.6	42.05	-0.45	Hard
	RQLmw-016	2375649.55	566177.68	994.02	39.5	996.60	A	Sharon	28.5	38.5	39.0	2.58	41.6	41.66	-0.06	Hard
	RQLmw-017	2376124.18	565931.38	988.69	30.5	991.23	A	Sharon	19.8	29.8	30.0	2.54	32.5	32.85	-0.35	Hard
Sharon Conglomerate	SCFmw-001	2353178.98	554768.62	1,118.53	230	1,120.71	A	Sharon Conglom	201	211	NA	2.18	213.61	214.50	-0.89	Hard
	SCFmw-002	2368927.36	555152.38	982.28	153	984.56	A	Sharon Conglom	137	147	NA	2.28	149.65	149.76	-0.11	Hard
	SCFmw-003	2375843.20	557957.67	956.14	140	958.47	A	Sharon Conglom	125.5	135.5	NA	2.33	139.65	139.65	0.00	Hard
	SCFmw-004	2378730.23	50361.03	941.87	120	944.17	A	Sharon Conglom	100	110	NA	2.30	112.47	112.50	-0.03	Hard
	SCFmw-005	2377014.05	567302.35	958.43	160	960.80	A	Sharon Conglom	139	154	NA	2.37	156.41	156.50	-0.09	Hard
	SCFmw-006	239394.54	569583.41	963.69	90	965.92	A	Sharon Conglom	76	86	NA	2.23	88.32	88.35	-0.03	Hard
Winklepeck Burning Grounds	WBGmw-005	2357163.55	563037.18	1,052.20	19.0	1,054.70	A	Unconsolidated	8.3	18.3	18.6	2.50	21.1	21.25	-0.15	Hard
	WBGmw-006	2359087.79	563008.87	1,012.16	19.0	1,014.66	A	Unconsolidated	7.6	17.6	17.9	2.50	20.4	20.14	0.26	Medium
	WBGmw-007	2360420.44	562479.87	998.09	24.0	1,000.59	A	Unconsolidated	13.5	23.5	23.8	2.50	26.3	26.39	-0.09	Hard
	WBGmw-008	2359700.57	562010.35	1,005.71	18.5	1,008.21	A	Unconsolidated	8.1	18.2	18.5	2.50	21.0	20.83	0.17	Hard
	WBGmw-009	2357159.20	561603.54	1,045.03	24.0	1,047.53	A	Unconsolidated	11.4	21.4	21.5	2.50	24.0	24.40	-0.40	Hard
	WBGmw-010	2356051.96	562893.20	1,067.10	21.0	1,069.85	A	Unconsolidated	10.5	20.5	20.8	2.75	23.6	23.36	0.24	Medium
	WBGmw-011	2356187.29	562609.18	1,069.70	22.0	1,072.38	A	Unconsolidated	11.0	21.0	21.3	2.68	24.0	23.94	0.06	Medium
	WBGmw-012	2354810.65	562240.90	1,076.50	30.0	1,079.11	A	Unconsolidated	19.0	29.0	29.4	2.61	32.0	31.77	0.23	Hard
	WBGmw-013	2355223.25	561518.27	1,069.10	22.0	1,071.70	A	Unconsolidated	11.0	21.0	21.3	2.60	23.9	24.19	-0.29	Medium
	WBGmw-014	2360439.22	562061.26	994.10	23.0	996.78	A	Unconsolidated	12.0	22.0	22.3	2.68	25.0	24.97	0.03	Hard
	WBGmw-015	2359182.41	562340.12	1,009.10	22.0	1,011.60	A	Unconsolidated	11.0	21.0	21.3	2.50	23.8	23.52	0.28	Hard
	WBGmw-016	2360645.88	562709.13	994.90	24.0	997.03	A	Unconsolidated	13.0	23.0	23.3	2.13	25.4	25.14	0.26	Soft
	WBGmw-017	2359603.84	562913.24	1,004.00	22.0	1,006.62	A	Unconsolidated	11.0	21.0	21.3	2.62	23.9	23.41	0.49	Soft
Suspected Mustard Agent Burial Site	MBS-001	2345323.00	550759.50	1,079.68	30.0	1,082.20	A	Unconsolidated	19	28.7	29	2.52	31.5	31.00	0.50	Hard
	MBS-002	2345322.30	550886.20	1,080.50	30.0	1,083.22	A	Unconsolidated	18	27.3	28	2.72	30.7	31.12	-0.42	Hard
	MBS-003	2345172.40	550922.80	1,082.45	30.0	1,084.45	A	Unconsolidated	18.5	28.2	28.5	2.00	30.5	30.70	-0.20	Hard
	MBS-004	2345134.20	550767.90	1,079.55	26.0	1,081.80	A	Unconsolidated	14.7	24.4	24.7	2.25	27.0	27.18	-0.18	Hard
	MBS-005	2345354.10	550800.70	1,080.50	30.0	1,082.42	A	Unconsolidated	18	28	28.08	1.92	30.2	30.01	0.19	Soft
	MBS-006	2345282.30	550726.10	1,080.29	28.0	1,081.83	A	Unconsolidated	16.5	26.5	26.56	1.54	28.2	28.12	0.08	Soft

a elevations are in feet above mean sea level (amsl)
b total drilled well borehole depth relative to ground surface.
c A = above grade completion; F = flush-mount completion
NA = Not available
AGS = above ground surface
BGS = below ground surface
BTOC = below top of casing

minimum measured elevation of 929.41 ft amsl southeast of Load Line 1 (well LL1mw-065). At the watershed scale (e.g., Hinkley Creek, Sand Creek, and Eagle Creek), groundwater flow patterns are influenced by topography and the drainage patterns of the streams. The influence of surface topography on groundwater flow is especially observed within the Hinkley Creek watershed (e.g., NACA Test Area, Suspected Mustard Agent Burial Site, and Demolition Area 1 vicinity) where groundwater flow is toward the southwestern RVAAP boundary.

Plate 3 represents facility-wide groundwater flow in wells completed into bedrock. Pre-glacial erosion has resulted in bedrock highs (i.e., islands) surrounded and topped by glacial and recent deposits (i.e., unconsolidated aquifer). At least three such islands have been interpreted to exist at RVAAP. Two are topped by the Homewood Member and one by the Sharon Member. These islands may not be in hydraulic communication with each other but there is hydraulic communication with the unconsolidated aquifer. Plate 3 illustrates that groundwater in the Sharon Member flows radially outward from bedrock into the surrounding unconsolidated aquifer. The potentiometric high is located beneath Load Line 2. Plate 3 indicates that groundwater in bedrock of the Homewood Member flows through these bedrock islands from and to the unconsolidated aquifer. Groundwater flow in the Homewood member is to the southeast toward the Michael J. Kirwan Reservoir on the Mahoning River, which is a regional hydraulic sink.

Table 3-3 presents the water-level elevations taken between the October 2010 and July 2011 quarterly sampling events for all wells that have been sampled as a part of the FWGWMP.

To determine if groundwater elevations of basal Sharon Conglomerate wells (as determined in October 2010) are representative of the Sharon or Homewood Aquifers, the groundwater elevation data are compared as indicated on Table 3-4.

As the table indicates the groundwater elevation of water in the Homewood Aquifer (well LL10mw-003) is more than 78 feet higher than the nearest basal Sharon Conglomerate well (well SCFmw-001). This demonstrates that the Homewood Aquifer and Sharon Conglomerate are not representative of the same hydraulic unit. If they were in the same hydraulic unit, the water levels would be expected to be much the same.

There are five Sharon Conglomerate wells that are located through the basal portion of the Sharon Aquifer. The groundwater elevations of the five wells from the upper portion of the Sharon Aquifer are 0.86 to 25.05 feet higher than the five basal Sharon Conglomerate groundwater elevations at the same locations. The average elevation difference is more than 9 feet. Again, this groundwater elevation difference indicates that the basal Sharon Conglomerate and the upper portion of the Sharon are not the same hydraulic unit.

It should be noted that the groundwater elevations from the deep wells are used for purging and sampling purposes and not necessarily for deep aquifer flow direction; however, a separate potentiometric map has been produced to show flow direction for the deep wells. The potentiometric map for the basal Sharon Conglomerate wells is included as Plate 4.

Table 3-3. Groundwater Elevations

Well	Monitoring Zone	Top of Casing (TOC) Elevation[a] (ft)	2010 Annual Groundwater Elevation (Oct/2010) (ft)	2011 1st Quarter Groundwater Elevation (Jan/2011) (ft)	2010 2nd Quarter Groundwater Elevation (Apr/2011) (ft)	2011 3rd Quarter Groundwater Elevation (Jul/2011) (ft)
Loadline 1						
LL1mw-065	Unconsolidated	944.41	929.41	NM	NM	931.22
LL1mw-067	Sharon	980.36	959.01	957.95	959.36	NM
LL1mw-079	Sharon	997.87	962.46	NM	NM	964.88
LL1mw-080	Sharon	996.27	979.92	NM	NM	983.87
LL1mw-081	Sharon	998.92	965.06	966.24	968.63	968.42
LL1mw-082	Sharon	1006.45	970.11	972.16	978.10	977.49
LL1mw-083	Sharon	995.2	959.04	NM	NM	961.57
LL1mw-084	Sharon	998.73	965.58	967.20	970.43	968.33
LL1mw-085	Sharon	996.84	958.76	958.43	960.13	961.02
Loadline 2						
LL2mw-059	Sharon	966.67	951.30	NM	NM	952.65
LL2mw-060	Sharon	961.57	949.39	NM	NM	950.48
LL2mw-265	Sharon	961.24	949.37	NM	NM	950.54
LL2mw-266	Sharon	1,016.28	1,001.40	1,003.83	1,005.75	NM
LL2mw-267	Sharon	1,014.81	1,002.60	1,005.13	1,006.02	NM
LL2mw-269	Sharon	1,011.62	992.31	994.27	995.37	NM
Loadline 3						
LL3mw-234	Sharon	1,006.56	994.33	NM	NM	995.56
LL3mw-235	Sharon	1,009.94	987.70	NM	NM	990.31
LL3mw-236	Sharon	1,011.17	991.32	995.49	994.95	994.16
LL3mw-237	Sharon	1,005.57	984.65	988.34	NM	NM
LL3mw-238	Sharon	1,006.91	989.00	NM	NM	989.98
LL3mw-239	Sharon	1,003.50	991.32	977.60	979.88	NM
LL3mw-241	Sharon	994.65	978.98	NM	NM	981.06
LL3mw-242	Sharon	999.32	980.28	982.22	NM	NM
LL3mw-243	Sharon	991.16	972.46	976.51	NM	NM
Loadline 4						
LL4mw-193	Unconsolidated	982.92	975.63	NM	976.80	NM
LL4mw-195	Unconsolidated	983.76	974.67	NM	972.47	NM
LL4mw-196	Unconsolidated	982.59	970.08	970.47	971.30	NM
LL4mw-197	Unconsolidated	984.55	970.00	970.21	970.87	NM
LL4mw-198	Unconsolidated	985.46	970.03	NM	976.83	NM
LL4mw-199	Unconsolidated	977.28	972.04	NM	970.23	NM
LL4mw-200	Unconsolidated	987.93	968.54	NM	970.32	NM
Loadline 6						
LL6mw-001	Unconsolidated	1124.16	1,107.37	NM	NM	NM
LL6mw-004	Homewood	1125.39	1106.51	NM	NM	NM
LL6mw-005	Homewood	1120.47	1,106.82	NM	NM	NM
Loadline 7						
LL7mw-001	Homewood	1129.64	1,106.98	NM	NM	NM
LL7mw-003	Homewood	1120.84	1,107.14	NM	NM	NM
LL7mw-005	Homewood	1135.87	1,111.78	NM	NM	NM
Loadline 8						
LL8mw-003	Unconsolidated	1119.05	1,103.23	NM	NM	NM
Loadline 9						
LL9mw-002	Homewood	1127.30	1,110.71	NM	NM	NM
LL9mw-004	Homewood	1131.83	1,109.20	NM	NM	NM
Loadline 10						
LL10mw-002	Homewood	1127.13	1,107.82	NM	NM	NM
LL10mw-003	Homewood	1130.28	1,108.56	NM	NM	NM
Loadline 11						
LL11mw-001	Unconsolidated	1100.16	1,086.82	NM	NM	NM
L L11mw-002	Unconsolidated	1080.00	1,074.51	NM	NM	NM
LL11mw-007	Unconsolidated	1082.00	1,065.86	NM	NM	NM
LL11mw-009	Unconsolidated	1091.54	1,085.20	NM	NM	NM

Table 3-3. Groundwater Elevations

Well	Monitoring Zone	Top of Casing (TOC) Elevation[a] (ft)	2010 Annual Groundwater Elevation (Oct/2010) (ft)	2011 1st Quarter Groundwater Elevation (Jan/2011) (ft)	2010 2nd Quarter Groundwater Elevation (Apr/2011) (ft)	2011 3rd Quarter Groundwater Elevation (Jul/2011) (ft)
Loadline 12						
LL12mw-088	Unconsolidated	981.06	972.98	NM	NM	973.84
LL12mw-107	Unconsolidated	980.15	972.55	NM	NM	970.14
LL12mw-113	Sharon Shale	980.18	970.85	NM	NM	972.55
LL12mw-128	Unconsolidated	978.24	966.90	NM	NM	967.93
LL12mw-153	Unconsolidated	977.85	969.50	NM	NM	971.03
LL12mw-154	Unconsolidated	979.06	967.94	NM	NM	969.51
LL12mw-182	Unconsolidated	984.42	971.20	NM	NM	972.93
LL12mw-183	Sharon Shale	982.98	968.22	NM	NM	969.50
LL12mw-184	Unconsolidated	983.16	968.79	NM	NM	969.85
LL12mw-185	Unconsolidated	981.31	970.62	NM	NM	973.02
LL12mw-186	Sharon Shale	978.31	969.47	NM	NM	970.58
LL12mw-187	Unconsolidated	979.94	967.35	NM	NM	970.25
LL12mw-188	Unconsolidated	980.63	972.28	NM	NM	973.93
LL12mw-189	Sharon Shale	978.04	968.43	NM	NM	970.59
LL12mw-242	Unconsolidated	981.20	968.57	NM	NM	970.81
LL12mw-243	Unconsolidated	980.79	970.26	NM	NM	971.19
LL12mw-244	Unconsolidated	980.65	967.60	NM	NM	969.42
LL12mw-245	Unconsolidated	980.04	970.87	NM	NM	971.87
LL12mw-246	Unconsolidated	984.83	966.14	NM	NM	967.64
Atlas Scrap Yard						
ASYmw-003	Sharon	982.21	967.31	NM	970.16	NM
Building 1200						
B12mw-010	Sharon	1,005.92	985.80	NM	989.30	NM
B12mw-012	Sharon	1,006.32	984.50	NM	983.32	NM
Background						
BKGmw-005	Unconsolidated	1,151.94	1,137.10	NM	1,141.16	NM
BKGmw-006	Sharon	1,028.88	1,005.27	NM	1,006.03	NM
BKGmw-008	Sharon	972.90	952.71	NM	955.56	NM
BKGmw-010	Sharon	1,006.18	985.44	NM	991.58	NM
BKGmw-015	Sharon	1,040.40	989.82	NM	991.84	NM
BKGmw-018	Sharon	1,045.56	1,028.95	NM	1,029.57	NM
BKGmw-021	Unconsolidated	974.66	955.06	NM	960.81	NM
C Block						
CBLmw-004	Homewood	1174.84	1,136.69	NM	1,139.39	NM
Central Burn Pit						
CBPmw-001	Unconsolidated	975.84	960.74	961.36	NM	NM
CBPmw-004	Unconsolidated	971.13	958.38	959.52	NM	NM
CBPmw-005	Unconsolidated	971.59	957.77	958.80	NM	NM
CBPmw-007	Unconsolidated	976.37	957.89	959.26	NM	NM
CBPmw-008	Unconsolidated	973.19	955.16	956.28	NM	NM
Cobbs Pond						
CPmw-002	Unconsolidated	972.31	967.73	971.80	NM	NM
CPmw-005	Unconsolidated	973.58	960.24	961.30	NM	NM
CPmw-006	Unconsolidated	965.13	956.27	956.85	NM	NM
Detonation Area 2						
DA2mw-106	Unconsolidated	1043.79	1,036.60	1,040.12	NM	NM
DA2mw-107	Unconsolidated	1041.63	1,033.60	1,033.68	NM	NM
DA2mw-110	Unconsolidated	1063.78	1,051.91	1,054.49	NM	NM
DET-003	Unconsolidated	1036.81	1,026.98	NM	1,027.81	NM
DET-004	Unconsolidated	1038.68	1,026.99	NM	1,028.46	NM
Erie Burning Grounds						
EBGmw-123	Unconsolidated	947.82	937.14	937.97	NM	NM
EBGmw-124	Unconsolidated	941.39	937.09	937.90	NM	NM
EBGmw-126	Unconsolidated	940.61	937.17	938.22	NM	NM
EBGmw-129	Unconsolidated	944.36	936.64	938.65	NM	NM
Fuze and Booster Quarry						
FBQmw-169	Homewood	1120.58	1,112.24	1,113.98	NM	NM
FBQmw-172	Homewood	1150.09	1,120.48	1,120.28	NM	NM
FBQmw-173	Homewood	1165.94	1,120.24	1,119.83	NM	NM
FBQmw-174	Homewood	1139.97	1,119.80	1,120.37	NM	NM

Table 3-3. Groundwater Elevations

Well	Monitoring Zone	Top of Casing (TOC) Elevation[a] (ft)	2010 Annual Groundwater Elevation (Oct/2010) (ft)	2011 1st Quarter Groundwater Elevation (Jan/2011) (ft)	2010 2nd Quarter Groundwater Elevation (Apr/2011) (ft)	2011 3rd Quarter Groundwater Elevation (Jul/2011) (ft)
Landfill North of Winklepeck						
LNWmw-025	Unconsolidated	1,029.13	1,023.17	1,023.71	NM	NM
Suspect Mustard Burial Site						
MBS-001	Unconsolidated	1,082.20	1,064.01	1,064.55	NM	NM
Naca Test Area						
NTAmw-112	Unconsolidated	1078.33	1,068.41	1,069.09	NM	NM
NTAmw-113	Unconsolidated	1075.68	1,067.68	1,068.46	NM	NM
Ramsdell Quarry Landfill						
RQLmw-006	Sharon	995.39	957.57	NM	NM	NM
RQLmw-007	Sharon	965.91	955.01	NM	960.29	NM
RQLmw-008	Sharon	966.08	955.39	NM	959.80	NM
RQLmw-009	Sharon	964.58	954.93	NM	960.23	NM
RQLmw-010	Sharon	982.14	952.79	NM	NM	NM
RQLmw-011	Sharon	976.57	951.11	NM	NM	NM
RQLmw-014	Sharon	973.49	950.30	NM	953.49	NM
RQLmw-016	Sharon	996.6	958.40	NM	959.25	NM
RQLmw-017	Sharon	991.23	958.68	NM	960.13	NM
Sharon Congolmerate						
SCFmw-001	Sharon Congolmerate	1120.71	1,029.43	1,031.02	1,031.00	NM
SCFmw-002	Sharon Congolmerate	984.56	963.50	964.71	965.84	NM
SCFmw-003	Sharon Congolmerate	958.47	948.53	948.91	950.01	NM
SCFmw-004	Sharon Congolmerate	944.17	942.22	943.28	944.17	NM
SCFmw-005	Sharon Congolmerate	960.8	947.32	948.67	950.24	NM
SCFmw-006	Sharon Congolmerate	965.92	946.95	947.34	947.34	NM
Winklepeck Burning Grounds						
WBGmw-005	Unconsolidated	1054.7	1,046.45	1,048.61	NM	NM
WBGmw-006	Unconsolidated	1014.66	1,004.47	1,006.96	NM	NM
WBGmw-007	Unconsolidated	1000.59	981.74	982.69	NM	NM
WBGmw-009	Unconsolidated	1047.53	1031.56	1033.24	NM	NM

a = Elevations are in feet above mean sea level (amsl)
NM = not measured

Table 3.4. Comparison of Groundwater Elevation
Basal Sharon Conglomerate Wells

Well ID	Monitored Zone Groundwater Elevation (ft, msl)			Difference (ft)
	Sharon Conglomerate (basal)	Sharon (upper portion)	Homewood	
SCFmw-1	1,029.43	-	1108.56	+ 79.13
SCFmw-2	963.50	967.55	-	+ 4.05
SCFmw-3	948.53	949.39	-	+ 0.86
SCFmw-4	942.22	955.00 *	-	+ 12.78
SCFmw-5	947.32	952.66	-	+ 5.34
SCFmw-6	946.95	972.00 *	-	+ 25.05

All water-level elevations (ft, msl) are from October 2010. Sharon (upper portion) and Homewood water-level elevations were taken from the nearest well to the basal Sharon Conglomerate well except as noted (*). Elevation is from potentiometric map (Plate 3).
" + " indicates that Sharon (upper portion) or Homewood elevation is higher and thus a separate hydraulic unit.

3.2 Monitoring Well Inspection/Repair Results

3.2.1 Inspection Results – October 2010

All FWGWMP monitoring wells at RVAAP were inspected during the period October 4-6 and 15, 2010. Inspection of the physical condition of all existing facility monitoring wells was conducted at the same time potentiometric surface measurements were collected. The well inspection survey consisted of the following elements:

- Following collection of water-level measurements at each well, the total depth of each monitoring well was sounded using the water-level indicator. This data allows a determination of the degree of siltation and comparison of the constructed depths recorded in the well construction logs.
- Visual examination of the condition of the above-ground components of each well was performed. The examination included the condition of access roads to the well, well identification tags or markings, protective casing condition, traffic guard posts, protective covers and locks, protective pads, weep holes, and watertight inner casing caps.
- Well inspection data and any maintenance needs were recorded using a well inspection/maintenance checklist.

The well inspections did not reveal irreparable damage to any specific monitoring wells. General well conditions include:

- Many of the outer well casings and guard posts are showing signs of rust and peeling paint. The following areas had a majority of the wells in need of painting:

- Background Wells
- Load Lines 5, 6, 7, 8, 9, and 10
- Atlas Scrap Yard
- C-Block
- Demolition Area 2
- Landfill North of Winklepeck
- NACA Test Area

- All of the FWGWMP wells should be considered for repainting within the next 2 years. It should be noted that while a majority of the wells will require repainting the most recent inspection (October 2010) revealed no issues related to the paint that would affect the integrity of the wells (i.e., excessive rusting of the outer casing). It is suggested that repainting of the wells be delayed until the current assessment monitoring regimen is completed. At that time it is anticipated that decisions may be made to close certain wells not used for long-term monitoring. Only wells used for continued monitoring would then be repainted. Several of the wells had overall paint that was in good condition; however, the painted well identification was fading (e.g., wells at Open Demolition Area 2 and Fuze and Booster Quarry). These wells should have the well identification repainted in 2011.
- The vegetation around the wells was cleared in late June through July of 2011 [the Winklepeck Burning Ground wells were not cleared of vegetation at the request of the USACE, and the immediate area (<3-ft radius) around the Demolition 2 Area wells were cleared]. Access roads were passable from a vegetation standpoint during the inspection.
- At many of the wells (e.g., BKGmw-20, Central Burn Pit wells, Building 1200 wells, and Winklepeck Burning Ground wells) the guard posts were missing the concrete plugs at the top of the post. This does not appear to affect the integrity or life of the posts. Additionally, as presented in the attached Table 1, several well posts were loose but stable.
- Overall, the locks associated with the wells were in good condition with the few exceptions noted on the attached table. Lock caps on some of the wells were missing. The lock cap is the small rubber covering at the bottom of the lock over the locking mechanism where the key is inserted. Over time some of these covers have been broken off. There is no way to replace the cover without replacing the lock. There is no structural or operating damage to the locks without covers. Since there is no damage to the lock as a result of the missing lock caps, no action is planned at this time to replace the missing lock caps. The working condition of all locks at the facility is closely monitored and any locks not in good working condition will be replaced.
- As detailed in Table 3-5, several wells had pads that were either cracked or had stability issues (wobbling). The integrity of the wells did not appear to be compromised.

- Several wells had low levels of sand in the spacing between the inner and outer casing. As detailed in Table 1 it has been recommended to add sand between the inner and outer casings in order to increase the stability of the well.

Table 3-5 presents a list of specific wells that had conditions potentially requiring attention.

3.2.2 Well Repair and Maintenance – 2011

The following well maintenance/repair activities were conducted between July and October 2011 based on the October 2010 well inspections.

- Locks for several wells were replaced because they were becoming difficult to open.
- Well caps for several of the wells were replaced.
- Trees or brush was cleared from near or around several wells.
- Cracks in the pad at LL8mw-006 and LL10mw-006 were repaired using silicone caulk to seal the cracks and prevent further deterioration. It should be noted that these pads had commercial concrete patch and crack sealer previously installed in 2010 and were re-inspected in the spring of 2011. The pads are stable and do not need replaced at this time.
- Soil has eroded away from the concrete pads surrounding several of the wells, and the pads were wobbly. The pads at RQLmw-017 and LL6mw-007 were stabilized using a combination of gravel, bentonite, and soil.
- The numbers painted on the wells were reapplied at LL1mw-079, LL3mw-241, LL6mw-002, LL6mw-003, LL6mw-004, LL6mw-005, CBPmw-002, CBPmw-006, FBQmw-166, FBQmw-168, FBQmw-169, FBQmw-170, FBQmw-171, FBQmw-174, and FBQmw-175.
- The sand packing between the inner and outer casing was replaced at BKGmw-004, LL9mw-002, LL9mw-003, LL9mw-005, LL11mw-007, LL12mw-242, and CBPmw-007.
- The pads at three wells have been noted as being consistently under water. These wells (EBGmw-126, MBSmw-001, and MBSmw-002) are monitored for signs of deterioration. The pads for the wells that are underwater will be visually inspected during sampling/well inspection events to confirm that they are still intact and that the integrity of the wells is not compromised. Additionally, the water levels in the wells will be closely monitored. If the water level is found to be at ground surface it may be indicative of water entering the casing. Currently the water levels in these wells range between 2 and 19 feet below ground surface. It should also be noted that none of these wells are flush-mounts, and the risers are well above the water level.

Table 3-5. Well Inspection Summary (October 2010)

Area	Well Number	Well Condition/Issue	Recommendation
Background	BKGmw-004	1. Lock cap is missing. 2. Inner casing can be turned by hand.	1. Lock is in good working condition. No action at this time. 2. Fill void between inner and outer casing with sand.
	BKGmw-006	1. Concrete pad is cracked. 2. Well cap is hard to close.	1. Repair pad with concrete patch/sealer. 2. Replace well cap.
	BKGmw-008	Outer casing cap is rusted and hard to close.	Monitor condition of outer casing during future well inspections.
	BKGmw-012	1. Lock cap is missing. 2. Hinge on top of outer casing is corroded and does not close all the way.	1. Lock is in good working condition. No action at this time. 2. Replace top of outer casing.
	BKGmw-015	Lock cap is missing.	Lock is in good working condition. No action at this time.
	BKGmw-017	Lock cap is missing.	Lock is in good working condition. No action at this time.
	BKGgmw-018	Hinge on the top of the outer casing is badly corroded.	Replace top of outer casing.
	BKGmw-019	1. One of guard posts is leaning, but secure. 2. Outer casing is badly corroded but still structurally sound.	1. No action at this time. Monitor guard post in future inspections. 2. Monitor during future inspections.
	BKGgmw-021	Hinge on the top of the outer casing is badly corroded.	Replace top of outer casing.
Load Line 1	LL1mw-083	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL1mw-084	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL1mw-085	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL1mw-079	Well number on casing has worn away.	Repaint well number on the well casing.
	LL1mw-080	Lock cap is missing.	Lock is in good working condition. No action at this time.
Load Line 3	LL3mw-233	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL3mw-238	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL3mw-241	Well number on casing has worn away.	Repaint well number on the well casing.
Load Line 5	LL5mw-006	Lock cap is missing.	Lock is in good working condition. No action at this time.
Load Line 6	LL6mw-002	Well number on casing has worn away.	Repaint well number on the well casing.
	LL6mw-003	1. Lock cap is missing. 2.Well number on casing has worn away.	1. Lock is in good working condition. No action at this time. 2. Repaint well number on well casing.
	LL6mw-004	1. Lock cap is missing. 2.Well number on casing has worn away.	1. Lock is in good working condition. No action at this time. 2. Repaint well number on well casing.
	LL6mw-005	Well number on casing has worn away.	Repaint well number on the well casing.
	LL6mw-007	Pad is not secure "wobbly."	Stabilize pad using bentonite/gravel/concrete as necessary.

Table 3-5. Well Inspection Summary (October 2010)

Area	Well Number	Well Condition/Issue	Recommendation
Load Line 8	LL8mw-003	The steel outer casing is dented but does not appear to be damaged. One of the guard posts has damaged concrete. The concrete is cracked and wobbles but is still stable.	There does not appear to be any structural damage to the inner casing or well - no action at this time.
	LL8mw-005	Concrete around one of the guard posts is broken. Post is stable.	Monitor post during subsequent inspections.
	LL8mw0006	Cracks in concrete pad were repaired using concrete sealer and patch.	Condition of pad will be examined in spring 2011 to determine if repairs worked. If not pad will be replaced.
Load Line 9	LL9mw-004	No packing (sand) between inner and outer casings.	Replace the packing.
	LL9mw-003	No packing (sand) between inner and outer casings.	Replace the packing.
	LL9mw-006	No packing (sand) between inner and outer casings.	Replace the packing.
	LL9mw-005	No packing (sand) between inner and outer casings.	Replace the packing.
	LL9mw-002	No packing (sand) between inner and outer casings.	Replace the packing.
Load Line 10	LL10mw-006	Concrete pad cracked.	Crack was repaired in October 2010. Pad is secure. Pad will be reevaluated in the spring of 2011.
Load Line 11	LL11mw-001	No Packing (sand) between inner and outer casings.	Replace the packing.
	LL11mw-007	1. Lock cap is missing. Insufficient sand between inner and outer casings.	1. Lock is in good working condition. No action at this time. 2. Add sand between casings.
	LL11mw-010	Lock cap is missing.	Lock is in good working condition. No action at this time.
Load Line 12	LL12mw-246	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL12mw-186	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL12mw-187	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LL12mw-242	Sand between inner and outer casing is low.	Add sand between inner and outer casing.
	Ll12mw-246	Lock cap is missing.	Lock is in good working condition. No action at this time.
C-Block	CBLmw-004	Concrete pad is spalling.	Monitor at future inspections for further signs of deterioration.
Central Burn Pits	CBPmw-002	Well number on casing has worn away.	Repaint well number on the well casing.
	CBPmw-005	Lock cap is missing.	Lock is in good working condition. No action at this time.
	CBPmw-006	Well number on casing has worn away.	Repaint well number on the well casing.
	CBPmw-007	No Packing (sand) between inner and outer casings.	Replace the packing.
	CBPmw-008	Pad has heaved from frost.	Pad is secure, no action at this time.
	CPmw-001	Tree has fallen on top of the well although the well is accessible.	Remove tree branches.

Table 3-5. Well Inspection Summary (October 2010)

Area	Well Number	Well Condition/Issue	Recommendation
Cobbs Pond	CPmw-002	Needs lock.	Replace lock.
	CPmw-005	Soil is eroded away from the concrete pad. Pad is stable at this time.	Monitor pad during future inspections for signs of instability.
	CPmw-006	Lock cap is missing.	Lock is in good working condition. No action at this time.
Detonation Area 2	DA2mw-104	Lock cap is missing.	Lock is in good working condition. No action at this time.
	DA2mw-105	Well number on casing has worn away.	Repaint well number on the well casing.
	DA2mw-106	Well number on casing has worn away.	Repaint well number on the well casing.
	DA2mw-107	Well number on casing has worn away.	Repaint well number on the well casing.
	DA2mw-109	Well number on casing has worn away.	Repaint well number on the well casing.
	DA2mw-113	Lock cap is missing.	Lock is in good working condition. No action at this time.
	DA2mw-112	Well number number on casing has chipped away.	Repaint well number on the well casing.
Erie Burning Grounds	EBGmw-126	This well is consistently under water due to low topography and marshy conditions. The integrity of the pad and casing do not appear to be compromised.	Monitor the water during subsequent inspections for signs of deterioration of the pad. Additionally, monitor water levels inside the casing for evidence of infiltration of surface water.
Atlas Scrap Yard	ASYmw-004	Lock cap is missing.	Lock is in good working condition. No action at this time.
Fuze and Booster Quarry	FBQmw-166	Well number on casing has chipped away.	Repaint well number on the well casing.
	FBQmw-168	Well number on casing has chipped away.	Repaint well number on the well casing.
	FBQmw-169	Well number on casing has chipped away.	Repaint well number on the well casing.
	FBQmw-171	Well number on casing has chipped away.	Repaint well number on the well casing.
	FBQmw-170	Well number on casing has worn away.	Repaint well number on the well casing.
	FBQmw-175	Well number on casing has worn away.	Repaint well number on the well casing.
	FBQmw-174	Well number on casing has worn away.	Repaint well number on the well casing.
	FBQmw-176	Concrete around one of the guard posts is broken. Post is stable.	Monitor post during subsequent inspections.
NACA	NACAmw-118	Lock cap is missing.	Lock is in good working condition. No action at this time.
Winklepeck Burning Grounds	WBGmw-005	Lock cap is missing.	Lock is in good working condition. No action at this time.
	WBGmw-0010	Lock cap is missing.	Lock is in good working condition. No action at this time.
	WBGmw-006	Lock cap is missing.	Lock is in good working condition. No action at this time.
	WBGmw-015	Lock cap is missing.	Lock is in good working condition. No action at this time.
	WBGmw-017	Lock cap is missing.	Lock is in good working condition. No action at this time.
	WBGmw-012	One of the guard posts is leaning and appears to have been hit.	Post is secure. Monitor during future inspections.

Table 3-5. Well Inspection Summary (October 2010)

Area	Well Number	Well Condition/Issue	Recommendation
Landfill North of Winklepeck	LNWmw-024	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LNWmw-025	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LNWmw-026	Lock cap is missing.	Lock is in good working condition. No action at this time.
	LNWmw-027	Lock cap is missing.	Lock is in good working condition. No action at this time.
Ramsdell Quarry Landfill	RQLmw-007	Lock cap is missing.	Lock is in good working condition. No action at this time.
	RQLmw-006	Lock cap is missing.	1. Lock is in good working condition. No action at this time.
	RQLmw-009	Lock cap is missing.	Lock is in good working condition. No action at this time.
	RQLmw-010	Hinge on the top of the outer casing is badly corroded.	Replace top of outer casing.
	RQLmw-012	Lock cap is missing.	Lock is in good working condition. No action at this time.
	RQLme-017	1. Pad is not secure "wobbly." 2. Lock cap is missing.	1. Stabilize pad using bentonite/gravel/concrete as necessary. 2. Lock is in good working condition. No action at this time.
Mustard Agent Burial Site	MBSmw-001	This well is consistently under water due to low topography and marshy conditions. The integrity of the pad and casing do not appear to be compromised.	Monitor the water during subsequent inspections for signs of deterioration of the pad. Additionally, monitor water levels inside the casing for evidence of infiltration of surface water.

3.3 Sedimentation/Turbidity and Redevelopment of Wells - 2011

3.3.1 Sedimentation

EQM has reviewed the historical sediment accumulation footages and the description of well bottoms for the wells currently being sampled. The majority of wells have less than 0.20 feet of accumulated sediment and have a hard well bottom. However, some wells were found to have greater than 0.20 feet of sediment accumulation and/or soft well bottoms. Based on this evaluation and comparisons to historical levels, there were no wells identified for redevelopment. Several wells (e.g., LL12mw-243, LL12mw-244, and CBLmw-001) have been identified as wells that the depth of the well will be monitored during future monitoring events. Redevelopment of these wells will be conducted as necessary.

It should be noted that in order to minimize turbid samples, low-flow purging and sampling techniques are used. Additionally, wells purged with high turbidity readings are purged for additional minutes to attempt to lower or stabilize the turbidity of the sample. The pumps are suspended at least 1 foot above the bottom of the well to avoid agitation of the sediment potentially accumulating in the well sump. EQM will continue to monitor any high turbidity readings and make a determination for future redevelopment and other evaluation of any affected wells.

3.3.2 Turbidity

High turbidity values (>550 ntu) were noted at some of the wells during the identified sampling events. These wells were:

LL4mw-196	LL6mw-005	LL6mw-001
LL11mw-007	LL6mw-004	LL1mw-067
EBGmw-124	NTAmw-113	CBPmw-004
CPmw-006	LL1mw-081	LL4mw-195
LL4mw-199	RQLmw-007	ASYmw-003

None of these wells have exhibited elevated (i.e., >10% of the screened interval) sediment levels during the sampling events. It should be noted that high turbidity readings are not necessarily an indicator of nonrepresentative (i.e., formation) groundwater as stated in the Ohio EPA Technical Guidance Manual for groundwater ***"Turbidity****, which is the visible presence of suspended mineral and organic particles in a ground water sample, also is not an indicator of ground water chemical stabilization and does not distinguish between stagnant casing water and formation water*." During the purging of these wells, EQM continued purging after the normal stabilization parameters stabilized (turbidity is not a stabilization parameter). Purging was continued in an attempt to reach turbidity values that are within 10 percent of each other. Additionally, the groundwater samples for metals analysis are filtered as part of the FWGWMP sampling, thereby reducing the effect of suspended particles in the groundwater.

3.4 Summary of Groundwater Sampling Results

Section 1.5.1 of this report addresses the wells sampled during this reporting period. The list of FWGWMP wells monitored for the October 2010 through July 2011 events are presented in Appendix B.

3.4.1 October 2010

The October 2010 FWGWMP sampling event was performed on October 11-15, 2010. Forty-one wells, including the five RCRA wells and the six deep Sharon Conglomerate wells, were sampled for this event. The results of this sampling event are reported in the Final *Facility-Wide Groundwater Monitoring Program, Report on the October 2010 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio,* dated March 16, 2011 (EQM). The results of this sampling event are summarized in Section 4.0 of this report.

Additionally, depth to water from the top of the inner casing was measured in the 243 FWGWMP wells during October 4-6 and 15, 2010. Water-level measurements were taken with a Herron Dipper-T or Enviro Inspector electronic water-level indicator. The depth to the bottom of the well from the top of the inner casing was also measured with the electronic water-level indicator. The results of the well inspections and the associated potentiometric map are included in this report as discussed in Section 3.2.

3.4.2 January 2011

The January 2011 FWGWMP sampling event was performed on January 17-21, 2011. Forty-nine wells were sampled for this event. The results of this sampling event are reported in the Final *Facility-Wide Groundwater Monitoring Program, Report on the January 2011 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio,* dated July 15 2011 (EQM). The results of this sampling event are summarized in Section 4.0 of this report.

3.4.3 April 2011

The April 2011 FWGWMP sampling event was performed on April 4-7, 2011. Forty-two wells were sampled for this event. The results of this sampling event are reported in the Final *Facility-Wide Groundwater Monitoring Program, Report on the April 2011 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio,* dated September 7, 2011 (EQM) and are summarized in Section 4.0 of this report.

3.4.4 July 2011

The July 2011 FWGWMP sampling event was performed on August 1-4, 2011. Thirty-six wells were sampled for this event. The results of this sampling event are reported in the Draft *Facility-Wide Groundwater Monitoring Program, Report on the July 2011*

Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio, dated December 13, 2011 (EQM). The results of this sampling event are summarized in Section 4.0 of this report.

SECTION 4

SUMMARY/ASSESSMENT OF ANNUAL FWGWMP ANALYTICAL RESULTS

4.1 Introduction

A summary of the constituents detected above background levels or above reporting limits (RLs) at each of the FWGWMP wells during the 2010-11 monitoring period is discussed in the following subsections. Table 4-1 presents the Chemicals of Potential Concern (COPCs) at the RVAAP Facility as presented in the *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC, March 2010) and updated based on the results of the sampling conducted over the past year. Note that analytical data generated from the sampling and analysis of groundwater is screened using the following approved process.

1. **1st Screen: Screen data against the established Facility-Wide background values** – If chemical concentrations are less than the established background values, then these chemicals do not qualify as COPCs. If the chemical concentrations are equal to or greater than the background values, or there are no background values, then the chemicals qualify for further screening under Step 2.

2. **2nd Screen: Screen data against the Facility-Wide Clean-Up Goals (FWCUGs)** – If chemical concentrations are less than the restrictive and applicable FWCUGs, then these chemicals do not qualify as COPCs. However, if the FWCUG is less stringent than the USEPA's corresponding MCL, then the MCL will take precedence. If the chemical concentrations are equal to or greater than the most restrictive and applicable FWCUGs (or MCLs), then these chemicals qualify as COPCs. If there are no chemical-specific FWCUGs, then the chemicals qualify for further screening under Step 3.

3. **3rd Screen: Screen data against the USEPA RSLs** – If chemical concentrations are less than the RSLs, then these chemicals do not qualify as COPCs. If the chemical concentrations are equal to or greater than the RSLs, then these chemicals qualify as COPCs. If there are no chemical-specific RSLs, then the chemicals qualify as COPCs.

The FWCUGs will be used to address groundwater remedial actions. In addition, the USEPA's MCLs will be used to assist in the identification of COPCs and will serve as alternate cleanup goals for groundwater contaminants (as applicable and appropriate). The more conservative of the FWCUGs and MCLs will be used to address groundwater mitigation efforts.

Groundwater analytical results will also be compared to the USEPA RSL Summary Table (May 2010). This table was developed by the USEPA to replace the Region 9 PRGs and the Region 3 Risk Based Cleanup (RBC) table. It is anticipated that the RSLs will be adopted shortly. The Region 9 PRGs were used as the facility screening criteria at the time of this publication.

Samples were collected on the following dates:

- October 11 through 15, 2010
- January 17 through 21, 2011
- April 4 through 7, 2011
- August 1 through 4, 2011

A summary of all compounds detected in 2010 and 2011 are presented in Table 4-2. Table 4-3 presents the facility-wide background levels. The Maximum Contaminant Levels (MCLs) are provided, where applicable, in the following sections. MCLs, USEPA Region 9 Preliminary Remediation Goals (PRGs), and RVAAP facility-wide background levels are also provided where applicable in Table 4-2.

Table 4-4 presents those COPCs detected in any of the October 2010, January 2011, April 2011, or July 2011 sampling events that exceeded Region 9 PRGs, primary MCLs, or secondary MCLs. Also provided on Tables 4-2 and 4-4 is a column comparing the analytical results to the USEPA Regional Screening Level (RSL) Summary Table (May 2010). This table was developed by the USEPA to replace the Region 9 PRGs and The Region 3 Risk Based Cleanup (RBC) table. At this time the RSLs are presented for informational purposes only; however, they should be adopted shortly. The Army is currently preparing a letter to the Ohio EPA detailing the change from Region 9 PRGs to USEPA RSLs. The Region 9 PRGs were used as the facility screening criteria at the time of this publication. Section 4.25 presents a summary discussion of the MCL and PRG exceedances.

Several analytical methods used to analyze a number of explosives, VOCs, metals, SVOCs, and pesticides currently do not meet the RVAAP QAPP reporting limits or Region 9 PRGs. Tables listing the reporting limits that currently do not meet the RVAAP QAPP PQLs and/or Region 9 PRG levels are presented in Appendix G.

Sections 4.2 through 4.24 present a discussion of the time trends for COPCs identified in groundwater samples collected during this reporting period at the Atlas Scrap Yard, Background wells, Building 1200, Central Burn Pits, Cobbs Ponds, Demolition Area 2, Erie Burning Grounds, Fuze and Booster, Landfill North of Winklepeck Burning Grounds, Load Line 1, Load Line 2, Load Line 3, Load Line 4, Load Line 6, Load Line 7, Load Line 8, Load Line 9, Load Line 12, NACA Test Area, Suspected Mustard Burial Site, Ramsdell Quarry Landfill, and Winklepeck Burning Grounds, and the basal Sharon Conglomerate wells under the FWGWMP.

Table 4-1. Facility-Wide Chemicals of Potential Concern in Groundwater

Metals	**Pesticides/Herbicides**	**Explosives/Propellants**
Aluminum	4,4'-DDD	1,3-Dinitrobenzene
Antimony	4,4'-DDE	2,4,6-Trinitrotoluene
Arsenic	4,4'-DDT	2,4-Dinitrotoluene
Barium	Aldrin	2,6-Dinitrotoluene
Cadmium	Dieldrin	2-Amino-4,6-Dinitrotoluene
Calcium	Heptachlor	2-Amino-4,6-dinitrotoluene
Chromium	Heptachlor epoxide	2-Nitrotoluene
Cobalt	Lindane	4-Amino-2,6-Dinitrotoluene
Iron	Toxaphene	4-Amino-2,6-dinitrotoluene
Lead	alpha-BHC	4-Nitrotoluene
Magnesium	beta-BHC	Nitrobenzene
Manganese	delta-BHC	Nitrocellulose
Mercury		Nitroglycerin
Nickel	**Semivolatile Organic**	PETN
Nitrate	**Compounds**	RDX
Thallium	2,4-Dinitrotoluene	
Vanadium	2,6-Dinitrotoluene	
Zinc	4-Nitrobenzenamine	
	4-Nitrobenzenamine	
	4-Nitrobenzenamine	**Volatile Organic**
	Benzo(a)anthracene	**Compounds**
	Benzo(a)pyrene	1,1,2,2-Tetrachloroethane
Polychlorinated	Benzo(b)fluoranthene	1,2-Dichloroethane
Biphenyls	Benzo(g,h,i)perylene	
Aroclor 1242	Bis(2-ethylhexyl)phthalate	Benzene
Aroclor 1254	Dibenz(a,h)anthracene	Carbon tetrachloride
Aroclor 1260	Indeno(1,2,3-cd)pyrene	Chloroform
	Pentachlorophenol	Methylene chloride
	Phenanthrene	Tetrachloroethene
	Phenols	Trichloroethene

Table 4-1 Note 1: The original *Facility-Wide Groundwater Monitoring Program Plan* (2004) (Table 3-1) identified HMX as a COPC. The new *Facility-Wide Sampling and Analysis Plan for Environmental Investigations* (2011) also identifies HMX as a COPC. The Facility-Wide Human Health Cleanup Goals for the RVVAP (2010), does not identify HMX as a COPC and there have been no detections for HMX elevated above the identified clean levels (e.g., PRGs/RSLs) which was why it has not been included as a COPC on Table 4-1.

Table 4-1 Note 2: Perchlorates have been analyzed for in all 243 facility-wide wells but never detected at concentrations elevated above the identified clean levels.

Table 4-2. Summary of Constituents Detected October 2010-July 2011

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Atlas Scrap Yard	ASYmw-003	Bedrock	Barium	NT		NT		*18.6*		NT		2000	2600	7300	256
			Calcium	NT		NT		173000		NT		NS	NS	NS	53100
			Magnesium	NT		NT		57200		NT		NS	NS	NS	15000
			Manganese	NT		NT		*189*	J	NT		50	880	880	1340
			Potassium	NT		NT		*982*	J	NT		NS	NS	NS	5770
			Sodium	NT		NT		*26200*		NT		NS	NS	NS	51400
Building 1200	B12mw-010	Bedrock	Aluminum	NT		NT		198		NT		200	36000	37000	0
			Arsenic	NT		NT		3.7	J	NT		10	0.045	0.045	0
			Barium	NT		NT		*4.4*	J	NT		2000	2600	7300	256
			Calcium	NT		NT		*5910*		NT		NS	NS	NS	53100
			Chromium	NT		NT		1.8	J	NT		100	55,000	16,000	0
			Cobalt	NT		NT		1.6	J	NT		NS	730	11	0
			Iron	NT		NT		*296*		NT		300	11000	26000	1430
			Magnesium	NT		NT		*4080*		NT		NS	NS	NS	15000
			Manganese	NT		NT		*52.6*		NT		50	880	880	1340
			Nickel	NT		NT		*19.7*		NT		NS	730	730	83.4
			Potassium	NT		NT		*553*	J	NT		NS	NS	NS	5770
			Sodium	NT		NT		*3870*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*6.9*	J	NT		5000	11000	11000	52.3
Building 1200	B12mw-012	Bedrock	Barium	NT		NT		*13.0*		NT		2000	2600	7300	256
			Calcium	NT		NT		*52700*		NT		NS	NS	NS	53100
			Magnesium	NT		NT		35800		NT		NS	NS	NS	15000
			Manganese	NT		NT		*4.4*	J	NT		50	880	880	1340
			Nickel	NT		NT		*2.2*	J	NT		NS	730	730	83.4
			Potassium	NT		NT		*1870*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*16900*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*4.1*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT		NT		2.7	JB	NT		6	4.8	4.8	NS
Background	BKGmw-005	Unconsolidated	Aluminum	NT		NT		62.5		NT		200	36000	37000	0
			Barium	NT		NT		*14.5*		NT		2000	2600	7300	82.1
			Calcium	NT		NT		*84400*		NT		NS	NS	NS	115000
			Iron	NT		NT		*36.5*	J	NT		300	11000	26000	279
			Magnesium	NT		NT		*19800*		NT		NS	NS	NS	43300
			Manganese	NT		NT		*6.1*	J	NT		50	880	880	1020
			Potassium	NT		NT		*444*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*3560*		NT		NS	NS	NS	45700
			HMX	NT		NT		0.073	J	NT		NS	1800	1800	NS
Background	BKGmw-006	Bedrock	Barium	NT		NT		*8.5*	J	NT		2000	2600	7300	256
			Calcium	NT		NT		65100		NT		NS	NS	NS	53100
			Iron	NT		NT		*518*		NT		300	11000	26000	1430
			Magnesium	NT		NT		20000		NT		NS	NS	NS	15000
			Manganese	NT		NT		*191*		NT		50	880	880	1340
			Potassium	NT		NT		*1120*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*40500*		NT		NS	NS	NS	51400
			Thallium	NT		NT		0.21	J	NT		2	2.4	0.16	0
			Zinc	NT		NT		*2.4*	JB	NT		5000	11000	11000	52.3
Background	BKGmw-008	Bedrock	Barium	NT		NT		*3.7*	J	NT		2000	2600	7300	256
			Calcium	NT		NT		*23200*		NT		NS	NS	NS	53100
			Magnesium	NT		NT		*9570*		NT		NS	NS	NS	15000
			Manganese	NT		NT		*9.7*	J	NT		50	880	880	1340
			Potassium	NT		NT		*444*	J	NT		NS	NS	NS	5770
			Sodium	NT		NT		*8860*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*4.3*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT		NT		1.1	JB	NT		6	4.8	4.8	NS
Background	BKGmw-010	Bedrock	Aluminum	NT		NT		132		NT		200	36000	37000	0
			Barium	NT		NT		*17.4*		NT		2000	2600	7300	256
			Calcium	NT		NT		*10300*		NT		NS	NS	NS	53100
			Iron	NT		NT		*28.1*	J	NT		300	11000	26000	1430
			Magnesium	NT		NT		*12300*		NT		NS	NS	NS	15000
			Manganese	NT		NT		*602*		NT		50	880	880	1340
			Nickel	NT		NT		*66.0*		NT		NS	730	730	83.4
			Potassium	NT		NT		*556*	J	NT		NS	NS	NS	5770
			Sodium	NT		NT		*4010*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*7.9*	JB	NT		5000	11000	11000	52.3
			Methylene chloride	NT		NT		0.39	JB	NT		5	4.3	4.3	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Background	BKGmw-015	Bedrock	Barium	NT		NT		*249*		NT		2000	2600	7300	256
			Calcium	NT		NT		*30700*		NT		NS	NS	NS	53100
			Magnesium	NT		NT		*13000*		NT		NS	NS	NS	15000
			Potassium	NT		NT		*4120*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*13600*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*5.2*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT		NT		1.2	JB	NT		6	4.8	4.8	NS
Background	BKGmw-018	Bedrock	Barium	NT		NT		*12.0*		NT		2000	2600	7300	256
			Calcium	NT		NT		*29000*		NT		NS	NS	NS	53100
			Magnesium	NT		NT		*3960*		NT		NS	NS	NS	15000
			Manganese	NT		NT		*2.7*	J	NT		50	880	880	1340
			Potassium	NT		NT		*591*	J	NT		NS	NS	NS	5770
			Sodium	NT		NT		*1710*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*7.3*	J	NT		5000	11000	11000	52.3
Background	BKGmw-021	Unconsolidated	Barium	NT		NT		*26.0*		NT		2000	2600	7300	82.1
			Calcium	NT		NT		*74800*		NT		NS	NS	NS	115000
			Magnesium	NT		NT		*39100*		NT		NS	NS	NS	43300
			Potassium	NT		NT		*541*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*8530*		NT		NS	NS	NS	45700
			Zinc	NT		NT		*3.0*	JB	NT		5000	11000	11000	60.9
			bis(2-Ethylhexyl)phthalate	NT		NT		1.1	JB	NT		6	4.8	4.8	NS
			Butylbenzyl phthalate	NT		NT		0.82	J	NT		NS	7300	35	NS
C-Block	CBLmw-004	Bedrock	Barium	NT		NT		*21.6*		NT		2000	2600	7300	256
			Calcium	NT		NT		*5470*		NT		NS	NS	NS	53100
			Magnesium	NT		NT		*2340*		NT		NS	NS	NS	15000
			Manganese	NT		NT		*9.4*	J	NT		50	880	880	1340
			Nickel	NT		NT		*5.4*	J	NT		NS	730	730	83.4
			Potassium	NT		NT		*1120*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*1940*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*6.8*	J	NT		5000	11000	11000	52.3
Central Burn Pits	CBPmw-001	Unconsolidated	Antimony	NT		0.28	J	NT		NT		6	15	15	0
			Arsenic	NT		34.7		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*8.0*	J	NT		NT		2000	2600	7300	82.1
			Calcium	NT		334000		NT		NT		NS	NS	NS	115000
			Cobalt	NT		2.8	J	NT		NT		NS	730	11	0
			Iron	NT		1350		NT		NT		300	11000	26000	279
			Magnesium	NT		170000		NT		NT		NS	NS	NS	43300
			Manganese	NT		*150*		NT		NT		50	880	880	1020
			Nickel	NT		3.6	J	NT		NT		NS	730	730	0
			Potassium	NT		5790		NT		NT		NS	NS	NS	2890
			Sodium	NT		59900	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*3.0*	JB	NT		NT		5000	11000	11000	60.9
Central Burn Pits	CBPmw-004	Unconsolidated	Arsenic	NT		30.1		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*65.1*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*66100*		NT		NT		NS	NS	NS	115000
			Iron	NT		*164*		NT		NT		300	11000	26000	279
			Magnesium	NT		*32800*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*30.1*		NT		NT		50	880	880	1020
			Potassium	NT		*2000*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*17000*	J	NT		NT		NS	NS	NS	45700
			2,4,6-TNT	NT		0.062	J	NT		NT		NS	2.2	2.2	NS
			bis(2-Ethylhexyl)phthalate	NT		1.1	J	NT		NT		6	4.8	4.8	NS
Central Burn Pits	CBPmw-005	Unconsolidated	Aluminum	NT		19.7	J	NT		NT		200	36000	37000	0
			Arsenic	NT		22.3		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*45.3*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*72700*		NT		NT		NS	NS	NS	115000
			Iron	NT		580		NT		NT		300	11000	26000	279
			Magnesium	NT		*34600*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*54.1*		NT		NT		50	880	880	1020
			Potassium	NT		3600		NT		NT		NS	NS	NS	2890
			Sodium	NT		*25000*	J	NT		NT		NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	NT		1.3	J	NT		NT		6	4.8	4.8	NS
			HMX	NT		0.049	J	NT		NT		NS	1800	1800	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Central Burn Pits	CBPmw-007	Unconsolidated	Aluminum	NT		147		NT		NT		200	36000	37000	0
			Arsenic	NT		*10.1*		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*14.0*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		152000		NT		NT		NS	NS	NS	115000
			Magnesium	NT		78200		NT		NT		NS	NS	NS	43300
			Manganese	NT		*65.5*		NT		NT		50	880	880	1020
			Potassium	NT		4310		NT		NT		NS	NS	NS	2890
			Sodium	NT		104000	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*3.3*	JB	NT		NT		5000	11000	11000	60.9
			beta-BHC	NT		0.017	J	NT		NT		NS	0.037	0.037	NS
Central Burn Pits	CBPmw-008	Unconsolidated	Arsenic	NT		*5.8*		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*10.2*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		204000		NT		NT		NS	NS	NS	115000
			Cobalt	NT		1.6	J	NT		NT		NS	730	11	0
			Magnesium	NT		*91600*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*232*		NT		NT		50	880	880	1020
			Potassium	NT		4510		NT		NT		NS	NS	NS	2890
			Sodium	NT		85900	J	NT		NT		NS	NS	NS	45700
Cobbs Ponds	CPmw-002	Unconsolidated	Barium	NT		*51.5*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*96700*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*27900*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*216*		NT		NT		50	880	880	1020
			Potassium	NT		*721*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*12300*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*6.3*	JB	NT		NT		5000	11000	11000	60.9
Cobbs Ponds	CPmw-005	Unconsolidated	Arsenic	NT		47.5		NT		NT		10	0.045	0.045	11.7
			Barium	NT		155		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*58200*		NT		NT		NS	NS	NS	115000
			Chromium	NT		*3.3*	JB	NT		NT		100	55,000	16,000	7.3
			Cobalt	NT		3.1	J	NT		NT		NS	730	11	0
			Iron	NT		424		NT		NT		300	11000	11000	279
			Magnesium	NT		*24100*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*34.7*		NT		NT		50	880	880	1020
			Nickel	NT		3.8	J	NT		NT		NS	730	730	0
			Potassium	NT		*2420*		NT		NT		NS	NS	NS	2890
			Silver	NT		3.8	J	NT		NT		100	180	180	0
			Sodium	NT		*33000*	J	NT		NT		NS	NS	NS	45700
			Vanadium	NT		2.5	JB	NT		NT		NS	36	180	0
			Zinc	NT		*2.5*	JB	NT		NT		5000	11000	11000	60.9
Cobbs Ponds	CPmw-006	Unconsolidated	Aluminum	NT		22.8	J	NT		NT		200	36000	37000	0
			Barium	NT		*62.0*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*66400*		NT		NT		NS	NS	NS	115000
			Iron	NT		1710		NT		NT		300	11000	26000	279
			Magnesium	NT		*25700*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*656*		NT		NT		50	880	880	1020
			Mercury	NT		0.33		NT		NT		2	11	0.57	0
			Potassium	NT		3820		NT		NT		NS	NS	NS	2890
			Sodium	NT		*23400*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*2.9*	JB	NT		NT		5000	11000	11000	60.9
			bis(2-Ethylhexyl)phthalate	NT		2.2	J	NT		NT		6	4.8	4.8	NS
Demolition Area 2	DA2mw-106	Unconsolidated	Aluminum	NT		109		NT		NT		200	36000	37000	0
			Barium	NT		*43.1*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		126000		NT		NT		NS	NS	NS	115000
			Cobalt	NT		8.6		NT		NT		NS	730	11	0
			Iron	NT		518		NT		NT		300	11000	26000	279
			Magnesium	NT		*43200*		NT		NT		NS	NS	NS	43300
			Manganese	NT		4850		NT		NT		50	880	880	1020
			Nickel	NT		7.9	J	NT		NT		NS	730	730	0
			Potassium	NT		*1420*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*13800*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*6.8*	JB	NT		NT		5000	11000	1100	60.9
Demolition Area 2	DA2mw-107	Unconsolidated	Barium	NT		*34.0*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*85500*		NT		NT		NS	NS	NS	115000
			Iron	NT		310		NT		NT		300	11000	26000	279
			Magnesium	NT		*28500*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*322*		NT		NT		50	880	880	1020
			Potassium	NT		*1530*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*9260*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*2.4*	JB	NT		NT		5000	11000	11000	60.9

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Demolition Area 2	DA2mw-110	Unconsolidated	Aluminum	NT		212		NT		NT		200	36000	37000	0
			Barium	NT		*11.1*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*54500*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*16700*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*37.4*		NT		NT		50	880	880	1020
			Potassium	NT		*1050*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*4540*	J	NT		NT		NS	NS	NS	45700
Demolition Area 2	DETmw-003	Unconsolidated	Arsenic	13.1		NT		*11.0*		NT		10	0.045	0.045	11.7
			Barium	*53.7*		NT		*46.8*		NT		2000	2600	7300	82.1
			Calcium	*85800*		NT		*88200*		NT		NS	NS	NS	115000
			Chromium	*5.0*	U	NT		*3.4*	J	NT		100	55,000	16,000	7.3
			Iron	1590		NT		1780		NT		300	11000	26000	279
			Magnesium	*31100*		NT		*32900*		NT		NS	NS	NS	43300
			Manganese	*280*		NT		*277*		NT		50	880	880	1020
			Nickel	10.0	U	NT		2.6	J	NT		NS	730	730	0
			Potassium	*1780*		NT		*1460*		NT		NS	NS	NS	2890
			Sodium	*12800*		NT		*12200*		NT		NS	NS	NS	45700
			Naphthalene	0.28		NT		0.20	U	NT		NS	6.2	0.14	NS
Demolition Area 2	DETmw-004	Unconsolidated	4-Amino-2,6-dinitrotoluene	0.11	U	NT		0.10	J	NT		NS	NS		NS
			Aluminum	62.7	B	NT		50.0	U	NT		200	36000	37000	0
			Antimony	0.26	J	NT		0.20	J	NT		6	15	15	0
			Barium	*71.9*		NT		*49.9*		NT		2000	2600	7300	82.1
			bis(2-Ethylhexyl)phthalate	1.0	J	NT		0.84	JB	NT		6	4.8	4.8	NS
			Calcium	146000		NT		116000		NT		NS	NS	NS	115000
			HMX	1.5		NT		2.4		NT		NS	1800	1800	NS
			Magnesium	*29900*		NT		*23500*		NT		NS	NS	NS	43300
			Manganese	*33.7*		NT		*10.0*	U	NT		50	880	880	1020
			Potassium	2940		NT		*1030*		NT		NS	NS	NS	2890
			RDX	0.43	J	NT		5.4		NT		NS	0.61	0.61	NS
			Sodium	*28500*		NT		*2350*		NT		NS	NS	NS	45700
			Zinc	*14.5*	B	NT		*10.9*		NT		5000	11000	11000	60.9
Erie Burning Grounds	EBGmw-123	Unconsolidated	Arsenic	NT		46.5		NT		NT		10	0.045	0.045	11.7
			Barium	NT		184		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*90800*		NT		NT		NS	NS	NS	115000
			Iron	NT		4020		NT		NT		300	11000	26000	279
			Magnesium	NT		*15700*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*118*		NT		NT		50	880	880	1020
			Potassium	NT		*1010*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*7410*	J	NT		NT		NS	NS	NS	45700
Erie Burning Grounds	EBGmw-124	Unconsolidated	Aluminum	NT		277		NT		NT		200	36000	37000	0
			Arsenic	NT		22.8		NT		NT		10	0.045	0.045	11.7
			Barium	NT		162		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*73800*		NT		NT		NS	NS	NS	115000
			Iron	NT		1860		NT		NT		300	11000	26000	279
			Magnesium	NT		*15400*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*51.0*		NT		NT		50	880	880	1020
			Potassium	NT		*1250*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*14100*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*5.1*	JB	NT		NT		5000	11000	11000	60.9
Erie Burning Grounds	EBGmw-126	Unconsolidated	Aluminum	NT		138		NT		NT		200	36000	37000	0
			Arsenic	NT		15.5		NT		NT		10	0.045	0.045	11.7
			Barium	NT		198		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*79300*		NT		NT		NS	NS	NS	115000
			Iron	NT		4380		NT		NT		300	11000	26000	279
			Magnesium	NT		*13600*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*129*		NT		NT		50	880	880	1020
			Mercury	NT		0.25		NT		NT		2	11	0.57	0
			Potassium	NT		*1190*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*6620*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*10.3*	B	NT		NT		5000	11000	11000	60.9
Erie Burning Grounds	EBGmw-129	Unconsolidated	Barium	NT		*31.5*		NT		NT		2000	2600	73000	82.1
			Calcium	NT		*49800*		NT		NT		NS	NS	NS	115000
			Iron	NT		1840		NT		NT		300	11000	26000	279
			Magnesium	NT		*11100*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*488*		NT		NT		50	880	880	1020
			Potassium	NT		*972*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*3580*	J	NT		NT		NS	NS	NS	45700

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)	Jan-11 Level (µg/L)	Apr-11 Level (µg/L)	Jul-11 Level (µg/L)	MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Fuze & Booster	FBQmw-169	Bedrock	Barium	NT	*42.5*	NT	NT	2000	2600	7300	256
			Cadmium	NT	0.75	NT	NT	5	18	18	0
			Calcium	NT	*20000*	NT	NT	NS	NS	NS	53100
			Cobalt	NT	9.3	NT	NT	NS	730	11	0
			Iron	NT	*378*	NT	NT	300	11000	26000	1430
			Magnesium	NT	*13400*	NT	NT	NS	NS	NS	15000
			Manganese	NT	4790	NT	NT	50	880	880	1340
			Nickel	NT	*11.1*	NT	NT	NS	730	730	83.4
			Potassium	NT	*1920*	NT	NT	NS	NS	NS	5770
			Sodium	NT	*27900*	NT	NT	NS	NS	NS	51400
			Zinc	NT	*11.8*	NT	NT	5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT	0.83 JB	NT	NT	6	4.8	4.8	NS
Fuze & Booster	FBQmw-172	Bedrock	Barium	NT	*34.3*	NT	NT	2000	2600	7300	256
			Calcium	NT	73900	NT	NT	NS	NS	NS	53100
			Magnesium	NT	31800	NT	NT	NS	NS	NS	15000
			Manganese	NT	*30.2*	NT	NT	50	880	880	1340
			Potassium	NT	*702* J	NT	NT	NS	NS	NS	5770
			Sodium	NT	*7190*	NT	NT	NS	NS	NS	51400
			bis(2-Ethylhexyl)phthalate	NT	1.6 JB	NT	NT	6	4.8	4.8	NS
			Di-n-butyl phthalate	NT	0.77 JB	NT	NT	NS	NS	NS	NS
Fuze & Booster	FBQmw-173	Bedrock	Barium	NT	*10.3*	NT	NT	2000	2600	7300	256
			Calcium	NT	*7890*	NT	NT	NS	NS	NS	53100
			Iron	NT	*305*	NT	NT	300	11000	2600	1430
			Magnesium	NT	*3080*	NT	NT	NS	NS	NS	15000
			Manganese	NT	*328*	NT	NT	50	880	880	1340
			Nickel	NT	*3.6* J	NT	NT	NS	730	730	83.4
			Potassium	NT	*1290*	NT	NT	NS	NS	NS	5770
			Sodium	NT	*1720*	NT	NT	NS	NS	NS	51400
			Zinc	NT	*5.7* J	NT	NT	5000	11000	11000	52.3
			2,4,6-TNT	NT	0.048 J	NT	NT	NS	2.2	2.2	NS
			2-Amino-4,6-dinitrotoluene	NT	0.19	NT	NT	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT	0.15	NT	NT	NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	NT	1.5 JB	NT	NT	6	4.8	4.8	NS
			Di-n-butyl phthalate	NT	0.69 JB	NT	NT	NS	NS	NS	NS
Fuze & Booster	FBQmw-174	Bedrock	Barium	NT	*15.9*	NT	NT	2000	2600	7300	256
			Calcium	NT	*6870*	NT	NT	NS	NS	NS	53100
			Magnesium	NT	*2120*	NT	NT	NS	NS	NS	15000
			Manganese	NT	*3.0* J	NT	NT	50	880	880	1340
			Potassium	NT	*946* J	NT	NT	NS	NS	NS	5770
			Sodium	NT	*867* J	NT	NT	NS	NS	NS	51400
			Zinc	NT	*3.6* JB	NT	NT	5000	11000	11000	52.3
			1,3-Dinitrobenzene	NT	0.085 J	NT	NT	NS	3.6	3.7	NS
			2,4,6-TNT	NT	44	NT	NT	NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT	0.30	NT	NT	NS	73	0.22	NS
			2,6-Dinitrotoluene	NT	0.14	NT	NT	NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	NT	24	NT	NT	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT	39	NT	NT	NS	NS	73	NS
			Acetone	NT	3.1 JB	NT	NT	NS	5500	22000	NS
			RDX	NT	0.44	NT	NT	NS	0.61	0.61	NS
Load Line 1	LL1mw-063	Bedrock	Aluminum	NT	NT	NT	160	200	36000	37000	0
			Barium	NT	NT	NT	*17*	2000	2600	7300	256
			Calcium	NT	NT	NT	*2000*	NS	NS	NS	53100
			Cobalt	NT	NT	NT	3.2 J	NS	730	11	0
			Iron	NT	NT	NT	*30* J	300	11000	26000	1430
			Magnesium	NT	NT	NT	*2200*	NS	NS	NS	15000
			Manganese	NT	NT	NT	*170*	50	880	880	1340
			Nickel	NT	NT	NT	*15*	NS	730	730	83.4
			Potassium	NT	NT	NT	*1000*	NS	NS	NS	5770
			Sodium	NT	NT	NT	*6500*	NS	NS	NS	51400
			Zinc	NT	NT	NT	*20*	5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT	NT	NT	0.097 B	NS	1100	1100	NS
			1,3-Dinitrobenzene	NT	NT	NT	0.085 J	NS	3.6	3.7	NS
			2,4,6-TNT	NT	NT	NT	0.59	NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT	NT	NT	0.21	NS	73	0.22	NS
			2,6-Dinitrotoluene	NT	NT	NT	0.64	NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	NT	NT	NT	1.6	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT	NT	NT	6.3	NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	0.82 J	6	4.8	4.8	NS
			HMX	NT	NT	NT	2.3	NS	1800	1800	NS
			RDX	NT	NT	NT	0.17	NS	0.61	0.61	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 1	LL1mw-065	Unconsolidated	Arsenic	NT		NT		NT		*3.4*	J	10	0.045	0.045	11.7
			Barium	NT		NT		NT		*49*		2000	2600	7300	82.1
			Calcium	NT		NT		NT		*75000*		NS	NS	NS	115000
			Iron	NT		NT		NT		*65*		300	11000	26000	279
			Magnesium	NT		NT		NT		*19000*		NS	NS	NS	43300
			Manganese	NT		NT		NT		*250*		50	880	880	1020
			Potassium	NT		NT		NT		*910*	J	NS	NS	NS	2890
			Sodium	NT		NT		NT		*11000*		NS	NS	NS	45700
Load Line 1	LL1mw-067	Bedrock	Barium	*15.0*		*34.1*		*27.4*		NT		2000	2600	7300	256
			Calcium	*32500*		*50300*		*37200*		NT		NS	NS	NS	53100
			Magnesium	15300		60900		41800		NT		NS	NS	NS	15000
			Manganese	*11.9*		*67.7*		*85.0*		NT		50	880	880	1340
			Nickel	*20.4*	J	*46.6*		*39.8*		NT		NS	730	730	83.4
			Perchlorate[2]	NT		0.020	J	NT		NT		NS	3.6	11	NS
			Potassium	*722*	UJ	*1290*		*1110*		NT		NS	NS	NS	5770
			Sodium	*2680*	J	*5200*	J	*4420*		NT		NS	NS	NS	51400
			Zinc	*10.0*	U	*7.9*	J	*3.5*	J	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	1.0	J	10	U	NT		6	4.8	4.8	NS
Load Line 1	LL1mw-079	Bedrock	Barium	NT		NT		NT		*6.8*	J	2000	2600	7300	256
			Cadmium	NT		NT		NT		0.26	J	5	18	18	0
			Calcium	NT		NT		NT		*22000*		NS	NS	NS	53100
			Magnesium	NT		NT		NT		*12000*		NS	NS	NS	15000
			Manganese	NT		NT		NT		*49*		50	880	880	1340
			Nickel	NT		NT		NT		*11*		NS	730	730	83.4
			Potassium	NT		NT		NT		*2600*		NS	NS	NS	5770
			Sodium	NT		NT		NT		*6900*		NS	NS	NS	51400
			Zinc	NT		NT		NT		55		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT		NT		NT		0.038	B	NS	1100	1100	NS
			2,4-Dinitrotoluene	NT		NT		NT		0.052	J	NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		1.1		NS	NS	73	NS
			2-Butanone	NT		NT		NT		0.60	JB	NS	7000	7100	NS
			4-Amino-2,6-Dinitrotoluene	NT		NT		NT		1.3		NS	NS	73	NS
			HMX	NT		NT		NT		0.42		NS	1800	1800	NS
			RDX	NT		NT		NT		0.60		NS	0.61	0.61	NS
Load Line 1	LL1mw-080	Bedrock	Aluminum	NT		NT		NT		28	J	200	36000	37000	0
			Barium	NT		NT		NT		*24*		2000	2600	7300	256
			Calcium	NT		NT		NT		74000		NS	NS	NS	53100
			Magnesium	NT		NT		NT		*7200*		NS	NS	NS	15000
			Manganese	NT		NT		NT		*5.5*	J	50	880	880	1340
			Potassium	NT		NT		NT		*2300*		NS	NS	NS	5770
			Sodium	NT		NT		NT		*2900*		NS	NS	NS	51400
			1,3,5-Trinitrobenzene	NT		NT		NT		0.61	J	NS	1100	1100	NS
			1,3-Dinitrobenzene	NT		NT		NT		0.41		NS	3.6	3.7	NS
			2,4,6-TNT	NT		NT		NT		0.56		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT		NT		NT		0.27		NS	73	0.22	NS
			2,6-Dinitrotoluene	NT		NT		NT		0.43		NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		5.4	J	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT		NT		NT		8.6	J	NS	NS	73	NS
			beta-BHC	NT		NT		NT		0.063	J	NS	0.037	0.037	NS
			HMX	NT		NT		NT		11		NS	1800	1800	NS
			RDX	NT		NT		NT		81	J	NS	0.61	0.61	NS
Load Line 1	LL1mw-081	Bedrock	Aluminum	50.0	U	50.0	U	50.0	U	25	J	200	36000	37000	0
			Arsenic	5.0	U	5.0	U	5.0	U	3.2	J	10	0.045	0.045	0
			Barium	*19.5*		*20.6*		*21.4*		*18*		2000	2600	7300	256
			Calcium	*52600*		65500		66300		60000		NS	NS	NS	53100
			Cobalt	6.0	J	4.6	J	5.7		4.7	J	NS	730	11	0
			Iron	*728*		*50.0*	U	4630		3100		300	11000	26000	1430
			Magnesium	*11900*		*13700*		*13400*		*13000*		NS	NS	NS	15000
			Manganese	1950		2030		2170		2000		50	880	880	1340
			Nickel	*10.2*	J	*9.0*	J	*9.4*	J	*7.9*	J	NS	730	730	83.4
			Potassium	*2130*		*2540*		*2500*		*2100*		NS	NS	NS	5770
			Sodium	*2400*	J	*2140*	J	*2350*		*1800*		NS	NS	NS	51400
			Vanadium	10.0	U	10.0	U	10.0	U	0.82	J	NS	36	180	0
			Zinc	*32.4*	J	*31.0*		*47.7*		*31*		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	0.10	U	0.11	J	0.11	J	0.10	U	NS	1100	1100	NS
			2,4,6-TNT	0.10	U	0.11	U	0.057	J	0.050	J	NS	2.2	2.2	NS
			2,4-Dinitrotoluene	0.10	UJ	0.11	U	0.058	J	0.057	J	NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	0.37		1.1		1.4		1.2	J	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	0.38		1.4		1.8		1.5	J	NS	NS	73	NS
			Acetone	10	U	1.6	JB	10	U	1.5	B	NS	5500	22000	NS
			HMX	0.25		0.52		0.70		0.82		NS	1800	1800	NS
			RDX	0.35	J	1.1	J	1.6		1.6	J	NS	0.61	0.61	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 1	LL1mw-082	Bedrock	Arsenic	5.0	U	5.0	U	3.6	J	4.9	J	10	0.045	0.045	0
			Barium	*9.6*	J	*11.1*		*10.9*		*10*		2000	2600	7300	256
			Cadmium	0.19	J	0.20	J	0.17	J	0.50	U	5	18	18	0
			Calcium	*34400*		*39100*		*38400*		*30000*		NS	NS	NS	53100
			Cobalt	5.0	U	16.4		14.3		8.5		NS	730	11	0
			Iron	*50.0*	U	*50.0*	U	5210		5900		300	11000	26000	1430
			Magnesium	15400		16000		*14200*		*13000*		NS	NS	NS	15000
			Manganese	*456*		2660		1640		*1200*		50	880	880	1340
			Nickel	*10.5*	J	*31.7*		*27.3*		*18*		NS	730	730	83.4
			Perchlorate[2]	NT		0.041	J	NT		NT		NS	3.6	11	NS
			Potassium	*1550*		*2050*		*1460*		*1500*		NS	NS	NS	5770
			Sodium	*1470*	J	*1290*	J	*1250*		*1300*		NS	NS	NS	51400
			Zinc	*24.6*	J	68.0		70.4		*45*		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	0.85	J	1.7	JB	9.9	U	6	4.8	4.8	NS
			HMX	0.10	U	0.10	U	0.40		0.10	U	NS	1800	1800	NS
			RDX	0.10	U	0.10	U	0.42		0.10	UJ	NS	0.61	0.61	NS
Load Line 1	LL1mw-083	Bedrock	Aluminum	NT		NT		NT		940		200	36000	37000	0
			Barium	NT		NT		NT		*17*		2000	2600	7300	256
			Beryllium	NT		NT		NT		0.44	J	4	73	73	0
			Cadmium	NT		NT		NT		0.73		5	18	18	0
			Calcium	NT		NT		NT		*26000*		NS	NS	NS	53100
			Cobalt	NT		NT		NT		10		NS	730	11	0
			Magnesium	NT		NT		NT		*5200*		NS	NS	NS	15000
			Manganese	NT		NT		NT		*520*		50	880	880	1340
			Nickel	NT		NT		NT		*33*		NS	730	730	83.4
			Potassium	NT		NT		NT		*2200*		NS	NS	NS	5770
			Sodium	NT		NT		NT		*9200*		NS	NS	NS	51400
			Zinc	NT		NT		NT		*37*		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT		NT		NT		6.9		NS	1100	1100	NS
			1,3-Dinitrobenzene	NT		NT		NT		0.15		NS	3.6	3.7	NS
			2,4,6-TNT	NT		NT		NT		4.9	J	NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT		NT		NT		3.2		NS	73	0.22	NS
			2,6-Dinitrotoluene	NT		NT		NT		1.3		NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		16	J	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT		NT		NT		24	J	NS	NS	73	NS
			HMX	NT		NT		NT		1.7	J	NS	1800	1800	NS
			RDX	NT		NT		NT		0.085	J	NS	0.61	0.61	NS
Load Line 1	LL1mw-084	Bedrock	Aluminum	515		337		246		590		200	36000	3700	0
			Barium	*16.1*		*17.8*		*16.7*		*15*		2000	2600	7300	256
			Beryllium	0.20	J	1.0	U	1.0	U	0.21	J	4	73	73	0
			Cadmium	2.0		1.8		1.5		1.5		5	18	18	0
			Calcium	*41200*		*46400*		*49100*		*47000*		NS	NS	NS	53100
			Cobalt	17.5	J	20.6		14.6		13		NS	730	11	0
			Copper	10.0		9.4		9.9		11		1300	1500	1500	0
			Lead	3.0	U	2.7	J	3.0	U	3.0	U	15	NS	NS	0
			Magnesium	*2960*		*3190*		*2900*		*2700*		NS	NS	NS	15000
			Manganese	*164*		*222*		*192*		*170*		50	880	880	1340
			Nickel	*32.9*	J	*37.4*		*24.6*		*24*		NS	730	730	83.4
			Perchlorate[2]	NT		0.083		NT		NT		NS	3.6	11	NS
			Potassium	2560		2590		2420		2300		NS	NS	NS	5770
			Sodium	*3940*	J	*3330*	J	*2920*		*2400*		NS	NS	NS	51400
			Zinc	70.1	J	68.5		*49.3*		59		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	4.8	J	5.8	J	3.3	J	2.6		NS	1100	1100	NS
			1,3-Dinitrobenzene	0.63	J	1.1	J	0.41	J	0.40		NS	3.6	3.7	NS
			2,4,6-TNT	10	J	13	J	8.4	J	7.3		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	2.9	J	4.0	J	1.7	J	1.6		NS	73	0.22	NS
			2,6-Dinitrotoluene	1.1	J	1.3	J	0.69	J	0.74		NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	15	J	17	J	13	J	11	J	NS	NS	73	NS
			2-Nitrotoluene	0.31	J	0.50	U	0.55	U	0.52	U	NS	0.049	0.31	NS
			4-Amino-2,6-dinitrotoluene	32	J	29		26	J	23	J	NS	NS	73	NS
			beta-BHC	0.60	UJ	0.15	U	0.030	UJ	0.16	J	NS	0.037	0.037	NS
			bis(2-Ethylhexyl)phthalate	6.1	J	0.87	J	1.4	JB	1.4	J	6	4.8	4.8	NS
			Heptachlor	0.60	UJ	0.15	U	0.029	J	0.31	UJ	0.4	0.015	0.015	NS
			HMX	0.58	J	1.0	J	0.79	J	0.88	J	NS	1800	1800	NS
			Nitrobenzene	0.10	U	0.10	U	0.096	J	0.10	U	NS	3.4	0.12	NS
			RDX	0.10	U	0.69	J	0.42	J	0.69	J	NS	0.61	0.61	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 1	LL1mw-085	Bedrock	Arsenic	5.7		5.0	U	5.7		4.8	J	10	0.045	0.045	0
			Barium	*17.6*		*16.3*		*22.0*		*16*		2000	2600	7300	256
			Calcium	65700		70000		85400		78000		NS	NS	NS	53100
			Cobalt	2.0	J	5.0	U	5.3		2.9	J	NS	730	11	0
			Copper	5.0	U	5.0	U	11.1		5.0	U	1300	1500	1500	0
			Iron	*50.0*	U	*50.0*	U	*423*		*420*		300	11000	26000	1430
			Magnesium	18200		19700		22400		21000		NS	NS	NS	15000
			Manganese	*638*		*179*		*1180*		*840*		50	880	880	1340
			Nickel	*9.1*	J	*2.7*	J	*21.6*		*19*		NS	730	730	83.4
			Potassium	*1830*		*1670*		*2070*		*1700*		NS	NS	NS	5770
			Sodium	*1730*	J	*1560*	J	*1900*		*1700*		NS	NS	NS	51400
			Zinc	*10.0*	U	*10.0*	U	*2.5*	JB	*10*	U	5000	11000	1100	52.3
			Acetone	10	U	10	U	10	U	1.1	B	NS	5500	22000	NS
			bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	1.1	J	6	4.8	4.8	NS
			Butylbenzyl phthalate	1.0	U	1.3		1.0	U	0.98	U	NS	7300	35	NS
Load Line 2	LL2mw-059	Bedrock	Arsenic	NT		NT		NT		7.1		10	0.045	0.045	0
			Barium	NT		NT		NT		*130*		2000	2600	7300	256
			Calcium	NT		NT		NT		*28000*		NS	NS	NS	53100
			Cobalt	NT		NT		NT		19		NS	730	11	0
			Iron	NT		NT		NT		4700		300	11000	26000	1430
			Magnesium	NT		NT		NT		*9200*		NS	NS	NS	15000
			Manganese	NT		NT		NT		2100		50	880	880	1340
			Nickel	NT		NT		NT		*8.5*	J	NS	730	730	83.4
			Sodium	NT		NT		NT		*4500*		NS	NS	NS	51400
			1,3,5-Trinitrobenzene	NT		NT		NT		0.47		NS	1100	1100	NS
			1,3-Dinitrobenzene	NT		NT		NT		0.067	J	NS	3.6	3.7	NS
			2,4-Dinitrotoluene	NT		NT		NT		0.28		NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		0.48		NS	NS	73	NS
			4-Amino-2,6-Dinitrotoluene	NT		NT		NT		0.48		NS	NS	73	NS
			HMX	NT		NT		NT		0.095	J	NS	1800	1800	NS
			Nitrobenzene	NT		NT		NT		0.11	J	NS	3.4	0.12	NS
Load Line 2	LL2mw-060	Bedrock	Barium	NT		NT		NT		*23*		2000	2600	7300	256
			Calcium	NT		NT		NT		*40000*		NS	NS	NS	53100
			Magnesium	NT		NT		NT		*7200*		NS	NS	NS	15000
			Manganese	NT		NT		NT		*18*		50	880	880	1340
			Sodium	NT		NT		NT		*2400*		NS	NS	NS	51400
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		0.25		NS	NS	73	NS
			4-Amino-2,6-Dinitrotoluene	NT		NT		NT		0.37		NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		0.92	J	6	4.8	4.8	NS
Load Line 2	LL2mw-265	Bedrock	Barium	NT		NT		NT		*9.3*	J	2000	2600	7300	256
			Calcium	NT		NT		NT		77000		NS	NS	NS	53100
			Cobalt	NT		NT		NT		6.0		NS	730	11	0
			Iron	NT		NT		NT		2300		300	11000	26000	1430
			Magnesium	NT		NT		NT		23000		NS	NS	NS	15000
			Manganese	NT		NT		NT		*1300*		50	880	880	1340
			Nickel	NT		NT		NT		*18*		NS	730	730	83.4
			Sodium	NT		NT		NT		*12000*		NS	NS	NS	51400
			Acetone	NT		NT		NT		2.4	B	NS	5500	22000	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		0.93	J	6	4.8	4.8	NS
			Trichloroethene	NT		NT		NT		0.22	J	5	0.028	2	NS
Load Line 2	LL2mw-266	Bedrock	Aluminum	56.7		50.0	U	50.0	U	NT		200	36000	37000	0
			Barium	*15.5*		*21.0*		*13.9*		NT		2000	2600	7300	256
			Calcium	*22100*		*24500*		*20900*		NT		NS	NS	NS	53100
			Cobalt	13.4	J	13.0		8.2		NT		NS	730	11	0
			Cyanide	0.010	UJ	0.0064	J	0.010	U	NT		0.2	0.73	310	NS
			Iron	4320		2250		2470		NT		300	11000	26000	1430
			Magnesium	*10900*		*11000*		*9950*		NT		NS	NS	NS	15000
			Manganese	*1250*		*936*		*761*	J	NT		50	880	880	1340
			Nickel	*10.3*	J	*11.4*		*12.9*		NT		NS	730	730	83.4
			Perchlorate[2]	NT		0.023	J	NT		NT		NS	3.6	11	NS
			Potassium	*1450*		*1420*		*1210*		NT		NS	NS	NS	5770
			Sodium	*11100*	J	*10300*		*9850*		NT		NS	NS	NS	51400
			Zinc	*7.7*	UJ	*3.8*	J	*5.6*	J	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	2.1	JB	10	U	NT		6	4.8	4.8	NS
			Di-n-butyl phthalate	1.0	U	0.79	JB	1.0	U	NT		NS	NS	NS	NS
			Endrin aldehyde	0.029	J	0.030	UJ	0.030	UJ	NT		NS	NS	NS	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 2	LL2mw-267	Bedrock	Aluminum	51300		318		33.0	J	NT		200	36000	37000	0
			Antimony	0.60	J	2.0	U	2.0	U	NT		6	15	15	0
			Arsenic	137		5.0	U	5.0	U	NT		10	0.045	0.045	0
			Barium	274		*14.9*		*11.7*		NT		2000	2600	7300	256
			Beryllium	3.7		1.0	U	1.0	U	NT		4	73	73	0
			Cadmium	0.97		0.50	U	0.50	U	NT		5	18	18	0
			Calcium	*34800*		*37000*		*37800*		NT		NS	NS	NS	53100
			Chromium	228		5.0	U	5.0	U	NT		100	55,000	16,000	0
			Cobalt	170		2.2	J	1.5	J	NT		NS	730	11	0
			Copper	101		5.0	U	5.0	U	NT		1300	1500	1500	0
			Iron	164000		*660*		*432*		NT		300	11000	26000	1430
			Lead	69.0	J	3.0	U	3.0	U	NT		15	NS	NS	0
			Magnesium	26700		18000		19000		NT		NS	NS	NS	15000
			Manganese	2850		*547*		*564*	J	NT		50	880	880	1340
			Nickel	169	J	*3.8*	J	*2.8*	J	NT		NS	730	730	83.4
			Potassium	10900		*731*	J	*581*	J	NT		NS	NS	NS	5770
			Selenium	9.9		5.0	U	5.0	U	NT		50	180	180	0
			Sodium	*9490*	J	*16600*		*17900*		NT		NS	NS	NS	51400
			Vanadium	94.6		10.0	U	10.0	U	NT		NS	36	180	0
			Zinc	371	J	*3.8*	J	*10.0*	U	NT		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	0.071	UJ	0.066	J	0.062	J	NT		NS	1100	1100	NS
			2,4,6-TNT	0.16		0.67		0.49		NT		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	0.12		0.36		0.26		NT		NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	0.73		2.1		1.5		NT		NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	0.69		2.0		1.3		NT		NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	1.3	J	3.2	JB	0.97	JB	NT		6	4.8	4.8	NS
			Carbon disulfide	0.22	J	1.0	U	1.0	U	NT		NS	1000	1000	NS
			Di-n-butyl phthalate	1.0	U	0.76	JB	1.0	U	NT		NS	NS	NS	NS
			HMX	1.1		1.7		1.2		NT		NS	1800	1800	NS
			RDX	0.93		1.7	J	1.3	J	NT		NS	0.61	0.61	NS
Load Line 2	LL2mw-269	Bedrock	Barium	*216*		*232*		*218*		NT		2000	2600	7300	256
			Calcium	*29000*		*29800*		*30900*		NT		NS	NS	NS	53100
			Cyanide	0.010	UJ	0.0084	J	0.010	U	NT		0.2	0.73	310	NS
			Iron	6840		6590		6800		NT		300	11000	26000	1430
			Magnesium	*14200*		*14400*		15400		NT		NS	NS	NS	15000
			Manganese	1520		1570		1590	J	NT		50	880	880	1340
			Potassium	*3180*		*3390*		*3080*		NT		NS	NS	NS	5770
			Sodium	*6650*	J	*6630*		*6250*		NT		NS	NS	NS	51400
			Zinc	*10.0*	U	*10.0*	U	*4.7*	J	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	1.4	J	1.6	JB	10	UJ	NT		6	4.8	4.8	NS
			Di-n-butyl phthalate	1.0	U	0.72	JB	1.0	UJ	NT		NS	NS	NS	NS
			HMX	0.096	U	0.10	U	0.078	J	NT		NS	1800	1800	NS
			Methylene chloride	2.0	U	2.0	U	0.41	JB	NT		5	4.3	4.8	NS
Load Line 3	LL3mw-234	Bedrock	Barium	NT		NT		NT		*10*		2000	2600	7300	256
			Calcium	NT		NT		NT		*44000*		NS	NS	NS	53100
			Iron	NT		NT		NT		1500		300	11000	26000	1430
			Magnesium	NT		NT		NT		17000		NS	NS	NS	15000
			Manganese	NT		NT		NT		1800		50	880	880	1340
			Nickel	NT		NT		NT		*5.8*	J	NS	730	730	83.4
			Potassium	NT		NT		NT		*1500*		NS	NS	NS	5770
			Sodium	NT		NT		NT		*8100*		NS	NS	NS	51400
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		0.31	J	NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT		NT		NT		0.55	J	NS	NS	73	NS
			alpha-BHC	NT		NT		NT		0.018	JB	NS	0.011	0.011	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		0.95	B	6	4.8	4.8	NS
			HMX	NT		NT		NT		0.080	J	NS	1800	1800	NS
			RDX	NT		NT		NT		0.53	J	NS	0.61	0.61	NS
Load Line 3	LL3mw-235	Bedrock	Arsenic	NT		NT		NT		3.3	B	10	0.045	0.045	0
			Barium	NT		NT		NT		*2.8*	J	2000	2600	7300	256
			Calcium	NT		NT		NT		*35000*		NS	NS	NS	53100
			Magnesium	NT		NT		NT		15000		NS	NS	NS	15000
			Manganese	NT		NT		NT		*9.5*	J	50	880	880	1340
			Sodium	NT		NT		NT		*8600*		NS	NS	NS	51400
			Zinc	NT		NT		NT		*8.2*	J	5000	11000	11000	52.3

