FINAL
FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
RVAAP-66 FACILITY-WIDE GROUNDWATER
REPORT ON THE OCTOBER 2014 SAMPLING EVENT

FORMER RAVENNA ARMY AMMUNITION PLANT
PORTAGE AND TRUMBULL COUNTIES, OHIO

March 20, 2015

GSA Contract Number GS-10F-0293K
Delivery Order W912QR-11-F-0266

Prepared for

U.S. Army Corps of Engineers
600 Martin Luther King Jr. Place
Louisville, Kentucky 40202

Prepared by

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REPORT DOCUMENTATION PAGE

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14. ABSTRACT

This document presents a summary of the facility-wide groundwater monitoring conducted in October 2014. Included in the report are:

• Summary of the groundwater elevations and water level measurements taken for each of the wells sampled.
•Analytical summary tables presenting the analytes detected above the method detection limit for this monitoring event.
• QA/QC and data verification reports for the event.

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OhioEPA

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

April 2, 2015

Mr. Mark Leeper
Army National Guard Directorate
ARNGD-ILE Clean Up
111 South George Mason Drive
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Re: US Army Ammunition Plt RVAAP
Remediation Response
Project Records
Remedial Response
Portage County
267000859036

Subject: **Ravenna Army Ammunition Plant, Portage/Trumbull Counties, Approval of the RVAAP-66 Final Facility-Wide Groundwater Report on the October 2014 Sampling Event, Dated March 20, 2015, Ohio EPA ID # 267-000859-036**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received the "Final Facility-Wide Groundwater Monitoring Program RVAAP-66 Facility-Wide Groundwater Report on the October 2014 Sampling Event" at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio. This document was received at Ohio EPA's Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), on March 23, 2015. The report was prepared for the US Army Corps of Engineers (USACE) Louisville District, by Environmental Quality Management, Inc., under Contract Number W912QR-11-F-0266.

This document was reviewed by personnel from Ohio EPA's DERR, pursuant to the Director's Findings and Orders paragraph 39 (b), Ohio EPA considers the document final and approved.

Pursuant to the CERCLA process, the property owner usually can anticipate the expected land uses to assist in ensuring that the investigation addresses all receptors for both current and future land uses. Be advised that due to land use uncertainty, Ohio EPA may require additional work in the future to address data gaps. It is incumbent

upon the Army to finalize land use at camp Ravenna as soon as possible, otherwise additional work and schedule slippage may result.

If you have any questions, please call me at (330) 963-1292.

Sincerely,

Kevin M. Palombo
Environmental Specialist
Division of Environmental Response and Revitalization

KP/nrp

cc: Katie Tait, OHARNG RTLS
Kevin Sedlak, ARNG
Gregory F. Moore, USACE
Rebecca Haney/Gail Harris, VISTA Sciences Corp.

ec: Rodney Beals, Ohio EPA NEDO DERR
Justin Burke, Ohio EPA, CO DERR

CONTRACTOR'S STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Environmental Quality Management, Inc. (EQM) has completed the *Final Facility-Wide Groundwater Monitoring Program Report on the October 2014 Sampling Event.* 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.

Jackie Doan

Jackie Doan, CQM, CQA, CHMM, CEAC
Director of Quality

March 18, 2015
Date

John M. Miller
Senior Project Manager

3/18/15
Date

Colleen A. Lear CPG, LG
Geologist

3/18/15
Date

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FWGWMP October 2014 Sampling Event Report
Former Ravenna Army Ammunition Plant

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USACE Technical Manager, Nathaniel Peters	2	3
EQM Project Manager, John Miller	1	1

ARNG – Army National Guard
OHARNG – CRJMTC-ENV – Ohio Army National Guard Camp Ravenna Joint Military Training Center – Environmental
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RVAAP – Ravenna Army Ammunition Plant
USACE – U.S. Army Corps of Engineers
EQM – Environmental Quality Management, Inc.

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LIST OF GENERAL ACRONYMS

ADR	Automated Data Review
amsl	above mean sea level
AOC	Area of Concern
ARNG	Army National Guard
º C	degree Celsius
CCV	continuing calibration verification
CRJMTC	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
DDE	dichlorodiphenyldichloroethylene
DFFOs	Director's Final Findings and Orders
DoD	Department of Defense
EQM	Environmental Quality Management, Inc.
EPA	Environmental Protection Agency
ft	feet
FWGWMP	Facility-Wide Groundwater Monitoring Program
FWGWMPP	Facility-Wide Groundwater Monitoring Program Plan
FWSAP	Facility-Wide Sampling and Analysis Plan
GC	gas chromatograph
GOCO	Government-Owned, Contractor-Operated
GSA	Government Services Administration
>	greater than
GW	groundwater
HNO_3	nitric acid
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	high-performance liquid chromatography
H_2SO_4	sulfuric acid
IDW	Investigation-Derived Waste
IRP	Installation Restoration Program
LCS	laboratory control sample
<	less than
LS	Louisville District Quality Systems Manual Supplement
MCL	Maximum Contaminant Level
MDL	method detection limit
mg/L	milligram per liter
µg/L	microgram per liter
MMRP	Military Munitions Response Program
MRL	method reporting limit
MS	mass spectrometer
MS/MSD	matrix spike/matrix spike duplicate
mw	monitoring well
NaOH	sodium hydroxide
NEDO	Northeast District Office
N/A	not analyzed

LIST OF GENERAL ACRONYMS
(continued)

NM	not measured
NO2/NO3	nitrite/nitrate
NS	no standard
NTU	nephelometric turbidity unit
OHARNG	Ohio Army National Guard
%	percent
PBA	Performance Based Acquisition
PCB	polychlorinated biphenyl
PETN	pentaerythritol tetranitrate
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Services Manual
RCRA	Resource Conservation and Recovery Act
RBC	Risk-Based Cleanup
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
RL	reporting limit
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SDG	sample delivery group
SRC	Site-Related Contaminant
SSHP	Site Safety and Health Plan
SVOC	semivolatile organic compound
s.u.	standard units
TAL	target analyte list
TOC	top of casing
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USP&FO	United States Property and Fiscal Officer
UV	ultraviolet
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
FWG	Facility-Wide Groundwater
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 former 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 the former RVAAP has been identified in groundwater beneath the facility. Currently, the approximately 21,683-acre facility is primarily used for military training.

The United States (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 former RVAAP installation as all of the property has been transferred to the Army National Guard (ARNG) and is being used by the Ohio Army National Guard (OHARNG) as a military training site. One of the activities conducted under the IRP includes monitoring of an extensive network (now 284 wells) of groundwater monitoring wells at the former RVAAP facility. To date, 284 Facility-Wide Groundwater Monitoring Program (FWGWMP) wells at the facility have been sampled and analyzed a minimum of four quarters.

In 2004, the U.S. Army and the Ohio Environmental Protection Agency (EPA) finalized the FWGWMP Plan, which detailed the requirements of the program for the 243 existing wells. The FWGWMP was initiated in 2005 with three consecutive quarters of FWGWMP well sampling. 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.

The current wells to be sampled and the analytes to be analyzed from each well were approved in the FWGWMPP Addendum dated August 1, 2013. The monitoring wells sampled during the October 2014 groundwater monitoring event are presented in Table 1-1.

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

- Performed groundwater sampling at the 3 wells identified in Table 1-1.
- Gauged water levels/total depth at the 3 groundwater monitoring wells scheduled for groundwater sampling at the facility.
- Performed laboratory analysis of all the collected samples.
- Verified, validated, and reduced the laboratory analytical data produced for the event (exclusive of the quality assurance samples analyzed by RTI Laboratories).
- Prepared the Investigation-Derived Waste (IDW) Characterization and Disposal Plan for the IDW collected during monitoring activities.
- Prepared and submitted the monitoring report for the sampling event.

During the October 2014 sampling event, several analytes were detected at levels at/or above their respective Maximum Contaminant Levels (MCLs) and/or United States Environmental

Protection Agency (USEPA) Regional Screening Levels [RSLs (November 2014)]. The summary of exceedances is as follows.

Explosive and Propellant Compounds

As shown in Table 3-1, no explosives or propellants were detected at levels above their corresponding MCLs or RSLs (November 2014) during the October 2014 sampling event.

Inorganic Elements

Several inorganic compounds were detected at levels exceeding the MCLs and/or RSLs (November 2014). These included arsenic, cobalt, iron, and manganese, in wells from all areas sampled.

Volatile Organic Compounds

As shown in Table 3-3, no VOCs were detected at levels exceeding the MDL for this sampling event.

Semivolatile Organic Compounds

As shown in Table 3-4, no SVOCs were detected at levels exceeding the MDL for this sampling event.

Pesticides and Polychlorinated Biphenyls (PCBs)

The analytical results for pesticides and PCBs are summarized in Table 3-5. As shown in Table 3-5, alpha-BHC was detected in one well at a level exceeding the MDL for this sampling event.

- alpha-BHC – LL1mw-88 (0.028 µg/L JB). There is no MCL for alpha-BHC. The RSL (November 2014) is 0.0071 µg/L.

Note that method blank associated with the samples were found to contain alpha-BHC contamination less than ½ the method reporting limit (MRL). The low-level detection (i.e., ≤ RL, 0.053 µg/L) in this sample is therefore attributed to low-level lab contamination and was flagged with a B qualifier.

SECTION 1
INTRODUCTION

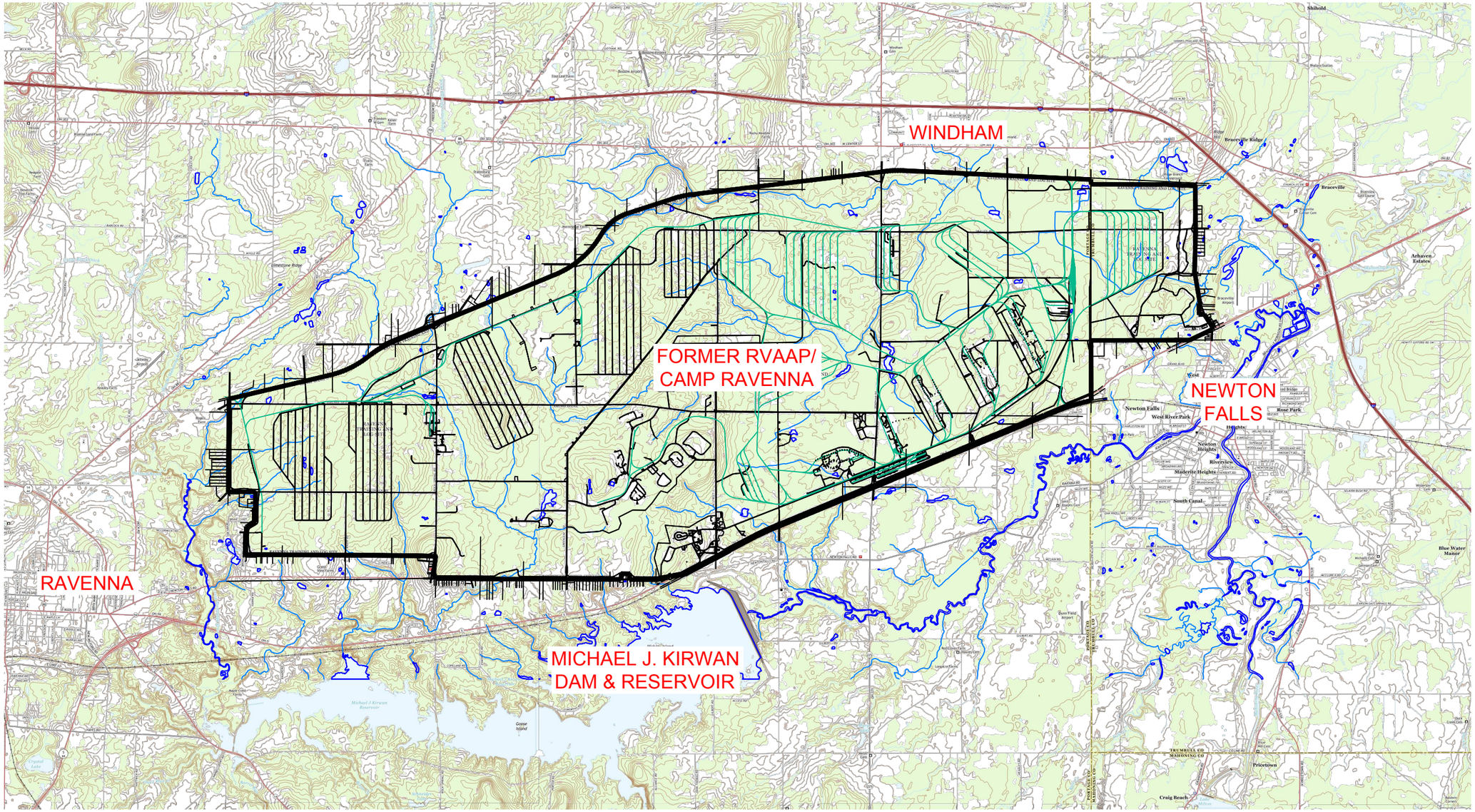
1.1 Facility Description

Past Department of Defense (DoD) activities at the former Ravenna Army Ammunition Plant (RVAAP) date to 1940 and include the manufacturing, loading, handling, and storage of military explosives and ammunition. Until 1999, the former 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. All of the former 21,683 acre RVAAP has been transferred to the United States Property and Fiscal Officer (USP&FO) for Ohio for use by the OHARNG. Administrative accountability for all property has been transferred to the Army National Guard (ARNG) with licensure to OHARNG for use as a military training site, Camp Ravenna Joint Military Training Center (CRJMTC). The CRJMTC 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 former RVAAP portions of the property are solely located within Portage County. The CRJMTC (inclusive of the former 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. Figure 1-1 presents the Former RVAAP/Camp Ravenna Installation Location Map. The CRJMTC 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 former RVAAP was operational CRJMTC 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 former RVAAP in this document are considered to be inclusive of the historical extent of the former RVAAP, which is inclusive of the combined acreages of the current CRJMTC and former RVAAP, unless otherwise specifically stated.

1.2 Project Description

1.2.1 Historical Monitoring

In 2004, the United States (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. The initial FWGWMP wells identified for monitoring were sampled once every quarter, with the exception of the five Resource Conservation and Recovery Act (RCRA)



OHIO

QUADRANGLE LOCATION

Mantua	Garrettsville	Southington
Ravenna	Windham	Newton Falls
Atwater	Deerfield	Lake Milton

MN
8° 40'
154 MILS
GN
0° 2'
1 MILS

UTM GRID AND 2013 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

REV	DESCRIPTION	DATE	APPROVED

REVISIONS

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FORMER RVAAP / CAMP RAVENNA
PORTAGE AND TRUMBULL COUNTIES, OHIO
INSTALLATION LOCATION MAP

SIZE	PROJECT NO.	DWG NO.	REV
B	030174.0016	FIGURE 1-1	0

wells that include three Ramsdell Quarry Landfill (RQL) wells (RQLmw-007, -008, and -009) and two Demolition Area 2 (DA2) wells (DETmw-003 and DETmw-004). The RQL and DA2 wells are sampled semiannually.

As detailed in the original FWGWMP Plan (FWGWMPP; September 2004), the initial monitoring program consisted of the sampling of 36 wells specified in Table 4-1 of the FWGWMPP. Fourteen of these wells are "Background Wells," and the remaining wells are situated at various Areas of Concern (AOCs) at the former 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.

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

Section 3.1.2.2 of the original FWGWMPP (September 2004) 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 semiannually (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.

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, as well as scheduling issues, were discussed with the Ohio EPA in a telephone conference and verified in a subsequent email on May 26, 2010.

Revisions to the list of wells to be sampled and the analytes to be analyzed from each well were discussed with the Ohio EPA in email correspondences in July 2011. For the groundwater monitoring event it was agreed to monitor the wells and analytes presented in the Draft 2010

Addendum to the Facility-Wide Groundwater Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater (USACE, 2010). (Note that this document was withdrawn as a submittal to the Ohio EPA; however, the information presented in that document is still relevant and useful.)

1.2.2 October 2014 Monitoring Event

One of the activities conducted under the IRP includes monitoring of an extensive network (now 284 wells) of groundwater monitoring wells at the former RVAAP facility. To date, 284 current FWGWMP wells at the facility have been sampled and analyzed a minimum of four quarters.

Details of the current program design and requirements are contained in the *Final Facility-Wide Groundwater Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater Semiannual Monitoring Addendum* dated August 1, 2013. Additionally, this document supplements the *Final Facility-Wide Groundwater Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater Addendum* (FWGWMPP Addendum; EQM, January 2012), which includes three parts that pertain to the proposed work: Part I- Environmental Investigation Services Addendum, Part II- Quality Assurance Project Plan (QAPP) Addendum, and Part III- Site Safety and Health Plan (SSHP) Addendum. Additional details pertaining to performance of field and laboratory activities are contained in the *Final Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (FWSAP; SAIC, 2011).

In December 2013 three wells were installed under the *Facility-Wide Groundwater Monitoring Program Plan RVAAP-66 Facility-Wide Groundwater Additional Well Installation Addendum (September 2013*). The purpose of the new wells was to evaluate potential groundwater impacts outside of the perimeter fence area of the former RVAAP. These wells were monitored for the final fourth quarter during this event. The monitoring wells sampled during the October 2014 groundwater monitoring event are presented in Table 1-1.

Table 1-1. October Monitoring Wells

Well ID Number	RVAAP Location	Sampling Rationale
LL1mw-088	Load Line 1	New well, four events needed
LL2mw-271	Load Line 2	New well, four events needed
LL3mw-246	Load Line 3	New well, four events needed

1.3 Scope of Work for the October 2014 Sampling Event

The USACE, under a Government Services Administration (GSA) Performance Based Acquisition (PBA) contract, retained Environmental Quality Management, Inc. (EQM) (Contract No. GS-10F-0293K – Delivery Order W912QR-11-F-0266) to obtain a signed Record of Decision (ROD) for the facility-wide groundwater (RVAAP-66) at the former RVAAP. One objective of this project is to continue monitoring under the RVAAP Facility-Wide Groundwater Monitoring Program. The following tasks were performed during the October 2014 sampling

event in accordance with specifications contained in the Semiannual Addendum, FWGWMPP Addendum, the FWSAP, and the Scope of Work written by the USACE:

- Performed groundwater sampling at the 3 wells identified in Table 1-1.
- Gauged water levels/total depth at the 3 groundwater monitoring wells scheduled for groundwater sampling at the facility.
- Performed laboratory analysis of all the collected samples.
- Verified, validated, and reduced the laboratory analytical data produced for the event (exclusive of the quality assurance samples analyzed by RTI Laboratories).
- Prepared the Investigation-Derived Waste (IDW) Characterization and Disposal Plan for the IDW collected during monitoring activities.
- Prepared and submitted the monitoring report for the sampling event.

1.4 Report Presentation

This report presents the results of the October 2014 sampling event. The report is structured in the following way:

- Section 1.0 – Introduction.
- Section 2.0 – Description of Project Activities. This section describes project-specific details not contained in the FWSAP, FWGWMPP Addendum, and Semiannual Addendum. Additionally, details are provided on how the tasks described above were performed.
- Section 3.0 – Results of Investigation. The results of the sampling event are summarized, including groundwater elevation measurements, analytical results, and data verification/validation information.
- Section 4.0 –References.

- Appendix A – Water-Level Measurements/Field Log Book/Calibration Records/Sample and Purge Records/Daily Quality Control Reports
- Appendix B – Data Verification Reports/Laboratory Data Sheets
- Appendix C – Investigation-Derived Waste Characterization and Disposal Plan
- Appendix D – Reporting Limits that Currently Do Not Meet the RVAAP QAPP Project Action Requirements, MCLs, and/or USEPA RSLs (November 2014)
- Appendix E – Correspondence and Comments/Responses

SECTION 2
PROJECT ACTIVITIES

2.1 Groundwater Level Monitoring

Depth to water from the top of the inner casing was measured in 3 wells during the October 2014 sampling event. 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.

Results of the groundwater level monitoring for the three former RVAAP wells sampled during this monitoring event are presented in Section 3.1 and Appendix A. The monitoring well location map, identified as Figure 2-1 Wells Monitored in October 2014 Map, is included with this report.

2.2 Groundwater Sampling

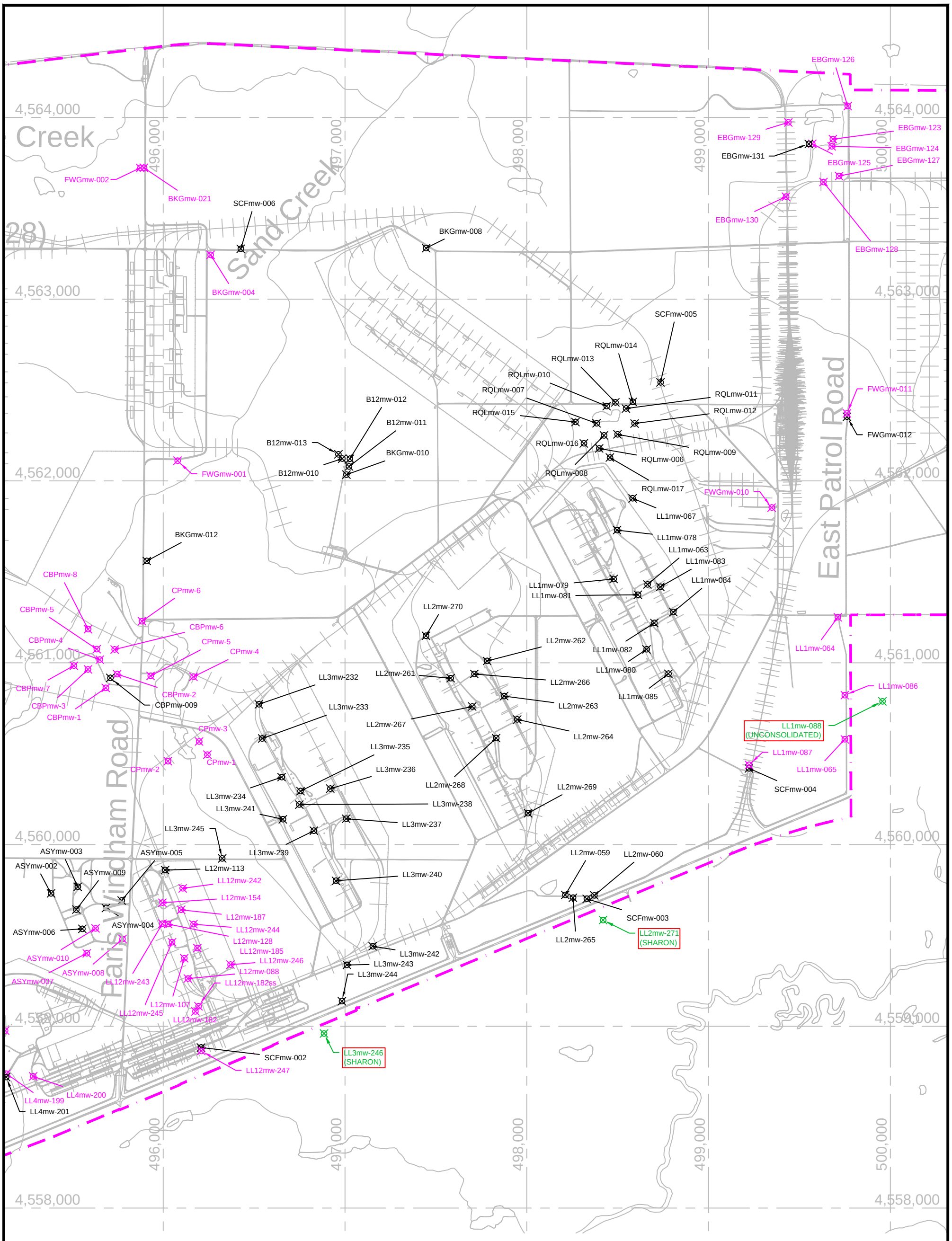
All identified monitoring wells were sampled from October 21-22, 2014. Wells were sampled using micropurge techniques in accordance with the specifications contained in the approved addendum. The wells were micropurged until certain groundwater parameters (i.e., temperature, specific conductivity, pH, and dissolved oxygen) had stabilized and turbidity readings were less than (<) or equal to 10 nephelometric turbidity units (NTU) or after two hours had three consecutive readings within 10 percent (%), with the exception of one well.

- LL1mw-088, which was sampled after two hours and fifteen minutes of purging without 10 NTU or three consecutive readings within 10 %.

The groundwater parameters were measured using a Horiba U-22/U-52 with flow cell or equivalent**.** Groundwater parameter measurements obtained during micropurging are presented in Appendix A. During the October 2014 event, a groundwater pH value of more than 9 standard units (s.u.) or less than 4 s.u. was not noted at any of the wells.

Additionally, the groundwater samples for metals analysis were filtered as part of the FWGWMP sampling, thereby reducing the effect of suspended particles in the groundwater. Filtered metals samples were collected through the bladder pump using an inline 0.45-micron filter emptying directly into pre-preserved sample bottles containing nitric acid. All sampling procedures for the filtered metals were conducted in accordance with the FWSAP.

Equipment and sampling details are contained in Appendix A. Groundwater samples were collected in laboratory-supplied containers and stored in iced coolers for shipment in accordance with the specifications presented in the FWSAP, Semiannual Addendum, and FWGWMPP.



COORDINATE SYSTEM UTM NAD 83 ZONE 17

REV	DESCRIPTION	DATE	APPROVED

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APPROVED	J. MILLER	12-16-2014
SCALE:	AS SHOWN	

WELLS MONITORED IN OCTOBER 2014

SIZE	PROJECT NO.	DWG NO.	REV
B	030174.0016	FIGURE 2-1	0

During the October 2014 sampling, all coolers were received by the laboratory at temperatures within the prescribed tolerance limits.

2.3 Laboratory Analysis

Laboratory analyses on all primary samples and associated quality control (QC) samples were performed by Test America Laboratories. Table 2-1 presents the analytical methods used to analyze the groundwater samples.

Note that for this event, wells were sampled for specific analytes as identified in the FWGWMPP Addendum. The three new wells were sampled for the full RVAAP analytical suite. The October 2014 groundwater samples were analyzed for the following parameters: explosives, propellants (nitrocellulose and nitroguanidine), cyanide, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), target analyte list (TAL) metals (filtered), pesticides, and polychlorinated biphenyls (PCBs).

Quality control samples, including duplicates and matrix spike/matrix spike duplicates (MS/MSD) were collected from the following wells:

LL3mw-246 – Duplicate Sample
LL2mw-271 – MS/MSD

All samples were picked up from the facility and delivered to the laboratory in a cooler (with wet ice) by a Test America courier under proper chain-of-custody procedures (FWSAP). Laboratory analyses on all quality assurance (QA) samples (i.e., split samples) were performed by RTI Laboratories in Livonia, Michigan. One QA sample was collected from the same well where the duplicate sample was collected. The QA samples were shipped in coolers (with wet ice) via overnight delivery service under proper chain-of-custody procedures. Table 2-2 presents, in tabular form, all analyses and associated QA/QC for the October 2014 monitoring event. The Daily Quality Control Reports are presented in Appendix A.

Laboratory results are summarized in Section 3.2. Laboratory data sheets, including chain-of-custodies and QA/QC information, are contained in Appendix B.

Table 2-1. Analytical Suite of Chemicals

Constituents	Method[1]	Preservation
Polychlorinated biphenyls (PCBs)	Gas Chromatograph (GC) – (8082)	Cool, 4º C[3]
Pesticides	GC – (8081A)	Cool, 4º C
Base/Neutrals and Acids (SVOCs)	GC/Mass Spectrograph (MS) SVOCs (8270C)	Cool, 4º C
Volatile Organic Compounds (VOCs)	GC/MS VOCs (8260B)	HCl, Cool, 4º C, pH < 2
Nitroguanidine (Propellant)	Organic compounds by UV/HPLC (8330 modified)	Cool, 4º C
Nitroaromatics & Nitramines (Explosives)	GC SVOCs Explosives (8330)	Cool, 4º C
Nitrocellulose as N (Propellant)	General Chemistry (WS-WC-0050)	Cool, 4º C
Nitrate/Nitrites	General Chemistry (353.2)[2]	H_2SO_4, Cool, 4º C, pH < 2
Cyanide (Total)	General Chemistry (9012A)	NaOh to pH > 12, Cool, 4º C
Metals (Magnesium, Manganese, Barium, Nickel, Potassium, Silver, Sodium, Vanadium, Chromium, Calcium, Cobalt, Copper, Arsenic, Lead, Selenium)	Inductively Coupled Plasma (6010B)	0.45µm filter, HNO_3, to pH < 2, Cool, 4º C
Metals (Antimony, Iron, Beryllium, Thallium, Zinc, Cadmium, Aluminum)	Inductively Coupled Plasma Mass Spectrometry (6020)	0.45µm filter, HNO_3, to pH < 2, Cool, 4º C
Mercury	Liquid Waste Cold Vapor Technique (7470A)	0.45µm filter, HNO_3, to pH < 2, Cool, 4º C
Hexavalent Chromium	Method 218.6[2]	0.45µm filter, Buffer solution, Cool, 4º C

1 = USEPA SW846
2 = EPA Methods for Chemical Analysis of Water and Waste
3 = degree Celsius

Table 2-2. QA Table for October 2014 Sampling Event

	Contractor Laboratory							Government Laboratory		Requested Laboratory Analysis						
Sample Locations	Primary Lab Sample ID	Date	Sample Type	Assoc. QC Dup Number	Assoc. QC Rinsate Number	Assoc. QC Trip Blank Number	MS/ MSD	QA Lab Sample ID	Assoc. QC Trip Blank Number	VOCs	SVOCs 4	Pesticides	PCBs	Explosives & Propellants	Cyanide	Filtered Metals
LL1mw-088	FWGLL1mw-088-0502-GW/GF	10/21/2014	GW		EQUIPRinse1-0507	FWGTEAM2-Trip				1	1	1	1	1	1	1
LL2mw-271	FWGLL2mw-271-0503-GW/GF	10/22/2014	GW		EQUIPRinse2-0508	FWGTEAM2-Trip	Y			1	1	1	1	1	1	1
LL3mw-246	FWGLL3mw-246-0504-GW/GF	10/22/2014	GW	DUP1-0506	EQUIPRinse2-0508	FWGTEAM2-Trip		FWGLL3mw-246-0505s-GW/GF	TRIPBLANK	1	1	1	1	1	1	1

SVOCs (4=Full RVAAP RCRA suite)

2.4 Data Verification/Validation

Data from Test America were verified in accordance with project specifications by EQM chemists Ms. Angye Dragotta and Mr. Eric Corbin using the Automated Data Review (ADR) software. Data validation/verification is summarized in Section 3.3. The Data Verification/Validation Summary Reports are presented in Appendix B.