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 3	LL3mw-236	Bedrock	Aluminum	50.0	U	50.0	U	50.0	U	40	B	200	36000	37000	0
			Barium	*10.0*	U	*10.0*	U	*10.0*	U	*3.0*	B	2000	2600	7300	256
			Calcium	*22800*		*20700*		*21400*		*21000*		NS	NS	NS	53100
			Cobalt	1.6	J	5.0	U	2.7	J	7.5		NS	730	11	0
			Iron	*50.0*	U	*50.0*	U	*388*		*1200*		300	11000	26000	1430
			Magnesium	*14200*		*12500*		*13500*		*14000*		NS	NS	NS	15000
			Manganese	*240*		*129*		*344*	J	*970*		50	880	880	1340
			Nickel	*3.0*	J	*3.5*	J	*9.0*	J	*21*		NS	730	730	83.4
			Perchlorate[2]	NT		0.023	J	NT		NT		NS	3.6	11	NS
			Potassium	*1360*		*1290*		*1170*		*1300*		NS	NS	NS	5770
			Sodium	*4510*	J	*4190*		*3920*		*3200*		NS	NS	NS	51400
			Zinc	*5.1*	JB	*5.2*	J	*15.4*		*25*		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	0.11	U	0.10	U	0.10	U	0.035	B	NS	1100	1100	NS
			1,3-Dinitrobenzene	0.11	U	0.10	U	0.10	U	0.096	B	NS	3.6	3.7	NS
			2,4,6-TNT	0.17		0.084	J	0.18		0.37		NS	2.2	2.2	NS
			2-Amino-4,6-dinitrotoluene	0.11	U	0.10	U	0.10	U	0.18		NS	NS	73	NS
			4-Amino-2,6-Dinitrotoluene	0.14		0.060	J	0.18		0.38		NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	10	U	2.2	JB	1.2	JB	0.90	J	6	4.8	4.8	NS
			Di-n-butyl phthalate	1.0	U	1.0	B	1.0	UJ	0.96	*U*	NS	NS	NS	NS
			Nitroguanidine	2.4	J	8.5	J	13	J	4.1	J	NS	NS	3700	NS
Load Line 3	LL3mw-237	Bedrock	Antimony	NT		0.13	J	NT		NT		6	15	15	0
			Arsenic	NT		5.0	U	NT		NT		10	0.045	0.045	0
			Barium	NT		*10.0*	U	NT		NT		2000	2600	7300	256
			Calcium	NT		*31100*		NT		NT		NS	NS	NS	53100
			Magnesium	NT		*8980*		NT		NT		NS	NS	NS	15000
			Manganese	NT		*91.6*		NT		NT		50	880	880	1340
			Nickel	NT		*5.2*	J	NT		NT		NS	730	730	83.4
			Potassium	NT		*1310*		NT		NT		NS	NS	NS	5770
			Sodium	NT		*4170*		NT		NT		NS	NS	NS	51400
			Zinc	NT		*3.8*	J	NT		NT		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT		0.21		NT		NT		NS	1100	1100	NS
			2,4,6-TNT	NT		2.0		NT		NT		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT		0.068	J	NT		NT		NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	NT		5.7		NT		NT		NS	NS	73	NS
			4-Amino-2,6-dinitrotoluene	NT		10		NT		NT		NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	NT		1.9	JB	NT		NT		6	4.8	4.8	NS
			Di-n-butyl phthalate	NT		0.90	JB	NT		NT		NS	NS	NS	NS
			HMX	NT		0.10	U	NT		NT		NS	1800	1800	NS
			RDX	NT		0.32	J	NT		NT		NS	0.61	0.61	NS
Load Line 3	LL3mw-238	Bedrock	Barium	NT		*8.9*	J	NT		*8.4*	J	2000	2600	7300	256
			Calcium	NT		54200		NT		54000		NS	NS	NS	53100
			Magnesium	NT		*5950*		NT		*6000*		NS	NS	NS	15000
			Manganese	NT		*10.0*	U	NT		*1.2*	J	50	880	880	1340
			Mercury	NT		0.26	J	NT		0.20	U	2	11	0.57	0
			Potassium	NT		*2210*		NT		*2100*		NS	NS	NS	5770
			Selenium	NT		5.8		NT		5.0	U	50	180	180	0
			Sodium	NT		*4870*	J	NT		*3800*		NS	NS	NS	51400
			Zinc	NT		*2.8*	JB	NT		*10*	U	5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT		26		NT		36	J	NS	1100	1100	NS
			1,3-Dinitrobenzene	NT		0.10	U	NT		0.76	J	NS	3.6	3.7	NS
			2,4,6-TNT	NT		69		NT		95	J	NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT		0.057	J	NT		0.97	UJ	NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	NT		9.3		NT		14	J	NS	NS	73	NS
			3-Nitrotoluene	NT		0.36	J	NT		4.8	UJ	NS	120	3.7	NS
			4-Amino-2,6-dinitrotoluene	NT		32		NT		34	J	NS	NS	73	NS
			Acetone	NT		10	U	NT		2.6	B	NS	5500	22000	NS
			beta-BHC	NT		0.15	J	NT		0.57	UJ	NS	0.037	0.037	NS
			bis(2-Ethylhexyl)phthalate	NT		0.10	U	NT		2.0	B	6	4.8	4.8	NS
			HMX	NT		1.8		NT		2.2	J	NS	1800	1800	NS
			Nitrobenzene	NT		0.25	J	NT		0.97	UJ	NS	3.4	0.12	NS
			RDX	NT		11	J	NT		4.8	J	NS	0.61	0.61	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 3	LL3mw-239	Bedrock	Aluminum	50.0	U	394		50.0	U	NT		200	36000	37000	0
			Arsenic	3.9	J	5.0	U	3.6	J	NT		10	0.045	0.045	0
			Barium	*14.7*		*19.2*		*11.1*		NT		2000	2600	7300	256
			Calcium	*8670*		*8790*		*11300*		NT		NS	NS	NS	53100
			Chromium	5.0	U	5.0	U	1.5	J	NT		100	55,000	16,000	0
			Cobalt	2.9	J	2.5	J	5.0	U	NT		NS	730	11	0
			Iron	*50.0*	U	*818*		*50.0*	U	NT		300	11000	26000	1430
			Magnesium	*4770*		*4520*		*5930*		NT		NS	NS	NS	15000
			Manganese	*175*		*182*		*101*	J	NT		50	880	880	1340
			Nickel	*5.5*	J	*7.3*	J	*7.0*	J	NT		NS	730	730	83.4
			Potassium	*1040*		*1250*		*1280*		NT		NS	NS	NS	5770
			Sodium	*20500*	J	*17000*	J	*18600*		NT		NS	NS	NS	51400
			Thallium	0.16	JB	1.0	U	1.0	U	NT		2	2.4	0.16	0
			Zinc	*10.0*	U	*8.0*	JB	*10.0*	U	NT		5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	0.13	U	0.13		0.15		NT		NS	1100	1100	NS
			2,4,6-TNT	0.19		0.15		0.20		NT		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	0.11		0.096	J	0.12		NT		NS	73	0.22	NS
			2-Amino-4,6-dinitrotoluene	0.60		0.56		0.64		NT		NS	NS	73	NS
			2-Nitrotoluene	0.092	J	0.50	U	0.55	U	NT		NS	0.049	0.31	NS
			4-Amino-2,6-dinitrotoluene	0.81		0.74		0.85		NT		NS	NS	73	NS
			beta-BHC	0.030	U	0.011	J	0.030	UJ	NT		NS	0.037	0.037	NS
			Carbon tetrachloride	1.0	U	0.27	J	0.33	J	NT		5	0.17	0.44	NS
			Chloroform	0.40	JB	0.41	JB	0.43	JB	NT		NS	0.17	0.19	NS
			HMX	0.22		0.23		0.25	J	NT		NS	1800	1800	NS
			RDX	1.6		1.6	J	1.7		NT		NS	0.61	0.61	NS
Load Line 3	LL3mw-241	Bedrock	Aluminum	NT		NT		NT		40	B	200	36000	37000	0
			Barium	NT		NT		NT		*8.3*	J	2000	2600	7300	256
			Calcium	NT		NT		NT		*23000*		NS	NS	NS	53100
			Magnesium	NT		NT		NT		*6800*		NS	NS	NS	15000
			Manganese	NT		NT		NT		*11*		50	880	880	1340
			Potassium	NT		NT		NT		*1200*		NS	NS	NS	5770
			Sodium	NT		NT		NT		*3800*		NS	NS	NS	51400
			Zinc	NT		NT		NT		*6.3*	B	5000	11000	11000	52.3
			1,3,5-Trinitrobenzene	NT		NT		NT		4.1		NS	1100	1100	NS
			2,4,6-TNT	NT		NT		NT		3.4		NS	2.2	2.2	NS
			2,4-Dinitrotoluene	NT		NT		NT		0.095	J	NS	73	0.22	NS
			2,6-Dinitrotoluene	NT		NT		NT		0.091	J	NS	36	37	NS
			2-Amino-4,6-dinitrotoluene	NT		NT		NT		3.8		NS	NS	73	NS
			4-Amino-2,6-Dinitrotoluene	NT		NT		NT		3.8		NS	NS	73	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		3.3	J	6	4.8	4.8	NS
			HMX	NT		NT		NT		0.52	J	NS	1800	1800	NS
			RDX	NT		NT		NT		1.5		NS	0.61	0.61	NS
Load Line 3	LL3mw-242	Bedrock	Barium	NT		*4.5*	J	NT		NT		2000	2600	7300	256
			Calcium	NT		*13100*		NT		NT		NS	NS	NS	53100
			Magnesium	NT		*5380*		NT		NT		NS	NS	NS	15000
			Manganese	NT		*29.5*		NT		NT		50	880	880	1340
			Nickel	NT		*5.9*	J	NT		NT		NS	730	730	83.4
			Potassium	NT		*872*	J	NT		NT		NS	NS	NS	5770
			Sodium	NT		*11300*		NT		NT		NS	NS	NS	51400
			Zinc	NT		*6.7*	J	NT		NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT		29		NT		NT		6	4.8	4.8	NS
			Di-n-butyl phthalate	NT		1.0	B	NT		NT		NS	NS	NS	NS
Load Line 3	LL3mw-243	Bedrock	Antimony	NT		0.46	J	NT		NT		6	15	15	0
			Barium	NT		*17.9*		NT		NT		2000	2600	7300	256
			Calcium	NT		*17800*		NT		NT		NS	NS	NS	53100
			Cyanide	NT		0.0056	J	NT		NT		0.2	0.73	310	NS
			Magnesium	NT		*6640*		NT		NT		NS	NS	NS	15000
			Nickel	NT		*2.2*	J	NT		NT		NS	730	730	83.4
			Potassium	NT		*1210*		NT		NT		NS	NS	NS	5770
			Sodium	NT		*3790*		NT		NT		NS	NS	NS	51400
			Zinc	NT		*3.4*	J	NT		NT		5000	11000	11000	52.3
			2,6-Dinitrotoluene	NT		0.077	J	NT		NT		NS	36	37	NS
			bis(2-Ethylhexyl)phthalate	NT		2.8	JB	NT		NT		6	4.8	4.8	NS
			Di-n-butyl phthalate	NT		1.0	B	NT		NT		NS	NS	NS	NS
Load Line 4	LL4mw-193	Unconsolidated	Barium	NT		NT		*23.8*		NT		2000	2600	7300	82.1
			Calcium	NT		NT		*104000*		NT		NS	NS	NS	115000
			Magnesium	NT		NT		*34600*		NT		NS	NS	NS	43300
			Manganese	NT		NT		*181*		NT		50	880	880	1020
			Potassium	NT		NT		*891*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*10400*		NT		NS	NS	NS	45700
			Zinc	NT		NT		*9.3*	J	NT		5000	11000	11000	60.9

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 4	LL4mw-195	Unconsolidated	Barium	NT		NT		*26.9*		NT		2000	2600	7300	82.1
			Calcium	NT		NT		198000		NT		NS	NS	NS	115000
			Cobalt	NT		NT		3.3	J	NT		NS	730	11	0
			Iron	NT		NT		7320		NT		300	11000	26000	279
			Magnesium	NT		NT		53000		NT		NS	NS	NS	43300
			Manganese	NT		NT		3490		NT		50	880	880	1020
			Nickel	NT		NT		3.8	J	NT		NS	730	730	0
			Potassium	NT		NT		*987*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*9210*		NT		NS	NS	NS	45700
			Zinc	NT		NT		7.5	J	NT		5000	11000	11000	60.9
Load Line 4	LL4mw-196	Unconsolidated	Aluminum	35.8	J	19.9	J	50.0	U	NT		200	36000	37000	0
			Arsenic	*4.6*	J	*5.0*	U	*5.0*	U	NT		10	0.045	0.045	11.7
			Barium	*49.7*		*43.4*		*45.2*		NT		2000	2600	7300	82.1
			Calcium	*55100*		*60300*		*63700*		NT		NS	NS	NS	115000
			Iron	1120		*50.0*	U	311		NT		300	11000	26000	279
			Magnesium	*16100*		*17500*		*17800*		NT		NS	NS	NS	43300
			Manganese	*136*		*41.9*		*59.0*		NT		50	880	880	1020
			Perchlorate[2]	NT		NT		0.042	J	NT		NS	3.6	11	NS
			Potassium	*686*	UJ	*703*	J	*664*	J	NT		NS	NS	NS	2890
			Selenium	4.4	J	5.0	U	5.0	U	NT		50	180	180	0
			Sodium	*2000*	J	*1920*	J	*2260*		NT		NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	10	U	10	U	0.82	J	NT		6	4.8	4.8	NS
Load Line 4	LL4mw-197	Unconsolidated	Aluminum	50.0	U	26.8	J	50.0	U	NT		200	36000	37000	0
			Barium	*29.8*		*20.8*		*13.1*		NT		2000	2600	7300	82.1
			Calcium	123000		*109000*		*104000*		NT		NS	NS	NS	115000
			Cyanide	0.010	UJ	0.010	UJ	0.0076	J	NT		0.2	0.73	310	NS
			Magnesium	*20000*		*17200*		*17500*		NT		NS	NS	NS	43300
			Manganese	*10.0*	U	*5.0*	J	*10.0*	U	NT		50	880	880	1020
			Perchlorate[2]	NT		NT		0.067		NT		NS	3.6	11	NS
			Potassium	*1150*		*1060*		*1020*		NT		NS	NS	NS	2890
			Sodium	*2170*	J	*1270*	J	*1340*		NT		NS	NS	NS	45700
			2,4,6-TNT	0.096	U	0.075	J	0.099	U	NT		NS	2.2	2.2	NS
Load Line 4	LL4mw-198	Unconsolidated	Barium	NT		NT		*8.7*	J	NT		2000	2600	7300	82.1
			Calcium	NT		NT		*27300*		NT		NS	NS	NS	115000
			Iron	NT		NT		4720		NT		300	11000	26000	279
			Magnesium	NT		NT		*14100*		NT		NS	NS	NS	43300
			Manganese	NT		NT		*1010*		NT		50	880	880	1020
			Nickel	NT		NT		25.3		NT		NS	730	730	0
			Potassium	NT		NT		*591*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*5630*		NT		NS	NS	NS	45700
			Zinc	NT		NT		61.6		NT		5000	11000	11000	60.9
			bis(2-Ethylhexyl)phthalate	NT		NT		2.2	J	NT		6	4.8	4.8	NS
Load Line 4	LL4mw-199	Unconsolidated	Antimony	NT		NT		0.52	J	NT		6	15	15	0
			Arsenic	NT		NT		*11.4*		NT		10	0.045	0.045	11.7
			Barium	NT		NT		105		NT		2000	2600	7300	82.1
			Calcium	NT		NT		*92100*		NT		NS	NS	NS	115000
			Iron	NT		NT		5830		NT		300	11000	26000	279
			Magnesium	NT		NT		*22200*		NT		NS	NS	NS	43300
			Manganese	NT		NT		*836*		NT		50	880	880	1020
			Potassium	NT		NT		*1320*		NT		NS	NS	NS	2890
			Sodium	NT		NT		*8480*		NT		NS	NS	NS	45700
			Zinc	NT		NT		*2.9*	J	NT		5000	11000	11000	60.9
			Acetone	NT		NT		2.7	JB	NT		NS	5500	22000	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		1.8	J	NT		6	4.8	4.8	NS
Load Line 4	LL4mw-200	Unconsolidated	Barium	NT		NT		*10.1*		NT		2000	2600	7300	82.1
			Calcium	NT		NT		168000		NT		NS	NS	NS	115000
			Magnesium	NT		NT		51500		NT		NS	NS	NS	43300
			Manganese	NT		NT		*2.1*	J	NT		50	880	880	1020
			Potassium	NT		NT		*519*	J	NT		NS	NS	NS	2890
			Sodium	NT		NT		*8430*		NT		NS	NS	NS	45700
			Zinc	NT		NT		*2.5*	J	NT		5000	11000	11000	60.9
			4-Nitrotoluene	NT		NT		0.11	J	NT		NS	0.66	4.2	NS
Load Line 6	LL6mw-001	Unconsolidated	Barium	*16.7*		NT		NT		NT		2000	2600	7300	82.1
			Calcium	*73200*		NT		NT		NT		NS	NS	NS	115000
			Magnesium	*38300*		NT		NT		NT		NS	NS	NS	43300
			Potassium	*1460*		NT		NT		NT		NS	NS	NS	2890
			Sodium	*7990*		NT		NT		NT		NS	NS	NS	45700
			Zinc	*3.3*	J	NT		NT		NT		5000	11000	11000	60.9

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 6	LL6mw-004	Bedrock	Barium	*29.7*		NT		NT		NT		2000	2600	7300	256
			Calcium	74900		NT		NT		NT		NS	NS	NS	53100
			Iron	*127*		NT		NT		NT		300	11000	26000	1430
			Magnesium	37200		NT		NT		NT		NS	NS	NS	15000
			Manganese	*3.2*	J	NT		NT		NT		50	880	880	1340
			Potassium	*1130*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*12700*	J	NT		NT		NT		NS	NS	NS	51400
			Zinc	*2.8*	JB	NT		NT		NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	2.0	J	NT		NT		NT		6	4.8	4.8	NS
Load Line 6	LL6mw-005	Bedrock	Arsenic	15.3		NT		NT		NT		10	0.045	0.045	0
			Barium	*63.3*		NT		NT		NT		2000	2600	7300	256
			Calcium	73500		NT		NT		NT		NS	NS	NS	53100
			Iron	*859*		NT		NT		NT		300	11000	26000	1430
			Magnesium	22900		NT		NT		NT		NS	NS	NS	15000
			Manganese	*483*		NT		NT		NT		50	880	880	1340
			Potassium	*1050*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*9340*	J	NT		NT		NT		NS	NS	NS	51400
			RDX	0.092	J	NT		NT		NT		NS	0.61	0.61	NS
Load Line 7	LL7mw-001	Bedrock	Barium	*25.2*		NT		NT		NT		2000	2600	7300	256
			Calcium	*29800*		NT		NT		NT		NS	NS	NS	53100
			Cobalt	6.3		NT		NT		NT		NS	730	11	0
			Iron	8940		NT		NT		NT		300	11000	26000	1430
			Magnesium	*10500*		NT		NT		NT		NS	NS	NS	15000
			Manganese	*487*		NT		NT		NT		50	880	880	1340
			Nickel	*8.6*	J	NT		NT		NT		NS	730	730	83.4
			Potassium	*1020*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*5850*		NT		NT		NT		NS	NS	NS	51400
			Zinc	55.6		NT		NT		NT		5000	11000	11000	52.3
			1,1,1-Trichloroethane	7.7		NT		NT		NT		200	3200	9100	NS
			1,1-Dichloroethane	2.7		NT		NT		NT		NS	810	2.4	NS
			1,1-Dichloroethene	6.4		NT		NT		NT		7	340	340	NS
			bis(2-Ethylhexyl)phthalate	3.7	J	NT		NT		NT		6	4.8	4.8	NS
Load Line 7	LL7mw-003	Bedrock	Barium	*47.3*		NT		NT		NT		2000	2600	7300	256
			Calcium	*14800*		NT		NT		NT		NS	NS	NS	53100
			Cobalt	5.2		NT		NT		NT		NS	730	11	0
			Iron	19500		NT		NT		NT		300	11000	26000	1430
			Magnesium	*5220*		NT		NT		NT		NS	NS	NS	15000
			Manganese	1370		NT		NT		NT		50	880	880	1340
			Nickel	*5.1*	J	NT		NT		NT		NS	730	730	83.4
			Potassium	*1230*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*6140*		NT		NT		NT		NS	NS	NS	51400
			Zinc	*13.3*		NT		NT		NT		5000	11000	11000	52.3
Load Line 7	LL7mw-005	Bedrock	Barium	*155*		NT		NT		NT		2000	2600	7300	256
			Calcium	*6530*		NT		NT		NT		NS	NS	NS	53100
			Cobalt	8.0		NT		NT		NT		NS	730	11	0
			Iron	*1290*		NT		NT		NT		300	11000	26000	1430
			Magnesium	*3510*		NT		NT		NT		NS	NS	NS	15000
			Manganese	1630		NT		NT		NT		50	880	880	1340
			Nickel	*7.7*	J	NT		NT		NT		NS	730	730	83.4
			Potassium	*1120*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*2520*	J	NT		NT		NT		NS	NS	NS	51400
			Zinc	*6.8*	JB	NT		NT		NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	2.1	J	NT		NT		NT		6	4.8	4.8	NS
			Cyanide	0.025	J	NT		NT		NT		0.2	0.73	310	NS
Load Line 8	LL8mw-003	Unconsolidated	Arsenic	*7.1*		NT		NT		NT		10	0.045	0.045	11.7
			Barium	*25.2*		NT		NT		NT		2000	2600	7300	82.1
			Calcium	119000		NT		NT		NT		NS	NS	NS	115000
			Iron	775		NT		NT		NT		300	11000	26000	279
			Magnesium	*41900*		NT		NT		NT		NS	NS	NS	43300
			Manganese	*639*		NT		NT		NT		50	880	880	1020
			Potassium	*2430*		NT		NT		NT		NS	NS	NS	2890
			Selenium	4.8	J	NT		NT		NT		50	180	180	0
			Sodium	*42800*		NT		NT		NT		NS	NS	NS	45700
Load Line 9	LL9mw-002	Bedrock	Aluminum	46.6	J	NT		NT		NT		200	36000	37000	0
			Arsenic	3.5	J	NT		NT		NT		10	0.045	0.045	0
			Barium	*3.6*	J	NT		NT		NT		2000	2600	7300	256
			Calcium	*18100*		NT		NT		NT		NS	NS	NS	53100
			Magnesium	*7510*		NT		NT		NT		NS	NS	NS	15000
			Manganese	*11.0*		NT		NT		NT		50	880	880	1340
			Nickel	*6.5*	J	NT		NT		NT		NS	730	730	83.4
			Potassium	*1290*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*2280*		NT		NT		NT		NS	NS	NS	51400
			Zinc	*3.0*	J	NT		NT		NT		5000	11000	11000	52.3

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)	Jan-11 Level (µg/L)	Apr-11 Level (µg/L)	Jul-11 Level (µg/L)	MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 9	LL9mw-004	Bedrock	Arsenic	3.8 J	NT	NT	NT	10	0.045	0.045	0
			Barium	*33.9*	NT	NT	NT	2000	2600	7300	256
			Calcium	*11700*	NT	NT	NT	NS	NS	NS	53100
			Chromium	2.6 J	NT	NT	NT	100	55,000	16,000	0
			Cobalt	5.3	NT	NT	NT	NS	730	11	0
			Iron	10800	NT	NT	NT	300	11000	26000	1430
			Magnesium	*9380*	NT	NT	NT	NS	NS	NS	15000
			Manganese	2220	NT	NT	NT	50	880	880	1340
			Nickel	*6.2* J	NT	NT	NT	NS	730	730	83.4
			Sodium	*5130*	NT	NT	NT	NS	NS	NS	51400
			Zinc	*12.2*	NT	NT	NT	5000	11000	11000	52.3
Load Line 10	LL10mw-002	Bedrock	Manganese	*4.7* J	NT	NT	NT	50	880	880	1340
			Potassium	*887* J	NT	NT	NT	NS	NS	NS	5770
Load Line 10	LL10mw-003	Bedrock	Zinc	*4.7* J	NT	NT	NT	5000	11000	11000	52.3
			4-Nitrotoluene	0.14 J	NT	NT	NT	NS	0.66	4.2	NS
Load Line 11	LL11mw-001	Unconsolidated	Potassium	*962* J	NT	NT	NT	NS	NS	NS	2890
Load Line 11	LL11mw-002	Unconsolidated	Aluminum	94.6 B	NT	NT	NT	200	36000	37000	0
			Thallium	0.49 JB	NT	NT	NT	2	2.4	0.16	0
			Zinc	*17.9* J	NT	NT	NT	5000	11000	11000	60.9
			1,3-Dinitrobenzene	0.073 J	NT	NT	NT	NS	3.6	3.7	NS
			bis(2-Ethylhexyl)phthalate	2.8 J	NT	NT	NT	6	4.8	4.8	NS
			HMX	0.044 J	NT	NT	NT	NS	1800	1800	NS
			Nitrobenzene	0.089 J	NT	NT	NT	NS	3.4	0.12	NS
Load Line 11	LL11mw-009	Unconsolidated	Aluminum	20.6 J	NT	NT	NT	200	36000	37000	0
			Potassium	*916* J	NT	NT	NT	NS	NS	NS	2890
Load Line 12	LL12mw-088	Unconsolidated	Aluminum	NT	NT	NT	22 J	200	36000	37000	0
			Arsenic	NT	NT	NT	13 B	10	0.045	0.045	11.7
			Barium	NT	NT	NT	360	2000	2600	7300	82.1
			Calcium	NT	NT	NT	160000	NS	NS	NS	115000
			Iron	NT	NT	NT	3900	300	11000	26000	279
			Magnesium	NT	NT	NT	56000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*420*	50	880	880	1020
			Potassium	NT	NT	NT	*2000*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*13000*	NS	NS	NS	45700
			Nitrate as N (NO3-N)	NT	NT	NT	0.037 JB	1	1	3	NS
Load Line 12	LL12mw-107	Unconsolidated	Arsenic	NT	NT	NT	14	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*27*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	170000	NS	NS	NS	115000
			Cobalt	NT	NT	NT	1.8 J	NS	730	11	0
			Iron	NT	NT	NT	3100	300	11000	26000	279
			Magnesium	NT	NT	NT	71000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*280*	50	880	880	1020
			Potassium	NT	NT	NT	*2000*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*17000*	NS	NS	NS	45700
			4,4'-DDT	NT	NT	NT	0.034 J	NS	0.2	0.2	NS
			beta-BHC	NT	NT	NT	0.010 J	NS	0.037	0.037	NS
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.2 J	3	4.8	4.8	NS
			Heptachlor	NT	NT	NT	0.011 J	0.4	0.015	0.015	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.045 J	1	1	3	NS
Load Line 12	LL12mw-113	Unconsolidated	Aluminum	NT	NT	NT	21000	200	36000	37000	0
			Arsenic	NT	NT	NT	45	10	0.045	0.045	11.7
			Barium	NT	NT	NT	89	2000	2600	7300	82.1
			Beryllium	NT	NT	NT	1.1	4	73	73	0
			Cadmium	NT	NT	NT	0.23 J	5	18	18	0
			Calcium	NT	NT	NT	240000	NS	NS	NS	115000
			Chromium	NT	NT	NT	30	100	55,000	16,000	7.3
			Cobalt	NT	NT	NT	27	NS	730	11	0
			Copper	NT	NT	NT	44	1300	1500	1500	0
			Iron	NT	NT	NT	58000	300	11000	26000	279
			Lead	NT	NT	NT	21	15	NS	NS	0
			Magnesium	NT	NT	NT	110000	NS	NS	NS	43300
			Manganese	NT	NT	NT	2700	50	880	880	1020
			Nickel	NT	NT	NT	57	NS	730	730	0
			Potassium	NT	NT	NT	9800	NS	NS	NS	2890
			Sodium	NT	NT	NT	*26000*	NS	NS	NS	45700
			Vanadium	NT	NT	NT	33	NS	36	180	0
			Zinc	NT	NT	NT	130	5000	11000	11000	60.9
			Heptachlor	NT	NT	NT	0.0080 J	0.4	0.015	0.015	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.27 J	1	1	3	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)	Jan-11 Level (µg/L)	Apr-11 Level (µg/L)	Jul-11 Level (µg/L)	MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 12	LL12mw-128	Unconsolidated	Aluminum	NT	NT	NT	190 J	200	36000	3700	0
			Arsenic	NT	NT	NT	48	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*56*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	190000	NS	NS	NS	115000
			Iron	NT	NT	NT	5100	300	11000	26000	279
			Magnesium	NT	NT	NT	120000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*200*	50	880	880	1020
			Potassium	NT	NT	NT	*2200*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*24000*	NS	NS	NS	45700
			Acetone	NT	NT	NT	1.5 B	NS	5500	22000	NS
			bis(2-Ethylhexyl) phthalate	NT	NT	NT	4.5 B	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.077 J	1	1	3	NS
Load Line 12	LL12mw-153	Unconsolidated	Arsenic	NT	NT	NT	18 B	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*61*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	140000	NS	NS	NS	115000
			Iron	NT	NT	NT	3400	300	11000	26000	279
			Magnesium	NT	NT	NT	79000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*190*	50	880	880	1020
			Potassium	NT	NT	NT	*1800*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*23000*	NS	NS	NS	45700
			bis(2-Ethylhexyl) phthalate	NT	NT	NT	1.6 JB	6	4.8	4.8	NS
			Carbon disulfide	NT	NT	NT	0.18 J	NS	1000	1000	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.039 JB	1	1	3	NS
Load Line 12	LL12mw-154	Unconsolidated	Aluminum	NT	NT	NT	20 J	200	36000	37000	0
			Arsenic	NT	NT	NT	15 B	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*44*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	150000	NS	NS	NS	115000
			Iron	NT	NT	NT	1800	300	11000	26000	279
			Magnesium	NT	NT	NT	75000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*96*	50	880	880	1020
			Potassium	NT	NT	NT	*1800*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*26000*	NS	NS	NS	45700
			Acetone	NT	NT	NT	3.0 JB	NS	5500	22000	NS
			alpha-BHC	NT	NT	NT	0.010 JB	NS	0.011	0.011	NS
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.0 B	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.029 JB	1	1	3	NS
Load Line 12	LL12mw-182	Unconsolidated	Aluminum	NT	NT	NT	30 J	200	36000	37000	0
			Arsenic	NT	NT	NT	28	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*68*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	*77000*	NS	NS	NS	115000
			Iron	NT	NT	NT	680	300	11000	26000	279
			Magnesium	NT	NT	NT	61000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*54*	50	880	880	1020
			Nickel	NT	NT	NT	4.1 J	NS	730	730	0
			Potassium	NT	NT	NT	3500	NS	NS	NS	2890
			Sodium	NT	NT	NT	*25000*	NS	NS	NS	45700
			Zinc	NT	NT	NT	*2.5* J	5000	11000	11000	60.9
			Nitrate as N (NO3-N)	NT	NT	NT	0.11 J	1	1	3	NS
Load Line 12	LL12mw-183	Unconsolidated	Arsenic	NT	NT	NT	45	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*76*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	*110000*	NS	NS	NS	115000
			Iron	NT	NT	NT	1600	300	11000	26000	279
			Magnesium	NT	NT	NT	45000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*68*	50	880	880	1020
			Potassium	NT	NT	NT	3400	NS	NS	NS	2890
			Sodium	NT	NT	NT	*18000*	NS	NS	NS	47500
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	0.89 J	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.029 JB	1	1	3	NS
Load Line 12	LL12mw-184	Unconsolidated	Aluminum	NT	NT	NT	31 J	200	36000	37000	0
			Arsenic	NT	NT	NT	17 B	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*9.4* J	2000	2600	7300	82.1
			Calcium	NT	NT	NT	200000	NS	NS	NS	115000
			Iron	NT	NT	NT	2600	300	11000	26000	279
			Magnesium	NT	NT	NT	150000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*470*	50	880	880	1020
			Potassium	NT	NT	NT	*2300*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*35000*	NS	NS	NS	45700
			Zinc	NT	NT	NT	*6.1* J	5000	11000	11000	60.9
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.0 B	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.035 JB	1	1	3	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)	Jan-11 Level (µg/L)	Apr-11 Level (µg/L)	Jul-11 Level (µg/L)	MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 12	LL12mw-185	Unconsolidated	Barium	NT	NT	NT	*51*	2000	2600	7300	82.1
			Cadmium	NT	NT	NT	0.23 J	5	18	18	0
			Calcium	NT	NT	NT	630000	NS	NS	NS	115000
			Magnesium	NT	NT	NT	290000	NS	NS	NS	43300
			Manganese	NT	NT	NT	1600	50	880	880	1020
			Nickel	NT	NT	NT	6.8 J	NS	730	730	0
			Potassium	NT	NT	NT	6800	NS	NS	NS	2890
			Sodium	NT	NT	NT	50000	NS	NS	NS	45700
			Acetone	NT	NT	NT	1.1 B	NS	5500	22000	NS
			Benzyl alcohol	NT	NT	NT	4.4 J	NS	11000	3700	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.66 J	1	1	3	NS
			Nitrocellulose	NT	NT	NT	0.58 J	NS	NS	110000	NS
Load Line 12	LL12mw-186	Unconsolidated	Arsenic	NT	NT	NT	*3.4* B	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*42*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	130000	NS	NS	NS	115000
			Iron	NT	NT	NT	*200*	300	11000	26000	279
			Magnesium	NT	NT	NT	*57000*	NS	NS	NS	43300
			Manganese	NT	NT	NT	*240*	50	880	880	1020
			Potassium	NT	NT	NT	*1300*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*14000*	NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.0 JB	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.024 JB	1	1	3	NS
Load Line 12	LL12mw-187	Unconsolidated	Barium	NT	NT	NT	260	2000	2600	7300	82.1
			Calcium	NT	NT	NT	910000	NS	NS	NS	115000
			Cobalt	NT	NT	NT	9.8	NS	730	11	0
			Magnesium	NT	NT	NT	290000	NS	NS	NS	43300
			Manganese	NT	NT	NT	2100	50	880	880	1020
			Nickel	NT	NT	NT	16	NS	730	730	0
			Potassium	NT	NT	NT	47000	NS	NS	NS	2890
			Sodium	NT	NT	NT	*31000*	NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	0.93 B	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	1670 J	1	1	3	NS
			Nitrocellulose	NT	NT	NT	3.1	NS	NS	110000	NS
Load Line 12	LL12mw-188	Unconsolidated	Arsenic	NT	NT	NT	*4.1* J	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*40*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	130000	NS	NS	NS	115000
			Iron	NT	NT	NT	*180*	300	11000	26000	279
			Magnesium	NT	NT	NT	100000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*440*	50	880	880	1020
			Potassium	NT	NT	NT	*1900*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*31000*	NS	NS	NS	45700
			Nitrate as N (NO3-N)	NT	NT	NT	0.20	1	1	3	NS
Load Line 12	LL12mw-189	Unconsolidated	Aluminum	NT	NT	NT	840	200	36000	37000	0
			Arsenic	NT	NT	NT	14	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*26*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	130000	NS	NS	NS	115000
			Cobalt	NT	NT	NT	1.7 J	NS	730	11	0
			Iron	NT	NT	NT	3000	300	11000	26000	279
			Magnesium	NT	NT	NT	61000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*280*	50	880	880	1020
			Potassium	NT	NT	NT	*1800*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*43000*	NS	NS	NS	45700
			Zinc	NT	NT	NT	14 B	5000	11000	11000	60.9
			1,3,5-Trinitrobenzene	NT	NT	NT	0.031 B	NS	1100	1100	NS
			Acetone	NT	NT	NT	3.2 B	NS	5500	22000	NS
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.3 J	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.047 JB	1	1	3	NS
Load Line 12	LL12mw-242	Unconsolidated	Arsenic	NT	NT	NT	20	10	0.045	0.045	11.7
			Barium	NT	NT	NT	*22*	2000	2600	7300	82.1
			Calcium	NT	NT	NT	*71000*	NS	NS	NS	115000
			Iron	NT	NT	NT	710	300	11000	26000	279
			Magnesium	NT	NT	NT	47000	NS	NS	NS	43300
			Manganese	NT	NT	NT	*87*	50	880	880	1020
			Potassium	NT	NT	NT	*1500*	NS	NS	NS	2890
			Sodium	NT	NT	NT	*29000*	NS	NS	NS	45700
			Benzyl alcohol	NT	NT	NT	0.49 JB	NS	11000	3700	NS
			bis(2-Ethylhexyl)phthalate	NT	NT	NT	1.4 JB	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT	NT	NT	0.097 J	1	1	3	NS
			Nitrocellulose	NT	NT	NT	0.52 J	NS	NS	110000	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Load Line 12	LL12mw-243	Unconsolidated	Aluminum	NT		NT		NT		150	J	200	36000	3700	0
			Arsenic	NT		NT		NT		15	B	10	0.045	0.045	11.7
			Barium	NT		NT		NT		*21*		2000	2600	7300	82.1
			Calcium	NT		NT		NT		120000		NS	NS	NS	115000
			Iron	NT		NT		NT		1100		300	11000	26000	279
			Magnesium	NT		NT		NT		83000		NS	NS	NS	43300
			Manganese	NT		NT		NT		*670*		50	880	880	1020
			Nickel	NT		NT		NT		3.4	J	NS	730	730	0
			Potassium	NT		NT		NT		*2600*		NS	NS	NS	2890
			Sodium	NT		NT		NT		*22000*		NS	NS	NS	45700
			Zinc	NT		NT		NT		*2.8*	J	5000	11000	11000	60.9
			alpha-BHC	NT		NT		NT		0.017	JB	NS	0.011	0.011	NS
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		1.9	B	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT		NT		NT		0.13	J	1	1	3	NS
			Trichloroethene	NT		NT		NT		0.17	J	5	0.028	22	NS
Load Line 12	LL12mw-244	Unconsolidated	Aluminum	NT		NT		NT		220		200	36000	37000	0
			Arsenic	NT		NT		NT		*8.2*		10	0.045	0.045	11.7
			Barium	NT		NT		NT		110		2000	2600	7300	82.1
			Calcium	NT		NT		NT		*84000*		NS	NS	NS	115000
			Iron	NT		NT		NT		470		300	11000	26000	279
			Magnesium	NT		NT		NT		*26000*		NS	NS	NS	43300
			Manganese	NT		NT		NT		*100*		50	880	880	1020
			Potassium	NT		NT		NT		*1700*		NS	NS	NS	2890
			Sodium	NT		NT		NT		*9200*		NS	NS	NS	45700
			Acetone	NT		NT		NT		1.9	JB	NS	5500	220000	NS
			alpha-BHC	NT		NT		NT		0.031	J	NS	0.011	0.011	NS
			Benzene	NT		NT		NT		0.22	J	5	0.35	0.41	NS
			Nitrate as N (NO3-N)	NT		NT		NT		0.26	J	1	1	3	NS
Load Line 12	LL12mw-245	Unconsolidated	Aluminum	NT		NT		NT		37	J	200	36000	37000	0
			Arsenic	NT		NT		NT		*3.6*	B	10	0.045	0.045	11.7
			Barium	NT		NT		NT		*27*		2000	2600	7300	82.1
			Calcium	NT		NT		NT		140000		NS	NS	NS	115000
			Cobalt	NT		NT		NT		3.2	J	NS	730	11	0
			Iron	NT		NT		NT		*250*		300	11000	26000	279
			Magnesium	NT		NT		NT		70000		NS	NS	NS	43300
			Manganese	NT		NT		NT		*430*		50	880	880	1020
			Nickel	NT		NT		NT		3.3	J	NS	730	730	0
			Potassium	NT		NT		NT		*2800*		NS	NS	NS	2890
			Sodium	NT		NT		NT		*23000*		NS	NS	NS	45700
			2-Butanone	NT		NT		NT		0.70	JB	NS	7000	7100	NS
			Acetone	NT		NT		NT		1.8	JB	NS	5500	22000	NS
			Nitrate as N (NO3-N)	NT		NT		NT		0.031	JB	1	1	3	NS
Load Line 12	LL12mw-246	Unconsolidated	Arsenic	NT		NT		NT		34		10	0.045	0.045	11.7
			Barium	NT		NT		NT		*41*		2000	2600	7300	82.1
			Calcium	NT		NT		NT		*110000*		NS	NS	NS	115000
			Iron	NT		NT		NT		1800		300	11000	26000	279
			Magnesium	NT		NT		NT		51000		NS	NS	NS	43300
			Manganese	NT		NT		NT		*66*		50	880	880	1020
			Potassium	NT		NT		NT		3900		NS	NS	NS	2890
			Sodium	NT		NT		NT		*22000*		NS	NS	NS	45700
			Zinc	NT		NT		NT		*5.0*	J	5000	11000	11000	60.9
			bis(2-Ethylhexyl)phthalate	NT		NT		NT		1.6	J	6	4.8	4.8	NS
			Nitrate as N (NO3-N)	NT		NT		NT		0.035	JB	1	1	3	NS
Ramsdell Quarry Landfill	RQLmw-006	Bedrock	Arsenic	55.9		NT		NT		NT		10	0.045	0.045	0
			Barium	*7.5*	J	NT		NT		NT		2000	2600	7300	256
			Calcium	57800		NT		NT		NT		NS	NS	NS	53100
			Cobalt	15.7		NT		NT		NT		NS	730	11	0
			Iron	39500		NT		NT		NT		300	11000	26000	1430
			Magnesium	22300		NT		NT		NT		NS	NS	NS	15000
			Manganese	5360		NT		NT		NT		50	880	880	1340
			Nickel	181		NT		NT		NT		NS	730	730	83.4
			Potassium	*959*	J	NT		NT		NT		NS	NS	NS	5770
			Sodium	*1430*		NT		NT		NT		NS	NS	NS	51400
			Zinc	*15.2*	J	NT		NT		NT		5000	11000	11000	52.3
			Butylbenzyl phthalate	0.95	J	NT		NT		NT		NS	7300	35	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Ramsdell Quarry Landfill	RQLmw-007	Bedrock	Aluminum	50.0	U	NT		154		NT		200	36000	37000	0
			Antimony	2.0	U	NT		0.27	J	NT		6	15	15	0
			Arsenic	70.2		NT		5.0	U	NT		10	0.045	0.045	0
			Barium	*49.4*		NT		*23.7*		NT		2000	2600	7300	256
			Calcium	134000		NT		64400		NT		NS	NS	NS	53100
			Cyanide	0.0050	JB	NT		0.010	U	NT		0.2	0.73	310	NS
			Iron	20100		NT		*594*		NT		300	11000	26000	1430
			Magnesium	106000		NT		33500		NT		NS	NS	NS	15000
			Manganese	1380		NT		*19.1*		NT		50	880	880	1340
			Nickel	*8.9*	J	NT		*12.2*		NT		NS	730	730	83.4
			Potassium	7490		NT		*2510*		NT		NS	NS	NS	5770
			Sodium	*7210*		NT		*2440*		NT		NS	NS	NS	51400
			Zinc	*8.1*	JB	NT		*21.0*	B	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	NT		1.4	JB	NT		6	4.8	4.8	NS
			HMX	0.044	J	NT		0.10	U	NT		NS	1800	1800	NS
Ramsdell Quarry Landfill	RQLmw-008	Bedrock	Arsenic	68.7		NT		11.3		NT		10	0.045	0.045	0
			Barium	*86.9*		NT		*35.7*		NT		2000	2600	7300	256
			Calcium	60700		NT		*33300*		NT		NS	NS	NS	53100
			Cobalt	5.0	U	NT		1.5	J	NT		NS	730	11	0
			Iron	94400		NT		18200		NT		300	11000	26000	1430
			Magnesium	48200		NT		92000		NT		NS	NS	NS	15000
			Manganese	*680*		NT		*296*		NT		50	880	880	1340
			Nickel	*2.2*	J	NT		*2.8*	J	NT		NS	730	730	83.4
			Potassium	*4790*		NT		*2130*		NT		NS	NS	NS	5770
			Sodium	*6830*		NT		*2180*		NT		NS	NS	NS	51400
			Zinc	*4.1*	JB	NT		*5.5*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	NT		1.2	JB	NT		6	4.8	4.5	NS
			delta-BHC	0.0098	J	NT		0.030	UJ	NT		NS	NS	NS	NS
Ramsdell Quarry Landfill	RQLmw-009	Bedrock	Aluminum	19.0	JB	NT		402		NT		200	36000	37000	0
			Arsenic	27.4		NT		4.3	UJ	NT		10	0.045	0.045	0
			Barium	*36.8*		NT		*21.1*		NT		2000	2600	7300	256
			Calcium	*21500*		NT		*14600*		NT		NS	NS	NS	53100
			Chromium	5.0		NT		5.0	U	NT		100	55,000	16,000	0
			Cobalt	5.6	B	NT		5.0	U	NT		NS	730	11	0
			Copper	5.0	U	NT		4.9	J	NT		1300	1500	1500	0
			Iron	3880		NT		*886*		NT		300	11000	26000	1430
			Lead	3.0	U	NT		2.4	J	NT		15	NS	NS	0
			Magnesium	23300		NT		*10700*		NT		NS	NS	NS	15000
			Manganese	*946*		NT		*113*		NT		50	880	880	1340
			Nickel	*6.8*	J	NT		*2.9*	UJ	NT		NS	730	730	83.4
			Potassium	*3930*		NT		*3070*		NT		NS	NS	NS	5770
			Silver	2.8	J	NT		5.0	U	NT		100	180	180	0
			Sodium	*1910*		NT		*1880*		NT		NS	NS	NS	51400
			Zinc	*10.0*	U	NT		*8.2*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	10	U	NT		1.3	JB	NT		6	4.8	4.8	NS
Ramsdell Quarry Landfill	RQLmw-010	Bedrock	Calcium	63100		NT		NT		NT		NS	NS	NS	53100
			Iron	*50.0*	U	NT		NT		NT		300	11000	26000	1430
			Magnesium	35000		NT		NT		NT		NS	NS	NS	15000
			Manganese	*1280*		NT		NT		NT		50	880	880	1340
			Nickel	*3.8*	J	NT		NT		NT		NS	730	730	83.4
			Potassium	*3220*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*4940*		NT		NT		NT		NS	NS	NS	51400
			Zinc	*9.3*	JB	NT		NT		NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	0.92	J	NT		NT		NT		6	4.8	4.8	NS
Ramsdell Quarry Landfill	RQLmw-011	Bedrock	Barium	*13.9*		NT		NT		NT		2000	2600	7300	256
			Calcium	*51700*		NT		NT		NT		NS	NS	NS	53100
			Cobalt	15.2		NT		NT		NT		NS	730	11	0
			Iron	1550		NT		NT		NT		300	11000	26000	1430
			Magnesium	19700		NT		NT		NT		NS	NS	NS	15000
			Manganese	4050		NT		NT		NT		50	880	880	1340
			Nickel	*34.9*		NT		NT		NT		NS	730	730	83.4
			Potassium	*2810*		NT		NT		NT		NS	NS	NS	5770
			Sodium	*3440*		NT		NT		NT		NS	NS	NS	51400
			Zinc	*16.1*	J	NT		NT		NT		5000	11000	11000	52.3
			Nitrobenzene	0.064	J	NT		NT		NT		NS	3.4	0.12	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Ramsdell Quarry Landfill	RQLmw-014	Bedrock	Barium	NT		NT		*22.4*		NT		2000	2600	7300	256
			Calcium	NT		NT		*10500*		NT		NS	NS	NS	53100
			Cobalt	NT		NT		11.8		NT		NS	730	11	0
			Iron	NT		NT		15100		NT		300	11000	26000	1430
			Magnesium	NT		NT		*7300*		NT		NS	NS	NS	15000
			Manganese	NT		NT		2800		NT		50	880	880	1340
			Nickel	NT		NT		*21.6*		NT		NS	730	730	83.4
			Potassium	NT		NT		*1740*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*3850*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*20.4*	B	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	NT		NT		1.9	JB	NT		6	4.8	4.8	NS
Ramsdell Quarry Landfill	RQLmw-016	Bedrock	Barium	NT		NT		*9.9*	J	NT		2000	2600	7300	256
			Calcium	NT		NT		376000		NT		NS	NS	NS	53100
			Iron	NT		NT		11600		NT		300	11000	26000	1430
			Magnesium	NT		NT		57700		NT		NS	NS	NS	15000
			Manganese	NT		NT		6830		NT		50	880	880	1340
			Nickel	NT		NT		*4.8*	J	NT		NS	730	730	83.4
			Potassium	NT		NT		*2910*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*7820*		NT		NS	NS	NS	51400
			bis(2-Ethylhexyl)phthalate	NT		NT		1.1	JB	NT		6	4.8	4.8	NS
Ramsdell Quarry Landfill	RQLmw-017	Bedrock	bis(2-Ethylhexyl)phthalate	NT		NT		2.8	J	NT		6	4.8	4.8	NS
			Aluminum	NT		NT		36.6	J	NT		200	36000	37000	0
			Calcium	NT		NT		75400		NT		NS	NS	NS	53100
			Cobalt	NT		NT		4.9	J	NT		NS	730	11	0
			Iron	NT		NT		*160*		NT		300	11000	26000	1430
			Magnesium	NT		NT		30100		NT		NS	NS	NS	15000
			Manganese	NT		NT		4820		NT		50	880	880	1340
			Nickel	NT		NT		*17.4*		NT		NS	730	730	83.4
			Potassium	NT		NT		*1690*		NT		NS	NS	NS	5770
			Sodium	NT		NT		*5120*		NT		NS	NS	NS	51400
			Zinc	NT		NT		*20.4*	B	NT		5000	11000	11000	52.3
Mustard Burial Site	MBSmw-001	Unconsolidated	Arsenic	NT		*4.7*	J	NT		NT		10	0.045	0.045	11.7
			Barium	NT		126		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*86300*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*22900*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*375*		NT		NT		50	880	880	1020
			Potassium	NT		*1190*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*11200*		NT		NT		NS	NS	NS	45700
NACA Test Area	NTAmw-112	Unconsolidated	Aluminum	NT		157		NT		NT		200	36000	37000	0
			Arsenic	NT		17.0		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*35.1*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		133000		NT		NT		NS	NS	NS	115000
			Iron	NT		1090		NT		NT		300	11000	26000	279
			Magnesium	NT		*40600*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*475*		NT		NT		50	880	880	1020
			Potassium	NT		*1330*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*18600*		NT		NT		NS	NS	NS	45700
			Zinc	NT		*2.9*	J	NT		NT		5000	11000	11000	60.9
NACA Test Area	NTAmw-113	Unconsolidated	Aluminum	NT		107		NT		NT		200	36000	37000	0
			Arsenic	NT		*10.7*		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*38.7*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*89800*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*32800*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*277*		NT		NT		50	880	880	1020
			Potassium	NT		*1600*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*14900*		NT		NT		NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	NT		3.0	JB	NT		NT		6	4.8	4.8	NS
			Toluene	NT		0.21	J	NT		NT		1000	720	2300	NS
Sharon Conglomerate	SCFmw-001	Basal Bedrock	Antimony	2.0	U	1.5	J	0.95	J	NT		6	15	15	0
			Arsenic	16.4		5.0	U	3.4	UJ	NT		10	0.045	0.045	0
			Barium	*37.9*		*10.0*	U	*3.3*	J	NT		2000	2600	7300	256
			Calcium	104000		*49800*		60900		NT		NS	NS	NS	53100
			Iron	*888*		*50.0*	U	*99.6*		NT		300	11000	26000	1430
			Magnesium	28800		15200		18100		NT		NS	NS	NS	15000
			Manganese	*195*		*606*		*528*		NT		50	880	880	1340
			Nickel	*2.7*	J	*10.0*	U	*10.0*	U	NT		NS	730	730	83.4
			Potassium	*1740*		14600		10200		NT		NS	NS	NS	5770
			Sodium	*13800*	J	*17200*		*15900*		NT		NS	NS	NS	51400
			Zinc	*10.0*	U	*2.6*	J	*3.4*	JB	NT		5000	11000	11000	52.3
			bis(2-Ethylhexyl)phthalate	2.3	J	3.0	JB	1.4	JB	NT		6	4.8	4.8	NS
			Carbon disulfide	1.5	J	5.7		0.44	J	NT		NS	1000	10000	NS
			Di-n-butyl phthalate	1.0	U	0.72	JB	1.0	U	NT		NS	NS	NS	NS
			Endrin	0.30	UJ	0.30	UJ	0.012	J	NT		2	11	11	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Sharon Conglomerate	SCFmw-002	Basal Bedrock	Arsenic	18.1		11.4		14.2		NT		10	0.045	0.045	0
			Barium	*40.9*		*42.5*		*41.3*		NT		2000	2600	7300	256
			Calcium	85100		79700		85600		NT		NS	NS	NS	53100
			Iron	*348*		*50.0*	U	*397*		NT		300	11000	26000	1430
			Magnesium	27400		25300		27700		NT		NS	NS	NS	15000
			Manganese	*77.9*		*72.7*		*77.8*		NT		50	880	880	1340
			Potassium	*2130*		*2140*		*2010*		NT		NS	NS	NS	5770
			Sodium	*22700*	J	*20500*		*22200*		NT		NS	NS	NS	51400
			alpha-BHC	0.030	U	0.15	U	0.022	J	NT		NS	0.011	0.011	NS
			bis(2-Ethylhexyl)phthalate	10	U	2.2	JB	1.2	JB	NT		6	4.8	4.8	NS
			Carbon disulfide	1.1	J	1.2		0.28	J	NT		NS	1000	1000	NS
			Di-n-butyl phthalate	1.0	U	0.69	JB	1.0	U	NT		NS	NS	NS	NS
			Nitrate as N (NO3-N)	0.1	U	0.1	U	0.007	J	NT		1	1	3	NS
			PETN	0.63	U	0.42	J	0.68	U	NT		NS	NS	NS	NS
Sharon Conglomerate	SCFmw-003	Basal Bedrock	Barium	*74.6*		*76.2*		*76.4*		NT		2000	2600	7300	256
			Calcium	68000		66700		73600		NT		NS	NS	NS	53100
			Iron	*521*		*80.9*	B	*599*		NT		300	11000	26000	1430
			Magnesium	27100		26500		30000		NT		NS	NS	NS	15000
			Manganese	*237*		*239*		*258*		NT		50	880	880	1340
			Potassium	*1410*		*1410*		*1370*		NT		NS	NS	NS	5770
			Sodium	*7670*	J	*6170*	J	*7180*		NT		NS	NS	NS	51400
			Zinc	*10.0*	U	*10.0*	U	*8.0*	JB	NT		5000	11000	11000	52.3
			Carbon disulfide	0.46	J	1.0	U	1.0	U	NT		NS	1000	1000	NS
Sharon Conglomerate	SCFmw-004	Basal Bedrock	Barium	*93.9*		*96.7*		*99.1*		NT		2000	2600	7300	256
			Calcium	137000		149000		151000		NT		NS	NS	NS	53100
			Cyanide	0.013	J	0.010	UJ	0.010	U	NT		0.2	0.73	310	NS
			Magnesium	54600		59300		60800		NT		NS	NS	NS	15000
			Manganese	*658*		*708*		*734*		NT		50	880	880	1340
			Potassium	*2430*		*2580*		*2310*		NT		NS	NS	NS	5770
			Sodium	*13800*	J	*13000*		*12900*		NT		NS	NS	NS	51400
			bis(2-Ethylhexyl)phthalate	10	U	1.7	JB	10	U	NT		6	4.8	4.8	NS
			Carbon disulfide	1.0	U	0.53	J	1.0	U	NT		NS	1000	1000	NS
			Di-n-butyl phthalate	1.0	U	0.72	JB	1.0	U	NT		NS	NS	NS	NS
			Methylene chloride	2.0	U	2.0	U	0.34	JB	NT		5	4.3	4.8	NS
Sharon Conglomerate	SCFmw-005	Basal Bedrock	Arsenic	5.4		5.0	U	4.9	J	NT		10	0.045	0.045	0
			Barium	*20.3*		*18.8*		*35.8*		NT		2000	2600	7300	256
			Calcium	84200		83100		*94200*		NT		NS	NS	NS	53100
			Iron	5320		5090		3950		NT		300	11000	26000	1430
			Magnesium	40300		39900		42600		NT		NS	NS	NS	15000
			Manganese	1790		1870		1620		NT		50	880	880	1340
			Potassium	*2330*		*2300*		*2180*		NT		NS	NS	NS	5770
			Sodium	*7920*	J	*6950*	J	*10000*		NT		NS	NS	NS	51400
			Zinc	*4.2*	JB	*10.0*	U	*2.4*	JB	NT		5000	11000	11000	52.3
			Carbon disulfide	1.5		1.0	U	1.5	J	NT		NS	1000	1000	NS
			gamma-BHC	0.015	J	0.030	UJ	0.030	UJ	NT		0.2	0.052	0.061	NS
			Methylene chloride	2.0	U	2.0	UJ	0.36	JB	NT		5	4.3	4.8	NS
Sharon Conglomerate	SCFmw-006	Basal Bedrock	Arsenic	13.7		9.3		13.5		NT		10	0.045	0.045	0
			Barium	*118*		*118*		*118*		NT		2000	2600	7300	256
			Calcium	63000		57200		63500		NT		NS	NS	NS	53100
			Iron	*518*		*84.0*	B	*502*		NT		300	11000	26000	1430
			Magnesium	16300		15500		17800		NT		NS	NS	NS	15000
			Manganese	*172*		*164*		*177*		NT		50	880	880	1340
			Mercury	0.20	U	0.22	J	0.20	U	NT		2	11	0.57	0
			Potassium	*1420*		7100		6740		NT		NS	NS	NS	5770
			Sodium	*10600*	J	*10900*	J	*12900*		NT		NS	NS	NS	51400
			bis(2-Ethylhexyl)phthalate	10	U	10	U	2.2	JB	NT		6	4.8	4.8	NS
			Nitrate as N (NO3-N)	0.1	U	0.1	U	0.02	J	NT		1	1	3	NS
			Phenol	1.0	U	1.2		1.2	U	NT		NS	11000	11000	NS
Landfill North of Winklepeck	LNWmw-025	Unconsolidated	Aluminum	NT		70.0		NT		NT		200	36000	37000	0
			Arsenic	NT		*3.7*	J	NT		NT		10	0.045	0.045	11.7
			Barium	NT		*32.6*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*39700*		NT		NT		NS	NS	NS	115000
			Cobalt	NT		2.1	J	NT		NT		NS	730	11	0
			Iron	NT		1810		NT		NT		300	11000	26000	279
			Magnesium	NT		*11700*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*731*		NT		NT		50	880	880	1020
			Potassium	NT		*935*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*6470*	J	NT		NT		NS	NS	NS	45700
			bis(2-Ethylhexyl)phthalate	NT		0.81	J	NT		NT		6	4.8	4.8	NS

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSLs (µg/L)	Facility-Wide Back-ground (µg/L)
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	Arsenic	NT		*10.5*		NT		NT		10	0.045	0.045	11.7
			Barium	NT		*58.0*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*46600*		NT		NT		NS	NS	NS	115000
			Cobalt	NT		5.0		NT		NT		NS	730	11	0
			Iron	NT		8760		NT		NT		300	11000	26000	279
			Magnesium	NT		*15200*		NT		NT		NS	NS	NS	43300
			Manganese	NT		1310		NT		NT		50	880	880	1020
			Nickel	NT		2.6	J	NT		NT		NS	730	730	0
			Potassium	NT		*789*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*10800*	J	NT		NT		NS	NS	NS	45700
			2,4,6-TNT	NT		0.062	J	NT		NT		NS	2.2	2.2	NS
			Tetryl	NT		0.057	J	NT		NT		NS	360	150	NS
Winklepeck Burning Grounds	WBGmw-006	Unconsolidated	Barium	NT		*20.0*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*65600*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*21900*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*46.8*		NT		NT		50	880	880	1020
			Potassium	NT		*753*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*5660*	J	NT		NT		NS	NS	NS	45700
			Benzyl alcohol	NT		0.43	J	NT		NT		NS	11000	3700	NS
			HMX	NT		7.5		NT		NT		NS	1800	1800	NS
			RDX	NT		29	J	NT		NT		NS	0.61	0.61	NS
Winklepeck Burning Grounds	WBGmw-007	Unconsolidated	Aluminum	NT		21.9	J	NT		NT		200	36000	37000	0
			Barium	NT		*33.8*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*60900*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*15700*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*100*		NT		NT		50	880	880	1020
			Mercury	NT		0.23	J	NT		NT		2	11	0.57	0
			Potassium	NT		*1100*		NT		NT		NS	NS	NS	2890
			Sodium	NT		*4230*	J	NT		NT		NS	NS	NS	45700
Winklepeck Burning Grounds	WBGmw-009	Unconsolidated	Barium	NT		*11.5*		NT		NT		2000	2600	7300	82.1
			Calcium	NT		*51800*		NT		NT		NS	NS	NS	115000
			Magnesium	NT		*15800*		NT		NT		NS	NS	NS	43300
			Manganese	NT		*82.4*		NT		NT		50	880	880	1020
			Potassium	NT		*651*	J	NT		NT		NS	NS	NS	2890
			Sodium	NT		*3880*	J	NT		NT		NS	NS	NS	45700
			Zinc	NT		*2.4*	JB	NT		NT		5000	11000	11000	60.9
			HMX	NT		1.0		NT		NT		NS	1800	1800	NS
			RDX	NT		3.5	J	NT		NT		NS	0.61	0.61	NS

Notes:

NS = no standard NT = not tested

All inorganics are filtered; all organics are not filtered.

* There are no background levels for organic constituents

J = estimated result. Results have been qualified "J" For more details refer to Data Verification/Validation Reports in the FWGWMP October 2009 and the January and July 2010 Sampling Reports.

B = organic or inorganic analysis when the analyte is found in the method blank or any of the field blanks.

R = Rejected data.

U = analyzed but not detected at or above the reporting limit.

Bold = inorganic constituent detected above Facility-Wide background levels.

Italics = inorganic constituent detected below the Facility-Wide background levels.

Shaded boxes indicate any contituent that does not have a background value but is detected above the reporting limit.

1 = mg/l

2 = the Region 9 PRG for perchlorate is 3.6 µg/L. There is no MCL for perchlorate. On February 18, 2005, the USEPA established a Drinking Water Equivalent Level (DWEL) for perchlorate at 24.5 µg/L.

Table 4-3. RVAAP Facility-Wide Background Criteria (SAIC, 2001b)

Media Units	Surface Soil mg/kg	Subsurface Soil mg/kg	Sediment mg/kg	Surface Water µg/L	Groundwater Bedrock Zone Filtered µg/L	Groundwater Bedrock Zone Unfiltered µg/L	Groundwater Unconsolidated Zone Filtered µg/L	Groundwater Unconsolidated Unfiltered µg/L
Analyte								
Cyanide	0	0	0	0	0	0	0	0
Aluminum	17700	19500	13900	3370	0	9410	0	0
Antimony	0.96	0.96	0	0	0	0	0	0
Arsenic	15.4	19.8	19.5	3.2	0	19.1	11.7	11.7
Barium	88.4	124	123	47.5	256	241	82.1	82.1
Beryllium	0.88	0.88	0.38	0	0	0	0	0
Cadmium	0	0	0	0	0	0	0	0
Calcium	15800	35500	5510	41400	53100	48200	115000	115000
Chromium	17.4	27.2	18.1	0	0	19.5	7.3	7.3
Cobalt	10.4	23.2	9.1	0	0	0	0	0
Copper	17.7	32.3	27.6	7.9	0	17	0	0
Iron	23100	35200	28200	2560	1430	21500	279	279
Lead	26.1	19.1	27.4	0	0	23	0	0
Magnesium	3030	8790	2760	10800	15000	13700	43300	43300
Manganese	1450	3030	1950	391	1340	1260	1020	1020
Mercury	0.036	0.044	0.059	0	0	0	0	0
Nickel	21.1	60.7	17.7	0	83.4	85.3	0	0
Potassium	927	3350	1950	3170	5770	6060	2890	2890
Selenium	104	105	107	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0
Sodium	123	145	112	21300	51400	49700	45700	45700
Thallium	0	0.91	0.89	0	0	0	0	0
Vanadium	31.1	37.6	26.1	0	0	15.5	0	0
Zinc	61.8	93.3	532	42	52.3	193	60.9	60.9

Table 4-4. Exceedances of MCLs and Region 9 PRGs

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSL (µg/L)
Atlas Scrap Yard	ASYmw-003	Bedrock	Manganese	NT		NT		189	J	NT		50	880	880
Building 1200	B12mw-010	Bedrock	Arsenic	NT		NT		3.7	J	NT		10	0.045	0.045
			Manganese	NT		NT		52.6		NT		50	880	880
Background	BKGmw-006	Bedrock	Iron	NT		NT		518		NT		300	11000	26000
			Manganese	NT		NT		191		NT		50	880	880
	BKGmw-010	Bedrock	Manganese	NT		NT		602		NT		50	880	880
Central Burn Pits	CBPmw-001	Unconsolidated	Arsenic	NT		34.7		NT		NT		10	0.045	0.045
			Iron	NT		1350		NT		NT		300	11000	26000
			Manganese	NT		150		NT		NT		50	880	880
	CBPmw-004	Unconsolidated	Arsenic	NT		30.1		NT		NT		10	0.045	0.045
	CBPmw-005	Unconsolidated	Arsenic	NT		22.3		NT		NT		10	0.045	0.045
			Iron	NT		580		NT		NT		300	11000	26000
			Manganese	NT		54.1		NT		NT		50	880	880
	CBPmw-007	Unconsolidated	Arsenic	NT		10.1		NT		NT		10	0.045	0.045
	CBPmw-007	Unconsolidated	Manganese	NT		65.5		NT		NT		50	880	880
	CBPmw-008	Unconsolidated	Arsenic	NT		5.8		NT		NT		10	0.045	0.045
			Manganese	NT		232		NT		NT		50	880	880
Cobbs Pond	CPmw-002	Unconsolidated	Manganese	NT		216		NT		NT		50	880	880
	CPmw-005	Unconsolidated	Arsenic	NT		47.5		NT		NT		10	0.045	0.045
			Iron	NT		424		NT		NT		300	11000	26000
	CPmw-006	Unconsolidated	Iron	NT		1710		NT		NT		300	11000	26000
			Manganese	NT		656		NT		NT		50	880	880
Demolition Area 2	DA2mw-106	Unconsolidated	Iron	NT		518		NT		NT		300	11000	26000
			Manganese	NT		4850		NT		NT		50	880	880
	DA2mw-107	Unconsolidated	Iron	NT		310		NT		NT		300	11000	26000
			Manganese	NT		322		NT		NT		50	880	880
	DA2mw-110	Unconsolidated	Aluminum	NT		212		NT		NT		200	36000	37000
	DETmw-003	Unconsolidated	Arsenic	13.1		NT		11		NT		10	0.045	0.045
			Iron	1590		NT		1780		NT		300	11000	26000
			Manganese	280		NT		277		NT		50	880	880
	DETmw-004	Unconsolidated	RDX	0.43	J	NT		5.4		NT		NS	0.61	0.61
Erie Burning Grounds	EBGmw-123	Unconsolidated	Arsenic	NT		46.5		NT		NT		10	0.045	0.045
			Iron	NT		4020		NT		NT		300	11000	26000
			Manganese	NT		118		NT		NT		50	880	880
	EBGmw-124	Unconsolidated	Aluminum	NT		277		NT		NT		200	36000	37000
			Arsenic	NT		22.8		NT		NT		10	0.045	0.045
			Iron	NT		1860		NT		NT		300	11000	26000
			Manganese	NT		51		NT		NT		50	880	880
	EBGmw-126	Unconsolidated	Arsenic	NT		15.5		NT		NT		10	0.045	0.045
			Iron	NT		4380		NT		NT		300	11000	26000
			Manganese	NT		129		NT		NT		50	880	880
	EBGmw-129	Unconsolidated	Iron	NT		1840		NT		NT		300	11000	26000
			Manganese	NT		488		NT		NT		50	880	880
Fuze and Booster	FBQmw-169	Bedrock	Iron	NT		378		NT		NT		300	11000	26000
			Manganese	NT		4790		NT		NT		50	880	880
	FBQmw-173	Bedrock	Iron	NT		305		NT		NT		300	11000	26000
			Manganese	NT		328		NT		NT		50	880	880
	FBQmw-174	Bedrock	2,4,6-TNT	NT		44		NT		NT		NS	2.2	NS
Load Line 1	LL1mw-063	Bedrock	Manganese	NT		NT		NT		170		50	880	880
	LL1mw-065	Unconsolidated	Arsenic	NT		NT		NT		3.4	J	10	0.045	0.045
			Manganese	NT		NT		NT		250		50	880	880
	LL1mw-067	Bedrock	Manganese	11.9		67.7		85		NT		50	880	880

Table 4-4. Exceedances of MCLs and Region 9 PRGs

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSL (µg/L)
Load Line 1	LL1mw-080	Bedrock	Beta-BHC	NT		NT		NT		0.063	J	NS	0.037	0.037
			RDX	NT		NT		NT		81	J	NS	0.61	0.61
	LL1mw-081	Bedrock	Arsenic	5.0	U	5.0	U	5.0	U	3.2	J	10	0.045	0.045
			Iron	728		50.0	U	4630		3100		300	11000	26000
			Manganese	1950		2030		2170		2000		50	880	880
			RDX	0.35	J	1.1	J	1.6		1.6	J	NS	0.61	0.61
	LL1mw-082	Bedrock	Arsenic	5.0	U	5.0	U	3.6	J	4.9	J	10	0.045	0.045
			Iron	50.0	U	50.0	U	5210		5900		300	11000	26000
			Manganese	456		2660		1640		1200		50	880	880
	LL1mw-083	Bedrock	2,4,6-TNT	NT		NT		NT		4.9	J	NS	2.2	2.2
			Aluminum	NT		NT		NT		940		200	36000	37000
			Manganese	NT		NT		NT		520		50	880	880
	LL1mw-084	Bedrock	2-Nitrotoluene	0.31	J	0.50	U	0.55	U	0.52	U	NS	0.049	0.31
			2,4,6-TNT	10	J	13	J	8.4	J	7.3		NS	2.2	2.2
			Alpha-BHC	0.60	UJ	0.15	U	0.030	UJ	0.18	J	NS	0.011	0.011
			Aluminum	515		337		246		590		200	36000	37000
			Beta-BHC	0.60	UJ	0.15	U	0.030	UJ	0.16	J	NS	0.037	0.037
			bis(2-Ethylhexyl)phthalate	6.1	J	0.87	J	1.4	JB	1.4	J	6	4.8	4.8
			Heptachlor	0.60	UJ	0.15	U	0.029	J	0.31	UJ	0.4	0.015	0.015
			Manganese	164		222		192		170		50	880	880
			RDX	0.10	U	0.69	J	0.42	J	0.69	J	NS	0.61	0.61
	LL1mw-085	Bedrock	Arsenic	5.7		5.0	U	5.7		4.8	J	10	0.045	0.045
			Iron	50.0	U	50.0	U	423		420		300	11000	26000
			Manganese	638		179		1180		840		50	880	880
Load Line 2	LL2mw-059	Bedrock	Arsenic	NT		NT		NT		7.1		10	0.045	0.045
			Iron	NT		NT		NT		4700		300	11000	26000
			Manganese	NT		NT		NT		2100		50	880	880
	LL2mw-265	Bedrock	Iron	NT		NT		NT		2300		300	11000	26000
			Manganese	NT		NT		NT		1300		50	880	880
			Trichloroethene	NT		NT		NT		0.22	J	5	0.028	2
	LL2mw-266	Bedrock	Arsenic	4.2	J	5.0	U	5.0	U	NT		10	0.045	0.045
			Iron	4320		2250		2470		NT		300	11000	26000
			Manganese	1250		936		761	J	NT		50	880	880
	LL2mw-267	Bedrock	Aluminum	51300		318		33.0	J	NT		200	36000	37000
			Arsenic	137		5.0	U	5.0	U	NT		10	0.045	0.045
			Chromium	228		5.0	U	5.0	U	NT		100	55000	16000
			Iron	164000		660		432		NT		300	11000	26000
			Lead	69	J	3.0	U	3.0	U	NT		15	NS	NS
			Manganese	2850		547		564	J	NT		50	880	880
			RDX	0.93		1.7	J	1.3	J	NT		NS	0.61	0.61
			Vanadium	94.6		10.0	U	10.0	U	NT		NS	36	180
	LL2mw-269	Bedrock	Iron	6840		6590		6800		NT		300	11000	26000
			Manganese	1520		1570		1590	J	NT		50	880	880
Load Line 3	LL3mw-234	Bedrock	Alpha-BHC	NT		NT		NT		0.018	JB	NS	0.011	0.011
			Iron	NT		NT		NT		1500		300	11000	26000
			Manganese	NT		NT		NT		1800		50	880	880
	LL3mw-235	Bedrock	Arsenic	NT		NT		NT		3.3	B	10	0.045	0.045
	LL3mw-236	Bedrock	Manganese	240		129		344	J	970		50	880	880
			Iron	50.0	U	50.0	U	388		1200		300	11000	26000
	LL3mw-237	Bedrock	Manganese	NT		91.6		NT		NT		50	880	880
	LL3mw-238	Bedrock	2,4,6-TNT	NT		69		NT		95	J	NS	2.2	2.2
			beta-BHC	NT		0.15	J	NT		0.57	UJ	NS	0.037	0.037
			RDX	NT		11	J	NT		4.8	J	NS	0.61	0.61

Table 4-4. Exceedances of MCLs and Region 9 PRGs

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSL (µg/L)
Load Line 3	LL3mw-239	Bedrock	2-Nitrotoluene	0.092	J	0.5	U	0.55	U	NT		NS	0.049	0.31
			Arsenic	3.9	J	5.0	U	3.6	J	NT		10	0.045	0.045
			Aluminum	50.0	U	394		50.0	U	NT		200	36000	37000
			Carbon tetrachloride	1.0	U	0.27	J	0.33	J	NT		5	0.17	0.44
			Chloroform	0.4	JB	0.41	JB	0.43	JB	NT		NS	0.17	0.19
			Iron	50.0	U	818		50.0	U	NT		300	11000	26000
			Manganese	175		182		101	J	NT		50	880	880
			RDX	1.6		1.6	J	1.7		NT		NS	0.61	0.61
	LL3mw-241	Bedrock	2,4,6-TNT	NT		NT		NT		3.4		NS	2.2	2.2
			RDX	NT		NT		NT		1.5		NS	0.61	0.61
	LL3mw-242	Bedrock	bis(2-Ethylhexyl)phthalate	NT		29		NT		NT		6	4.8	4.8
Load Line 4	LL4mw-193	Unconsolidated	Manganese	NT		NT		181		NT		50	880	880
	LL4mw-195	Unconsolidated	Iron	NT		NT		7320		NT		300	11000	26000
			Manganese	NT		NT		3490		NT		50	880	880
	LL4mw-196	Unconsolidated	Arsenic	4.6	J	5.0	U	5.0	U	NT		10	0.045	0.045
			Iron	1120		50.0	U	311		NT		300	11000	26000
			Manganese	136		41.9		59		NT		50	880	880
	LL4mw-198	Unconsolidated	Iron	NT		NT		4720		NT		300	11000	26000
			Manganese	NT		NT		1010		NT		50	880	880
	LL4mw-199	Unconsolidated	Arsenic	NT		NT		11.4		NT		10	0.045	0.045
			Iron	NT		NT		5830		NT		300	11000	26000
			Manganese	NT		NT		836		NT		50	880	880
Load Line 6	LL6mw-005	Bedrock	Arsenic	15.3		NT		NT		NT		10	0.045	0.045
			Iron	859		NT		NT		NT		300	11000	26000
			Manganese	483		NT		NT		NT		50	880	880
Load Line 7	LL7mw-001	Bedrock	Iron	8940		NT		NT		NT		300	11000	26000
			Manganese	487		NT		NT		NT		50	880	880
	LL7mw-003	Bedrock	Iron	19500		NT		NT		NT		300	11000	26000
			Manganese	1370		NT		NT		NT		50	880	880
	LL7mw-005	Bedrock	Iron	1290		NT		NT		NT		300	11000	26000
			Manganese	1630		NT		NT		NT		50	880	880
Load Line 8	LL8mw-003	Unconsolidated	Arsenic	7.1		NT		NT		NT		10	0.045	0.045
			Iron	775		NT		NT		NT		300	11000	26000
			Manganese	639		NT		NT		NT		50	880	880
Load Line 9	LL9mw-002	Bedrock	Arsenic	3.5	J	NT		NT		NT		10	0.045	0.045
	LL9mw-004	Bedrock	Arsenic	3.8	J	NT		NT		NT		10	0.045	0.045
			Iron	10800		NT		NT		NT		300	11000	26000
			Manganese	2220		NT		NT		NT		50	880	880
Landfill North of Winklepeck	LNWmw-025	Unconsolidated	Arsenic	NT		3.7	J	NT		NT		10	0.045	0.045
			Iron	NT		1810		NT		NT		300	11000	26000
			Manganese	NT		731		NT		NT		50	880	880
Load Line 12	LL12mw-088	Unconsolidated	Arsenic	NT		NT		NT		13	B	10	0.045	0.045
			Iron	NT		NT		NT		3900		300	11000	26000
			Manganese	NT		NT		NT		420		50	880	880
	LL12mw-107	Unconsolidated	Arsenic	NT		NT		NT		14		10	0.045	0.045
			Iron	NT		NT		NT		3100		300	11000	26000
			Manganese	NT		NT		NT		280		50	880	880
	LL12mw-113	Unconsolidated	Aluminum	NT		NT		NT		21000		200	36000	37000
			Arsenic	NT		NT		NT		45		10	0.045	0.045
			Iron	NT		NT		NT		58000		300	11000	26000
			Lead	NT		NT		NT		21		15	NS	NS
			Manganese	NT		NT		NT		2700		50	880	880

Table 4-4. Exceedances of MCLs and Region 9 PRGs

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSL (µg/L)
Load Line 12	LL12mw-128	Unconsolidated	Arsenic	NT		NT		NT		48		10	0.045	0.045
			Iron	NT		NT		NT		5100		300	11000	26000
			Manganese	NT		NT		NT		200		50	880	880
	LL12mw-153	Unconsolidated	Arsenic	NT		NT		NT		18	B	10	0.045	0.045
			Iron	NT		NT		NT		3400		300	11000	26000
			Manganese	NT		NT		NT		190		50	880	880
	LL12mw-154	Unconsolidated	Arsenic	NT		NT		NT		15	B	10	0.045	0.045
			Iron	NT		NT		NT		1800		300	11000	26000
			Manganese	NT		NT		NT		96		50	880	880
	LL12mw-182	Unconsolidated	Arsenic	NT		NT		NT		28		10	0.045	0.045
			Iron	NT		NT		NT		680		300	11000	26000
			Manganese	NT		NT		NT		54		50	880	880
	LL12mw-183	Unconsolidated	Arsenic	NT		NT		NT		45		10	0.045	0.045
			Iron	NT		NT		NT		1600		300	11000	26000
			Manganese	NT		NT		NT		68		50	880	880
	LL12mw-184	Unconsolidated	Arsenic	NT		NT		NT		17	B	10	0.045	0.045
			Iron	NT		NT		NT		2600		300	11000	26000
			Manganese	NT		NT		NT		470		50	880	880
	LL12mw-185	Unconsolidated	Manganese	NT		NT		NT		1600		50	880	880
	LL12mw-186	Unconsolidated	Arsenic	NT		NT		NT		3.4	B	10	0.045	0.045
			Manganese	NT		NT		NT		240		50	880	880
	LL12mw-187	Unconsolidated	Manganese	NT		NT		NT		2100		50	880	880
			Nitrate as N (NO3-N)	NT		NT		NT		1670	J	1	1	3
	LL12mw-188	Unconsolidated	Arsenic	NT		NT		NT		4.1	J	10	0.045	0.045
			Manganese	NT		NT		NT		440		50	880	880
	LL12mw-189	Unconsolidated	Aluminum	NT		NT		NT		840		200	36000	37000
			Arsenic	NT		NT		NT		14		10	0.045	0.045
			Iron	NT		NT		NT		3000		300	11000	26000
			Manganese	NT		NT		NT		280		50	880	880
	LL12mw-242	Unconsolidated	Arsenic	NT		NT		NT		20		10	0.045	0.045
			Iron	NT		NT		NT		710		300	11000	26000
			Manganese	NT		NT		NT		87		50	880	880
	LL12mw-243	Unconsolidated	Alpha-BHC	NT		NT		NT		0.017	JB	NS	0.011	0.011
			Arsenic	NT		NT		NT		15	B	10	0.045	0.045
			Iron	NT		NT		NT		1100		300	11000	26000
			Manganese	NT		NT		NT		670		50	880	880
			Trichloroethene	NT		NT		NT		0.17	J	5	0.028	2
	LL12mw-244	Unconsolidated	Alpha-BHC	NT		NT		NT		0.031	J	NS	0.011	0.011
			Aluminum	NT		NT		NT		220		200	36000	37000
			Arsenic	NT		NT		NT		8.2		10	0.045	0.045
			Iron	NT		NT		NT		470		300	11000	26000
			Manganese	NT		NT		NT		100		50	880	880
	LL12mw-245	Unconsolidated	Arsenic	NT		NT		NT		3.6	B	10	0.045	0.045
			Manganese	NT		NT		NT		430		50	880	880
	LL12mw-246	Unconsolidated	Arsenic	NT		NT		NT		34		10	0.045	0.045
			Iron	NT		NT		NT		1800		300	11000	26000
			Manganese	NT		NT		NT		66		50	880	880
Suspect Mustard Agent	MBSmw-001	Unconsolidated	Arsenic	NT		4.7	J	NT		NT		10	0.045	0.045
			Manganese	NT		375		NT		NT		50	880	880
NACA Test Area	NTAmw-112	Unconsolidated	Arsenic	NT		17		NT		NT		10	0.045	0.045
			Iron	NT		1090		NT		NT		300	11000	26000
			Manganese	NT		475		NT		NT		50	880	880
	NTAmw-113	Unconsolidated	Arsenic	NT		10.7		NT		NT		10	0.045	0.045
			Manganese	NT		277		NT		NT		50	880	880

Table 4-4. Exceedances of MCLs and Region 9 PRGs

Area	Well Number	Monitored Zone	Analyte	Oct-10 Level (µg/L)		Jan-11 Level (µg/L)		Apr-11 Level (µg/L)		Jul-11 Level (µg/L)		MCL (µg/L)	Region 9 PRG (µg/L)	USEPA RSL (µg/L)
Ramsdell Quarry Landfill	RQLmw-006	Bedrock	Arsenic	55.9		NT		NT		NT		10	0.045	0.045
			Iron	39500		NT		NT		NT		300	11000	26000
			Manganese	5360		NT		NT		NT		50	880	880
	RQLmw-007	Bedrock	Arsenic	70.2		NT		5.0	U	NT		10	0.045	0.045
			Iron	20100		NT		594		NT		300	11000	26000
			Manganese	1380		NT		19.1		NT		50	880	880
	RQLmw-008	Bedrock	alpha-BHC	0.015	J	NT		0.030	UJ	NT		NS	0.011	0.011
			Arsenic	68.7		NT		11.3		NT		10	0.045	0.045
			Iron	94400		NT		18200		NT		300	11000	26000
			Manganese	680		NT		296		NT		50	880	880
	RQLmw-009	Bedrock	Arsenic	27.4		NT		4.3	UJ	NT		10	0.045	0.045
			Iron	3880		NT		886		NT		300	11000	26000
			Manganese	946		NT		113		NT		50	880	880
			Aluminum	19.0	JB	NT		402		NT		200	36000	37000
	RQLmw-010	Bedrock	Manganese	1280		NT		NT		NT		50	880	880
	RQLmw-011	Bedrock	Iron	1550		NT		NT		NT		300	11000	26000
			Manganese	4050		NT		NT		NT		50	880	880
	RQLmw-014	Bedrock	2-Nitrotoluene	NT		NT		0.32	J	NT		NS	0.049	0.31
			Iron	NT		NT		15100		NT		300	11000	26000
			Manganese	NT		NT		2800		NT		50	880	880
	RQLmw-016	Bedrock	Iron	NT		NT		11600		NT		300	11000	26000
			Manganese	NT		NT		6830		NT		50	880	880
	RQLmw-017	Bedrock	Manganese	NT		NT		4820		NT		50	880	880
Sharon Conglomerate	SCFmw-001	Basal Bedrock	Arsenic	16.4		5.0	U	3.4	UJ	NT		10	0.045	0.045
			Iron	888		50.0	U	99.6		NT		300	11000	26000
			Manganese	195		606		528		NT		50	880	880
	SCFmw-002	Basal Bedrock	Arsenic	18.1		11.4		14.2		NT		10	0.045	0.045
			Iron	348		50	U	397		NT		300	11000	26000
			Manganese	77.9		72.7		77.8		NT		50	880	880
			alpha-BHC	0.030	U	0.15	U	0.022	J	NT		NS	0.011	0.011
	SCFmw-003	Basal Bedrock	Iron	521		80.9	B	599		NT		300	11000	26000
			Manganese	237		239		258		NT		50	880	880
	SCFmw-004	Basal Bedrock	Manganese	658		708		734		NT		50	880	880
	SCFmw-005	Basal Bedrock	Arsenic	5.4		5.0	U	4.9	J	NT		10	0.045	0.045
			Iron	5320		5090		3950		NT		300	11000	26000
			Manganese	1790		1870		1620		NT		50	880	880
	SCFmw-006	Basal Bedrock	Arsenic	13.7		9.3		13.5		NT		10	0.045	0.045
			Iron	518		84	B	502		NT		300	11000	26000
			Manganese	172		164		177		NT		50	880	880
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	Arsenic	NT		10.5		NT		NT		10	0.045	0.045
			Iron	NT		8760		NT		NT		300	11000	26000
			Manganese	NT		1310		NT		NT		50	880	880
	WBGmw-006	Unconsolidated	RDX	NT		29	J	NT		NT		NS	0.61	0.61
	WBGmw-007	Unconsolidated	Manganese	NT		100		NT		NT		50	880	880
	WBGmw-009	Unconsolidated	Manganese	NT		82.4		NT		NT		50	880	880
			RDX	NT		3.5	J	NT		NT		NS	0.61	0.61

Notes:
NS = no standard NT = not tested
All metals are filtered.
J = estimated result. Results have been qualified "J" For more details refer to Data Verification/Validation Reports in in the FWGWMP October 2010 and January, April, and July 2011 Sampling Reports
B = analysis when the analyte is found in the method blank or any of the field blanks
U = analyzed but not detected at or above the reporting limit
Bold = constituent detected above MCl or Region 9 PRG

To facilitate the discussion of concentration changes over time, concentration versus time graphs (i.e., time-trend graphs) were prepared. The following guidelines were applied to produce the graphs:

1. Only wells sampled during this reporting period with at least one detection of an organic, explosive, or inorganic above the MCL or Region 9 PRG and that have been sampled a minimum of three times since 2006 were graphed.
2. Values reported as "non-detect" are shown as one-half the reporting limit.
3. Essential nutrients (i.e., calcium, magnesium, potassium, and sodium) were not graphed.