2.5 Investigation-Derived Waste

An IDW Report was prepared for the sampling and water-level measurement activities discussed in Section 3. Purge water was collected at each well location in 5-gallon buckets and transferred to 55-gallon drums located inside Building 1036. No more than 7 gallons were purged from any well. Instruments and equipment were decontaminated after purging and sampling each monitoring well. Decontamination fluids were collected in a separate 55-gallon drum stored inside Building 1036. Pending analysis of the monitoring well samples, IDW fluids are stored in the 55-gallon drums until the IDW Report pending review by the Ohio EPA. The IDW Report is presented in Appendix C.

SECTION 3
RESULTS

3.1 Groundwater Elevations

Groundwater elevations were measured in 3 former RVAAP monitoring wells during October 21-22, 2014. The locations of the 3 monitoring wells sampled are shown on Figure 2-1. The water-level measurement field sheets are presented in Appendix A. 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.

3.2 Summary of Analytical Results

Summaries of laboratory analytical results are presented in Tables 3-1, 3-2, 3-3, 3-4, and 3-5. Appendix B presents the Laboratory Data Sheets. A brief summary of the detected compounds and elements are presented in the following sub-sections. The data presented in the tables are the validated and verified data. Data verification and validation is discussed in Section 3.3 and Appendix B.

As part of the ongoing RI for the facility-wide groundwater, detected and validated analytes from the monitoring wells will be subjected to a risk screening process that will be detailed in the *FWGWMP Remedial Investigation/Feasibility Study Work Plan*. As a result reference to the background criteria and the risk evaluation process have been removed from this document.

Additionally, please note the following:

- As discussed in Section 3.3 under the data validation process, data are qualified by EQM's validator following the guidelines and qualifier requirements set forth by the FWSAP, QAPP, and U.S. DoD Quality Services Manual (QSM) for Environmental Laboratories, Version 4.1, and the USACE, Louisville District, Quality Systems Manual Supplement (LS). As a result, the flags designated by EQM sometimes differ from those in the laboratory data sheets. The flags designated by the validator override any flagging of the data by the laboratory. For a complete explanation of the data qualifiers used for each constituent refer to Section 3.3 and the Data Verification Summary Reports found in Appendix B.

- Several analytical methods used to analyze a number of explosives, VOCs, SVOCs, metals, PCBs, and pesticides have reporting limits that currently do not meet the RVAAP QAPP project action requirements, Maximum Contaminant Levels (MCLs) or USEPA Regional Screening Levels (RSLs). The laboratory did not meet the requirements due to the following: 1) the detection limit is a statistically derived number that varies based on analytical method and instrumentation; 2) the RSL (November 2014) is independent from analytical method detection limits and is calculated from EPA toxicity values and exposure information. Tables listing the reporting limits that currently do not meet the RVAAP QAPP Project Action Requirements, MCLs, and/or RSLs (November 2014) are presented in Appendix D.

- Note that the RSLs used in this report are the most recent available (November 2014). The RSL values reported in the data tables represent the tap water values for November 2014 using TR=1E-6, HQ=1.

3.2.1 Explosives and Propellants

Explosive and propellant compound analytical results are summarized in Table 3-1. The following compounds were detected at concentrations above the MDLs:

- 2-Amino-4,6-dinitrotoluene – LL3mw-246 (0.38 µg/L)**.** There is no MCL for 2-amino-4,6-dinitrotoluene. The RSL (November 2014) is 39 µg/L.

- 4-Amino-2,6-dinitrotoluene – LL3mw-246 (0.34 µg/L). There is no MCL for 4-amino-2,6-dinitrotoluene. The RSL (November 2014) is 39 µg/L.

- RDX – LL3mw-246 (0.16 µg/L J). There is no MCL for RDX. The RSL (November 2014) is 0.61 µg/L.

As shown in Table 3-1, no explosives or propellants were detected at levels above their corresponding MCLs or RSLs (November 2014) during the October 2014 sampling event.

Table 3-1. FWGWMP October 2014 Explosive and Propellant Analytical Results

Station ID				LL1mw-088	LL2mw-271	LL3mw-246
Sample ID		MCL	USEPA RSL	FWGLL1mw-088-0502-GW	FWGLL2mw-271-0503-GW	FWGLL3mw-246-504-GW
Date Collected				10/21/2014	10/22/2014	10/22/2014
Sample Type				Grab	Grab	Grab
Analyte	Units					
1,3,5-Trinitrobenzene	µg/L	NS	590	0.051 U	0.055 U	0.053 U
1,3-Dinitrobenzene	µg/L	NS	2	0.1 U	0.11 U	0.11 U
2,4,6-Trinitrotoluene	µg/L	NS	2.5	0.1 U	0.11 U	0.11 U
2,4-Dinitrotoluene	µg/L	NS	0.24	0.1 U	0.11 U	0.11 U
2,6-Dinitrotoluene	µg/L	NS	0.048	0.1 U	0.11 U	0.11 U
2-Amino-4,6-dinitrotoluene	µg/L	NS	39	0.1 U	0.11 U	**0.38**
2-Nitrotoluene	µg/L	NS	0.31	0.1 U	0.11 U	0.11 U
3-Nitrotoluene	µg/L	NS	1.7	0.1 U	0.11 U	0.11 U
4-Amino-2,6-Dinitrotoluene	µg/L	NS	39	0.1 U	0.11 U	**0.34**
4-Nitrotoluene	µg/L	NS	4.2	0.1 U	0.11 U	0.11 U
HMX	µg/L	NS	1000	0.051 U	0.055 U	0.053 U
Nitrobenzene	µg/L	NS	0.14	0.1 U	0.11 U	0.11 U
Nitrocellulose	mg/L	NS	6.0E+07	1 UJ	1 UJ	1 UJ
Nitroglycerin	µg/L	NS	2	0.51 U	0.55 U	0.53 U
Nitroguanidine	µg/L	NS	2000	6 UJ	6 UJ	6 UJ
PETN	µg/L	NS	19	0.51 U	0.55 U	0.53 U
RDX	µg/L	NS	0.7	0.051 U	0.055 U	**0.16**
Tetryl	µg/L	NS	39	0.1 U	0.11 U	0.11 U

Notes:
µg/L = microgram per liter
mg/L = milligram per liter
NS = no standard
N/A = Not Analyzed
Bold = detected compound above the MDL
RSL = USEPA Regional Screening Level, Nov. 2014
MCL = Maximum Contaminant Level

Table 3-1. FWGWMP October 2014 Explosive and Propellant Analytical Results

Data Qualifiers

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the USACE Louisville Chemistry Guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

U The analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.

J The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:
- Results detected above the laboratory MDL but less than the laboratory reporting limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- Laboratory control sample (LCS) percent recoveries outside acceptance criteria.

R Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample [e.g., the method reporting limit (MRL) verification standard was below quality control guidelines; associated sample results that were non-detect are unusable].

UJ This flag is a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated reporting limit (RL).

B The B flag is used for when the analyte is found in the method blank or any of the field blanks. This designation overrides the Contract Laboratory Program (CLP) "B" designation when used by the laboratory as an estimated value for inorganics.

3.2.2 Inorganic Elements

The analytical results for inorganic elements are presented in Table 3-2. The inorganics detected in the samples included: aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, nickel, potassium, and sodium. The inorganic elements that were detected were compared against elements that are considered as essential nutrients to determine if they are to be considered as Site-Related Contaminants (SRCs). Calcium, magnesium, iron, potassium, and sodium were eliminated as potential SRCs because they are considered essential nutrients.

The following compounds were detected at concentrations above the MDLs.

Aluminum

- LL1mw-088 (120 µg/L J). The MCL for aluminum is 200 µg/L. The RSL (November 2014) is 20,000 µg/L.

Antimony

- LL3mw-246 (0.33 µg/L J). The MCL for arsenic is 6 µg /L. The RSL (November 2014) is 7.8 µg/L.

Arsenic

- LL1mw-088 (27 µg/L) and LL2mw-271 (6 µg/L J). The MCL for arsenic is 10 µg /L. The RSL (November 2014) is 0.052 µg/L.

Barium

- LL1mw-088 (44 µg/L), LL2mw-271 (3.2 µg/L J), and LL3mw-246 (18 µg/L). The MCL for arsenic is 2000 µg /L. The RSL (November 2014) is 3800 µg/L.

Cadmium

- LL2mw-271 (0.58 µg/L B). The MCL for cadmium is 5 µg /L. The RSL (November 2014) is 9.2 µg/L.

Chromium

- LL1mw-088 (1.1 µg/L J), and LL2mw-271 (0.69 µg/L J). The MCL for chromium is 100 µg/L. The RSL (November 2014) is 22000 µg/L.

Cobalt

- LL2mw-271 (6.1 µg/L). There is no MCL for cobalt. The RSL (November 2014) is 6 µg/L.

Iron

- LL1mw-088 (1300 µg/L), and LL2mw-271 (3200 µg/L). The MCL for iron is 300 µg/L. The RSL (November 2014) is 11000 µg/L.

Manganese

- LL1mw-088 (60 µg/L), LL2mw-271 (390 µg/L), and LL3mw-246 (61 µg/L). The MCL for manganese is 50 µg/L. The RSL (November 2014) is 430 µg/L.

Nickel

- L2mw-271 (25 µg/L). There is no MCL for nickel. The RSL (November 2014) is 390 µg/L.

As shown above and on Table 3-2, several of the inorganics (arsenic, cobalt, iron, and manganese) were detected at levels above their corresponding MCLs or RSLs (November 2014) during the October 2014 sampling event.

The facility-wide groundwater conditions are currently being evaluated under the remedial investigation/feasibility study. This will include an evaluation of aluminum, manganese, arsenic, cyanide, cobalt, iron, and thallium related to exceedances of MCLs/RSLs. To date there have been no elevated concentrations of the inorganic analytes found in the groundwater that would pose an immediate threat to human health or the environment.

Table 3-2. FWGWMP October 2014 Inorganic Analytical Results

Station ID			LL1mw-088	LL2mw-271	LL3mw-246
Sample ID	MCL	USEPA RSL	FWGLL1mw-088-0502-GF	FWGLL2mw-271-0503-GF	FWGLL3mw-246-504-GF
Date Collected			10/21/2014	10/22/2014	10/22/2014
Sample Type			Grab	Grab	Grab
Analyte					
Aluminum	200	20000	**120 J**	60 U	60 U
Antimony	6.0	7.8	1.0 UJ	1 U	**0.33 J**
Arsenic	10	0.052	**27**	**6 J**	10 U
Barium	2000	3800	**44**	**3.2 J**	**18**
Beryllium	4.0	25	1.0 U	1 U	1 U
Cadmium	5.0	9.2	1.0 U	**0.58 B**	1 U
Calcium	NS	NS	**80000**	**60000**	**24000**
Chromium	100	22000	**1.1 J**	**0.69 J**	4 U
Cobalt	NS	6	4.0 U	**6.1**	**0.59 J**
Copper	1300	800	10 U	10 U	10 U
Cyanide	0.20	0.0015	0.0050 U	0.005 U	0.005 U
Iron	300	11000	**1300**	**3200**	100 U
Lead	15	15	5.0 U	5 U	5 U
Magnesium	NS	NS	**36000**	**17000**	**7700**
Manganese	50	430	**60**	**390**	**61**
Mercury	2.0	0.63	0.20 U	0.2 U	0.2 U
Nickel	NS	390	1.4 U	**25**	3.9 U
Potassium	NS	NS	**3300**	**1100**	**1500**
Selenium	50	100	10 U	10 U	10 U
Silver	100	94	5.0 U	5 U	5 U
Sodium	NS	NS	**25000**	**4300**	**4000**
Thallium	2.0	0.20	1.5 U	1.5 U	1.5 U
Vanadium	NS	86	4.0 U	4 U	4 U
Zinc	5000	6000	50 U	50 U	50 U

Notes:

µg/L = microgram per liter

mg/L = milligram per liter

NS = no standard

N/A = Not Analyzed

Bold = detected compound above the MDL

RSL = USEPA Regional Screening Level, Nov. 2014

MCL = Maximum Contaminant Level

Table 3-2. FWGWMP October 2014 Inorganics Analytical Results

Data Qualifiers

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the USACE Louisville Chemistry Guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

U The analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.

J The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:
- Results detected above the laboratory MDL but less than the laboratory reporting limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- LCS percent recoveries outside acceptance criteria.

R Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample [e.g., the MRL verification standard was below quality control guidelines; associated sample results that were non-detect are unusable].

UJ This flag is a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated RL.

B The B flag is used for when the analyte is found in the method blank or any of the field blanks. This designation overrides the CLP "B" designation when used by the laboratory as an estimated value for inorganics.

3.2.3 Volatile Organic Compounds

The analytical results for VOCs are summarized in Table 3-3. As shown in Table 3-3, no VOCs were detected at levels exceeding the MDL for this sampling event.

3.2.4 Semivolatile Organic Compounds

The analytical results for SVOCs are summarized in Table 3-4. As shown in Table 3-4, no SVOCs were detected at levels exceeding the MDL for this sampling event.

3.2.5 Pesticides and Polychlorinated Biphenyls

The analytical results for pesticides and PCBs are summarized in Table 3-5. As shown in Table 3-5, alpha-BHC was detected in one well at a level exceeding the MDL for this sampling event.

- alpha-BHC – LL1mw-88 (0.028 µg/L JB). There is no MCL for alpha-BHC. The RSL (November 2014) is 0.0071 µg/L.

Note that method blank associated with the samples was found to contain alpha-BHC at 0.025µg/L. alpha-BHC method blank contamination was less than ½ the method reporting limit (MRL) of 0.053 µg/L. The alpha-BHC detection of 0.028 µg/L in sample FWGLL1mw-088-0502-GW is therefore attributed to low-level lab contamination and was flagged with a B qualifier.

Table 3-3. FWGWMP October 2014 VOC Analytical Results

Station ID				LL1mw-088	LL2mw-271	LL3mw-246
Sample ID		MCL	USEPA RSL	FWGLL1mw-088-0502-GW	FWGLL2mw-271-0503-GW	FWGLL3mw-246-504-GW
Date Collected				10/21/2014	10/22/2014	10/22/2014
Sample Type				Grab	Grab	Grab
Analyte	Units					
1,1,1-Trichloroethane	µg/L	200	8000	0.50 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	µg/L	NS	0.076	0.50 U	0.5 U	0.5 U
1,1,2-Trichloroethane	µg/L	5.0	0.28	0.50 U	0.5 U	0.5 U
1,1-Dichloroethane	µg/L	NS	2.7	0.50 U	0.5 U	0.5 U
1,1-Dichloroethene (total)	µg/L	7.0	280	0.50 U	0.5 U	0.5 U
1,2-Dibromoethane	µg/L	NS	0.0075	0.50 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	5.0	0.17	0.50 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	µg/L	NS	NS	1.0 U	1 U	1 U
1,2-Dichloropropane	µg/L	5.0	0.44	0.50 U	0.5 U	0.5 U
2-Butanone	µg/L	NS	5600	1.0 UJ	1 UJ	1 UJ
2-Hexanone	µg/L	NS	38	1.0 U	1 U	1 U
4-Methyl-2-pentanone	µg/L	NS	1200	1.0 U	1 U	1 U
Acetone	µg/L	NS	14000	2.0 UJ	2 UJ	2 UJ
Benzene	µg/L	5.0	0.45	0.25 U	0.25 U	0.25 U
Bromochloromethane	µg/L	NS	83	0.50 U	0.5 U	0.5 U
Bromodichloromethane	µg/L	80	0.13	0.25 U	0.25 U	0.25 U
Bromoform	µg/L	80	9.2	1.0 UJ	1 UJ	1 UJ
Bromomethane	µg/L	NS	7.5	1.0 U	1 U	1 U
Carbon disulfide	µg/L	NS	810	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	µg/L	5.0	0.45	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	100	78	0.50 U	0.5 U	0.5 U
Chloroethane	µg/L	NS	21000	0.50 U	0.5 U	0.5 U
Chloroform	µg/L	80	0.22	0.50 U	0.5 U	0.5 U
Chloromethane	µg/L	NS	190	0.50 U	0.5 U	0.5 U
cis-1,2-dichloroethene	µg/L	70	36	0.50 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	µg/L	NS	0.47	0.25 U	0.25 U	0.25 U
Dibromochloromethane	µg/L	NS	0.17	0.50 U	0.5 U	0.5 U
Ethylbenzene	µg/L	700	1.5	0.50 U	0.5 U	0.5 U
m&p-xylenes	µg/L	NS	190	0.50 U	0.5 U	0.5 U
Methylene chloride	µg/L	5.0	11	0.50 U	0.5 U	0.5 U
o-xylene	µg/L	NS	190	0.25 U	0.25 U	0.25 U
Styrene	µg/L	100	1200	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	11	0.50 U	0.5 U	0.5 U
Toluene	µg/L	1000	1100	0.25 U	0.25 U	0.25 U
trans-1,2-dichloroethene	µg/L	100	360	0.50 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	µg/L	NS	0.47	0.50 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	0.49	0.50 U	0.5 U	0.5 U
Vinyl chloride	µg/L	2.0	0.019	0.50 U	0.5 U	0.5 U
Total Xylenes	µg/L	10000	190	1.0 U	1 U	1 U

Notes:
µg/L = microgram per liter
NS = no standard
N/A = Not Analyzed
Bold = detected compound above the MDL
RSL = USEPA Regional Screening Level, Nov. 2014
MCL = Maximum Contaminant Level

Table 3-3. FWGWMP October 2014 VOC Analytical Results

Data Qualifiers

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the USACE Louisville Chemistry Guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

U The analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.

J The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:

- Results detected above the laboratory MDL but less than the laboratory reporting limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- LCS percent recoveries outside acceptance criteria.

R Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample [e.g., the MRL verification standard was below quality control guidelines; associated sample results that were non-detect are unusable].

UJ This flag is a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated RL.

B The B flag is used for when the analyte is found in the method blank or any of the field blanks. This designation overrides the CLP "B" designation when used by the laboratory as an estimated value for inorganics.

Table 3-4. FWGWMP October 2014 SVOC Analytical Results

Station ID				LL1mw-088	LL2mw-271	LL3mw-246
Sample ID		MCL	USEPA RSL	FWGLL1mw-088-0502-GW	FWGLL2mw-271-0503-GW	FWGLL3mw-246-504-GW
Date Collected				10/21/2014	10/22/2014	10/22/2014
Sample Type				Grab	Grab	Grab
Analyte	Units					
1,2,4-Trichlorobenzene	µg/L	70	1.1	0.50 UJ	0.5 UJ	0.52 UJ
1,2-Dichlorobenzene	µg/L	600	300	0.50 UJ	0.5 UJ	0.52 UJ
1,3-Dichlorobenzene	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
1,4-Dichlorobenzene	µg/L	75	0.48	0.50 UJ	0.5 UJ	0.52 UJ
2,2-oxybis (1-chloropropane)	µg/L	NS	0.36	0.50 UJ	0.5 UJ	0.52 UJ
2,4,5-Trichlorophenol	µg/L	NS	1200	0.50 UJ	0.5 UJ	0.52 UJ
2,4,6-Trichlorophenol	µg/L	NS	4	0.50 UJ	0.5 UJ	0.52 UJ
2,4-Dichlorophenol	µg/L	NS	46	0.50 UJ	0.5 UJ	0.52 UJ
2,4-Dimethylphenol	µg/L	NS	360	0.50 UJ	0.5 UJ	0.52 UJ
2,4-Dinitrophenol	µg/L	NS	39	0.99 UJ	0.99 UJ	1 UJ
2-Chloronaphthalene	µg/L	NS	750	0.50 UJ	0.5 UJ	0.52 UJ
2-Chlorophenol	µg/L	NS	91	0.50 UJ	0.5 UJ	0.52 UJ
2-Methylnaphthalene	µg/L	NS	36	0.099 UJ	0.099 UJ	0.1 UJ
2-Methylphenol	µg/L	NS	930	0.50 UJ	0.5 UJ	0.52 UJ
2-Nitroaniline	µg/L	NS	190	0.50 UJ	0.5 UJ	0.52 UJ
2-Nitrophenol	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
3,3'-Dichlorobenzidine	µg/L	NS	0.12	0.99 UJ	0.99 UJ	1 UJ
3- and 4-Methylphenol	µg/L	NS	930	0.99 UJ	0.99 UJ	1 UJ
3-Nitroaniline	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
4,6-Dinitro-2-methylphenol	µg/L	NS	1.5	4.0 UJ	4 UJ	4.2 UJ
4-Bromophenyl phenyl ether	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
4-Chloro-3-methylphenol	µg/L	NS	1400	0.50 UJ	0.5 UJ	0.52 UJ
4-Chloroaniline	µg/L	NS	0.36	0.50 UJ	0.5 UJ	0.52 UJ
4-Chlorophenyl phenyl ether	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
4-Nitroanaline	µg/L	NS	38	0.50 UJ	0.5 UJ	0.52 UJ
4-Nitrophenol	µg/L	NS	NS	4.0 UJ	4 UJ	4.2 UJ
Acenaphthene	µg/L	NS	530	0.099 UJ	0.099 UJ	0.1 UJ
Acenaphthylene	µg/L	NS	NS	0.099 UJ	0.099 UJ	0.1 UJ
Anthracene	µg/L	NS	1800	0.099 UJ	0.099 UJ	0.1 UJ
Benzo(a)anthracene	µg/L	NS	0.034	0.099 UJ	0.099 UJ	0.1 UJ
Benzo(a)pyrene	µg/L	0.2	0.0034	0.099 UJ	0.099 UJ	0.1 UJ
Benzo(b)fluoranthene	µg/L	NS	0.034	0.099 UJ	0.099 UJ	0.1 UJ
Benzo(g,h,i)perylene	µg/L	NS	NS	0.099 UJ	0.099 UJ	0.1 UJ
Benzo(k)fluoranthene	µg/L	NS	0.34	0.099 UJ	0.099 UJ	0.1 UJ
Benzoic acid	µg/L	NS	75000	20 UJ	20 UJ	21 UJ
Benzyl alcohol	µg/L	NS	2000	0.50 UJ	0.5 UJ	0.52 UJ
bis(2-Chloroethoxy)methane	µg/L	NS	59	0.50 UJ	0.5 UJ	0.52 UJ
bis(2-Chloroethyl)ether	µg/L	NS	0.014	0.099 UJ	0.099 UJ	0.1 UJ
bis(2-Ethylhexyl)phthalate	µg/L	6.0	5.6	5.0 UJ	5 UJ	5.2 UJ
Butyl benzyl phthalate	µg/L	NS	16	0.50 UJ	0.5 UJ	0.52 UJ

Table 3-4. FWGWMP October 2014 SVOC Analytical Results

Station ID				LL1mw-088	LL2mw-271	LL3mw-246
Sample ID		MCL	USEPA RSL	FWGLL1mw-088-0502-GW	FWGLL2mw-271-0503-GW	FWGLL3mw-246-504-GW
Date Collected				10/21/2014	10/22/2014	10/22/2014
Sample Type				Grab	Grab	Grab
Analyte	Units					
Carbazole	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
Chrysene	µg/L	NS	3.4	0.099 UJ	0.099 UJ	0.1 UJ
Dibenzo(a,h)anthracene	µg/L	NS	0.0065	0.099 UJ	0.099 UJ	0.1 UJ
Dibenzofuran	µg/L	NS	7.9	0.099 UJ	0.099 UJ	0.1 UJ
Diethyl phthalate	µg/L	NS	15000	0.99 UJ	0.99 UJ	1 UJ
Dimethyl phthalate	µg/L	NS	NS	0.50 UJ	0.5 UJ	0.52 UJ
Di-n-butyl phthalate	µg/L	NS	900	5.0 UJ	5 UJ	5.2 UJ
Di-n-octyl phthalate	µg/L	NS	200	0.50 UJ	0.5 UJ	0.52 UJ
Fluoranthene	µg/L	NS	800	0.099 UJ	0.099 UJ	0.1 UJ
Fluorene	µg/L	NS	290	0.099 UJ	0.099 UJ	0.1 UJ
Hexachlorobenzene	µg/L	1.0	0.049	0.099 UJ	0.099 UJ	0.1 UJ
Hexachlorobutadiene	µg/L	NS	0.3	0.50 UJ	0.5 UJ	0.52 UJ
Hexachlorocyclopentadiene	µg/L	50	31	0.50 UJ	0.5 UJ	0.52 UJ
Hexachloroethane	µg/L	NS	0.90	0.50 UJ	0.5 UJ	0.52 UJ
Indeno(1,2,3-cd)pyrene	µg/L	NS	0.034	0.099 UJ	0.099 UJ	0.1 UJ
Isophorone	µg/L	NS	78	0.50 UJ	0.5 UJ	0.52 UJ
Naphthalene	µg/L	NS	0.17	0.099 UJ	0.099 UJ	0.1 UJ
N-Nitroso-di-n-propylamine	µg/L	NS	0.011	0.50 UJ	0.5 UJ	0.52 UJ
N-Nitrosodiphenylamine	µg/L	NS	12	0.50 UJ	0.5 UJ	0.52 UJ
Pentachlorophenol	µg/L	1.0	0.04	0.99 UJ	0.99 UJ	1 UJ
Phenanthrene	µg/L	NS	NS	0.099 UJ	0.099 UJ	0.1 UJ
Phenol	µg/L	NS	5800	0.99 UJ	0.99 UJ	1 UJ
Pyrene	µg/L	NS	120	0.099 UJ	0.099 UJ	0.1 UJ

Notes:
µg/L = microgram per liter
NS = no standard
N/A = Not Analyzed
Bold = detected compound above the MDL
RSL = USEPA Regional Screening Level, Nov. 2014
MCL = Maximum Contaminant Level

Table 3-4. FWGWMP October 2014 SVOC Analytical Results

Data Qualifiers

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the USACE Louisville Chemistry Guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

U The analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.

J The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:
- Results detected above the laboratory MDL but less than the laboratory reporting limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- LCS percent recoveries outside acceptance criteria.

R Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample [e.g., the MRL verification standard was below quality control guidelines; associated sample results that were non-detect are unusable].

UJ This flag is a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated RL.

B The B flag is used for when the analyte is found in the method blank or any of the field blanks. This designation overrides the CLP "B" designation when used by the laboratory as an estimated value for inorganics.

Table 3-5. FWGWMP October 2014 Pesticides and PCBs Analytical Results

Station ID				LL1mw-088	LL2mw-271	LL3mw-246
Sample ID		MCL	USEPA RSL	FWGLL1mw-088-0502-GW	FWGLL2mw-271-0503-GW	FWGLL3mw-246-504-GW
Date Collected				10/21/2014	10/22/2014	10/22/2014
Sample Type				Grab	Grab	Grab
Analyte	Units					
4,4'-DDD	µg/L	NS	0.031	0.053 UJ	0.048 UJ	0.048 UJ
4,4'-DDE	µg/L	NS	0.23	0.053 UJ	0.048 UJ	0.048 UJ
4,4'-DDT	µg/L	NS	0.23	0.053 UJ	0.048 UJ	0.048 UJ
Aldrin	µg/L	NS	0.0046	0.053 UJ	0.048 UJ	0.048 UJ
alpha-BHC	µg/L	NS	0.0071	**0.028 JB**	0.048 UJ	0.048 UJ
alpha-Chordane	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
beta-BHC	µg/L	NS	0.025	0.053 UJ	0.048 UJ	0.048 UJ
delta-BHC	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
Dieldrin	µg/L	NS	0.0017	0.053 UJ	0.048 UJ	0.048 UJ
Endosulfan I	µg/L	NS	100	0.053 UJ	0.048 UJ	0.048 UJ
Endosulfan II	µg/L	NS	100	0.053 UJ	0.048 UJ	0.048 UJ
Endosulfan sulfate	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
Endrin	µg/L	2.0	2.3	0.053 UJ	0.048 UJ	0.048 UJ
Endrin aldehyde	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
Endrin ketone	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
gamma-BHC	µg/L	0.20	0.041	0.053 UJ	0.048 UJ	0.048 UJ
gamma-Chlordane	µg/L	NS	NS	0.053 UJ	0.048 UJ	0.048 UJ
Heptachlor	µg/L	0.40	0.002	0.053 UJ	0.048 UJ	0.048 UJ
Heptachlor epoxide	µg/L	0.20	0.0038	0.053 UJ	0.048 UJ	0.048 UJ
Methoxychlor	µg/L	40	37	0.053 UJ	0.048 UJ	0.048 UJ
Toxaphene	µg/L	3.0	0.015	1.1 UJ	0.95 UJ	0.96 UJ
PCB- 1016	µg/L	0.50	1.1	0.21 U	0.2 U	0.21 U
PCB- 1221	µg/L	0.50	0.0046	0.21 U	0.2 U	0.21 U
PCB- 1232	µg/L	0.50	0.0046	0.21 U	0.2 U	0.21 U
PCB- 1242	µg/L	0.50	0.039	0.43 U	0.4 U	0.42 U
PCB- 1248	µg/L	0.50	0.039	0.21 U	0.2 U	0.21 U
PCB- 1254	µg/L	0.50	0.039	0.21 U	0.2 U	0.21 U
PCB- 1260	µg/L	0.50	0.039	0.21 U	0.2 U	0.21 U

Notes:
MCL = Maximum Contaminant Level
RSL = USEPA Regional Screening Level, Nov. 2014
N/A = not analyzed
NS = no standard
Bold = detected compound above the MDL
µg/L = microgram per liter

Table 3-5. FWGWMP October 2014 Pesticides and PCBs Analytical Results

Data Qualifiers

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the USACE Louisville Chemistry Guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

U The analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.

J The identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:

- Results detected above the laboratory MDL but less than the laboratory reporting limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- LCS percent recoveries outside acceptance criteria.

R Data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample [e.g., the MRL verification standard was below quality control guidelines; associated sample results that were non-detect are unusable].