Time-trend graphs for the COPCs are presented in Appendix E. The graphs are organized by AOC (maps showing each of the AOC areas are presented in Appendix F). The background wells are grouped after the AOCs.

The time-trend plots include the comparative criteria of: 1) MCL, 2) PRG for tap water, and 3) background concentration (either unconsolidated or bedrock) for inorganics. In Tables 4-2 and 4-3 it is noted that background concentrations for several inorganics are identified as "0" (i.e., not expected to be naturally present at any measurable concentration). These inorganics include aluminum, antimony, arsenic (bedrock only), beryllium, cadmium, chromium (bedrock only), cobalt, copper, lead, selenium, silver, thallium, and vanadium. These criteria were calculated from data collected prior to implementation of the FWGWMP. With implementation of the FWGWMP, many of the inorganics with a "0" background criterion are found to be present at concentrations greater than their respective FWGWMP RLs. Consideration should be made for a re-evaluation of background criteria for inorganics with thought given to inclusion of the FWGWMP data.

4.2 Atlas Scrap Yard

During the 2011 reporting period, one bedrock aquifer well (ASYmw-003) was sampled in the Atlas Scrap Yard.

In April 2011, manganese was identified in well ASYmw-003 at a concentration exceeding the MCL for this constituent; it did not exceed the PRG. No other constituents were identified above their respective MCLs or PRGs in the Atlas Scrap Yard wells during this reporting period.

Well ASYmw-003 was previously sampled in April and July 2009. Manganese also exceeded the MCL during the July 2009 sampling event.

The time-trend graphs in Appendix E show that manganese concentrations at well ASYmw-003 decreased between July 2009 and April 2011.

4.3 Building 1200

During the 2011 reporting period, two bedrock aquifer wells (B12mw-010 and B12mw-012) were sampled at Building 1200.

In April 2011, manganese was identified in well B12mw-010 at a concentration exceeding the MCL for this constituent; it did not exceed the PRG. Arsenic was identified in this well at a concentration exceeding the Region 9 PRG but below the MCL. No other constituents were identified above their respective MCLs or PRGs in the Building 1200 wells during this reporting period.

Well B12mw-010 was previously sampled in April, July, and October 2008, and January 2009. Manganese exceeded the MCL during the April and October 2008 sampling events. Arsenic was not identified above the reporting limit of 5 µg/L during the 2008 and 2009 sampling events.

The time-trend graphs in Appendix E show seasonal fluctuations for manganese at well B12mw-010 within a narrow range of 31 to 62 µg/L during the past five sampling events. Manganese concentrations have shown a tendency to be higher in the spring and autumn and lower in the summer and winter at this location. The most recent trend shows a slight increase in manganese concentration between January 2009 and April 2011. The concentration-change trend for arsenic shows an apparent increase at this location, but this is as much a reflection of the three earlier results being non-detect at the laboratory reporting limit; whereas, the most recent result was an estimated value below the reporting limit.

4.4 Central Burn Pits

During this reporting period, five unconsolidated aquifer wells (CBPmw-001, CBPmw-004, CBPmw-005, CBPmw-007, and CBPmw-008) were sampled at the Central Burn Pits.

In April 2011, arsenic was identified in four wells (CBPmw-001, CBPmw-004, CBPmw-005, and CBPmw-007) at concentrations above both the MCL and the PRG, and in one well (CBPmw-008) at a concentration exceeding the Region 9 PRG but below the MCL. Iron was identified in two wells (CBPmw-001 and CBPmw-005) at concentrations exceeding the MCL, and manganese was identified in four wells (CBPmw-001, CBPmw-005, CBPmw-007, and CBPmw-008) at concentrations above the MCL. Neither iron nor manganese was identified at concentrations above their respective PRG values. No other constituents were identified above their respective MCLs or PRGs in the Central Burn Pit wells during the October 2010 through July 2011 quarterly sampling events.

Wells CBPmw-001, CBPmw-004, and CBPmw-008 were previously sampled in April, July, and October 2008, and January 2009. Well CBPmw-005 was previously sampled in October 2006 and January 2007, and well CBPmw-007 was previously sampled in October 2006, and January, April, July, and October 2007. Arsenic exceeded the MCL in

wells CBPmw-001, CBPmw-004, CBPmw-005, and CBPmw-007, and the PRG in well CBPmw-008, during each sampling event. Similarly, iron exceeded the MCL during each prior sampling event at wells CBPmw-001 and CBPmw-005. Manganese exceeded the MCL during each sampling event at wells CBPmw-001, CBPmw-005, and CBPmw-007. Manganese was not identified above the MCL in well CBPmw-008 during the July and October 2008 sampling events, but it did exceed the MCL in January 2008 and January 2009 in this well.

In general, the time-trend graphs in Appendix E show that arsenic concentrations decreased in wells CBPmw-001, CBPmw-004, CBPmw-005, CBPmw-007, and CBPmw-008 during this reporting period. In addition, iron decreased at wells CBPmw-001 and CBPmw-005, and manganese decreased at CBPmw-007 and increased at wells CBPmw-001, CBPmw-005, and CBPmw-008. Note that manganese concentrations decreased slightly in well CBPmw-008 between January 2009 and January 2011, but the overall trend has been rising. Earlier constituent trends for several of these wells (e.g., arsenic and iron in CBPmw-001 and manganese in CBPmw-007) had also been increasing. As a result, it is uncertain whether the current concentration trends are anomalous, seasonally affected, or indicative of improving conditions. Arsenic concentrations in well CBPmw-004 definitely appear to show seasonal fluctuations (i.e., higher in the spring and fall and lower in the summer and winter) at this location.

4.5 Cobbs Ponds

During the 2011 reporting period, three unconsolidated aquifer wells (CPmw-002, CPmw-005, and CPmw-006) were sampled at Cobbs Ponds on at least one occasion.

In January 2011, manganese was identified at a concentration exceeding the MCL for this constituent in wells CPmw-002 and CPmw-006; it was not identified above its PRG value. Similarly, iron was identified above the MCL, but below the PRG, in wells CPmw-005 and CPmw-006 during this same sampling event. Arsenic was identified above the PRG and MCL in well CPmw-005. No other constituents were identified above their respective MCLs or PRGs in the Cobbs Pond wells during this reporting period.

Wells CPmw-002, CPmw-005, and CPmw-006 were previously sampled in April and October 2008, and January 2009. Arsenic exceeded the MCL in well CPmw-005 during all three prior sampling events. Iron exceeded the MCL in wells CPmw-005 and CPmw-006 during all three previous sampling events, and manganese was above the MCL in wells CPmw-002 and CPmw-006 during the April and October 2008 and January 2009 sampling episodes.

The time-trend graphs in Appendix E show that arsenic concentrations decreased slightly between January 2009 and January 2011, but the overall trend has been on the rise since the initial sampling in April 2008. Iron and manganese concentrations show decreasing trends for both constituents in the affected wells during this reporting period. However,

due to the sharp decline in iron and manganese concentrations at well CPmw-006 in January 2011, it is uncertain whether the current concentration trends are anomalous, seasonally affected, or indicative of improving conditions at this location.

4.6 Demolition Area #2

During the 2011 reporting period, five unconsolidated aquifer wells (DA2mw-106, DA2mw-107, DA2mw-110, DET-003, and DET-004) were sampled at Demolition Area #2 on at least one occasion.

In January 2011, iron and manganese were identified in wells DA2mw-106 and DA2mw-107 at concentrations exceeding their respective MCLs. Manganese also exceeded the Region 9 PRG in DA2mw-106. Iron was not detected above its PRG value in either well. Aluminum was identified above the MCL, but below the PRG, in well DA2mw-110 during this same sampling event. RCRA wells DETmw-003 and DETmw-004 were sampled in October 2010 and April 2011. During both sampling events, arsenic, iron, and manganese were identified above their respective MCLs in well DETmw-003. Arsenic also exceeded the Region 9 PRG in this well, whereas iron and manganese did not. The explosive compound, RDX, was identified above the Region 9 PRG in well DETmw-004 during both sampling events; there is no MCL for this compound. No other constituents were identified above their respective MCLs or PRGs in the Demolition Area #2 wells during the October 2010 through July 2011 sampling events.

Wells DETmw-003 and DETmw-004 were sampled during six previous events between October 2006 and October 2009. Well DA2mw-106 was previously sampled in April and October 2008, and January 2009. Well DA2mw-107 was previously sampled in October 2006, and January, April, July, and October 2007. Well DA2mw-110 was previously sampled in April 2007, April and October 2008, and January 2009. Arsenic exceeded the MCL in well DETmw-003 during four of the six prior sampling events. Iron exceeded the MCL in wells DA2mw-006, DA2mw-107, and DETmw-003 during all prior sampling events with the exception of the October 2008 sampling for DA2mw-106. Manganese was above the MCL in wells DA2mw-006, DA2mw-107, and DETmw-003 during all previous sampling episodes for each well. The compound, RDX, exceeded the Region 9 PRG during the April 2008 and 2009 sampling events for well DETmw-004.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells DA2mw-106 (iron decreasing, manganese increasing), DA2mw-107 (iron decreasing, manganese increasing), DA2mw-110 (aluminum increasing), DETmw-003 (arsenic increasing, iron decreasing, and manganese unchanged), and DETmw-004 (RDX increasing). Note that between October 2010 and April 2011, arsenic concentrations at well DETmw-003 actually decreased and iron concentrations increased; however, the long-term time trends show arsenic increasing and iron decreasing. RDX concentrations in well DETmw-004 are seasonally affected (i.e., higher in April and lower in October) at this location. The iron concentration at well DA2mw-006 in April 2008 appears to be anomalously high.

4.7 Erie Burning Grounds

During the 2011 reporting period, four unconsolidated aquifer wells (EBGmw-123, EBGmw-124, EBGmw-126, and EBGmw-129) were sampled at the Erie Burning Grounds on one occasion.

In January 2011, arsenic was identified in three wells (EBGmw-123, EBGmw-124, and EBGmw-126) at concentrations above both the Region 9 PRG and MCL. Iron and manganese were identified in four wells (EBGmw-123, EBGmw-124, EBGmw-126, and EBGmw-129) at concentrations exceeding their respective MCLs but below their respective PRG values. Aluminum was identified in well EBGmw-124 at a concentration exceeding its MCL but below its PRG. No other constituents were identified above their respective MCLs or PRGs in the Erie Burning Grounds wells during this reporting period.

Wells EBGmw-123, EBGmw-124, EBGmw-126, and EBGmw-129 were previously sampled in April and October 2008, and January 2009. Arsenic exceeded the MCL in wells EBGmw-123, EBGmw-124, and EBGmw-126 during each sampling event. Similarly, iron and manganese exceeded the MCL for each prior sampling event at wells EBGmw-123, EBGmw-124, EBGmw-126, and EBGmw-129.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells EBGmw-123 (iron and manganese decreasing, arsenic increasing), EBGmw-124 (aluminum increasing, arsenic, iron, and manganese decreasing), EBGmw-126 (arsenic, iron, and manganese decreasing), and EBGmw-129 (iron and manganese decreasing). Note that arsenic concentrations in well EBGmw-123 actually decreased between January 2009 and January 2011, but the overall trend for arsenic at this location has increased over time.

4.8 Fuze and Booster

During the 2011 reporting period, four bedrock aquifer wells (FBQmw-169, FBQmw-172, FBQmw-173, and FBQmw-174) were sampled at the Fuze and Booster area on one occasion.

In January 2011, iron and manganese were identified in two wells (FBQmw-169 and FBQmw-173) at concentrations above their respective MCLs; manganese also exceeded the Region 9 PRG in the groundwater sample from well FBQmw-169. In addition, 2,4,6-TNT was identified in well FBQmw-174 at a concentration above its Region 9 PRG value during this sampling event; there is no MCL for this constituent. No other constituents were identified above their respective MCLs or PRGs in the Fuze and Booster wells during this reporting period.

Wells FBQmw-169, FBQmw-173, and FBQmw-174 were previously sampled in April and October 2008 and January 2009. Iron and manganese exceeded the MCL at wells FBQmw-169 and FBQmw-173 for each prior sampling event, except for iron in well

FBQmw-173 during the October 2008 event. 2,4,6-TNT was identified at concentrations above the PRG for each previous sampling event in well FBQmw-174.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells FBQmw-169 (iron and manganese decreasing), FBQmw-173 (iron and manganese decreasing), and FBQmw-174 (2,4,6-TNT decreasing). Note that the iron concentration reported for FBQmw-173 in April 2008 appears to be anomalously elevated, which affects the overall concentration trend at this location. The most recent data shows a relatively stable trend for iron at this location.

4.9 Load Line 1

During this reporting period, one unconsolidated aquifer well and nine bedrock wells (exclusive of wells LL1mw-064 and LL1mw-078) were sampled in Load Line 1.

During this reporting period, aluminum (LL1mw-083 and LL1mw-084), iron (LL1mw-081, LL1mw-082, and LL1mw-085), and manganese (LL1mw-063, LL1mw-065, LL1mw-067, LL1mw-081, LL1mw-082, LL1mw-083, LL1mw-084, and LL1mw-085) were identified at concentrations exceeding their respective MCLs during one or more sampling events. In addition, three wells (LL1mw-081, LL1mw-082, and LL1mw-085) contained manganese at concentrations exceeding the Region 9 PRG during one or more sampling events. Iron and aluminum did not exceed their respective PRG values in these wells. Also during this reporting period, arsenic (LL1mw-065, LL1mw-081, LL1mw-082, and LL1mw-085), 2-nitrotoluene (LL1mw-084), 2,4,6-TNT (LL1mw-083 and LL1mw-084), alpha-BHC (LL1mw-084), beta-BHC (LL1mw-080 and LL1mw-084), heptachlor (LL1mw-084), and RDX (LL1mw-080, LL1mw-081, and LL1mw-084) were identified above their respective Region 9 PRGs during one or more sampling events at Load Line 1. Arsenic and heptachlor concentrations were below their respective MCLs; there are no MCL values for 2-nitrotoluene, TNT, alpha-BHC, or beta-BHC. Bis(2-ethylhexyl)phthalate was identified in well LL1mw-084 at a concentration exceeding the Region 9 PRG and MCL. No other constituents were identified above their respective MCLs or PRGs in the Load Line 1 wells during the October 2010 through July 2011 quarterly sampling events.

Prior to this reporting period, wells LL1mw-063 and LL1mw-079 were sampled on four previous occasions (January, April, July, and October 2008); well LL1mw-065 was sampled on five previous occasions (January, April, July, and October 2008 and July 2010); wells LL1mw-067, LL1mw-081, LL1mw-082, LL1mw-084, and LL1mw-085 were sampled on one previous occasion (July 2010); and wells LL1mw-080 and LL1mw-083 were sampled on six prior occasions (October 2006, January, April, July, and October 2007, and July 2010). The compound, 2-nitrotoluene, was only detected during the October 2010 sampling event in LL1mw-084; however, the reporting limit in July 2010 was nearly fifty times the Region 9 PRG value. Aluminum exceeded the MCL and 2,4,6-TNT exceeded the Region 9 PRG during all five prior sampling events in well LL1mw-083 and during one prior occasion in well LL1mw-084. The pesticide beta-BHC

previously exceeded the Region 9 PRG in well LL1mw-080 on two occasions and in well LL1mw-084 during one prior sampling event. During two other sampling events at LL1mw-080, the laboratory reporting limit for beta-BHC was nearly 10 times higher than the PRG value; the results were non-detect on those occasions. Arsenic exceeded the Region 9 PRG during one previous occasion in well LL1mw-065. Iron exceeded its MCL during one prior sampling episode at wells LL1mw-081, LL1mw-082, and LL1mw-085. Manganese exceeded the MCL in well LL1mw-065 on five prior occasions, six times in well LL1mw-083, thrice in LL1mw-063, and one time each in wells LL1mw-084 and LL1mw-085. During the previous sampling event for wells LL1mw-081 and LL1mw-082, manganese was identified at concentrations exceeding the Region 9 PRG. RDX was identified at concentrations exceeding the Region 9 PRG on six prior occasions at well LL1mw-080, and one time each at wells LL1mw-081 and LL1mw-084.

Time-trend graphs were produced for wells containing COPCs at concentrations exceeding corresponding MCL or PRG values during this reporting period and are included in Appendix E. Both the recent results and historical data for each well affected during this reporting period were used to produce and evaluate the time-trends. The time-trend graphs show concentration-change trends (either increasing or decreasing) at wells LL1mw-063 (manganese decreasing), LL1mw-065 (arsenic and manganese increasing), LL1mw-067 (manganese increasing), LL1mw-080 (beta-BHC and RDX increasing), LL1mw-081 (arsenic, iron, manganese, and RDX increasing), LL1mw-082 [arsenic, bis(2-ethylhexyl)phthalate, iron, and manganese increasing], LL1mw-083 (2,4,6-TNT decreasing, aluminum and manganese increasing), LL1mw-084 [2-nitrotoluene, 2,4,6-TNT, alpha-BHC, beta-BHC, bis(2-ethylhexyl)phthalate, heptachlor, and manganese decreasing; aluminum increasing; and RDX unchanged], and LL1mw-085 (arsenic, iron, and manganese increasing).

Note that arsenic concentrations in well LL1mw-085 actually decreased between April and July 2011, and arsenic appears to be seasonally affected (i.e., lower in the summer and winter and higher in the spring and fall) at this location. However, the overall trend for arsenic is increasing at LL1mw-085. Iron and manganese concentrations in well LL1mw-081 also decreased between April and July 2011, but the overall trends for both constituents have increased at LL1mw-081. Similarly, manganese concentrations in well LL1mw-065 decreased between July 2010 and July 2011, but the overall trend is increasing. Manganese concentrations also decreased in wells LL1mw-082 and LL1mw-085 between April and July 2011; however, the overall concentration trend for manganese has increased at both wells. RDX concentrations decreased in well LL1mw-080 between July 2010 and July 2011, but the overall trend is on the rise. Conversely, alpha-BHC, beta-BHC, and heptachlor concentrations at well LL1mw-084 increased between April and July 2011, but the long-term time trend shows a decrease in concentrations for these constituents. Alpha-BHC was only identified above laboratory reporting limits at this location in July 2011; the decreasing long-term trend for this compound is a false-negative concentration trend produced by the higher reporting limit from October 2010.

4.10 Load Line 2

During this reporting period, six bedrock aquifer wells (LL2mw-059, LL2mw-060, LL2mw-265, LL2mw-266, LL2mw-267, and LL2mw-269) were sampled at least once.

Aluminum, arsenic, chromium, iron, lead, and manganese were identified at concentrations above their respective MCLs in one or more wells at Load Line 2 during this reporting period. Each of these inorganic contaminants, except chromium and lead, also exceeded their respective Region 9 PRG value in at least one Load Line 2 well. Trichloroethene (TCE), vanadium, and RDX were identified at concentrations exceeding their respective Region 9 PRGs in one or more wells at Load Line 2 during this reporting period. Trichloroethene did not exceed its MCL value; there are no MCL values for vanadium or RDX. No other constituents were identified above their respective MCLs or PRGs in the Load Line 2 wells during the October 2010 through July 2011 quarterly sampling events.

Well LL2mw-059 was previously sampled six times (October 2006, January, April, July, and October 2007, and July 2010). Wells LL2mw-060 and LL2mw-265 were previously sampled five times (January, April, July, and October 2008, and July 2010), and wells LL2mw-266, LL2mw-267, and LL2mw-269 were sampled on one prior occasion (July 2010). Arsenic exceeded the Region 9 PRG in wells LL2mw-059 and LL2mw-266 during one previous sampling event. Iron previously exceeded the MCL at wells LL2mw-059 (four times), LL2mw-265 (three times), and LL2mw-266, LL2mw-267, and LL2mw-269 (one time). Manganese previously exceeded the MCL at wells LL2mw-059 (four times), LL2mw-265 (two times), and LL2mw-267 (one time). In addition, manganese was previously identified at concentrations exceeding the Region 9 PRG in wells LL2mw-059, LL2mw-266, and LL2mw-269 (one time each) and well LL2mw-265 (two occasions). RDX was identified at concentrations above the PRG during one prior sampling event in well LL2mw-267.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL2mw-059 (arsenic increasing, iron and manganese decreasing), LL2mw-265 (iron increasing, manganese and TCE decreasing), LL2mw-266 (iron unchanged and arsenic and manganese decreasing), LL2mw-267 (iron, manganese, and RDX decreasing), and LL2mw-269 (iron unchanged and manganese increasing). Note that the TCE concentration identified in LL2mw-265 was reported at an estimated concentration below the laboratory reporting limit; no TCE has previously been reported in this well. Since ½ the reporting limit is higher than the estimated concentration identified during the July 2011 sampling event, there is an apparent decreasing trend for this constituent over time. In addition, metal concentrations at LL2mw-267 in October 2010 were several magnitudes higher than previous or subsequent sampling events at this location. Since arsenic, chromium, lead, and vanadium were only identified above their respective reporting limits in October 2010 at this location, it is our opinion that the October 2010 data most likely represent anomalous results and are, therefore, unusable for trend comparisons. Consequently, the trend data for these metals is not listed, although the trends would be stable for each constituent. A decreasing concentration trend for iron and manganese is present at this location if the October data is not used.

4.11 Load Line 3

During the 2011 reporting period, nine bedrock aquifer wells (excluding LL3mw-232, LL3mw-233, and LL3mw-240) wells were sampled in Load Line 3 at least once.

Aluminum, iron, and manganese were identified at concentrations exceeding their respective MCLs at one or more wells during this reporting period. Manganese also exceeded its Region 9 PRG value in one well (LL3mw-234). Aluminum and iron did not exceed their PRG values in any wells. Arsenic, alpha-BHC, beta-BHC, 2-nitrotoluene, 2,4,6-TNT, RDX, carbon tetrachloride, and chloroform were identified at concentrations exceeding their respective Region 9 PRGs in one or more wells at Load Line 3 during this reporting period. However, arsenic and carbon tetrachloride did not exceed their respective MCL values. Bis(2-ethylhexyl)phthalate also exceeded the MCL in well LL3mw-242. There are no MCL values for the other listed constituents. No other constituents were identified above their respective MCLs or PRGs in the Load Line 3 wells during this reporting period.

Well LL3mw-234 was previously sampled five times (January, April, July, and October 2008, and July 2010). Wells LL3mw-238 and LL3mw-242 were also sampled on five previous occasions (October 2006, and January, April, July, and October 2007). Wells LL3mw-235, LL3mw-237, LL3mw-241, and LL3mw-243 were previously sampled four times (January, April, July, and October 2008), and wells LL3mw-236 and LL3mw-239 were sampled on one prior occasion (July 2010). 2,4,6-TNT exceeded the Region 9 PRG in wells LL3mw-238 and LL3mw-241 during four prior sampling events each. The pesticide alpha-BHC exceeded the Region 9 PRG in well LL3mw-234 during one previous sampling event, and beta-BHC was identified at concentrations exceeding the Region 9 PRG in well LL3mw-238 during two prior sampling events. Carbon tetrachloride and chloroform were identified in well LL3mw-239 at concentrations above their respective Region 9 PRG values during one earlier sampling episode. Iron previously exceeded the MCL at well LL3mw-234 on five occasions. Manganese previously exceeded the MCL at wells LL3mw-236 (one time), LL3mw-237 (two times), and LL3mw-239 (one time). In addition, manganese was previously identified at concentrations exceeding the Region 9 PRG in well LL3mw-234 on five occasions. RDX was identified at concentrations above the PRG during five previous sampling events in well LL3mw-238, once in well LL3mw-239, and four times in well LL3mw-241.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL3mw-234 (alpha-BHC, iron, and manganese increasing), LL3mw-235 (arsenic increasing), LL3mw-236 (iron and manganese increasing), LL3mw-237 (manganese increasing), LL3mw-238 (RDX, 2,4,6-TNT, and beta-BHC increasing), LL3mw-239 (iron, chloroform, and manganese decreasing; aluminum, arsenic, 2-nitrotoluene, carbon tetrachloride, and RDX increasing), LL3mw-241 (2,4,6-TNT increasing and RDX decreasing), and LL3mw-242 [bis(2-ethylhexyl)phthalate increasing].

Note that aluminum concentrations at well LL3mw-239 decreased between January and April 2011, but the average concentration trend shows a slight increase for this constituent at this well. Also, arsenic concentrations at well LL3mw-239 appear to be seasonally influenced showing higher concentrations in the spring and fall and lower concentrations in the summer and winter. Chloroform concentrations at well LL3mw-239 increased slightly between January and April 2011, but there has been a decreasing trend for chloroform at this well since July 2010. Manganese concentrations decreased between July 2010 and July 2011; however, there has been an overall increasing trend in manganese concentrations at this well since January 2008. RDX concentrations declined at well LL3mw-238 during this reporting period, but the overall trend has been increasing since October 2006. Conversely, RDX concentrations increased slightly at well LL3mw-241 during this reporting period, but the overall trend has been on the decline for this constituent at this location.

4.12 Load Line 4

During this reporting period, seven unconsolidated aquifer wells (LL4mw-193, LL4mw-195, LL4mw-196, LL4mw-197, LL4mw-198, LL4mw-199, and LL4mw-200) were sampled in Load Line 4 at least once.

Arsenic, iron, and manganese were identified at concentrations exceeding their respective MCLs at one or more wells during this reporting period. Manganese also exceeded its Region 9 PRG value in two wells (LL4mw-195 and LL4mw-198). Arsenic exceeded its Region 9 PRG value in well LL4mw-196 but not its corresponding MCL value in this well. No other constituents were identified above their respective MCLs or PRGs in the Load Line 4 wells during this reporting period.

Wells LL4mw-193, LL4mw-195, and LL4mw-200 were previously sampled four times (January, April, July, and October 2008). Wells LL4mw-196 and LL4mw-197 were sampled on one prior occasion (July 2010), and wells LL4mw-198 and LL4mw-199 were sampled on five previous occasions (October 2006, and January, April, July, and October 2007). Arsenic was identified at concentrations exceeding the MCL during three previous sampling events and at concentrations above the Region 9 PRG during two earlier sampling episodes in well LL4mw-199. Iron previously exceeded the MCL at wells LL4mw-198 and LL4mw-199 on five occasions, at well LL4mw-195 on four occasions, and at LL4mw-196 on one occasion. Manganese previously exceeded the MCL at wells LL4mw-193 and LL4mw-199 on four occasions and at LL4mw-196 on one occasion. In addition, manganese was previously identified at concentrations exceeding the Region 9 PRG at well LL4mw-195 on four occasions, at well LL4mw-198 on five occasions, and at LL4mw-199 on one occasion.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL4mw-193 (manganese decreasing), LL4mw-195 (iron and manganese decreasing), LL4mw-196 (arsenic and manganese decreasing, iron increasing), LL4mw-198 (iron and manganese decreasing), and LL4mw-199 (arsenic,

iron, and manganese increasing). Note that iron concentrations at well LL4mw-198 increased slightly during this reporting period, but the overall trend shows an apparent decrease in iron content at this location since July 2007, although this interpretation is based on a limited number of sampling events.

4.13 Load Line 6

During this reporting period, two unconsolidated aquifer wells (LL6mw-001 and LLGmw-005) and one bedrock aquifer well (LL6mw-004) were sampled in Load Line 6 on one occasion (i.e., October 2010).

Arsenic, iron, and manganese were identified in well LL6mw-005 at concentrations exceeding their respective MCLs during this reporting period. Iron and manganese did not exceed their PRG values in this well; arsenic did. No other constituents were identified above their respective MCLs or PRGs in the Load Line 6 wells during this reporting period.

Well LL6mw-005 was previously sampled in January, April, July, and October 2009. Arsenic, iron, and manganese were identified at concentrations exceeding their respective MCLs during all four prior sampling events at this location.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well LL6mw-005 (arsenic, iron, and manganese decreasing). Note that the arsenic and iron trends are influenced by the apparent spike in contaminant levels for these two constituents in July 2009. There is insufficient data to reliably conclude that this is an outlier, but if the July 2009 data for arsenic and iron are not used in the trend analysis, then the arsenic trend would be stable to slightly increasing, and the iron trend would be stable to slightly decreasing.

4.14 Load Line 7

During the 2011 reporting period, three bedrock wells (LL7mw-001, LL7mw-003, and LL7mw-005) were sampled once (i.e., October 2010) in Load Line 7.

Iron and manganese were identified in all three wells sampled at concentrations exceeding their respective MCLs. Iron also exceeded its Region 9 PRG value in well LL7mw-003, and manganese exceeded its Region 9 PRG value in wells LL7mw-003 and LL7mw-005. No other constituents were identified above their respective MCLs or PRGs in the Load Line 7 wells during this reporting period.

Wells LL7mw-001, LL7mw-003, and LL7mw-005 were previously sampled in January, April, July, and October 2009. Iron was identified at concentrations exceeding the MCL during all four prior sampling events at LL7mw-001 and twice at LL7mw-005. In addition, iron was identified at concentrations exceeding the Region 9 PRG during all

four prior sampling events at LL7mw-003. Manganese was identified at concentrations above the MCL during all four previous sampling events in well LL7mw-001. Manganese was also identified at concentrations exceeding the Region 9 PRG during all four prior sampling events at wells LL7mw-003 and LL7mw-005.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL7mw-001 (iron and manganese increasing), LL7mw-003 (iron increasing and manganese decreasing), and LL7-mw-005 (iron unchanged and manganese decreasing).

4.15 Load Line 8

During this reporting period, one unconsolidated aquifer well (LL8mw-003) was sampled on one occasion (i.e., October 2010) in Load Line 8.

Iron and manganese were identified above their respective MCLs, but below their PRG values, in the groundwater sample from well LL8mw-003 in October 2010. In addition, arsenic was identified above its Region 9 PRG value in this well but below its MCL. No other constituents were identified above their respective MCLs or PRGs in the Load Line 8 wells during this reporting period.

Well LL8mw-003 was previously sampled in January, April, July, and October 2009. Arsenic, iron, and manganese were identified at concentrations exceeding their respective MCLs during all four prior sampling events at this location.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well LL8mw-003 (arsenic, iron, and manganese increasing). Note that iron and manganese concentrations decreased between October 2009 and October 2010 at this location; however, the general trend for both constituents has been on the rise at LL8mw-003.

4.16 Load Line 9

During this reporting period, two bedrock aquifer wells (LL9mw-002 and LL9mw-004) were sampled once (i.e., October 2010) in Load Line 9.

Iron was identified at a concentration above its MCL, but below its PRG, in well LL9mw-004 during this reporting period. Arsenic was identified at a concentration exceeding its Region 9 PRG value, but below its MCL, in wells LL9mw-002 and LL9mw-004; manganese was detected at a concentration exceeding its MCL and Region 9 PRG values in well LL9mw-004. No other constituents were identified above their respective MCLs or PRGs in the Load Line 9 wells during this reporting period.

Wells LL9mw-002 and LL9mw-004 were previously sampled in January, April, July, and October 2009. During all four prior sampling events at LL9mw-004, iron was identified at concentrations exceeding the MCL, and manganese was identified at concentrations exceeding the Region 9 PRG. Arsenic was not detected in either well during the previous four sampling events.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL9mw-002 (arsenic increasing) and LL9mw-004 (arsenic and iron increasing, manganese decreasing). The concentration-change trend for arsenic in both wells shows an apparent increase. However, arsenic was not previously detected in either well at a reporting limit of 5.0 µg/l. The October 2010 arsenic values were estimated below the laboratory reporting limit, but they exceeded ½ the reporting limit value used for trend analysis. As a result, an apparent increasing concentration trend for arsenic was generated, which may represent a false-positive trend.

4.17 Load Line 12

During this reporting period, four bedrock aquifer wells and 15 unconsolidated aquifer wells were sampled once (i.e., July 2011) in Load Line 12.

Aluminum (three wells), arsenic (13 wells), iron (14 wells), and manganese (19 wells) were identified at concentrations exceeding their respective MCLs in one or more wells in Load Line 12 during this reporting period. In addition, iron exceeded its Region 9 PRG in one well (LL12mw-113), and manganese exceeded its PRG value in three wells (LL12mw-113, LL12mw-185, and LL12mw-187). In four wells (LL12mw-186, LL12mw-188, LL12mw-244, and LL12mw-245), arsenic exceeded its PRG value but at concentrations less than the corresponding MCL. Nitrate as nitrite was identified in one well (LL12mw-187), alpha-BHC in two wells (LL12mw-243 and LL12mw-244), and TCE in one well (LL12mw-243) at concentrations exceeding their respective Region 9 PRG values during this reporting period. Lead was identified in one well at concentrations above the MCL; there are no PRG values for lead. No other constituents were identified above their respective MCLs or PRGs in the Load Line 12 wells during this reporting period.

Prior to this reporting period, wells LL12mw-088, LL12mw-107, LL12mw-113, LL12mw-128, LL12mw-154, LL12mw-184, LL12mw-185, LL12mw-187, LL12mw-189, LL12mw-242, LL12mw-243, LL12mw-244, LL12mw-245, and LL12mw-246 were sampled on five previous occasions (January, April, July, and October 2008 and July 2010). Wells LL12mw-153, LL12mw-182, LL12mw-183, and LL12mw-186 were sampled on six previous occasions (October 2006, January, April, July, and October 2007, and July 2010). Aluminum exceeded the MCL in wells LL12mw-189 and LL12mw-244 on one prior occasion and in well LL12mw-113 during three earlier sampling events. Arsenic exceeded the MCL in well LL12mw-154 on four prior occasions; in wells LL12mw-113 and LL12mw-243 on three prior occasions; in wells LL12mw-088, LL12mw-128, LL12mw-153, LL12mw-182, LL12mw-183 on six prior

occasions; in wells LL12mw-184, LL12mw-242, and LL12mw-246 on five previous occasions; in wells LL12mw-107, LL12mw-244, and LL12mw-245 on two previous occasions; and in well LL12mw-189 during one previous sampling event. In addition, arsenic was identified at concentrations exceeding the Region 9 PRG but below the MCL during one previous occasion in wells LL12mw-088, LL12mw-154, LL12mw-186, and LL12mw-188; on two occasions in wells LL12mw-113, LL12mw-189, LL12mw-243, LL12mw-244, and LL12mw-245; and on three occasions in well LL12mw-107. Lead was identified at concentrations exceeding the MCL during two prior sampling events in well LL12mw-113. Nitrate-nitrite was identified at concentrations exceeding the MCL in well LL12mw-187 on six previous occasions. Iron exceeded its Region 9 PRG on three previous occasions in well LL12mw-113, on two occasions in well LL12mw-244, and on one occasion in wells LL12mw-128, LL12mw-154, and LL12mw-242. Iron exceeded the MCL during six prior sampling episodes at wells LL12mw-153 and LL12mw-183; on five prior occasions in wells LL12mw-088, LL12mw-182, and LL12mw-184; on four previous occasions in wells LL12mw-107, LL12mw-128, LL12mw-189, LL12mw-242, LL12mw-243, and LL12mw-246; on three occasions in well LL12mw-154; on two occasions in well LL12mw-113; and once in well LL12mw-244. Manganese was identified at concentrations exceeding the Region 9 PRGs in wells LL12mw-113, LL12mw-185, and LL12mw-187 during five previous sampling events, in well LL12mw-243 on two earlier sampling episodes, and during one prior sampling event in wells LL12mw-188, LL12mw-242, and LL12mw-244. Manganese exceeded the MCL in wells LL12mw-088, LL12mw-107, LL12mw-128, LL12mw-154, LL12mw-183, LL12mw-184, LL12mw-189, and LL12mw-245 on five prior occasions; six times in wells LL12mw-153 and LL12mw-186; four times in wells LL12mw-188, LL12mw-242, LL12mw-244, and LL12mw-246; and three times in wells LL12mw-182 and LL12mw-243.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at wells LL12mw-088 (arsenic, iron, and manganese increasing), LL12mw-107 (arsenic and iron increasing, manganese unchanged), LL12mw-113 (aluminum, arsenic, and manganese increasing, iron and lead decreasing), LL12mw-128 (arsenic increasing, iron and manganese decreasing), LL12mw-153 (arsenic and iron decreasing, manganese relatively unchanged to slightly decreasing), LL12mw-154 (arsenic and manganese decreasing, iron increasing), LL12mw-182 (manganese unchanged, arsenic and iron decreasing), LL12mw-183 (arsenic increasing, iron and manganese decreasing), LL12mw-184 (arsenic increasing, iron and manganese decreasing), LL12mw-185 (manganese unchanged to decreasing), LL12mw-186 (arsenic and manganese decreasing), LL12mw-187 (manganese unchanged to decreasing, nitrate as nitrite increasing), LL12mw-188 (arsenic increasing, manganese decreasing), LL12mw-189 (aluminum, arsenic, and iron increasing, manganese unchanged), LL12mw-242 (arsenic, iron, and manganese decreasing), LL12mw-243 (alpha-BHC increasing, arsenic, iron, manganese, and TCE decreasing), LL12mw-244 (iron decreasing, aluminum, arsenic, alpha-BHC, and manganese increasing), LL12mw-245 (arsenic decreasing, manganese increasing), and LL12mw-246 (arsenic and iron increasing, manganese unchanged).

Note that the TCE concentration identified in LL12mw-243 was reported at an estimated concentration below the laboratory reporting limit; no TCE has previously been reported in this well. Since ½ the reporting limit is higher than the estimated concentration identified during the July 2011 sampling event, there is an apparent decreasing trend for this constituent over time. In addition, the aluminum trends for wells LL12mw-113 and LL12mw-244 are influenced by the apparent spike in contaminant levels in July 2010. There is insufficient data to reliably conclude that this is an outlier, but if the July 2010 data for aluminum are not used in the trend analysis, then the aluminum trend would be slightly increasing at well LL12mw-113 and stable at LL12mw-244. In both instances, aluminum concentrations decreased between July 2010 and July 2011. Similarly, the trend graphs show anomalous arsenic and iron concentrations in wells LL12mw-113 and LL12mw-244 in July 2010, and in wells LL12mw-154 and LL12mw-242 in January 2008. At the RVAAP, concentration spikes early in the program have generally produced decreasing trends over time; whereas, concentration spikes in the middle or late stages of the sampling program have generally produced increasing trends. If the apparent outliers are not considered, then the arsenic and iron trends at LL12mw-113 increased slightly, and the arsenic and iron trends at wells LL12mw-154, LL12mw-242, and LL12mw-244 decreased slightly or remained stable. At all four locations, arsenic and iron concentrations decreased between July 2010 and July 2011, with the exception of iron in well LL12mw-154, which increased slightly. Arsenic concentrations increased at wells LL12mw-182, LL12mw-186, and LL12mw-243 between July 2010 and July 2011, but the overall trend for arsenic at these locations is decreasing. Conversely, arsenic concentrations decreased at well LL12mw-088, but the overall trend is increasing at this location. Iron concentrations increased at wells LL12mw-183, LL12mw-184, and LL12mw-243 between July 2010 and July 2011, but the overall trend is decreasing at these locations. There were spikes in manganese concentrations at well LL12mw-113 in July 2010, at wells LL12mw-242 and LL12mw-243 in January 2008, at well LL12mw-188 in October 2008, and in well LL12mw-244 in October 2011. Manganese concentrations at wells LL12mw-113 and LL12mw-244 decreased between July 2010 and July 2011; however, the overall trend is increasing at these locations as a result of the elevated manganese results. Conversely, manganese concentrations at wells LL12mw-242 and LL12mw-243 increased between July 2010 and July 2011, but the overall trend is decreasing at these locations in part due to the anomalous spike in concentrations during the earlier sampling event. Manganese concentrations increased at wells LL12mw-107, LL12mw-154, LL12mw-182, LL12mw-183, LL12mw-185, and LL12mw-187 between July 2010 and July 2011, but the overall trend for manganese at these locations is stable or decreasing. Manganese concentrations decreased at well LL12mw-088 between July 2010 and July 2011, but the overall trend at this location is increasing. Nitrate as nitrite shows seasonal fluctuations in concentration patterns (e.g., higher concentrations in the summer and winter and lower concentrations in the spring and fall).

4.18 Ramsdell Quarry Landfill

During this reporting period, nine bedrock aquifer wells (excluding RQLmw-012, RQLmw-013, and RQLmw-015) were sampled on at least one occasion (October 2010 and/or April 2011) at the Ramsdell Quarry Landfill.

In April 2011, aluminum was identified at concentrations above its MCL, but below its PRG, in well RQLmw-009, and 2-nitrotoluene was identified at concentrations above the PRG in well RQLmw-014. In October 2010, alpha-BHC was identified at concentrations above the PRG in well RQLmw-008. Also in October 2010, arsenic was identified at concentrations above its Region 9 PRG and MCL values in wells RQLmw-006, RQLmw-007, RQLmw-008, and RQLmw-009. However, arsenic only exceeded its MCL in well RQLmw-008 in April 2011; it was identified above its Region 9 PRG value in wells RQLmw-007 and RQLmw-009 during this same sampling event. It was not detected above reporting limits in wells RQLmw-007 and RQLmw-009 during the April sampling event. Well RQLmw-006 was only sampled in October 2010.

In October 2010, iron was identified above its Region 9 PRG and MCL values in wells RQLmw-006, RQLmw-007, and RQLmw-008, and it was identified at concentrations only exceeding its MCL in wells RQLmw-009 and RQLmw-011 during this event. In April 2011, iron was identified at concentrations exceeding its MCL and Region 9 PRG values in wells RQLmw-008, RQLmw-014, and RQLmw-016, and it was identified at concentrations exceeding its MCL in wells RQLmw-007 and RQLmw-008 during this event.

Manganese was detected above its MCL and Region 9 PRG values in wells RQLmw-006, RQLmw-007, RQLmw-009, RQLmw-010, and RQLmw-011 during the October 2010 sampling event and in wells RQLmw-014, RQLmw-016, and RQLmw-017 during the April 2011 sampling event. Manganese was detected above its MCL in wells RQLmw-008 during both sampling events and in RQLmw-009 during the April sampling event. No other constituents were identified above their respective MCLs or PRGs in the Ramsdell Quarry Landfill wells during this reporting period.

Wells RQLmw-006, RQLmw-010, and RQLmw-011 have only been sampled on one occasion (October 2010). Consequently, they are not included on the concentration-trend graphs in Appendix E. Wells RQLmw-007, RQLmw-008, RQLmw-009 were sampled on seven previous occasions (October 2006 and April and October in each year from 2007 through 2009) prior to this reporting period; whereas, wells RQLmw-014, RQLmw-016, and RQLmw-017 were sampled on three prior occasions (April and October 2008, and January 2009). Aluminum was only detected during two previous sampling events in RQLmw-009, both at concentrations below laboratory reporting limits. Alpha-BHC was detected at concentrations exceeding the PRG on one previous occasion in well RQLmw-008. Arsenic exceeded the MCL during six previous occasions in well RQLmw-007, seven times in RQLmw-008, and four times in RQLmw-009. Arsenic was non-detect in well RQLmw-009 in April 2008 and April 2009. During the remaining sampling events, arsenic was identified at concentrations exceeding the PRG in each well. Iron exceeded

its Region 9 PRG on five prior occasions in well RQLmw-007, seven times in RQLmw-008, four times in RQLmw-009, once in RQLmw-014, and twice in RQLmw-016. Iron was non-detect in well RQLmw-014 in October 2008. During the remaining sampling events, iron was identified at concentrations exceeding the MCL in each well. Manganese exceeded the Region 9 PRG in wells RQLmw-007 and RQLmw-009 on seven prior occasions, twice in RQLmw-008, and on all three prior occasions in wells RQLmw-014, RQLmw-016, and RQLmw-017. During the five other prior sampling events in well RQLmw-008, manganese was identified at concentrations exceeding the MCL.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at the Ramsdell Quarry Landfill wells. The trend graph for the pesticide alpha-BHC at RQLmw-008 shows a decreasing trend. Aluminum shows an increasing trend in well RQLmw-009. However, this trend is severely skewed by the apparently anomalous result reported for April 2011, in which aluminum was identified at a concentration 20 times greater than either of the two previous detections in this well. Arsenic concentrations in wells RQLmw-007, RQLmw-008, and RQLmw-009 show apparent seasonal fluctuations; concentrations are typically lower in the spring and higher in the fall. Arsenic concentrations decreased from October 2010 to April 2011, and the overall concentration trends over time are decreasing at each well for this constituent. The iron and manganese concentration data versus time for wells RQLmw-007, RQLmw-008, RQLmw-009, and RQLmw-016 show decreasing trends; whereas, RQLmw-014 shows an increasing trend for both iron and manganese. The manganese concentration data versus time for well RQLmw-017 shows an increasing trend from October 2008 to April 2011, although the overall trend for manganese in this well has decreased since the April 2008 sampling event. As mentioned previously, wells RQLmw-006, RQLmw-010, and RQLmw-011 are not included on the concentration-trend graphs since they have only been sampled on one other occasion (October 2010). The time-trend for 2-nitrotoluene shows an increasing trend in well RQLmw-014 shows.

4.19 Suspected Mustard Burial Site

One unconsolidated aquifer well (MBSmw-001) was sampled at the suspected Mustard Burial Site during this reporting period. This well was sampled on one occasion.

In January 2011, manganese was identified in well MBSmw-001 at a concentration exceeding the MCL but not the Region 9 PRG. Arsenic was identified above the Region 9 PRG in this well during this sampling event, but it did not exceed the MCL for this constituent. No other constituents were identified above their respective MCLs or PRGs in the suspected Mustard Burial Site wells during this reporting period.

Well MBSmw-001 was previously sampled in April and October 2008, and January 2009. Arsenic exceeded the PRG in this well in January 2009 at an estimated value below the reporting limit; however, during the April and October 2008 sampling events,

arsenic was non-detect at a reporting limit of 5.0 µg/l. Manganese was above the MCL during all three prior sampling events.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well MBSmw-001. Arsenic shows an increasing trend over time. However, since ½ the reporting limit was used for the April and October 2008 trend graph results, which is below the estimated values reported for the January 2009 and January 2011 events, this increasing trend has an apparent false-positive influence. Manganese shows a decreasing trend between January 2009 and January 2011; however, since the initial sampling event in April 2008, the overall concentration trend for manganese is increasing.

4.20 NACA Test Area

In January 2011 of this reporting period two unconsolidated aquifer wells (NTAmw-112 and NTAmw-113) were sampled in the NACA Test Area.

During this sampling event, arsenic and manganese were identified in both wells at concentrations exceeding their respective MCLs. In addition, iron was identified above its MCL in well NTAmw-112. Neither manganese nor iron exceeded their PRG values in either well during this reporting period. No other constituents were identified above their respective MCLs or PRGs in the NACA Test Area wells during this reporting period.

Wells NTAmw-112 and NTAmw-113 were previously sampled in April and October 2008, and January 2009. Arsenic exceeded the MCL in well NTAmw-112 in April 2008 and January 2009 and in well NTAmw-113 during all three prior sampling events. In October 2008, arsenic exceeded the Region 9 PRG in well NTAmw-112, but it was below the MCL value. Iron exceeded the MCL in well NTAmw-112 during all three previous sampling events. Manganese was above the MCL during the April 2008 and January 2009 sampling episodes and exceeded the PRG during the October 2008 sampling event in well NTAmw-112, and it exceeded the MCL in NTAmw-113 during all three prior sampling events. During the October 2008 sampling event, arsenic and iron concentrations appear to be anomalously low at well NTAmw-112, and manganese appears to be elevated in this well during the same sampling episode.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well NTAmw-112 (arsenic increasing, iron and manganese decreasing) and NTAmw-113 (arsenic decreasing and manganese unchanged). Note that manganese in well NTAmw-113 decreased slightly between January 2009 and January 2011; however, the overall trend for manganese in this well since April 2008 is flat.

4.21 Landfill North of Winklepeck Burning Grounds

One unconsolidated aquifer well (LNWmw-025) was sampled in the Landfill North of Winklepeck Burning Grounds during this reporting period. This well was sampled on one occasion.

In January 2011, iron and manganese were identified in well LNWmw-025 at concentrations exceeding their respective MCLs but below their PRG values. Arsenic was identified above the Region 9 PRG, but below the MCL, in this well. No other constituents were identified above their respective MCLs or PRGs in the sampled well from the Landfill North of Winklepeck during this reporting period.

Well LNWmw-025 was previously sampled in April and October 2008, and January 2009. Arsenic exceeded the PRG in this well during two prior sampling events and was non-detect in January 2009. Iron exceeded the PRG in this well during all three previous sampling events. Manganese was above the MCL during the October 2008 and January 2009 sampling episodes and exceeded the PRG during the April 2008 sampling event.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well LNWmw-025 (arsenic and manganese decreasing, iron increasing). Note that arsenic concentrations increased slightly between January 2009 and January 2011, but the overall trend shows a decrease for this constituent over time.

4.22 Winklepeck Burning Grounds

During this reporting period, four unconsolidated aquifer wells (WBGmw-005, WBGmw-006, WBGmw-007, and WBGmw-009) were sampled in January 2011 at the Winklepeck Burning Grounds.

Arsenic and iron were identified at concentrations exceeding their respective MCLs in well WBGmw-005. Iron did not exceed its PRG value in this well, whereas arsenic did exceed the PRG value. Manganese was identified at concentrations exceeding the Region 9 PRG and MCL in well WBGmw-005, and this constituent was also identified above the MCL, but not the PRG, in wells WBGmw-007 and WBGmw-009. The compound, RDX, was identified in wells WBGmw-006 and WBGmw-009 at concentrations exceeding the Region 9 PRG. No other constituents were identified above their respective MCLs or PRGs in the Winklepeck Burning Ground wells during this reporting period.

Well WBGmw-005 was previously sampled in April and October 2008 and January 2009, and wells WBGmw-006, WBGmw-007, and WBGmw-009 were previously sampled in October 2006 and January, April, July, and October 2007. Arsenic previously exceeded the MCL in well WBGmw-005 in October 2008. During the other two sampling events, arsenic was identified at concentrations exceeding the PRG in this well. Iron exceeded its MCL on all three prior occasions in well WBGmw-005. Manganese

exceeded the Region 9 PRG in well WBGmw-005 during all three prior sampling events. Manganese was identified at concentrations exceeding the MCL in well WBGmw-007 on three prior occasions and in well WBGmw-009 during two separate sampling episodes. The compound RDX was identified at concentrations exceeding the Region 9 PRG in WBGmw-006 and WBGmw-009 during all five prior sampling events for these wells.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at the Winklepeck Burning Ground wells. Arsenic concentrations increased slightly in well WBGmw-005 from January 2009 to January 2011. However, the overall concentration trend over time is decreasing in this well. This apparent trend is affected by the arsenic concentration reported in October 2008, which was more than two times higher than any other arsenic result for this well. The iron and manganese concentration data for well WBGmw-005 shows an increasing trend over time for both constituents. The manganese concentration data from October 2007 to January 2011 shows a decreasing trend for well WBGmw-007 and an increasing trend for well WBGmw-009. The overall manganese concentration versus time trend for both wells dating back to October 2006 is relatively stable to slightly increasing. RDX shows a decreasing trend in wells WBGmw-006 and WBGmw-009.

4.23 Sharon Conglomerate

Groundwater samples are collected from six wells completed in the basal Sharon Conglomerate unit. During this reporting period, all six wells were sampled in October 2010, January 2011, and April 2011.

Arsenic was identified at concentrations exceeding the MCL and Region 9 PRG in wells SCFmw-001 (October 2010), SCFmw-002 (October 2010, January 2011, and April 2011), and SCFmw-006 (October 2010 and April 2011). Arsenic was identified above the Region 9 PRG, but not the MCL, in wells SCFmw-005 (October 2010 and April 2011) and SCFmw-006 (January 2011). The pesticide, alpha-BHC, was identified in well SCFmw-002 at a concentration exceeding the Region 9 PRG during the April 2011 sampling event; this compound was not detected during the other two sampling events. Iron was identified at concentrations exceeding the MCL, but below Region 9 PRG values, in wells SCFmw-001 (October 2010), SCFmw-002 (October 2010 and April 2011), SCFmw-003 (October 2010 and April 2011), SCFmw-005 (October 2010, January 2011, and April 2011), and SCFmw-006 (October 2010 and April 2011). Iron concentrations were below background in every well except SCFmw-005. Manganese was identified at concentrations exceeding the MCL and Region 9 PRG in well SCFmw-005 during all three sampling events, and this constituent was identified above the MCL, but below the PRG, in the other five wells during all three sampling events. No other constituents were identified above their respective MCLs or PRGs in the basal Sharon Conglomerate wells during this reporting period.

The Sharon Conglomerate wells have been sampled every quarter since April 2009, with the exception of April 2010. However, inorganics were not evaluated in the groundwater

samples from well SCFmw-002 in July 2010, and pesticides were not analyzed in this well during the first four sampling events at this location. The pesticide, alpha-BHC, was not detected in well SCFmw-002 in July 2010. Arsenic exceeded the MCL during three previous occasions in well SCFmw-001, four times in SCFmw-002, two times in SCFmw-005, and five times in SCFmw-006. Arsenic was non-detect in well SCFmw-005 in July 2010. During the remaining sampling events, arsenic was identified at concentrations exceeding the PRG in each of these four wells. Iron exceeded its MCL on five prior occasions in well SCFmw-001, two times in SCFmw-002, four times in SCFmw-003, five times in SCFmw-005, and five times in SCFmw-006. Iron was below background concentrations in all Sharon Conglomerate wells, with the exception of well SCFmw-005 and during the three 2009 sampling events at SCFmw-001. Manganese exceeded the Region 9 PRG in well SCFmw-005 during all five prior sampling events. In the remaining wells, manganese was identified at concentrations exceeding the MCL during the previous sampling episodes, with the exception of SCFmw-002 during January 2010.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at the basal Sharon Conglomerate wells. The compound alpha-BHC shows a decreasing trend in well SCFmw-002 between January and April 2011, although the concentration trend since July 2010 shows a slight increase. Alpha-BHC was not detected in this well during July and October 2010 or January 2011, and the reported result for April 2011 was estimated below the reporting limit. Consequently, the trend evaluations for this compound are affected by the laboratory reporting limits. Specifically, the reporting limit (0.15 µg/l) from January 2011 is five times higher than the reporting limit (0.030 µg/l) from July and October 2010. This creates an anomalous high point in the trend analysis. It is anticipated that the actual trend for alpha-BHC in this well is stable. Arsenic concentrations increased in wells SCFmw-002, SCFmw-005, and SCFmw-006 from January 2011 to April 2011, and decreased in well SCFmw-001 during this same period. However, the overall concentration trends over time are decreasing at each well for this constituent. The iron concentration data for wells SCFmw-001, SCFmw-002, SCFmw-003, and SCFmw-006 show increasing trends from January 2011 to April 2011, and the iron concentration in well SCFmw-005 has decreased during this same period. However, the overall trend from April 2009 through April 2011 for iron is decreasing in wells SCFmw-001, SCFmw-002, and SCFmw-006, increasing in SCFmw-005, and stable in SCFmw-003. The manganese concentration data versus time from January 2011 to April 2011 shows a decreasing trend for wells SCFmw-001 and SCFmw-005, an increasing trend for wells SCFmw-003, SCFmw-004, and SCFmw-006, and a stable trend for well SCFmw-002. However, since the April 2009 sampling event, the manganese concentrations have decreased in wells SCFmw-001 and SCFmw-002, increased in wells SCFmw-004 and SCFmw-005, and remained relatively stable in wells SCFmw-003 and SCFmw-006.

4.24 Background Wells

During this reporting period, five bedrock aquifer wells (BKGmw-006, BKGmw-008, BKGmw-010, BKGmw-015, and BKGmw-018) and two unconsolidated aquifer wells (BKGmw-005 and BKGmw-021) were sampled once (i.e., April 2011) from amongst the Background wells at the RVAAP.

Iron and manganese were both identified at concentrations above their respective MCLs, but below their Region 9 PRG values, in well BKGmw-006 during this reporting period. In addition, manganese was identified at concentrations exceeding the MCL, but below the PRG, in well BKGmw-010 in April 2011. No other constituents were identified above their respective MCLs or PRGs in the Background wells during this reporting period.

Wells BKGmw-006 and BKGmw-010 were previously sampled in October 2006, and January, April, July, and October 2007. During all five prior sampling events at BKGmw-006, iron and manganese were identified at concentrations exceeding their respective MCLs. In well BKGmw-010, manganese exceeded the Region 9 PRG on one occasion and the MCL on three occasions.

The time-trend graphs in Appendix E show concentration-change trends (either increasing or decreasing) at well BKGmw-006 (iron and manganese decreasing) and BKGmw-010 (manganese decreasing). Note that manganese concentrations remained unchanged between the October 2007 and April 2011 sampling events at BKGmw-006 and increased at BKGmw-010 between July 2007 and April 2011.

4.25 MCL and Region 9 PRG Exceedances

Table 4-4 lists all wells and COPCs reported to be present in samples collected during the FWGWMP in October 2010 and January, April, and July 2011 at concentrations greater than either the MCLs or the Region 9 PRGs. This section summarizes those conditions and is presented by analyte group (e.g., inorganics, explosives, etc.).

4.25.1 Inorganics

During this reporting period, aluminum (10 wells), arsenic (56 wells), chromium (one well), iron (64 wells), lead (two wells), manganese (88 wells), nitrate as nitrite (one well), and vanadium (one well) were reported at concentrations exceeding their respective MCLs and/or PRGs during at least one sampling event from the 112 wells sampled. The following general observations were noted regarding the inorganic constituents: 1) the MCL for aluminum was exceeded in 10 wells, and the aluminum PRG was exceeded in one well during one sampling event; 2) all arsenic concentrations exceeded the PRG and 59% exceeded the MCL; 3) the chromium concentration exceeded both the MCL and the PRG in one well; 4) the iron MCL was exceeded in all 64 wells, and the iron PRG was exceeded in eight wells; 5) the lead MCL was exceeded in two wells; there is no PRG for

lead; 6) the manganese MCL was exceeded in all 88 wells, but less than 31% exceeded the PRG; 7) the nitrate-nitrite MCL and PRG were exceeded in one well; and 8) the vanadium PRG was exceeded in one well; there is no MCL for vanadium.

4.25.2 Volatile Organic Compounds

During this reporting period, trichloroethene (two wells), carbon tetrachloride (one well), and chloroform (one well) were reported at concentrations exceeding their respective MCLs and/or PRGs during at least one sampling event. The following general observations were noted regarding the VOCs: 1) trichloroethene was identified at concentrations exceeding the Region 9 PRG but not the MCL in two wells; 2) carbon tetrachloride exceeded the PRG but not the MCL in one well; 3) chloroform exceeded the PRG in one well; there is no MCL for this VOC.

The presence of TCE in well LL2mw-265 is the first reported detection of this VOC at Load Line 2. Although the reported concentration of TCE in LL2mw-265 did not exceed the MCL at this location, it did exceed the corresponding FWCUGs in groundwater for Resident Farmer – Adult and Child pursuant to *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC, March 2010). Under the 2nd screening step for qualifying site chemicals at RVAAP presented in the Draft 2010 Addendum to the Facility-Wide Groundwater Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater (USACE, 2010), TCE qualifies as a new COPC in Load Line 2. Note that TCE is already a listed COPC for facility-wide groundwater at RVAAP.

4.25.3 Semivolatile Organic Compounds

During this reporting period, bis(2-ethylhexyl)phthalate was reported in two wells at concentrations exceeding the Region 9 PRG and MCL during at least one sampling event.

4.25.4 Pesticides and Herbicides

During the 2011 reporting period, alpha-BHC (six wells), beta-BHC (three wells), and heptachlor (one well) were reported at concentrations exceeding their respective PRGs during at least one sampling event. There are no established MCLs for these pesticides/ herbicides.

The compound alpha-BHC was first identified in well LL3mw-234 in July 2008 at a concentration exceeding the PRG; it re-occurred in this well during the 2011 reporting period. It was not previously listed as a COPC in Load Line 3. The detected concentration of alpha-BHC in SCFmw-002 in April 2011 was the first occurrence of this compound in any of the deep Sharon Conglomerate wells. At both locations, alpha-BHC was identified above the PRG and also exceeded the FWCUG for Resident Farmer – Adult (SAIC, March 2010). The reported concentration in well SCFmw-002 also exceeded the FWCUG for Resident Farmer – Child (SAIC, March 2010). Under the 2nd screening step for qualifying site chemicals at RVAAP, alpha-BHC qualifies as a new

COPC in Load Line 3 and the deep Sharon Conglomerate wells. Note that alpha-BHC is already a listed COPC for facility-wide groundwater at RVAAP.

4.25.5 Explosives and Propellants

During this sampling period, 2,4,6-TNT (five wells), 2-nitrotoluene (three wells), and RDX (10 wells) were reported at concentrations exceeding their respective PRGs during at least one sampling event. There are no MCLs for these explosives and propellants.

The compound 2-nitrotoluene was first identified at concentrations exceeding its Region 9 PRG value in Load Line 1 in July 2010 (LL1mw-083) and in Ramsdell Quarry Landfill in April 2007 (RQLmw-009). Although the historical and recent detections at these two AOCs exceeded the PRG, they did not exceed the FWCUGs developed by SAIC (March 2010). Consequently, 2-nitrotoluene is not a COPC at Load Line 1 or Ramsdell Quarry Landfill.

4.25.6 Perchlorates

During this reporting period, perchlorates were sampled from discrete wells in Load Line 1 (five wells), Load Line 2 (three wells), Load Line 3 (one well), and Load Line 4 (two wells). No perchlorates were detected at levels exceeding the Region 9 PRG of 3.6 µg/L or the Drinking Water Equivalent Level (DWEL) of 24.5 µg/L.

4.25.7 Hexavalent Chromium

There were no detections for hexavalent chromium at any of the wells during this reporting period at a level above the reporting limit (RL). The absence of hexavalent chromium detections infer that any total chromium detections are made up primarily of the more stable trivalent chromium which does not have the toxicity of hexavalent chromium. Note that even though the RL for hexavalent chromium (20 µg/L) is higher than the reporting limit for total chromium (5 µg/L) the method detection limit (MDL) for hexavalent chromium (2.0 µg/L) demonstrates the absence of anything above 2 µg/L which is below the total chromium RL.

4.26 Assessment of Groundwater Remedial Action Effectiveness

Groundwater remedial actions have not been performed to date at RVAAP and therefore are not discussed in this report. The facility-wide groundwater conditions are still being evaluated.

SECTION 5

FWGWMP ANNUAL RECOMMENDATIONS/REVIEW

5.1 FWGWMP Annual Recommendations

As presented in the *Draft 2010 Addendum to the Facility-Wide Groundwater Monitoring Program Plan (FWGWMPP) RVAAP-66 Facility-Wide Groundwater* (USACE, November 15, 2010) the U.S. Army Corps of Engineers (USACE) is performing CERCLA closure at the former RVAAP under the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). The overall goal is to remediate the RVAAP installation so all of the property can be transferred to the National Guard Bureau (NGB) and be used by the OHARNG as a military training site. Activities conducted under the IRP include monitoring of an extensive network (now 243 wells) of groundwater monitoring wells at the RVAAP facility. To date all 243 current FWGWMP wells at the facility have been sampled and analyzed a minimum of four quarters. Monitoring of the facility-wide groundwater is specified as a requirement of the Ohio EPA's "Director's Final Findings and Orders" (DFFOs). The DFFOs were issued to the U.S. Department of the Army on June 10, 2004. Additionally, much of the FWGWMP has been conducted as part of the groundwater RI study(s). This is similar to groundwater detection monitoring, and nature and extent monitoring. Going forward, data generated under the FWGWMP will continue to be used to further assess groundwater under additional RI activities, and to assist in completing the Feasibility Study (FS).

Additionally, in the *Draft 2010 Addendum to the Facility-Wide Groundwater Monitoring Program Plan (FWGWMPP) RVAAP-66 Facility-Wide Groundwater* (USACE, November 15, 2010) the Ohio EPA has proposed, with concurrence from the Army and the OHARNG, to move from an area-specific approach to a facility-wide approach for the groundwater (RVAAP-66 facility-wide groundwater). This will provide a more focused approach for achieving the goals of the FWGWMP including:

- Characterize the nature and extent of facility-wide groundwater contamination.
- Assess the risk posed to human health and the environment from facility-wide groundwater.
- Establish a system to monitor potential offsite migration of contaminants via groundwater.
- Provide for continuing groundwater monitoring at the RQL and DA2 RCRA units.

In order to accomplish the goal for a facility-wide approach to groundwater the USACE, under a Government Services Administration (GSA) Performance Based Acquisition (PBA) contract, retained EQM (Contract No. GS-10F-0293K – Delivery Order W912QR-11-F-0266) to obtain a signed ROD for the facility-wide groundwater (RVAAP-66).

The objective of this project is to complete groundwater investigation activities in support of the ROD including:

- Install and sample additional monitoring wells at the facility in support of the Remedial Investigation/Feasibility Study (RI/FS) and eventual ROD. The USACE believes that additional wells are necessary in order to complete hydrogeologic system modeling and to conduct contaminant fate-and-transport modeling for a facility-wide groundwater approach.

- Institute changes to the current monitoring schedule and analytes to be sampled. The current FWGWMP schedule involves quarterly sampling of a subset of all wells present at RVAAP. From an historical perspective, the quarterly sampling schedule has been used to complete a minimum of four quarters of sampling for the 243 existing wells at the facility, thereby providing a baseline for all of the facility groundwater monitoring wells, including seasonal fluctuations of water levels and contaminant levels. It appears from these data that the initial investigative phase for the existing wells has been completed [i.e., there is an understanding of the impacts of specific AOC sources to individual wells at the facility]. As a result, USACE and the Ohio EPA desire that the site move from an AOC-based approach to a facility-wide approach for groundwater. Based on this perspective, it will be proposed that the facility-wide groundwater monitoring schedule be modified from a quarterly to semiannual basis, which would still be sufficient to assess potential adverse effects to human health and the environment during the RI/FS process.

- Prepare and submit the RI Work Plan including:
  - A review of historical data/studies.
  - Identification of data gaps.
  - Determine the need for additional analyses/testing as it relates to the RI.

- Prepare the RI Report, which will include:
  - Groundwater modeling in support of two major elements of project execution: 1) facility-wide fate-and-transport evaluation and 2) evaluation and optimization of remedial alternatives in the FS.
  - Refining the facility-wide groundwater conceptual site model using data collected during the RI phase and historical hydrogeologic data.
  - Conducting a human health baseline risk assessment for facility-wide groundwater exposure including: 1) The use of the Facility-Wide Cleanup Goals (FWCUGs), 2) fate-and-transport modeling, and 3) an assessment of potential offsite impacts.

- Prepare and complete the FS.

- Prepare and complete the Proposed Plan including the public hearing and comment period.

- Prepare and complete the ROD.

It should be noted that the end use of groundwater at RVAAP has not, as yet, been determined. Ongoing activities in pursuit of the Record of Decision for facility-wide groundwater will better determine the ultimate future use and possible restrictions associated with groundwater at RVAAP.

As required by Ohio EPA's DFFOs, EQM will continue to perform Facility-Wide groundwater monitoring during the development of the RI/FS, including scheduled groundwater sampling and analysis, sampling event reporting, and annual report preparation and submittal.

Moving forward, the changes to the current FWGWMP Plan (i.e., updates and proposed modifications) will be submitted to all stakeholders for review and approval. It is anticipated that field work, including the installation and sampling of the proposed new wells, will be started in early 2012.

SECTION 6

REFERENCES

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APPENDIX A

CORRESPONDENCE DOCUMENTING THE CHANGE IN WELLS TO BE SAMPLED

Subject: RE: Ravenna's July 2011 Groundwater Monitoring Event (FWGWMP) (UNCLASSIFIED)
From: "Nichter, Mark W LRL" <Mark.W.Nichter@usace.army.mil>
Date: Wed, 13 Jul 2011 13:35:36 -0400
To: "Mohr, Eileen" <eileen.mohr@epa.state.oh.us>, "Deppisch, Vicki" <Vicki.Deppisch@epa.state.oh.us>, John Miller <jmiller@eqm.com>
CC: "Patterson, Mark C Mr CIV USA OSA" <mark.c.patterson@us.army.mil>, "Esler, Christy L Ms ARMY GUEST USA OSA USA" <christy.esler@us.army.mil>, "Beckham, Glen LRL" <Glen.Beckham@usace.army.mil>, "Moore, Gregory F LRL" <Gregory.F.Moore@usace.army.mil>, "Krantz, Kathy J LRL" <Kathy.J.Krantz@usace.army.mil>, "Tait, Kathryn S Ms CIV NG OHARNG" <kathryn.s.tait@us.army.mil>, "McCambridge, Conni" <Conni.McCambridge@epa.state.oh.us>

Classification: UNCLASSIFIED
Caveats: NONE

John Miller - I have discussed the Table 4-2 list of wells and associated chemical analyses to be included in the July (now August) 2011 groundwater monitoring event with Vicki Deppisch. Vicki is aware of and in agreement with the revised list of analyses. However, the Ohio EPA and the USACE did discuss possible revisions to this table during the December 1-2, 2010 groundwater monitoring meeting, and we need to include these revisions in the upcoming monitoring event.

The first revision includes the addition of "hexavalent chromium" analysis. Please note that I have reviewed the historical groundwater database, and the screening process that we used for total chromium. The screening process is as follows: Chromium is first screened against a background value = 0.0073 mg/l, then the Federal MCL value = 0.1 mg/l, then the FWCUG value = 0.2139 mg/l, then the Federal RSLs value = 0.000043 mg/l. If the constituent concentrations exceeded the applicable screening criteria, then we considered the total chromium a Chemical of Potential Concern (COPC). The screening resulted in only 5 exceedances of the screening criteria for total chromium (from the entire database). The exceedances occurred in one background well, Load Line 1, Load Line 12, and the Atlas Scrap Yard. Since we are now planning to sample wells located in Load Lines 1 and 12 during this groundwater monitoring event, we need to include hexavalent chromium in the sampling analyses.

The second revision pertains to the "Dinitrotoluene (DNT) Isomers." DNT has been identified as a groundwater COPC at several AOCs at the Ravenna facility. This includes Load Lines 1, 2, 3, and 12. Ohio EPA has requested that a summary of DNT isomers be discussed in the text of the report associated with the upcoming monitoring event.

Please let me know if you will have a problem with performing the above or if you would like to discuss this in greater detail. Thanks - Mark

Mark W. Nichter, PG
Geologist
Environmental Compliance (CELRL-ED-E-C)
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Comments on our Environmental Services are invited:
http://ice.disa.mil/index.cfm?fa=card&site_id=915&service_provider_id=115446

-----Original Message-----
From: Mohr, Eileen [mailto:eileen.mohr@epa.state.oh.us]
Sent: Wednesday, July 13, 2011 9:32 AM
To: Deppisch, Vicki; John Miller
Cc: Nichter, Mark W LRL; Patterson, Mark C Mr CIV USA OSA; Esler, Christy L Ms ARMY GUEST USA OSA USA; Beckham, Glen LRL; Moore, Gregory F LRL; Krantz, Kathy J LRL; Tait, Kathryn S Ms CIV NG OHARNG; McCambridge, Conni
Subject: RE: Ravenna's July 2011 Groundwater Monitoring Event (FWGWMP) (UNCLASSIFIED)

Thanks everyone!

From: Deppisch, Vicki
Sent: Wednesday, July 13, 2011 8:03 AM
To: John Miller
Cc: Nichter, Mark W LRL; Mohr, Eileen; Patterson, Mark C Mr CIV USA OSA; Esler, Christy L Ms ARMY GUEST USA OSA USA; Beckham, Glen LRL; Moore, Gregory F LRL; Krantz, Kathy J LRL; Tait, Kathryn S Ms CIV NG OHARNG; McCambridge, Conni; Deppisch, Vicki
Subject: RE: Ravenna's July 2011 Groundwater Monitoring Event (FWGWMP) (UNCLASSIFIED)

August 1 is fine with me. Thanks for getting this together so quickly.
vicki

-----Original Message-----
From: John Miller [mailto:jmiller@eqm.com]
Sent: Wednesday, July 13, 2011 7:58 AM
To: Deppisch, Vicki
Cc: Nichter, Mark W LRL; Mohr, Eileen; Patterson, Mark C Mr CIV USA OSA; Esler, Christy L Ms ARMY GUEST USA OSA USA; Beckham, Glen LRL; Moore, Gregory F LRL; Krantz, Kathy J LRL; Tait, Kathryn S Ms CIV NG OHARNG; McCambridge, Conni
Subject: Re: Ravenna's July 2011 Groundwater Monitoring Event (FWGWMP) (UNCLASSIFIED)

Vicki/Mark: EQM will proceed with making arrangements for sampling the referenced wells for the analytes specified in Table 4-2. Given the time frame I would like to request that the "July" event be conducted the week of August 1. It generally takes us at least one week to order and receive supplies, and another week to label and assemble bottles and sample kits. Additionally I have some personnel conflicts the week of July 25. If delaying the event until August 1-4 is unacceptable I will make the sampling happen the week of July 25, but I thought I would make the request.
Thanks, John

On 7/13/2011 7:40 AM, Deppisch, Vicki wrote:

> Mark
> No apology is necessary; I know your busy. Sampling the wells proposed in

Table 4-2 is acceptable to Ohio EPA, please have EQM proceed with the July 2011 sampling event. Thanks
vic

-----Original Message-----
From: Nichter, Mark W LRL [mailto:Mark.W.Nichter@usace.army.mil]
Sent: Tuesday, July 12, 2011 6:20 PM
To: Deppisch, Vicki
Cc: Mohr, Eileen; Patterson, Mark C Mr CIV USA OSA; Esler, Christy L Ms ARMY GUEST USA OSA USA; Beckham, Glen LRL; Moore, Gregory F LRL; Krantz, Kathy J LRL; Tait, Kathryn S Ms CIV NG OHARNG; John Miller
Subject: Ravenna's July 2011 Groundwater Monitoring Event (FWGWMP) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Vicki - My apologies for not bringing this to your attention earlier. The USACE does not currently have a clear path forward for conducting Ravenna's July 2011 quarterly groundwater monitoring event.

If you recall, the USACE provided a groundwater presentation at the Ravenna facility on December 1-2, 2010. The purpose of the meeting was to present an up-to-date characterization of the groundwater quality at the facility, and to present proposed addendums (or changes) to the approved 2004 FWGWMP Plan. Table 4-2 of the draft "2010 Addendum to the FWGWMP Plan" included a proposed monitoring well network (see attached) for continued groundwater sampling at the facility. The revised monitoring well network focuses on those wells that have the highest reported concentrations of COPCs. These areas are anticipated to have the highest potential for groundwater impact. Table 4-2 also includes other existing wells located in close proximity or down-gradient of the high concentration wells. Table 4-2 was proposed for future groundwater monitoring events, and implements the proposed sampling frequency, changes in the parameters to be analyzed, and the wells to be included or excluded from the monitoring well schedule.

The proposed changes to the FWGWMP were not formally accepted or approved by the Ohio EPA during the December 2010 meeting. Open discussions during the meeting revealed that this was the right time to abandon the AOC approach, and to adopt a facility-wide approach to monitoring groundwater (RVAAP-66) at the Ravenna facility.

Given our current situation with the July 2011 monitoring event, The USACE would like to propose two (2) options for the Ohio EPA's consideration. The first option is to instruct EQM (our current groundwater monitoring
Contractor) to proceed with the July 2011 groundwater monitoring event using the attached Table 4-2 proposed monitoring well network. The second option is to by-pass the July 2011 groundwater monitoring event, and then implement our next scheduled monitoring event, which will occur in October 2011. The October monitoring event should allow sufficient time for the development of a facility-wide approach to groundwater monitoring. Your questions and comments please - Mark

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Comments on our Environmental Services are invited:
http://ice.disa.mil/index.cfm?fa=card&site id=915&service provider id=
115446

Classification: UNCLASSIFIED
Caveats: NONE

--
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Classification: UNCLASSIFIED
Caveats: NONE

Subject: Documentation of Groundwater Scheduling Meeting
From: "Nichter, Mark W LRL" <Mark.W.Nichter@usace.army.mil>
Date: Wed, 26 May 2010 14:55:15 -0400
To: "Eileen Mohr" <eileen.mohr@epa.state.oh.us>, "Conni McCambridge" <conni.mccambridge@epa.state.oh.us>, "John Miller" <jmiller@eqm.com>, "Fredrick E Gebhardt" <gebhardt@usgs.gov>, "Brian Mailot" <bemailot@usgs.gov>, "Patterson, Mark C Mr CIV USA OSA" <mark.c.patterson@us.army.mil>, "Beckham, Glen LRL" <Glen.Beckham@usace.army.mil>, "Esler, Christy L Ms ARMY GUEST USA OSA USA" <christy.esler@us.army.mil>
CC: "Todd Fisher" <todd.fisher@epa.state.oh.us>, "Vicki Deppisch" <vicki.deppisch@epa.state.oh.us>, "Ralph J Haefner" <rhaefner@usgs.gov>, "Jeff Langman" <jlangman@usgs.gov>, "Mitchell, Cristie L LRL" <Cristie.L.Mitchell@usace.army.mil>, "Peters, Nathaniel II LRL" <Nathaniel.Peters.II@usace.army.mil>, "Chanda, Thomas M LRL" <Thomas.M.Chanda@usace.army.mil>, "Stolte, Nicholas J LRL (Intern)" <Nicholas.J.Stolte@usace.army.mil>, "Kinder, Derek S LRL" <Derek.S.Kinder@usace.army.mil>, "Krantz, Kathy J LRL" <Kathy.J.Krantz@usace.army.mil>, "Trumble, Jay N LRL" <Jay.N.Trumble@usace.army.mil>, "Cheng, Eric S LRL" <Eric.S.Cheng@usace.army.mil>, "Cullen, Joan T LRL" <Joan.T.Cullen@usace.army.mil>, "Schmidt, Angela L LRL" <Angela.L.Schmidt@usace.army.mil>

The USACE and EQM hosted a meeting on 26 May to discuss the schedule for the 2010 groundwater monitoring program. Ravenna team members addressed in this correspondence (To) attended the meeting. The primary purpose of the meeting was to discuss the path forward for "when" to conduct the quarterly groundwater monitoring events in 2010 since the April 2010 monitoring event did not occur. The typical annual monitoring schedule includes the April, July, October, and January sampling events.

John Miller of EQM provided several options for a revised monitoring schedule. The first option included the possible monitoring of wells during the alternate months of June, September, and November of 2010, and March 2011. He indicated that EQM could meet this schedule; however, this schedule would result in the submittal of a draft September 2010 report at the same time the draft 2010 Annual report is submitted (on or before December 15th).

The second option proposed dropping the spring 2010 sampling event from the 2010 schedule, and rotating the schedule to include monitoring during the months of July and October 2010, and January and April of 2011. This schedule would fulfill EQM's contractual commitments, and would allow the FWGWMP to remain on the former seasonal monitoring schedule. The spring 2010 monitoring event simply would not be conducted during the 2010 program.

In support of the second option, I indicated that the DFFOs and the FWGWMP Plan do not specify that groundwater monitoring is required on each and every quarterly event. In other words, omitting the April 2010 monitoring event is not in violation of the DFFOs or the FWGWMP Plan. Eileen Mohr indicated the Ohio EPA would conduct its own review of the requirements to verify my understanding.

Eileen Mohr agreed to adopt the second option of dropping the spring 2010 monitoring event, and sliding the quarterly events forward. Eileen also indicated that responses to Vicki Deppisch's recent review comments pertaining to the monitoring well schedule are still required by the USACE to

close the loop on related outstanding issues.

Mark Patterson indicated that a good strategy is needed for the summer groundwater meeting. I common understanding of the path forward is necessary before conducting the meeting. Eileen Mohr requested more information on the decision processes for assessing groundwater.

Glen Beckham questioned whether seasonal consistency would be affected by not conducting the spring 2010 sampling event. Conni McCambridge and I both assured Glen that the seasonal consistency should not be an issue due to the consistent and repetitive nature of the existing groundwater data.

It was noted that all participants in the upcoming summer groundwater meeting are required to read Ravenna's approved FWGWMP Plan (see attached) prior to attending the meeting. If you don't read the FWGWMP Plan, then please don't attend the meeting. It's that important - Mark Nichter

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Comments on our Environmental Services are invited:
http://ice.disa.mil/index.cfm?fa=card&site_id=915&service_provider_id=115446

FINAL_FWGWMPP.pdf	**Content-Description:**	FINAL_FWGWMPP.pdf
	Content-Type:	application/octet-stream
	Content-Encoding:	base64

Attachment B: 2010 Well Sampling Schedule
Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Background	BKGmw-004	Unconsolidated																					
	BKGmw-005	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1								The USACE anticipates this well is representative of background with respect to the unconsolidated aquifer. Resampling is requested.
	BKGmw-006	Sharon	Annual				1	1	1	1	1	1	1	1	1								The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested.
	BKGmw-008	Sharon	Annual				1	1	1	1	1	1	1	1	1							Yes	Down-gradient of all AOCs (per FWGWMP Plan)
	BKGmw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes		Yes	Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	BKGmw-012	Sharon																					
	BKGmw-013	Unconsolidated																Arsenic	Yes				
	BKGmw-015	Sharon	Annual				1	1	1	1	1	1	1	1	1							Yes	Down-gradient of all AOCs (per FWGWMP Plan)
	BKGmw-016	Unconsolidated																					
	BKGmw-017	Unconsolidated																Arsenic	Yes				
	BKGmw-018	Sharon	Annual				1	1	1	1	1	1	1	1	1								The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested.
	BKGmw-019	Unconsolidated																					
	BKGmw-020	Unconsolidated																					
	BKGmw-021	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1							Yes	Down-gradient of all AOCs (per FWGWMP Plan)
	LL1mw-063	Sharon																					
	LL1mw-064	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.
	LL1mw-065	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.
	LL1mw-067	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL1mw-078	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Well is located down-gradient of LL-1.
	LL1mw-079	Sharon																Bis(2-ethylhexyl)phthalate	Yes				

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 1	LL1mw-080	Sharon	Annual	1				1	1	1	1	1	1	1	1			Arsenic, Lead	Yes	Yes		Yes	Lead, Iron, Manganese, and Hexahydro-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring. Down-gradient of LL-1.
	LL1mw-081	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL1mw-082	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL1mw-083	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes		Yes	2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring. Down-gradient of LL-1.
	LL1mw-084	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL1mw-085	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL2mw-059	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes		Yes	Well is located down-gradient of LL-2.
	LL2mw-060	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL2mw-261	Sharon	Annual	1				1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG, and MCL value)
	LL2mw-262	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value). Down-gradient of LL-2.

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Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 2	LL2mw-263	Sharon	Annual	1				1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes	Yes		Yes	Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring. Down-gradient of LL-2.
	LL2mw-264																	Bis(2-ethylhexyl)phthalate	Yes				
	LL2mw-265		Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes				Well is located hydraulically down-gradient of Load Line 2, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
	LL2mw-266	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL2mw-267	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL2mw-268	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	LL2mw-269	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL2mw-270	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate, Pentachlorophenol	Yes	Yes			Manganese, Bis(2-ethylhexyl)phthalate, and Pentachlorophenol dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-232	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate					Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	LL3mw-233	Sharon																					
	LL3mw-234	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-235	Sharon																					
	LL3mw-236	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.

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RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 3	LL3mw-237	Sharon	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-238	Sharon	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes		Yes	2-Amino-4,6-dinitrotoluene, 4-Amino-2,6-dinitrotoluene and 2,4,6-Trinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring. Down-gradient of LL-3.
	LL3mw-239	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4								Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL3mw-240	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	LL3mw-241	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	LL3mw-242	Sharon	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Well is down-gradient of LL-3.
	LL3mw-243	Sharon	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes			Yes	Well is located hydraulically down-gradient of Load Line 3, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
Load Line 4	LL4mw-193	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL4mw-194	Unconsolidated																					
	LL4mw-195	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL4mw-196	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL4mw-197	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1						Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in July Monitoring Event.
	LL4mw-198	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1							Yes	Well is down-gradient of LL-4.
	LL4mw-199	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Arsenic				Yes	Well is down-gradient of LL-4.