UJ This flag is a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated RL.

B The B flag is used for when the analyte is found in the method blank or any of the field blanks. This designation overrides the CLP "B" designation when used by the laboratory as an estimated value for inorganics.

3.3 Data Verification/Validation

As discussed in Sections 2.4, all primary chemical data were generated by Test America. RTI conducted the independent QA analysis; however, EQM is not required to verify RTI data. A multi-step process is conducted, which involves the lab, the ADR software, and a data validator performing the data verification and validation of the data. During the first step each lab analyzes the data and assigns a qualifier as necessary in full accordance with DoD QSM and LS guidelines.

Analytical data was then reviewed by qualified EQM personnel, and a report was generated according to Step 2 of the LS and the DoD QSM, with any deviations/outliers noted in the summary report. The USACE-supplied ADR software assigns qualifiers to the data, as necessary, consistent with the programmed criteria of the ADR software. Additionally, the data validator uses professional judgment to check the validity of the qualified data and either accepts, rejects, or re-qualifies the ADR results following strict DoD QSM and LS guidelines.

After this multi-step process has been completed, the resulting final ADR qualifiers may not match the original lab qualifiers that are presented on the laboratory data sheets. As a result of the data validation process, one or more of four possibilities may occur:

1. The lab assigns a B, J, or E qualifier to the data, and the ADR software and/or the data validator changes the qualifier to a J, UJ, U, B, or R.
2. The lab assigns no qualifier to the data, and the ADR software and/or the data validator assigns a J, UJ, U, B, or R qualifier to the data.
3. The lab assigns a B, J, or E qualifier to the data, and the ADR software and/or the data validator assigns no qualifier to the data.
4. The lab assigns a J qualifier or uses no qualifier, and the ADR software and/or the data validator accepts the lab designation.

For the October 2014 Sampling Event Report, the laboratory data, with laboratory-derived qualifiers that follow DoD QSM and LS criteria, are presented in Appendix B. The verification reports for the data are also presented in Appendix B, which includes the definitions of the ADR qualifiers. The data presented in Tables 3-1, 3-2, 3-3, 3-4, and 3-5 are the result of the data that has been subjected to the multi-step process of verification and validation. These tables display the final assigned data qualifier in accordance with DoD QSM and LS criteria, which may differ from the Appendix B lab assigned values as indicated above.

Data qualifier flags are used in an effort to describe the quality of each piece of data for each constituent. These flags are letter codes appended to the numerical data. The following data qualifiers are specified in the guidelines. For a complete explanation of qualifiers used for each constituent please refer to the Data Verification Summaries in Appendix B.

- U = the analyte was analyzed for but not detected. The numerical value preceding the U is the associated reporting limit.
- J = the identification of the analyte is acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (i.e., the quantitative value is estimated). Examples include:
    - Results detected above the laboratory MDL but less than the laboratory reporting

limit.
- MS/MSD percent recoveries outside the acceptance criteria.
- LCS percent recoveries outside acceptance criteria.

- R = data are considered to be rejected and shall not be used. This flag denotes the failure of quality control criteria such that it cannot be determined if the analyte is present or absent from the sample (e.g., MRL verification standard was below quality control guidelines; associated sample results that were non-detect are unusable).

- UJ = a combination of the U and J qualifiers, which indicate that the analyte is not present. The reported value is considered to be an estimated reporting limit.

- B = used for organic and inorganic analyses when the analyte is found in the method blank or any of the field blanks. This designation overrides the CLP "B" designation when used by the laboratory as an estimated value for inorganics.

Three wells were sampled during a 2-day sampling event from October 21-22, 2014. During the event, two trip blanks were submitted to Test America for VOCs analysis.

One field duplicate was collected during the sampling event in order to assess the quality and consistency of sample collection. Project requirements of 10% field duplicates were met for this sampling event. In addition, one laboratory split was collected and analyzed in order to assess the quality and consistency of the laboratory analysis. The project requirements of taking 10% laboratory splits were met for this sampling event. One equipment rinsate blank was collected during each day of monitoring well sampling for laboratory analysis; a total of two equipment rinsate blanks were collected. The project requirements of taking 5% MS/MSDs were met for this sampling event.

For the October 2014 sampling event, the following laboratory or field contamination was identified at detections greater than ½ MRL for the field QA/QC samples.

SDG 240-43449

Trip Blanks

Acetone was detected in FWGTEAM2Trip collected 10/21/14 at 4.1 µg/L and FWGTEAM2Trip collected 10/22/14 at 4.0 µg/L. The acetone result for FWGEQUIPRINSE1-0507-GW was qualified, "B".

Method Blanks

alpha-BHC was detected at 0.0207 µg/L, beta-BHC at 0.0280 µg/L, delta-BHC at 0.0552 µg/L and gamma-BHC at 0.0128 µg/L. No qualification of the data was required for beta-BHC, delta-BHC or gamma-BHC contamination as there were no detected concentrations of beta-BHC, delta-BHC or gamma-BHC reported for the associated field samples. The alpha-BHC result for sample FWGLL1mw-088-0502-GW was qualified, "B", as the detected concentration was less than 5x method blank contamination. Cadmium was detected at 0.423 µg/L. The cadmium result for sample FWGLL2mw-271-0503-GF was qualified "B" as the reported concentration was less than 5x method blank contamination.

Equipment Rinse

FWGEQUIPRINSE1-0507-GW had acetone detected at 3.5 µg/L and toluene at 0.24 µg/L. FWGEQUIPRINSE2-0508-GW had chloroform detected at 0.69 µg/L and methylene chloride at 1.1 µg/L. There were no detected concentrations of acetone, toluene, chloroform or methylene chloride reported for the associated field samples, so no qualifications were made for the noted equipment rinse contamination.

For a discussion of method blank contamination please review the Data Verification Reports and the Laboratory Case Narrative in Appendix B. Laboratory analyses were performed in analytical batches of ≤ 20 in order to maximize efficiency and group quality control requirements. Method blanks and laboratory control samples were analyzed at a frequency of 1:20 (5%) samples or per analytical batch, whichever was greater. Sufficient volume was provided to the laboratory in order to assess matrix spike analysis on project samples at a frequency of 1:10 (10%) samples. Matrix spike/matrix spike duplicate analysis was performed by the laboratory as batch quality control at a frequency of 1:20 (5%).

Field quality control and laboratory quality control results were evaluated as part of the verification assessment provided in Appendix B. Project requirements were met for the frequency and quality of these samples.

Table 3-6 presents the percent, by analytical method, of data that were acceptable (based on data not rejected) for use. No data was rejected.

All qualified data are discussed in the Data Verification Reports contained in Appendix B. All other data meet the requirements specified in the DoD QSM, LS criteria, and the QAPP associated with this site.

Table 3-6. Percent of Acceptable Data

Analytical Method	Total Number of Analytes	Number of Rejects	Percent Completeness
6010B	84	0	100.0
6020	48	0	100.0
7470A	6	0	100.0
8081A	126	0	100.0
8082	42	0	100.0
8260B	312	0	100.0
8270C-SVOC4	378	0	100.0
8330	96	0	100.0
9012A	6	0	100.0
SW8330 Modified	6	0	100.0
WS-WC-0050	6	0	100.0
TOTAL	**1110**	**0**	**100.0**

SECTION 4
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SAIC. 2011. *Final Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio*.

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APPENDIX A

WATER-LEVEL MEASUREMENTS/FIELD LOG BOOK/CALIBRATION RECORDS/ SAMPLE AND PURGE RECORDS/DAILY QUALITY CONTROL REPORTS

Signature Page

October 2014 FWGWMP Monitoring Well Event
Field Personnel Abbreviations and Signatures Page

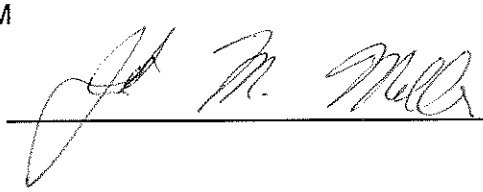
Field Personnel

Name	Affiliation	Initials
Colleen A. Lear	EQM	CL/CAL
John Miller	EQM	JM
Scott A. Spesshardt	EQM	SAS

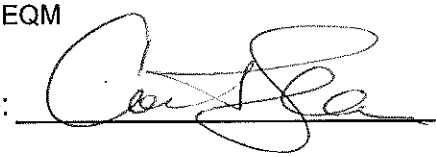
Project and Field Leads

Name, Title, Affiliation

John Miller, Project Manager / QC Check, EQM

Signature: 

Colleen A. Lear, Field Manager / QC Check, EQM

Signature: 

Logbook

Location RVAAP Date 10-21-14

Project / Client RVAAP-66 USACE

JMCAL SAS CLDY RAIN 50s

1100 Pick up keys
1036 ONSITE
Prepare for well maintanece
and for LL1mw 088 sampling
1125 H+S plus Calibrations
1200 prepare for LL1mw088 sample
1300 LL1mw088 + maintanence at CBP
other wells around facility RQL etc.
1600 partial crews to 1036
1630 Equipment Rinse + Clean up
for the day
1700 Offsite

CAL

Location RVAAP Date 10-22-14

Project / Client RVAAP-66 USACE

JMCAL SAS SS CLDY RAIN Y 40 50s

0730 Onsite and prepare for the
day
0740 Calibrations
0745 H+S
Prepare for the day sampling at
LL3mw246 and LL2mw271
0800 Maintanance to CBP
0815 LL3mw246
1100 conductivity + turbidity hard to
stabalize. Sample @ 1110 double
check hardness 0.07% w/ H+M load mg/L 0.2070
okay purged past 2hrs trying for 10NTU
1320 begin clean up at well/continue sample
1430 begin LL2mw271 purge
1445 Rinse 1st pump + complete Rinseate blank
continue purge
1630 Sample LL2mw271 (purged 2 hrs trying to
achieve 10NTU.)
Partial crews to 1036 for cleanup
1830 1036 - unpack
1850 Offsite

CAL

Location RVAAP Date 10-23-14

Project / Client RVAAP 66 USACE

VM SAS CR (VISITORS) CR 10/23/14

0730 Onsite
IDW Sampling
0800 Purge
0815 Break
Level samples & prepare
for pickup
Load truck & clean
0900 Lab pickup
0910 Crew to MW/SCE area
& return keys at ANG/CR
ANG
0940 OFFSITE

Location RVAAP Date 10-21/23-2014

Project / Client RVAAP 66 USACE

Drum ID	Contents
EOM 2014-9	Purge groundwater

* Decon: samples for IDW consumed DI water.

Locations ~~MW~~ CR 10/23/14 MW3 MW21 were

Static Water Level Measurements

EQM MONITOR WELL STATIC WATER LEVEL FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

FIELD BOOK#: 2 DATE: 10/21/2014

Monitor Well Number	Location	Total Well Depth (ft)	Water Level Indicator	Sampler	Time	Depth to Static Water Level (ft)	Sounding	PID Reading (above bkgrnd)
LL1mw-088	Loadline 1	27.39	1266	CAL	12:43	7.05		0
	Cmt:Good, technical difficulties @ 1330, dumped flow thru & restarted immediately, gray cloudy @ start, after 2 hours stable & 10%turbidity							

EQM MONITOR WELL STATIC WATER LEVEL FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

FIELD BOOK#: 2 DATE: 10/22/2014

Monitor Well Number	Location	Total Well Depth (ft)	Water Level Indicator	Sampler	Time	Depth to Static Water Level (ft)	Sounding	PID Reading (above bkgrnd)
LL2mw-271	Loadline 2	27.75	1266	CAL	14:20	10.82		0
	Cmt:Good, 2 CPM, tan-orange coloring to start, Stable and within 10% @ 1535, continued to 2 hours.							
LL3mw-246	Loadline 3	45.65	1266	CAL	8:40	22.68		0
	Cmt:Good, tan coloring to start, 2CPM, stable & within 10% @ 1016, continue past 2 hours and falls out of stablity.							

Calibration Records

CALIBRATION REFERENCE TABLES

Summary of Field Instruments and Calibration/Performance Requirements for RVAAP AOC-Specific Investigations

Instrument and Use	Calibration	Performance
Water level meter used to determine static water level	Calibrated by manufacturer	±0.01 ft
Water quality instrument used to determine groundwater pH	Two points using pH 4.0 and 7.0 standard solutions on a daily basis	±0.1 units
Water quality instrument used to determine groundwater conductivity	One point using 0.01 m KCl or equivalent standard solution on a daily basis. Standard solutions should be close to the range of groundwater sampled	±0.1 µmhos/cm
Water quality instrument used to determine groundwater turbidity	One point using a 0.0 NTU or equivalent standard solution on a daily basis	0.1 NTU
Water quality instrument used to determine dissolved oxygen	One point using standard solution or manufacturer's DO chart	10%
Thermometer used to determine groundwater temperature	Calibration by manufacturer	±1°C
Photoionization detector used to determine organic vapor concentrations emitted from subsurface material	One point using 100-ppm isobutylene calibration gas on a daily basis	±0.1 ppm

AOC = Area of concern KCl = Potassium chloride (solution) ppm = Parts per million
RVAAP = Ravenna Army Ammunition Plant

MODEL 3682 ZOBELL SOLUTION INSTRUCTIONS

ORP CHART

TEMPERATURE in °C	Ag/AgCl (4M KCl) in millivolts	CALOMEL in millivolts
-5	270.0	234.2
0	263.5	226.0
5	257.0	217.8
10	250.5	209.6
15	244.0	201.4
20	237.5	193.2
25	231.0	185.0
30	224.5	176.8
35	218.0	168.6
40	211.5	160.4
45	205.0	152.2
50	198.5	144.0

DO CHART

The YSI 3682 Zobell Solution is not for food or drug use and can be harmful if swallowed. It will react with acids to form harmful by-products, including hydro-

Amounts of saturated dissolved oxygen in water at various temperatures (salinity=0.0%)

JIS K0101

Temp. (°C)	DO (mg/L)	Temp. (°C)	DO (mg/L)	Temp. (°C)	DO (mg/L)	Temp. (°C)	DO (mg/L)
0	14.16						
1	13.77	11	10.67	21	8.68	31	7.42
2	13.40	12	10.43	22	8.53	32	7.32
3	13.04	13	10.20	23	8.39	33	7.22
4	12.70	14	9.97	24	8.25	34	7.13
5	12.37	15	9.76	25	8.11	35	7.04
6	12.06	16	9.56	26	7.99	36	6.94
7	11.75	17	9.37	27	7.87	37	6.86
8	11.47	18	9.18	28	7.75	38	6.76
9	11.19	19	9.01	29	7.64	39	6.68
10	10.92	20	8.84	30	7.53	40	6.59

RVAPP ~ Ravenna Ohio

TEAM # 2

	Instrument Model	Instrument ID	Date	Time	Calibrator	CalibrationType	Standard	Std Concentra	Meter Reading	Units	Comment
EXAMPLE:	Horiba U22	3074008	06-Oct-08	11:00	EC	Autocal	pH	4		pH units	
HORIBA U-22		5013013	10/20/14	1450	Cal	Autocal	pH	4	3.99	pH units	
				1450		Autocal	Cond	4.49	4.51	mS/cm	
				1450		Autocal	Turb	0	6.0	NTU	
				1455		Calibration	pH	7	7.01	pH units	
				1458		Calibration	pH	10	10.99	pH units	
				1450		Temp Check	Temp		13.40	°C	
				1500		Calibration-Chart	DO	H_2O	9.95	mg/L	
		5013013	10/20/14	1505	Cal	Calibration-Chart	ORP	KCl	239	mV	
HORIBA U-22		5013013	10/21/14	1125	Cal	Autocal	pH	4	3.99	pH units	
				1125		Autocal	Cond	4.49	4.52	mS/cm	
				1125		Autocal	Turb	0	0.0	NTU	
				1127		Calibration	pH	7	7.04	pH units	
				1129		Calibration	pH	10	10.08	pH units	
				1125		Temp Check	Temp	14.81	13.03	°C	rechecked temp.
				1140		Calibration-Chart	DO	H_2O	10.13	mg/L	
				1143	Cal	Calibration-Chart	ORP	KCl	231	mV	
		711 3010	10/21/14	1130		Autocal	pH	4	3.98	pH units	3.98 Recheck 1150
				1130		Autocal	Cond	4.49	4.53	mS/cm	4.51
				1130		Autocal	Turb	0	0.0	NTU	0.0 10/21/14
				1140		Calibration	pH	7	7.02	pH units	
				1142		Calibration	pH	10	10.06	pH units	10.13 Redo 1145
				1130		Temp Check	Temp		13.01	°C	
				1153		Calibration-Chart	DO	H_2O	10.04	mg/L	
				1155		Calibration-Chart	ORP	KCl	240	mV	
Multi Rae PID			10/21/14	1120	Cal	Bump	Isobut	100	99	ppm	
Multi Rae PID			10/22/14	0735	Cal	Bump	Isobutylene	100	98	ppm	
					Cal						

RVAPP ~ Ravenna Ohio

TEAM # 2

	Instrument Model	Instrument ID	Date	Time	Calibrator	CalibrationType	Standard	Std Concentra	Meter Reading	Units	Comment
EXAMPLE:	Horiba U22	3074008	06-Oct-08	11:00	EC	Autocal	pH	4	4	pH units	
HORIBA U22	5013013	10-22-14	0740	CAL		Autocal	pH	4	4.00	pH units	
				0740		Autocal	Cond	4.49	4.50	mS/cm	
				0740		Autocal	Turb	0	0	NTU	
				745		Calibration	pH	7	7.06	pH units	
				750		Calibration	pH	10	10.09	pH units	
				740		Temp Check	Temp		9.29	°C	
				752		Calibration-Chart	DO	H_2O	11.06	mg/L	
	5012013			755		Calibration-Chart	ORP	KCl	239	mV	
	7113010			742		Autocal	pH	4	3.98	pH units	3.99 Cal0758
				742		Autocal	Cond	4.49	4.53	mS/cm	4.51
				742		Autocal	Turb	0	0.0	NTU	0.0
				746		Calibration	pH	7	7.08	pH units	
				750		Calibration	pH	10	10.10	pH units	Redo 10.15
				742		Temp Check	Temp		14.88	°C	10.99 758
				753		Calibration-Chart	DO	H_2O	8.90	mg/L	9.01
	7113010	10-22-14		756		Calibration-Chart	ORP	KCl	255	mV	
						Autocal	pH	4		pH units	
						Autocal	Cond	4.49		mS/cm	
						Autocal	Turb	0		NTU	
						Calibration	pH	7		pH units	
						Calibration	pH	10		pH units	
						Temp Check	Temp			°C	
						Calibration-Chart	DO			mg/L	
						Calibration-Chart	ORP			mV	

Purge/Sample Records

EQM MONITOR WELL PURGING FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

LOCATION: LOADLINE 1 DATE: 10/21/2014 START TIME: 12:43

WELL ID: LL1mw-088

WELL DEPTH: 27.39 INITIAL WATER LEVEL: 7.05 TOTAL PURGED (L) 13.1

WELL DIAMETER 2 in. APPROXIMATE SCREEN INTERVAL: 17.5 - 27.5

PUMP/PURGING DEVICE: BP - BLADDER PUMP APPROXIMATE PUMP INTAKE DEPTH: 22

PUMP READINGS: Throttle (ft.) Recharge: 9 Discharge: 6

COMMENTS Color: Clear, Odor:None,technical difficulties @ 1330, dumped flow thru & restarted immediately, gray cloudy @ start, after 2 hours stable & 10%turbidity

TIME	WATER LEVEL (btoc)	PURGE RATE (L/min)	VOLUME PURGED (L)	TEMP. (°C)	SPECIFIC CONDUCT. (mS/cm)	DO (mg/L)	pH	Turb (NTU)	ORP (mV)
12:57	6.75	0.1	0	0	0	0	0	0	0
13:02	7.28	0.1	0.5	8.65	0.93	0.82	6.16	9999	-139
13:07	7.46	0.1	0.5	8.53	0.931	0.31	6.3	9999	-150
13:12	7.54	0.1	0.5	8.16	0.94	0.23	6.44	9999	-157
13:17	7.62	0.1	0.5	8.05	0.942	0.3	6.54	9999	-160
13:34	7.80	0.1	1.7	7.14	0.961	2.7	6.78	840	-142
13:39	7.70	0.14	0.7	7	0.963	1.33	6.8	494	-144
13:44	7.80	0.14	0.7	6.77	0.964	0.92	6.89	637	-142
13:49	7.92	0.14	0.7	6.68	0.966	2.06	6.9	632	-138
13:54	7.99	0.14	0.7	6.63	0.97	1.05	6.95	206	-140
13:59	7.95	0.11	0.55	6.59	0.97	0.63	6.95	137	-143
14:04	7.77	0.1	0.5	6.65	0.97	0.22	6.96	128	-145
14:09	7.73	0.1	0.5	6.59	0.97	0.2	6.97	121	-146
14:13	7.71	0.1	0.4	6.53	0.974	0.2	6.99	135	-145
14:18	7.65	0.13	0.65	6.51	0.972	0.22	7	118	-146
14:23	7.62	0.1	0.5	6.35	0.971	0.22	7.01	124	-146
14:28	7.61	0.1	0.5	6.07	0.986	0.22	7.01	122	-145
14:33	7.60	0.1	0.5	6.7	0.984	0.24	7.02	108	-144
14:38	7.57	0.1	0.5	6.68	0.966	0.29	7.03	113	-143
14:43	7.55	0.1	0.5	6.17	0.971	0.31	7.04	110	-143
14:48	7.55	0.1	0.5	6.46	0.969	0.33	7.04	107	-142
14:53	7.54	0.1	0.5	6.1	0.98	0.38	7.04	104	-142
14:58	7.54	0.1	0.5	6.19	0.986	0.36	7.04	101	-141

Note: Condition of the well: See STATIC WATER LEVEL FORM, Note: All depths in feet BTOC.

Field Personnel: CAL

EQM FIELD SAMPLING REPORT

PROJECT: **RVAAP** LOCATION: **LOADLINE 1** PROJECT NO.: **030174.0016.001**

SAMPLE INFORMATION

WELL: LL1mw-088 SampleID: FWGLL1mw-088-0502-GW/GF Dup ID:

SplitID: RinseID: FWGEQUIPRinse1-0507-GW

MATRIX: WG - Ground Water SAMPLING METHOD: BP - Bladder Pump MS/MSD: N

GRAB: **Y** COMPOSITE: **N** DATE: 10/21/2014 TIME: 15:00

FIELD READINGS / OBSERVATIONS

	Turb (NTU): 101	Color:	Clear
	ORP (mV): -141	Odor:	None

pH: 7.05 Temperature (°C): 5.99 DO (mg/L): 0.32 Specific Conductivity (mS/cm): 0.98

GENERAL INFORMATION

SUN/OVERCAST Overcast PERCIPITATION: N WIND DIRECTION: W AMBIENT TEMP (°F): 45

SHIPPED VIA: Lab Pickup

SHIPPED TO: Testamerica

SAMPLER: CAL Cmt: EQUIPRinse1 @ 1630

CONTAINER		PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	*NUMBER*			
1L/Amber	2	4C	8270	SVOC
1L/Amber	2	4C	353.2/8330	Propellants
40ml/Vial	3	HCl	8260	VOC
500ml/Poly	1	HNO3	6010/6020/7470	Metals, filtered
1L/Amber	1	4C	8330	Explo
1L/Amber	2	4C	8082	PCB
250ml/Poly	1	NaOH	9012	Cyanide
1L/Amber	2	4C	8081	Pest

EQM MONITOR WELL PURGING FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

LOCATION: LOADLINE 2 DATE: 10/22/2014 START TIME: 14:20

WELL ID: LL2mw-271

WELL DEPTH: 27.75 INITIAL WATER LEVEL: 10.82 TOTAL PURGED (L) 23.75

WELL DIAMETER 2 in. APPROXIMATE SCREEN INTERVAL: 17.5 - 27.5

PUMP/PURGING DEVICE: BP - BLADDER PUMP APPROXIMATE PUMP INTAKE DEPTH: 22.5

PUMP READINGS: Throttle (ft.) Recharge: 20 Discharge: 10

COMMENTS Color: Clear, Odor:None,2 CPM, tan-orange coloring to start, Stable and within 10% @ 1535, continued to 2 hours.

TIME	WATER LEVEL (btoc)	PURGE RATE (L/min)	VOLUME PURGED (L)	TEMP. (°C)	SPECIFIC CONDUCT. (mS/cm)	DO (mg/L)	pH	Turb (NTU)	ORP (mV)
14:25	11.22	0.15	0	0	0	0	0	0	0
14:30	11.30	0.15	0.75	9.05	0.562	2.09	5.87	155	-38
14:35	11.30	0.15	0.75	8.75	0.577	1.91	6.08	159	-57
14:40	11.29	0.15	0.75	8.24	0.723	1.41	6.32	188	-70
14:45	11.30	0.175	0.875	8.05	0.834	1.27	6.44	250	-74
14:50	11.29	0.175	0.875	7.92	0.924	1.16	6.51	187	-77
14:55	11.27	0.2	1	7.73	0.933	0.99	6.57	141	-79
15:00	11.29	0.2	1	7.55	0.952	0.91	6.58	88.9	-82
15:05	11.30	0.2	1	7.59	0.994	0.75	6.6	55.1	-85
15:10	11.30	0.2	1	7.65	1.05	0.84	6.63	45.6	-85
15:15	11.30	0.2	1	7.5	1.02	0.62	6.69	40.9	-84
15:20	11.30	0.2	1	7.54	1.01	0.69	6.64	36	-84
15:25	11.28	0.2	1	7.62	1	0.79	6.66	29.9	-83
15:30	11.28	0.2	1	7.67	1.02	0.77	6.67	29.7	-82
15:35	11.28	0.2	1	7.45	1.01	0.82	6.67	29.5	-81
15:40	11.28	0.2	1	7.2	1.02	0.78	6.68	29.2	-8
15:45	11.28	0.2	1	7.28	1.04	0.81	6.7	29.8	-80
15:50	11.28	0.2	1	7.43	1.01	0.79	6.68	28.6	-80
15:55	11.27	0.2	1	7.38	1.03	0.8	6.71	28.7	-80
16:00	11.28	0.225	1.125	7.53	1.04	0.78	6.69	28.1	-80
16:05	11.28	0.225	1.125	7.39	1.05	0.76	6.69	28.2	-80
16:10	11.28	0.225	1.125	7.3	1.07	0.78	6.69	28.4	-80
16:15	11.29	0.225	1.125	7.39	1.08	0.81	6.7	29	-80
16:20	11.28	0.225	1.125	7.24	1.1	0.79	6.7	28.8	-80

Note: Condition of the well: See STATIC WATER LEVEL FORM, Note: All depths in feet BTOC.

Field Personnel: CAL

EQM MONITOR WELL PURGING FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

LOCATION: LOADLINE 2 DATE: 10/22/2014 START TIME: 14:20

WELL ID: LL2mw-271

WELL DEPTH: 27.75 INITIAL WATER LEVEL: 10.82 TOTAL PURGED (L) 23.75

WELL DIAMETER 2 in. APPROXIMATE SCREEN INTERVAL: 17.5 - 27.5

PUMP/PURGING DEVICE: BP - BLADDER PUMP APPROXIMATE PUMP INTAKE DEPTH: 22.5

PUMP READINGS: Throttle (ft.) Recharge: 20 Discharge: 10

COMMENTS Color: Clear, Odor:None,2 CPM, tan-orange coloring to start, Stable and within 10% @ 1535, continued to 2 hours.

TIME	WATER LEVEL (btoc)	PURGE RATE (L/min)	VOLUME PURGED (L)	TEMP. (°C)	SPECIFIC CONDUCT. (mS/cm)	DO (mg/L)	pH	Turb (NTU)	ORP (mV)
16:25	11.28	0.225	1.125	7.4	1.11	0.78	6.7	29.1	-80

Note: Condition of the well: See STATIC WATER LEVEL FORM, Note: All depths in feet BTOC.

Field Personnel: CAL

EQM FIELD SAMPLING REPORT

PROJECT: **RVAAP** LOCATION: **LOADLINE 2** PROJECT NO.: **030174.0016.001**

SAMPLE INFORMATION

WELL: LL2mw-271 SampleID: FWGLL2mw-271-0503-GW/GF Dup ID:

SplitID: RinseID:

MATRIX: WG - Ground Water SAMPLING METHOD: BP - Bladder Pump MS/MSD: N

GRAB: **Y** COMPOSITE: **N** DATE: 10/22/2014 TIME: 16:30

FIELD READINGS / OBSERVATIONS

	Turb (NTU): 29.3	Color:	Clear
	ORP (mV): -79	Odor:	None

pH: 6.69 Temperature (°C): 7.44 DO (mg/L): 0.79 Specific Conductivity (mS/cm): 1.13

GENERAL INFORMATION

SUN/OVERCAST Overcast PERCIPITATION: N WIND DIRECTION: W AMBIENT TEMP (°F): 45

SHIPPED VIA: Lab Pickup

SHIPPED TO: Testamerica

SAMPLER: CAL Cmt: 2 toxaphene bottles added to MSMSD set up

CONTAINER		PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	*NUMBER*			
40ml/Vial	9	HCl	8260	VOC
1L/Amber	3	4C	8330	Explo
250ml/Poly	3	NaOH	9012	Cyanide
1L/Amber	4	4C	8082	PCB
500ml/Poly	3	HNO3	6010/6020/7470	Metals, filtered
1L/Amber	4	4C	8081	Pest
1L/Amber	4	4C	8270	SVOC
1L/Amber	4	4C	353.2/8330	Propellants

EQM MONITOR WELL PURGING FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

LOCATION: LOADLINE 3 DATE: 10/22/2014 START TIME: 8:40

WELL ID: LL3mw-246

WELL DEPTH: 45.65 INITIAL WATER LEVEL: 22.68 TOTAL PURGED (L) 17.555

WELL DIAMETER 2 in. APPROXIMATE SCREEN INTERVAL: 35.5 - 45.5

PUMP/PURGING DEVICE: BP - BLADDER PUMP APPROXIMATE PUMP INTAKE DEPTH: 40.5

PUMP READINGS: Throttle (ft.) Recharge: 20 Discharge: 10

COMMENTS Color: Clear, Odor:None,tan coloring to start, 2CPM, stable & within 10% @ 1016, continue past 2 hours and falls out of stablity.