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
	LL4mw-200	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate				Yes	Well is located hydraulically down-gradient of Load Line 4, and is located in close proximity to a natural surface drainage feature that drains Load Line 4. Monitoring is recommended.
Load Line 5	LL5mw-001	Homewood																					
	LL5mw-002	Homewood																					
	LL5mw-003	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL5mw-004	Homewood																					
	LL5mw-005	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL5mw-006	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
Load Line 6	LL6mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL6mw-002	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL6mw-003	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL6mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL6mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Arsenic	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values)
	LL6mw-006	Unconsolidated																					
	LL6mw-007	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
Load Line 7	LL7mw-001	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate, 1,1-Dichloroethane	Yes, No	Yes			1,1-Dichloroethane dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL7mw-002	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL7mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL7mw-004	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL7mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL7mw-006	Homewood																Bis(2-ethylhexyl)phthalate	Yes				

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 8	LL8mw-001	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL8mw-002	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL8mw-003	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL8mw-004	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL8mw-005	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL8mw-006	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
Load Line 9	LL9mw-001	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL9mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL9mw-003	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL9mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL9mw-005	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL9mw-006	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL9mw-007	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
Load Line 10	LL10mw-001	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL10mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL10mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Carbon Tetrachloride dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL10mw-004	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL10mw-005	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	LL10mw-006	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL11mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL11mw-002	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1							Yes	Well is down-gradient of LL-11.
	LL11mw-003	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				

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RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 11	LL11mw-004	Unconsolidated																Cadmium, Bis(2-ethylhexyl)phthalate	Yes				
	LL11mw-005	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL11mw-006	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	LL11mw-007	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes			Yes	Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values). Well is down-gradient of LL-11.
	LL11mw-008	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	LL11mw-009	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Trichloroethylene and Tetrachloroethylene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL11mw-010	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	LL12mw-088	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-107	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-113	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background value)
	LL12mw-128	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Arsenic historically detected above background and MCL.
	LL12mw-153	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic	Yes			Yes	Well is down-gradient of LL-12. Arsenic historically detected above background and MCL.
	LL12mw-154	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Arsenic historically detected above background and MCL.
	LL12mw-182	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic	Yes			Yes	Well is down-gradient of LL-12. Arsenic historically detected above background and MCL.
	LL12mw-183	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic	Yes			Yes	Well is down-gradient of LL-12. Arsenic historically detected above background and MCL.
	LL12mw-184	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Arsenic historically detected above background and MCL.
	LL12mw-185	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Bis(2-ethylhexyl)phthalate, Nitrate	Yes	Yes			Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG.

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Load Line 12	LL12mw-186	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1						Yes	Well is down-gradient of LL-12. Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-187	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Bis(2-ethylhexyl)phthalate, Nitrate	Yes	Yes			Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG.
	LL12mw-188	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Bis(2-ethylhexyl)phthalate	Yes				Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-189	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL12mw-242	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
	LL12mw-243	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Arsenic historically detected above background and MCL.
	LL12mw-244	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Lead, Bis(2-ethylhexyl)phthalate	Yes	Yes			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL12mw-245	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
	LL12mw-246	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
Atlas Scrap Yard	ASYmw-001	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-002	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-003	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	ASYmw-004	Sharon																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-005	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-006	Sharon																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-007	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				

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RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
	ASYmw-008	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-009	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	ASYmw-010	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
Building 1200	B12mw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Indeno(1,2,3-cd)pyrene and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	B12mw-011	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	B12mw-012	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis(2-ethylhexyl)phthalate is increasing in concentrations.
C-Block Quarry	CBLmw-001	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	CBLmw-002	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	CBLmw-003	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	CBLmw-004	Homewood	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
Central Burn Pits	CBPmw-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graphs presented in 2009 Annual FWGWMP report suggests Arsenic and Magnesium are increasing in concentrations (above background values)
	CBPmw-002	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	CBPmw-003	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	CBPmw-004	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes	Yes			Arsenic dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	CBPmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic	Yes			Yes	Monitors GW flow to Sand Creek.
	CBPmw-006	Unconsolidated																Arsenic	Yes				
	CBPmw-007	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic	Yes			Yes	Monitors GW flow to Sand Creek.
	CBPmw-008	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	CPmw-001	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Cobbs Pond	CPmw-002	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate detected at concentration above CUG. Added to 2010 program for annual monitoring.
	CPmw-003	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	CPmw-004	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	CPmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Barium is increasing in concentrations (above background value)
	CPmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2ethylhexyl)phthalate	Yes	Yes			Manganese and Naphthalene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
Open Demolition Area 2	DET-001B	Unconsolidated																					
	DET-002	Unconsolidated																					
	DET-003	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			Bis(2-ethylhexyl)phthalate	Yes		Yes		RCRA well. Bi-Annual monitoring required by DFF&Os.
	DET-004	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			Arsenic, Bis(2ethylhexyl)phthalate	Yes		Yes		RCRA well. Bi-Annual monitoring required by DFF&Os.
	DA2mw-104	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	DA2mw-105	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	DA2mw-106	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentration
	DA2mw-107	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1							Yes	Down-gradient to ODA2 RCRA Unit.
	DA2mw-108	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	DA2mw-109	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	DA2mw-110	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate detected at concentration above CUG. Added to 2010 program for annual monitoring.
	DA2mw-111	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	DA2mw-112	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	DA2mw-113	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate					
Erie Burning Grounds	EBGmw-123	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis (2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentration (above background value)
	EBGmw-124	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Lead, Bis(2-ethylhexyl)phthalate	Yes	Yes			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	EBGmw-125	Unconsolidated																Arsenic, Bis (2-ethylhexyl)phthalate	Yes				
	EBGmw-126	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis (2-ethylhexyl)phthalate	Yes			Yes	Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-127	Unconsolidated																Arsenic, Bis (2-ethylhexyl)phthalate	Yes				
	EBGmw-128	Unconsolidated																Arsenic, Bis (2-ethylhexyl)phthalate	Yes				
	EBGmw-129	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate				Yes	Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-130	Unconsolidated																					
Fuze and Booster Quarry	FBQmw-166	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	FBQmw-167	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	FBQmw-168	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	FBQmw-169	Homewood	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-170	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	FBQmw-171	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	FBQmw-172	Homewood	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-173	Homewood	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis (2-ethylhexyl)phthalate is increasing in concentrations (above PRG or tap water value)

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
	FBQmw-174	Homewood	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			2,4,6-Trinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-175	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
	FBQmw-176	Unconsolidated																					
	FBQmw-177	Homewood																Bis(2-ethylhexyl)phthalate	Yes				
Landfill North of Winklepeck	LNWmw-024	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	LNWmw-025	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes	Yes			Arsenic dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LNWmw-026	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	LNWmw-027	Unconsolidated																Bis(2-ethylhexyl)phthalate					
NACA Test Area	NTAmw-107	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-108	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-109	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-110	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	NTAmw-111	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-112	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG and MCL values)
	NTAmw-113	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Lead, Bis(2-ethylhexyl)phthalate	Yes	Yes			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	NTAmw-114	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-115	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-116	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-117	Unconsolidated																Bis(2-ethylhexyl)phthalate					
	NTAmw-118	Unconsolidated																Bis(2-ethylhexyl)phthalate					

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				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Ramsdell Quarry Landfill	RQLmw-006	Sharon	Annual		1			1	1	1	1	1	1	1	1			Arsenic	Yes	Yes			Arsenic, Iron, Manganese, and Nickel dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-007	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			Arsenic	Yes		Yes		RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic, Iron, and Manganese detected at concentrations above CUGs.
	RQLmw-008	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			Arsenic, Bis(2-ethylhexyl)phthalate	Yes		Yes		RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic and Iron detected at concentrations above CUGs.
	RQLmw-009	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			Arsenic, Bis(2-ethylhexyl)phthalate	Yes		Yes		RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic, Manganese, and Bis(2-ethylhexyl)phthalate detected at concentrations above CUGs.
	RQLmw-010	Sharon	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-011	Sharon	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese, Tetrachloroethylene, and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-012	Sharon																Bis(2-ethylhexyl)phthalate	Yes				
	RQLmw-013	Sharon																					
	RQLmw-014	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-015	Sharon																Bis(2-ethylhexyl)phthalate					
	RQLmw-016	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese and Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-017	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.

Attachment B: 2010 Well Sampling Schedule
Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic, Bis(2-ethylhexyl)phthalate	Yes				Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background, PRG and MCL values)
	WBGmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1				Yes	Yes		Yes	Hexahydro-1,3,5-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Well monitors GW flow to Sand Creek. Added to 2010 program for annual monitoring.
	WBGmw-007	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic	Yes			Yes	Monitors GW to Sand Creek
	WBGmw-008	Unconsolidated																					
	WBGmw-009	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1				Yes	Yes		Yes	Hexahydro-1,3,5-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Well monitors GW flow to Sand Creek. Added to 2010 program for annual monitoring.
	WBGmw-010	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-011	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-012	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-013	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-014	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-015	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-016	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	WBGmw-017	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
Suspected Mustard Agent Burial Site	MBS-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate	Yes	Yes			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	MBS-002	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	MBS-003	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	MBS-004	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				
	MBS-005	Unconsolidated																Arsenic, Bis(2-ethylhexyl)phthalate	Yes				
	MBS-006	Unconsolidated																Bis(2-ethylhexyl)phthalate	Yes				

Attachment B: 2010 Well Sampling Schedule
Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										List Chemicals that Exceed 2009 MCLs?	Do Chemicals with MCL Exceedances have FWCUGs?	Do Chemicals Exceed FWCUGs? If yes, include in program.	Is Well a RCRA Well? If yes, include in program.	Is Well Located Down-Gradient of AOC with FWCUG Exceedances (or other Sensitive Areas)? If yes, include in program.	Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate						
Facility-Wide Groundwater: Basal Sharon Conglomerate Wells	SCFmw-001	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-002	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-003	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-004	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-005	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-006	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4	4							Well added to FWGWMP for 2010. Quarterly monitoring recommended in support of initial characterization performed by SAIC.
TOTALS =				51	41	49	42	183	183	183	183	183	183	183	183	43	11						

Former Ground Water Analytical Results Exhibits Contaminant Concentrations Above CUGs
FWGWMP CERCLA Wells - Highlighted Red
FWGWMP RCRA Wells - Highlighted Blue

APPENDIX B

LIST OF WELLS SAMPLED PER QUARTER

October 2010 Well Sampling List

Well #	Location
SCFmw-001	Facility-wide
SCFmw-002	Facility-wide
SCFmw-003	Facility-wide
SCFmw-004	Facility-wide
SCFmw-005	Facility-wide
SCFmw-006	Facility-wide
LL1mw-067	Load Line 1
LL1mw-081	Load Line 1
LL1mw-082	Load Line 1
LL1mw-084	Load Line 1
LL1mw-085	Load Line 1
LL2mw-266	Load Line 2
LL2mw-267	Load Line 2
LL2mw-269	Load Line 2
LL3mw-236	Load Line 3
LL3mw-239	Load Line 3
LL4mw-196	Load Line 4
LL4mw-197	Load Line 4
LL6mw-001	Load Line 6
LL6mw-004	Load Line 6
LL6mw-005	Load Line 6
L7Lmw-001	Load Line 7
LL7mw-003	Load Line 7
LL7mw-005	Load Line 7
LL8mw-003	Load Line 8
LL9mw-002	Load Line 9
LL9mw-004	Load Line 9
LL10mw-002	Load Line 10
LL10mw-003	Load Line 10
LL11mw-001	Load Line 11
LL11mw-002	Load Line 11
LL11mw-007	Load Line 11
LL11mw-009	Load Line 11
RQLmw-006	Ramsdell Quarry Landfill
RQLmw-007	Ramsdell Quarry Landfill
RQLmw-008	Ramsdell Quarry Landfill
RQLmw-009	Ramsdell Quarry Landfill
RQLmw-010	Ramsdell Quarry Landfill
RQLmw-011	Ramsdell Quarry Landfill
DETmw-003	Demo 2
DETmw-004	Demo 2

January 2011 Well Sampling List

Well Number	Location
SCFmw-001	Facility-wide
SCFmw-002	Facility-wide
SCFmw-003	Facility-wide
SCFmw-004	Facility-wide
SCFmw-005	Facility-wide
SCFmw-006	Facility-wide
LL1mw-067	Load Line 1
LL1mw-081	Load Line 1
LL1mw-082	Load Line 1
LL1mw-084	Load Line 1
LL1mw-085	Load Line 1
LL2mw-266	Load Line 2
LL2mw-267	Load Line 2
LL2mw-269	Load Line 2
LL3mw-236	Load Line 3
LL3mw-237	Load Line 3
LL3mw-238	Load Line 3
LL3mw-239	Load Line 3
LL3mw-242	Load Line 3
LL3mw-243	Load Line 3
LL4mw-196	Load Line 4
LL4mw-197	Load Line 4
CBPmw-001	Central Burn Pits
CBPmw-004	Central Burn Pits
CBPmw-005	Central Burn Pits
CBPmw-007	Central Burn Pits
CBPmw-008	Central Burn Pits
CPmw-002	Cobbs Pond
CPmw-005	Cobbs Pond
CPmw-006	Cobbs Pond
DA2mw-106	Open Demolition Area 2
DA2mw-107	Open Demolition Area 2
DA2mw-110	Open Demolition Area 2
EBGmw-123	Erie Burning Grounds
EBGmw-124	Erie Burning Grounds
EBGmw-126	Erie Burning Grounds
EBGmw-129	Erie Burning Grounds
FBQmw-169	Fuze and Booster Quarry
FBQmw-172	Fuze and Booster Quarry
FBQmw-173	Fuze and Booster Quarry
FBQmw-174	Fuze and Booster Quarry
LNWmw-025	Landfill N. of Winklepeck
NTAmw-112	NACA Test Area
NTAmw-113	NACA Test Area
WBGmw-005	Winklepeck Burning Grounds
WBGmw-006	Winklepeck Burning Grounds
WBGmw-007	Winklepeck Burning Grounds
WBGmw-009	Winklepeck Burning Grounds
MBSmw-001	Suspected Mustard Agent Burial Site

April 2011 Well Sampling Locations

Well #	Location
ASYmw-003	Atlas
BKGmw005	facility wide
BKGmw006	facility wide
BKGmw008	facility wide
BKGmw010	facility wide
BKGmw015	facility wide
BKGmw018	facility wide
BKGmw021	facility wide
B12mw-010	BLDG 1200
B12mw-012	BLDG 1200
CBLmw-004	C Block
LL1mw-067	Load Line 1
LL1mw-081	Load Line 1
LL1mw-082	Load Line 1
LL1mw-084	Load Line 1
LL1mw-085	Load Line 1
LL2mw-266	Load Line 2
LL2mw-267	Load Line 2
LL2mw-269	Load Line 2
LL3mw-236	Load Line 3
LL3mw-239	Load Line 3
LL4mw-193	Load Line 4
LL4mw-195	Load Line 4
LL4mw-196	Load Line 4
LL4mw-197	Load Line 4
LL4mw-198	Load Line 4
LL4mw-199	Load Line 4
LL4mw-200	Load Line 4
RQLmw-007	Ramsdell
RQLmw-008	Ramsdell
RQLmw-009	Ramsdell
RQLmw-014	Ramsdell
RQLmw-016	Ramsdell
RQLmw-017	Ramsdell
DETmw-003	Demo 2
DETmw-004	Demo 2
SCFmw-001	facility wide
SCFmw-002	facility wide
SCFmw-003	facility wide
SCFmw-004	facility wide
SCFmw-005	facility wide
SCFmw-006	facility wide

July 2011 Well Sampling Locations

Well #	Location
LL1mw-063	Load Line 1
LL1mw-065	Load Line 1
LL1mw-079	Load Line 1
LL1mw-080	Load Line 1
LL1mw-081	Load Line 1
LL1mw-082	Load Line 1
LL1mw-083	Load Line 1
LL1mw-084	Load Line 1
LL1mw-085	Load Line 1
LL2mw-059	Load Line 2
LL2mw-060	Load Line 2
LL2mw-265	Load Line 2
LL3mw-234	Load Line 3
LL3mw-235	Load Line 3
LL3mw-236	Load Line 3
LL3mw-238	Load Line 3
LL3mw-241	Load Line 3
LL12mw-088	Load Line 12
LL12mw-107	Load Line 12
LL12mw-113	Load Line 12
LL12mw-128	Load Line 12
LL12mw-153	Load Line 12
LL12mw-154	Load Line 12
LL12mw-182	Load Line 12
LL12mw-183	Load Line 12
LL12mw-184	Load Line 12
LL12mw-185	Load Line 12
LL12mw-186	Load Line 12
LL12mw-187	Load Line 12
LL12mw-188	Load Line 12
LL12mw-189	Load Line 12
LL12mw-242	Load Line 12
LL12mw-243	Load Line 12
LL12mw-244	Load Line 12
LL12mw-245	Load Line 12
LL12mw-246	Load Line 12

APPENDIX C

WATER LEVEL MEASUREMENT FIELD SHEETS

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
ASYmw	001	Atlas Scrap Yard	10/5/2010	1314	14.04	23.18	Hard	OH2911
ASYmw	002	Atlas Scrap Yard	10/5/2010	1318	16.33	22.97	Medium	OH2911
ASYmw	003	Atlas Scrap Yard	10/5/2010	1350	14.90	23.45	Hard	1267
ASYmw	004	Atlas Scrap Yard	10/4/2010	1645	12.11	29.86	Hard	OH2911
ASYmw	005	Atlas Scrap Yard	10/4/2010	1640	10.50	27.24	Hard	OH2911
ASYmw	006	Atlas Scrap Yard	10/5/2010	1329	15.63	28.97	Hard	OH2911
ASYmw	007	Atlas Scrap Yard	10/5/2010	1322	16.36	28.98	Hard	OH2911
ASYmw	008	Atlas Scrap Yard	10/4/2010	1635	7.99	27.32	Hard	OH2911
ASYmw	009	Atlas Scrap Yard	10/5/2010	1340	14.53	24.25	Soft	1267
ASYmw	010	Atlas Scrap Yard	10/5/2010	1325	13.85	31.20	Hard	OH2911
BKGmw	004	Background	10/4/2010	1600	14.69	22.28	Hard	1266
BKGmw	005	Background	10/4/2010	1510	14.84	20.90	Hard	1267
BKGmw	006	Background	10/5/2010	1526	23.61	37.46	Soft	1266
BKGmw	008	Background	10/4/2010	1541	20.19	27.40	Hard	1266
BKGmw	010	Background	10/4/2010	1458	20.74	22.09	Hard	OH2911
BKGmw	012	Background	10/5/2010	841	12.98	61.96	Medium	1266
BKGmw	013	Background	10/5/2010	1308	13.23	28.10	Hard	OH2911
BKGmw	015	Background	10/4/2010	1627	50.58	53.05	Hard	1266
BKGmw	016	Background	10/4/2010	1500	7.79	21.15	Hard	1267
BKGmw	017	Background	10/4/2010	1520	21.28	35.94	Medium	1267
BKGmw	018	Background	10/5/2010	1508	16.61	27.57	Hard	1266
BKGmw	019	Background	10/5/2010	1453	21.62	35.58	Hard	OH2911
BKGmw	020	Background	10/5/2010	830	12.56	33.06	Hard	OH2911
BKGmw	021	Background	10/4/2010	1612	19.60	21.48	Hard	1266

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
B12mw	010	Building 1200	10/4/2010	1504	20.12	22.90	Hard	OH2911
B12mw	011	Building 1200	10/4/2010	1501	21.99	26.81	Hard	OH2911
B12mw	012	Building 1200	10/4/2010	1507	21.82	24.90	Hard	OH2911
CBLmw	001	C-Block Quarry	10/4/2010	1530	45.50	51.17	Medium	1267
CBLmw	002	C-Block Quarry	10/4/2010	1545	40.11	47.34	Soft	1267
CBLmw	003	C-Block Quarry	10/4/2010	1606	38.50	44.86	Hard	1267
CBLmw	004	C-Block Quarry	10/4/2010	1550	38.15	47.01	Medium	1267
CBPmw	001	Central Burn Pit	10/5/2010	1200	15.10	34.90	Soft	1266
CBPmw	002	Central Burn Pit	10/5/2010	1153	11.77	31.85	Hard	1266
CBPmw	003	Central Burn Pit	10/5/2010	1129	15.29	30.22	Soft	1266
CBPmw	004	Central Burn Pit	10/5/2010	1144	12.75	29.68	Medium	1266
CBPmw	005	Central Burn Pit	10/5/2010	1136	13.82	27.36	Soft	1266
CBPmw	006	Central Burn Pit	10/5/2010	1106	9.80	25.25	Soft	1266
CBPmw	007	Central Burn Pit	10/5/2010	1119	18.48	32.01	Hard	1266
CBPmw	008	Central Burn Pit	10/5/2010	1055	18.03	27.96	Medium	1266
CPmw	001	Cobbs Pond	10/5/2010	905	7.37	14.78	Hard	1266
CPmw	002	Cobbs Pond	10/5/2010	936	4.58	15.03	Hard	1266
CPmw	003	Cobbs Pond	10/5/2010	925	2.38	17.75	Hard	1266
CPmw	004	Cobbs Pond	10/5/2010	1033	12.85	22.59	Hard	1266
CPmw	005	Cobbs Pond	10/5/2010	1043	13.34	43.24	Hard	1266
CPmw	006	Cobbs Pond	10/5/2010	850	8.86	20.70	Hard	1266
DETmw	001	Demo Area 2	10/15/2010	0822	25.41	38.51	Hard	1266
DETmw	002	Demo Area 2	10/15/2010	0850	33.05	42.01	Hard	1266
DETmw	003	Demo Area 2	10/15/2010	0810	9.83	16.03	Soft / Medium	1266

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
DETmw	004	Demo Area 2	10/15/2010	0815	11.69	13.81	Hard	1266
DA2mw	104	Demo Area 2	10/15/2010	0818	22.72	29.20	Medium	1266
DA2mw	105	Demo Area 2	10/15/2010	0920	3.43	16.22	Hard	1266
DA2mw	106	Demo Area 2	10/15/2010	0905	7.19	16.78	Hard	1266
DA2mw	107	Demo Area 2	10/15/2010	0925	8.03	16.85	Hard	1266
DA2mw	108	Demo Area 2	10/15/2010	0858	6.67	17.14	Soft	1266
DA2mw	109	Demo Area 2	10/15/2010	0947	16.89	24.30	Soft	1266
DA2mw	110	Demo Area 2	10/15/2010	0954	11.87	22.33	Hard	1266
DA2mw	111	Demo Area 2	10/15/2010	0941	4.65	14.80	Hard	1266
DA2mw	112	Demo Area 2	10/15/2010	0936	7.75	17.05	Hard	1266
DA2mw	113	Demo Area 2	10/15/2010	0931	8.69	16.30	Hard	1266
EBGmw	123	Erie Burning Grounds	10/4/2010	1518	10.68	34.80	Hard	1266
EBGmw	124	Erie Burning Grounds	10/4/2010	1510	4.30	32.70	Soft	1266
EBGmw	125	Erie Burning Grounds	10/4/2010	1523	12.90	27.50	Hard	1266
EBGmw	126	Erie Burning Grounds	10/4/2010	1454	3.44	27.85	Hard	1266
EBGmw	127	Erie Burning Grounds	10/4/2010	1445	6.06	32.88	Hard	1266
EBGmw	128	Erie Burning Grounds	10/4/2010	1437	8.34	28.26	Hard	1266
EBGmw	129	Erie Burning Grounds	10/4/2010	1501	7.72	31.05	Medium	1266
EBGmw	130	Erie Burning Grounds	10/4/2010	1531	7.45	28.45	Hard	1266
FBQmw	166	Fuze and Booster Quarry	10/5/2010	1147	5.39	19.83	Hard	OH2911
FBQmw	167	Fuze and Booster Quarry	10/5/2010	1128	6.32	19.09	Medium	OH2911
FBQmw	168	Fuze and Booster Quarry	10/5/2010	1117	13.77	21.32	Soft	OH2911
FBQmw	169	Fuze and Booster Quarry	10/5/2010	1124	8.34	18.18	Hard	OH2911
FBQmw	170	Fuze and Booster Quarry	10/5/2010	1051	21.40	32.81	Hard	OH2911

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
FBQmw	171	Fuze and Booster Quarry	10/5/2010	1114	22.53	31.52	Hard	OH2911
FBQmw	172	Fuze and Booster Quarry	10/5/2010	1110	29.61	34.55	Medium	OH2911
FBQmw	173	Fuze and Booster Quarry	10/5/2010	1105	45.70	53.11	Hard	OH2911
FBQmw	174	Fuze and Booster Quarry	10/5/2010	1100	20.17	23.14	Hard	OH2911
FBQmw	175	Fuze and Booster Quarry	10/5/2010	1055	20.67	25.89	Medium	OH2911
FBQmw	176	Fuze and Booster Quarry	10/5/2010	1135	11.42	23.85	Soft	OH2911
FBQmw	177	Fuze and Booster Quarry	10/5/2010	1142	15.85	24.89	Medium	OH2911
LNWmw	024	Landfill North Winklepeck	10/5/2010	920	14.78	22.61	Hard	OH2911
LNWmw	025	Landfill North Winklepeck	10/5/2010	916	5.96	20.41	Hard	OH2911
LNWmw	026	Landfill North Winklepeck	10/5/2010	914	12.88	26.10	Medium	OH2911
LNWmw	027	Landfill North Winklepeck	10/5/2010	910	9.97	27.00	Hard	OH2911
LL1mw	063	Loadline 1	10/4/2010	1250	29.78	30.03	Hard	OH2911
LL1mw	064	Loadline 1	10/4/2010	1345	3.95	21.01	Hard	OH2911
LL1mw	065	Loadline 1	10/4/2010	1341	15.00	23.20	Hard	OH2911
LL1mw	067	Loadline 1	10/4/2010	1230	21.35	25.81	Hard	OH2911
LL1mw	078	Loadline 1	10/4/2010	1245	34.80	41.20	Hard	OH2911
LL1mw	079	Loadline 1	10/4/2010	1325	35.41	41.85	Hard	OH2911
LL1mw	080	Loadline 1	10/4/2010	1306	16.35	22.28	Hard	OH2911
LL1mw	081	Loadline 1	10/4/2010	1320	33.86	41.92	Hard	OH2911
LL1mw	082	Loadline 1	10/4/2010	1314	36.34	41.50	Hard	OH2911
LL1mw	083	Loadline 1	10/4/2010	1255	36.16	41.54	Medium	OH2911
LL1mw	084	Loadline 1	10/4/2010	1258	33.15	39.19	Hard	OH2911
LL1mw	085	Loadline 1	10/4/2010	1301	38.08	45.15	Hard	OH2911
LL10mw	001	Loadline 10	10/5/2010	1030	26.06	29.51	Hard	1267

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
LL10mw	002	Loadline 10	10/5/2010	1020	19.31	29.72	Hard	1267
LL10mw	003	Loadline 10	10/5/2010	955	21.72	28.50	Hard	1267
LL10mw	004	Loadline 10	10/5/2010	1005	15.23	33.48	Hard	1267
LL10mw	005	Loadline 10	10/5/2010	1015	17.53	29.20	Hard	1267
LL10mw	006	Loadline 10	10/5/2010	1010	14.95	26.45	Hard	1267
LL11mw	001	Loadline 11	10/5/2010	1208	13.34	23.43	Hard	OH2911
LL11mw	002	Loadline 11	10/5/2010	1214	5.49	16.51	Hard	OH2911
LL11mw	003	Loadline 11	10/5/2010	130	4.59	16.01	Hard	1267
LL11mw	004	Loadline 11	10/5/2010	1240	1.32	16.12	Hard	1267
LL11mw	005	Loadline 11	10/5/2010	1228	11.14	16.50	Hard	OH2911
LL11mw	006	Loadline 11	10/5/2010	1225	8.23	15.80	Medium	OH2911
LL11mw	007	Loadline 11	10/5/2010	1221	16.14	25.41	Hard	OH2911
LL11mw	008	Loadline 11	10/5/2010	1245	5.57	15.67	Hard	1267
LL11mw	009	Loadline 11	10/5/2010	1220	6.34	19.48	Hard	1267
LL11mw	010	Loadline 11	10/5/2010	1210	7.26	23.40	Hard	1267
LL12mw	088	Loadline 12	10/5/2010	1324	8.08	27.27	Hard	1266
LL12mw	107	Loadline 12	10/5/2010	1329	7.60	33.70	Hard	1266
LL12mw	113	Loadline 12	10/5/2010	1236	9.33	21.45	Soft	1266
LL12mw	128	Loadline 12	10/5/2010	1220	11.34	34.03	Medium	1266
LL12mw	153	Loadline 12	10/5/2010	1230	8.35	24.80	Hard	1266
LL12mw	154	Loadline 12	10/5/2010	1226	11.12	28.65	Hard	1266
LL12mw	182	Loadline 12	10/5/2010	1325	13.22	38.12	Soft	1267
LL12mw	183	Loadline 12	10/5/2010	1311	14.76	36.35	Hard	1266
LL12mw	184	Loadline 12	10/5/2010	1316	14.37	31.40	Hard	1266

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
LL12mw	185	Loadline 12	10/5/2010	1248	10.69	23.30	Hard	1266
LL12mw	186	Loadline 12	10/5/2010	1013	8.84	21.05	Hard	1266
LL12mw	187	Loadline 12	10/5/2010	1241	12.59	29.95	Hard	1266
LL12mw	188	Loadline 12	10/5/2010	1211	8.35	22.13	Soft	1266
LL12mw	189	Loadline 12	10/5/2010	1020	9.61	19.96	Soft	1266
LL12mw	242	Loadline 12	10/5/2010	1411	12.63	28.81	Soft	1266
LL12mw	243	Loadline 12	10/5/2010	1216	10.53	24.92	Soft	1266
LL12mw	244	Loadline 12	10/5/2010	1255	13.05	31.35	Soft	1266
LL12mw	245	Loadline 12	10/5/2010	1336	9.17	29.92	Soft	1266
LL12mw	246	Loadline 12	10/5/2010	1304	18.69	35.05	Hard	1266
LL2mw	059	Loadline 2	10/4/2010	1353	15.37	21.84	Hard	OH2911
LL2mw	060	Loadline 2	10/4/2010	1359	12.18	20.91	Hard	OH2911
LL2mw	261	Loadline 2	10/4/2010	1435	8.00	22.55	Hard	OH2911
LL2mw	262	Loadline 2	10/4/2010	1426	11.71	22.74	Hard	OH2911
LL2mw	263	Loadline 2	10/4/2010	1423	11.72	23.53	Hard	OH2911
LL2mw	264	Loadline 2	10/4/2010	1420	11.09	22.48	Hard	OH2911
LL2mw	265	Loadline 2	10/4/2010	1356	11.87	24.52	Hard	OH2911
LL2mw	266	Loadline 2	10/4/2010	1431	14.88	22.80	Hard	OH2911
LL2mw	267	Loadline 2	10/4/2010	1444	12.21	22.80	Hard	OH2911
LL2mw	268	Loadline 2	10/4/2010	1415	16.69	29.96	Medium	OH2911
LL2mw	269	Loadline 2	10/4/2010	1410	19.31	30.39	Hard	OH2911
LL2mw	270	Loadline 2	10/4/2010	1439	11.53	22.49	Hard	OH2911
LL3mw	232	Loadline 3	10/4/2010	1540	23.74	39.89	Medium	OH2911
LL3mw	233	Loadline 3	10/4/2010	1536	28.93	32.86	Hard	OH2911
LL3mw	234	Loadline 3	10/4/2010	1545	12.23	22.72	Hard	OH2911

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
LL3mw	235	Loadline 3	10/4/2010	1550	22.24	23.05	Hard	OH2911
LL3mw	236	Loadline 3	10/4/2010	1554	19.85	26.69	Hard	OH2911
LL3mw	237	Loadline 3	10/4/2010	1559	20.92	25.64	Hard	OH2911
LL3mw	238	Loadline 3	10/4/2010	1548	17.91	23.45	Hard	OH2911
LL3mw	239	Loadline 3	10/4/2010	1602	27.87	36.94	Hard	OH2911
LL3mw	240	Loadline 3	10/4/2010	1610	28.92	36.74	Medium	OH2911
LL3mw	241	Loadline 3	10/4/2010	1530	15.67	25.66	Hard	OH2911
LL3mw	242	Loadline 3	10/4/2010	1520	19.04	22.62	Hard	OH2911
LL3mw	243	Loadline 3	10/4/2010	1524	18.70	26.43	Medium	OH2911
LL4mw	193	Loadline 4	10/5/2010	1350	8.25	24.36	Soft	OH2911
LL4mw	194	Loadline 4	10/5/2010	1345	11.52	23.64	Hard	OH2911
LL4mw	195	Loadline 4	10/5/2010	1359	12.51	22.90	Soft	OH2911
LL4mw	196	Loadline 4	10/5/2010	1405	14.55	21.90	Medium	OH2911
LL4mw	197	Loadline 4	10/5/2010	1401	15.43	23.71	Medium	OH2911
LL4mw	198	Loadline 4	10/5/2010	1416	11.38	22.36	Medium	OH2911
LL4mw	199	Loadline 4	10/5/2010	1355	8.74	23.30	Medium	OH2911
LL4mw	200	Loadline 4	10/5/2010	1337	19.05	25.26	Medium	OH2911
LL5mw	001	Loadline 5	10/5/2010	1010	22.02	27.10	Hard	OH2911
LL5mw	002	Loadline 5	10/5/2010	1037	22.81	27.58	Hard	OH2911
LL5mw	003	Loadline 5	10/5/2010	1033	21.55	24.05	Hard	OH2911
LL5mw	004	Loadline 5	10/5/2010	1027	19.96	25.44	Soft	OH2911
LL5mw	005	Loadline 5	10/5/2010	1015	23.52	29.73	Hard	OH2911
LL5mw	006	Loadline 5	10/5/2010	1024	22.14	27.17	Medium	OH2911
LL6mw	001	Loadline 6	10/5/2010	1140	16.79	17.56	Hard	1267
LL6mw	002	Loadline 6	10/5/2010	1125	22.98	24.49	Hard	1267

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
LL6mw	003	Loadline 6	10/5/2010	1040	18.16	25.64	Soft	1267
LL6mw	004	Loadline 6	10/5/2010	1130	18.88	24.54	Hard	1267
LL6mw	005	Loadline 6	10/5/2010	1115	13.65	22.12	Medium	1267
LL6mw	006	Loadline 6	10/5/2010	1055	16.42	17.73	Hard	1267
LL6mw	007	Loadline 6	10/5/2010	1110	9.59	19.30	Hard	1267
LL7mw	001	Loadline 7	10/5/2010	1255	22.66	33.02	Hard	1267
LL7mw	002	Loadline 7	10/5/2010	1255	19.53	27.26	Hard	OH2911
LL7mw	003	Loadline 7	10/5/2010	1250	13.70	33.63	Hard	OH2911
LL7mw	004	Loadline 7	10/5/2010	1246	17.18	32.32	Hard	OH2911
LL7mw	005	Loadline 7	10/5/2010	1241	24.09	30.43	Hard	OH2911
LL7mw	006	Loadline 7	10/5/2010	1238	13.73	30.41	Hard	OH2911
LL8mw	001	Loadline 8	10/4/2010	1605	14.20	27.50	Soft	1267
LL8mw	002	Loadline 8	10/4/2010	1610	21.52	32.55	Hard	1267
LL8mw	003	Loadline 8	10/4/2010	1620	15.82	22.96	Hard	1267
LL8mw	004	Loadline 8	10/4/2010	1625	14.39	22.71	Hard	1267
LL8mw	005	Loadline 8	10/4/2010	1645	15.95	26.92	Soft	1267
LL8mw	006	Loadline 8	10/4/2010	1635	21.47	27.01	Hard	1267
LL9mw	001	Loadline 9	10/5/2010	1000	17.28	23.39	Hard	OH2911
LL9mw	002	Loadline 9	10/5/2010	952	16.59	22.81	Hard	OH2911
LL9mw	003	Loadline 9	10/5/2010	956	15.45	24.25	Hard	OH2911
LL9mw	004	Loadline 9	10/5/2010	932	22.63	34.74	Hard	OH2911
LL9mw	005	Loadline 9	10/5/2010	947	18.41	23.56	Hard	OH2911

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
LL9mw	006	Loadline 9	10/5/2010	937	21.32	28.89	Hard	OH2911
LL9mw	007	Loadline 9	10/5/2010	940	11.56	18.24	Hard	OH2911
NTAmw	107	NACA Test Area	10/4/2010	1330	13.34	24.15	Hard	1267
NTAmw	108	NACA Test Area	10/4/2010	1340	18.39	24.41	Hard	1267
NTAmw	109	NACA Test Area	10/4/2010	1345	12.85	20.89	Soft	1267
NTAmw	110	NACA Test Area	10/4/2010	1350	15.25	29.72	Hard	1267
NTAmw	111	NACA Test Area	10/4/2010	1400	6.05	22.02	Hard	1267
NTAmw	112	NACA Test Area	10/4/2010	1440	9.92	26.60	Hard	1267
NTAmw	113	NACA Test Area	10/4/2010	1405	8.00	29.82	Hard	1267
NTAmw	114	NACA Test Area	10/4/2010	1435	7.69	22.77	Hard	1267
NTAmw	115	NACA Test Area	10/4/2010	1430	15.75	25.25	Hard	1267
NTAmw	116	NACA Test Area	10/4/2010	1425	8.14	22.55	Hard	1267
NTAmw	117	NACA Test Area	10/4/2010	1420	16.13	27.50	Hard	1267
NTAmw	118	NACA Test Area	10/4/2010	1410	10.38	24.65	Medium	1267
RQLmw	006	Ramsdell Quarry	10/4/2010	1317	37.82	42.04	Hard	1266
RQLmw	007	Ramsdell Quarry	10/4/2010	1339	10.90	18.64	Hard	1266
RQLmw	008	Ramsdell Quarry	10/4/2010	1346	10.69	18.66	Hard	1266
RQLmw	009	Ramsdell Quarry	10/4/2010	1358	9.65	18.82	Hard	1266
RQLmw	010	Ramsdell Quarry	10/4/2010	1424	29.35	35.33	Medium	1266
RQLmw	011	Ramsdell Quarry	10/4/2010	13200	25.46	35.37	Hard	1266
RQLmw	012	Ramsdell Quarry	10/4/2010	1315	24.99	32.68	Hard	1266
RQLmw	013	Ramsdell Quarry	10/4/2010	1417	29.01	36.50	Hard	1266
RQLmw	014	Ramsdell Quarry	10/4/2010	1412	23.19	31.55	Hard	1266
RQLmw	015	Ramsdell Quarry	10/4/2010	1330	34.78	42.05	Hard	1266
RQLmw	016	Ramsdell Quarry	10/4/2010	1325	38.20	41.66	Hard	1266

*All measurements from top of casing

COMPREHENSIVE WATER LEVEL MEASUREMENTS

RVAAP FACILITY-WIDE GROUNDWATER MONITORING PROGRAM OCTOBER 2010

Well Number		Location	Date	Time	Depth To Water*	Depth to Bottom	Description of bottom	Instrument/Serial Number
RQLmw	017	Ramsdell Quarry	10/4/2010	1235	32.55	32.85	Hard	OH2911
SCFmw	001	Sharon Conglomerate	10/11/2010	1120	91.28	214.50	Hard	Keck
SCFmw	002	Sharon Conglomerate	10/4/2010	1626	21.06	149.76	Hard	OH2911
SCFmw	003	Sharon Conglomerate	10/4/2010	1402	9.94	139.65	Hard	OH2911
SCFmw	004	Sharon Conglomerate	10/4/2010	1333	1.95	113.20	Hard	OH2911
SCFmw	005	Sharon Conglomerate	10/4/2010	1646	13.48	158.50	Hard	1266
SCFmw	006	Sharon Conglomerate	10/4/2010	1554	18.97	88.35	Hard	1266
MBSmw	001	Suspect Mustard Burial	10/4/2010	1240	18.19	31.00	Hard	1267
MBSmw	002	Suspect Mustard Burial	10/4/2010	1255	18.81	31.12	Hard	1267
MBSmw	003	Suspect Mustard Burial	10/4/2010	1300	19.44	30.70	Hard	1267
MBSmw	004	Suspect Mustard Burial	10/4/2010	1310	17.43	27.18	Hard	1267
MBSmw	005	Suspect Mustard Burial	10/4/2010	1250	18.45	30.01	Soft	1267
MBSmw	006	Suspect Mustard Burial	10/4/2010	1235	17.93	28.12	Soft	1267
WBGmw	005	Winklepeck Burning	10/5/2010	859	8.25	21.25	Hard	OH2911
WBGmw	006	Winklepeck Burning	10/5/2010	920	10.19	20.14	Medium	1267
WBGmw	007	Winklepeck Burning	10/5/2010	905	18.85	26.39	Hard	1267
WBGmw	008	Winklepeck Burning	10/5/2010	850	16.34	20.83	Hard	1267
WBGmw	009	Winklepeck Burning	10/5/2010	836	15.97	24.40	Hard	OH2911
WBGmw	010	Winklepeck Burning	10/5/2010	902	9.43	23.36	Medium	OH2911
WBGmw	011	Winklepeck Burning	10/5/2010	853	12.04	23.94	Medium	OH2911
WBGmw	012	Winklepeck Burning	10/5/2010	849	25.85	31.77	Hard	OH2911
WBGmw	013	Winklepeck Burning	10/5/2010	843	12.64	24.19	Medium	OH2911
WBGmw	014	Winklepeck Burning	10/5/2010	855	17.84	24.97	Hard	1267
WBGmw	015	Winklepeck Burning	10/5/2010	930	14.98	23.52	Hard	1267
WBGmw	016	Winklepeck Burning	10/5/2010	910	18.69	25.14	Soft	1267
WBGmw	017	Winklepeck Burning	10/5/2010	915	11.00	23.41	Soft	1267

*All measurements from top of casing

APPENDIX D

WELL INSPECTION SHEETS

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: ASY

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground Completion~~: _____

Reported Construction Depth: 23.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.18				
Thickness of sediment accumulation (reported depth-present measurement):				0.52
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.7 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		RUST
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.97				
Thickness of sediment accumulation (reported depth-present measurement):				-0.27
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: AS4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.45				
Thickness of sediment accumulation (reported depth-present measurement):				0.05
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):	Hard			

Inspection Date: 10/5 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.16 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	lock cap missing
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 29.86				
Thickness of sediment accumulation (reported depth-present measurement):				-0.26
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 27.24				− 1.02
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rusted
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	weed whacking
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 28.97				
Thickness of sediment accumulation (reported depth-present measurement): -0.17				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 07 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.8 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusted
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 28.98				
Thickness of sediment accumulation (reported depth-present measurement): -0.18				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, (hard), etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: ~~27.70~~ 27.32				
Thickness of sediment accumulation (reported depth-present measurement): 0.38				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 009 Location/Functional Area: AS4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.25				
Thickness of sediment accumulation (reported depth-present measurement): 0.05				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5 Inspected by: JK

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 010 Location/Functional Area: ASP

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 31.20				
Thickness of sediment accumulation (reported depth-present measurement):				-1.40
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGMW-004 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty + missing weatherproof tab
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☒	☐	☐	Can turn by hand
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 22.28				
Thickness of sediment accumulation (reported depth-present measurement): -0.28				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKG005 Location/Functional Area: Bockyn

Casing Type: [ ] Steel [ ] Stainless Steel [✓] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21 ft [ ] BGS or [✓] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 20.90				
Thickness of sediment accumulation (reported depth-present measurement): 0.10				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hw				

Inspection Date: 10/4 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKG-MW-006 Location/Functional Area: BKC

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 37.6 ft ☐ BGS or ☐ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☒	☐	☐	Pad is cracked
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	Needs a new cap - cap is too tight
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 37.46				
Thickness of sediment accumulation (reported depth-present measurement): 0.14				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MMR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGmw-008 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.5 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	won't shut completely
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.40				
Thickness of sediment accumulation (reported depth-present measurement): 0.10				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMQ

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 010 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.60 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.09				-0.49
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGMW-012 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 2.0 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 62.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	Won't close completely
Does the well have a weatherproof lock?	☒	☐	☐	Missing weatherproof tab
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 61.96				
Thickness of sediment accumulation (reported depth-present measurement): 0.34				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): ~~Hard~~ medium				

Inspection Date: 10/5/10 Inspected by: MK

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 013 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?		✓		
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 28.10				
Thickness of sediment accumulation (reported depth-present measurement): -0.1				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGMW-015 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 20 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 52.9 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Missing weatherproof flap + rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 53.05				
Thickness of sediment accumulation (reported depth-present measurement): −0.15				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MWH

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKG 016 Location/Functional Area: Background

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10.1 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			One post leaning but OK
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 21.15				
Thickness of sediment accumulation (reported depth-present measurement): -0.05				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKG 017 Location/Functional Area: Background

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: _____ ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 36.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Post loose
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			Lock cap Broken
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 35.94				
Thickness of sediment accumulation (reported depth-present measurement): 0.16				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGmw-018 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10.1 ft

Flush-mount/~~Above-ground Completion~~: _____

Reported Construction Depth: 27.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	Lid is broken - hinge
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☐	☒	☐	Lid is broken
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.57				
Thickness of sediment accumulation (reported depth-present measurement): -0.37				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 019 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 35.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Leaning
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			Rusted
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 35.58				
Thickness of sediment accumulation (reported depth-present measurement): 0.12				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 020 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 33.20 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 33.06				33.06
Thickness of sediment accumulation (reported depth-present measurement):				0.14
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft/hard etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: BKGMW-021 Location/Functional Area: BKG

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			Off it's hinges
Does the well have a weatherproof lock?	X			Rusty + weatherproof tab is gone
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 21.48				
Thickness of sediment accumulation (reported depth-present measurement): -0.88				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMQ

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 010 Location/Functional Area: B12

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.90				
Thickness of sediment accumulation (reported depth-present measurement): 0.30				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 011 Location/Functional Area: B12

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 26.81				
Thickness of sediment accumulation (reported depth-present measurement): 0.09				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 012 Location/Functional Area: B12

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.90				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBL-001 Location/Functional Area: C-Block

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 51.16 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 51.17				
Thickness of sediment accumulation (reported depth-present measurement): 0.43				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): M				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBL002 Location/Functional Area: C-Block

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 47.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 47.34				
Thickness of sediment accumulation (reported depth-present measurement): -0.14				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): S				

Inspection Date: 10/4/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBLmw-003 Location/Functional Area: C. Block

Casing Type: [ ] Steel [ ] Stainless Steel [✓] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 45.8 ft [ ] BGS or [✓] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: ~~[illegible]~~ 44.86				Cal confirmed 12/11/10
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?		✓		0.94
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBZ MW-004 Location/Functional Area: C-Block

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 46.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			Pad concrete is worn but secure
Is the pad cracked or deteriorated? Frost Heaving?	✓	✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 47.01				
Thickness of sediment accumulation (reported depth-present measurement): -0.21				
Are there an obstructions in the well?				
Description of well bottom conditions (soft, hard, etc.): M				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-001 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 34.9 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	2 missing concrete caps
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: ~~34.14~~ 34.90 10/11/10 confirmed.				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): ~~Soft~~ hard				

Inspection Date: 10/5/10 Inspected by: JMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-002 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: # peeling of outer casing, clearly marked on guard post				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 31.85				
Thickness of sediment accumulation (reported depth-present measurement): 0.35				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10/5/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPMW-003 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☐	☒	☐	Measured from north side
Measured depth of the well from measurement point: 30.22				
Thickness of sediment accumulation (reported depth-present measurement): -3.12				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): Soft?				

Inspection Date: 10/5/10 Inspected by: MMR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-004 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.5 ft ☐ BGS or ☐ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 29.68				
Thickness of sediment accumulation (reported depth-present measurement): -0.18				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-005 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	missing weatherproof tag
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.36				
Thickness of sediment accumulation (reported depth-present measurement): -0.06				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MW

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-006 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	Rusting
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: # on well casing is chipped away - repainted on guard post				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☐	☒	☐	Measured from north side
Measured depth of the well from measurement point: 25.25				
Thickness of sediment accumulation (reported depth-present measurement): 0.15				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MMc

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-007 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.4 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	Added sand packing
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: ~~31.80~~ 32.01				
Thickness of sediment accumulation (reported depth-present measurement): 0.39				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MMK

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CBPmw-008 Location/Functional Area: CBP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	2 posts missing concrete top
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	Frost heaved but still stable
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: 8 in '008' needs repainted				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	Just a tad of wiggle - added sand packing
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.96				
Thickness of sediment accumulation (reported depth-present measurement): -0.06				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPMW-001 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: ~~N/A~~ Flush mount

Reported Construction Depth: 15.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	Concrete heaved out of 2 posts
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☐	☐	☒	
Does the protective casing have a weep hole?	☐	☐	☒	
Does vegetation around the well need clearing?	☒	☐	☐	Tree fall on top of well
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☒	☐	☐	
Does the well have a flush-mount box?	☒	☐	☐	
Is the traffic cover cracked or broken?	☐	☒	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☒ MA	☐	Replaced 10/5/10
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 14.78				
Thickness of sediment accumulation (reported depth-present measurement): 0.52				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPmw-002 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

~~Flush-mount~~/Above-ground Completion: _____

Reported Construction Depth: 15.1 ft ☐ BGS or ☐ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: ~~4~~ 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	Cement heaved out of top of 1 post
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☒	☐	☐	Wobbly - fixed w/pea gravel 10/5/10
Is steel protective casing installed?	☐	☐	☒	
Does the protective casing have a weep hole?	☐	☐	☒	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☒	☐	☐	
Does the well have a flush-mount box?	☒	☐	☐	
Is the traffic cover cracked or broken?	☐	☒	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☒	☐	☐	Wobbly - fixed w/pea gravel 10/5/10
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☐	☒	☐	Needs lock
Does the lock secure well?	☐	☐	☒	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	very lightly marked
Measured depth of the well from measurement point: 15.03				
Thickness of sediment accumulation (reported depth-present measurement): 0.07				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPmw-003 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 16 ft

Flush-mount/Above-ground Completion: Flush mount

Reported Construction Depth: 17.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	frost heaving +2 dont have cement in top
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☒	☐	☐	frost heaving
Is steel protective casing installed?	☐	☐	☒	
Does the protective casing have a weep hole?	☐	☐	☒	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☒	☐	Missing 3 bolts
Does the well have a flush-mount box?	☒	☐	☐	Full of water (no bolts)
Is the traffic cover cracked or broken?	☐	☒	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☒	☐	☐	frost-heaving
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Replaced 10/5/10
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 17.75				
Thickness of sediment accumulation (reported depth-present measurement): -0.15				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MK

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPmw-004 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 22.59				
Thickness of sediment accumulation (reported depth-present measurement): -0.39				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MMQ

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPmw-005 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 42.4 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 43.24				
Thickness of sediment accumulation (reported depth-present measurement): -0.84				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: CPMW-006 Location/Functional Area: CP

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			Missing weatherproof tab
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 20.70				
Thickness of sediment accumulation (reported depth-present measurement): 0.50				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MG

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: DET001 Location/Functional Area: DET DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 40.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		little rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 38.51				
Thickness of sediment accumulation (reported depth-present measurement): 1.99				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: DET002 Location/Functional Area: DET DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 40 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		needs paint
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		Bailer down casing
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 42.01				
Thickness of sediment accumulation (reported depth-present measurement): -2.01				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: DET003 Location/Functional Area: DET DA2

Casing Type: [ ] Steel [ ] Stainless Steel [✓] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 13 ft [ ] BGS or [✓] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Some/little rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.03				
Thickness of sediment accumulation (reported depth-present measurement): -3.03				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: DET00 4 Location/Functional Area: DET D42

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 12.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Some rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 13.81				
Thickness of sediment accumulation (reported depth-present measurement):				← 1.81
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: LB

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 104 Location/Functional Area: DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	Lock cover missing
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 29.20				
Thickness of sediment accumulation (reported depth-present measurement): 0.40				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 105 Location/Functional Area: OA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 16.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			Neat's paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.22				
Thickness of sediment accumulation (reported depth-present measurement): -0.02				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 106 Location/Functional Area: OA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 7 ft

Flush-mount/Above-ground Completion _____

Reported Construction Depth: 18.1 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	neal's paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 16.78				
Thickness of sediment accumulation (reported depth-present measurement): 1.32				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 107 Location/Functional Area: DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 16.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	need's paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	missing lock cover
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 16.85				
Thickness of sediment accumulation (reported depth-present measurement):				-0.35
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 108 Location/Functional Area: DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 16.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 17.14				
Thickness of sediment accumulation (reported depth-present measurement): -0.24				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/5/10 Inspected by: SM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 109 Location/Functional Area: DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.1 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	neal's paint
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.30				
Thickness of sediment accumulation (reported depth-present measurement):				− 0.20
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft) hard, etc.): _____				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 110 Location/Functional Area: OA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.33				
Thickness of sediment accumulation (reported depth-present measurement): -0.43				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-13-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 111 Location/Functional Area: DA 2

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 14.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 14.8				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 112 Location/Functional Area: DA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 16.60 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	needs paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 17.05				
Thickness of sediment accumulation (reported depth-present measurement):				-0.45
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, ~~hard~~, etc.):				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 113 Location/Functional Area: OA2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 16.1 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			Lock cap missing
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.30				
Thickness of sediment accumulation (reported depth-present measurement): -0.20				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-15-10 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGMW-123 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 33.7 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 34.80				
Thickness of sediment accumulation (reported depth-present measurement): -1.10				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MG

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGmw-124 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.9 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 32.70				
Thickness of sediment accumulation (reported depth-present measurement): 0.20				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): medium soft				

Inspection Date: 10/4/10 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: ERGMW-125 Location/Functional Area: ERG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 26.8 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.50				
Thickness of sediment accumulation (reported depth-present measurement): -0.70				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: _____ Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBG-MW-126 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.9 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.85				
Thickness of sediment accumulation (reported depth-present measurement): 0.05				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

- Material b/t outer and inner seal is moist & has expanded to the top of the casing

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGMW-127 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.40 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 32.88				
Thickness of sediment accumulation (reported depth-present measurement): -0.48				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMQ

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGMW-128 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?				
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?		X		
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 28.26				
Thickness of sediment accumulation (reported depth-present measurement): -0.26				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGMW-129 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.4 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 31.05				
Thickness of sediment accumulation (reported depth-present measurement): -2.65				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10/4/10 Inspected by: MR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: EBGmw-130 Location/Functional Area: EBG

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 28.45				
Thickness of sediment accumulation (reported depth-present measurement): -0.15				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 166 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 19.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☑ (NOT)	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Needs paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 19.83				
Thickness of sediment accumulation (reported depth-present measurement): -0.33				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 167 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 19.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	fading
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 19.09				
Thickness of sediment accumulation (reported depth-present measurement): -0.19				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 168 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Neal's print
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 21.32				
Thickness of sediment accumulation (reported depth-present measurement): 0.28				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 169 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground Completion~~: _____

Reported Construction Depth: 18.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☑ (NA)	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☑	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Needs paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 18.18				
Thickness of sediment accumulation (reported depth-present measurement): 0.02				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft/hard/etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 170 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Need's paint
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 32.81				
Thickness of sediment accumulation (reported depth-present measurement):				-0.21
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 171 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported ~~Construction Depth~~: 31.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Neal's paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 31.52				
Thickness of sediment accumulation (reported depth-present measurement): -0.42				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 172 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 34.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?		✓		
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 34.55				
Thickness of sediment accumulation (reported depth-present measurement):				−0.15
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 173 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion

Reported Construction Depth: 53 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	Fallen trees on road
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 53.11				
Thickness of sediment accumulation (reported depth-present measurement): -0.11				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 174 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 26.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Need's paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.14				
Thickness of sediment accumulation (reported depth-present measurement): 3.06				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, (hard), etc.): 23.14				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 175 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 25.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Needs paint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.89				−0.29
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, ~~etc.~~): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 176 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			/	
Does the well have a flush-mount box?			/	
Is the traffic cover cracked or broken?			/	
Is the concrete apron cracked or deteriorated? Frost Heaving?			/	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.85				
Thickness of sediment accumulation (reported depth-present measurement): -0.55				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft/hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 177 Location/Functional Area: FBQ

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.89				
Thickness of sediment accumulation (reported depth-present measurement): -0.09				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 024 Location/Functional Area: ~NW

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: _____				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			Neal's paint
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			no tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.61				
Thickness of sediment accumulation (reported depth-present measurement): 0.09				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 025 Location/Functional Area: LNW

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 19 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			No tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 20.41				
Thickness of sediment accumulation (reported depth-present measurement):				-1.41
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, (hard) etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 026 Location/Functional Area: ~~WBG~~ LNW

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	No tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 26.10				
Thickness of sediment accumulation (reported depth-present measurement): -0.30				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, ~~etc.~~): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 027 Location/Functional Area: LNW

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	no tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 27.00				
Thickness of sediment accumulation (reported depth-present measurement):				-0.30
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 63 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 30.03				
Thickness of sediment accumulation (reported depth-present measurement): -0.03				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 64 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 21.01				
Thickness of sediment accumulation (reported depth-present measurement): 0.09				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 65 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.20				
Thickness of sediment accumulation (reported depth-present measurement): 0.20				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard) etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 67 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.7 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: ~~25.84~~ 25.46 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.81				
Thickness of sediment accumulation (reported depth-present measurement): -0.21				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 9-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 78 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			✓	
Does the well have a flush-mount box?			✓	
Is the traffic cover cracked or broken?			✓	
Is the concrete apron cracked or deteriorated? Frost Heaving?			✓	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?				
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 41.20				
Thickness of sediment accumulation (reported depth-present measurement): -0.10				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-12 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 79 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.4 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 42 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: needs some colored paint to recognize. id paint				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 41.85				
Thickness of sediment accumulation (reported depth-present measurement): 0.15				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 80 Location/Functional Area: LL

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			✓	
Does the well have a flush-mount box?			✓	
Is the traffic cover cracked or broken?			✓	
Is the concrete apron cracked or deteriorated? Frost Heaving?			✓	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			No tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.28				
Thickness of sediment accumulation (reported depth-present measurement): -0.28				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 81 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 41.92				
Thickness of sediment accumulation (reported depth-present measurement): -0.02				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 82 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 41.50				
Thickness of sediment accumulation (reported depth-present measurement): 0.30				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 83 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.5 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.7 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	No tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 41.54				
Thickness of sediment accumulation (reported depth-present measurement): 0.14				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 84 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.6 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 39.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			No tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 39.19				
Thickness of sediment accumulation (reported depth-present measurement): 0.11				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 85 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.4 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 44.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			No tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 45.15				
Thickness of sediment accumulation (reported depth-present measurement): -0.45				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, (hard) etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 59 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.8 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 21.84				
Thickness of sediment accumulation (reported depth-present measurement): -0.04				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 60 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 9.8 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			✓	
Does the well have a flush-mount box?			✓	
Is the traffic cover cracked or broken?			✓	
Is the concrete apron cracked or deteriorated? Frost Heaving?			✓	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 20.91				
Thickness of sediment accumulation (reported depth-present measurement): -0.01				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 261 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.55				
Thickness of sediment accumulation (reported depth-present measurement): -0.65				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 262 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.74				
Thickness of sediment accumulation (reported depth-present measurement): -0.44				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 263 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.53				
Thickness of sediment accumulation (reported depth-present measurement): -0.53				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 264 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported ~~Construction Depth~~: 21.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.48				
Thickness of sediment accumulation (reported depth-present measurement): -0.78				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 265 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: _____				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			/	
Does the well have a flush-mount box?			/	
Is the traffic cover cracked or broken?			/	
Is the concrete apron cracked or deteriorated? Frost Heaving?			/	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.52				
Thickness of sediment accumulation (reported depth-present measurement): -0.72				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 266 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.80				
Thickness of sediment accumulation (reported depth-present measurement): -0.6				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 267 Location/Functional Area: 42

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?		✓		
Does vegetation around the well need clearing?	✓			
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			/	
Does the well have a flush-mount box?			/	
Is the traffic cover cracked or broken?			/	
Is the concrete apron cracked or deteriorated? Frost Heaving?			/	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.80				
Thickness of sediment accumulation (reported depth-present measurement): -0.8				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 268 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 29.96				
Thickness of sediment accumulation (reported depth-present measurement): -0.66				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 269 Location/Functional Area: 42

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.40 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 30.39				
Thickness of sediment accumulation (reported depth-present measurement): -0.99				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard) etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 270 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☒	
Does the well have a flush-mount box?	☐	☐	☒	
Is the traffic cover cracked or broken?	☐	☐	☒	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☒	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.49				-2.19
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 232 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 38.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			✓	
Does the well have a flush-mount box?			✓	
Is the traffic cover cracked or broken?			✓	
Is the concrete apron cracked or deteriorated? Frost Heaving?			✓	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 39.89				
Thickness of sediment accumulation (reported depth-present measurement): -1.09				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc?): Medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 233 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	no tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 32.86				
Thickness of sediment accumulation (reported depth-present measurement):				-0.66
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 234 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.72				
Thickness of sediment accumulation (reported depth-present measurement): ~0.62				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 235 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.05				
Thickness of sediment accumulation (reported depth-present measurement): -0.85				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 236 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 26.69				
Thickness of sediment accumulation (reported depth-present measurement): -0.49				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 237 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	paint
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.64				
Thickness of sediment accumulation (reported depth-present measurement):				-0.74
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 238 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Paint
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	No tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.45				
Thickness of sediment accumulation (reported depth-present measurement): -0.55				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 239 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 36.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 36.94				
Thickness of sediment accumulation (reported depth-present measurement): -0.14				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 240 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 36.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 36.74				
Thickness of sediment accumulation (reported depth-present measurement): -0.24				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): ~~Medium~~ SOFT				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 241 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	need's paint/new id.
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.66				
Thickness of sediment accumulation (reported depth-present measurement): -0.56				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 242 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.62				
Thickness of sediment accumulation (reported depth-present measurement): -0.72				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft/hard/etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 243 Location/Functional Area: LL3

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.8 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 26.43				
Thickness of sediment accumulation (reported depth-present measurement): -0.63				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, ~~etc.~~): Medium				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 193 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.36				
Thickness of sediment accumulation (reported depth-present measurement):				-0,86
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 194 Location/Functional Area: CL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	Weed whacking
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.64				
Thickness of sediment accumulation (reported depth-present measurement): -0.24				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 195 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.90				
Thickness of sediment accumulation (reported depth-present measurement): -0.60				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 196 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 21.90				
Thickness of sediment accumulation (reported depth-present measurement):				-0.5
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, (etc)):				medium

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 197 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		one post tilted
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?	✓			weed wacking
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.71				
Thickness of sediment accumulation (reported depth-present measurement):				-1.01
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 198 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?	✓			
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: ~~22.30~~ 22.36				
Thickness of sediment accumulation (reported depth-present measurement):				-0.06
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, ~~hard~~, (etc.)): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 199 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.30				
Thickness of sediment accumulation (reported depth-present measurement): -0.7				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 200 Location/Functional Area: LL4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 25.26				
Thickness of sediment accumulation (reported depth-present measurement): -0.26				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LL5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 30.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☑	☑	☐	
Is a measurement point marked a the top of well casing?	☐	☐	☐	
Measured depth of the well from measurement point: 27.10				
Thickness of sediment accumulation (reported depth-present measurement): -0.20				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, (hard), etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LL5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.58				
Thickness of sediment accumulation (reported depth-present measurement): 0.32				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LL 5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.05				
Thickness of sediment accumulation (reported depth-present measurement):				-005
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LL5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 25.44				
Thickness of sediment accumulation (reported depth-present measurement): -0.54				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft/hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LL5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 29.73				
Thickness of sediment accumulation (reported depth-present measurement): 0.17				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LL5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 26.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?			✓	
Does the well have a flush-mount box?			✓	
Is the traffic cover cracked or broken?			✓	
Is the concrete apron cracked or deteriorated? Frost Heaving?			✓	
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			no tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.17				
Thickness of sediment accumulation (reported depth-present measurement): -0.27				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, ~~etc.~~): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: LCC

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 17 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	paint
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☐	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☒	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☑	☑	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Needs Paint
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 17.56				
Thickness of sediment accumulation (reported depth-present measurement): -0.56				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/8 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 0092 Location/Functional Area: LC6

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 225 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			Needs Repainting
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.49				
Thickness of sediment accumulation (reported depth-present measurement): -1.99				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LC6

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 25.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓	✓		
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			Needs Repaint
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 25.64				
Thickness of sediment accumulation (reported depth-present measurement): 0.26				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5 Inspected by: JA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LCG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 25.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			Needs Repl
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			Lock Cover miss
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.54				
Thickness of sediment accumulation (reported depth-present measurement): 0.56				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LL6

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 22.5 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	Needs Repaint
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.12				
Thickness of sediment accumulation (reported depth-present measurement): 0.38				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: JC

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LLG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 17 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusted
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?			✓	
Does the protective casing have a weep hole?			✓	
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?	✓			
Is the traffic cover cracked or broken?		✓		
Is the concrete apron cracked or deteriorated? Frost Heaving?		✓		
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 17.23				
Thickness of sediment accumulation (reported depth-present measurement): -0.73				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 7/15/10 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: LC6

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 19.5 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	INSPECTION ITEMS YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rusted
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☐	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☐	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☑	☐	☐	Pad is wobbly
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 19.30				
Thickness of sediment accumulation (reported depth-present measurement): 0.2				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5/10 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LC7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 33.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 33.02				
Thickness of sediment accumulation (reported depth-present measurement): 0.18				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hv				

Inspection Date: 10/5 Inspected by: J

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LL7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion

Reported Construction Depth: 27.8 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.26				
Thickness of sediment accumulation (reported depth-present measurement): 0.54				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LL7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 33.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 33.63				
Thickness of sediment accumulation (reported depth-present measurement): -0.03				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LL7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 32.32				
Thickness of sediment accumulation (reported depth-present measurement): 0.18				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 025 Location/Functional Area: LL7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.60 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Russt
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 30.43				
Thickness of sediment accumulation (reported depth-present measurement): 0.17				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LL 7

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 30.41				
Thickness of sediment accumulation (reported depth-present measurement): -0.01				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LL8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.5				
Thickness of sediment accumulation (reported depth-present measurement): -0.7				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/4/16 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LL8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			Rusty pad
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 32.55				
Thickness of sediment accumulation (reported depth-present measurement): 0.25				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/6/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LC8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Post Wobbly - OK
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			Appears to have been hit structurally OK
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.96				
Thickness of sediment accumulation (reported depth-present measurement): 0.34				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LL8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	INSPECTION ITEMS YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.71				
Thickness of sediment accumulation (reported depth-present measurement): 0.29				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LL8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Post Leaning
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 26.92				
Thickness of sediment accumulation (reported depth-present measurement): 0.28				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/4/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: C<8

Casing Type: ☐ Steel ☐ Stainless Steel ☑ ~~PVC~~

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 26.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.01				
Thickness of sediment accumulation (reported depth-present measurement): -0.21				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4/10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.39				
Thickness of sediment accumulation (reported depth-present measurement): -0.09				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft/hard/etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	Needs sand
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.81				
Thickness of sediment accumulation (reported depth-present measurement): -0.41				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	Neat's sand
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.25				
Thickness of sediment accumulation (reported depth-present measurement): -0.45				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: _____ ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 34.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust
Is a concrete pad installed?	✓			Needs sand
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 34.74 ft				
Thickness of sediment accumulation (reported depth-present measurement): 0.16				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: _____ ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust
Is a concrete pad installed?	☑	☐	☐	needs sand
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.56				
Thickness of sediment accumulation (reported depth-present measurement): -0.26				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust, paint peeling
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 28.89				
Thickness of sediment accumulation (reported depth-present measurement): 0.01				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: LL9

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 18.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☐	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 18.24				
Thickness of sediment accumulation (reported depth-present measurement): 0.26				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LC10

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 29.8 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	INSPECTION ITEMS YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 29.51				
Thickness of sediment accumulation (reported depth-present measurement): 0.29				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LC10

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 29.7 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 29.72				
Thickness of sediment accumulation (reported depth-present measurement): -0.02				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/9 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LL10

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 28.5 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 28.50				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: JM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LC/6

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 33.8 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 33.48				
Thickness of sediment accumulation (reported depth-present measurement): 0.32				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LC10

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 29.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 29.20				
Thickness of sediment accumulation (reported depth-present measurement): 0.10				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hrs				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LC10

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: OPEN SCREEN Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 26.1 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rusty
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 26.45				
Thickness of sediment accumulation (reported depth-present measurement): -0.35				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: LL1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.1 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	neals sand
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.80 23.43				
Thickness of sediment accumulation (reported depth-present measurement):				0.67
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: LL11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

(Screened)/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

(Flush-mount)/Above-ground Completion: _____

Reported Construction Depth: 16.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?	✓	✓		
Is steel protective casing installed?	✓		✓	
Does the protective casing have a weep hole?			✓	
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?	✓			
Is the traffic cover cracked or broken?	✓	✓		
Is the concrete apron cracked or deteriorated? Frost Heaving?	✓	✓		
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		water in the
Is the well casing loose, (at the surface?)		✓		casing
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.57				
Thickness of sediment accumulation (reported depth-present measurement): -0.51				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, (hard), etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: LC 1

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 16 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?			✓	
Does the protective casing have a weep hole?			✓	
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?	✓			
Is the traffic cover cracked or broken?	✓	✓		
Is the concrete apron cracked or deteriorated? Frost Heaving?	✓	✓		
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.01				
Thickness of sediment accumulation (reported depth-present measurement): -0.01				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 1230 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: LCII

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 15.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?			✓	
Does the protective casing have a weep hole?			✓	
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	✓			
Does the well have a flush-mount box?	✓			
Is the traffic cover cracked or broken?		✓		
Is the concrete apron cracked or deteriorated? Frost Heaving?		✓		
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓	✓		
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 16.12				
Thickness of sediment accumulation (reported depth-present measurement): -0.22				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 6/5 Inspected by: JW

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: LL11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 16.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Some rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☐	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☑	☐	☐	weed wacking
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☐	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 16.50				
Thickness of sediment accumulation (reported depth-present measurement): -0.5				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: LL11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 15.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	some rust
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☐	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☐	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 15.80				
Thickness of sediment accumulation (reported depth-present measurement): -0.3				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: LL11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	Neat's sand
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	no tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.41				
Thickness of sediment accumulation (reported depth-present measurement): -0.21				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 008 Location/Functional Area: LC11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: FM

Reported Construction Depth: 15.4 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	INSPECTION ITEMS YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well:				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☐	☐	☑	
Does the protective casing have a weep hole?	☐	☐	☑	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☑	☐	☐	
Does the well have a flush-mount box?	☑	☐	☐	
Is the traffic cover cracked or broken?	☐	☑	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point:	15.67			
Thickness of sediment accumulation (reported depth-present measurement):	-0.27			
Are there an obstructions in the well?	☐	☐	☐	
Description of well bottom conditions (soft, hard, etc.):	Mud			

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 009 Location/Functional Area: LL11

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: ~~19.27~~ 16.6 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion: INSPECTION ITEMS	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 19.48				
Thickness of sediment accumulation (reported depth-present measurement): −2.88				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/5 Inspected by: JH

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 010 Location/Functional Area: LCH

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 23.4 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion: **INSPECTION ITEMS**	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.40				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/9 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-088 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 27.27				
Thickness of sediment accumulation (reported depth-present measurement): -0.17				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-107 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 33.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 33.70				
Thickness of sediment accumulation (reported depth-present measurement): -0.6				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-113 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25 ft ☐ BGS or ☒ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 21.45				
Thickness of sediment accumulation (reported depth-present measurement): 3.55				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MLR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-128 Location/Functional Area: LL12

Casing Type: [ ] Steel [ ] Stainless Steel [X] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 33.3 ft [ ] BGS or [/] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 34.03				
Thickness of sediment accumulation (reported depth-present measurement): -0.73				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): medium				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-153 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 24.80				
Thickness of sediment accumulation (reported depth-present measurement): 0.20				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MH

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-154 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.7 ft ☐ BGS or ☒ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☒	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 28.65				
Thickness of sediment accumulation (reported depth-present measurement): 0.05				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MLa

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 0182 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 37.7 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 38.12				
Thickness of sediment accumulation (reported depth-present measurement): -0.42				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL2mw-183 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 36.0 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 36.35				
Thickness of sediment accumulation (reported depth-present measurement):				−0.35
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-184 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 31.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 31.40				
Thickness of sediment accumulation (reported depth-present measurement): -0.20				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-185 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 23.30				
Thickness of sediment accumulation (reported depth-present measurement): -0.1				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-18D Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 21.0 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 21.05				
Thickness of sediment accumulation (reported depth-present measurement): −0.05				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-187 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 29.4 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☒	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Missing weatherproof tab
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 29.95				
Thickness of sediment accumulation (reported depth-present measurement): -0.55				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/15/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-188 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 22.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 22.13				
Thickness of sediment accumulation (reported depth-present measurement): 0.07				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5/10 Inspected by: MH2

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-189 Location/Functional Area: LL12mw-189

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 19.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☒	☐	☐	Concrete top out of one post
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 19.96				
Thickness of sediment accumulation (reported depth-present measurement): -0.36				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-242 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 28.3 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☒	
Does the well have a flush-mount box?	☐	☐	☒	
Is the traffic cover cracked or broken?	☐	☐	☒	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☒	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☒	☐	☐	Needs lots of sand @ the outer casing
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 28.81				
Thickness of sediment accumulation (reported depth-present measurement): -0.51				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): 30ft				

Inspection Date: 10/5/10 Inspected by: MR

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12mw-243 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.7 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 24.92				
Thickness of sediment accumulation (reported depth-present measurement): 0.78				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL2mw-244 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 31.35				
Thickness of sediment accumulation (reported depth-present measurement): 0.75				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MM2

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL2mw-245 Location/Functional Area: LL2

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.5 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling:		Good		
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 29.92				
Thickness of sediment accumulation (reported depth-present measurement): 0.58				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): soft				

Inspection Date: 10/5/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: LL12MW-246 Location/Functional Area: LL12

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 34.3 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	weatherproof lock cover broken
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	~~☒~~	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 35.05				
Thickness of sediment accumulation (reported depth-present measurement): -0.75				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/5/10 Inspected by: MM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: MBS

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: ~~24.60~~ 31.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	Pad is under water
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 31.0				
Thickness of sediment accumulation (reported depth-present measurement): 0.50				
Are there an obstructions in the well?	☐	☑	☐	Hard
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: 708

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 30.7 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 31.12				
Thickness of sediment accumulation (reported depth-present measurement):				-0.42
Are there an obstructions in the well?		✓		No
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: NBS

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: _____ ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.5 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 30.70				
Thickness of sediment accumulation (reported depth-present measurement): Haw -0.20				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): _____				

Inspection Date: 6/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: MBS

Casing Type: [ ] Steel [ ] Stainless Steel [✓] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.0 ft [ ] BGS or [✓] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 27.18				
Thickness of sediment accumulation (reported depth-present measurement):				Hard 0.18
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/4 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: MBS

Casing Type: ☐ Steel ☐ Stainless Steel ☐ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 30.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 30.01				
Thickness of sediment accumulation (reported depth-present measurement): 0.19				
Are there an obstructions in the well?		✓		~~Hard~~ Soft
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: MB 5

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: AG

Reported Construction Depth: 28.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 28.12				
Thickness of sediment accumulation (reported depth-present measurement): 0.08				
Are there an obstructions in the well?	☐	☑	☐	Soft
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 107 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rusty - need Paint
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.15				
Thickness of sediment accumulation (reported depth-present measurement): 0.45				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 6/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 108 Location/Functional Area: NAC 4

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.41				
Thickness of sediment accumulation (reported depth-present measurement): -0.01				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 6/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 109 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.9 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 20.89				
Thickness of sediment accumulation (reported depth-present measurement): 0.01				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 110 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 29.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 29.72				
Thickness of sediment accumulation (reported depth-present measurement):				-0.12
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 111 Location/Functional Area: NDCA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 22.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Post leaning Rusty
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.02				
Thickness of sediment accumulation (reported depth-present measurement): 0.38				
Are there an obstructions in the well?	☐	☐	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 112 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rust
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 26.60				
Thickness of sediment accumulation (reported depth-present measurement): 0.30				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 113 Location/Functional Area: NAEA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 30.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion: Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rusty, 1 post Leans
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 29.82				
Thickness of sediment accumulation (reported depth-present measurement): 0.78				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 114 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 22.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 22.77				
Thickness of sediment accumulation (reported depth-present measurement): -0.17				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 115 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.2 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 25.25				
Thickness of sediment accumulation (reported depth-present measurement):				−0.05
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): NA				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 116 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/~~Above-ground~~ Completion: _____

Reported Construction Depth: 22.60 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rusty
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☑	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 22.55				
Thickness of sediment accumulation (reported depth-present measurement): 0.05				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/14 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 117 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 27.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?		✓		
Measured depth of the well from measurement point: 27.50				
Thickness of sediment accumulation (reported depth-present measurement): -0.1				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hard				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 118 Location/Functional Area: NACA

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24.6 ft ☐ BGS or ☒ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	Rusty
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☐	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	Lock cap missing
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☐	☑	☐	
Measured depth of the well from measurement point: 24.65				
Thickness of sediment accumulation (reported depth-present measurement): -0.05				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): M				

Inspection Date: 10/4 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLMW0016 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 20 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.9 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☐	☒	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☐	☒	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	Replaced lid 10/4/10
Does the well have a weatherproof lock?	☒*	☐	☐	
Does the lock secure well?	☐	☒	☐	Replaced lid 10/4/10
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 42.04				
Thickness of sediment accumulation (reported depth-present measurement): -0.64				
Are there an obstructions in the well?	☐	☐	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

* tab is broken off bottom of padlock

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RALMW-007 Location/Functional Area: RAL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 18.2 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: Ø				
Are the posts positioned to prevent collision damage to the well?	☐	☐	☒	
Are any of the posts damaged or degraded?	☐	☒	☒	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☐	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	missing weatherproof tab
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 18.64				
Thickness of sediment accumulation (reported depth-present measurement):				-0.44
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLMW-008 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 18.5 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 0				
Are the posts positioned to prevent collision damage to the well?	☐	☐	☒	
Are any of the posts damaged or degraded?	☐	☐	☒	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 18.66				
Thickness of sediment accumulation (reported depth-present measurement): -0.16				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLMW-009 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 18.4 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: Ø				
Are the posts positioned to prevent collision damage to the well?	☐	☐	☒	
Are any of the posts damaged or degraded?	☐	☐	☒	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Re-painted '9' in number				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	Rusty + missing weatherproof tab
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 18.52				
Thickness of sediment accumulation (reported depth-present measurement): -0.42				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MM

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLmw-010 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 20 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 35.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 2				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	-hinge on cap is rusted
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☐	☒	☐	doesn't shut completely
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 35.33				
Thickness of sediment accumulation (reported depth-present measurement): -0.23				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): medium				

*massive wasp nest in outer casing lid

Inspection Date: 10/4/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQL-11 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: Screened Monitor Interval Length: 20 ft

Flush-mount/Above-ground Completion:

Reported Construction Depth: 34.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☒	☒	☒	repaired 10/4/10
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☐	☒	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☒	☐	☐	
Is the well casing loose, (at the surface?)	☒	☐	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 35.37				
Thickness of sediment accumulation (reported depth-present measurement):				-0.77
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLmw-12 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.5 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?		X		
Is the pad cracked or deteriorated? Frost Heaving?			X	
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X	Hydrate		
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock? *	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 32.68				
Thickness of sediment accumulation (reported depth-present measurement): -0.18				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MLH

* tab on bottom of lock is broken off

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLmw-013 Location/Functional Area: RQL

Casing Type: [ ] Steel [ ] Stainless Steel [X] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: ~~36.6~~ 36.6 ft [ ] BGS or [X] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 36.50				
Thickness of sediment accumulation (reported depth-present measurement): 0.10				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLmw-014 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 31.66 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☐	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 31.55				
Thickness of sediment accumulation (reported depth-present measurement): 0.05				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MG

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RAL MW-015 Location/Functional Area: RAL

Casing Type: [ ] Steel [ ] Stainless Steel [X] PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.6 ft [ ] BGS or [ ] BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			Rusty
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 42.05				
Thickness of sediment accumulation (reported depth-present measurement): -0.45				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MG

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: RQLMW-016 Location/Functional Area: RQL

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 41.6 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 41.66				
Thickness of sediment accumulation (reported depth-present measurement): -0.06				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 017 Location/Functional Area: BRL

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 32.5 ft ☐ BGS or ☐ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓	✓	slightly wobbly
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?	✓			
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			missing tab
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 32.85				
Thickness of sediment accumulation (reported depth-present measurement):				-0.35
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 001 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 213.61 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 214.5				
Thickness of sediment accumulation (reported depth-present measurement): -0.89				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): 0				

Inspection Date: 10-11-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 002 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 149.65 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 149.76				
Thickness of sediment accumulation (reported depth-present measurement): -0.11				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, (hard) etc.): _____				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 003 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 139.65 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 139.45 (NS) 6				
Thickness of sediment accumulation (reported depth-present measurement): 0				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 004 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 112.47 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: GOOD				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 112.5				
Thickness of sediment accumulation (reported depth-present measurement): -0.03				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-4-10 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: SCFMW-005 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 156.41 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☒	☐	☐	Could use a fourth?
Are any of the posts damaged or degraded?	☐	☒	☐	
Is a concrete pad installed?	☒	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☒	☐	
Is steel protective casing installed?	☒	☐	☐	
Does the protective casing have a weep hole?	☒	☐	☐	
Does vegetation around the well need clearing?	☐	☒	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☒	☐	☐	
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	☒	☐	☐	
Does the well have a weatherproof lock?	☒	☐	☐	
Does the lock secure well?	☒	☐	☐	
Does the inner casing have a water-tight cap?	☒	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☒	☐	
Is the well casing loose, (at the surface?)	☐	☒	☐	
Is a measurement point marked a the top of well casing?	☒	☐	☐	
Measured depth of the well from measurement point: 156.5				
Thickness of sediment accumulation (reported depth-present measurement): -0.09				
Are there an obstructions in the well?	☐	☒	☐	
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MLA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: SCF MW-0006 Location/Functional Area: SCF

Casing Type: ☐ Steel ☐ Stainless Steel ☒ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 8832 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	X			
Are any of the posts damaged or degraded?		X		
Is a concrete pad installed?	X			
Is the pad cracked or deteriorated? Frost Heaving?		X		
Is steel protective casing installed?	X			
Does the protective casing have a weep hole?	X			
Does vegetation around the well need clearing?		X		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	X			
Describe labeling: Good				
Security:				
Does the well have a cap or lid?	X			
Does the well have a weatherproof lock?	X			
Does the lock secure well?	X			
Does the inner casing have a water-tight cap?	X			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		X		
Is the well casing loose, (at the surface?)		X		
Is a measurement point marked a the top of well casing?	X			
Measured depth of the well from measurement point: 88.35				
Thickness of sediment accumulation (reported depth-present measurement): -0.03				
Are there an obstructions in the well?		X		
Description of well bottom conditions (soft, hard, etc.): hard				

Inspection Date: 10/4/10 Inspected by: MMQ

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 005 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.1 ft ☐ BGS or ☒ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☐	☑	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	no tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 21.25				
Thickness of sediment accumulation (reported depth-present measurement): -0.15				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 006 Location/Functional Area: WB6

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 20.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			Lock cap missing
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 20.14				
Thickness of sediment accumulation (reported depth-present measurement): 0.26				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/4 Inspected by: JA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 007 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 26.3 ft ☐ BGS or ☐ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 26.39				
Thickness of sediment accumulation (reported depth-present measurement): -0.09				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): H				

Inspection Date: 10/5 Inspected by: _____

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 008 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 21.0 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 20.83				
Thickness of sediment accumulation (reported depth-present measurement): 0.17				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Hon				

Inspection Date: 10/9 Inspected by: JK

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 009 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☑	
Does the well have a flush-mount box?	☐	☐	☑	
Is the traffic cover cracked or broken?	☐	☐	☑	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☑	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 24.40				
Thickness of sediment accumulation (reported depth-present measurement): -0.40				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft/hard etc.): _____				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 010 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.6 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☑	☐	☐	Rust / Paint
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	No tab
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.36				
Thickness of sediment accumulation (reported depth-present measurement): 0.24				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 011 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 24 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☐	☑	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling: _____				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 23.94				
Thickness of sediment accumulation (reported depth-present measurement): 0.06				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 012 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

~~Screened~~/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported ~~Construction Depth~~: 32 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	☑	☐	☐	heavy
Are any of the posts damaged or degraded?	☐	☑	☐	
Is a concrete pad installed?	☑	☐	☐	
Is the pad cracked or deteriorated? Frost Heaving?	☐	☑	☐	
Is steel protective casing installed?	☑	☐	☐	
Does the protective casing have a weep hole?	☑	☐	☐	
Does vegetation around the well need clearing?	☑	☐	☐	
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?	☐	☐	☐	
Does the well have a flush-mount box?	☐	☐	☐	
Is the traffic cover cracked or broken?	☐	☐	☐	
Is the concrete apron cracked or deteriorated? Frost Heaving?	☐	☐	☐	
Identification:				
Is the well labeled with the correct number?	☑	☐	☐	
Describe labeling:				
Security:				
Does the well have a cap or lid?	☑	☐	☐	
Does the well have a weatherproof lock?	☑	☐	☐	
Does the lock secure well?	☑	☐	☐	
Does the inner casing have a water-tight cap?	☑	☐	☐	
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)	☐	☑	☐	
Is the well casing loose, (at the surface?)	☐	☑	☐	
Is a measurement point marked a the top of well casing?	☑	☐	☐	
Measured depth of the well from measurement point: 31.77				
Thickness of sediment accumulation (reported depth-present measurement): 0.23				
Are there an obstructions in the well?	☐	☑	☐	
Description of well bottom conditions (soft, hard, etc.):				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 013 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.9 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?	✓			Rust/Paint
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.19				-0.29
Thickness of sediment accumulation (reported depth-present measurement):				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Medium				

Inspection Date: 10-5-10 Inspected by: CL

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 014 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 24.97				
Thickness of sediment accumulation (reported depth-present measurement): 0.03				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Hm				

Inspection Date: 10/15 Inspected by: JA

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 015 Location/Functional Area: CWBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: S Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: AG

Reported Construction Depth: 23.8 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.52				
Thickness of sediment accumulation (reported depth-present measurement): 0.28				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/6 Inspected by: [signature]

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 016 Location/Functional Area: WB6

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 25.4 ft ☐ BGS or ☑ BTOC (chose one only)

INSPECTION ITEMS

Well-Head Completion:	YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 4				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusting
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 25.14				
Thickness of sediment accumulation (reported depth-present measurement): 0.26				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Soft				

Inspection Date: 10/5 Inspected by: JC

Ravenna Army Ammunition Plant

WELL INSPECTION CHECKLIST

WELL INFORMATION:

Well Number: 017 Location/Functional Area: WBG

Casing Type: ☐ Steel ☐ Stainless Steel ☑ PVC

Screened/Open-Hole Well Type: _____ Monitor Interval Length: 10 ft

Flush-mount/Above-ground Completion: _____

Reported Construction Depth: 23.9 ft ☐ BGS or ☑ BTOC (chose one only)

Well-Head Completion:	**INSPECTION ITEMS** YES	NO	N/A	COMMENTS
Above-ground completion:				
Number of Guard posts at well: 3				
Are the posts positioned to prevent collision damage to the well?	✓			
Are any of the posts damaged or degraded?		✓		Rusty
Is a concrete pad installed?	✓			
Is the pad cracked or deteriorated? Frost Heaving?		✓		
Is steel protective casing installed?	✓			
Does the protective casing have a weep hole?	✓			
Does vegetation around the well need clearing?		✓		
Flush-mount completion:				
Is the traffic cover securely bolted to the flush-mount box?				
Does the well have a flush-mount box?				
Is the traffic cover cracked or broken?				
Is the concrete apron cracked or deteriorated? Frost Heaving?				
Identification:				
Is the well labeled with the correct number?	✓			
Describe labeling:				
Security:				
Does the well have a cap or lid?	✓			
Does the well have a weatherproof lock?	✓			Lock cap missing
Does the lock secure well?	✓			
Does the inner casing have a water-tight cap?	✓			
Down-hole Condition:				
Is the well casing bent, corroded, or broken (at the surface?)		✓		
Is the well casing loose, (at the surface?)		✓		
Is a measurement point marked a the top of well casing?	✓			
Measured depth of the well from measurement point: 23.41				
Thickness of sediment accumulation (reported depth-present measurement): 0.49				
Are there an obstructions in the well?		✓		
Description of well bottom conditions (soft, hard, etc.): Silt				

Inspection Date: 10/5 Inspected by: _____

APPENDIX E

TIME-TREND GRAPHS

Time Trend Graphs for Groundwater 2010-2011

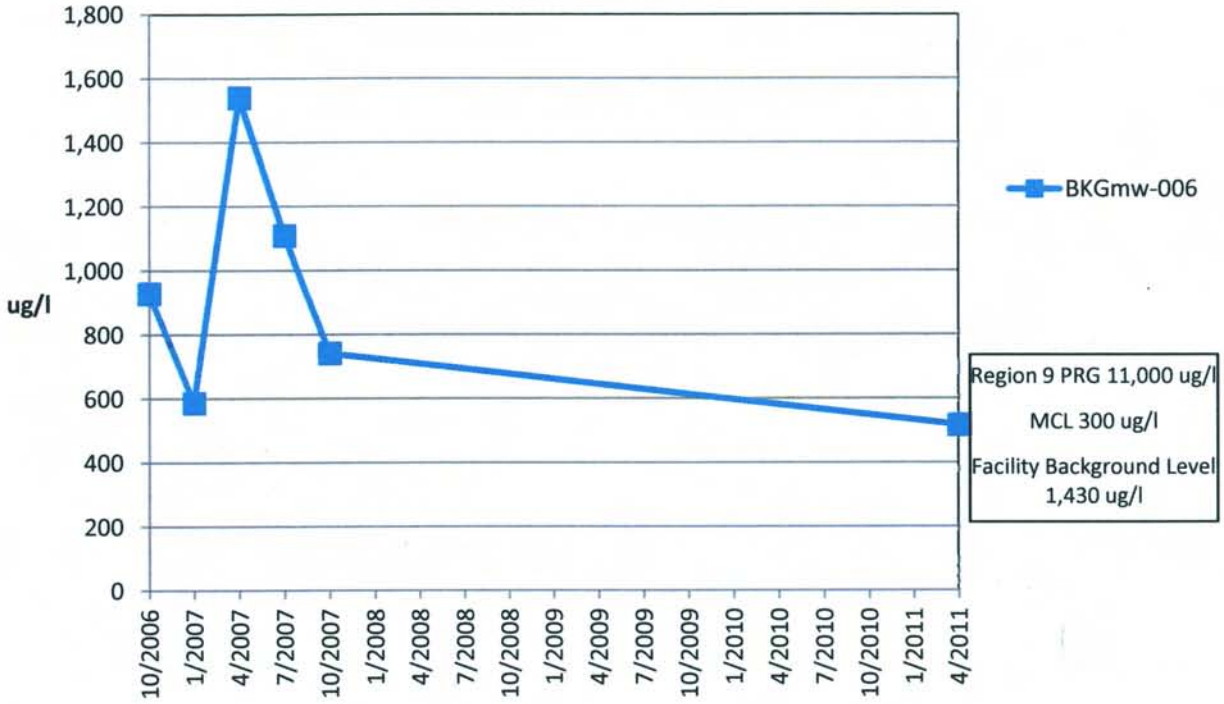
Approach:

Time-trend graphs were generated to display the groundwater sampling results for the wells sampled October 2010, January 2011, April 2011, and July 2011. The following guidelines were applied to produce the graphs:

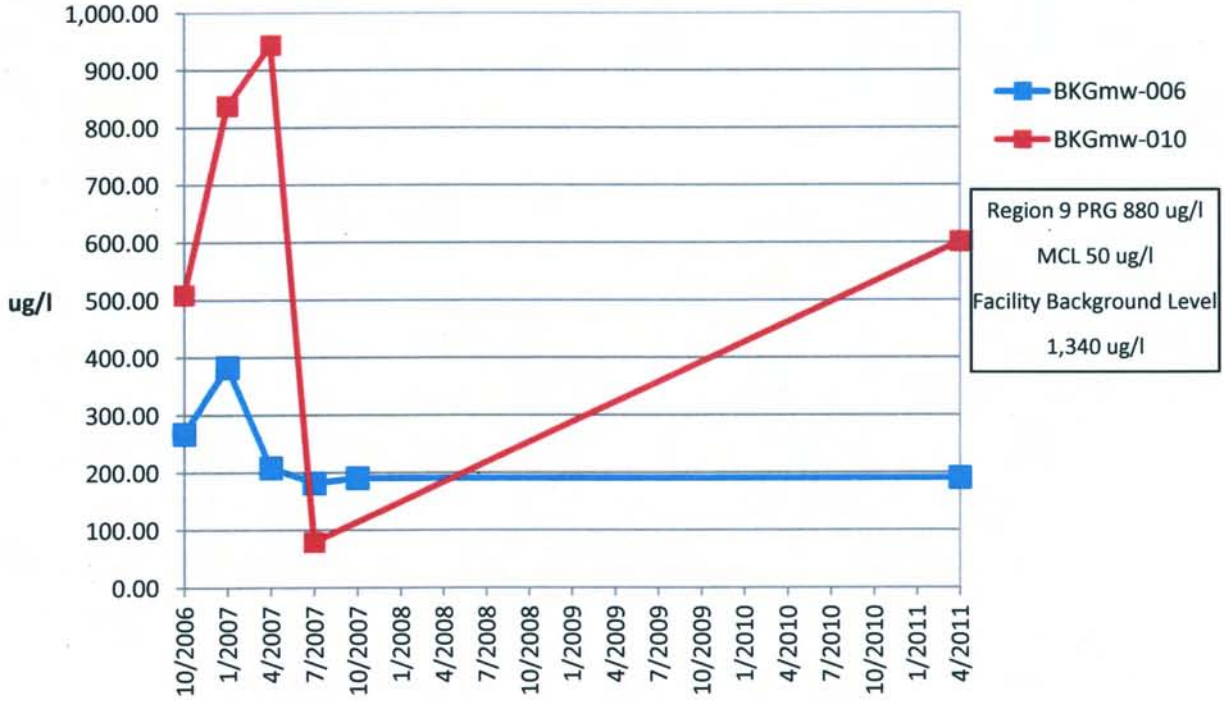
1. Only wells sampled during this reporting period with at least one detection of an organic, explosive, or inorganic above the MCL or Region 9 PRG and that have been sampled a minimum of three times since 2006 were graphed.
2. Values reported as "non-detect" are shown as one-half the reporting limit.
3. Essential nutrients (i.e., calcium, magnesium, potassium, and sodium) were not graphed.
4. The graphs are organized by AOC (alphabetically ordered beginning with Atlas Scrap Yard).


Atlas Scrap Yard
Manganese
600.00
500.00
400.00
300.00
200.00
100.00
0.00
ug/l
4/2009
6/2009
8/2009
10/2009
12/2009
2/2010
4/2010
6/2010
8/2010
10/2010
12/2010
2/2011
4/2011
ASYmw-003
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,340 ug/l

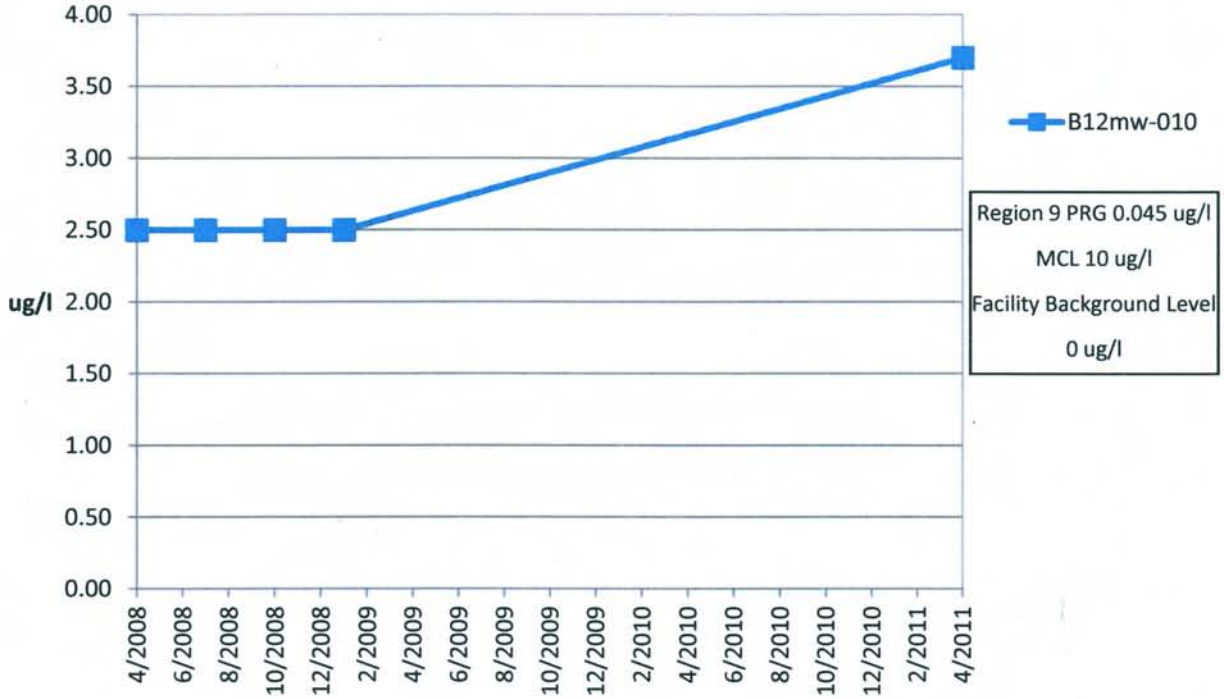
Background
Iron (Bedrock)



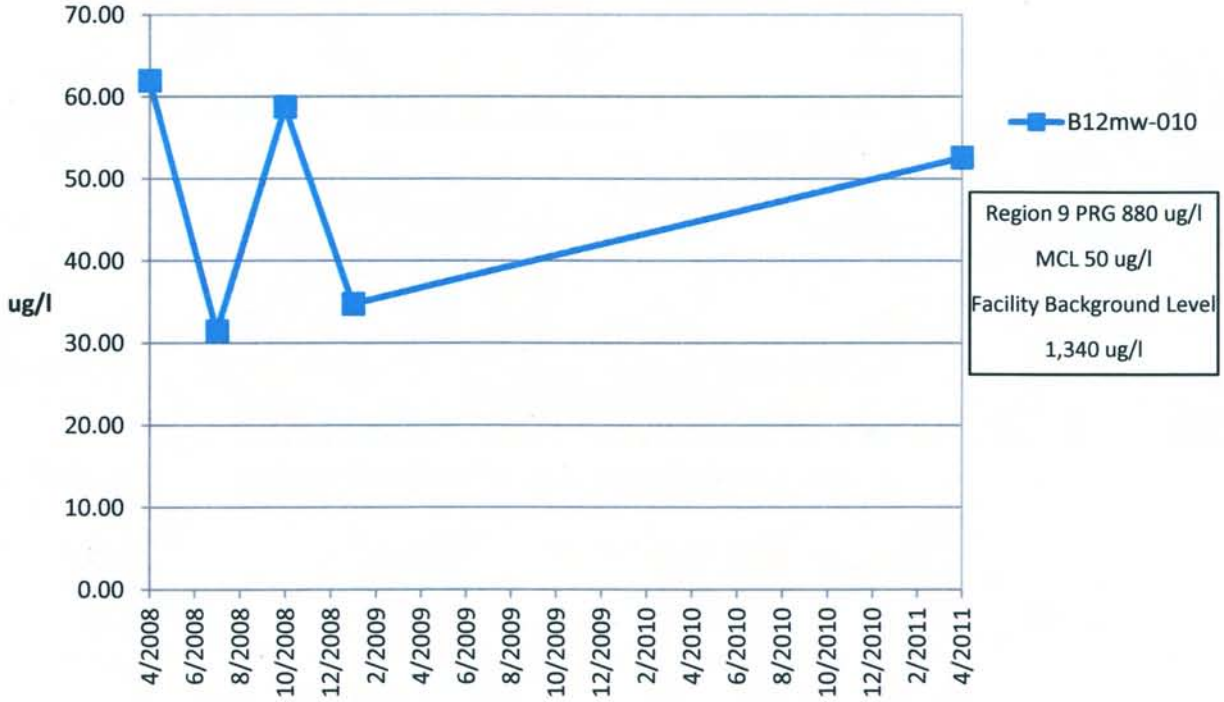
Background
Manganese



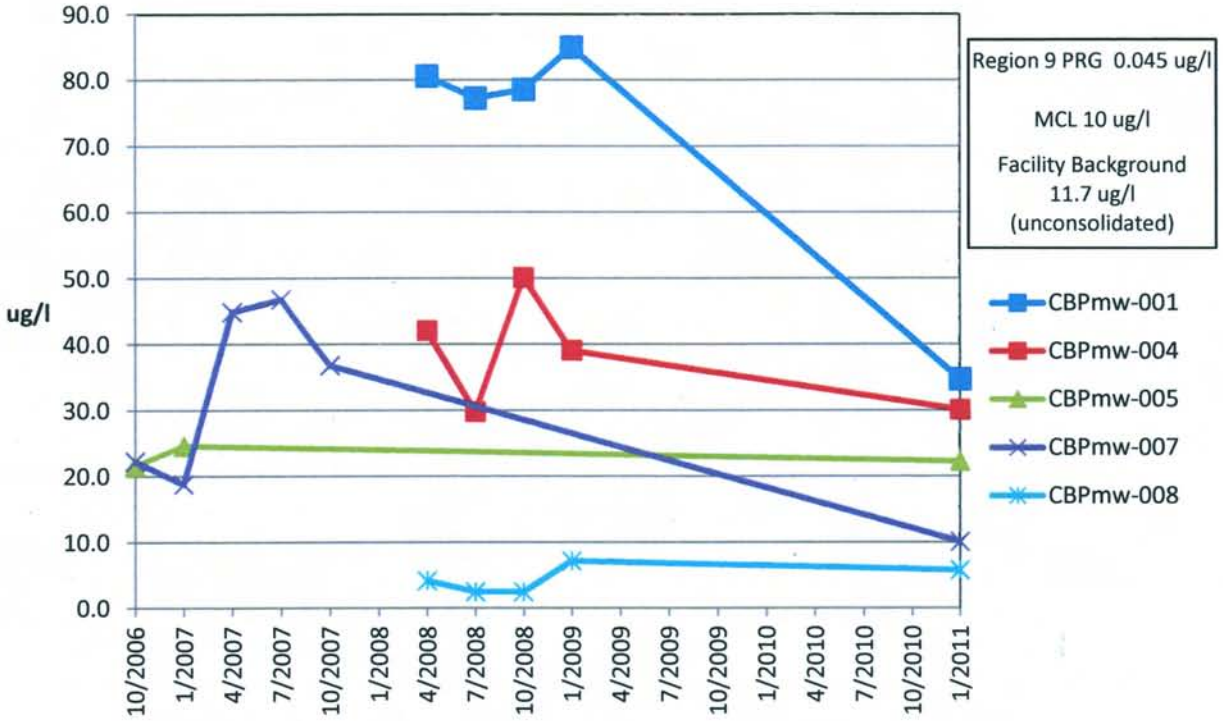
Building 1200
Arsenic



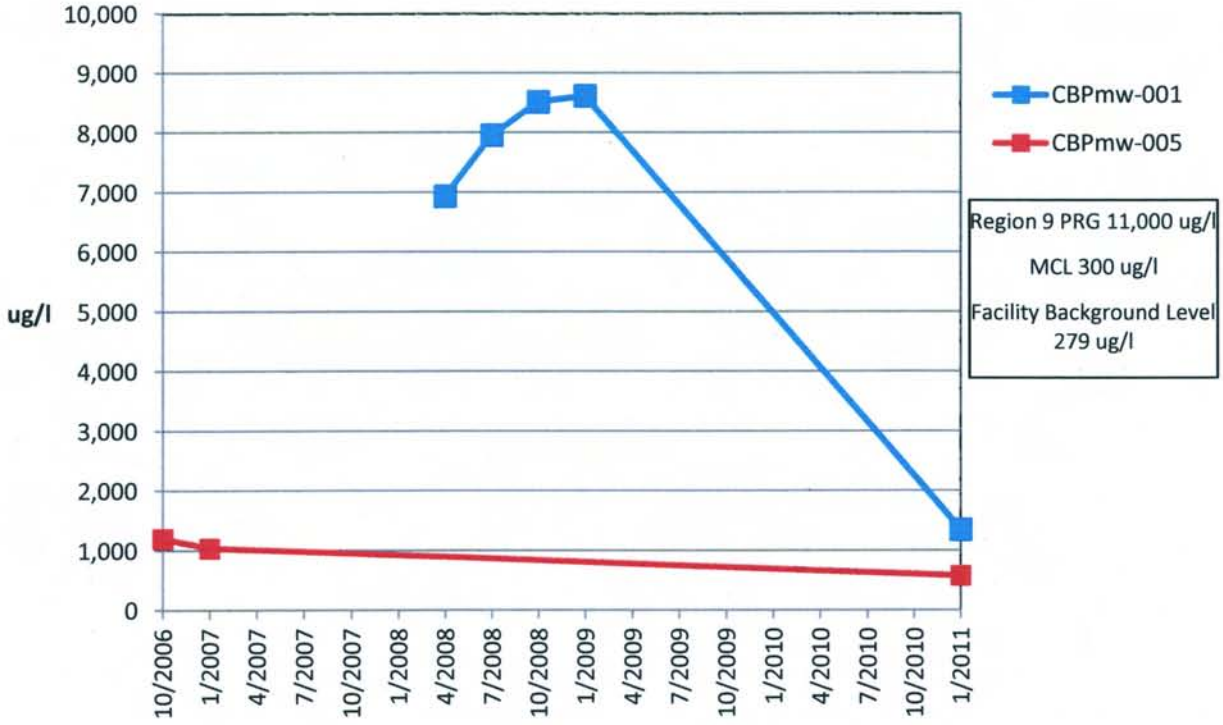
Building 1200
Manganese

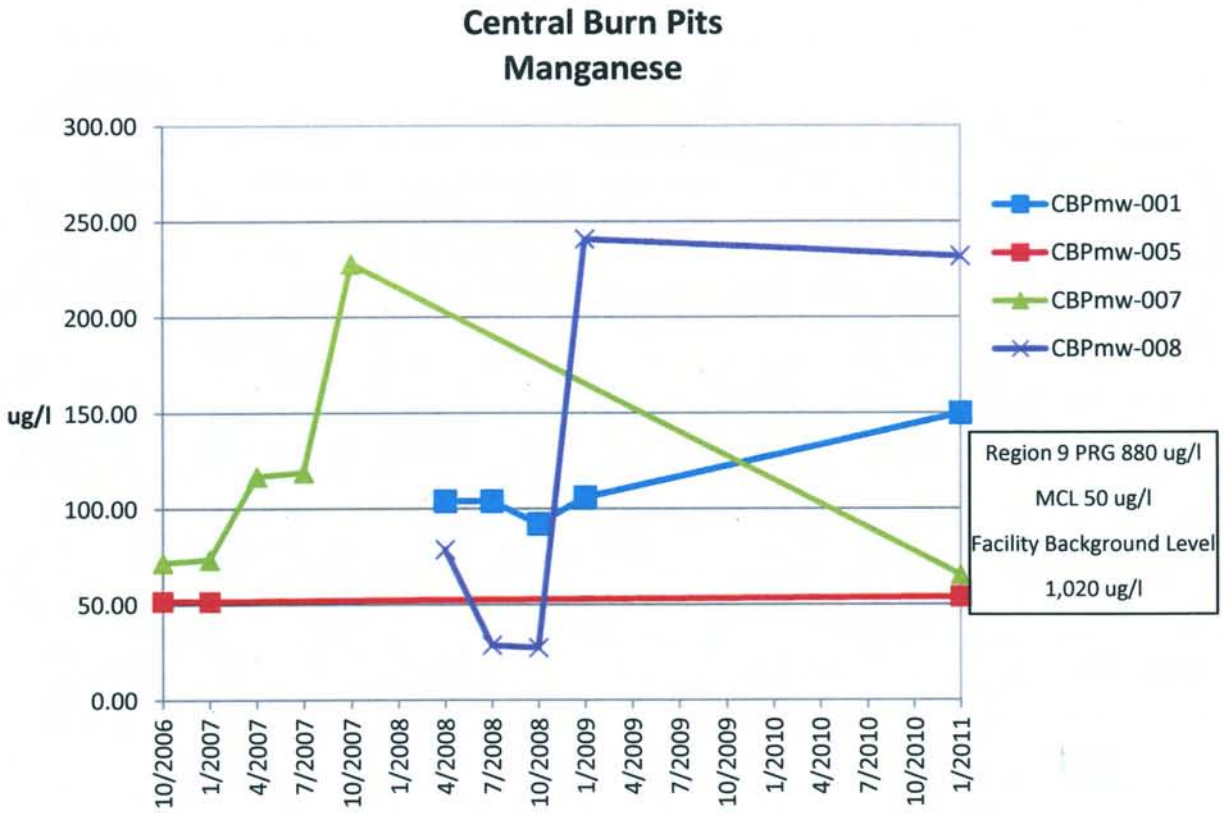


Central Burn Pits
Arsenic

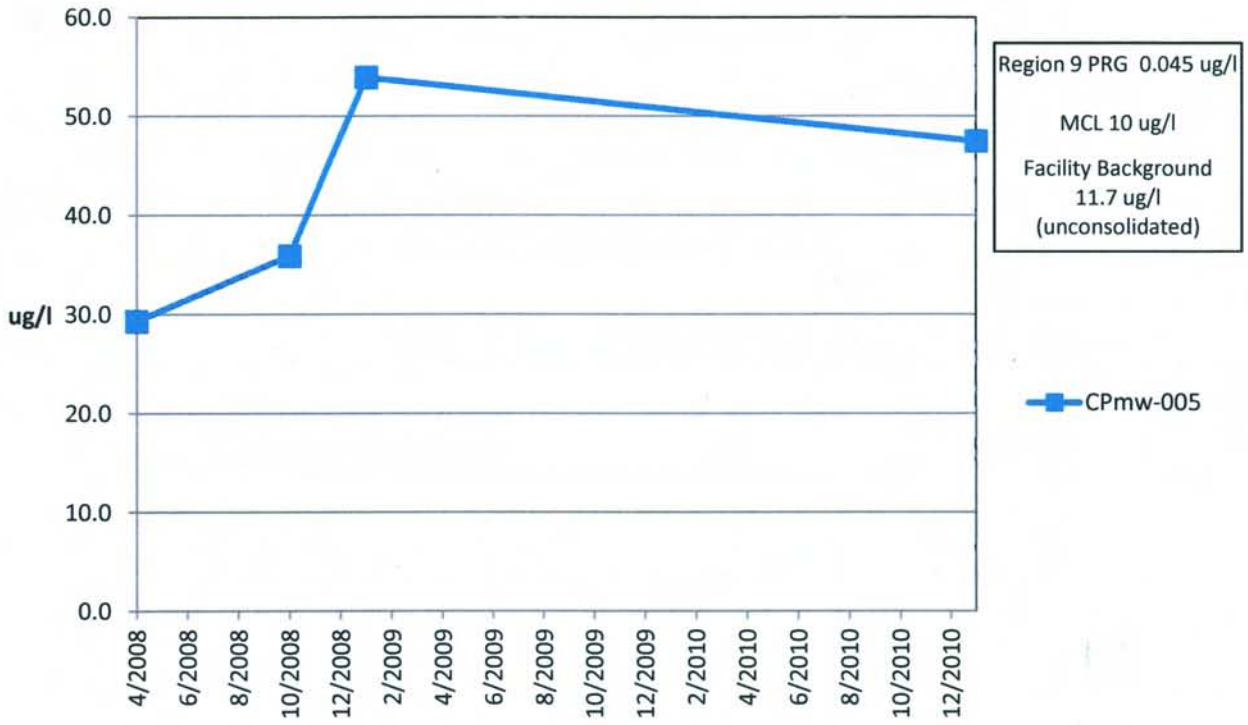


Central Burn Pits
Iron (Unconsolidated)

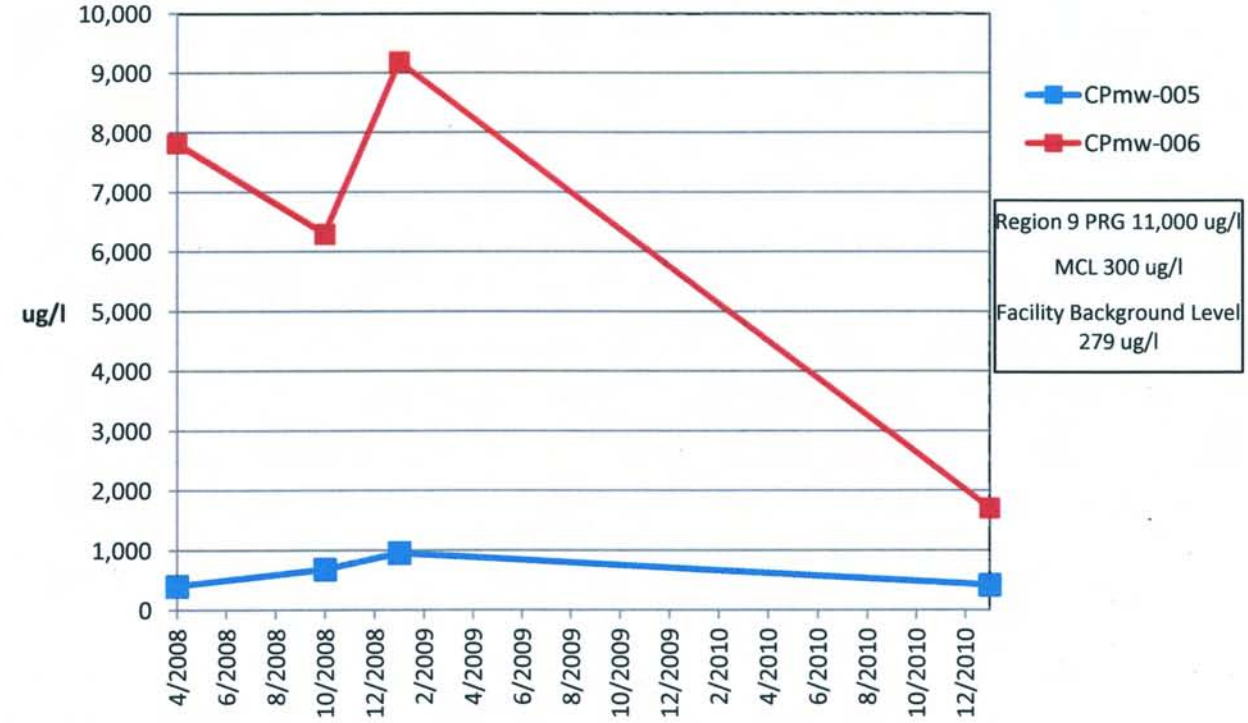


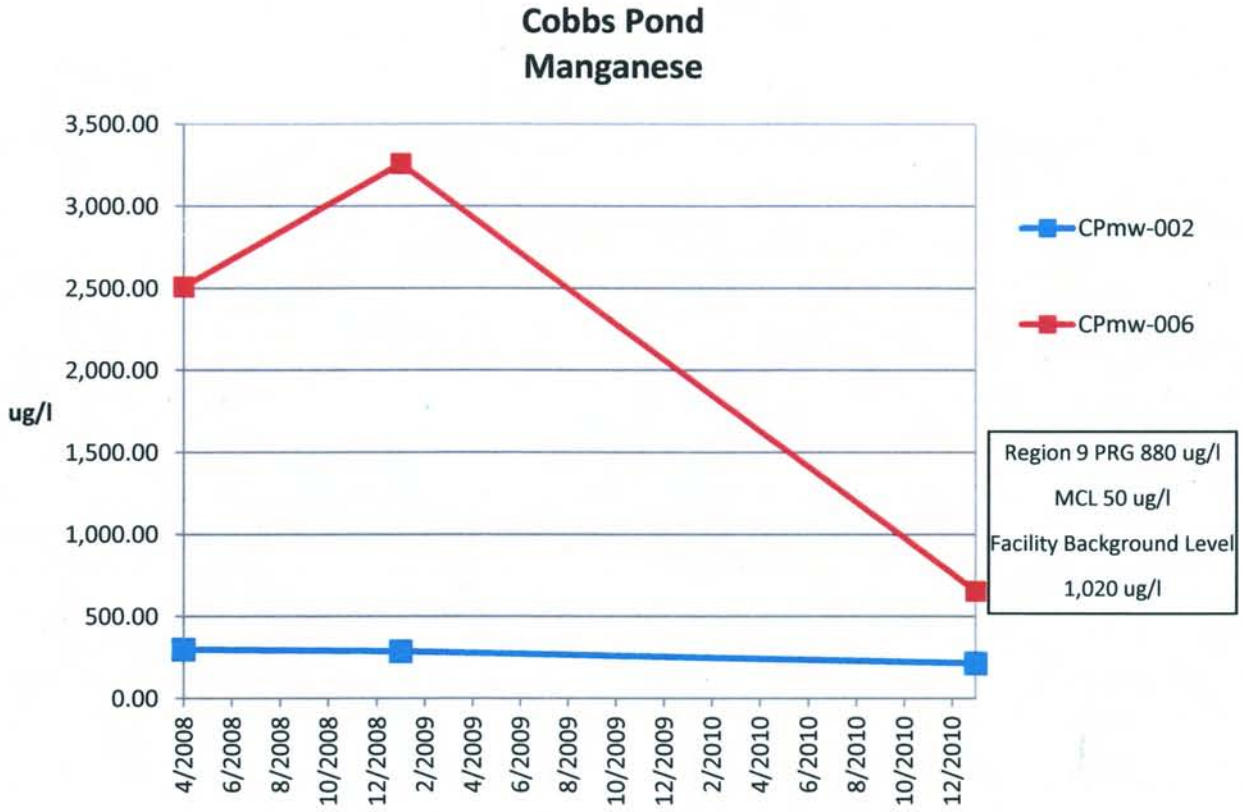

Central Burn Pits
Manganese
300.00
250.00
200.00
150.00
100.00
50.00
0.00
ug/l
10/2006
1/2007
4/2007
7/2007
10/2007
1/2008
4/2008
7/2008
10/2008
1/2009
4/2009
7/2009
10/2009
1/2010
4/2010
7/2010
10/2010
1/2011
CBPmw-001
CBPmw-005
CBPmw-007
CBPmw-008
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

Cobbs Pond
Arsenic

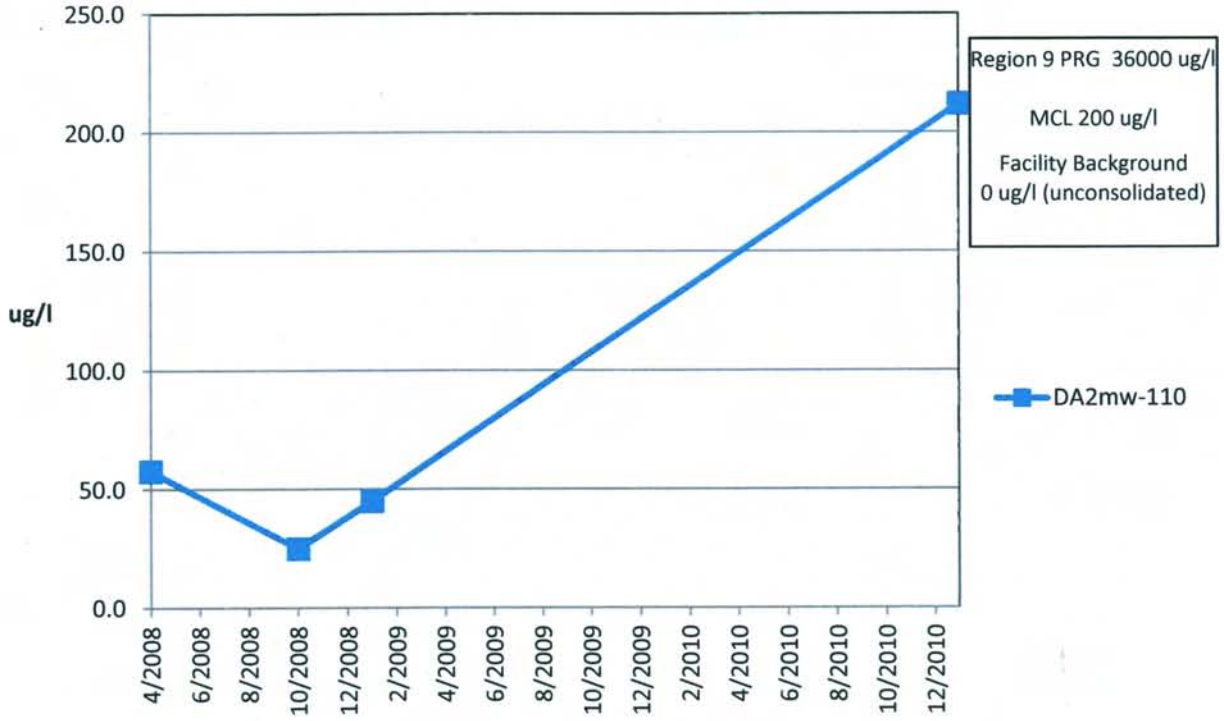


Cobbs Pond
Iron (Unconsolidated)

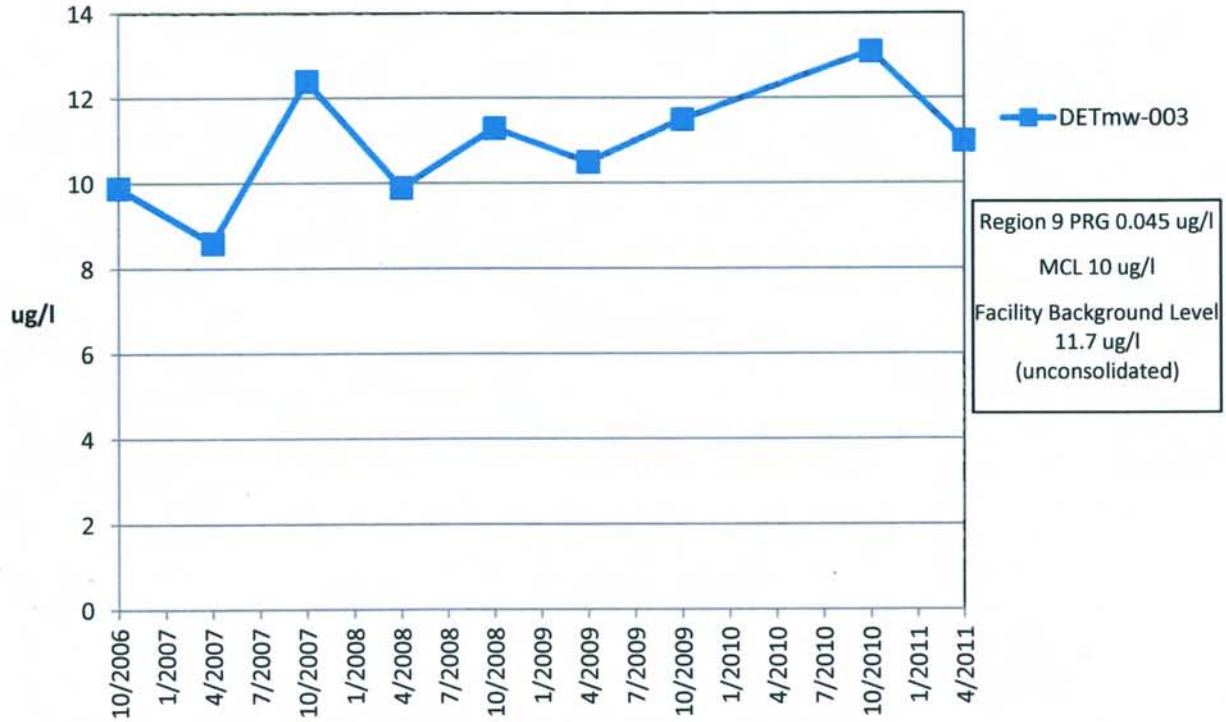



Cobbs Pond
Manganese
3,500.00
3,000.00
2,500.00
2,000.00
1,500.00
1,000.00
500.00
0.00
ug/l
4/2008
6/2008
8/2008
10/2008
12/2008
2/2009
4/2009
6/2009
8/2009
10/2009
12/2009
2/2010
4/2010
6/2010
8/2010
10/2010
12/2010
CPmw-002
CPmw-006
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

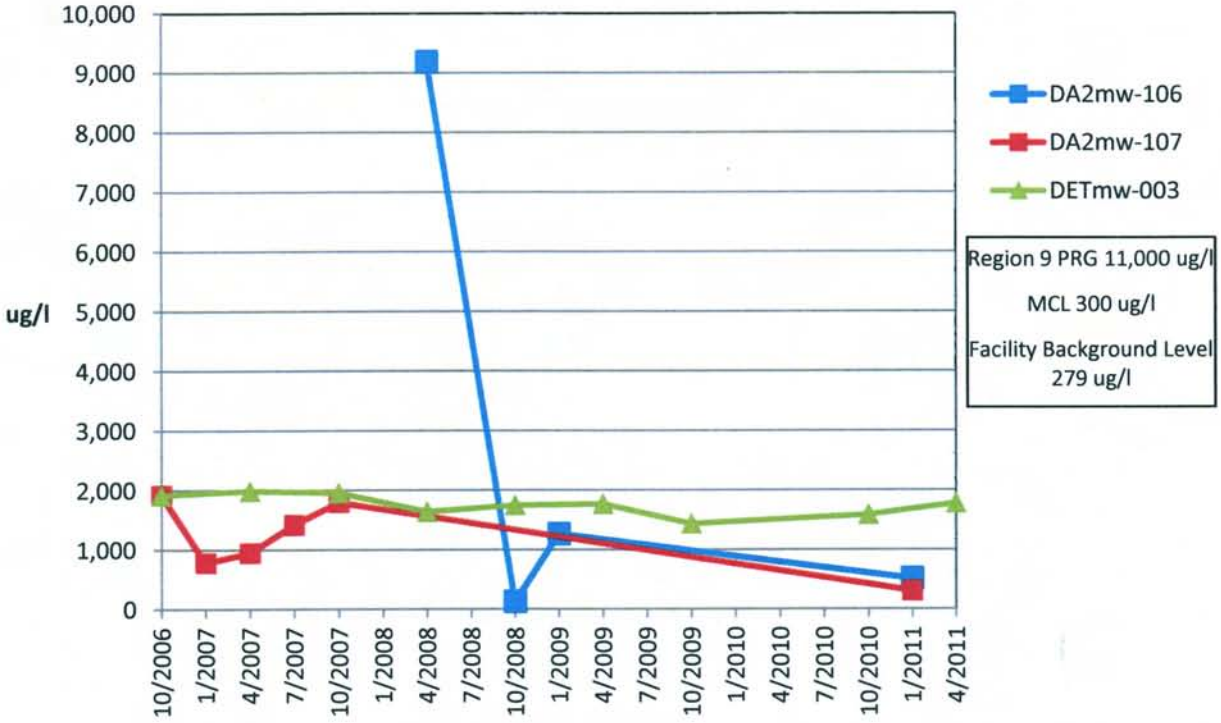
Demolition Area 2
Aluminum



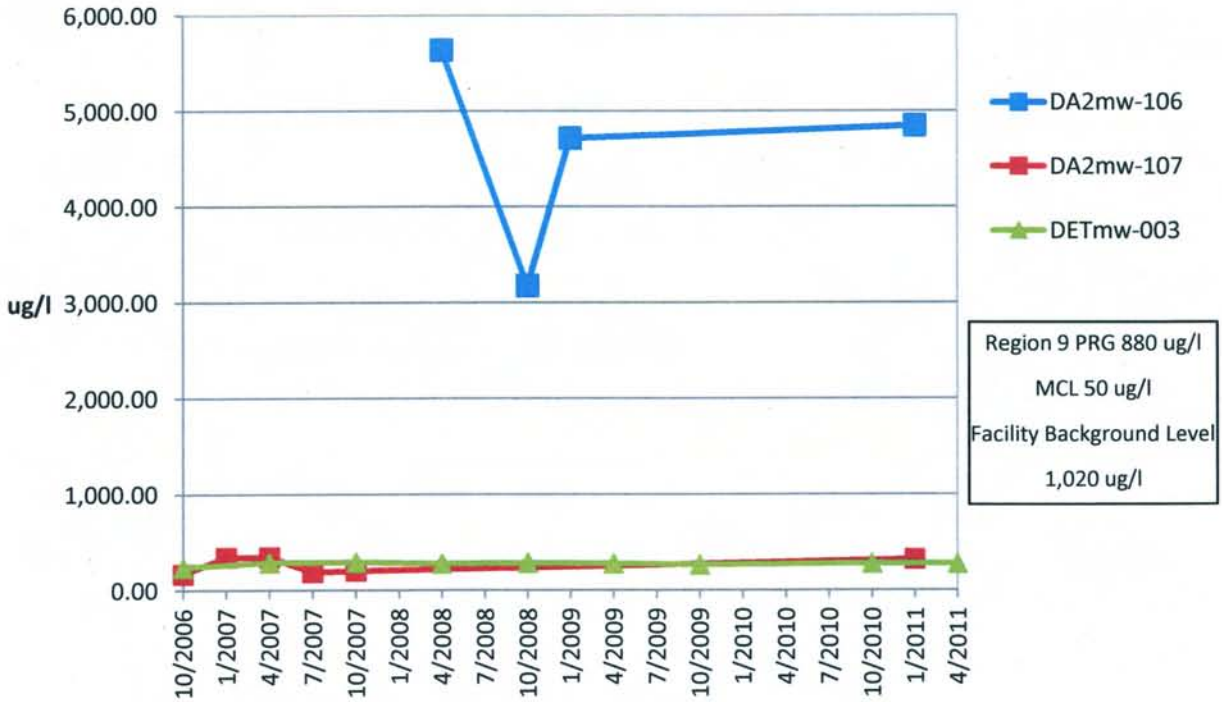
Demolition Area 2
Arsenic

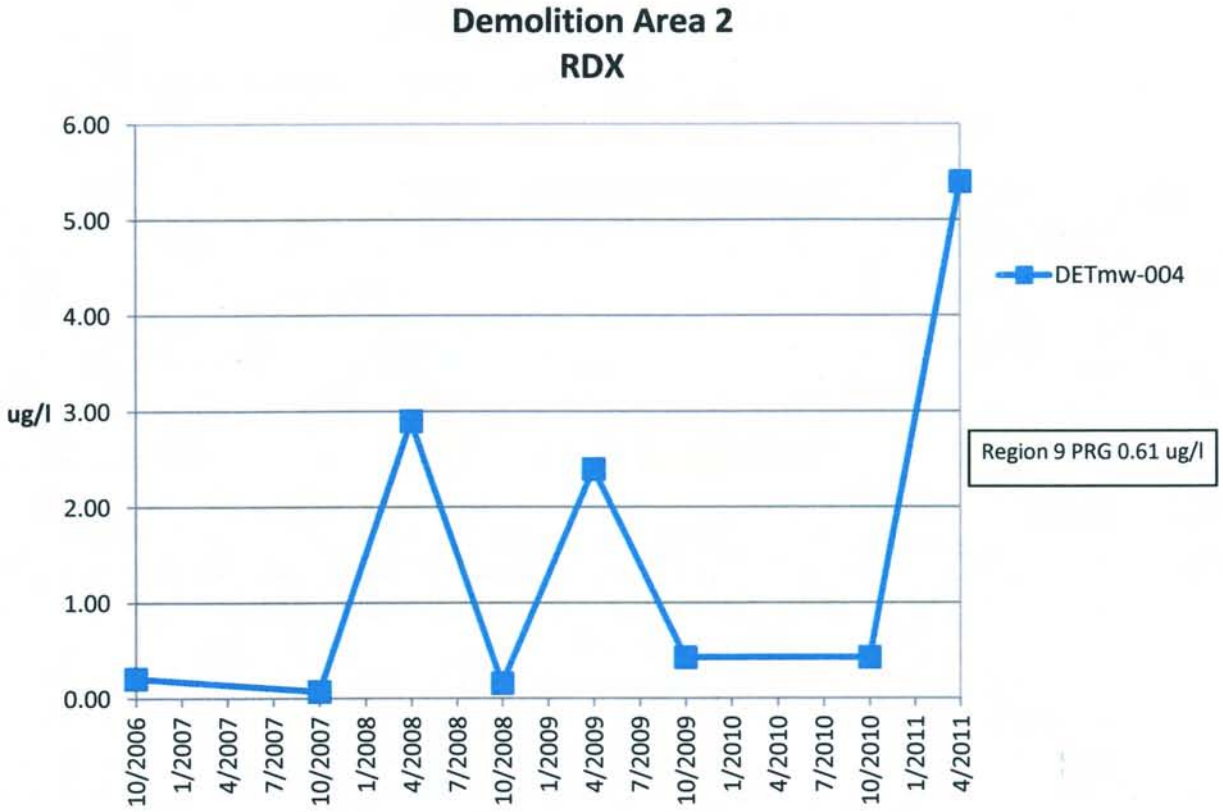


Demolition Area 2
Iron

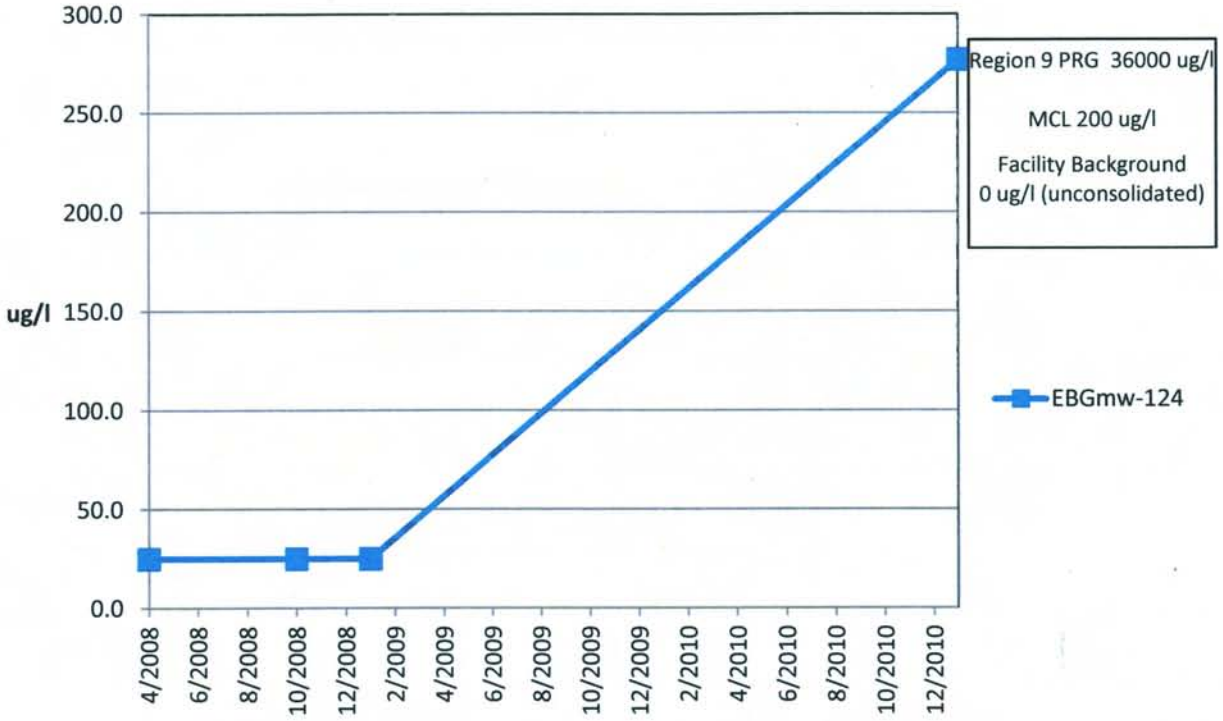


Demolition Area 2
Manganese

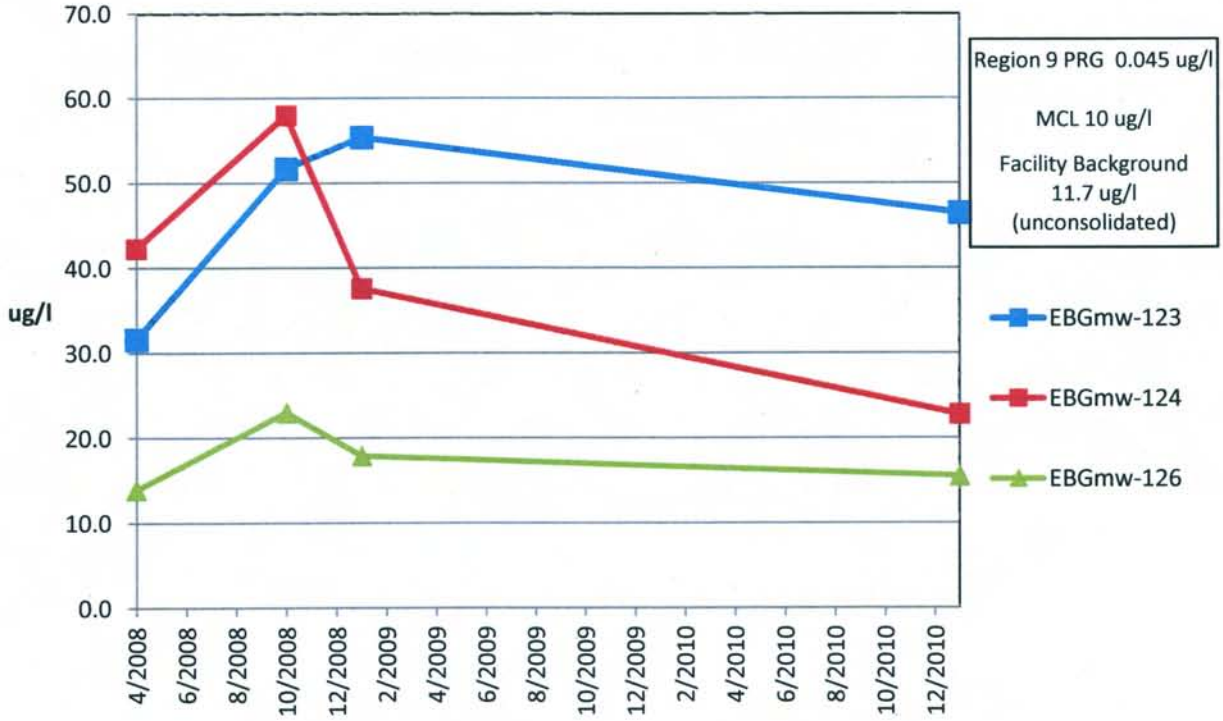



Demolition Area 2
RDX
6.00
5.00
4.00
3.00
2.00
1.00
0.00
ug/l
10/2006
1/2007
4/2007
7/2007
10/2007
1/2008
4/2008
7/2008
10/2008
1/2009
4/2009
7/2009
10/2009
1/2010
4/2010
7/2010
10/2010
1/2011
4/2011
DETmw-004
Region 9 PRG 0.61 ug/l

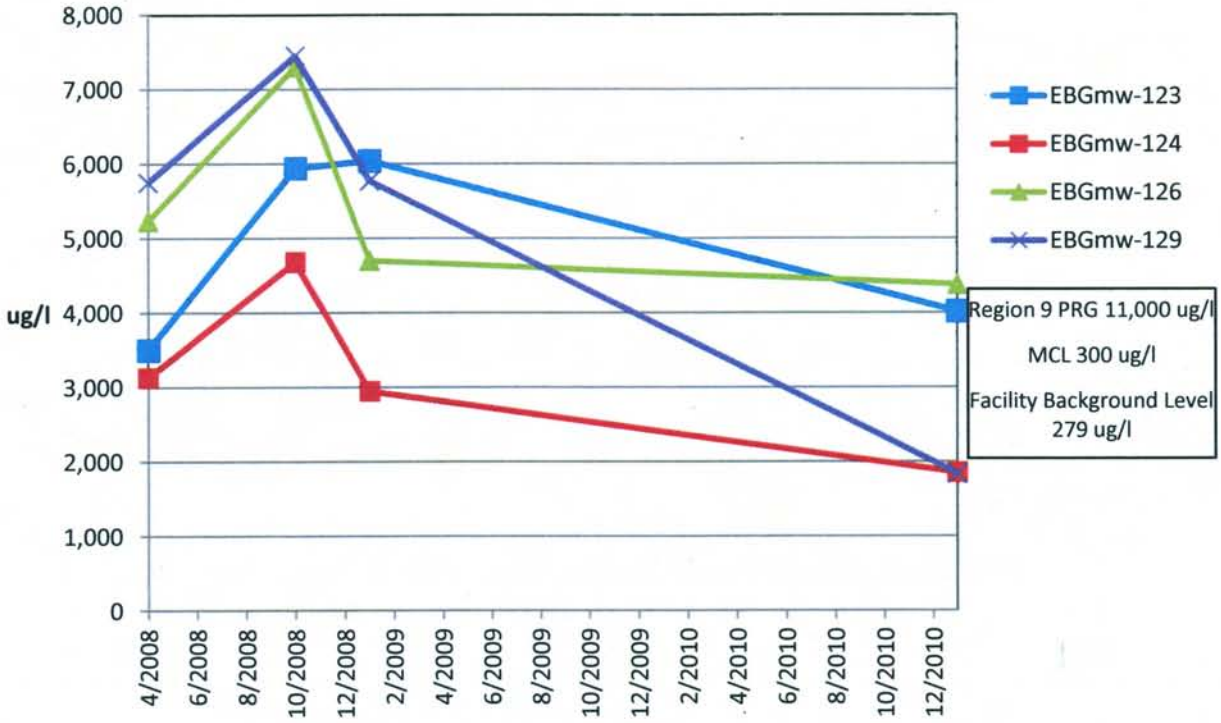
Erie Burning Grounds
Aluminum



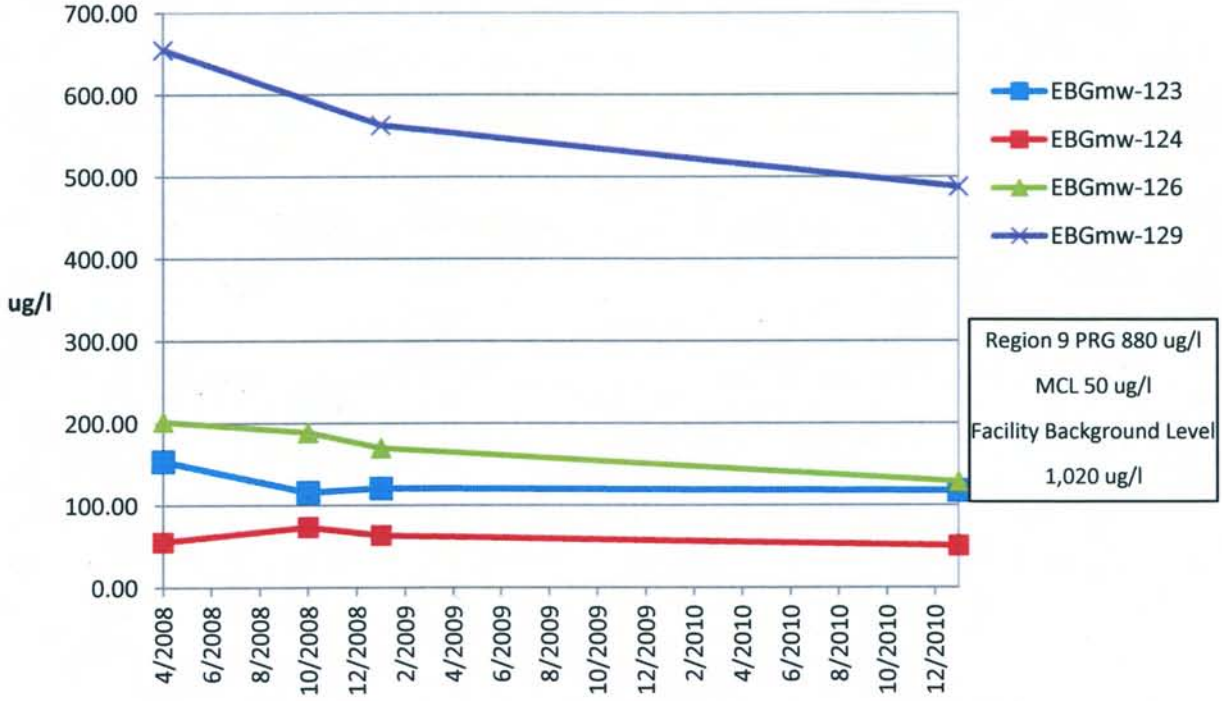
Erie Burning Grounds
Arsenic



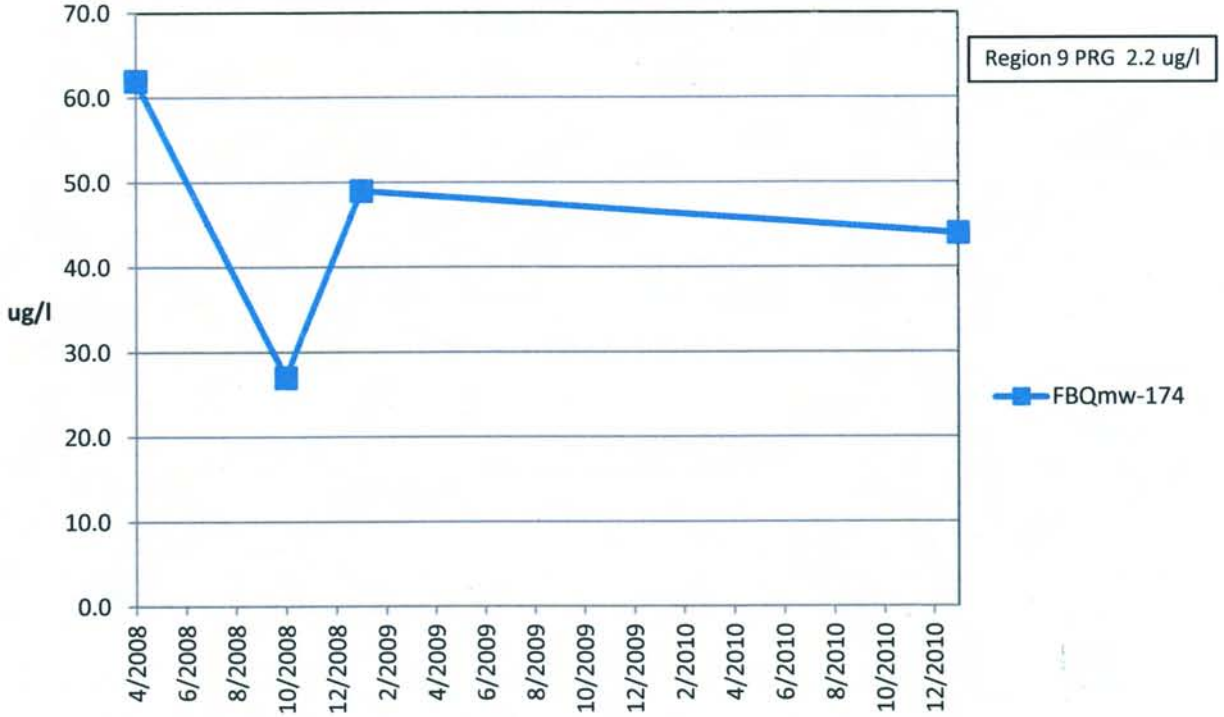
Erie Burning Grounds
Iron (Unconsolidated)



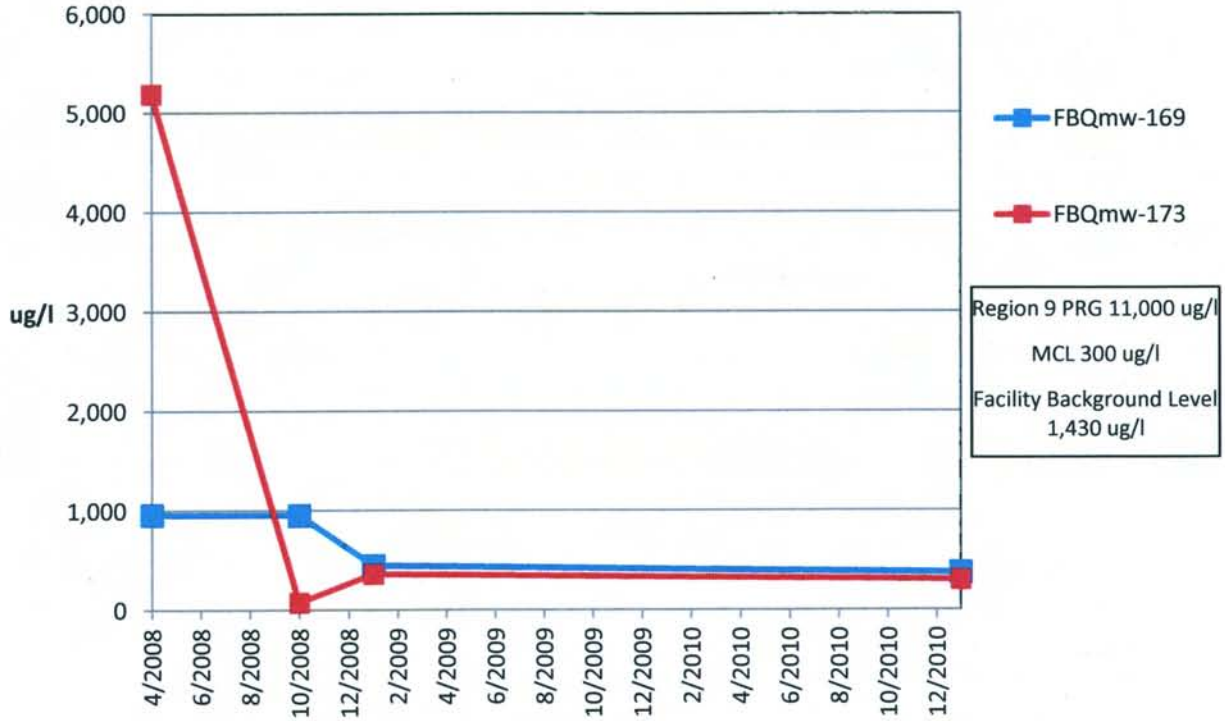
Erie Burning Grounds
Manganese

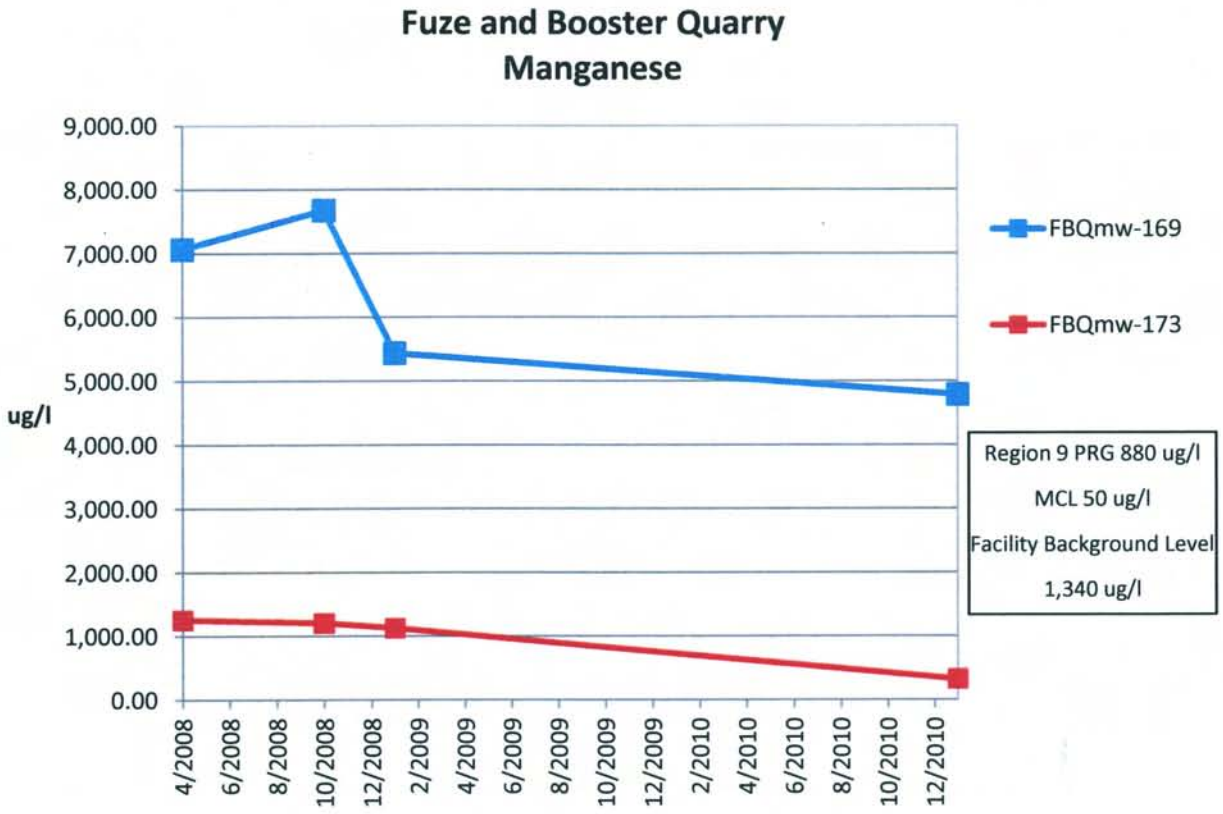


Fuze and Booster Quarry
2,4,6-TNT

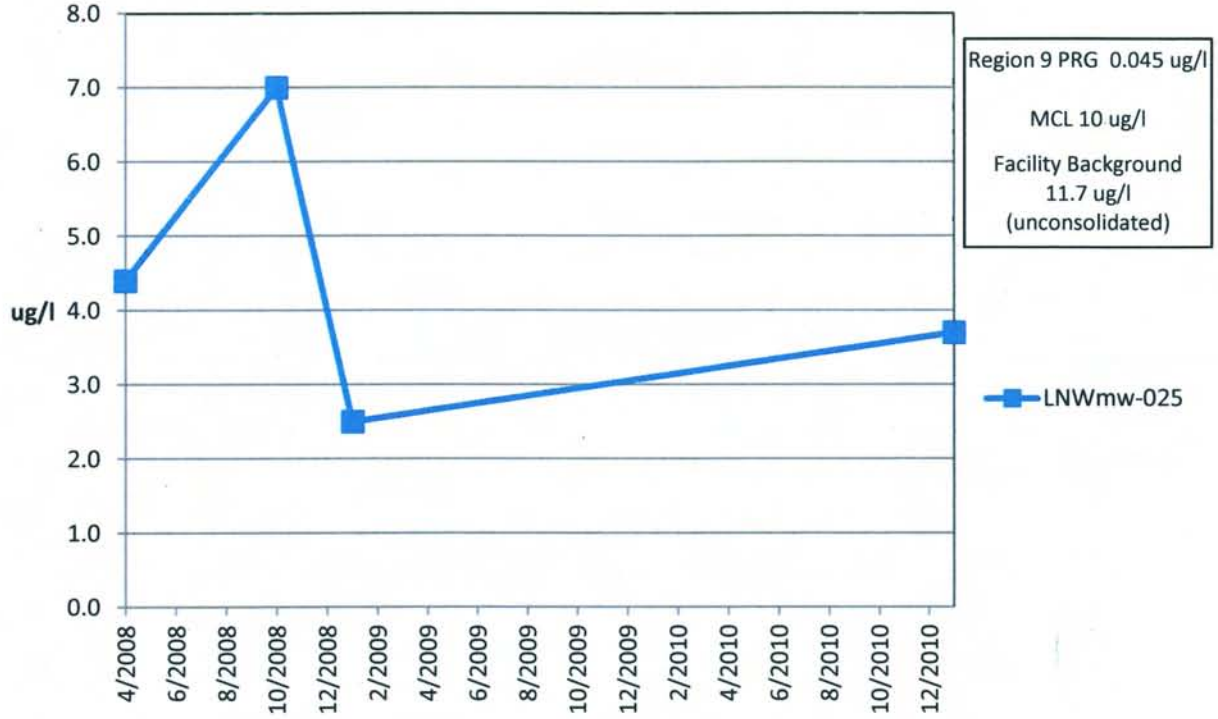


Fuze and Booster Quarry
Iron (Bedrock)

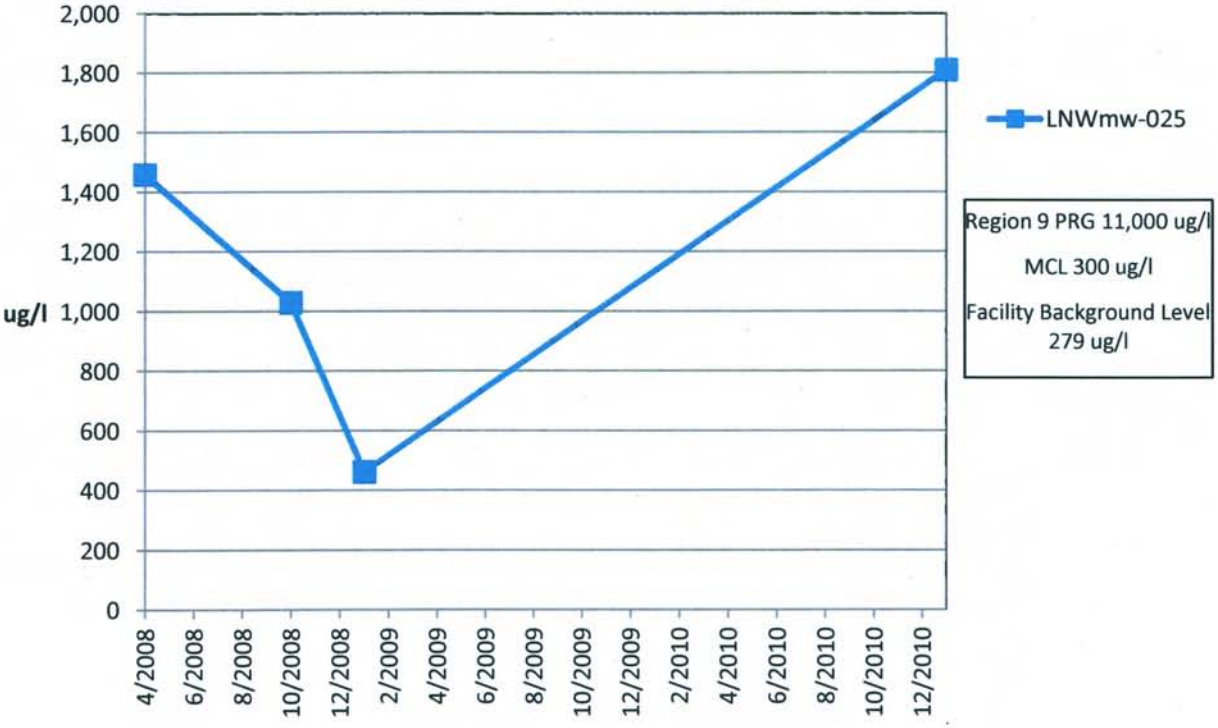


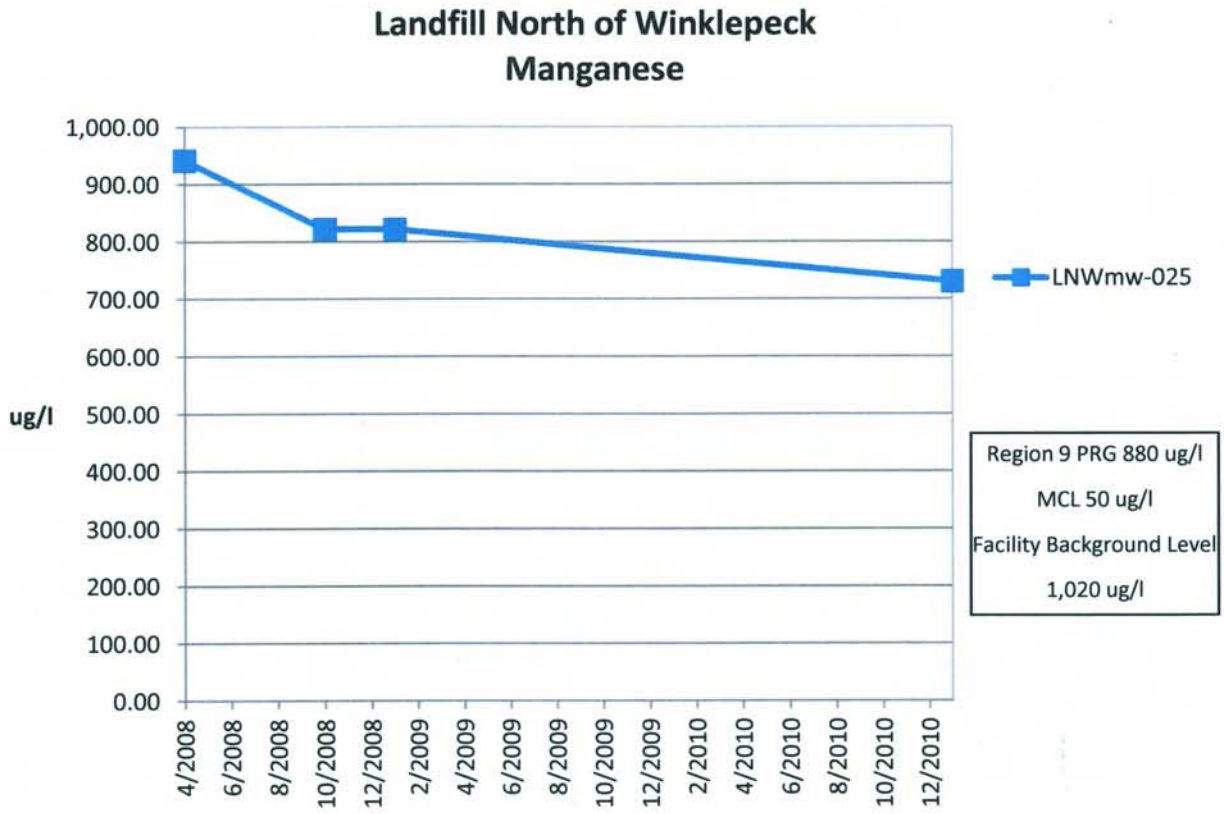

Fuze and Booster Quarry
Manganese
9,000.00
8,000.00
7,000.00
6,000.00
5,000.00
4,000.00
3,000.00
2,000.00
1,000.00
0.00
ug/l
4/2008
6/2008
8/2008
10/2008
12/2008
2/2009
4/2009
6/2009
8/2009
10/2009
12/2009
2/2010
4/2010
6/2010
8/2010
10/2010
12/2010
FBQmw-169
FBQmw-173
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,340 ug/l

Landfill North of Winklepeck
Arsenic



Landfill North of Winklepeck
Iron (Unconsolidated)




Landfill North of Winklepeck
Manganese
1,000.00
900.00
800.00
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
ug/l
4/2008
6/2008
8/2008
10/2008
12/2008
2/2009
4/2009
6/2009
8/2009
10/2009
12/2009
2/2010
4/2010
6/2010
8/2010
10/2010
12/2010
LNWmw-025
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

Load Line 1
2-Nitrotoluene



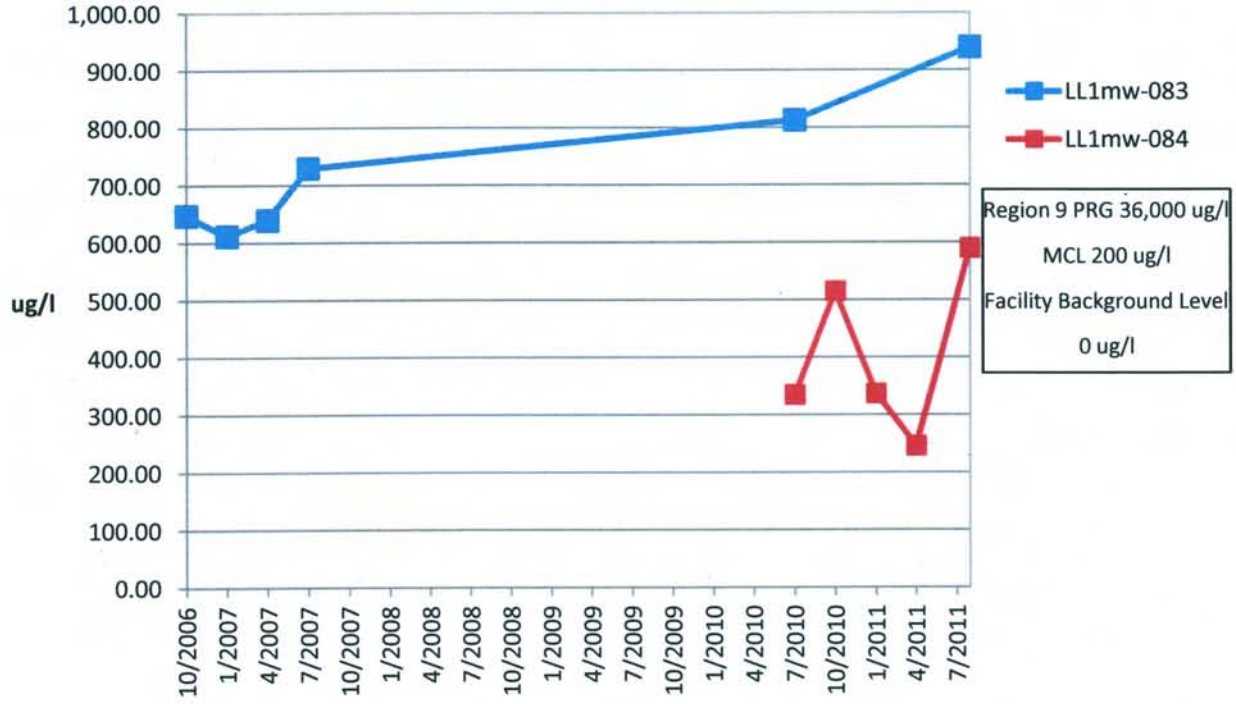
Load Line 1
2,4,6-TNT



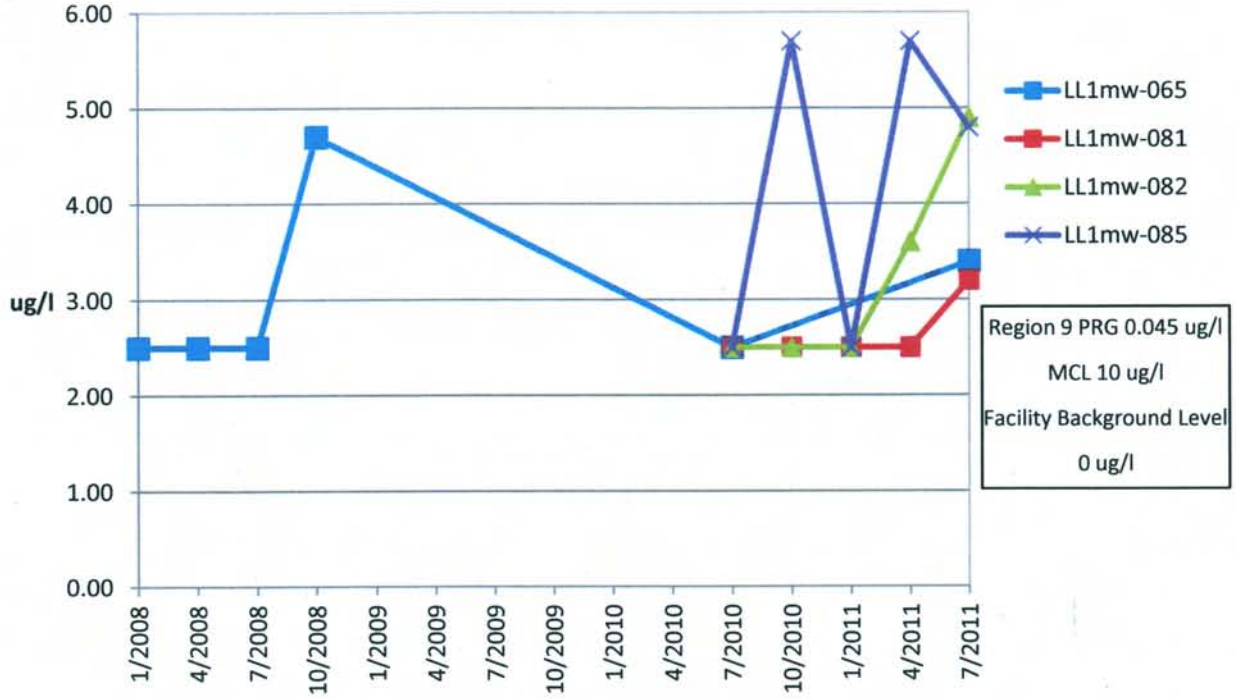
Load Line 1
alpha-BHC



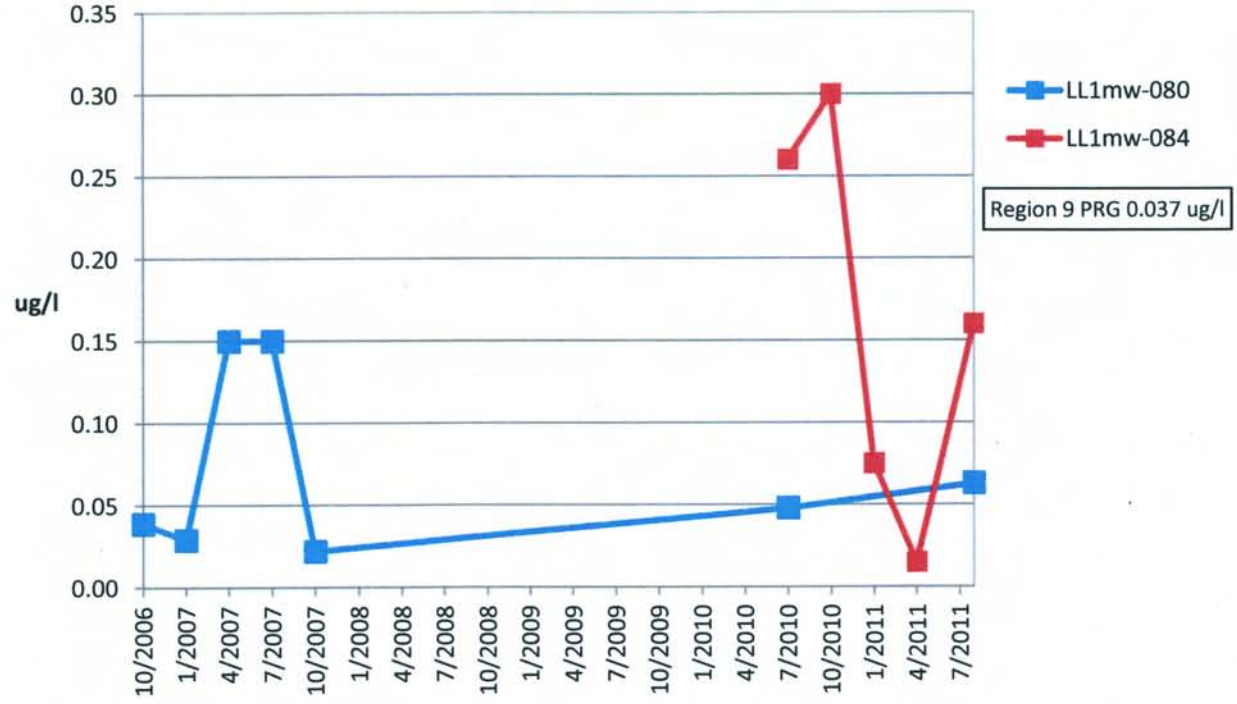
Load Line 1
Aluminum



Load Line 1
Arsenic



Load Line 1
beta-BHC



Load Line 1
Bis(2-ethylhexyl)phthalate



Load Line 1
Heptachlor



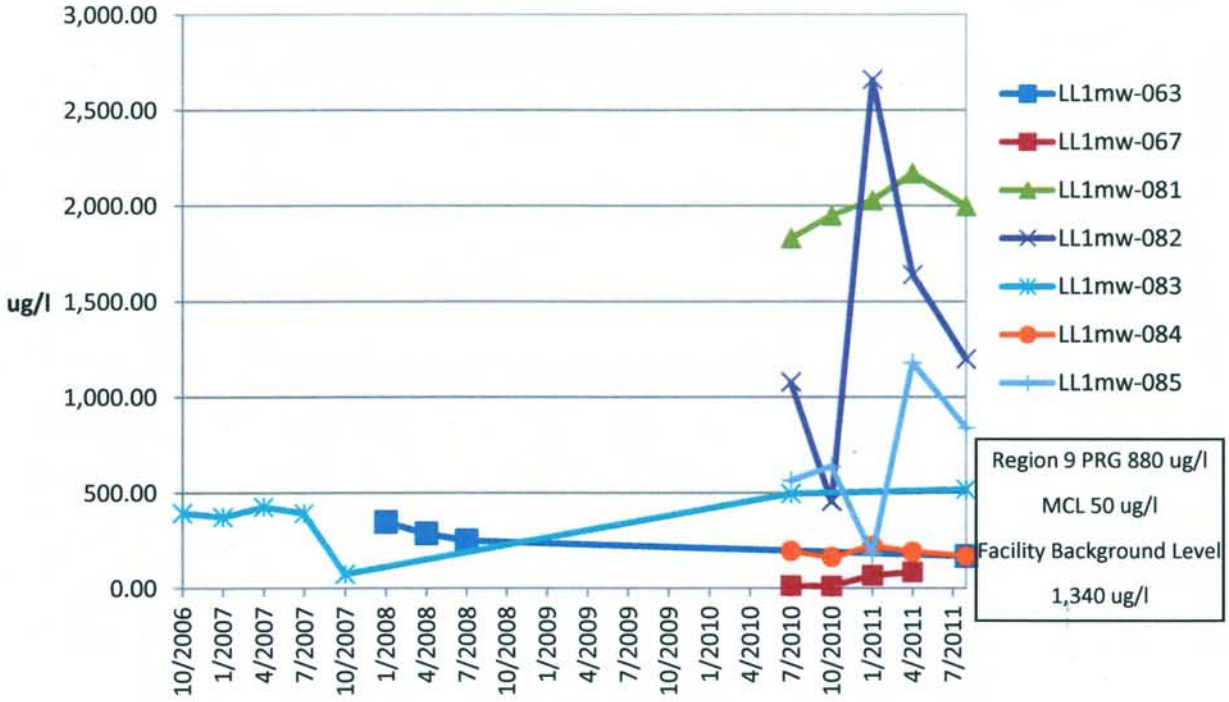
Load Line 1
Iron



Load Line 1
Manganese (unconsolidated)



Load Line 1
Manganese (bedrock)