TIME	WATER LEVEL (btoc)	PURGE RATE (L/min)	VOLUME PURGED (L)	TEMP. (°C)	SPECIFIC CONDUCT. (mS/cm)	DO (mg/L)	pH	Turb (NTU)	ORP (mV)
8:51	22.68	0.15	0	0	0	0	0	0	0
8:56	22.79	0.125	0.625	5.4	0.306	1.96	5.73	139	124
9:01	22.76	0.125	0.625	6.07	0.303	1.49	5.78	158	96
9:06	22.74	0.125	0.625	5.94	0.315	1.22	5.86	123	109
9:11	22.71	0.125	0.625	5.87	0.316	1.24	5.89	93	124
9:16	22.69	0.125	0.625	5.74	0.303	1.21	5.93	67.9	120
9:21	22.68	0.125	0.625	5.7	0.303	1.18	5.95	35.1	121
9:26	22.68	0.125	0.625	5.64	0.316	1.19	5.97	30.4	127
9:31	22.68	0.13	0.65	5.39	0.322	1.22	5.97	25.7	125
9:36	22.68	0.13	0.65	5.3	0.319	1.21	5.97	23.7	126
9:41	22.68	0.13	0.65	5.23	0.311	1.19	5.98	22	126
9:46	22.68	0.13	0.65	5.28	0.329	1.24	6	17.2	126
9:51	22.67	0.13	0.65	5.05	0.312	1.28	6.01	14.1	127
9:56	22.67	0.13	0.65	5.35	0.308	1.25	6	16.5	127
10:01	22.66	0.13	0.65	5.38	0.319	1.2	6.01	14	125
10:06	22.66	0.13	0.65	5.3	0.344	1.26	6.02	13.1	126
10:11	22.66	0.13	0.65	5.26	0.351	1.19	6.02	13.2	126
10:16	22.65	0.13	0.65	5.21	0.347	1.18	6.03	13.7	126
10:21	22.65	0.13	0.65	5.15	0.355	1.2	6.03	14.1	126
10:26	22.64	0.13	0.65	5.11	0.361	1.2	6.03	15.5	127
10:31	22.64	0.13	0.65	5.07	0.4	1.19	6.04	15.1	127
10:36	22.64	0.13	0.65	5.06	0.437	1.17	6.03	14.5	126
10:41	22.70	0.13	0.65	5.01	0.46	1.24	6.03	14.7	122
10:46	22.73	0.13	0.78	4.93	0.477	1.19	6.04	20.6	123

Note: Condition of the well: See STATIC WATER LEVEL FORM, Note: All depths in feet BTOC.

Field Personnel: CAL

EQM MONITOR WELL PURGING FORM

PROJECT NAME: **RVAAP** PROJECT NUMBER: **030174.0016.001**

LOCATION: LOADLINE 3 DATE: 10/22/2014 START TIME: 8:40

WELL ID: LL3mw-246

WELL DEPTH: 45.65 INITIAL WATER LEVEL: 22.68 TOTAL PURGED (L) 17.555

WELL DIAMETER 2 in. APPROXIMATE SCREEN INTERVAL: 35.5 - 45.5

PUMP/PURGING DEVICE: BP - BLADDER PUMP APPROXIMATE PUMP INTAKE DEPTH: 40.5

PUMP READINGS: Throttle (ft.) Recharge: 20 Discharge: 10

COMMENTS Color: Clear, Odor:None,tan coloring to start, 2CPM, stable & within 10% @ 1016, continue past 2 hours and falls out of stablity.

TIME	WATER LEVEL (btoc)	PURGE RATE (L/min)	VOLUME PURGED (L)	TEMP. (°C)	SPECIFIC CONDUCT. (mS/cm)	DO (mg/L)	pH	Turb (NTU)	ORP (mV)
10:51	22.76	0.13	0.65	4.94	0.47	1.16	6.04	56.3	123
10:56	22.74	0.13	0.65	4.92	0.488	1.16	6.05	55.8	121
11:01	22.72	0.135	0.675	4.95	0.49	1.17	6.05	42.5	121
11:06	22.72	0.135	0.675	4.74	0.495	1.04	6.05	46.2	123

Note: Condition of the well: See STATIC WATER LEVEL FORM, Note: All depths in feet BTOC.

Field Personnel: CAL

EQM FIELD SAMPLING REPORT

PROJECT: **RVAAP** LOCATION: **LOADLINE 3** PROJECT NO.: **030174.0016.001**

SAMPLE INFORMATION

WELL: LL3mw-246 SampleID: FWGLL3mw-246-0504-GW/GF Dup ID: FWGLL3mw-246-0506-GW/GF

SplitID: FWGLL3mw-246-0505s-GW/GF RinseID: FWGEQUIPRinse2-0508-GW

MATRIX: WG - Ground Water SAMPLING METHOD: BP - Bladder Pump MS/MSD: N

GRAB: **Y** COMPOSITE: **N** DATE: 10/22/2014 TIME: 11:10

FIELD READINGS / OBSERVATIONS

	Turb (NTU): 39.6	Color:	Clear
	ORP (mV): 123	Odor:	None

pH: 6.04 Temperature (°C): 4.91 DO (mg/L): 1.21 Specific Conductivity (mS/cm): 0.499

GENERAL INFORMATION

SUN/OVERCAST Overcast PERCIPITATION: N WIND DIRECTION: W AMBIENT TEMP (°F): 40

SHIPPED VIA: Lab PU/FedEx

SHIPPED TO: Multiple Labs

SAMPLER: CAL Cmt: EQUIPRinse2 @ 1445

CONTAINER		PRESERVATIVE	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	*NUMBER*			
1L/Amber	6	4C	8330	Explo
1L/Amber	7	4C	353.2/8330	Propellants
40ml/Vial	9	HCl	8260	VOC
1L/Amber	5	4C	8081	Pest
250ml/Poly	3	NaOH	9012	Cyanide
500ml/Poly	3	HNO3	6010/6020/7470	Metals, filtered
1L/Amber	5	4C	8082	PCB
1L/Amber	6	4C	8270	SVOC

Daily QC Records

Date: 21-Oct

S	M	T	W	T	F	S
		X				

DAILY QUALITY CONTROL REPORT

COE Project Manager: Greg Moore

Project: Ravenna Army Ammunition Plant Groundwater Monitoring

Job No.: 030174.0016.001

Contract No.: GSA Contract Number GS-10F-0293K Delivery Order W912QR-11-F-0266

Weather	Bright Sun	Clear	Over-Cast x	Rain	Snow
Temp	To 32	32-50 x	50-70 x	70-85	85 up
Wind	Still x	Moder	High	Report No.	
Humidity	Dry	Moder	Humid x	102114	

SUB-CONTRACTORS ON SITE:

Environmental Quality Management, Inc.

EQUIPMENT ON SITE:

Water level meters, two water quality meters (Horiba-U22/U52); One multigas detector (MSA); two bladder pumps w/ associated controllers and compressors.

WORK PERFORMED (INCLUDING SAMPLING):

Arrive at Building 1036, unload/load and organize equipment. Event water level collections simultaneous with Purge sample work .
Samples were collected at the following locations:
LL1mw-088

A field rinsate was collected by Team # 2.

Project Ravenna Army Ammunition Plant Groundwater Monitoring Report No. 102114

Job No. 030174.0016.001 Date: 10/21/2014

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

All field equipment was calibrated prior to mobilizing to the field. Water level meter devices were checked for correct footage. Water quality meters were calibrated with AutoCal Solution, standards, and checks - certified values are: ORP checked okay (Ag/AgCl per chart), DO checked okay (distilled H2O per chart), AutoCal: (Conductivity - 4.49 mS/cm; Turbidity - 0 NTU; pH - 4.0) and pH 4.0, 7.0, 10.0 su.
Multigas detector calibrated with Zero Air Standard and 100 ppm Isobutylene. All field equipment was within calibration criteria.

HEALTH AND SAFETY LEVELS AND ACTIVITIES:
H&S briefing conducted prior to mobilizing to the field. All personnel to don modified Level 4 PPE (i.e. steel-toed shoes, safety glasses, & nitrile gloves). First Aid kits were included in each vehicle, & personnel were made aware of eyewash station locations.
Each team was equipped with a cellular phone. Personnel were instructed to hydrate frequently and watch for traffic. Personnel were also instructed to be alert for storms, poisonous plants, stinging insect, and roaming deer/turkey in addition to signs of bear/coyotes.

PROBLEMS ENCOUNTERED/CORRECTIVE ACTION (S) TAKEN:

SPECIAL NOTES:

Post 1 and watching for traffic disscusions for tailgate.

TOMORROWS EXPECTATIONS:

Expectations for tomorrow are to continue the purge and sample event.

Date: 22-Oct

S	M	T	X W	T	F	S

DAILY QUALITY CONTROL REPORT

COE Project Manager: Greg Moore

Project: Ravenna Army Ammunition Plant Groundwater Monitoring

Job No.: 030174.0016.001

Contract No.: GSA Contract Number GS-10F-0293K Delivery Order W912QR-11-F-0266

Weather	Bright Sun	Clear	Over-Cast x	Rain	Snow
Temp	To 32	32-50 x	50-70 x	70-85	85 up
Wind	Still x	Moder	High	Report No.	
Humidity	Dry	Moder	Humid x	102214	

SUB-CONTRACTORS ON SITE:

Environmental Quality Management, Inc.

EQUIPMENT ON SITE:

Water level meters, two water quality meters (Horiba-U22/U52); One multigas detector (MSA); two bladder pumps w/ associated controllers and compressors.

WORK PERFORMED (INCLUDING SAMPLING):

Arrive at Building 1036, unload/load and organize equipment. Continue purge and sample work at the wells. Samples were collected at the following locations:
LL2mw-271 and LL3mw-246

Field duplicate and QA split samples were collected from LL3mw-246. Extra volume was collected from LL2mw-271 to be designated for matrix spike/matrix spike duplicate analysis at the laboratory. Additionally, a field rinsate was collected by Team # 2.

Project Ravenna Army Ammunition Plant Groundwater Monitoring Report No. 102214

Job No. 030174.0016.001 Date: 10/22/2014

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

All field equipment was calibrated prior to mobilizing to the field. Water level meter devices were checked for correct footage. Water quality meters were calibrated with AutoCal Solution, standards, and checks - certified values are: ORP checked okay (Ag/AgCl per chart), DO checked okay (distilled H2O per chart), AutoCal: (Conductivity - 4.49 mS/cm; Turbidity - 0 NTU; pH - 4.0) and pH 4.0, 7.0, 10.0 su.
Multigas detector calibrated with Zero Air Standard and 100 ppm Isobutylene. All field equipment was within calibration criteria.

HEALTH AND SAFETY LEVELS AND ACTIVITIES:
H&S briefing conducted prior to mobilizing to the field. All personnel to don modified Level 4 PPE (i.e. steel-toed shoes, safety glasses, & nitrile gloves). First Aid kits were included in each vehicle, & personnel were made aware of eyewash station locations.
Each team was equipped with a cellular phone. Personnel were instructed to hydrate frequently and watch for signs of heat stress. Personnel were also instructed to be alert for storms, poisonous plants, and roaming deer/turkey (and hunters) in addition to signs of bear/coyotes.

PROBLEMS ENCOUNTERED/CORRECTIVE ACTION (S) TAKEN:

LL3mw-246 stablized for stabalization parameters and 10% turbidity but prior to the turbidity reaching 10 NTU. The turbidity started increasing and at two hours of purging all except 10% turbidity was achieved. Purge stopped at 14 minutes later with stablized stability parameters of pH, cond., temp, DO.

SPECIAL NOTES:

Onsite chemicals (preservatives), two cahin safety and vests/vehicle traffic discussions at tailgate briefing.

TOMORROWS EXPECTATIONS:

Expectations for tomorrow are to safely and correctly finalize the event.

Date: 23-Oct

S	M	T	W	X T	F	S

DAILY QUALITY CONTROL REPORT

COE Project Manager: Greg Moore

Project: Ravenna Army Ammunition Plant Groundwater Monitoring

Job No.: 030174.0016.001

Contract No.: GSA Contract Number GS-10F-0293K Delivery Order W912QR-11-F-0266

Weather	Bright Sun	Clear	Over-Cast x	Rain	Snow
Temp	To 32	32-50 x	50-70	70-85	85 up
Wind	Still x	Moder	High	Report No.	
Humidity	Dry	Moder x	Humid	102314	

SUB-CONTRACTORS ON SITE:

Environmental Quality Management, Inc.

EQUIPMENT ON SITE:

Water level meters, water quality meters (Horiba-U22/U52); One multigas detector (MSA); bladder pumps w/ associated controllers and compressors.

WORK PERFORMED (INCLUDING SAMPLING):

Arrive at Building 1036, unload/load and organize equipment. IDW sampling collected. Packed equipment for return back to Cincinnati, and cleaned Building 1036. Demobilization.

Project	Ravenna Army Ammunition Plant Groundwater Monitoring	Report No.	102314
Job No.	030174.0016.001	Date:	10/23/2014

QUALITY CONTROL ACTIVITIES (INCLUDING FIELD CALIBRATIONS):

All field equipment was calibrated prior to mobilizing to the field. Water level meter devices were checked for correct footage. Water quality meters were calibrated with AutoCal Solution, standards, and checks - certified values are: ORP checked okay (Ag/AgCl per chart), DO checked okay (distilled H2O per chart), AutoCal: (Conductivity - 4.49 mS/cm; Turbidity - 0 NTU; pH - 4.0) and pH 4.0, 7.0, 10.0 su.
Multigas detector calibrated with Zero Air Standard and 100 ppm Isobutylene. All field equipment was within calibration criteria.

HEALTH AND SAFETY LEVELS AND ACTIVITIES:
H&S briefing conducted prior to mobilizing to the field. All personnel to don modified Level 4 PPE (i.e. steel-toed shoes, safety glasses, & nitrile gloves). First Aid kits were included in each vehicle, & personnel were made aware of eyewash station locations.
Each team was equipped with a cellular phone. Personnel were instructed to hydrate frequently and watch for signs of heat stress. Personnel were also instructed to be alert for storms, poisonous plants, stinging insect, ticks, and roaming deer/turkey in addition to signs of bear/coyotes.

PROBLEMS ENCOUNTERED/CORRECTIVE ACTION (S) TAKEN:

SPECIAL NOTES:

Confirmed wells = finalized event.

TOMORROWS EXPECTATIONS:

NA

APPENDIX B

DATA VERIFICATION REPORTS/ LABORATORY DATA SHEETS

Data Verification Summary

Site: Ravenna Army Ammunition Plant
Sampling Event: October 2014 **Date:** January 27, 2015
Sample Delivery Group: 240-43449 **Revision:** 1

Data Reviewer: Angela Dragotta /Environmental Quality Management, Inc. (EQM, Inc.)

QA/QC Summary

On October 21st and 22nd, 2014 the following samples were collected from groundwater-monitoring wells at Ravenna Army Ammunition Plant and analyzed as part of SDG 240-43499. Sample analysis was performed by Test America. Test America-North Canton performed all analyses with the exception of the analytical for methods 8330, M8330, TALSOPWS-WC-0050 and 6860. Methods 8330, M8330 and TALSOPWS-WC-0050 were performed by Test America, West Sacramento.