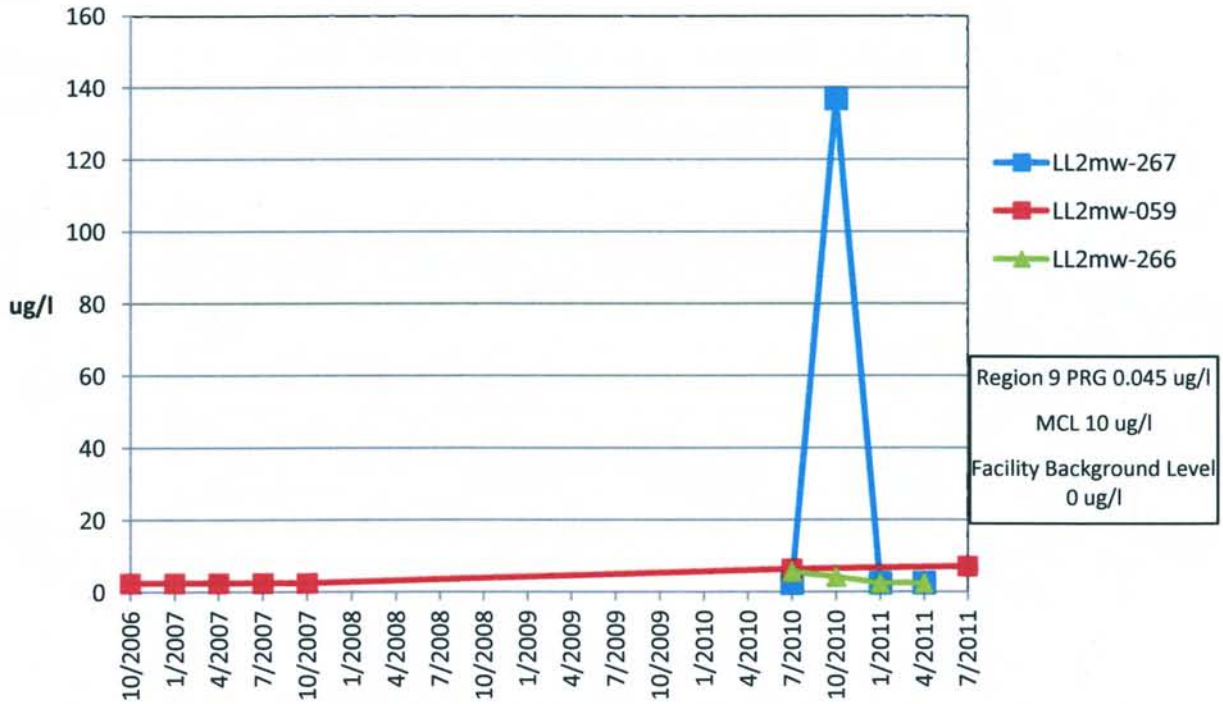
Load Line 1
RDX



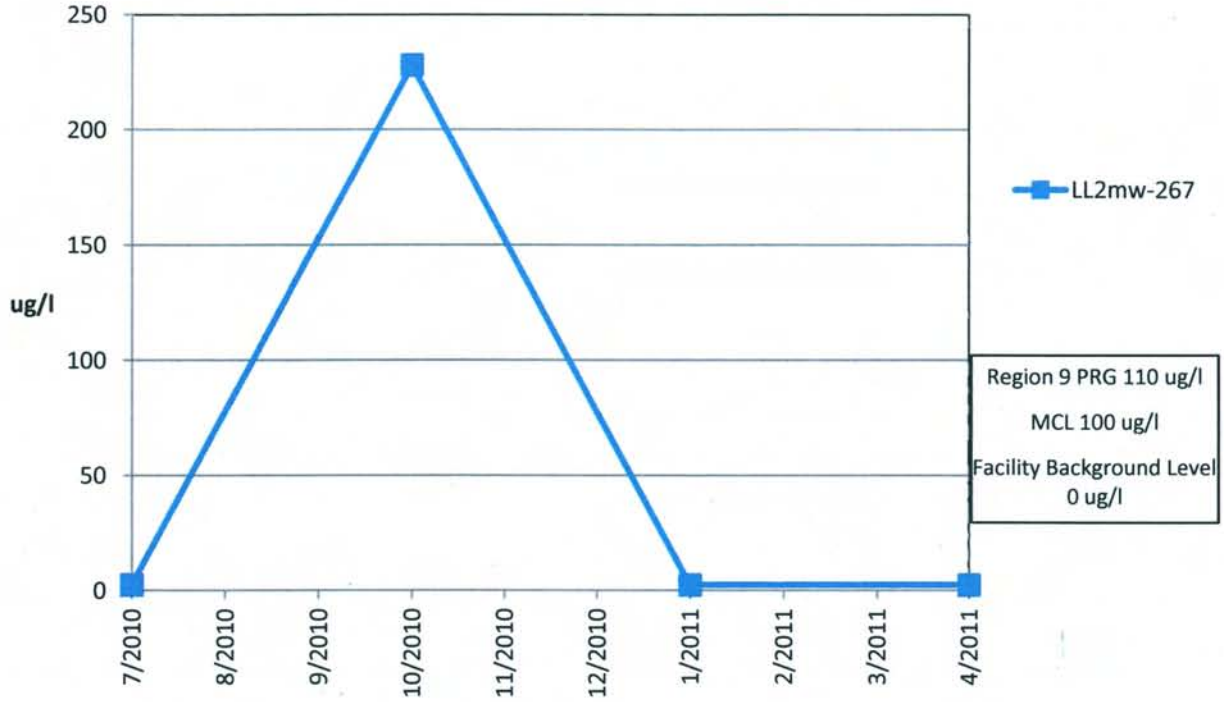
Load Line 2
Aluminum



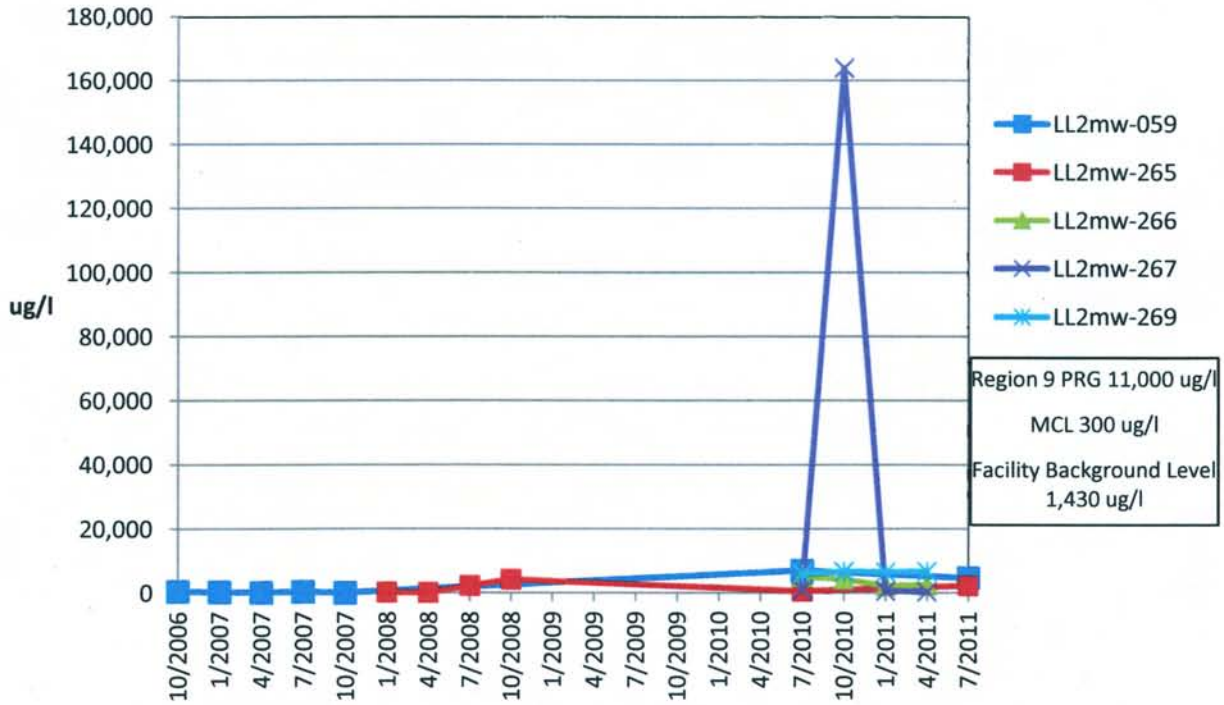
Load Line 2
Arsenic



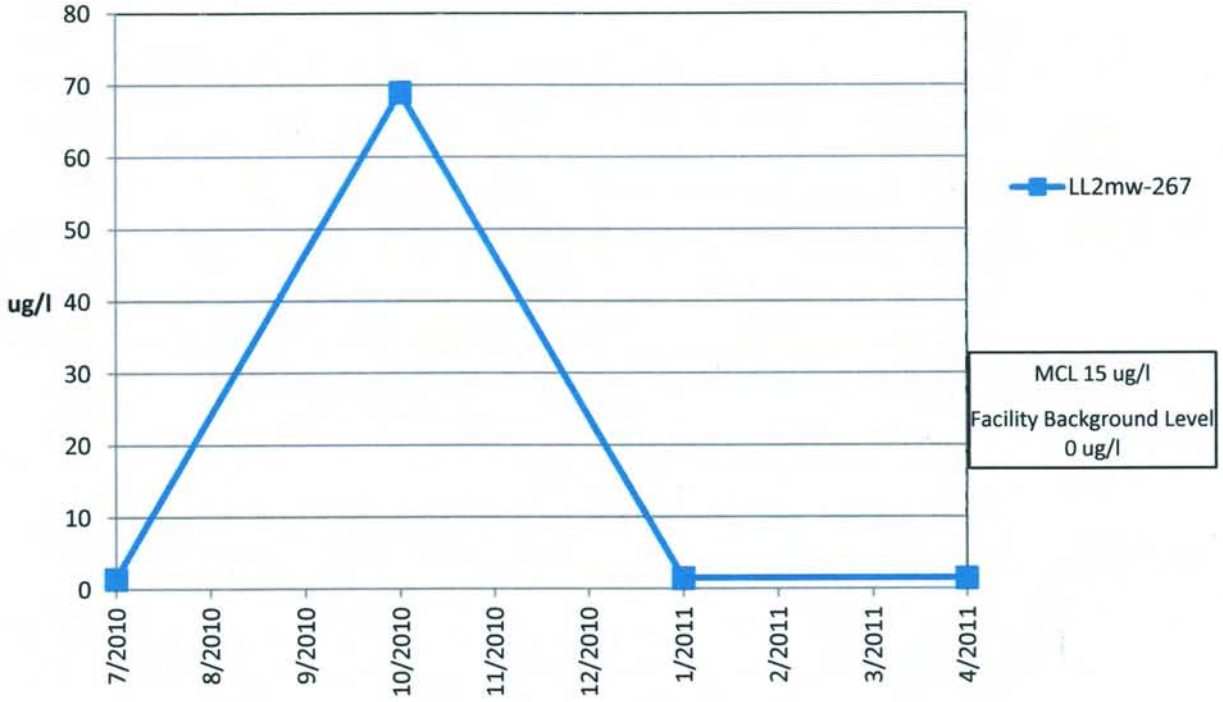
Load Line 2
Chromium



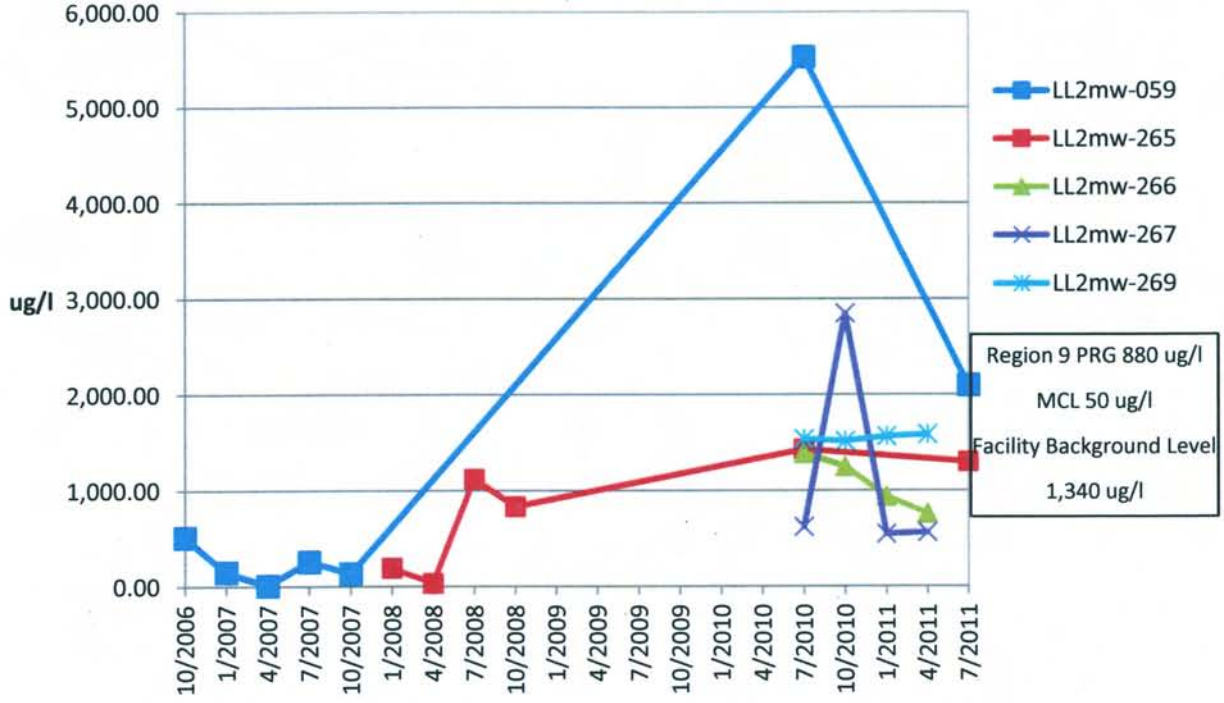
Load Line 2
Iron



Load Line 2
Lead



Load Line 2
Manganese

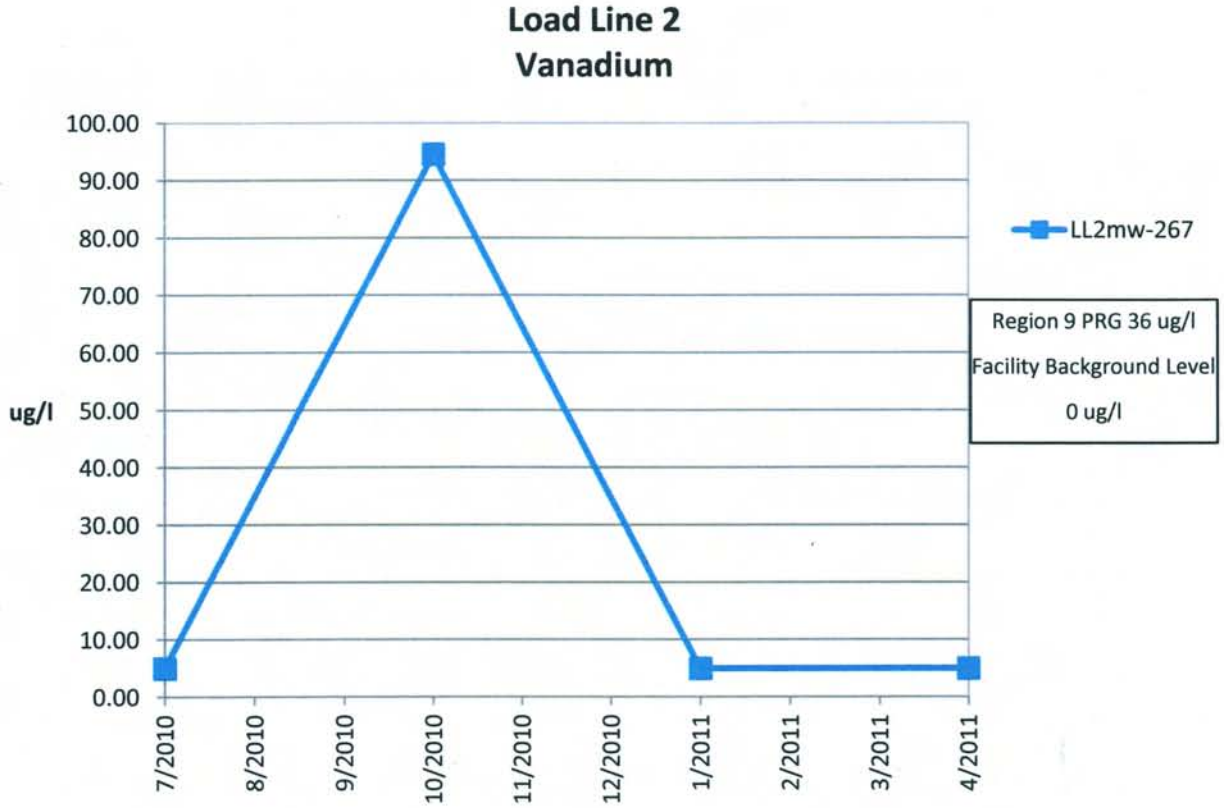


Load Line 2
RDX

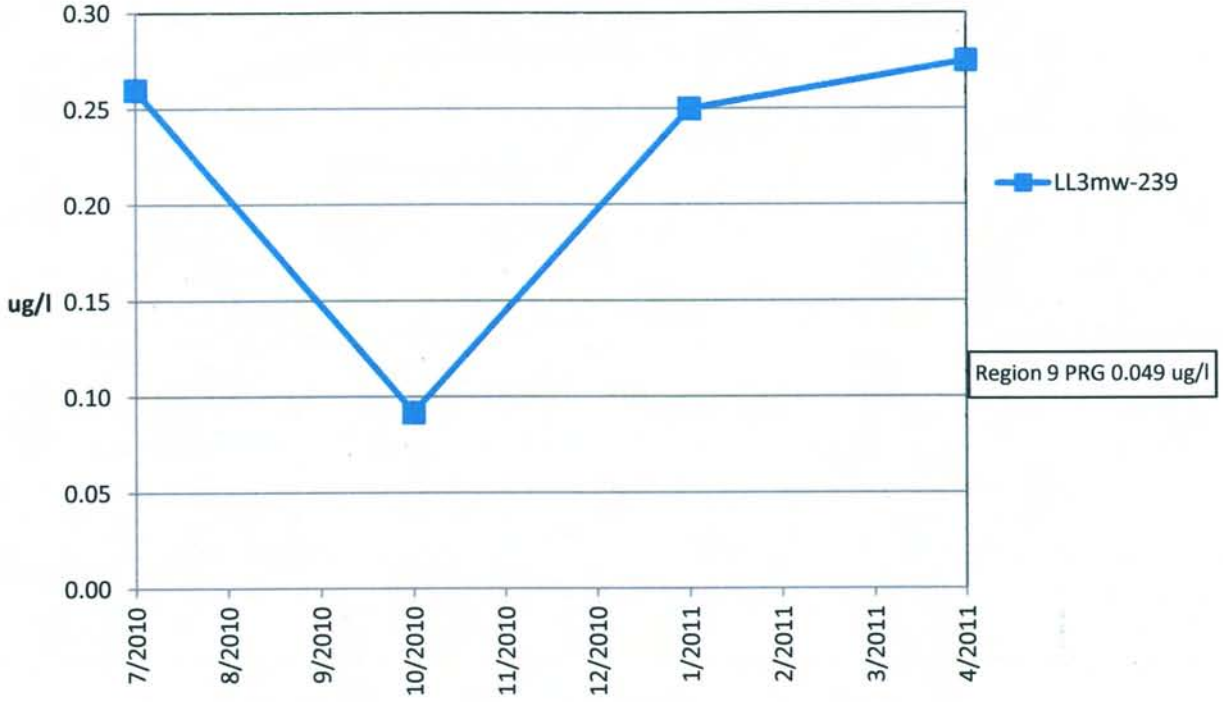


Load Line 2
Trichloroethene

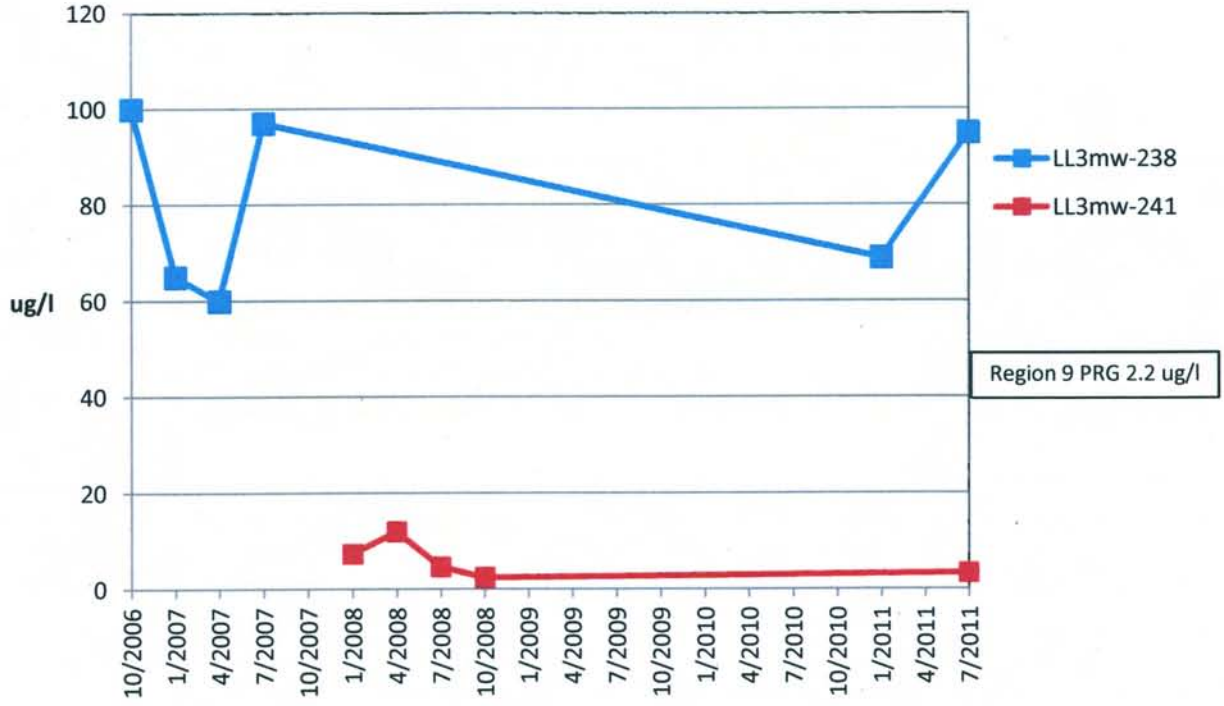



Load Line 2
Vanadium
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
ug/l
7/2010
8/2010
9/2010
10/2010
11/2010
12/2010
1/2011
2/2011
3/2011
4/2011
LL2mw-267
Region 9 PRG 36 ug/l
Facility Background Level
0 ug/l

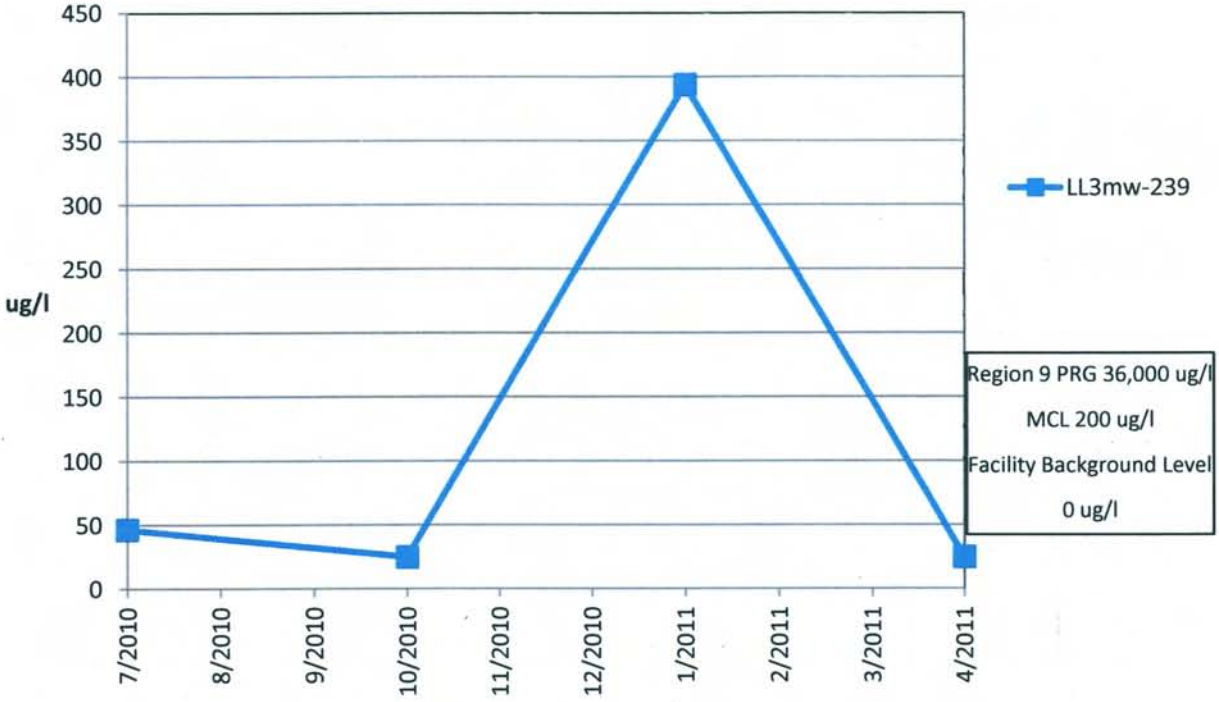
Load Line 3
2-Nitrotoluene



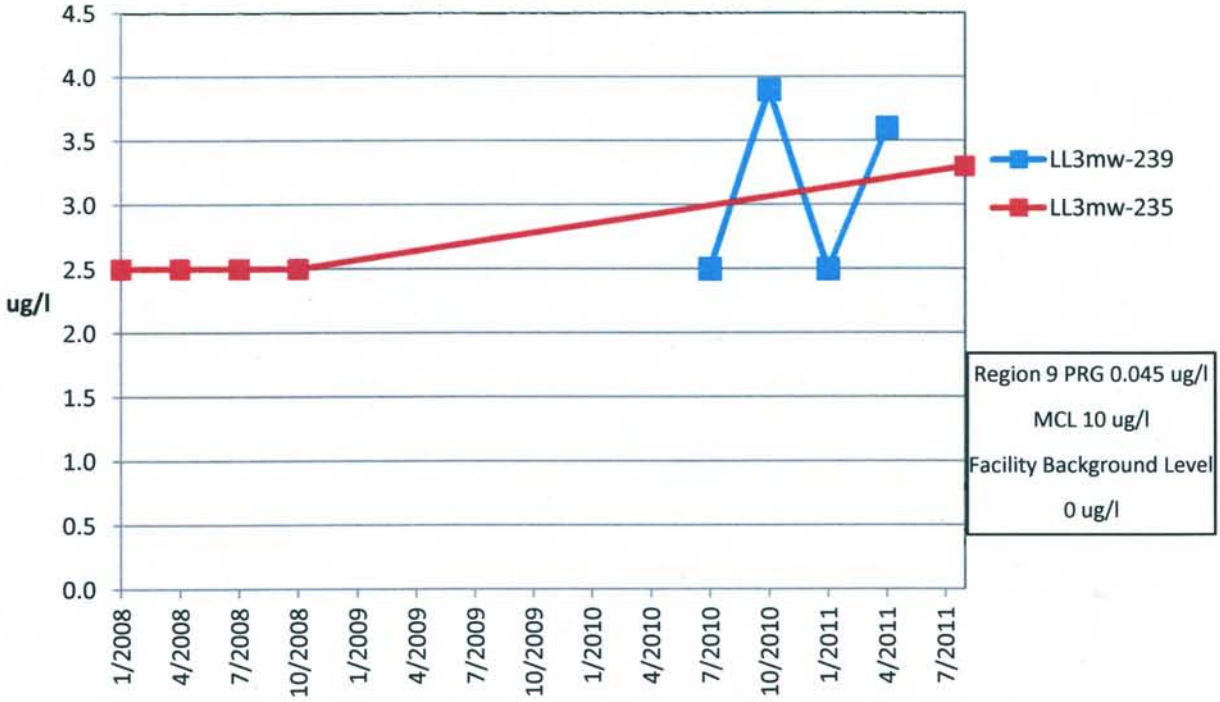
Load Line 3
2,4,6-TNT



Load Line 3
Aluminum



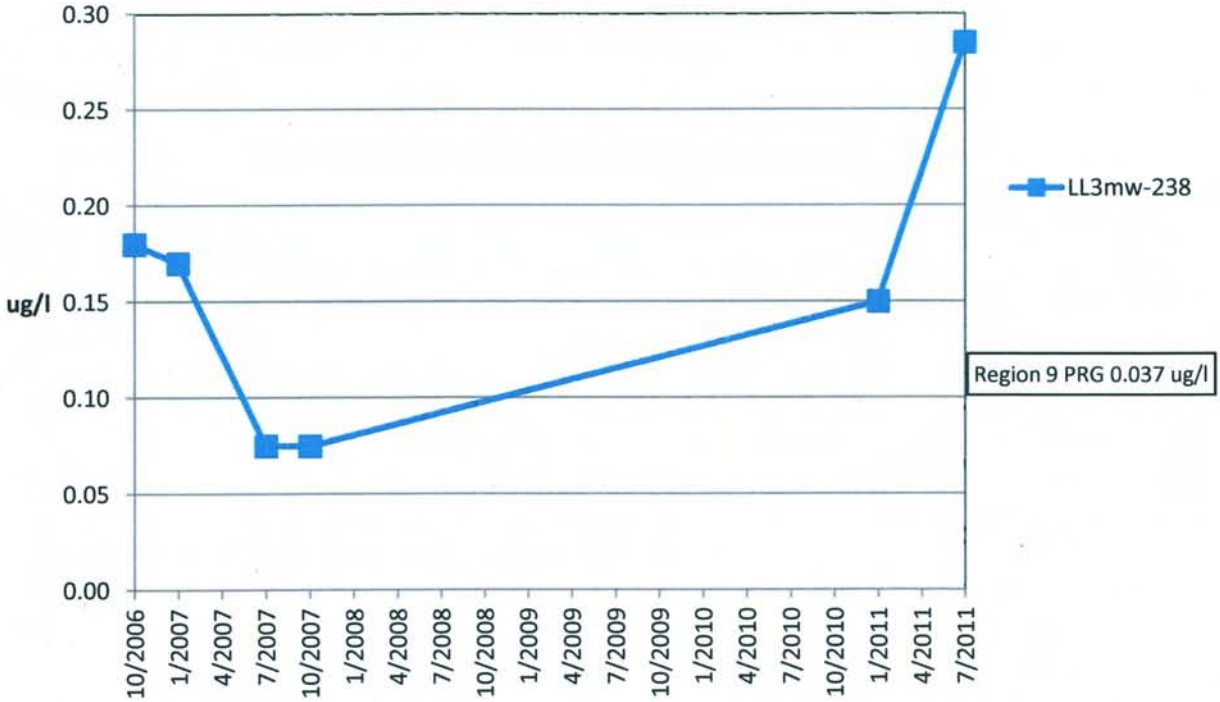
Load Line 3
Arsenic



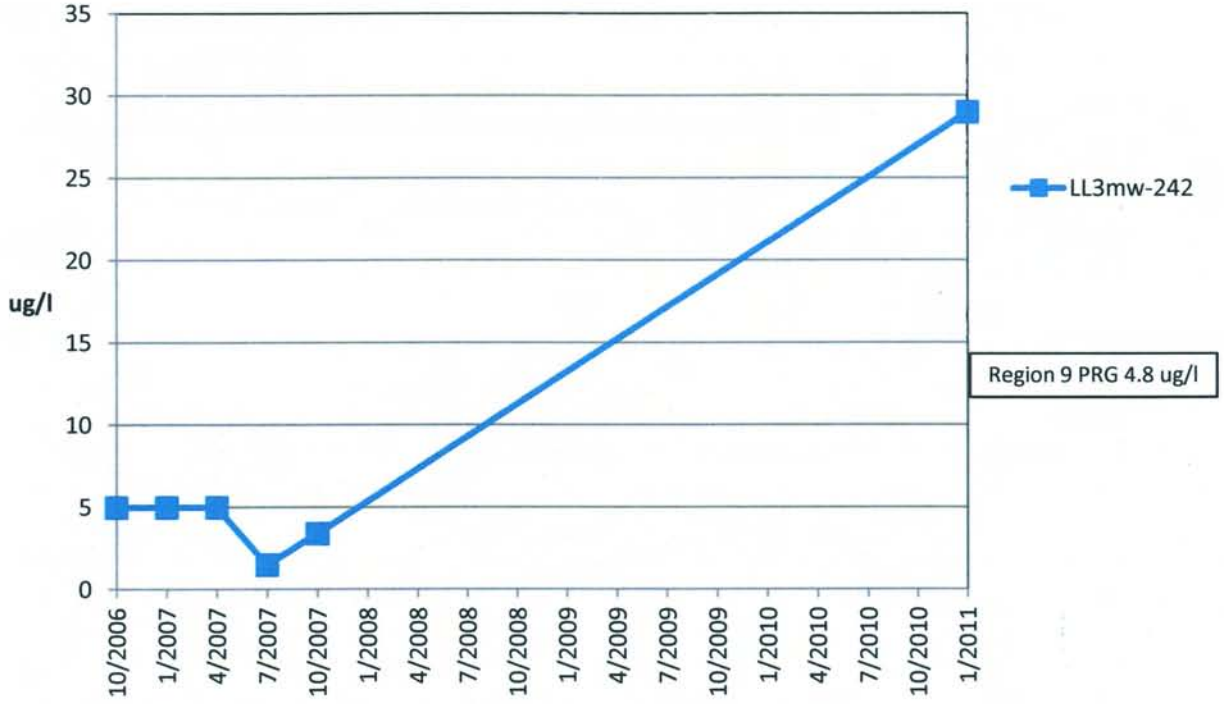
Load Line 3
alpha-BHC



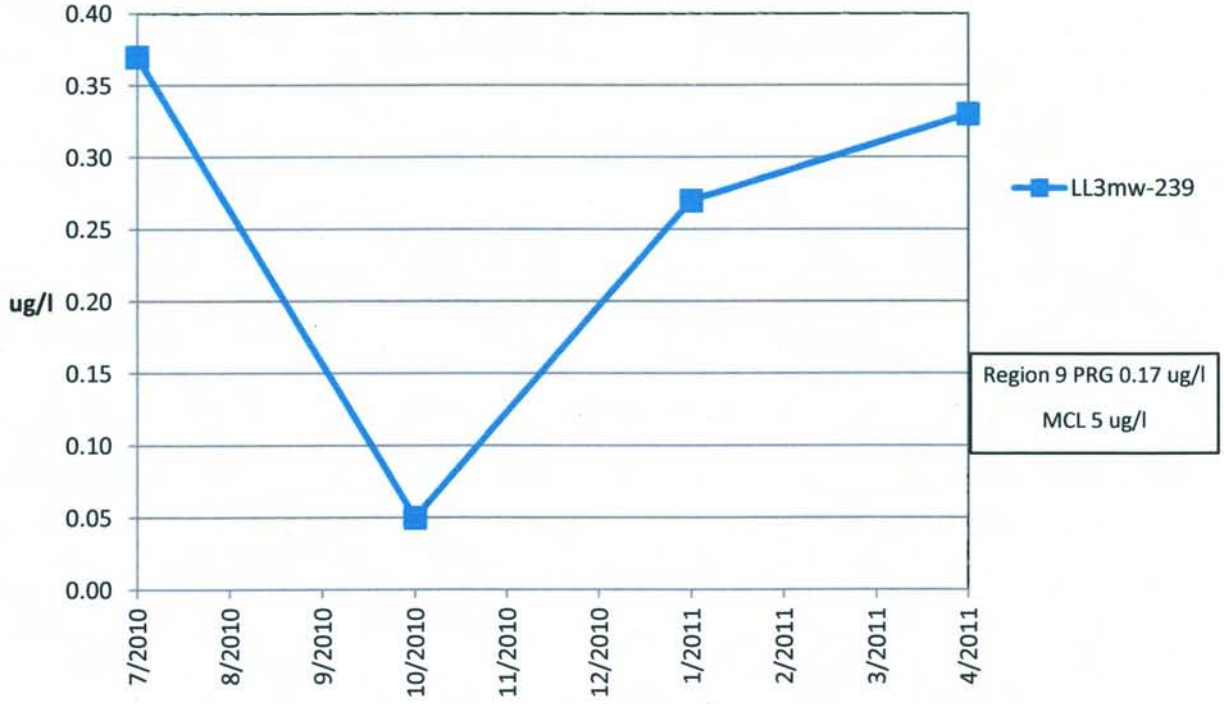
Load Line 3
beta-BHC



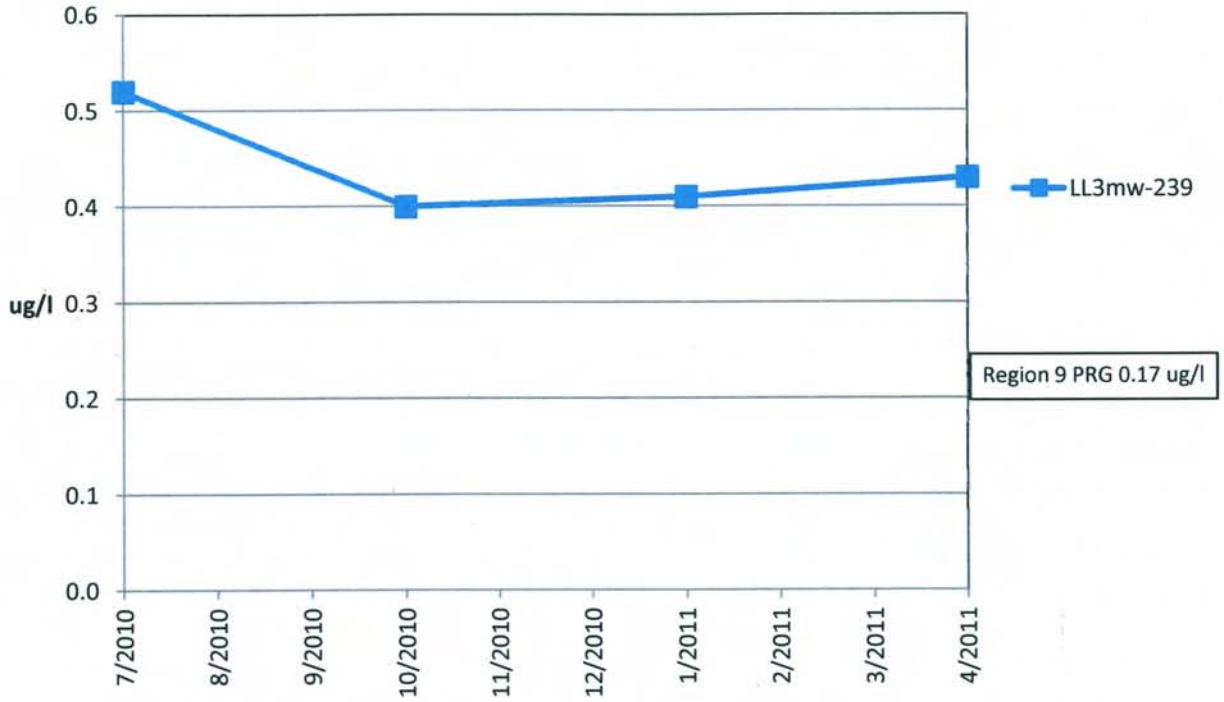
Load Line 3
Bis(2-ethylhexyl)phthalate



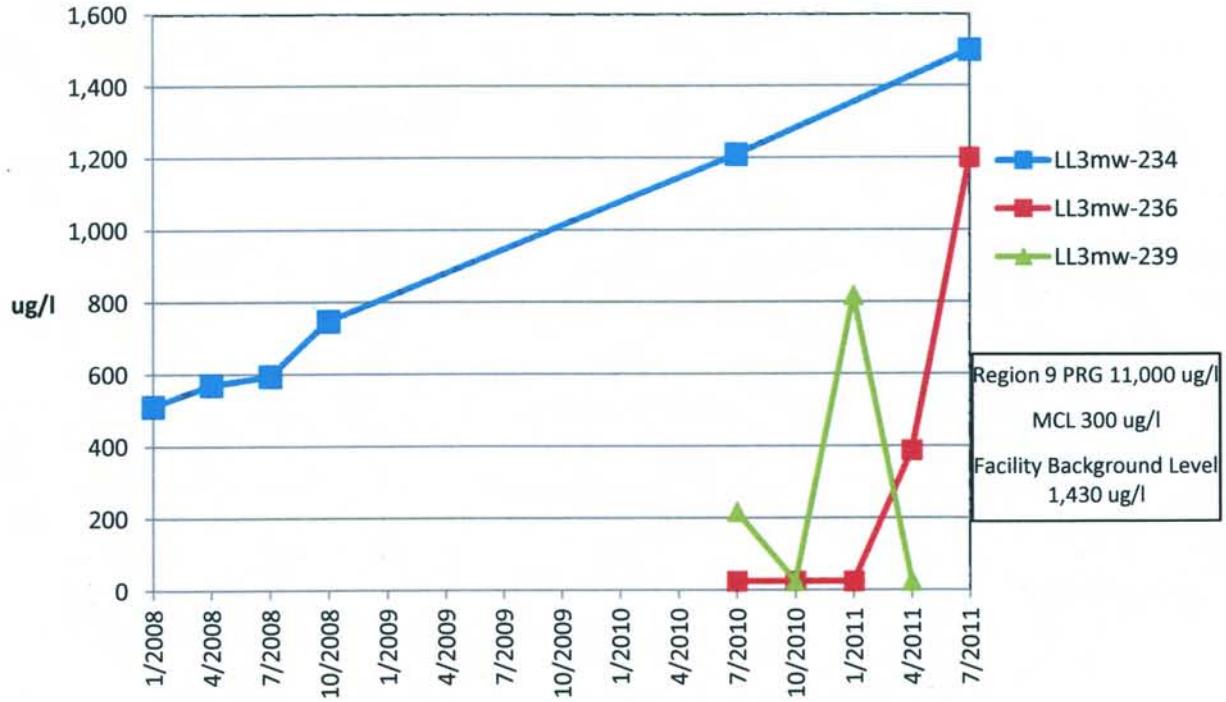
Load Line 3
Carbon Tetrachloride



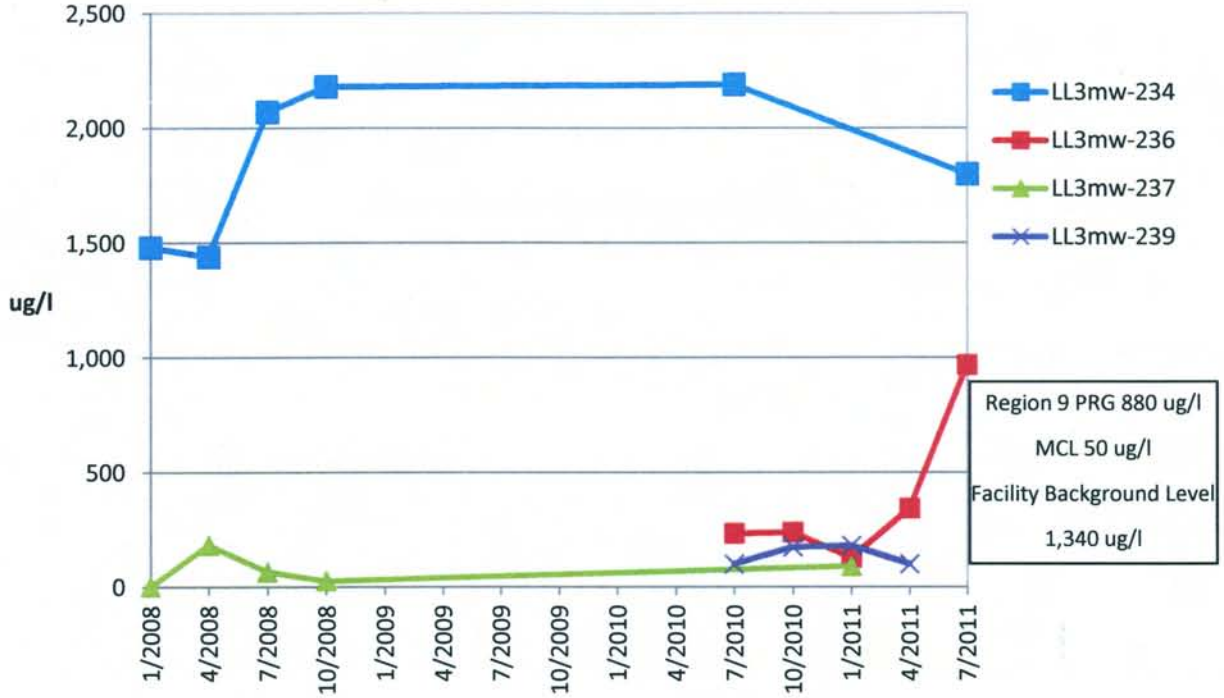
Load Line 3
Chloroform



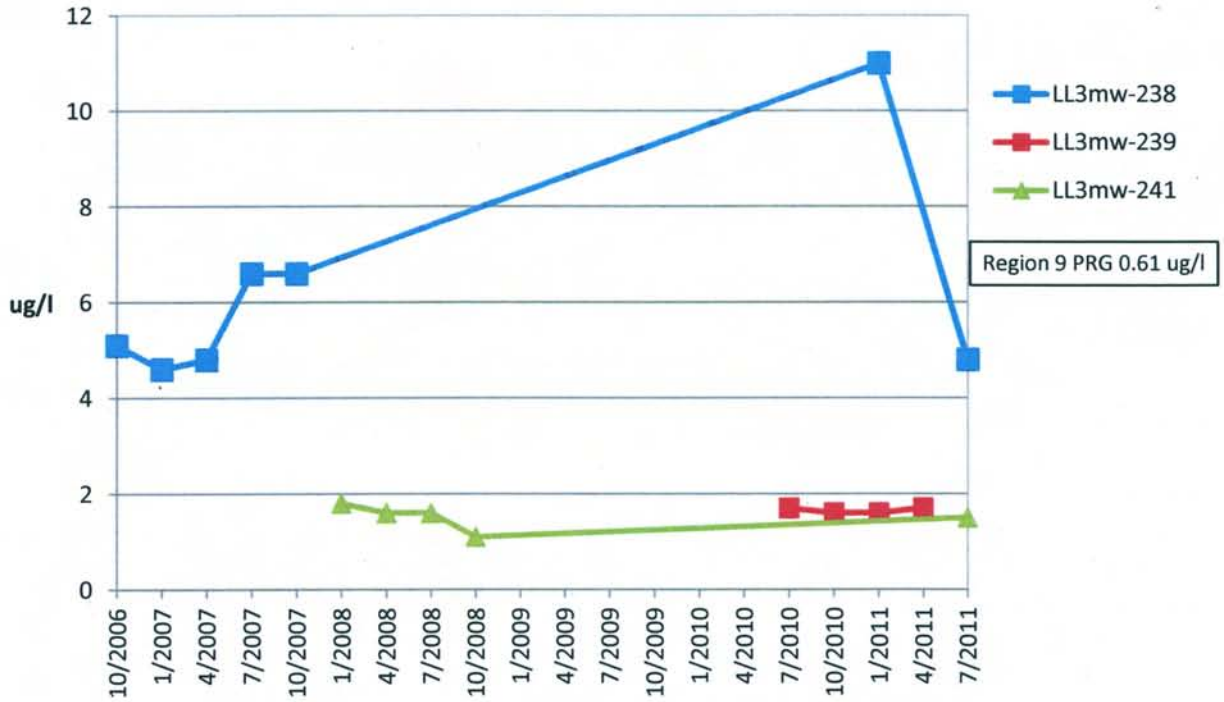
Load Line 3
Iron



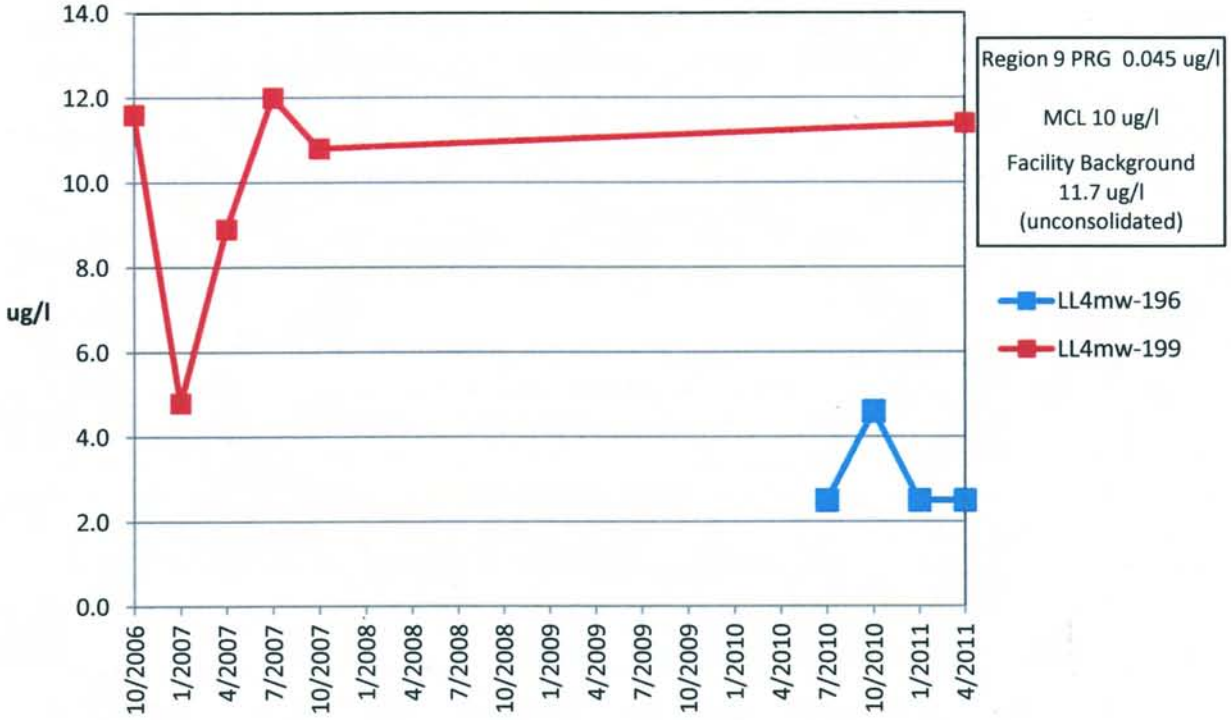
Load Line 3
Manganese



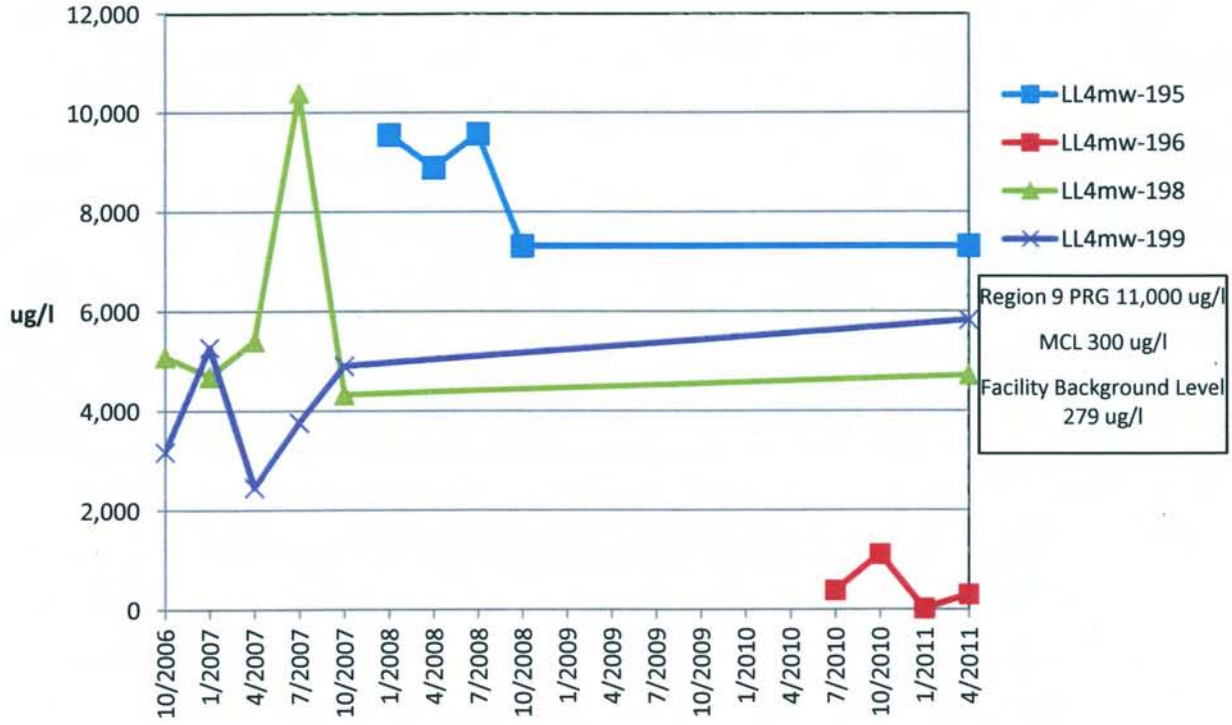
Load Line 3
RDX

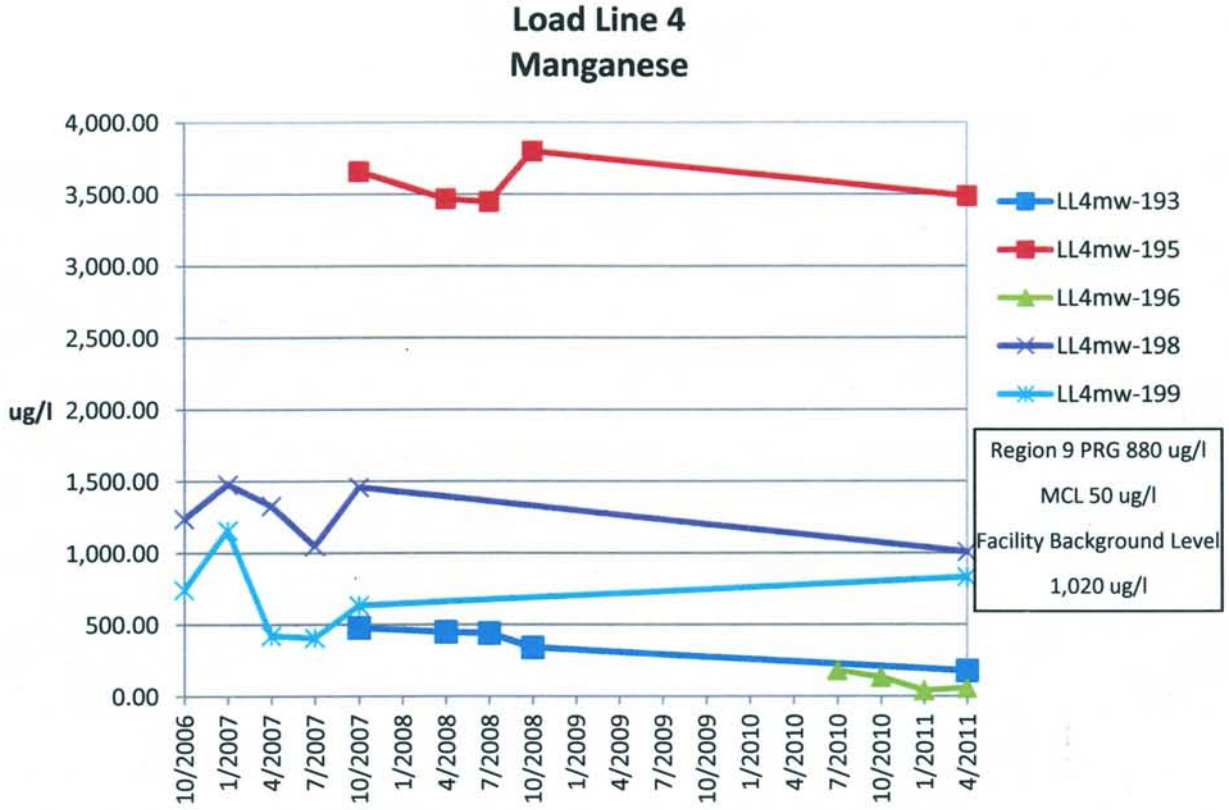


Load Line 4
Arsenic

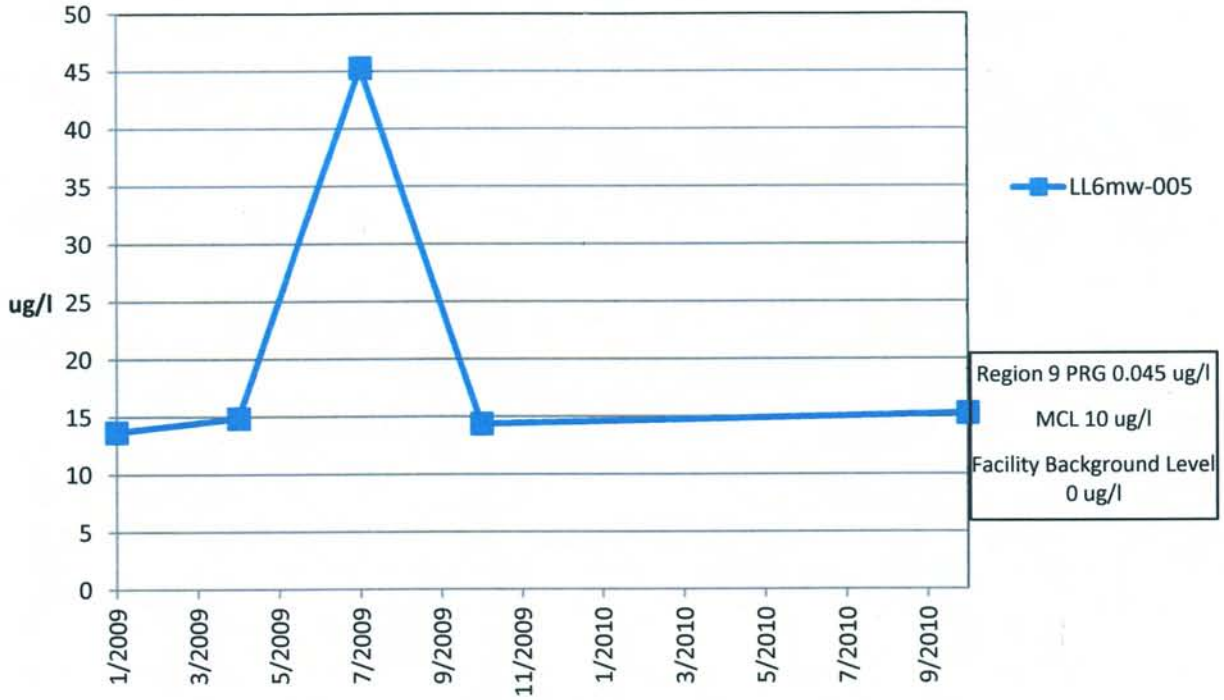


Load Line 4
Iron



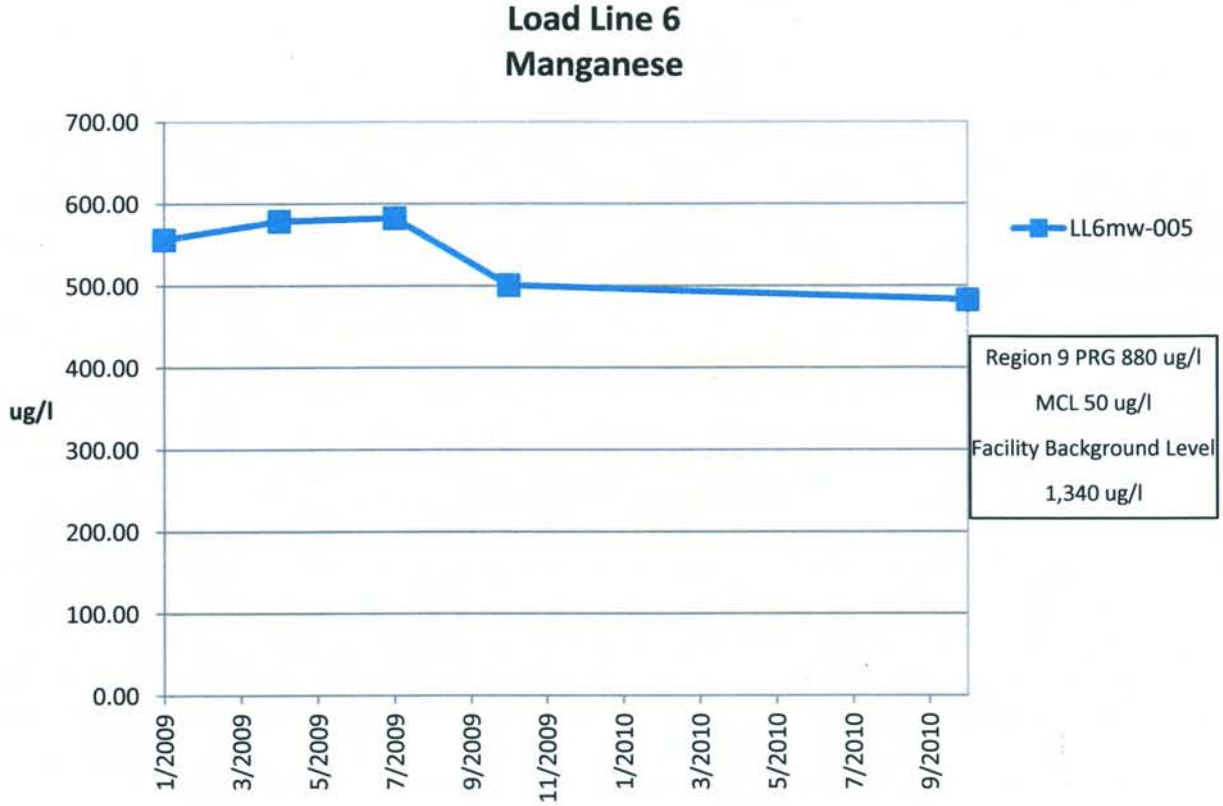

Load Line 4
Manganese
4,000.00
3,500.00
3,000.00
2,500.00
2,000.00
1,500.00
1,000.00
500.00
0.00
ug/l
10/2006
1/2007
4/2007
7/2007
10/2007
1/2008
4/2008
7/2008
10/2008
1/2009
4/2009
7/2009
10/2009
1/2010
4/2010
7/2010
10/2010
1/2011
4/2011
LL4mw-193
LL4mw-195
LL4mw-196
LL4mw-198
LL4mw-199
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

Load Line 6
Arsenic

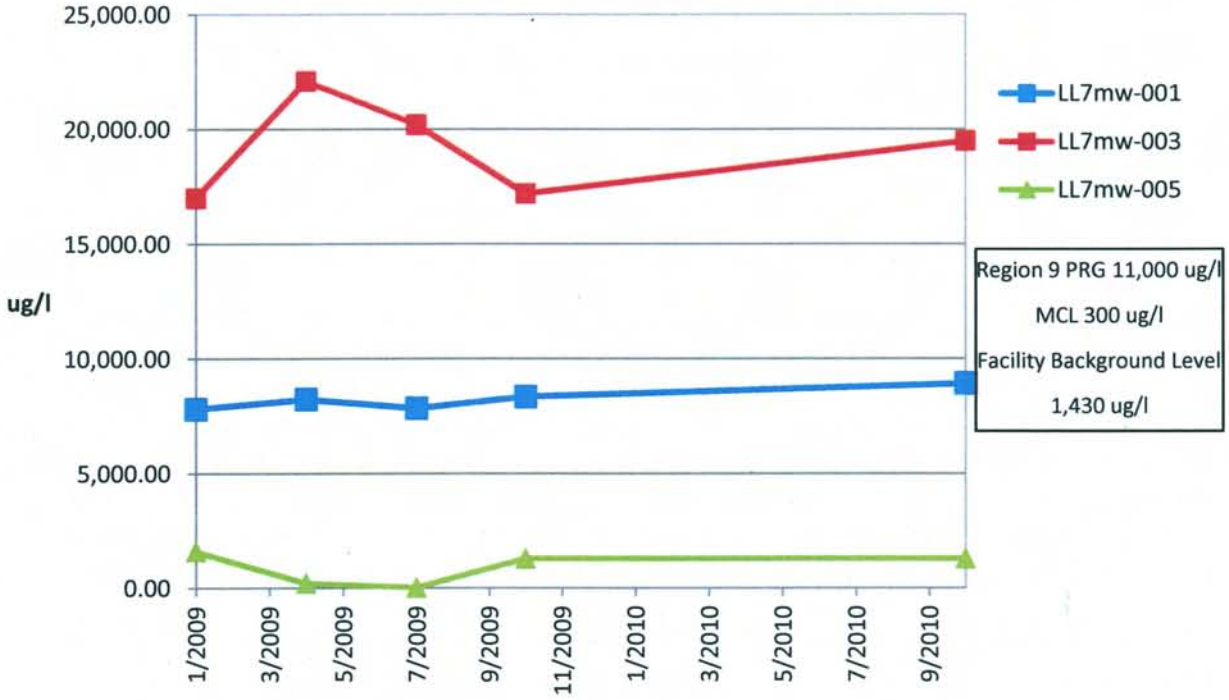


Load Line 6
Iron




Load Line 6
Manganese
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
ug/l
1/2009
3/2009
5/2009
7/2009
9/2009
11/2009
1/2010
3/2010
5/2010
7/2010
9/2010
LL6mw-005
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,340 ug/l

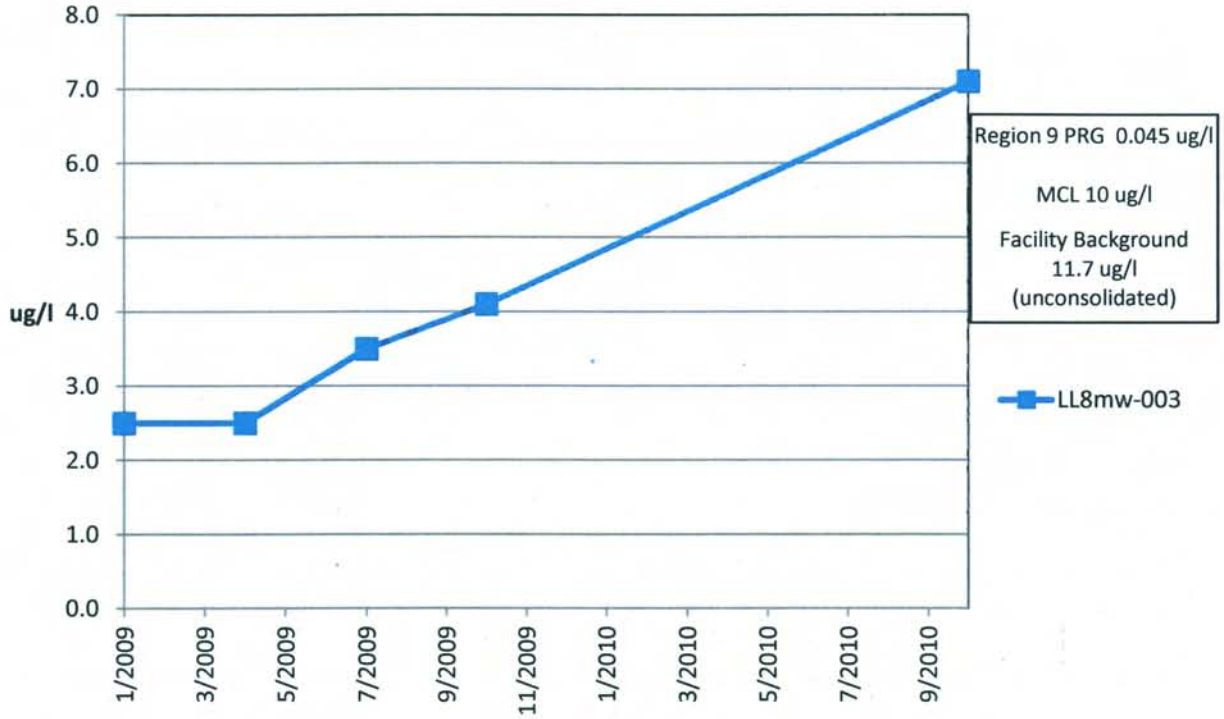
Load Line 7
Iron



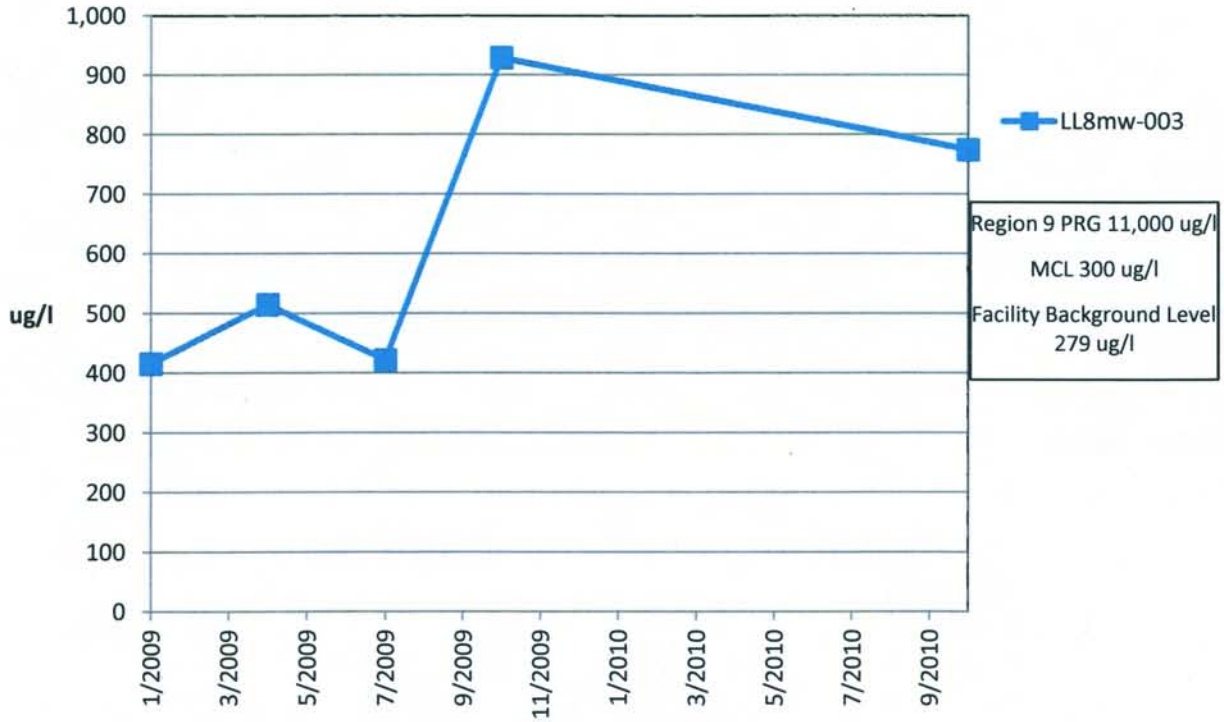
Load Line 7
Manganese

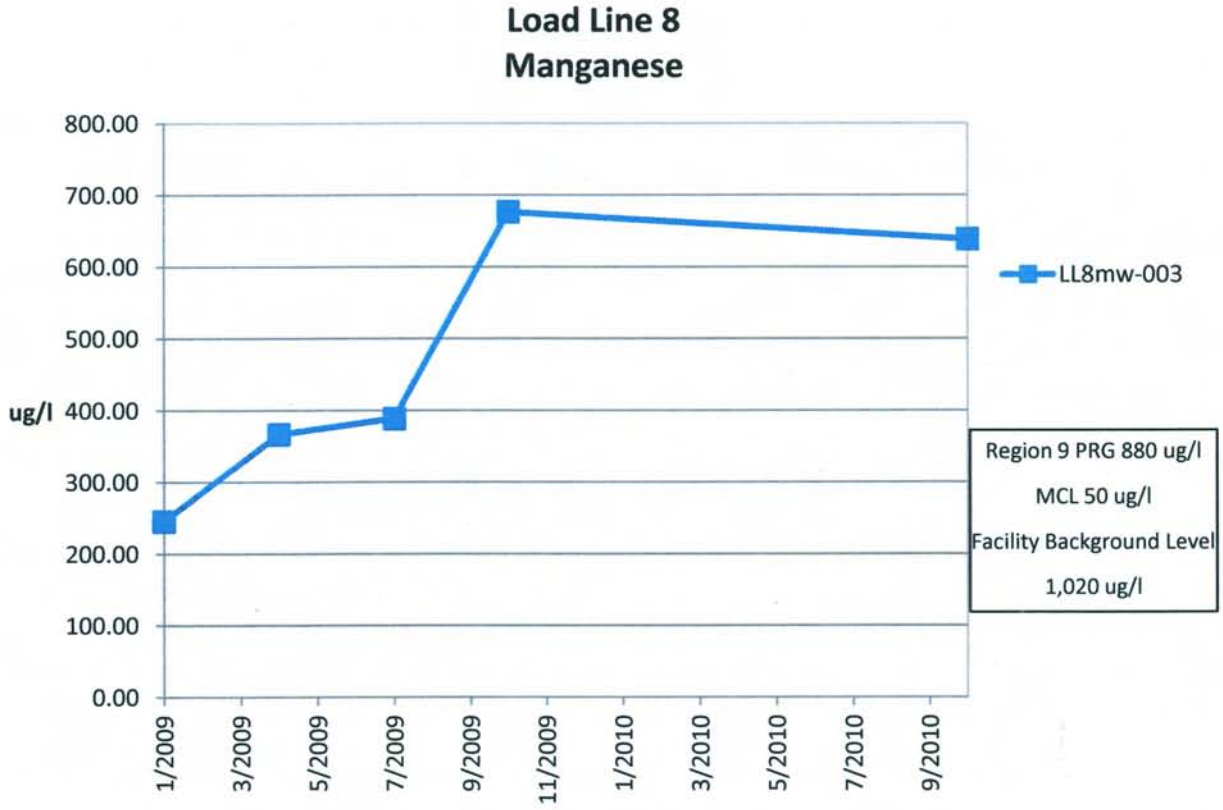


Load Line 8
Arsenic

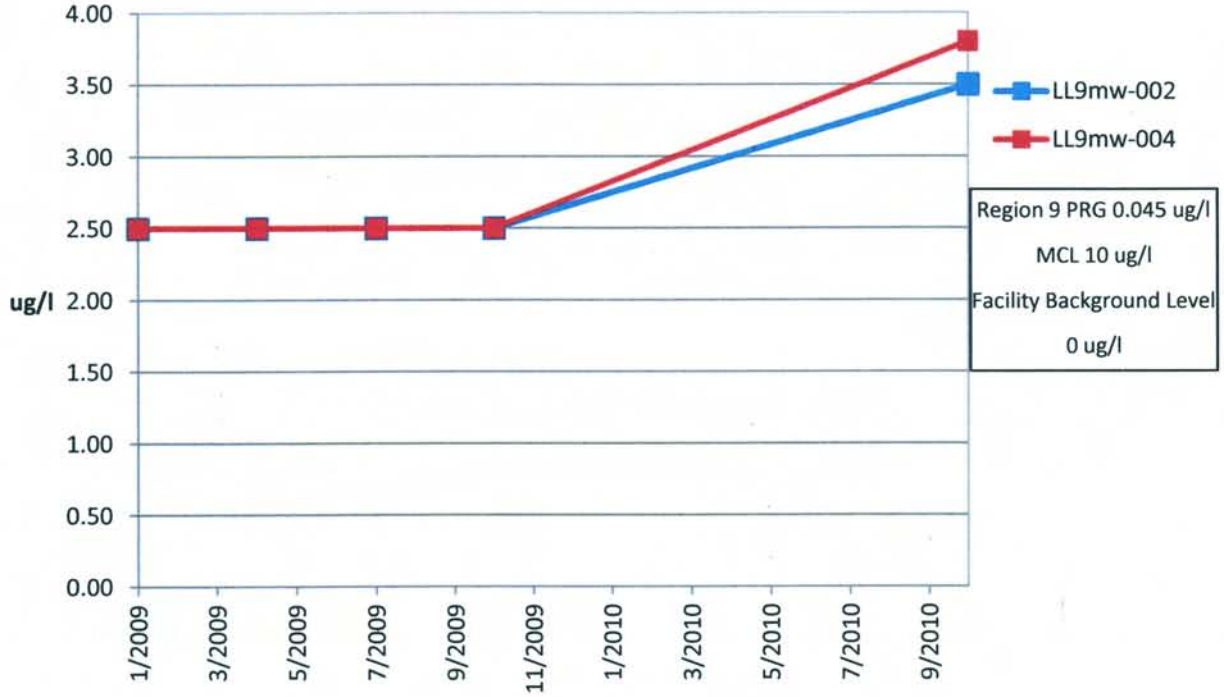


Load Line 8
Iron




Load Line 8
Manganese
800.00
700.00
600.00
500.00
ug/l 400.00
300.00
200.00
100.00
0.00
1/2009
3/2009
5/2009
7/2009
9/2009
11/2009
1/2010
3/2010
5/2010
7/2010
9/2010
LL8mw-003
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

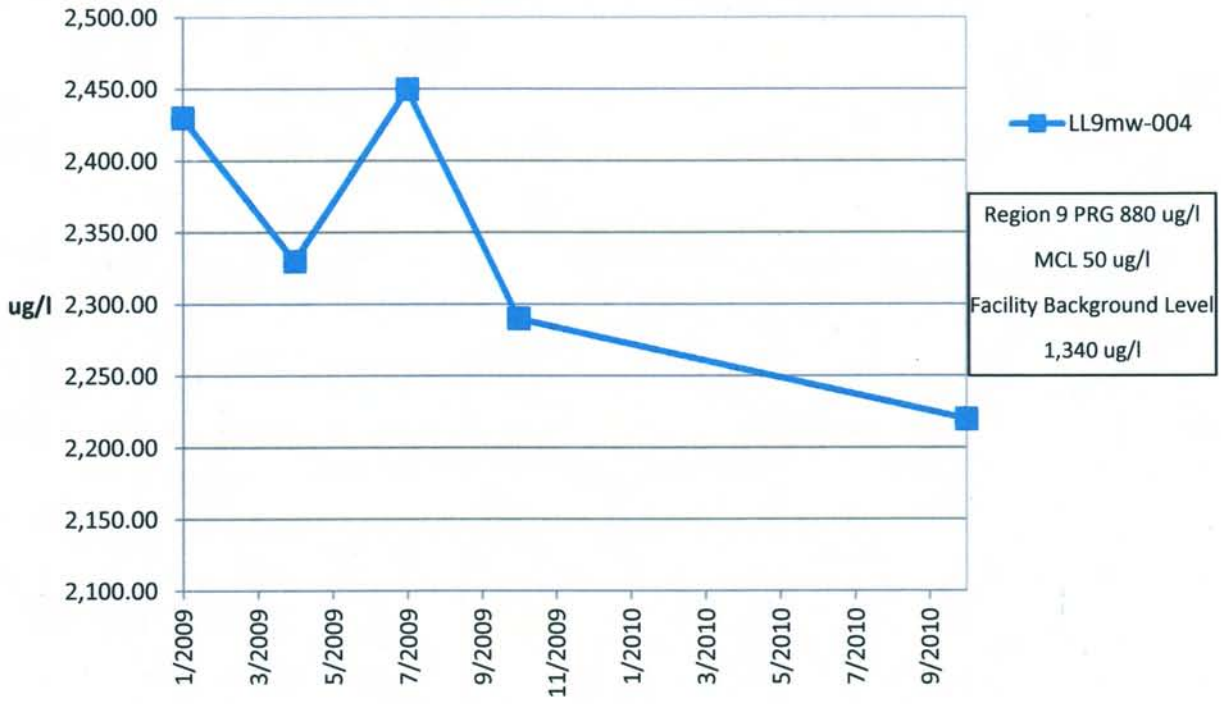
Load Line 9
Arsenic



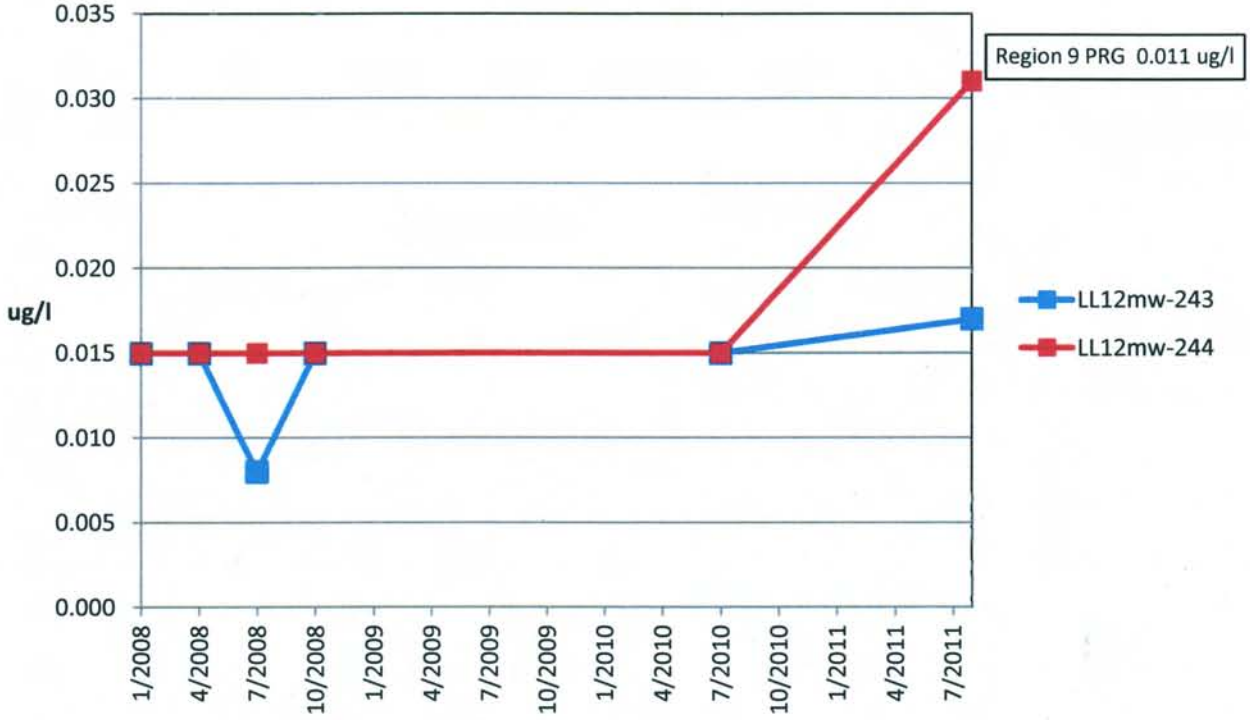
Load Line 9
Iron



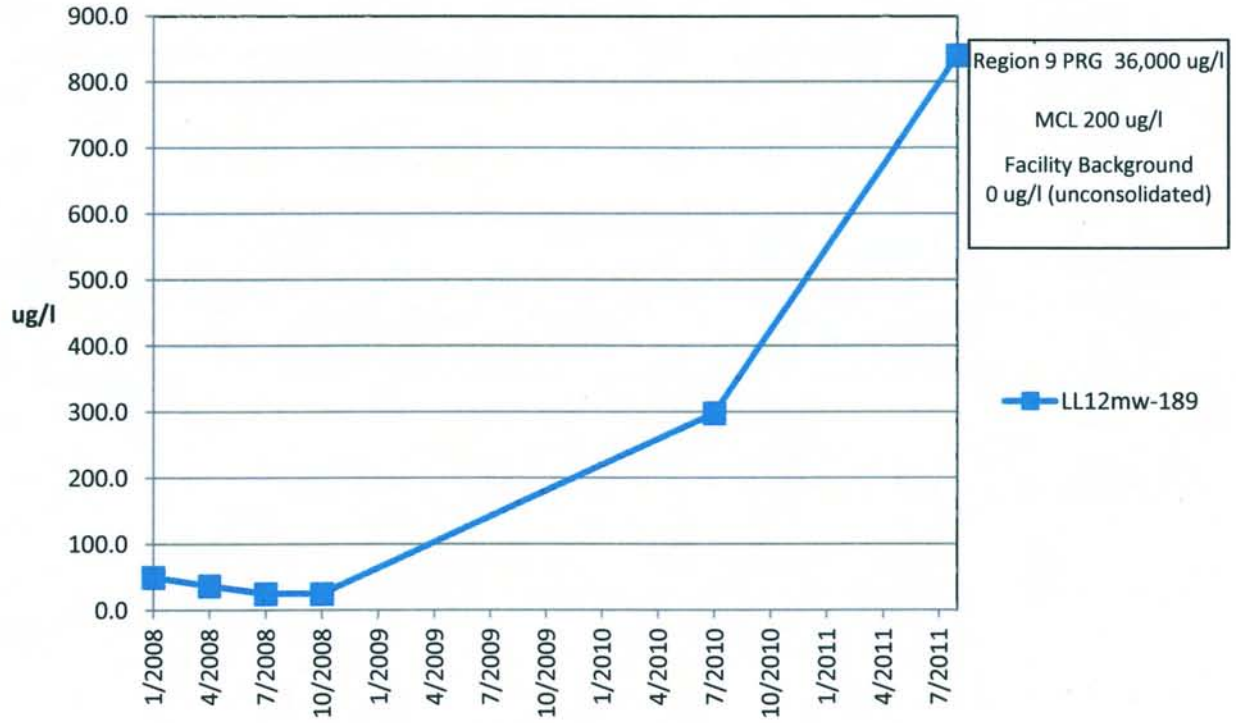
Load Line 9
Manganese



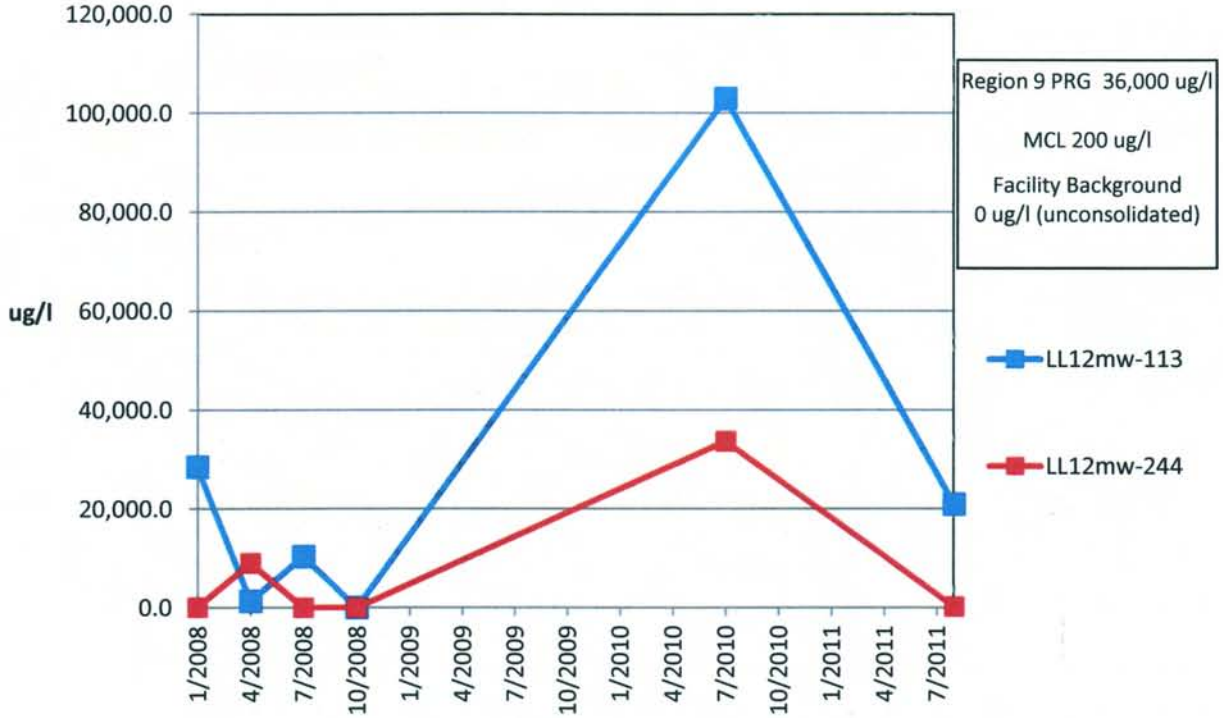
Load Line 12
alpha-BHC



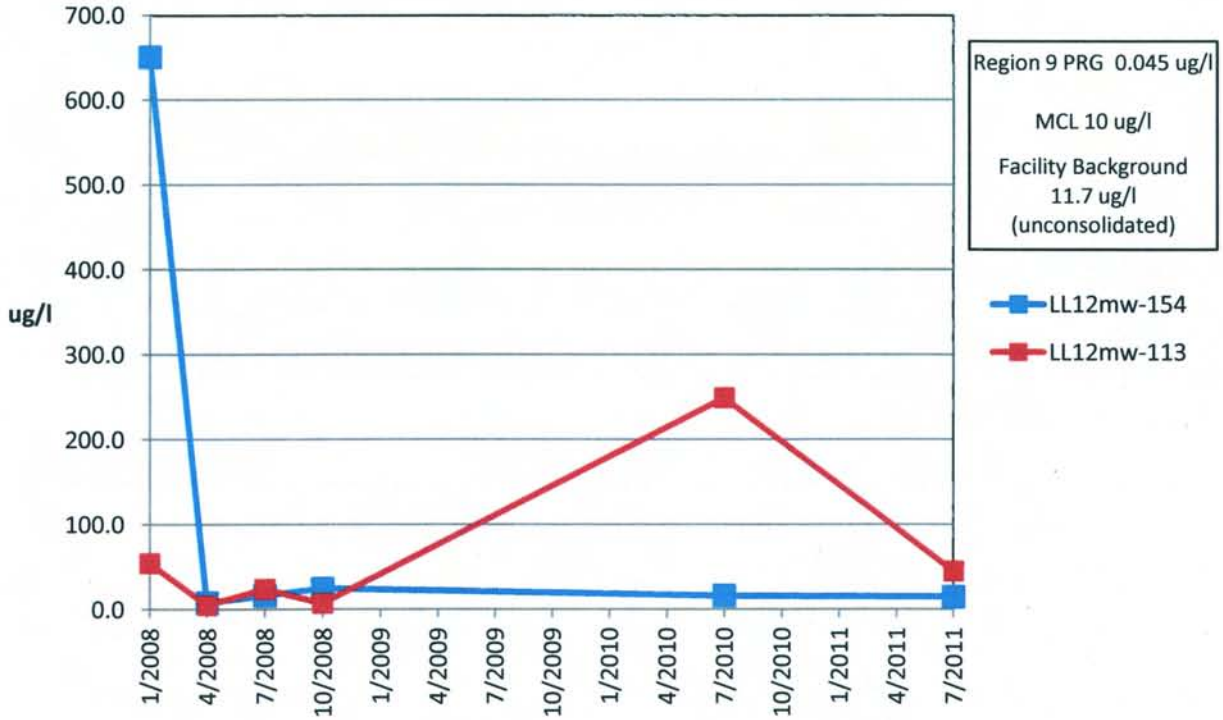
Load Line 12
Aluminum (1)



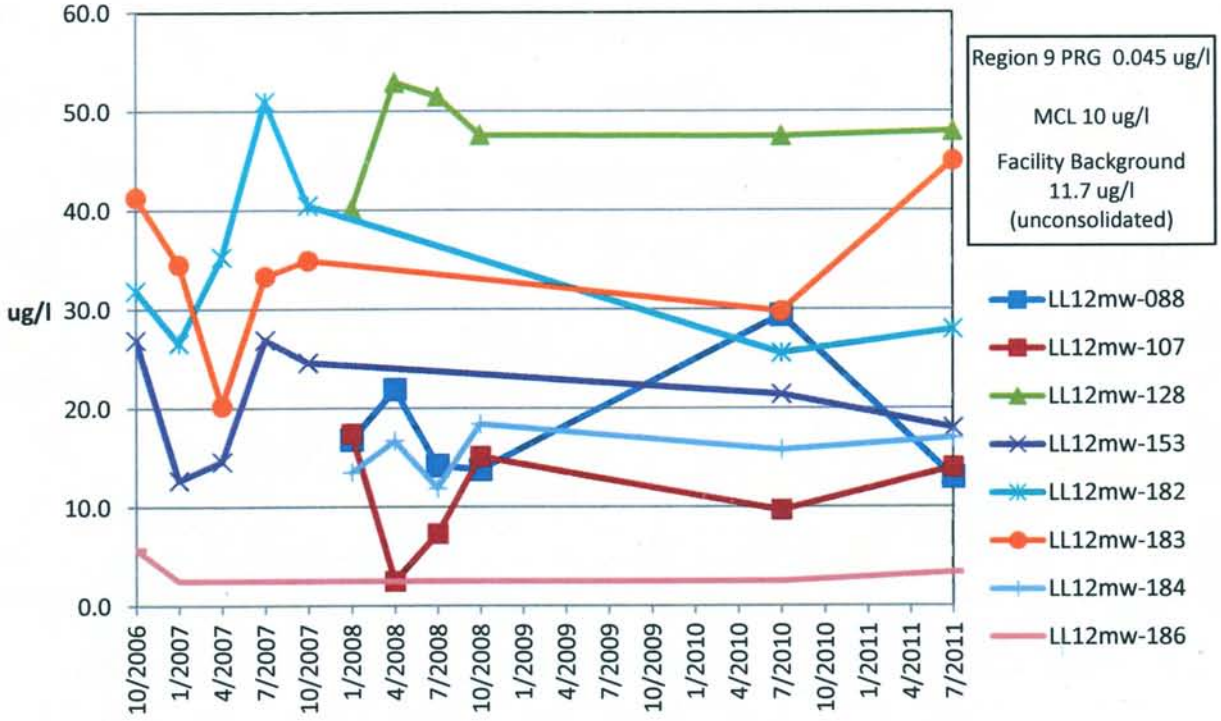
Load Line 12
Aluminum (2)



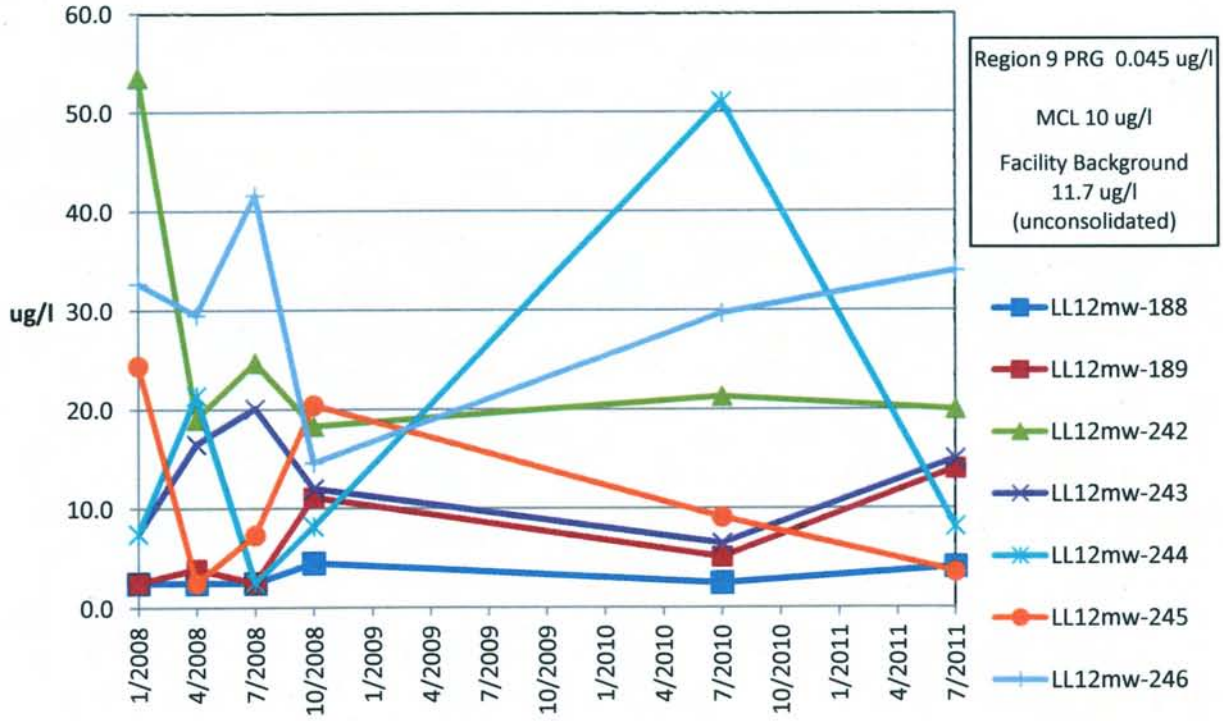
Load Line 12
Arsenic (1)



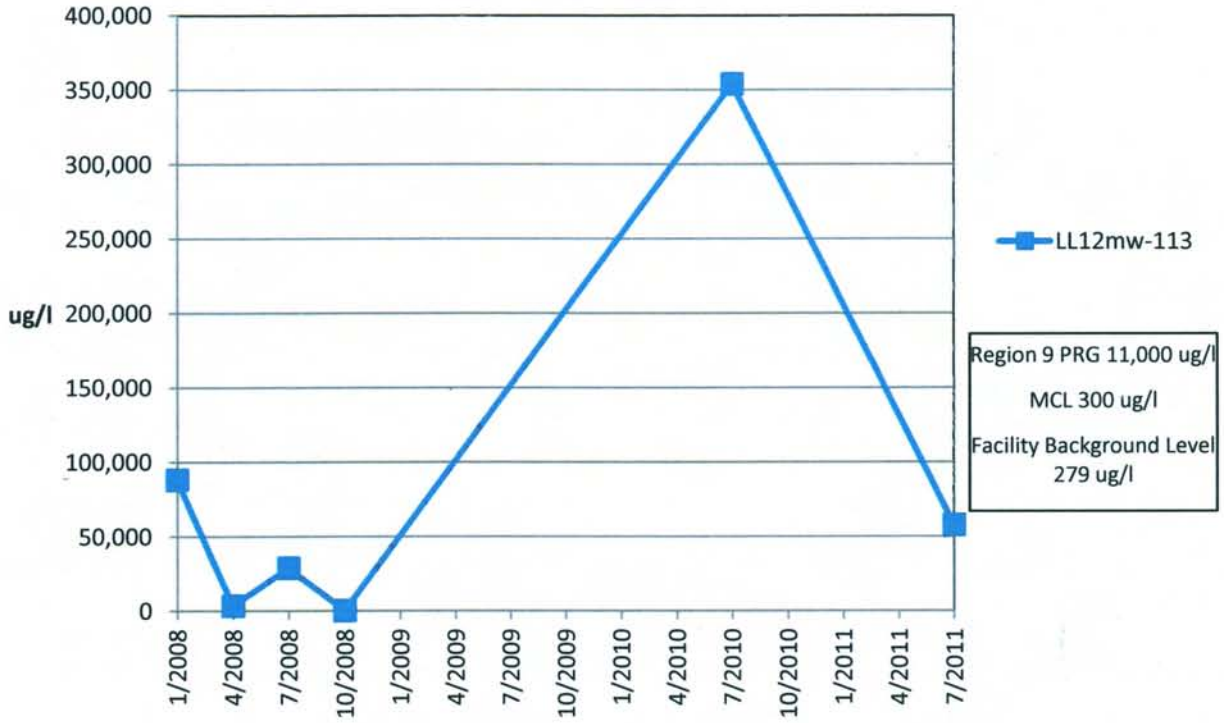
Load Line 12
Arsenic (2)



Load Line 12
Arsenic (3)



Load Line 12
Iron (1)



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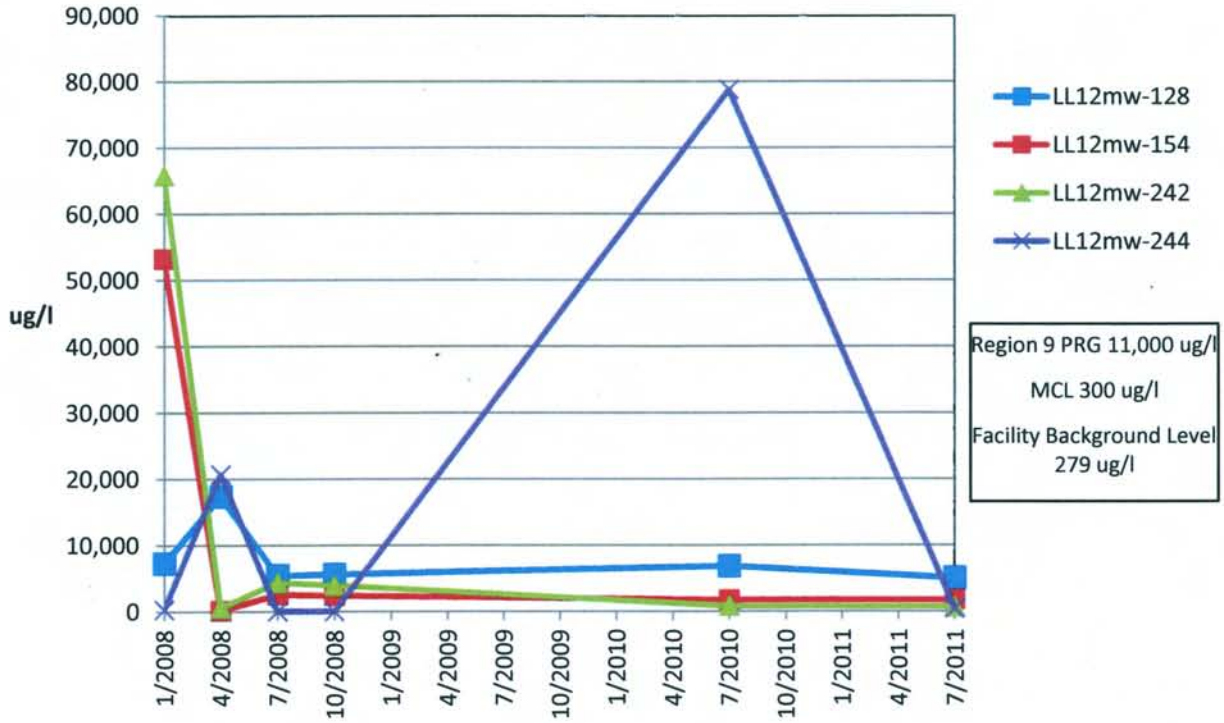
Iron (2)



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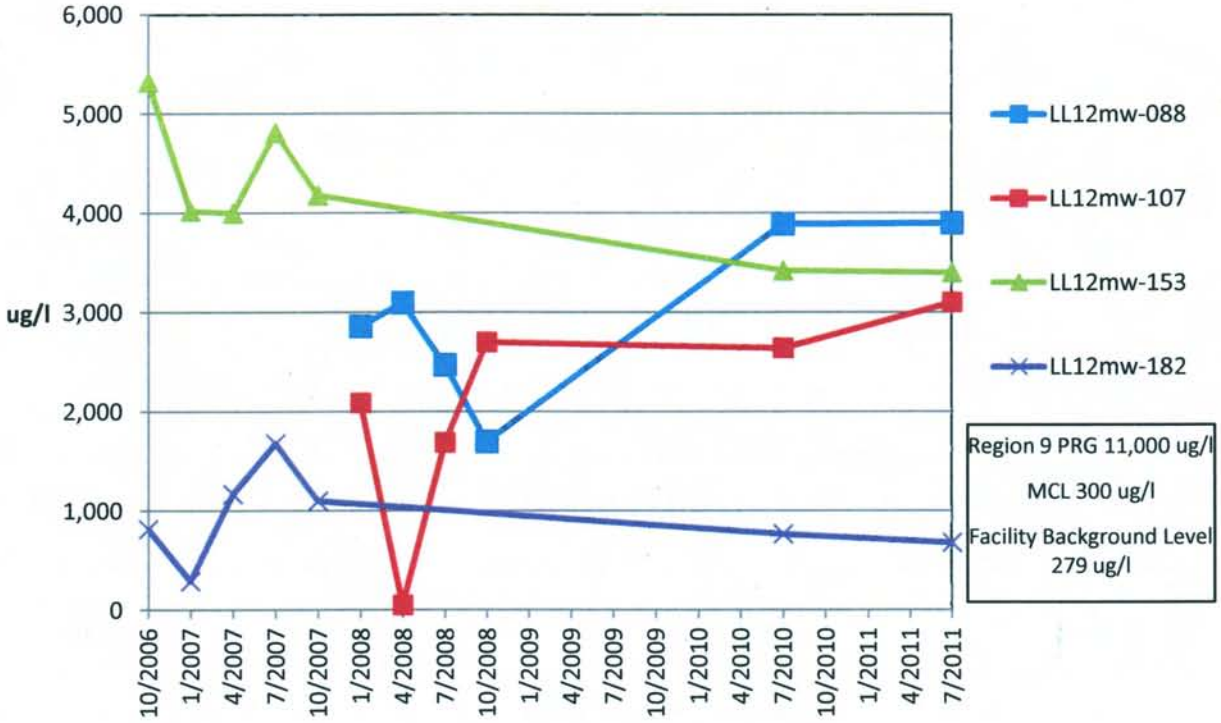
Iron (3)



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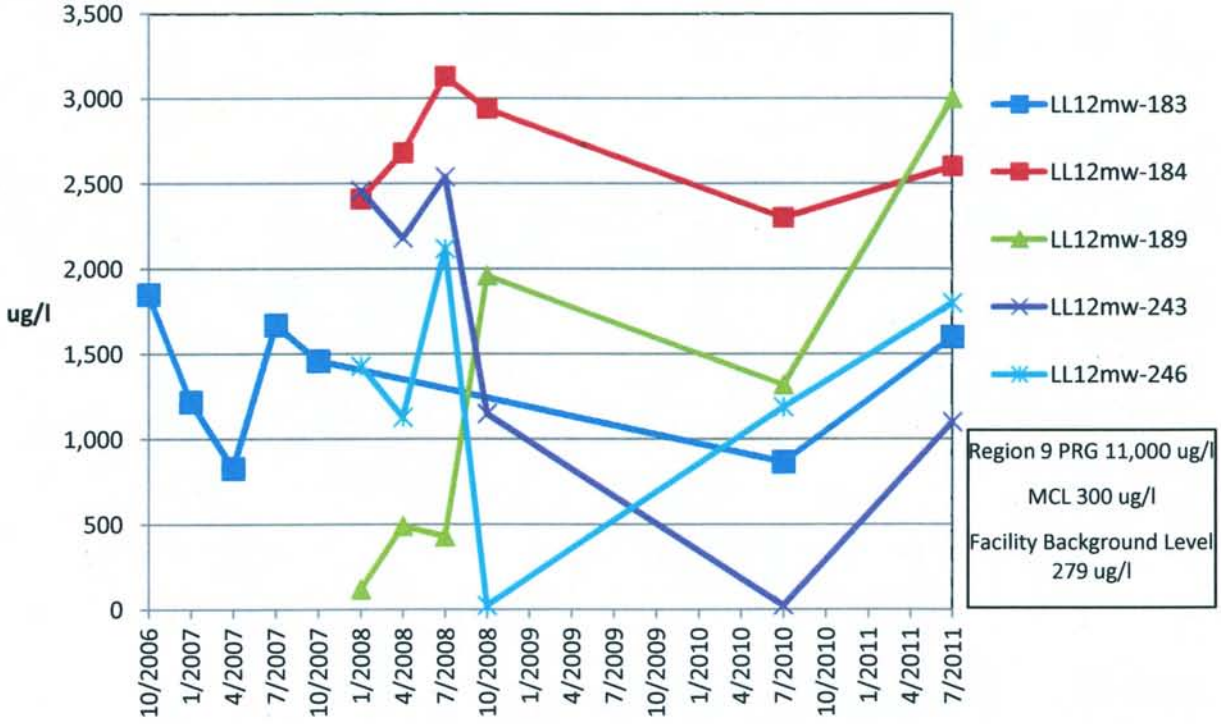
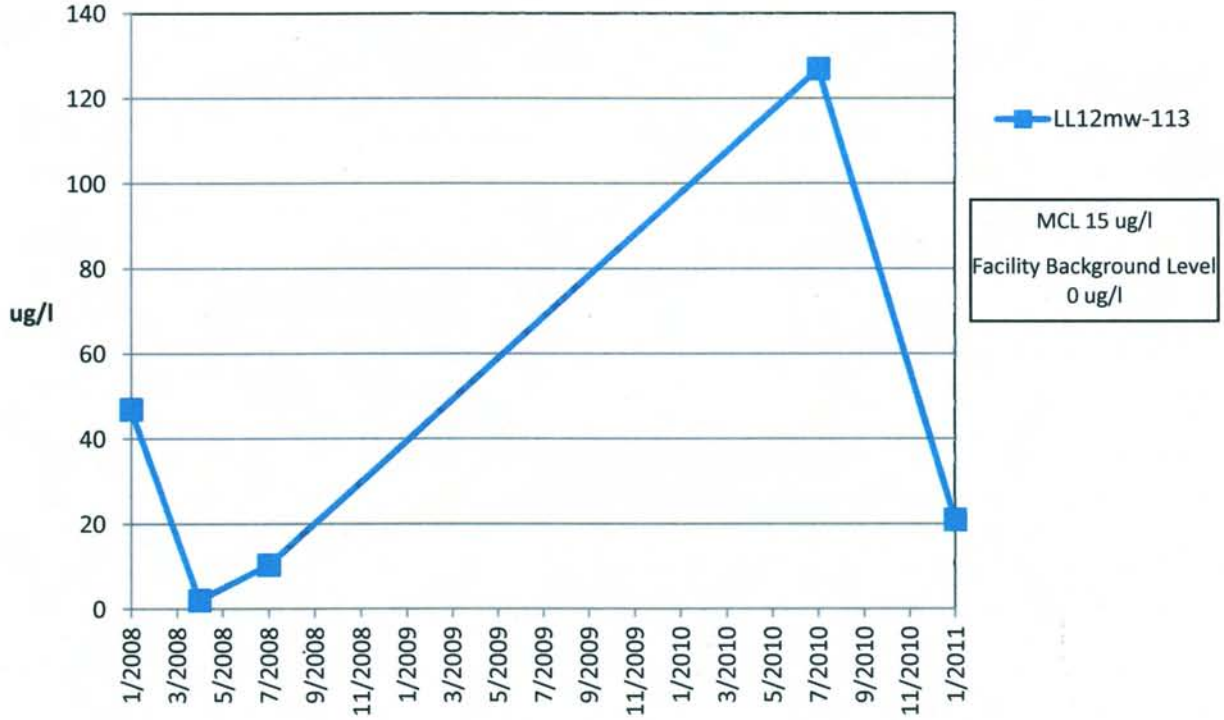


Load Line 12
Lead



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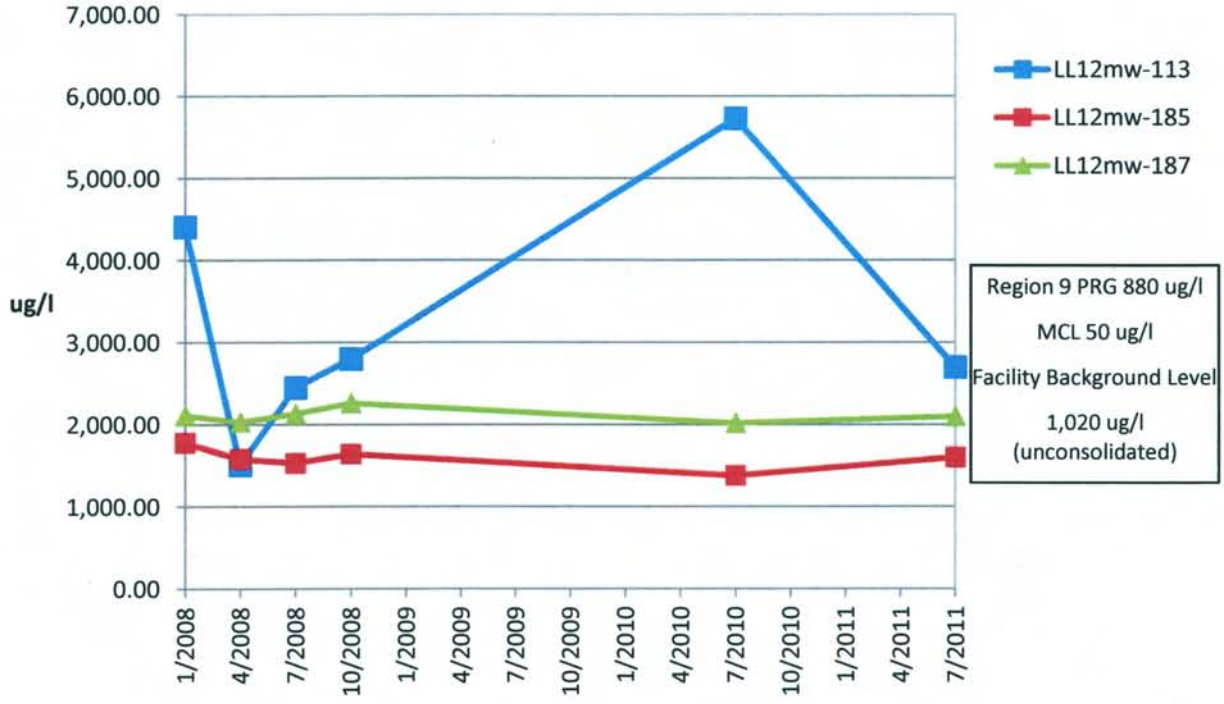
Manganese (1)



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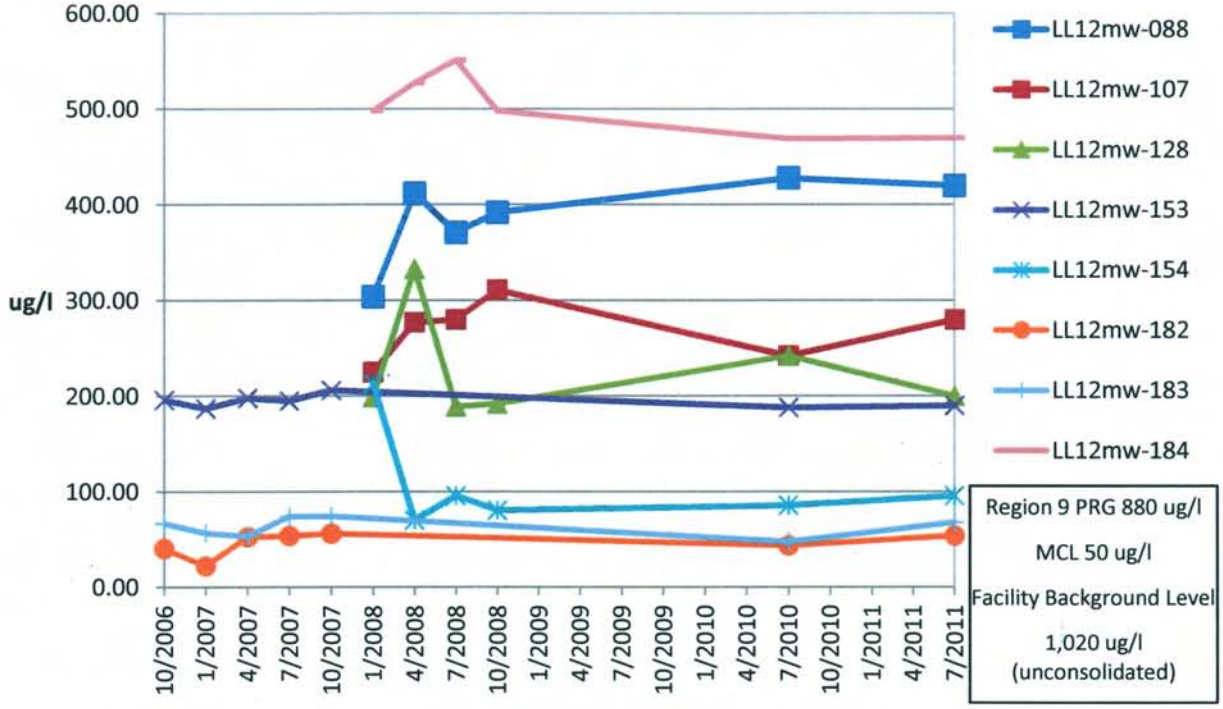
Manganese (2)



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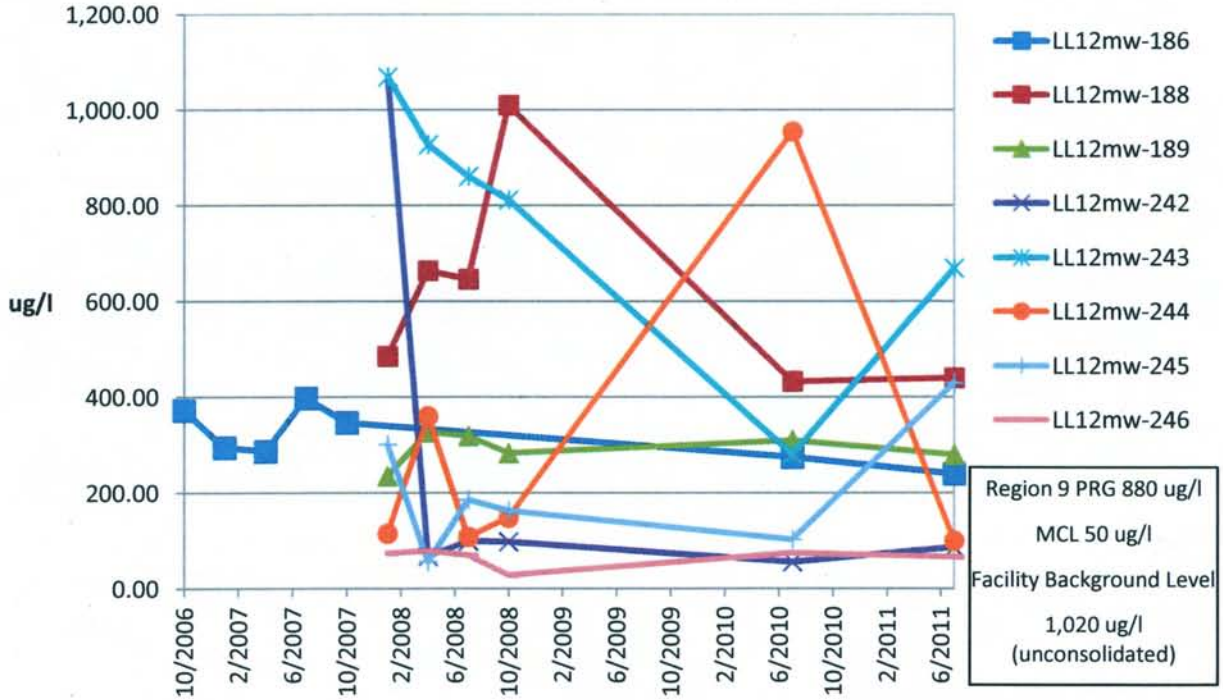
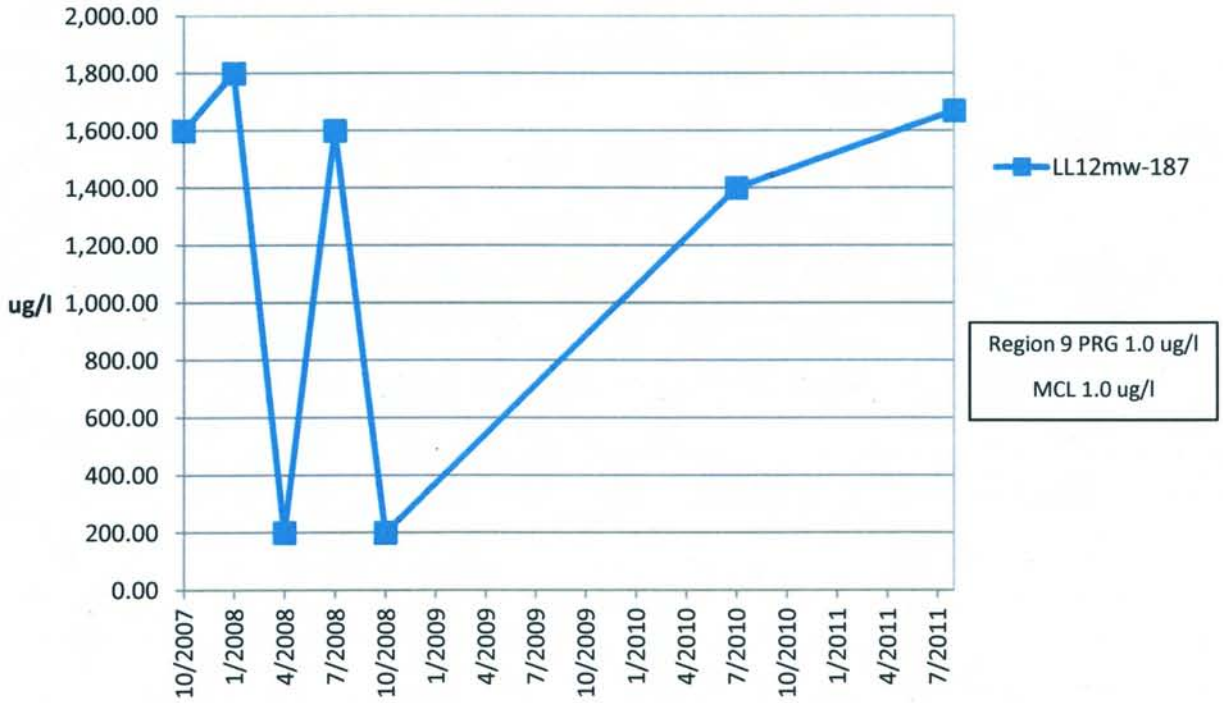
Manganese (3)



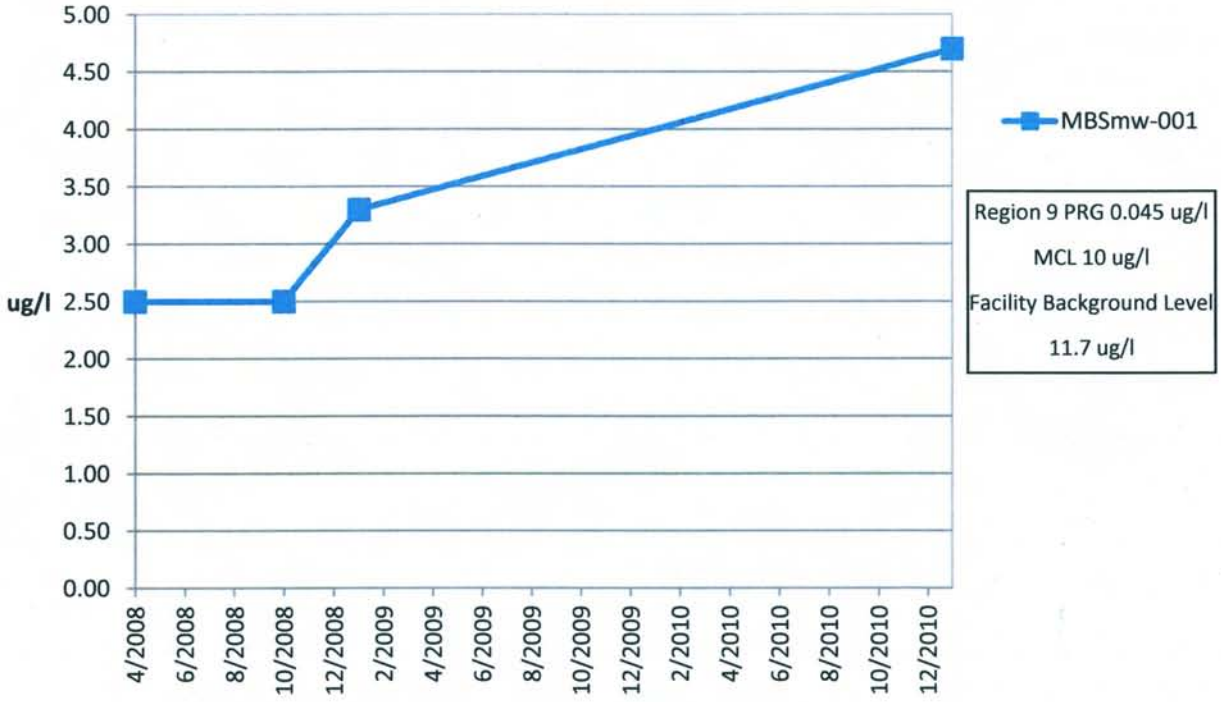
Load Line 12
Trichloroethene



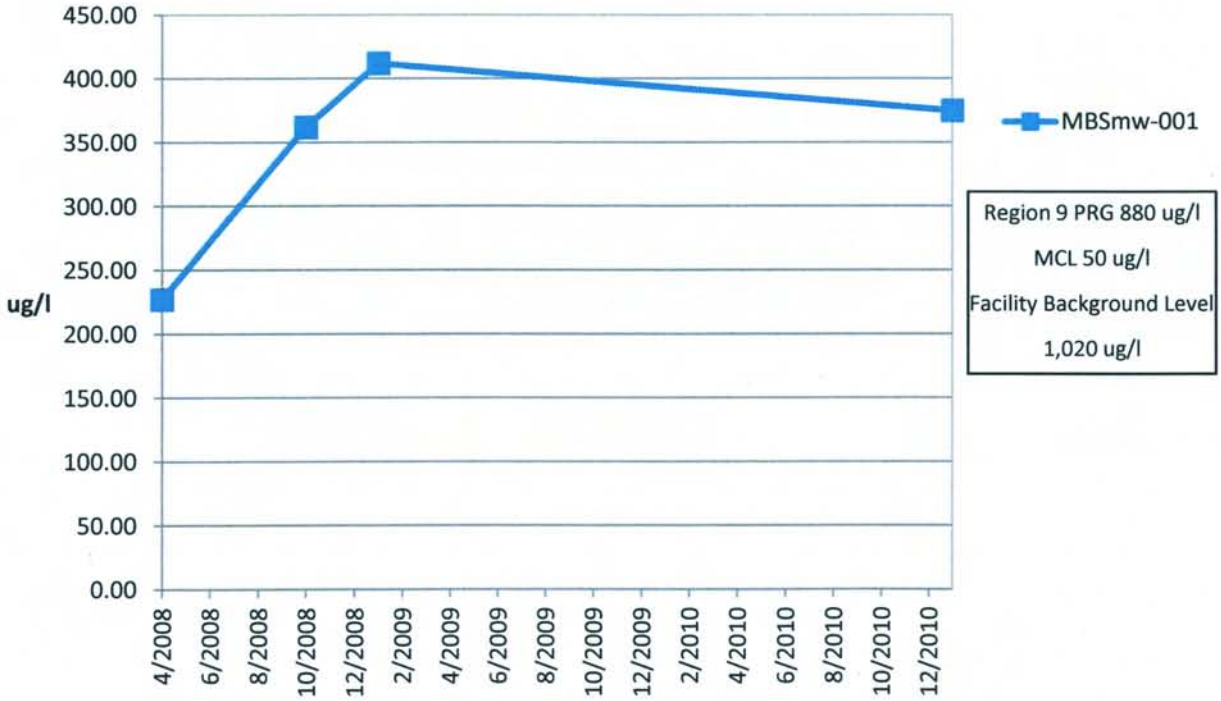
Load Line 12
Nitrate-Nitrite



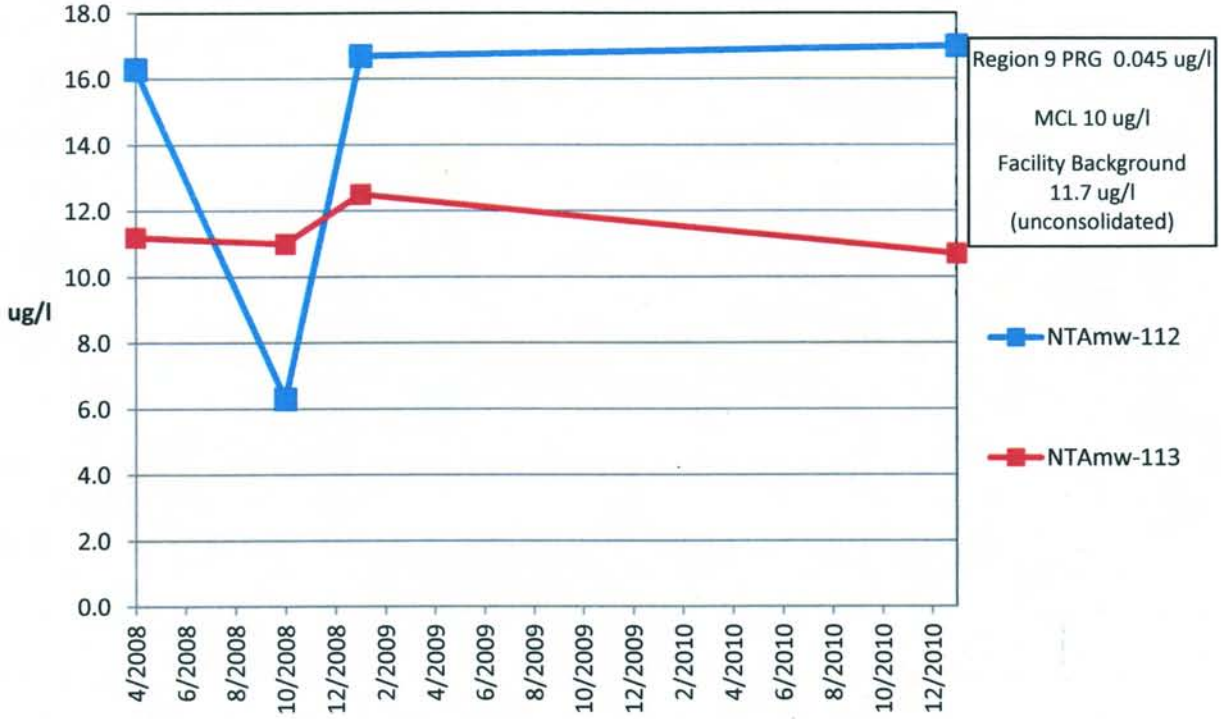
Mustard Burial Site
Arsenic



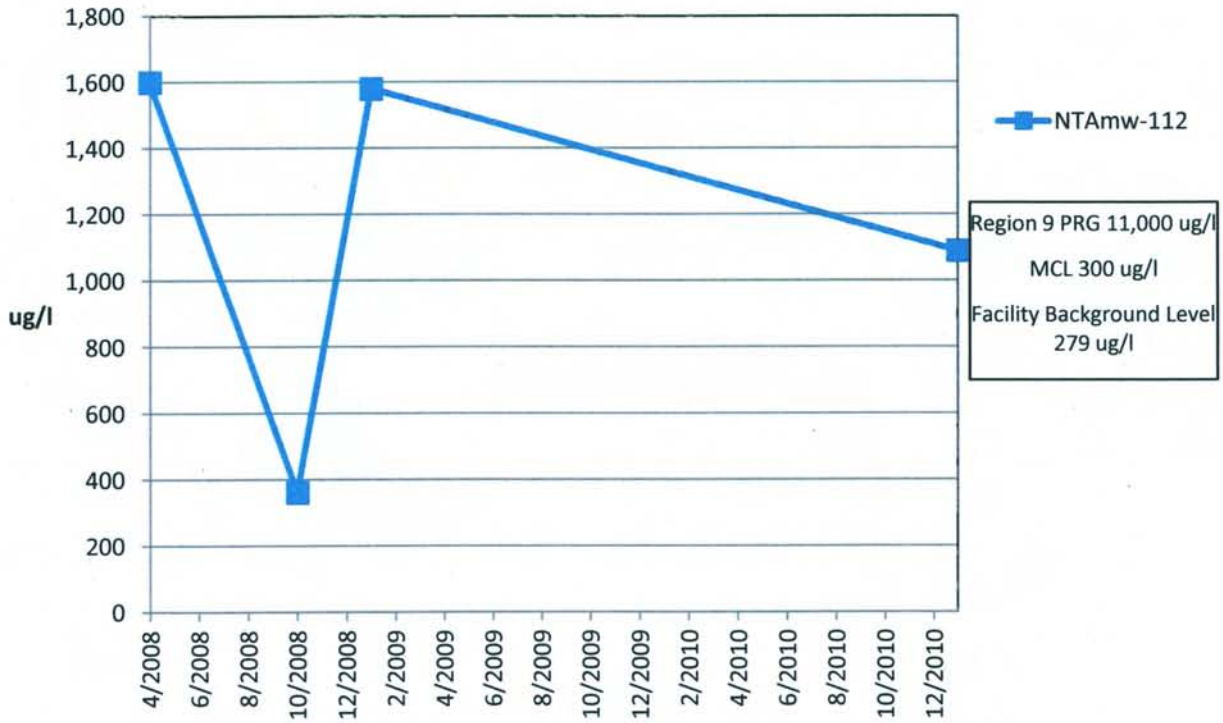
Mustard Burial Site
Manganese

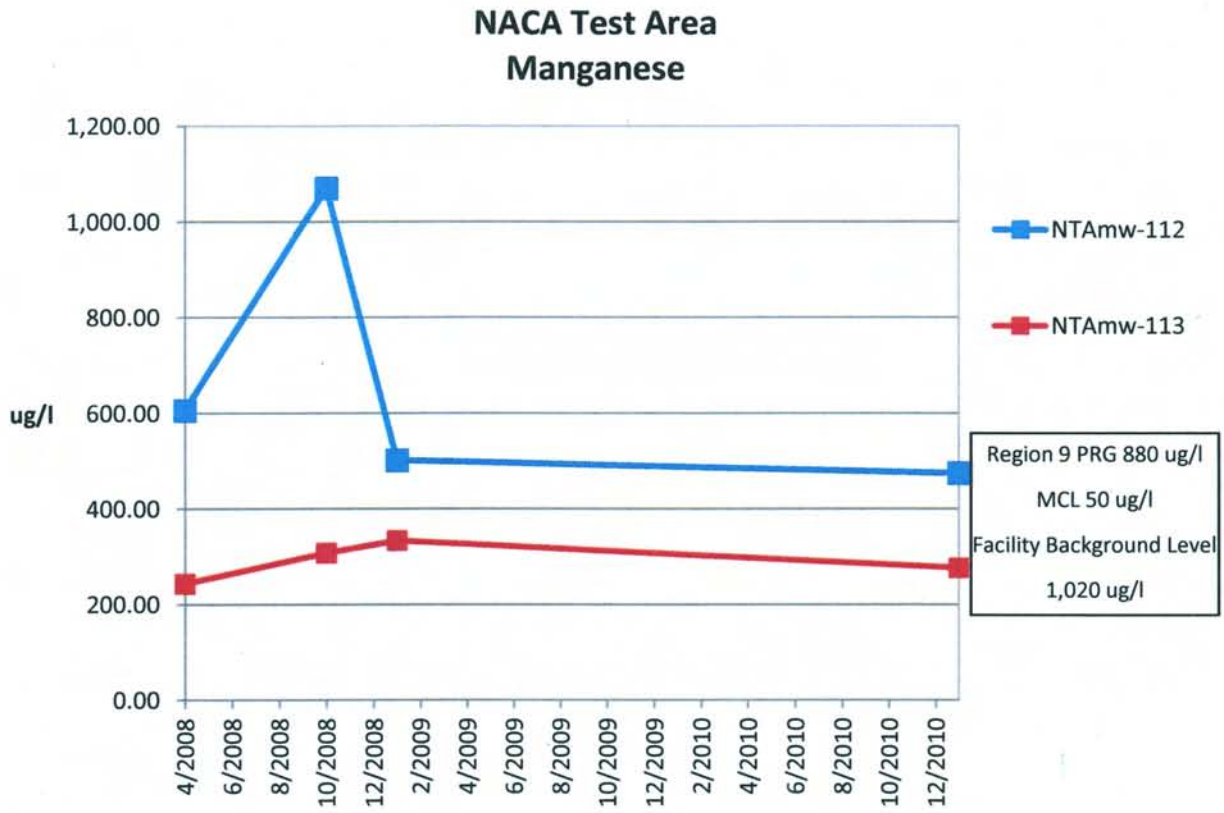


NACA Test Area
Arsenic

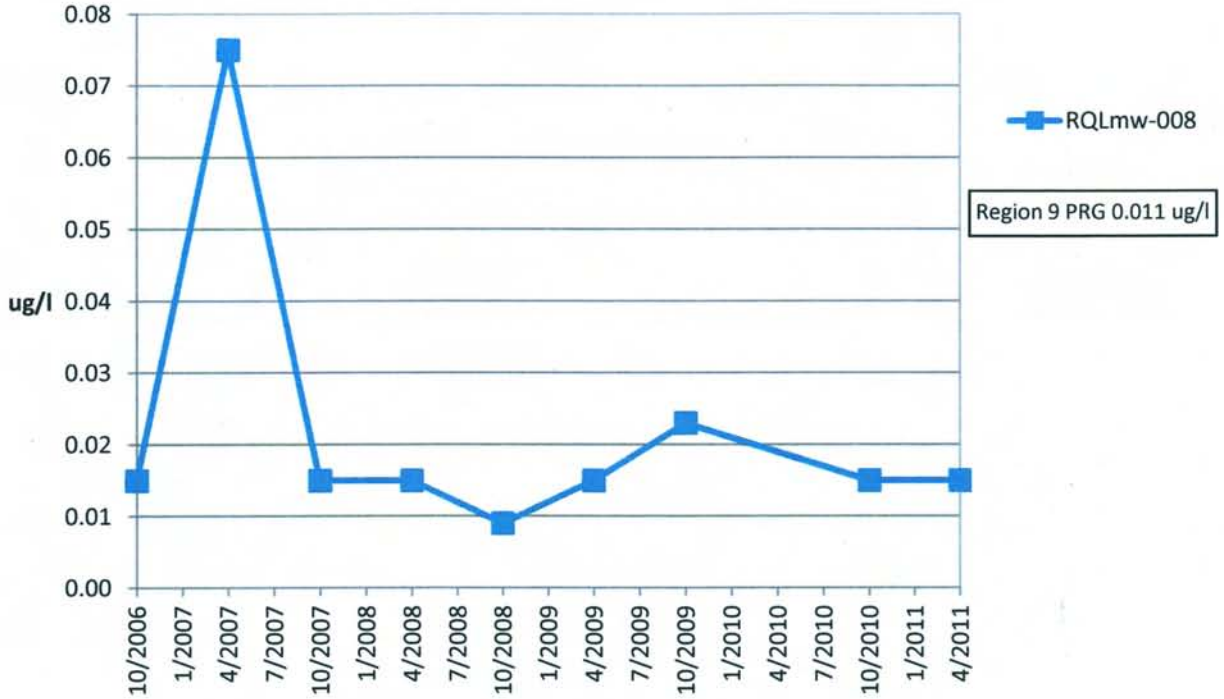


NACA Test Area
Iron

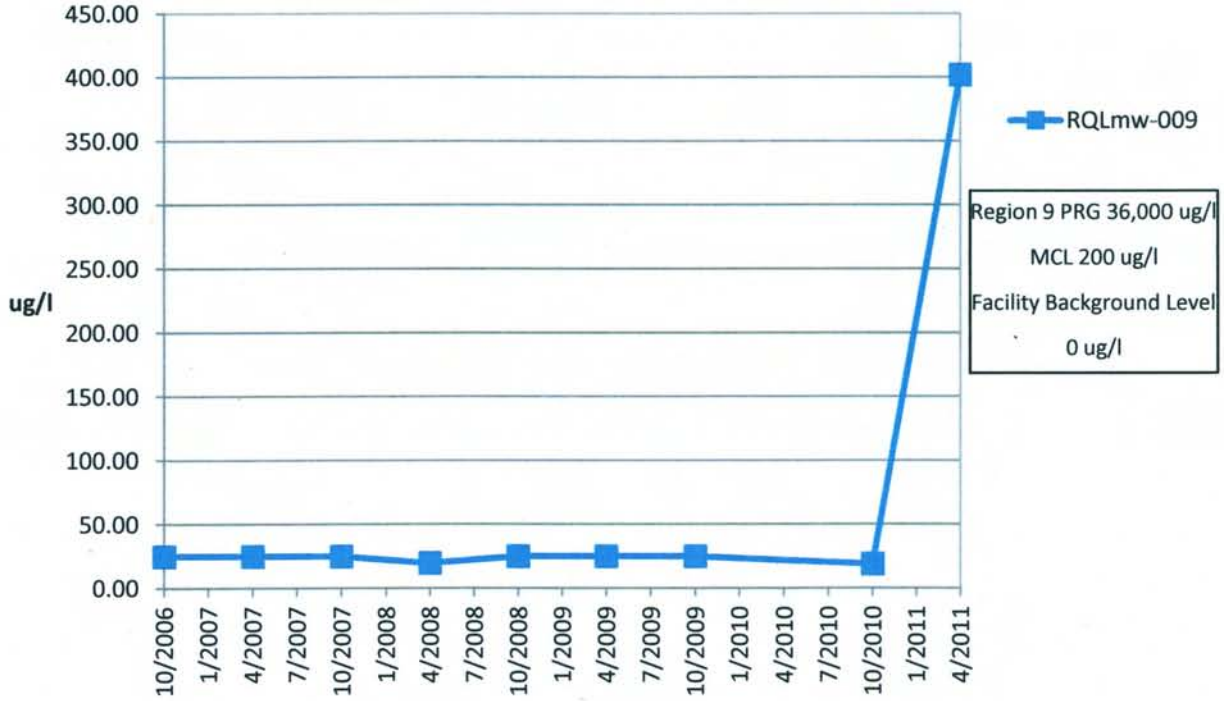



NACA Test Area
Manganese
1,200.00
1,000.00
800.00
600.00
400.00
200.00
0.00
ug/l
4/2008
6/2008
8/2008
10/2008
12/2008
2/2009
4/2009
6/2009
8/2009
10/2009
12/2009
2/2010
4/2010
6/2010
8/2010
10/2010
12/2010
NTAmw-112
NTAmw-113
Region 9 PRG 880 ug/l
MCL 50 ug/l
Facility Background Level
1,020 ug/l

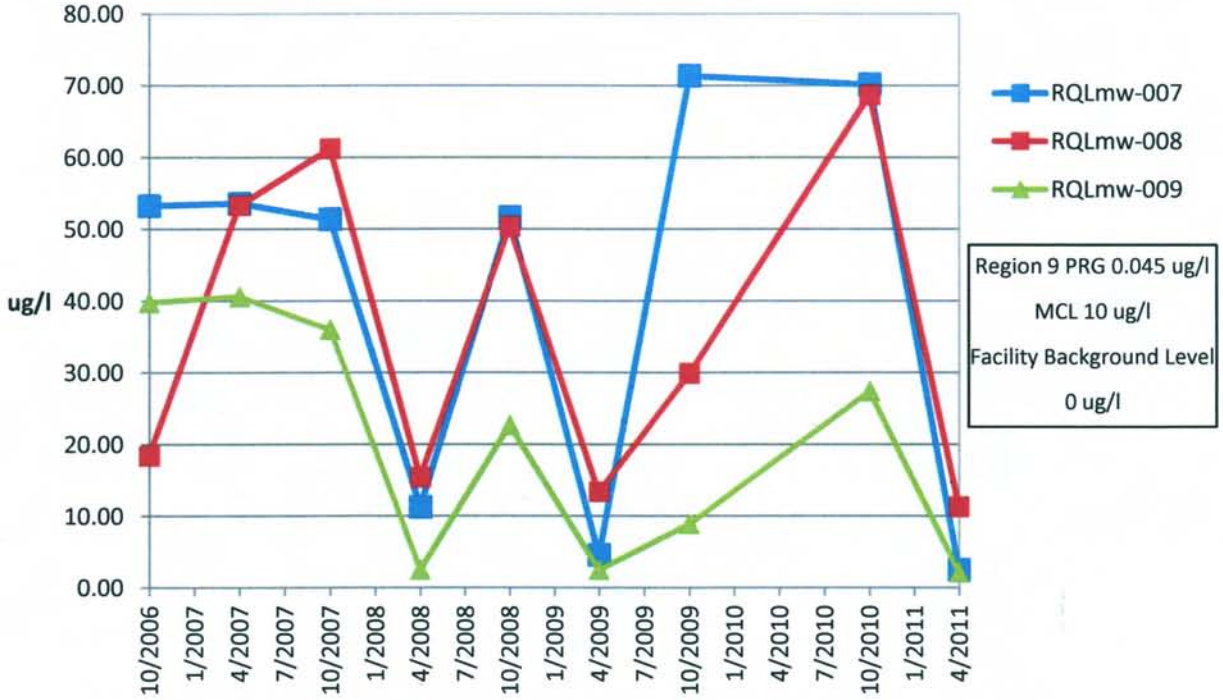
Ramsdell Quarry Landfill
alpha-BHC



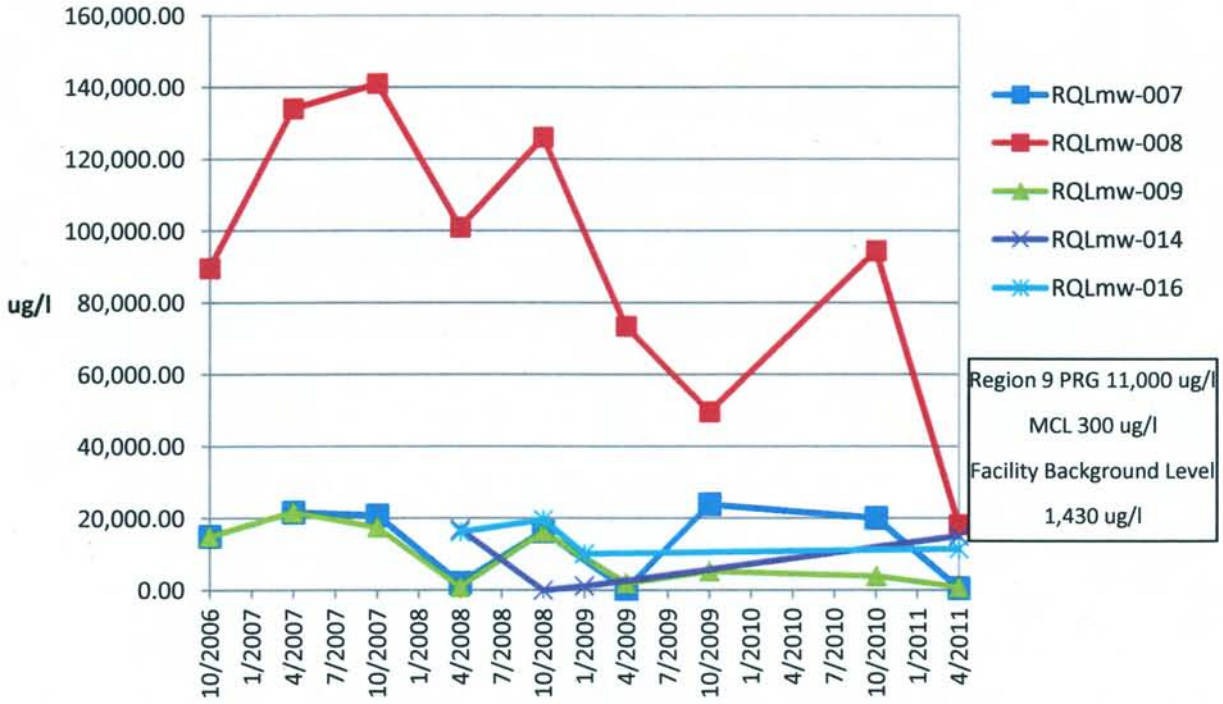
Ramsdell Quarry Landfill
Aluminum



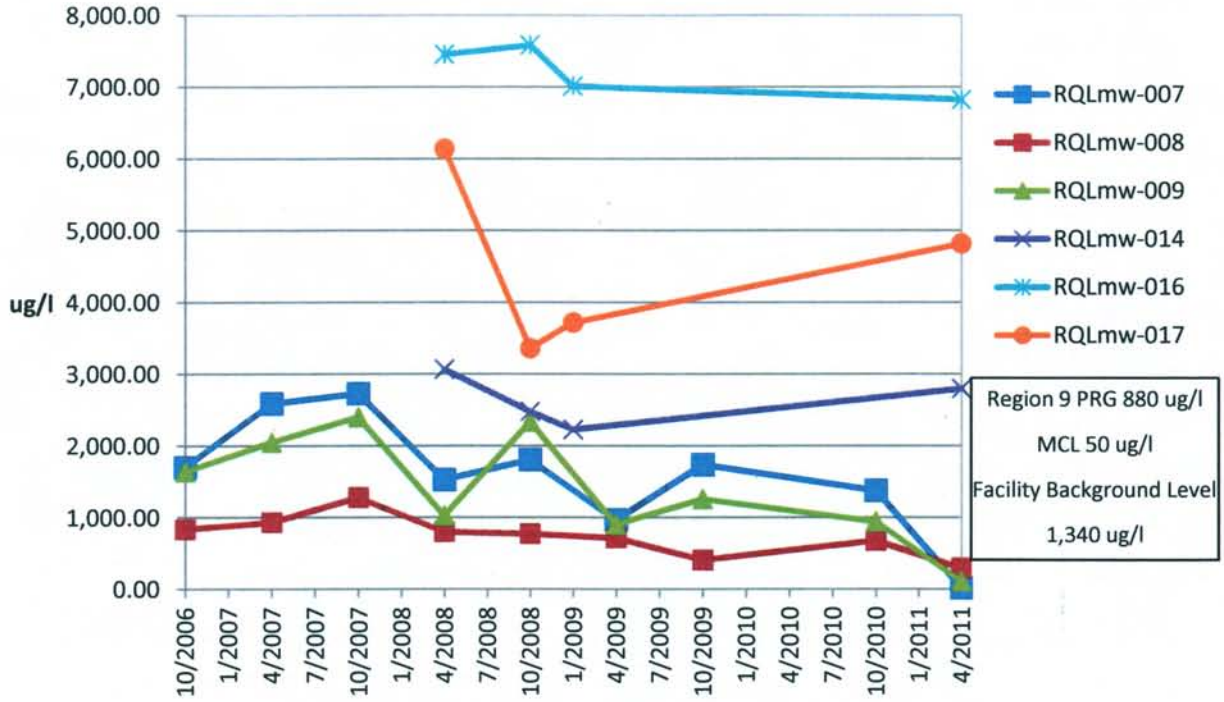
Ramsdell Quarry Landfill
Arsenic



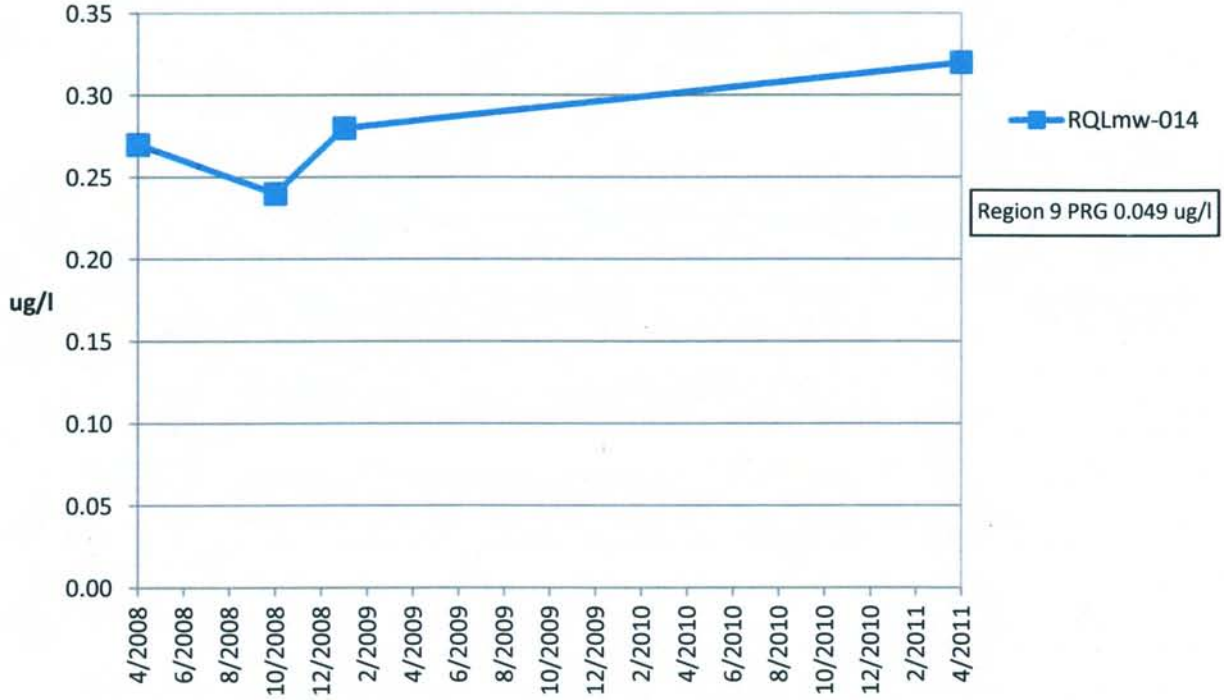
Ramsdell Quarry Landfill
Iron



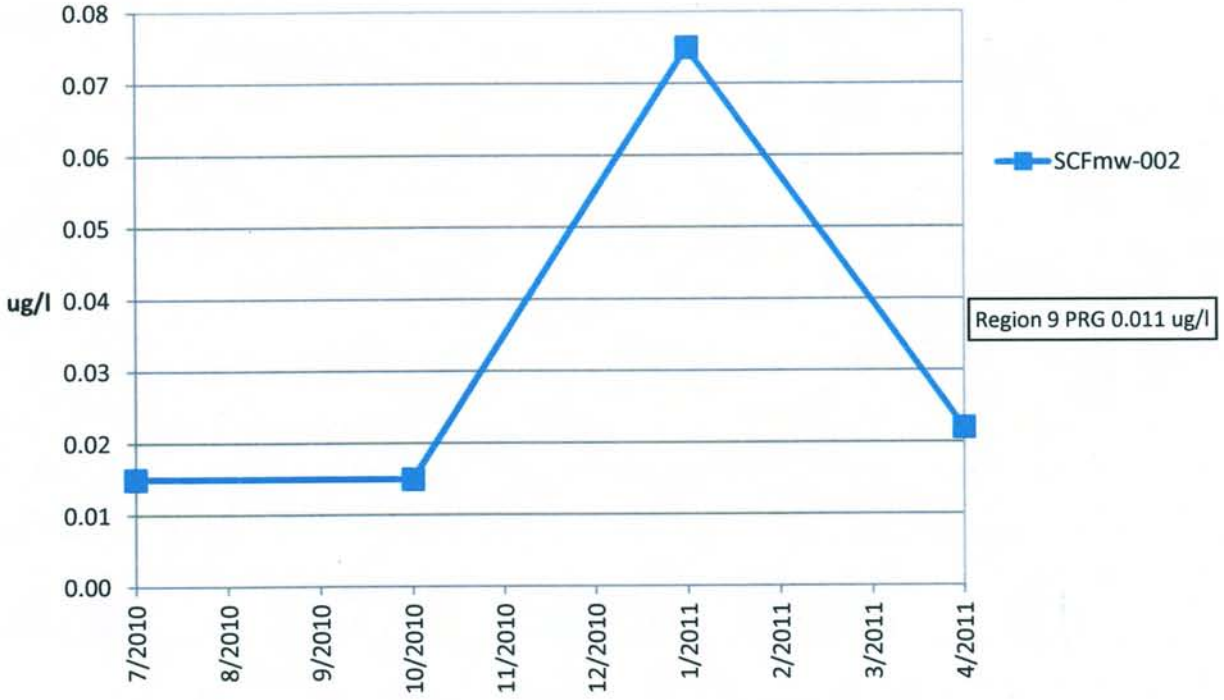
Ramsdell Quarry Landfill
Manganese



Ramsdell Quarry Landfill
2-Nitrotoluene



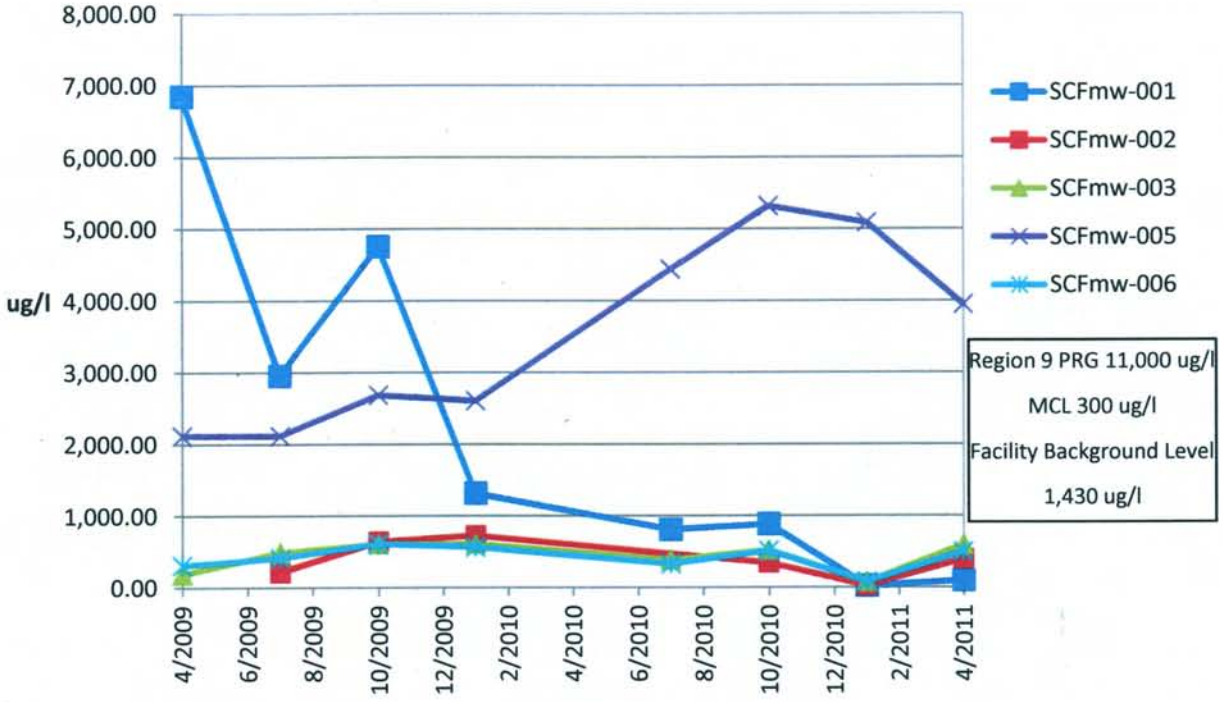
Sharon Basal Conglomerate
alpha-BHC



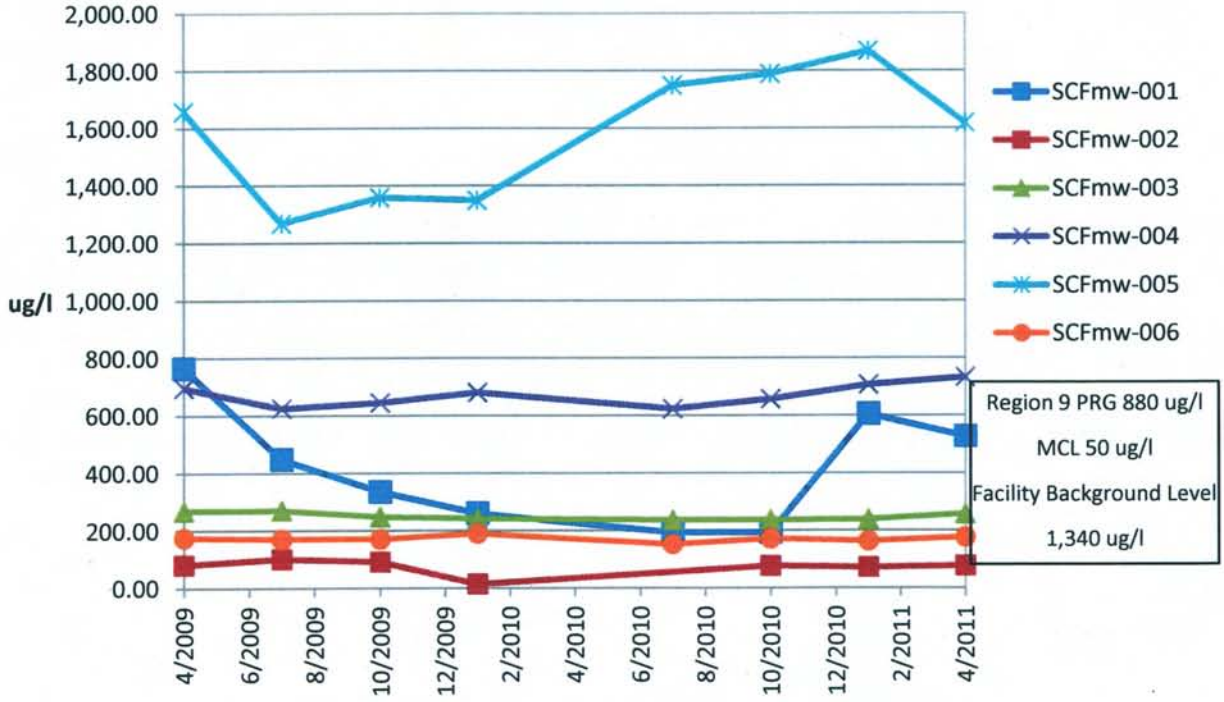
Sharon Basal Conglomerate
Arsenic



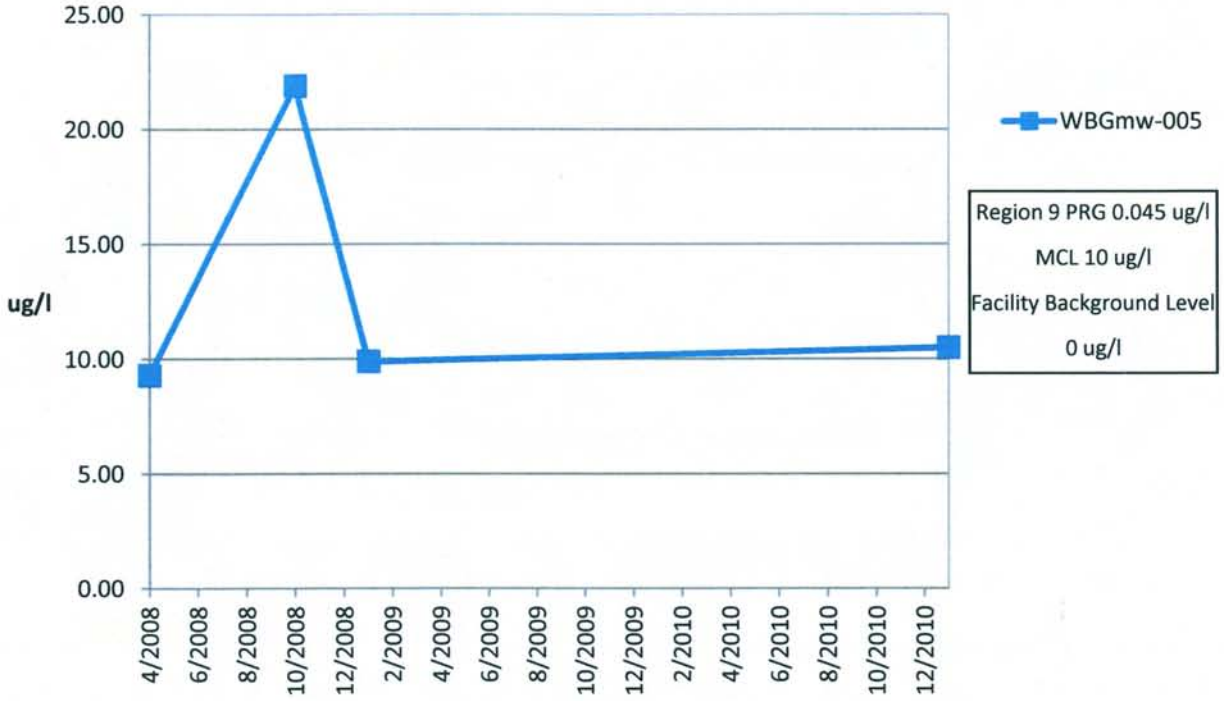
Sharon Basal Conglomerate
Iron



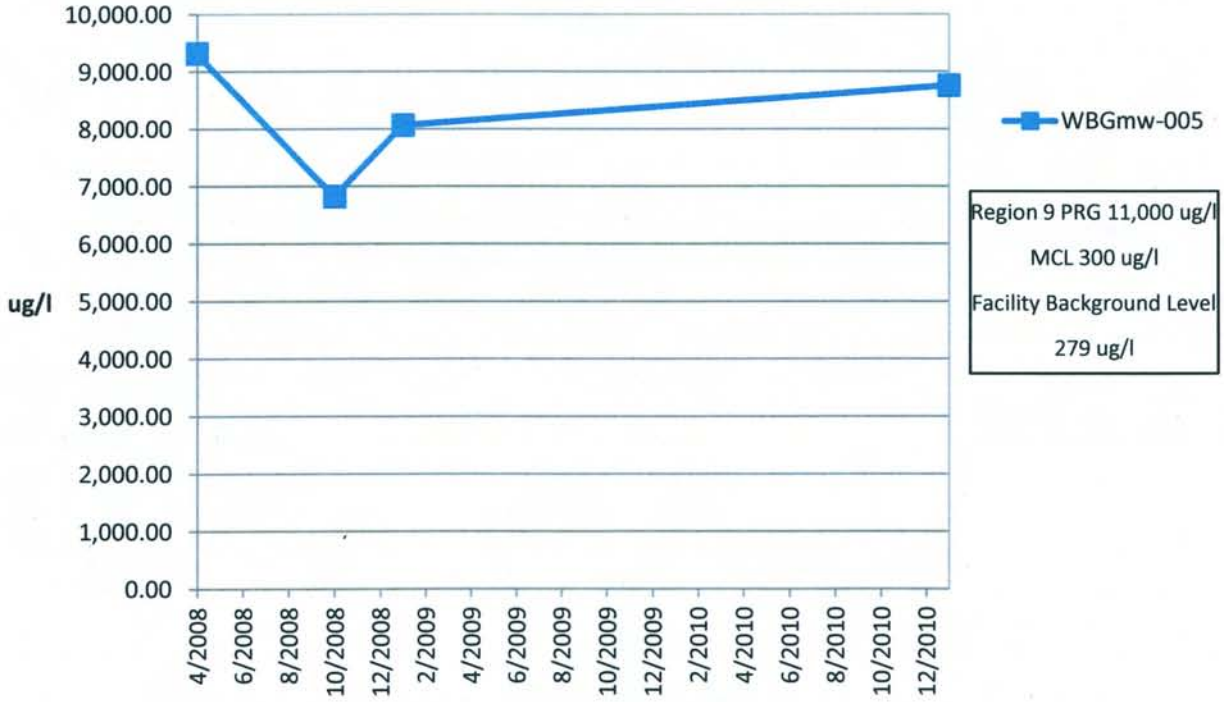
Sharon Basal Conglomerate
Manganese



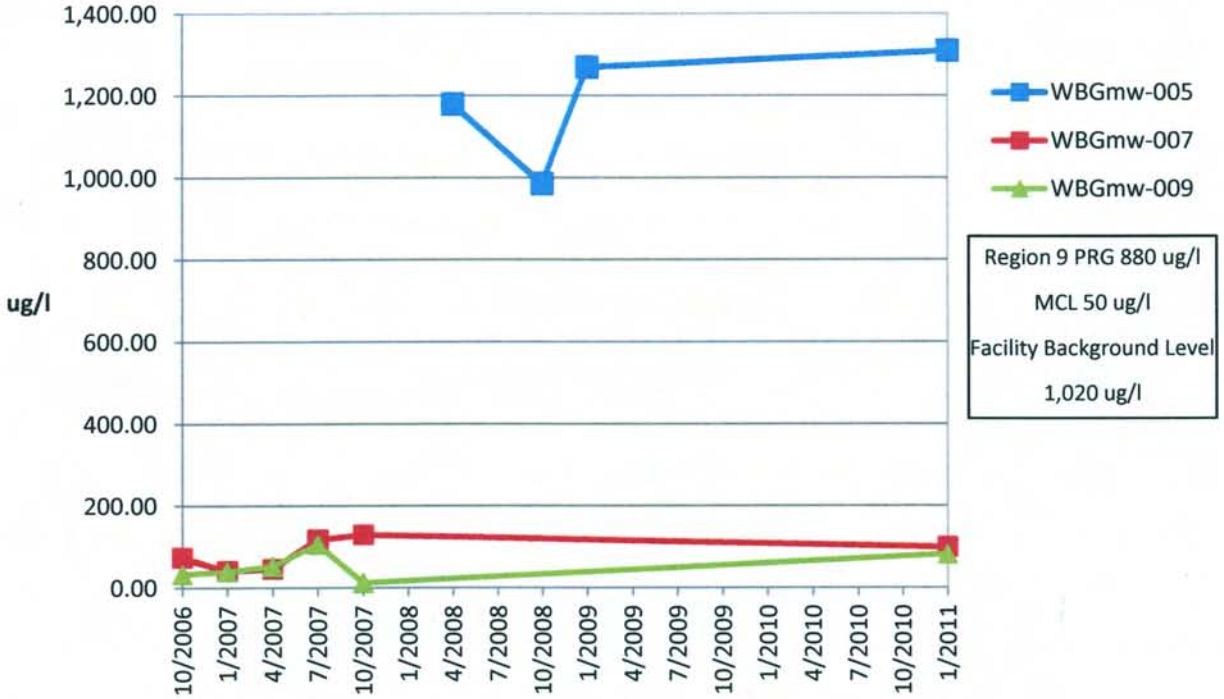
Winklepeck Burning Grounds
Arsenic



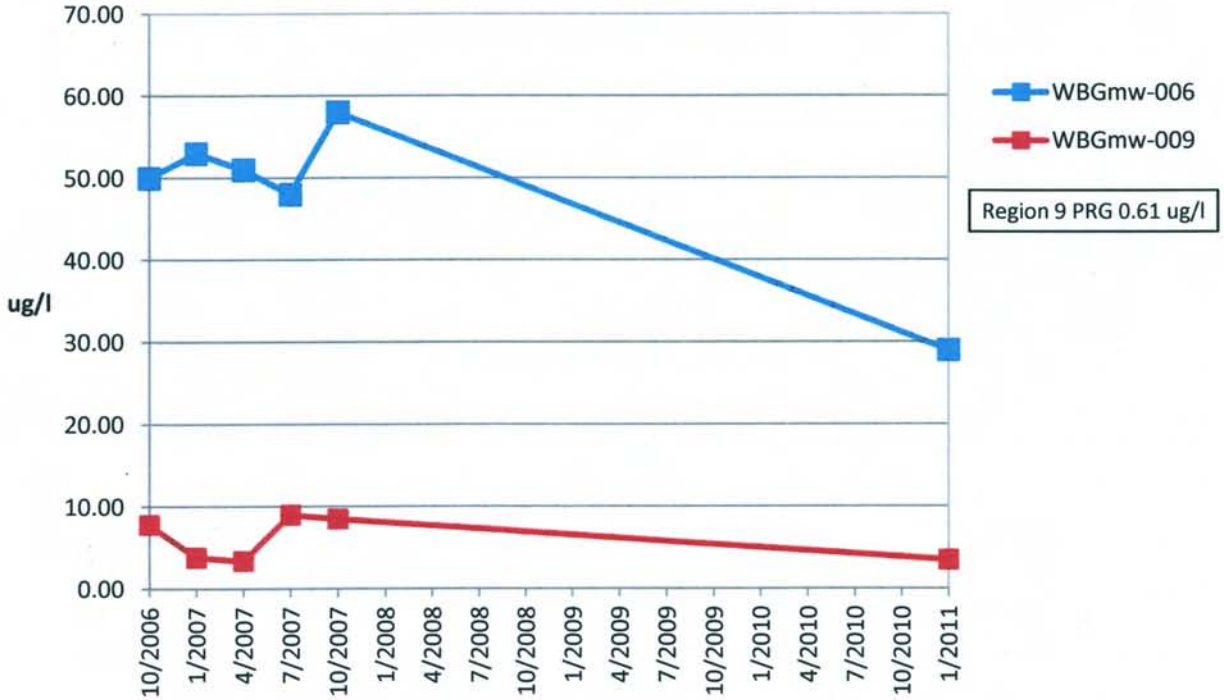
Winklepeck Burning Grounds
Iron



Winklepeck Burning Grounds
Manganese

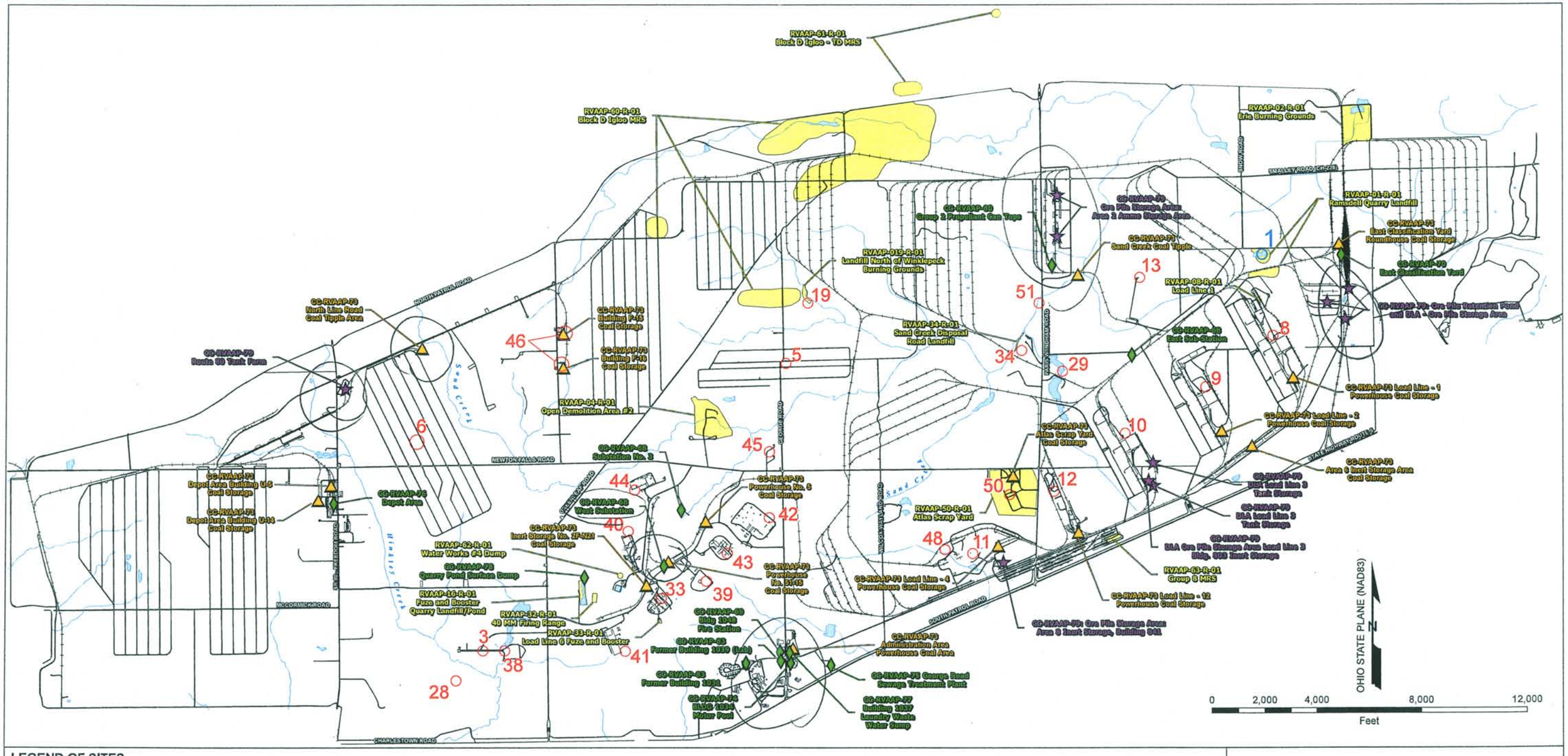


Winklepeck Burning Grounds
RDX



APPENDIX F

MAPS OF FWGWMP STUDY AREAS



LEGEND OF SITES

IRP SITES (29 SITES)

RVAAP-01	RAMSDELL QUARRY LANDFILL
RVAAP-03	OPEN DEMOLITION AREA 1
RVAAP-05	WINKLEPECK BURNING GROUNDS
RVAAP-06	C BLOCK QUARRY
RVAAP-08	LOAD LINE 1
RVAAP-09	LOAD LINE 2
RVAAP-10	LOAD LINE 3
RVAAP-11	LOAD LINE 4
RVAAP-12	LOAD LINE 12
RVAAP-13	BLDG 1200
RVAAP-19	LANDFILL NORTH OF WINKLEPECK BURNING GROUND
RVAAP-28	MUSTARD AGENT BURIAL SITE
RVAAP-29	UPPER AND LOWER COBBS POND
RVAAP-33	LOAD LINE 6
RVAAP-34	SAND CREEK DISPOSAL ROAD LANDFILL
RVAAP-38	NACA TEST AREA
RVAAP-39	LOAD LINE 5
RVAAP-40	LOAD LINE 7
RVAAP-41	LOAD LINE 8
RVAAP-42	LOAD LINE 9
RVAAP-43	LOAD LINE 10
RVAAP-44	LOAD LINE 11
RVAAP-45	WET STORAGE AREA
RVAAP-46	BUILDINGS F-15 AND F-16
RVAAP-48	ANCHOR TEST AREA
RVAAP-50	ATLAS SCRAP YARD
RVAAP-51	DUMP ALONG PARIS-WINDHAM ROAD
RVAAP-66	FACILITY-WIDE GROUNDWATER
RVAAP-67	FACILITY-WIDE SEWERS

COMPLIANCE RESTORATION SITES (13 SITES)

CO-RVAAP-08	ELECTRIC SUBSTATIONS (E,W,No.3)
CO-RVAAP-39	BUILDING 1048 - FIRE STATION
CO-RVAAP-75	EAST CLASSIFICATION YARD
CC-RVAAP-72	FACILITY-WIDE USTS (45 SITES)
CO-RVAAP-73	FACILITY-WIDE COAL STORAGE
CO-RVAAP-76	BUILDING 1034 MOTOR POOL HYDRAULIC LIFT
CO-RVAAP-76	GEORGE ROAD SEWAGE TREATMENT PLANT
CO-RVAAP-79	DEPOT AREA
CO-RVAAP-77	BUILDING 1037 LAUNDRY WASTE WATER SUMP
CO-RVAAP-79	QUARRY POND SURFACE DUMP
CO-RVAAP-79	DLA ORE STORAGE SITES
CO-RVAAP-63	GROUP 2 PROPELLANT CAN TOPS
CO-RVAAP-63	FORMER BUILDINGS 1031 AND 1039

MMRP SITES (14 SITES)

RVAAP-001-R-01	RAMSDELL QUARRY LANDFILL MRS
RVAAP-002-R-01	ERIE BURNING GROUNDS MRS
RVAAP-004-R-01	OPEN DEMOLITION AREA #2 MRS
RVAAP-008-R-01	LOAD LINE 1 MRS
RVAAP-019-R-01	FUZE AND BOOSTER QUARRY MRS
RVAAP-019-R-01	LANDFILL NORTH OF WINKLEPECK MRS
RVAAP-032-R-01	40MM FIRING RANGE MRS
RVAAP-033-R-01	FIRESTONE TEST FACILITY MRS
RVAAP-034-R-01	SAND CREEK DUMP MRS
RVAAP-050-R-01	ATLAS SCRAP YARD MRS
RVAAP-060-R-01	BLOCK D IGLOO MRS
RVAAP-061-R-01	BLOCK D IGLOO -TD MRS
RVAAP-052-R-01	WATER WORKS #4 DUMP MRS
RVAAP-063-R-01	GROUP 8 MRS

○ ..... CERCLA
○ ..... RCRA
□ ..... MMRP SITES
♦ ..... COMPLIANCE RESTORATION SITES - APPROVED
☆ ..... DLA ORE STORAGE AREAS (7 SITES)
△ ..... COAL STORAGE AREAS (17 SITES)

RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Figure 2
RVAAP
Facility Map

US Army Corps of Engineers
Louisville District



Note: The following maps have been reproduced from various separate reports. Each map has not been altered in any way from the original format from which it was copied.

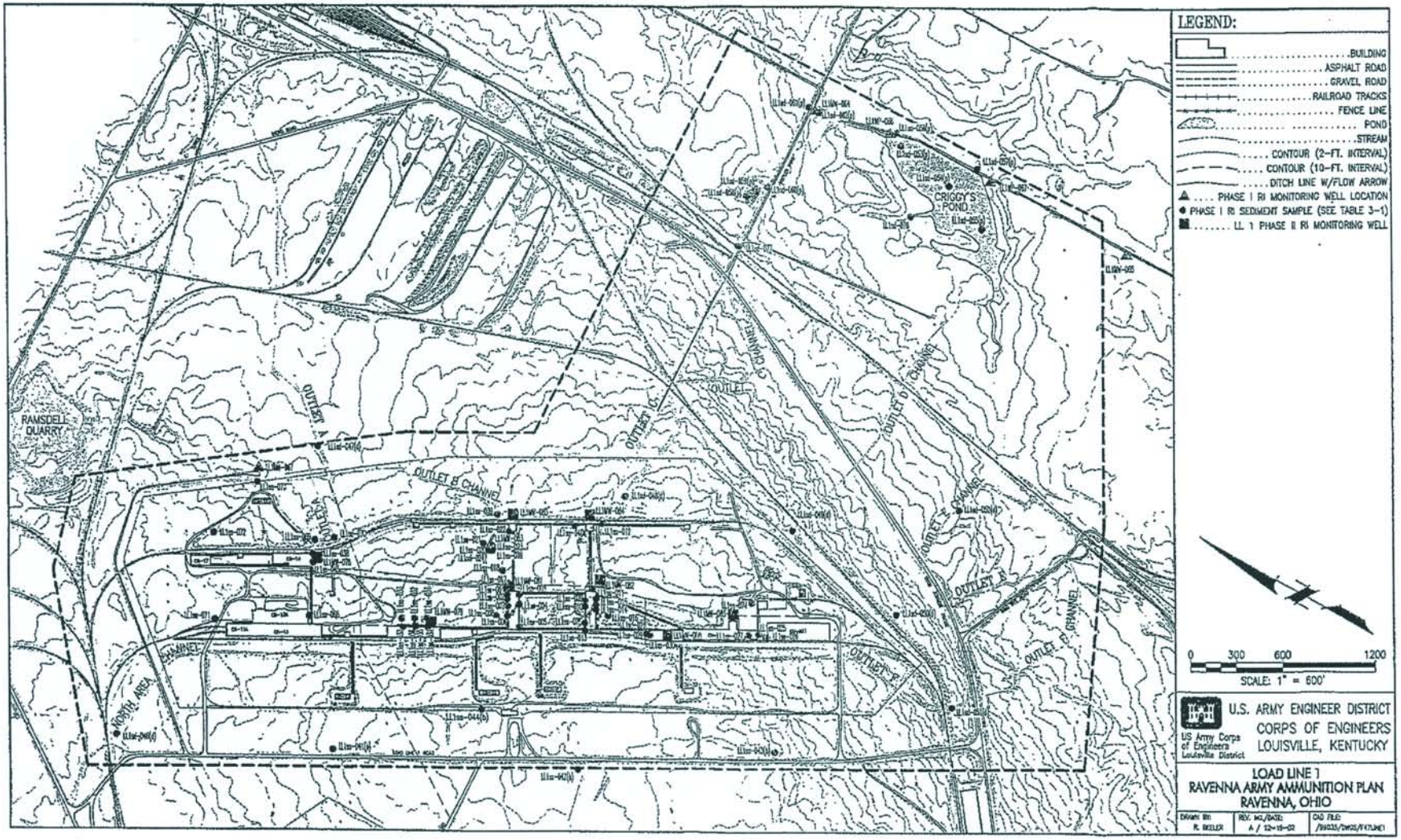
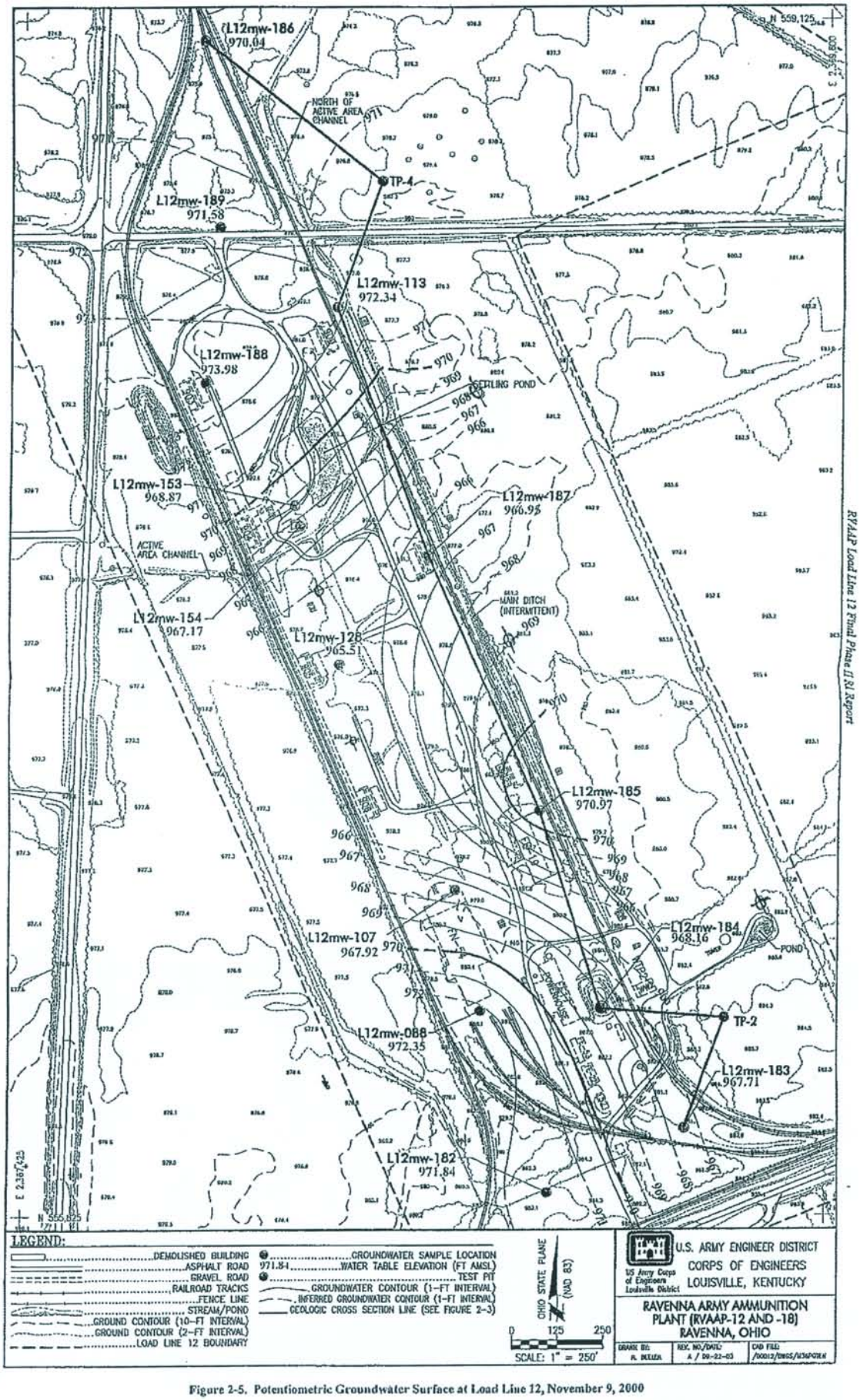


Figure 1-6. Existing Phase I RI Sampling Locations and Phase II RI Monitoring Wells at Load Line 1



RVAAP Load Line 12 Final Phase II RI Report

Figure 2-5. Potentiometric Groundwater Surface at Load Line 12, November 9, 2000

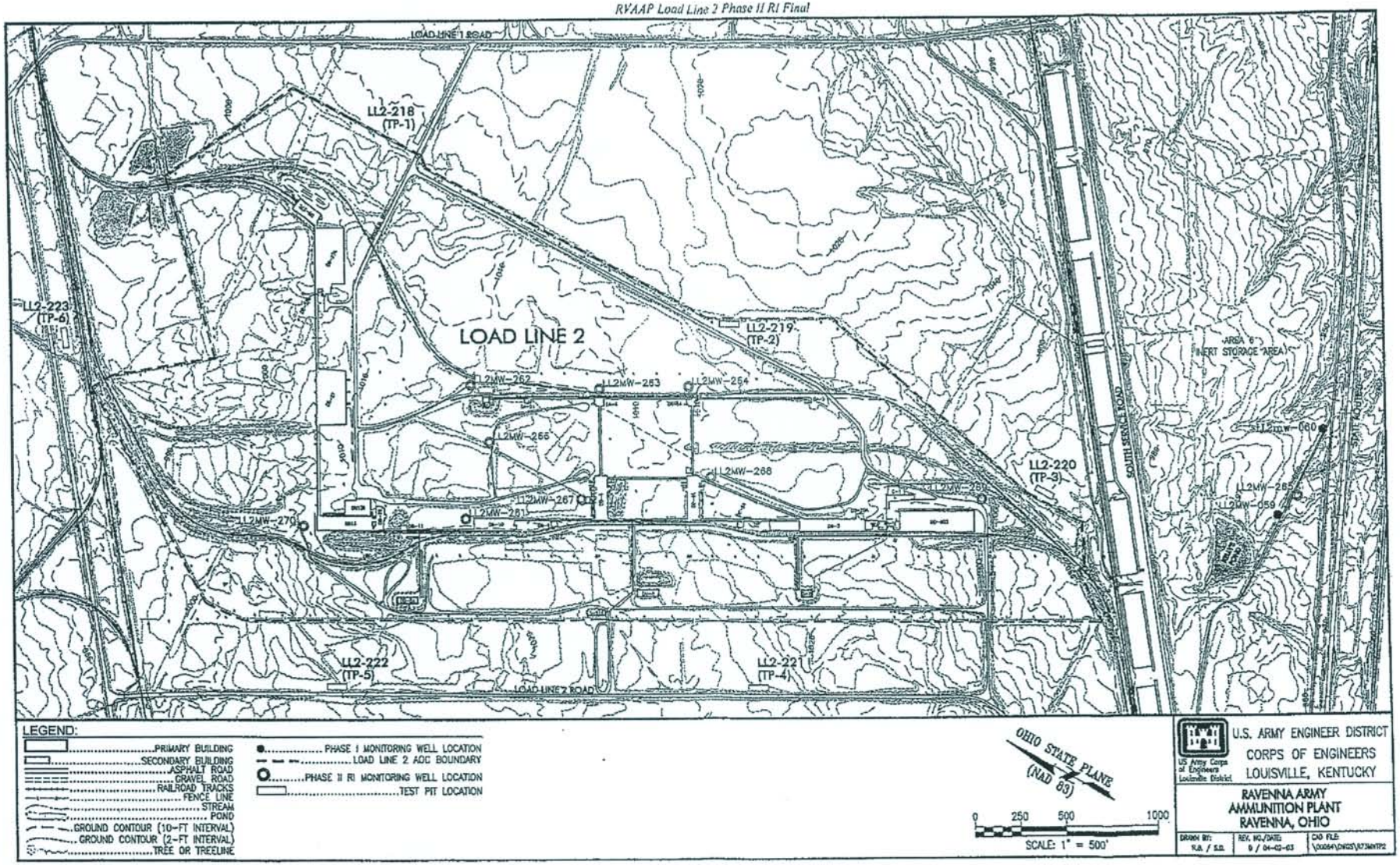


Figure 3-6. Phase II RI Monitoring Well and Test Pit Locations at Load Line 2

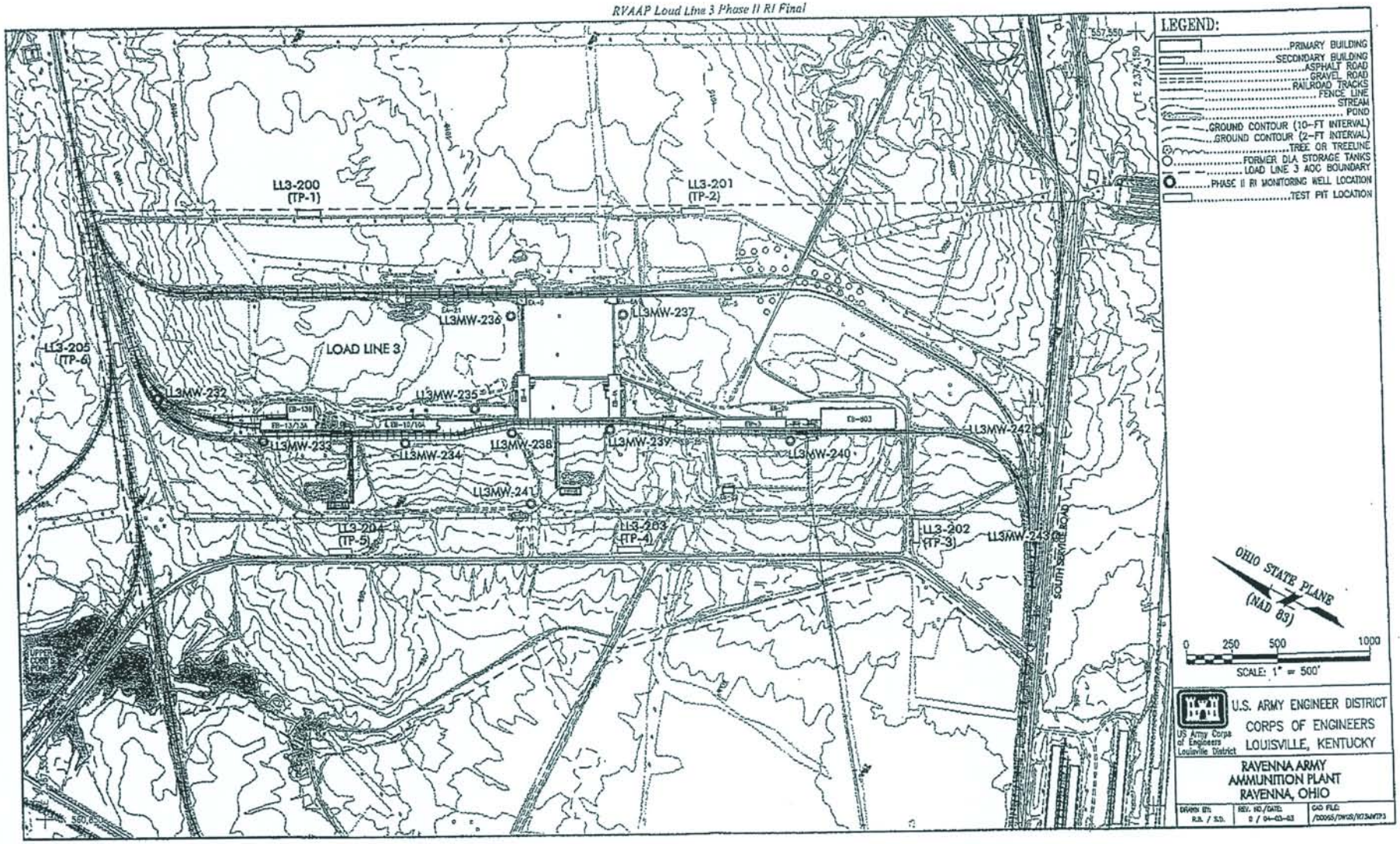
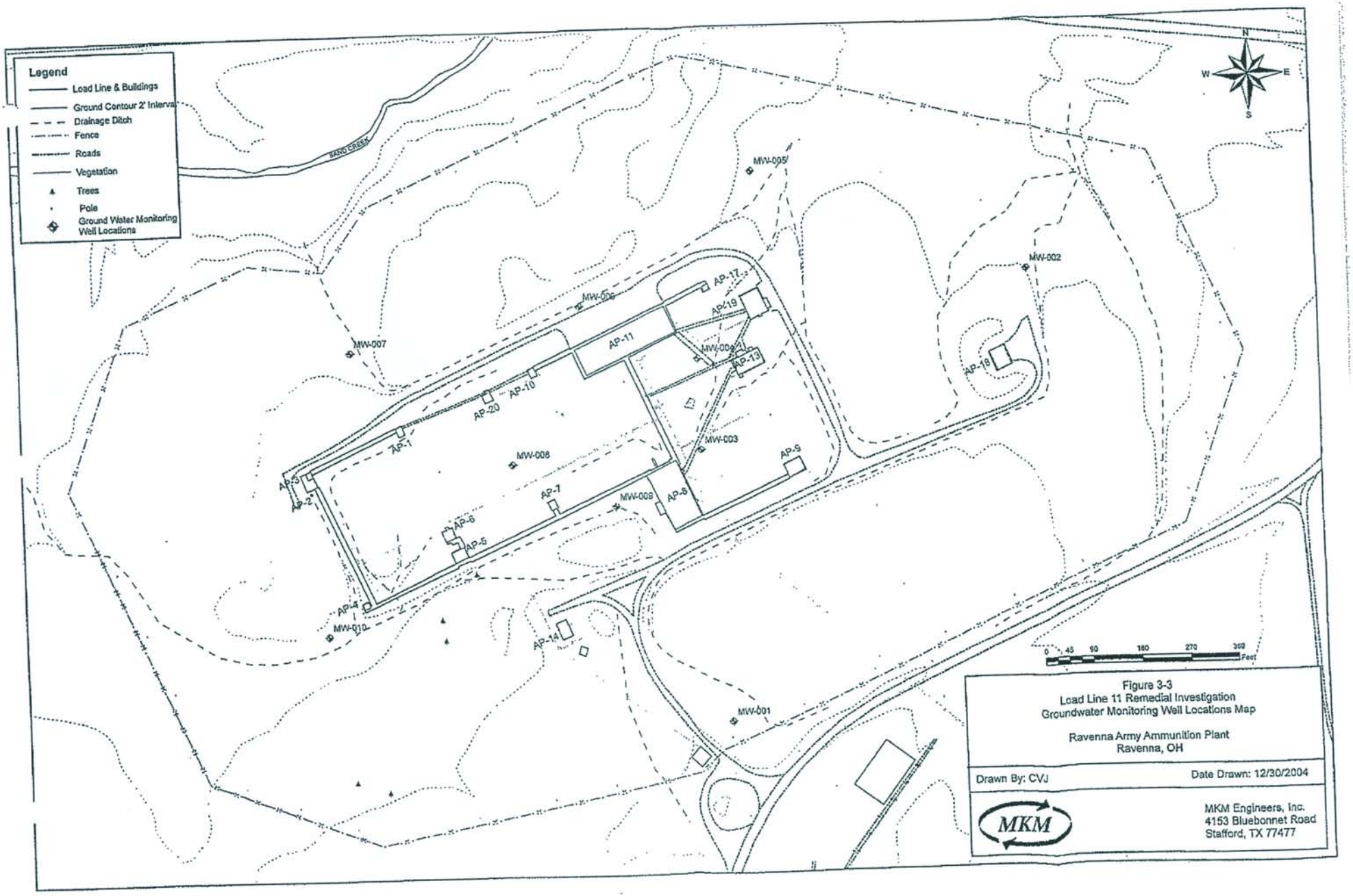


Figure 3-6. Phase II RI Monitoring Well and Test Pit Locations at Load Line 3


Legend
Load Line & Buildings
Ground Contour 2' Interval
Drainage Ditch
Fence
Roads
Vegetation
Trees
Pole
Ground Water Monitoring Well Locations
SAND CREEK
MW-005
MW-002
MW-006
MW-007
MW-004
MW-003
MW-008
MW-009
MW-010
MW-001
AP-1
AP-2
AP-3
AP-4
AP-5
AP-6
AP-7
AP-8
AP-9
AP-10
AP-11
AP-13
AP-14
AP-17
AP-18
AP-19
AP-20
N
S
E
W
0 45 90 180 270 360
Feet
Figure 3-3
Load Line 11 Remedial Investigation
Groundwater Monitoring Well Locations Map
Ravenna Army Ammunition Plant
Ravenna, OH
Drawn By: CVJ
Date Drawn: 12/30/2004
MKM
MKM Engineers, Inc.
4153 Bluebonnet Road
Stafford, TX 77477

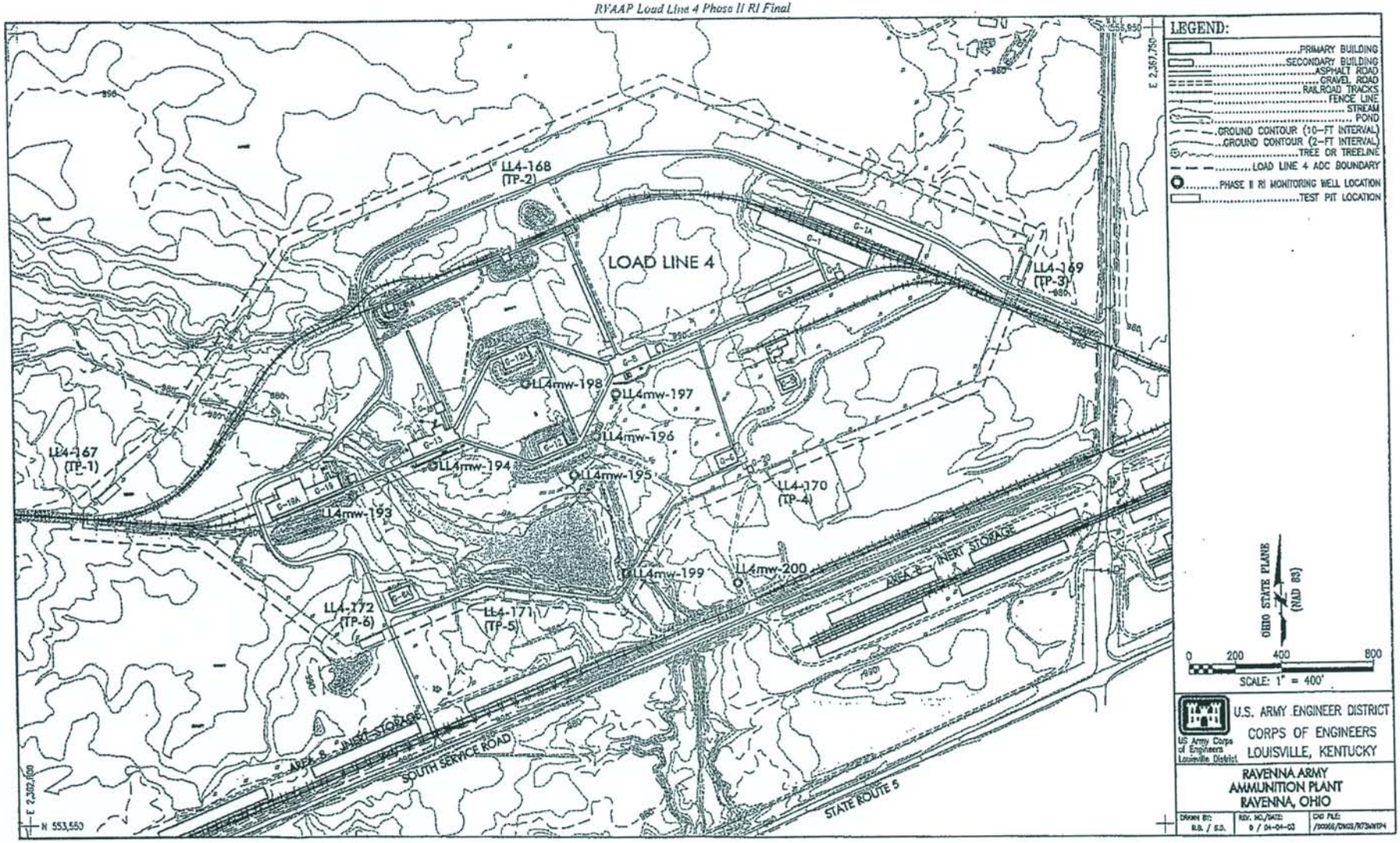
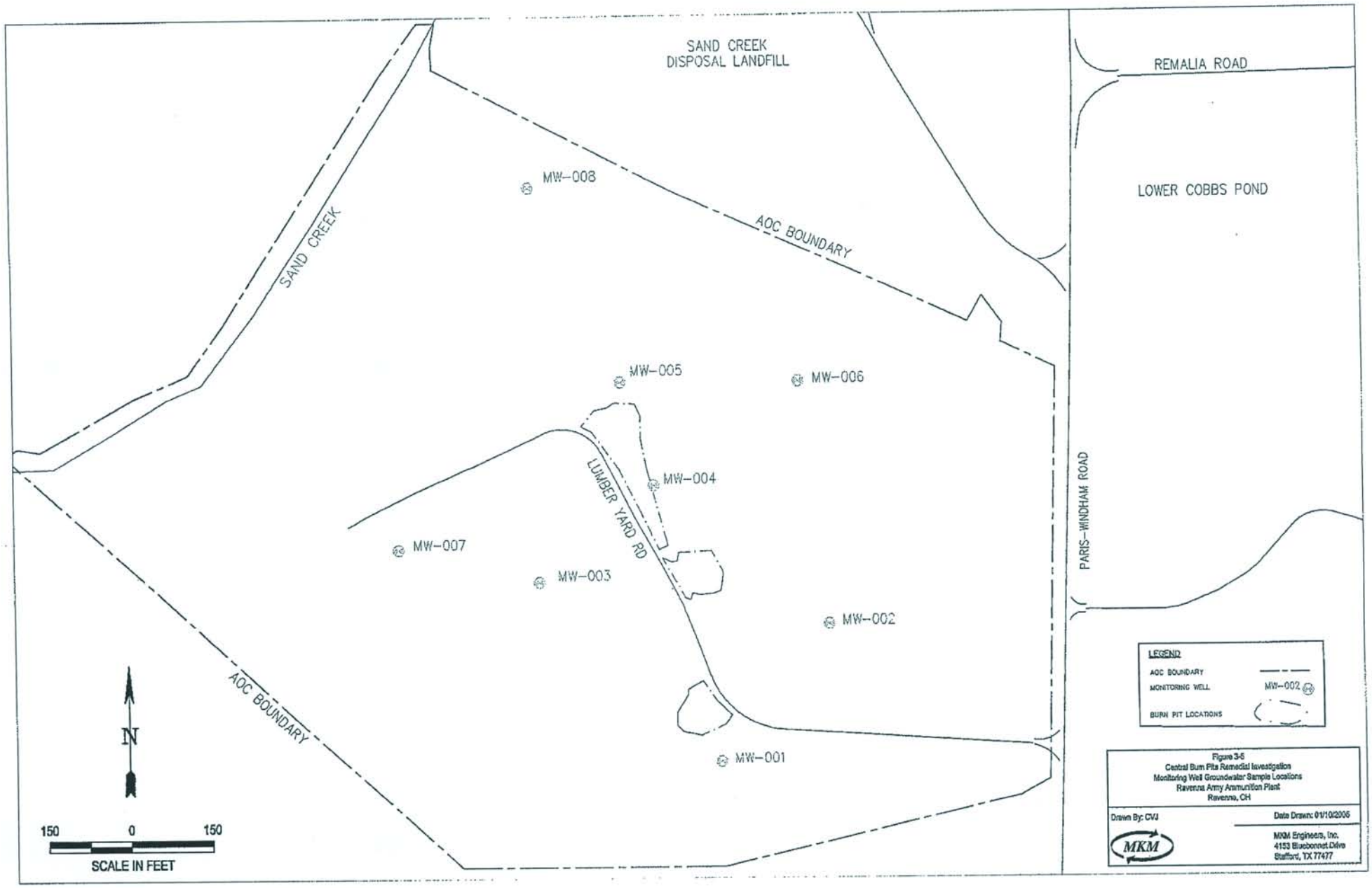


Figure 3-5. Phase II RI Monitoring Well and Test Pit Locations for Load Line 4


SAND CREEK
DISPOSAL LANDFILL
REMALIA ROAD
LOWER COBBS POND
MW-008
SAND CREEK
AOC BOUNDARY
MW-005
MW-006
MW-004
LUMBER YARD RD
MW-007
MW-003
MW-002
PARIS-WINDHAM ROAD
AOC BOUNDARY
MW-001
N
150 0 150
SCALE IN FEET
LEGEND
AOC BOUNDARY
MONITORING WELL
MW-002
BURN PIT LOCATIONS
Figure 3-5
Central Burn Pits Remedial Investigation
Monitoring Well Groundwater Sample Locations
Ravenna Army Ammunition Plant
Ravenna, OH
Drawn By: CVJ
Date Drawn: 01/10/2006
MKM
MKM Engineers, Inc.
4153 Bluebonnet Drive
Stafford, TX 77477

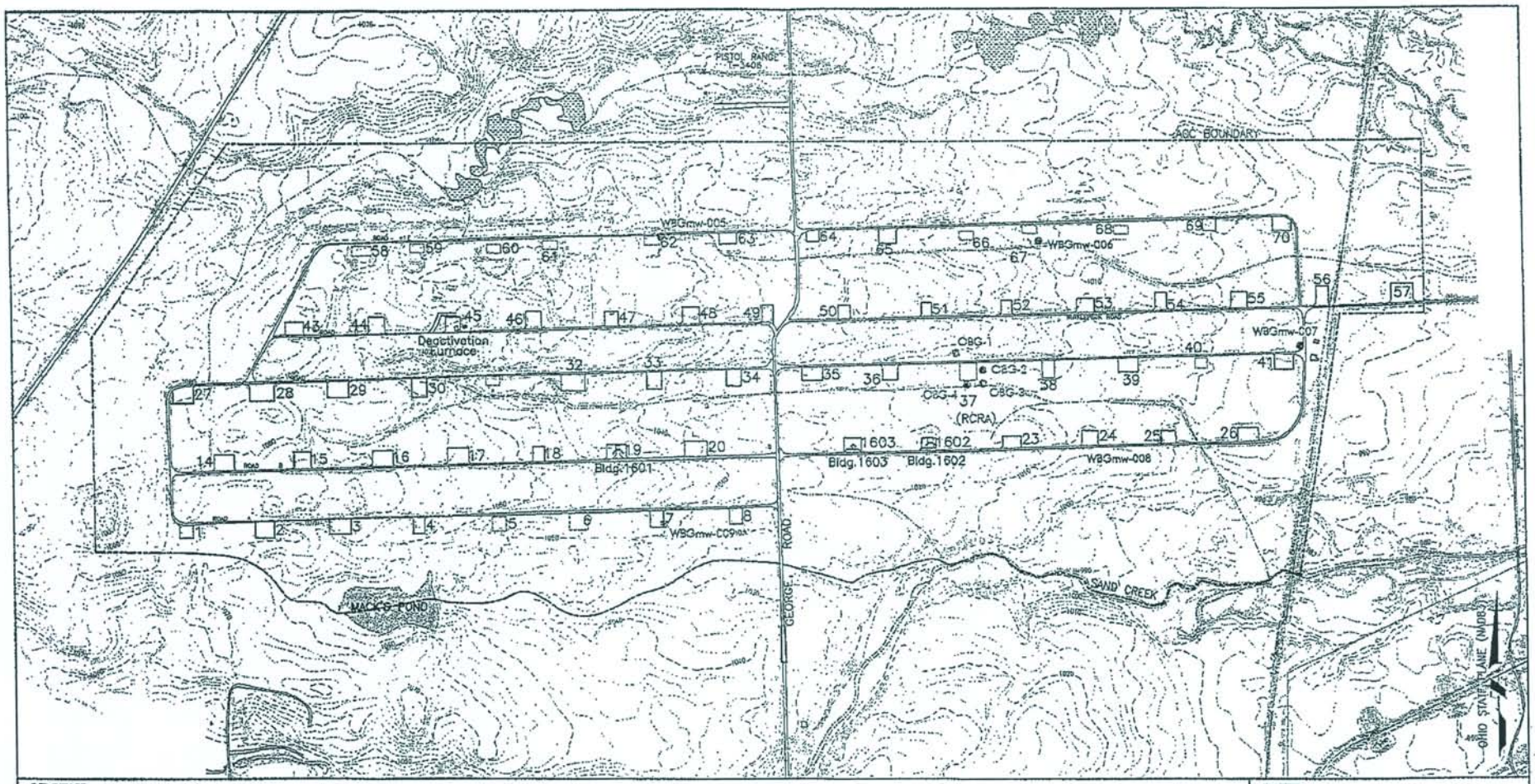
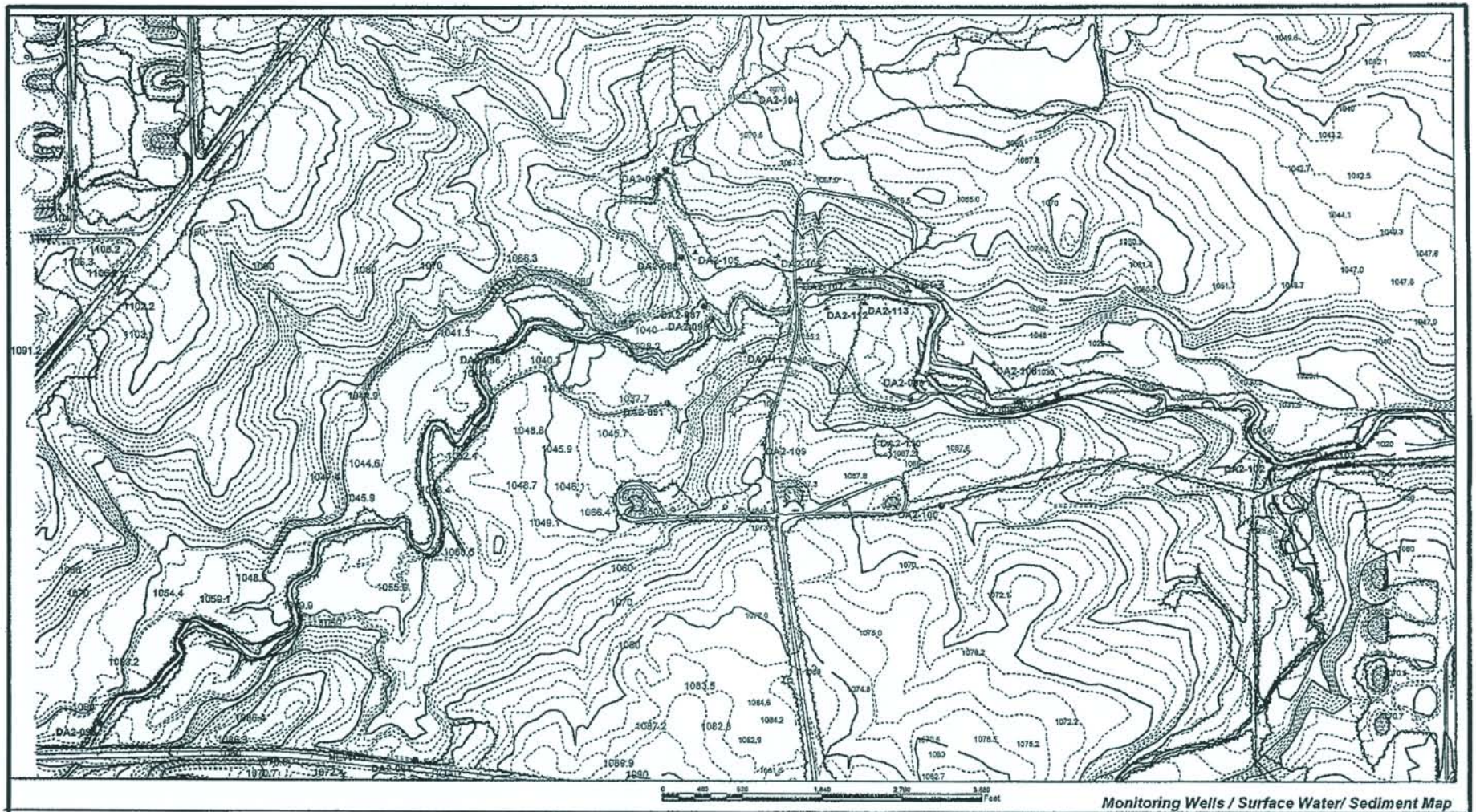


Figure 2-5 WBG Monitoring Well Locations



Monitoring Wells / Surface Water/ Sediment Map

DEMOLITION AREA 2.

Figure 3-2 : Sediment, Surface Water, and Groundwater Sample Location Map

Legend

Sample Type: Sediment/Surface Water; Monitor Well

Features: Water; Roads; Fence; Rail Road; 2' Contour; Vegetation; 10' Contour

N

Drawn By: Chantelle Carroll

Sheet No. FLLNES/R1415/R1516

ArcView File: Ravenna_Sediment_SWGW

Date: 5-10-03

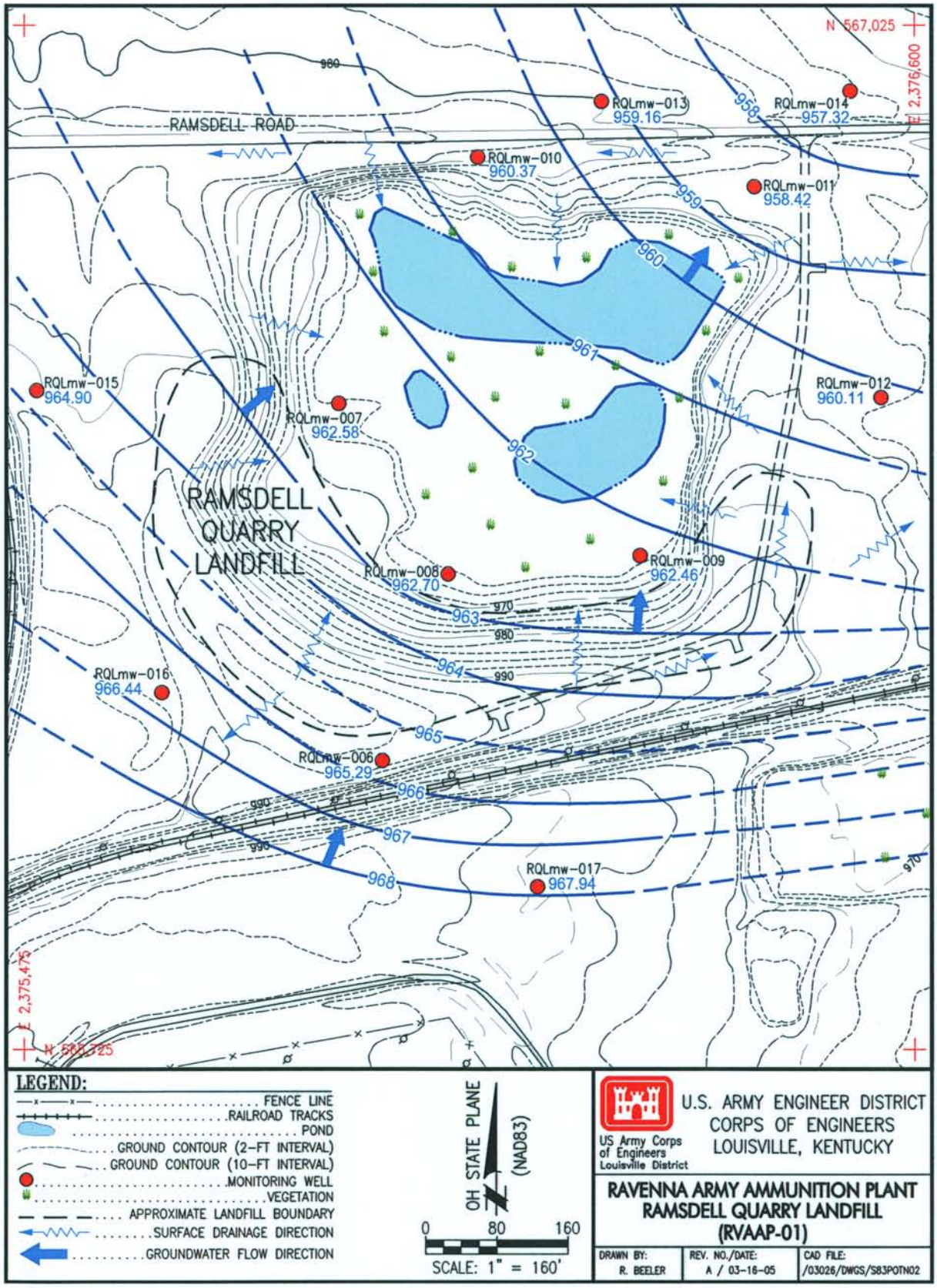


Figure 2-4. Ramsdell Quarry Potentiometric Surface, May 2004

APPENDIX G

REPORTING LIMITS THAT CURRENTLY DO NOT MEET THE RVAAP QAPP PQLS AND/OR REGION 9 PRGS

VOCs

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
107-06-2	1,2-Dichloroethane	0.16	1.0	1.0	0.12	5.0
71-43-2	Benzene	0.22	1.0	1.0	0.35	5.0
67-66-3	Chloroform	0.16	1.0	1.0	0.17	NA
10061-01-5	cis-1,3-Dichloropropene	0.12	1.0	1.0	0.4	NA
75-01-4	Vinyl chloride	0.21	1.0	1.0	0.02	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.22	1.0	1.0	0.055	NA
106-93-4	1,2-Dibromoethane	0.24	1.0	1.0	0.0056	NA
79-01-6	Trichloroethene	0.28	1.0	1.0	0.028	5.0
127-18-4	Tetrachloroethene	0.19	1.0	1.0	0.1	5.0
75-27-4	Bromodichloromethane	0.14	1.0	1.0	0.18	NA
79-00-5	1,1,2-Trichloroethane	0.22	1.0	1.0	0.2	5.0
124-48-1	Dibromochloromethane	0.19	1.0	1.0	0.13	NA
10061-02-6	Trans-1,3-Dichloropropene	0.17	1.0	1.0	0.4	NA
56-23-5	Carbon tetrachloride	0.19	1.0	1.0	0.17	5.0

Note: All units are µg/L
NA = Not Available

SVOCs

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
111-44-4	Bis(2-Chloroethyl) ether	0.088	1.0	10	0.01	NA
50-32-8	Benzo(a)pyrene	0.048	0.20	10	0.0092	0.2
53-70-3	Dibenz(a,h)anthracene	0.039	0.20	10	0.0093	NA
118-74-1	Hexachlorobenzene	0.065	0.20	10	0.042	1.0
205-99-2	Benzo(b)fluoranthene	0.049	0.20	10	0.092	NA
193-39-5	Indeno(1,2,3-cd)pyrene	0.065	0.20	10	0.092	NA
56-55-3	Benzo(a)anthracene	0.052	0.20	10	0.092	NA
91-94-1	3,3'-Dichlorobenzidine	0.48	5.0	10	0.15	NA
106-46-7	1,4-Dichlorobenzene	0.52	1.0	10	0.5	75
87-86-5	Pentachlorophenol	0.48	5.0	25	0.56	1.0
87-68-3	Hexachlorobutadiene	0.51	1.0	10	0.86	NA
88-06-2	2,4,6-Trichlorophenol	1.4	5.0	10	3.6	NA

Note: All units are µg/L
NA = Not Available

Pesticides

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
60-57-1	Dieldrin	0.0067	0.030	0.05	0.0042	NA
309-00-2	Aldrin	0.0061	0.030	0.05	0.004	NA
1024-57-3	Heptachlor epoxide	0.0065	0.030	0.05	0.0074	0.2
319-84-6	alpha-BHC	0.0062	0.030	0.05	0.011	NA
76-44-8	Heptachlor	0.0062	0.030	0.05	0.015	0.4

Note: All units are µg/L
NA = Not Available

Explosives

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
88-72-2	2-Nitrotoluene	0.1	0.48	0.2	120	NA
99-08-1	3-Nitrotoluene	0.1	0.48	0.2	0.049	NA
99-99-0	4-Nitrotoluene	0.1	0.48	0.2	0.66	NA

Note: All units are µg/L
NA = Not Available

PCBs

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
11104-28-2	PCB-1221	0.49	0.50	0.50	0.034	5.0
11141-16-5	PCB-1232	0.41	0.50	0.50	0.034	5.0
53469-21-9	PCB-1242	0.11	0.50	0.50	0.034	5.0
12672-29-6	PCB-1248	0.049	0.50	0.50	0.034	5.0
11097-69-1	PCB-1254	0.087	0.50	0.50	0.034	5.0
11096-82-5	PCB-1260	0.071	0.50	0.50	0.034	5.0

Note: All units are µg/L
NA = Not Available

Inorganics

CAS No.	Analyte Name	MDL	Lab RL	RVAAP QAPP PQL	Region 9 PRG	MCL
7440-70-2	Calcium	80	100	100	NS	NA
7440-23-5	Sodium	410	1000	200	NS	NA
7440-09-7	Potassium	72	1000	200	NS	NA

Note: All units are µg/L
NA = Not Available
These compounds will not meet the reporting limits specified in the QAPP. However, these chemicals have consistently been found naturally occurring on the site at values that exceed the QAPP RLs.

APPENDIX H

CORRESPONDENCE & COMMENT/RESPONSE TABLES

Ohio | Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

February 28, 2012

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, FINAL ANNUAL REPORT FOR 2011 DATED FEBRUARY 23, 2012 (# 267000859036)

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7010 3090 0000 3936 6146

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the ""Final Facility-Wide Groundwater Monitoring Program (FWGWMP), Annual Report for 2011" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) on February 24, 2012, and is dated February 23, 2012. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under MARC contract No. W912QR-04-D-0036. The annual report summarizes the results of the October 2010, January, April, and July 2011 sampling events completed under the FWGWMP.

The following, in chronological order, details the documents regarding the submittal of the Draft and Final FWGWMP Annual Report for 2011:

1. Draft, FWGWMP Annual Report, dated December 9, 2011.
2. Ohio EPA comment response letter and table, dated January 23, 2012.
3. EQM Response to Ohio EPA Comments, dated February 3, 2012.
4. Ohio EPA response via email requesting additional clarification, dated February 17, 2012.
5. Final, FWGWMP Annual Report, dated February 23, 2012.
6. Ohio EPA response via email requesting additional clarification, dated February 27, 2012, time 10:40 am.
7. EQM response with clarifying information, dated February 27, 2012, time 2:40 pm.

All responses to Ohio EPA comments and emails have been adequately addressed. The final document was compared to the draft version, the response to Ohio EPA comments, and the emails requesting clarification. All requested changes or clarifications have been made and the final document is approved.

This final document represents more of the "official" switch to using RSLs instead of the PRGs, as previously agreed upon by the stakeholders. An RSL column has been added next to the PRG column for comparison and RSLs are discussed within the text of the document. Ohio EPA noted that an "official" letter under separate letterhead from the USACE will be forthcoming, announcing switching from PRGs to RSLs for FWGWMP screening purposes.

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Pursuant to the CERCLA process, the property owner usually can provide the expected land use to assist in ensuring the investigation addresses all receptors for both current and future land uses. However, it is the understanding of Ohio EPA that the end use for groundwater has not yet been finalized. Therefore, please be advised that future modifications may be required by Ohio EPA to address incompatible land uses with the findings of this report.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch
Hydrogeologist/Project Coordinator
Division of Environmental Response and Revitalization

VD/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR

ec: Katie Tait, OHARNG RTLS
LTC Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Eldridge, AEC
John Miller, EQM
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, NEDO, DDAGW
Kim Harriz, NGB
Nancy Zikmanis, Ohio EPA, NEDO, DERR
Christy Esler, Vista/RVAAP
Todd Fisher, Ohio EPA, NEDO, DERR
Justin Burke, Ohio EPA, CO, DERR

Ohio | Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

January 23, 2012

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT ANNUAL REPORT FOR 2011 DATED DECEMBER 9, 2011 # 267000859036

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7010 3090 0000 3936 6283

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Groundwater Monitoring Program (FWGWMP), Annual Report for 2011" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), on December 12, 2011, and is dated December 9, 2011. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under MARC contract No. W912QR-04-D-0036.

The annual report summarizes the results of the October 2010, January, April, and July 2011 sampling events completed under the Facility-Wide Ground Water Monitoring Program (FWGWMP).

Pursuant to the CERCLA process, the property owner usually can provide the expected land use to assist in ensuring the investigation addresses all receptors for both current and future land uses. However, it is the understanding of Ohio EPA that the end use for groundwater has not yet been finalized. Therefore, please be advised that future modifications may be required by Ohio EPA to address incompatible land uses with the findings of this report.

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Enclosed are Ohio EPA's comments. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Hydrogeologist/Project Coordinator
Division of Environmental Response and Revitalization

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, NEDO, DERR

ec: Katie Tait, OHARNG RTLS
LTC Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Eldridge, AEC
John Miller, EQM
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, NEDO, DDAGW
Kim Harriz, NGB
Nancy Zikmanis, Ohio EPA, NEDO, DERR
Christy Esler, Vista/RVAAP
Todd Fisher, Ohio EPA, DERR, NEDO
Rod Beals, Ohio EPA, NEDO, DERR

DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
ANNUAL REPORT FOR 2011
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
January 23, 2012

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
O-1	Pg. ix, line 9		Report states there is no MCL for heptachlor.	Heptachlor has a MCL. Please change in all appropriate places.	This error will be corrected to indicate that the MCL for heptachlor is 0.4 µg/L.
O-2	Pg. x, second bulleted item		This paragraph discusses changes and modifications to the FWGWMP. There is no reference to reuse, which still has to be determined.	Please discuss reuse and indicate that the future use of groundwater has yet to be determined.	The following text will be added to the Executive Summary and Section 5: *It should be noted that the end use of groundwater at RVAAP has not, as yet, been determined. Ongoing activities in pursuit of the Record of Decision for facility-wide groundwater will better determine the ultimate future use and possible restrictions associated with groundwater at RVAAP.*
O-3	Pg. x, fourth bulleted item and pg. 90		Referring to proposed groundwater modeling to be included in the RI report. Page 90 indicates the additional wells will be used for hydrogeological system modeling and to conduct contaminant fate and transport modeling.	Ohio EPA suggests that a separate GW modeling work plan be submitted at the beginning stages. This will enable Ohio EPA to address concerns in the early stages, including the approach to modeling, which model, etc.	The modeling approach, as well as all activities to be conducted as part of the Remedial Investigation/Feasibility Study (RI/FS) will be submitted to all stakeholders under the RI/FS Work Plan. This plan is currently under Army review as a preliminary draft and is expected to be submitted as a draft document to the Ohio EPA in early February 2012.
O-4	Pg. 32, Section		Section 3.3.1 indicates that greater than 0.20 feet of sediment has accumulated in	Please provide a discussion concerning how and when this	Reasons for well siltation may include improper sand packs (e.g., too coarse sand,

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
	3.3.1, Table 3-2		several wells; however, these wells were not scheduled for redevelopment. For example, wells LL12mw-113 and FBQmw-174 appear to have more than 3 feet of sediment accumulation (or greater than 10% of the screen length, 10 feet). This accumulation could be indicative of excessive silting in these wells (FWGWMPP, Section 4.1, pg. 4-1).	issue of excessive silting will be addressed in the four wells (i.e., LL12mw-113, DET-001B, DA2mw-106, and FBQmw-174). Excessive silting continues to be a concern at RVAAP. Ohio EPA has requested an analysis of this problem for the monitoring wells located in LL-12 in the July 2010 Sampling Event Ohio EPA comment letter, dated January 17, 2011. Ohio EPA welcomes suggestions addressing this issue in other wells that continue to have this issue.	which allows the pores of the filter pack to fill with clay particulates or allows direct flocculent flow to the well screen) or the integrity of the bottom cap on the well has failed. In the case of LL12mw-113, the water column is under hydrostatic pressure; consequently, there may be some channeling of the sand pack near the well screen that is allowing particulates to enter the screen. It should be noted that none of these wells have been included in the future groundwater monitoring program, in part due to the silting issue. Should any of these wells be identified for future sampling under the FWGWMP they will be redeveloped prior to sampling. Additionally, as these problematic wells are not currently included in the future groundwater monitoring program, and they are located in areas that already have dense well populations, the Army and EQM anticipates these wells (along with many other wells) will be recommended for plugging & abandonment after the RI/FS is complete.

DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
ANNUAL REPORT FOR 2011
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
January 23, 2012

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
O-5	Pg. 35; 3rd Screen and Pg. 36, line 30 regarding PRGs		The report states the chemical concentrations are screened against the RSLs. Is this correct? Although the FWGWMP is moving toward using the RSLs instead of the PRGs, this has not be implemented; the data tables still list the PRGs and not the RSLs.	Please clarify if this is accurate, or are the data screened against the PRGs and the RSLs? When the switch occurs, will all data (current and past) be screened against the RSLs for any discrepancies between the PRGs and the RSLs?	The screening process presented on page 35 of the report presents the currently accepted screening process for identifying COPCs at the facility. To date the chemical concentrations have been compared against MCLs and Region 9 PRGs. However, going forward beginning with the January 2012 monitoring event and including all activities conducted under the RI/FS the RSLs will replace the PRGs. As part of the RI/FS all data collected at the facility (including the historical data) will compared to the RSLs, as well as MCLs and applicable background values.
O-6	Pg. 37, Section 4.1, Table 4-1		Section 4.1 indicates that facility-wide chemicals of potential concern (COPCs) can be found in Table 4-1. However, it was noted that several COPCs were missing from the list (i.e., HMX, perchlorate, mercury, etc.).	Please revise this table to accurately reflect the current list of facility-wide COPCs.	It is recognized that the identification of the COPCs is a dynamic process that will change over the course of the ongoing groundwater activities at the facility. However, to date we are not aware of any detections of HMX or perchlorates that exceed the approved RVAAP screening process as presented in Section 4.1 of the annual report. Mercury has historically exceeded the screening background criteria and will be added to the list in Table 4-1. Note that as future sampling events are conducted COPCs may be added to the list

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (V. Deppisch/C. McCambridge)					
					based on detected concentrations.
O-7	Pg. 44 and all of Table 4-2		For an example, LL-1 for explosives for all sampling events. July 11 sampling event lists lower contaminant levels without a qualifier, but other sampling events lists higher contaminant levels with J (estimated) qualifiers. Ohio EPA would have expected the opposite. It is unknown what the report limit was for each of these sampling events and the contaminants. Are the MDLs and RLs different for each sampling event? Should the RL and/or laboratory narratives be included in future reports?	Please review Table 4-2 and discuss.	Reporting limits commonly vary from sampling event to sampling event and even sample to sample for a variety of reasons. As presented in the DoD Quality Systems Manual Version 4.1 (used by the USACE for the RVAAP project) *Method reporting limits and method limits of quantitation (at or above the low-level standard concentration) are adjusted for sample specific factors (e.g., aliquot size, dilution/concentration factors, moisture content).* Additionally, a result can carry a J qualifier for a number of reasons (i.e. the result is < RL, the result is considered an estimation because it is associated with a QC outlier, etc.). The J qualifier would be applied independent from the actual concentration which sometimes results in higher concentrations having a J-flag designation. The laboratory narratives are presented in the quarterly reports from which the annual report is generated. EQM does not believe that inclusion of the laboratory reports in

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (V. Deppisch/C. McCambridge)					
					the annual reports is necessary.
O-8	Pg. 71, line 3		Report states for well LL1mw-080 for two other sampling events the "laboratory report limit for beta-BHC was nearly 10 times higher than the PRG value; the results were non-detect on those occasions." Ohio EPA is confused. Table 4-2, pg. 61, identifies the Oct 2010, Jan 2011, and April 2011 sampling events for this well for Beta-BHC as NT (not tested). The MDL and RL are not included. Which does the RL change for beta-BHC?	Please clarify which two sampling events had the RL 10 times higher than the PRG value and why the NT is designated. What is the reporting limit? Shouldn't the RL be used in place of the NT and designated <xx? Ohio EPA noted that the NT designation is used throughout the table. Are all the NT designations correct?	The previous 2 events that had the RL 10 times higher than the PRG value for LL1mw-080 occurred in April and July 2007. The NT noted in the table indicates that the well was not tested during a particular sampling event and has no relationship to the RL designation for reporting limit. All of the designated NT (not tested) designations in the tables are correct. Note that the reason that some of the wells were not historically monitored all 4 quarters during this reporting time period is because these wells have already met the requirement for 4 quarters of sampling per the FWGWMP Plan.

John Miller

From: John Miller <jmiller@eqm.com>
Sent: Monday, February 20, 2012 9:51 AM
To: Nichter, Mark W LRL
Subject: RE: additional info/clarification request for CRT on FWGWMP for 2011

Mark: see my responses to Vicki's comments below highlighted in blue.

John M. Miller
Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240
513.825.7500
Cell 513.673.4065

From: Deppisch, Vicki [mailto:Vicki.Deppisch@epa.state.oh.us]
Sent: Friday, February 17, 2012 11:06 AM
To: Nichter, Mark W LRL; John Miller (jmiller@eqm.com)
Cc: Deppisch, Vicki
Subject: additional info/clarification request for CRT on FWGWMP for 2011
Importance: Low

Hi Mark and John
Now that we have funding, I'm trying to play catch up on the reviews for RVAAP FWGWMP as quickly as possible. I've reviewed the CRT for the 2011 Annual Report. Before I can state that all comments have been adequately addressed, I'm requesting additional info and clarification on two items #5 and #6. Here are my concerns:

#5 regarding PRGs and RSLs:

(1) The table does not include a column listing the RSLs, only one for PRGs which is confusing since some of the text refers to the RSLs. Could you please add a column with the RSLs next to the PRG column/values and if possible, highlight the ones that have different values. Tables 4-2 and 4-4 will be revised to show the RSLs (we currently do this for all quarterly reports). Please note that the PRGs have not been updated since 2004. EQM does not recommend highlighting the PRG/RSL differences. The majority of RSLs have different values from the PRGs which would result in highlighting approximately 90% of the values.

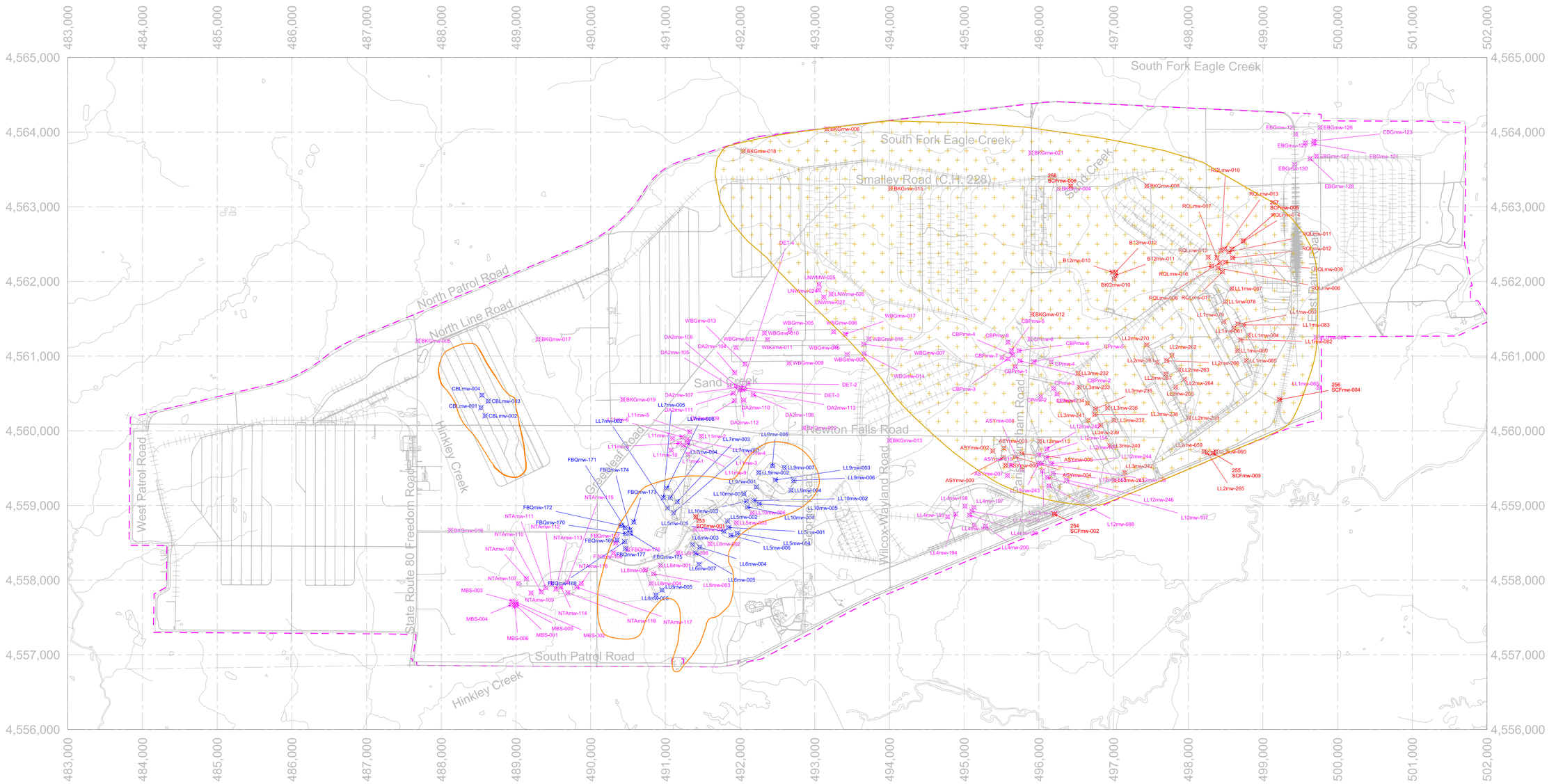
(2) Also, could you please a letter to me stating that the RSLs will replace the PRGs and when this will officially take place and any other information that you decide is pertinent. Mark??

#6 regarding COPCs

For clarification sake, and going by memory, I remember there are different COPCs lists that are somewhat different in different documents. Could this be acknowledged in the response table and also clarify that some COPCs, such as HMX, were analyzed for but not detected and therefore, not included in table 4-1? Also, constituents, such as perchlorate, (that I don't remember seeing listed as a COPC), that were not identified as a COPC but were also analyzed for and were detected but at a low levels that did not exceed.....etc. etc. and therefore is not included as a COPC. I'd like this to as clear as possible. If these items could be added to the text, where appropriate, and the note field to table 4-1 it would definitely clarify these issues. The original *Facility-Wide Groundwater Monitoring Program Plan* (2004) (Table 3-1) identified HMX as a COPC. The new *Facility-Wide Sampling and Analysis Plan for Environmental Investigations* (2011) also still identifies HMX as a COPC. The *Facility-Wide Human Health Cleanup Goals for the RVVAP (2010),* does not identify HMX as a COPC and we do not have any hits for HMX elevated above the identified clean levels (e.g., PRGs/RSLs) which was why we did not include it in the 2011 Annual Report. Recommend adding to the text that

HMX has historically been identified as a COPC but has never been detected at concentrations HMX elevated above the identified clean levels. Additionally indicate that perchlorates have been analyzed but never detected at concentrations elevated above the identified clean levels.

Guys, please let me know how you would like to handle the above. I would accept some kind of "additional clarification to response to comments table" (and don't forget the separate letter for the RSLs) or however you would like to address the above. Mark, I know you don't have funding right now so I don't know how this is going to work on your end. Thanks!
vicki



LEGEND

- UNCONSOLIDATED WELL
- HOMEWOOD MEMBER WELL
- SHARON MEMBER WELL
- PROPERTY LINE
- HOMEWOOD MEMBER
- SHARON MEMBER

NOTE: THE UNCONSOLIDATED AQUIFER OVERLAYS THE HOMEWOOD AND SHARON MEMBERS, EXCEPT AS INDICATED ON PLATE 2

0 50 1000

SCALE (METERS)

N

COORDINATE SYSTEM UTM NAD 83 ZONE 17

REV	DESCRIPTION	DATE	APPROVED
1	ADDED NOTE	12-04-08	BT
2	ADDED SFCmw-001 THRU 006	9-10-09	JM

REVISIONS

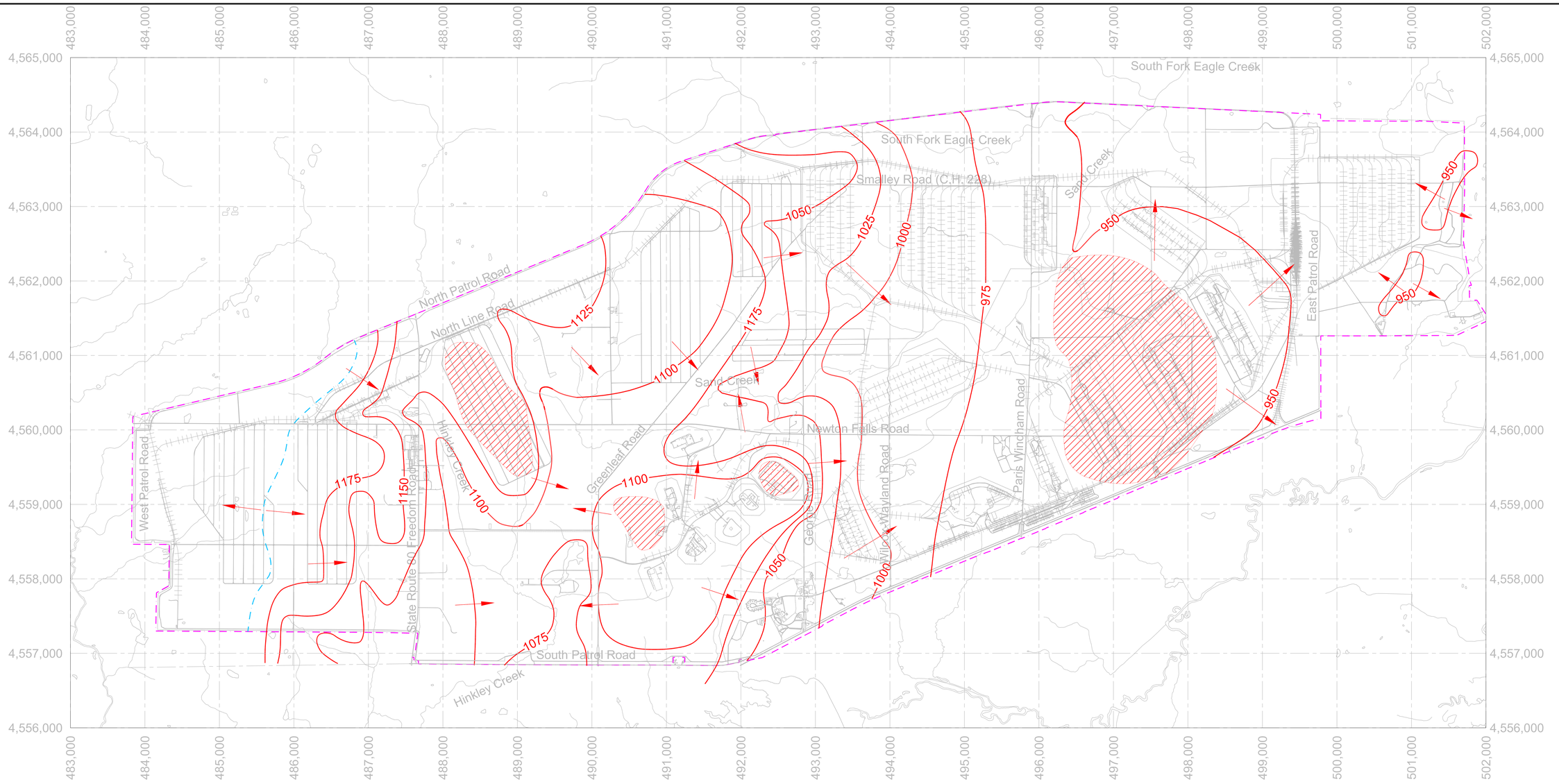
DRAWN	D.TOMO	10/22/07
CHECKED		
APPROVED		

SCALE: NONE

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1800 CARILLON BLVD.
CINCINNATI, OHIO 45240
P (513)825-7500
F (513)825-7495

MONITORING WELLS AT RVAAP

ORIGINAL SIZE	PROJECT NO.	DWG NO.	REV
E	030240.0006	PLATE 1	2



Well ID	Elevation (ft, amsl)
BKGmw-004	952.97
BKGmw-005	1137.10
BKGmw-013	975.86
BKGmw-016	1093.13
BKGmw-017	1114.02
BKGmw-019	1089.12
BKGmw-020	1054.94
BKGmw-021	955.06
CBPmw-001	960.74
CBPmw-002	958.27
CBPmw-003	959.38
CBPmw-004	958.38
CBPmw-005	957.77
CBPmw-006	957.84
CBPmw-007	957.89
CBPmw-008	955.16
CPmw-001	967.89
CPmw-002	967.73
CPmw-003	970.54
CPmw-004	968.35
CPmw-005	960.24
CPmw-006	956.27

Well ID	Elevation (ft, amsl)
DA2mw-104	1051.17
DA2mw-105	1041.91
DA2mw-106	1036.60
DA2mw-107	1033.60
DA2mw-108	1025.69
DA2mw-109	1054.40
DA2mw-110	1051.90
DA2mw-111	1037.47
DA2mw-112	1029.69
DA2mw-113	1028.42
DETmw-001B	1040.44
DETmw-002	1028.19
DETmw-003	1026.98
DETmw-004	1026.99
EBGmw-123	937.14
EBGmw-124	937.09
EBGmw-125	936.99
EBGmw-126	937.17
EBGmw-127	937.01
EBGmw-128	936.79
EBGmw-129	936.64
EBGmw-130	936.55

Well ID	Elevation (ft, amsl)
FBQmw-166	1103.47
FBQmw-167	1109.58
FBQmw-176	1120.49
L L11mw-002	1074.51
LL10mw-006	1108.88
LL11mw-001	1086.82
LL11mw-003	1083.89
LL11mw-004	1083.40
LL11mw-005	1068.26
LL11mw-006	1078.27
LL11mw-007	1065.86
LL11mw-008	1082.17
LL11mw-009	1085.20
LL11mw-010	1075.42
LL12mw-088	972.98
LL12mw-107	972.55
LL12mw-128	966.90
LL12mw-153	969.50
LL12mw-154	967.94
LL12mw-182	971.20
LL12mw-184	968.79
LL12mw-185	970.62

Well ID	Elevation (ft, amsl)
FBQmw-166	1103.47
LL12mw-187	967.35
LL12mw-188	972.28
LL12mw-242	968.57
LL12mw-243	970.26
LL12mw-244	967.60
LL12mw-245	970.87
LL12mw-246	966.14
LL1mw-064	931.15
LL1mw-065	929.41
LL4mw-193	974.67
LL4mw-194	972.24
LL4mw-195	970.08
LL4mw-196	970.00
LL4mw-197	970.03
LL4mw-198	972.04
LL4mw-199	968.54
LL4mw-200	968.88
LL5mw-003	1106.15
LL6mw-001	1107.37
LL6mw-002	1106.38
LL6mw-006	1107.95

Well ID	Elevation (ft, amsl)
LL8mw-001	1107.26
LL8mw-002	1102.99
LL8mw-003	1103.23
LL8mw-004	1101.36
LNWmw-024	1023.22
LNWmw-025	1023.17
LNWmw-026	1014.92
LNWmw-027	1017.16
MBS-001	1064.01
MBS-002	1064.41
MBS-003	1065.01
MBS-004	1064.37
MBS-005	1063.97
MBS-006	1063.90
NTAmw-107	1066.96
NTAmw-108	1067.23
NTAmw-109	1066.99
NTAmw-110	1067.37
NTAmw-111	1074.89
NTAmw-112	1068.41
NTAmw-113	1067.68
NTAmw-114	1071.02

Well ID	Elevation (ft, amsl)
NTAmw-115	1073.90
NTAmw-116	1086.19
NTAmw-117	1078.41
NTAmw-118	1071.06
WBGmw-005	1046.45
WBGmw-006	1004.47
WBGmw-007	981.740
WBGmw-008	991.870
WBGmw-009	1031.56
WBGmw-010	1060.42
WBGmw-011	1060.34
WBGmw-012	1053.26
WBGmw-013	1059.06
WBGmw-014	978.94
WBGmw-015	996.62
WBGmw-016	978.34
WBGmw-017	995.62

0 50 1000

SCALE (METERS)

LEGEND

- UNCONSOLIDATED WELL
- PROPERTY LINE
- 1100 LINE OF EQUAL GROUNDWATER ELEVATION (ft, amsl)
- GROUNDWATER DIRECTION
- UNCONSOLIDATED AQUIFER MISSING
- INFERRED GROUNDWATER DIVIDE

N

COORDINATE SYSTEM UTM NAD 83 ZONE 17

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1800 CARILLON BLVD.
CINCINNATI, OHIO 45240
P (513)825-7500
F (513)825-7495

REV	DESCRIPTION	DATE	APPROVED

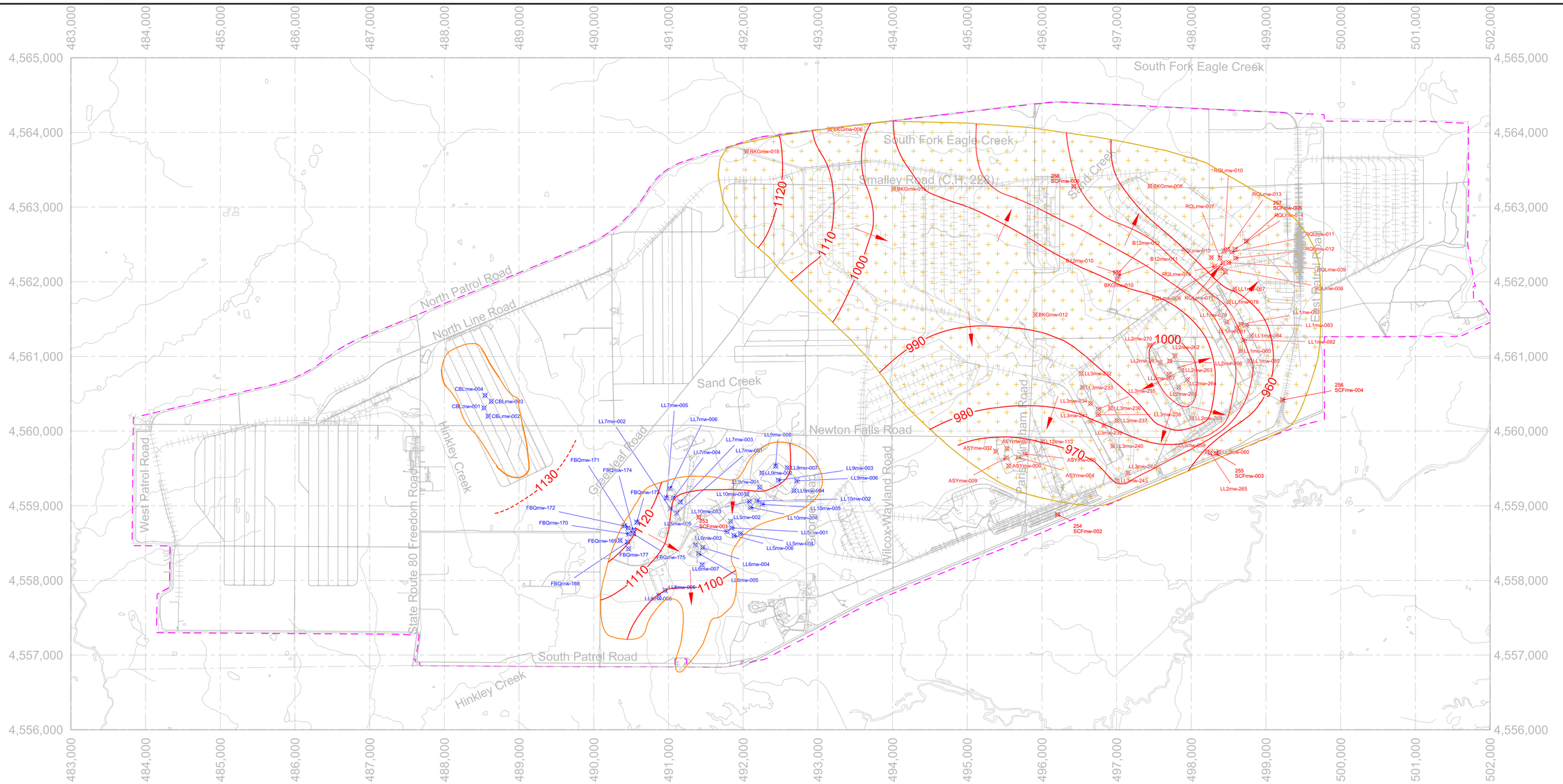
REVISIONS

DRAWN	D.TOMO	3-30-09
CHECKED	W.THOMPSON	3-30-09
APPROVED		

SCALE: NONE

POTENTIOMETRIC SURFACE OF UNCONSOLIDATED AQUIFER (OCT. 2010)

ORIGINAL SIZE	PROJECT NO.	DWG NO.	REV
E	030240.0006	PLATE 2	1



HOMEWOOD MEMBER WELLS

Well ID	Elevation (ft, amsl)
CBLmw-001	1135.58
CBLmw-002	1135.13
CBLmw-003	1136.56
CBLmw-004	1136.69
FBQmw-168	1120.14
FBQmw-169	1112.24
FBQmw-170	1120.86
FBQmw-171	1121.02
FBQmw-172	1120.48
FBQmw-173	1120.24
FBQmw-174	1119.80
FBQmw-175	1120.06
FBQmw-177	1112.72
LL10mw-001	1106.71
LL10mw-002	1107.82
LL10mw-003	1108.56
LL10mw-004	1107.16
LL10mw-005	1108.14
LL5mw-001	1105.90
LL5mw-002	1105.87
LL5mw-004	1105.85
LL5mw-005	1105.90

Well ID	Elevation (ft, amsl)
LL5mw-006	1105.86
LL6mw-003	1107.22
LL6mw-004	1106.51
LL6mw-005	1106.82
LL6mw-007	1106.03
LL7mw-001	1106.98
LL7mw-002	1110.02
LL7mw-003	1107.14
LL7mw-004	1109.14
LL7mw-005	1111.78
LL7mw-006	1109.83
LL8mw-005	1099.78
LL8mw-006	1095.70
LL9mw-001	1117.34
LL9mw-002	1110.71
LL9mw-003	1120.31
LL9mw-004	1109.20
LL9mw-005	1112.52
LL9mw-006	1108.56
LL9mw-007	1108.43

SHARON MEMBER WELLS

Well ID	Elevation (ft, amsl)
ASYmw-001	967.09
ASYmw-002	968.91
ASYmw-003	967.31
ASYmw-004	967.55
ASYmw-005	969.30
ASYmw-006	967.38
ASYmw-009	968.17
B12mw-010	985.80
B12mw-011	984.71
B12mw-012	984.50
BKGmw-006	1005.27
BKGmw-008	952.71
BKGmw-010	985.44
BKGmw-012	987.09
BKGmw-015	989.82
BKGmw-018	1028.95
LL1mw-063	965.06
LL1mw-067	959.01
LL1mw-078	961.04
LL1mw-079	962.46
LL1mw-080	979.92
LL1mw-081	965.06

Well ID	Elevation (ft, amsl)
LL1mw-082	970.11
LL1mw-083	959.04
LL1mw-084	965.58
LL1mw-085	958.76
LL2mw-059	951.30
LL2mw-060	949.39
LL2mw-261	1003.40
LL2mw-262	1000.91
LL2mw-263	999.75
LL2mw-264	1000.79
LL2mw-265	949.37
LL2mw-266	1001.40
LL2mw-267	1002.60
LL2mw-268	1000.59
LL2mw-269	992.31
LL2mw-270	998.65
LL3mw-232	976.67
LL3mw-233	975.43
LL3mw-234	994.33
LL3mw-235	987.70
LL3mw-236	991.32
LL3mw-237	984.65

Well ID	Elevation (ft, amsl)
LL3mw-238	989.00
LL3mw-239	975.63
LL3mw-240	978.60
LL3mw-241	978.98
LL3mw-242	980.28
LL3mw-243	972.46
RQLmw-006	957.57
RQLmw-007	955.01
RQLmw-008	955.39
RQLmw-009	954.93
RQLmw-010	952.79
RQLmw-011	951.11
RQLmw-012	952.66
RQLmw-013	951.70
RQLmw-014	950.30
RQLmw-015	956.48
RQLmw-016	958.40
RQLmw-017	958.68

SHARON SHALE WELLS

Well ID	Elevation (ft, amsl)
LL12mw-113	970.85
LL12mw-183	968.22
LL12mw-186	969.47
LL12mw-189	968.43

*WELLS NOT USED TO PRODUCE POTENTIOMETRIC MAP

0 50 1000

SCALE (METERS)

LEGEND

- HOMEWOOD MEMBER WELL
- SHARON MEMBER WELL
- PROPERTY LINE
- 1100 / 1030 — LINE OF EQUAL GROUNDWATER ELEVATION (ft,amsl) (INTERMEDIATE DASHED)
- GROUNDWATER DIRECTION
- HOMEWOOD MEMBER
- SHARON MEMBER

N

COORDINATE SYSTEM UTM NAD 83 ZONE 17

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1800 CARILLON BLVD.
CINCINNATI, OHIO 45240
P (513)825-7500
F (513)825-7495

REV	DESCRIPTION	DATE	APPROVED
1	ADDED SFCmw-001 THRU 006	9-10-09	JM

REVISIONS

DRAWN	D.TOMO	3-30-09
CHECKED	W.THOMPSON	3-30-09
APPROVED		

SCALE: NONE

POTENTIOMETRIC SURFACE OF BEDROCK -HOMEWOOD AND SHARON (OCT. 2010)

ORIGINAL SIZE	PROJECT NO.	DWG NO.	REV
E	030240.0006	PLATE 3	1

491,000 492,000 493,000 494,000 495,000 496,000 497,000 498,000 499,000

4,564,000 4,563,000 4,562,000 4,561,000 4,560,000 4,559,000

South Fork Eagle Creek

Smalley Road (C.H. 228)

Sand Creek

East Patrol Road

Sand Creek

Newton Falls Road

George Road

Wilcox-Wayland Road

Paris Windham Road

SCFmw-001

SCFmw-002

SCFmw-003

SCFmw-004

SCFmw-005

SCFmw-006

1020 1010 1000 990 980 970 960 950

N

SHARON CONGLOMERATE WELLS

Well ID	Elevation (ft, amsl)
SCFmw-001	1029.43
SCFmw-002	963.50
SCFmw-003	948.53
SCFmw-004	942.22
SCFmw-005	947.32
SCFmw-006	946.95

0 500 1000

LEGEND

PROPERTY LINE

980 LINE OF EQUAL GROUNDWATER ELEVATION (ft,amsl)

GROUNDWATER DIRECTION

COORDINATE SYSTEM UTM NAD 83 ZONE 17

REV	DESCRIPTION	DATE	APPROVED

REVISIONS

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1800 CARILLON BLVD.
CINCINNATI, OHIO 45240
P (513)825-7500
F (513)825-7495

DRAWN	D.TOMO	12-06-10
CHECKED		
APPROVED		

SCALE: NONE

POTENTIOMETRIC SURFACE OF SHARON CONGLOMERATE (OCT.2010)

ORIGINAL SIZE	PROJECT NO.	DWG NO.	REV
B	030240.0006	PLATE 4	0