Sample ID	VOC by SW846 8260	SVOC 4 by SW846 8270	SVOC 1 and 2 by SW846 8270	SVOC 1 by SW846 8270	Pesticides by SW846 8081	PCBs/ SW846 8082	Explosives/Propellants by SW846 8330, Mod. 8330 and TALSOP WS-WC-0050	Cyanide SW846 9012	Perchlorate by SW846 6860	NO2/NO3, EPA 353.2	Metals [4]		
											SW846 6010B	SW846 6020	Mercury by SW846 7470A
FWGLL1mw-088-0502-GW	X	X			X	X	X	X			X	X	X
FWGLL3mw-246-504-GW	X	X			X	X	X	X			X	X	X
FWGLL3mw-DUP1-506-GW	X	X			X	X	X	X			X	X	X
FWGLL2mw-271-0503-GW	X	X			X	X	X	X			X	X	X
FWGEQUIPRINSE1-0507-GW	X	X			X	X	X	X			X	X	X
FWGEQUIPRINSE2-0508-GW	X	X			X	X	X	X			X	X	X

Notes:

1) All metals samples with the exception of FWGEQUIPRINSE1-0507-GW and FWGEQUIPRINSE2-0508-GW were field filtered (GF).
2) SVOC4=Full RVAAP SVOC list
3) EPA 6020 metals include aluminum, antimony, beryllium, cadmium, iron, sodium, thallium and zinc. EPA 6010B metals include arsenic, chromium, cobalt, lead, selenium, silver, vanadium, barium, calcium, copper, magnesium, manganese, nickel and potassium.
4) A trip blank for team 2 was collected on 10/21/14 and 10/22/14 and submitted to the laboratory for VOC analysis by EPA 8260B.

The data presented in this report were evaluated according to the *Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January, 2012.* The following documents were used as needed to supplement the project documentation: The United States Department of Defense (DoD) Quality Services Manual (QSM) for Environmental Laboratories, Version 4.1, and the United States Army Corps of Engineers (USACE), Louisville District Quality Systems Manual Supplement (LS), *EPA National Functional Guidelines (NFG) for Organic Data Review, EPA-540/R-08-01, June 2008, NFG for Inorganic Data Review, EPA-540/R-04-004, October 2004*, Analytical Methods, and Laboratory Standard Operating Procedures. The QC criteria provided in the reference documents represent accuracy and precision performance goals for each analytical method. QC criteria reviewed for each method are listed below, along with any outliers.

All analytical results have been verified against compliance requirements specified in the project QAPP, QSM, LS, associated analytical methods and/or SOPs, as appropriate, and reported by the laboratory as directed by the DoD QSM.

Per the DoD QSM, the laboratory data is reported as follows: Non detected results were reported at the LOD with a "U" flag. Detected results between the DL and LOQ were reported as estimated, qualified with a "J" flag.

LOD - An estimate of the minimum amount of a substance that an analytical process can reliably detect.

LOQ - The lowest concentration that produces a quantitative result within specified limits of precision and bias.

DL- The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.

Checklists used in the verification process are in Attachment 1 and sample results with outliers requiring qualification are in Attachment 2.

The completeness objective for the project was 90%. The completeness objective was met for this SDG, at 100%. Limitations, if any, on the data are indicated with qualifiers detailed below.

Holding Time Exceedences

SVOC-Samples FWGEQUIPRINSE2-0508-GW, FWGLL3mw-246-504-504-GW and FWGLL3mw-DUP1-506-GW were reextracted outside 7 day hold time at 14 days for SVOC. The SVOC results for samples FWGEQUIPRINSE2-0508-GW, FWGLL3mw-246-504-504-GW and FWGLL3mw-DUP1-506-GW were qualified as estimated, "UJ", as the re-extraction was completed within 2x hold time.

Pesticides- Samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE2-0508-GW were extracted outside the seven day hold time but within 2x hold time. The pesticide results for samples, FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE2-0508-GW were qualified as estimated, "UJ" instead of unusable, since the re-extraction was completed within 2x hold time. In addition, sample FWGLL1mw-088-504-502-GW was analyzed outside the analytical hold time of 40 days at 54 days. As the analysis took place within 2x analytical hold, the results for sample FWGLL1mw-088-504-502-GW were qualified as estimated, "J/UJ".

Nitroguanidine-Samples FWGEQUIPRINSE2-0508-GW, FWGEQUIPRINSE1-0507-GW, FWGLL3mw-246-504-504-GW, FWGLL1mw-088-504-502-GW, FWGLL2mw-271-503-GW and FWGLL3mw-DUP1-506-GW were extracted outside 7 day hold time. As the prep was within 2x hold time, the nitroguanidine results for samples FWGEQUIPRINSE2-0508-GW, FWGEQUIPRINSE1-0507-GW, FWGLL3mw-246-504-504-GW, FWGLL1mw-088-504-502-GW, FWGLL2mw-271-503-GW and FWGLL3mw-DUP1-506-GW were qualified as estimated, "UJ".

VOC- 8260

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Tuning criteria
- Initial Calibration Criteria including SPCC and CCC compounds
- ICV/CCV criteria
- Internal standard area counts and retention times
- LOD and MRL verification criteria
- Method /field blank criteria
- Surrogate recoveries
- Field duplicate RPD criteria
- Laboratory Control Sample criteria
- Matrix spike/spike duplicate recovery criteria and RPD

MRL Recoveries

- The opening MRL analyzed on 10/30/14 @ 1159 recovered below control limits for acetone at 31%, bromoform at 69% and 2-butanone at 68%. Chloromethane recovered above control limits of 70-130% at 131%. An LOD verification check sample was analyzed following the closing MRL with detected results for the outlier analytes.

- The closing MRL analyzed 10/30/14 @ 2127 recovered below control limits of 70-130% for acetone at 50%. A LOD verification check sample was analyzed following the closing MRL with detected results for the outlier analytes.

The acetone, bromoform and 2-butanone results for samples FWGLL1mw-088-0502-GW, FWGTEAM2TRIP, FWGEQUIPRINSE1-0507-GW, FWGEQUIPRINSE2-0508-GW, FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, and FWGLL2mw-271-0503-GW were qualified as estimated, "J/ UJ". No qualifications were required for the chloromethane outlier as there were no detected concentrations of chloromethane reported for the bracketed field samples.

Blanks

Acetone was detected in FWGTEAM2Trip collected 10/21/14 at 4.1µg/L and FWGTEAM2Trip collected 10/22/14 at 4.0µg/L. The acetone result for FWGEQUIPRINSE1-0507-GW was qualified, "B".

FWGEQUIPRINSE1-0507-GW had acetone detected at 3.5µg/L and toluene at 0.24µg/L. FWGEQUIPRINSE2-0508-GW had chloroform detected at 0.69µg/L and methylene chloride at 1.1µg/L. There were no detected concentrations of acetone, toluene, chloroform or methylene chloride reported for the associated field samples, so no qualifications were made for the noted equipment rinse contamination.

SVOCs- 8270C

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Tuning criteria
- Initial Calibration Criteria including SPCC and CCC compounds
- ICV/CCV criteria
- Internal standard area counts and retention times
- LOD and MRL verification criteria
- Method /field blank criteria
- Surrogate recoveries
- Field duplicate RPD criteria
- Laboratory Control Sample criteria
- Matrix Spike Recovery Criteria and RPD

MRL Criteria

- The closing MRL analyzed 11/4/14 @ 1609 recovered below control limits of 70-130% for 2,4-dinitrophenol at 69%.
- The closing MRL analyzed 11/12/14 @ 1524 recovered below control limits of 70-130% for 2,4-dinitrophenol at 56%. An LOD verification check was analyzed following MRL standard with detected results.

The 2,4-dinitrophenol results for samples FWGLL1mw-088-0502-GW, FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW, FWGEQUIPRINSE1-0507-GW and FWGEQUIPRINSE2-0508-GW were qualified as estimated, "UJ".

CCV Criteria

The CCV analyzed 11/4/14 had 4-nitroaniline recover above the 20% criteria for %D with a %D of 22.2%, carbazole recovered above control limits with a %D of 26.2% and 4,6-dinitro-2-methylphenol with a %D of 21.3%. No qualification of the data was required as there were no detected concentrations of 4-nitroaniline, carbazole or 4,6-dinitro-2-methylphenol reported for the associated field samples.

LCS Recovery Criteria

The LCS analyzed with batch 240-153104 recovered below control limits of 10-115% for hexachlorocyclopentadiene at 3%. The hexachlorocyclopentadiene LCS from batch 240-154942 recovered below limits at 5%. All hexachlorocyclopentadiene results were qualified as estimated, "UJ".

Matrix Spike/Spike Duplicate Recovery and RPD Criteria
A matrix spike and spike duplicate were prepped analyzed on sample FWGLL2mw-271-0503-GW. The hexachlorocyclopentadiene matrix spike and matrix spike recoveries were below control limits of 10-115% at 5% and 4%, respectively. The pentachlorophenol MSD recovered below control limits of 40-115% at 39%. The MS/MSD RPD was above control limits for 2,4-dinitrophenol at 75%, 4,6-dinitro-2-methylphenol at 47% and benzoic acid at 200%. The hexachlorocyclopentadiene and pentachlorophenol results for FWGLL2mw-271-0503-GW were qualified as estimated, "UJ". No qualification was made for the MS/MSD RPD outliers as there were no detected 4-dinitrophenol, 4,6-dinitro-2-methylphenol or benzoic acid results reported for sample FWGLL2mw-271-0503-GW.

Surrogate Recovery
Samples FWGLL1mw-088-0502-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE1-0507-GW were not spiked with surrogate so no evaluation could be made. The results for samples FWGLL1mw-088-0502-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE1-0507-GW were qualified as estimated, "UJ".

Pesticides- 8081A
The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration criteria
- DDT and Endrin breakdown criteria
- Retention time criteria
- ICV criteria
- CCV Criteria
- Method /field blank criteria
- LCS Recoveries
- Field Duplicate Criteria
- LOD and MRL verification criteria
- Matrix Spike Recovery Criteria and RPD
- Surrogate Recoveries
- Second Column confirmation criteria

MRL Recovery Criteria
Analytical Batch 154474
The MRL analyzed 11/3/14 @ 0009 had toxaphene recover above control limits of 70-130% at 142%. No qualification was required as toxaphene was not reported as detected for sample FWGEQUIPRINSE1-507-GW.

Analytical Batch 155567
The MRL analyzed 11/8/14 @ 1721 had toxaphene recover above control limits of 70-130% at 183% and at 2305 toxaphene recovered above limits at 170%. The MRL analyzed 11/8/14 @ 1807 recovered above limits of 70-130% at 142% for 4,4'-DDD. The MRL analyzed 11/8/14 @ 2350 recovered above limits of 70-130% at 173% for 4,4'-DDD, at 131% for endrin and at 149% for methoxychlor. No qualifications were required as there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE2-508-GW.

Analytical Batch 156929
The MRL analyzed 11/17/14 @ 1832 had toxaphene recover above control limits of 70-130% at 133%. The MRL analyzed on 11/17/14 @ 1923 recovered above limits of 70-130% for beta BHC at 139%. No qualifications were required as there were no detected toxaphene or beta-BHC concentrations reported for samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW.

Analytical Batch 161502
The opening MRL analyzed 12/17/14 @ 2100 recovered above limits of 70-130% for aldrin at 133%, alpha chlordane at 137%, dieldrin at 139%, endosulfan I at 141%, endosulfan II at 138%, endosulfan sulfate at 133%, endrin at 147%, endrin aldehyde at 132%, gamma chlordane at 137%, heptachlor at 139% and heptachlor epoxide at

139%. The closing MRL analyzed 12/17/14 @ 2241 recovered above limits of 70-130% for 4,4'-DDD at 136%, 4,4'-DDE at 142%, 4,4'-DDT at 136%, aldrin at 140%, alpha chlordane at 144%, beta-BHC at 132%, dieldrin at 144%, endosulfan I at 148%, endosulfan II at 147%, endosulfan sulfate at 141%, endrin at 156%, endrin ketone at 135%, endrin aldehyde at 141%, gamma chlordane at 144%, heptachlor at 145%, heptachlor epoxide at 146% and methoxychlor at 136%. No qualifications were required as there were no detected 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha chlordane, beta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin ketone, endrin aldehyde, gamma chlordane, heptachlor, heptachlor epoxide or methoxychlor concentrations reported for sample FWGLL1mw-088-0502.

CCVs

Analytical Batch 154474

The CCV analyzed 11/3/14 at 1435 had %D above 20% for alpha-BHC at 29.1%, gamma-BHC at 30.6%, beta-BHC at 31.6%, delta-BHC at 35.5%, heptachlor at 36.7%, aldrin at 27.1%, heptachlor epoxide at 29.5%, gamma-chlordane at 28.7%, alpha-chlordane at 28.1%, endosulfan I at 32.3%, 4,4'-DDE at 43.4%, dieldrin at 31.9%, endrin at 52.8%, 4,4'-DDD at 68.6%, endosulfan II at 28.8%, 4,4'-DDT at 41.1%, endrin aldehyde at 36.0%, methoxychlor at 52.9%, endosulfan at 30.6%, endrin ketone at 28.3%, TCMX at 23.5% and DCB at 25.2%. The CCV analyzed 11/3/14 at 1817 had %D above 20% for alpha-BHC at 23.7%, gamma-BHC at 24.8%, beta-BHC at 26.6%, delta-BHC at 30.1%, heptachlor at 29.5%, aldrin at 22.8%, heptachlor epoxide at 26.4%, gamma-chlordane at 26.6%, alpha-chlordane at 24.0%, endosulfan I at 27.7%, 4,4'-DDE at 49.1%, dieldrin at 27.5%, endrin at 43.7%, 4,4'-DDD at 62.1%, endosulfan II at 27.5%, 4,4'-DDT at 33.0%, endrin aldehyde at 34.9%, methoxychlor at 43.7%, endosulfan at 29%, endrin ketone at 27.2% and DCB at 27.5%. The CCV analyzed 11/4/14 at 0036 had %D above 20% for 4,4'-DDE at 27.5%, endrin at 26.6%, 4,4'-DDD at 41.1%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE1-507-GW.

Analytical Batch 155567

The CCV analyzed 11/8/14 at 1612 had %D above 20% for toxaphene at 38.6%. The CCV analyzed 11/8/14 at 1658 had %D above 20% for 4,4'-DDE at 21.6%, 4,4'-DDD at 58.5%, and methoxychlor at 26.5%. The CCV analyzed 11/8/14 at 1658 had %D above 20% for 4,4'-DDE at 24.3%, endrin at 23.3%, 4,4'-DDD at 59.4%, 4,4'-DDT at 29.8% and methoxychlor at 34.9%. The CCV analyzed 11/9/14 at 0059 had %D above 20% 4,4'-DDE at 24.3%, endrin at 22.0%, 4,4'-DDD at 57.0%, 4,4'-DDT at 26.6% and methoxychlor at 32.0%. The CCV analyzed 11/9/14 at 0014 had %D above 20% for toxaphene at 41.98%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE2-508-GW.

Analytical Batch 156929

The CCV analyzed 11/17/14 at 1557 had %D above 20% for endrin at 23.8%. The CCV analyzed 11/17/14 at 1806 had %D above 20% for beta-BHC at 24.0%, heptachlor at 25.5%, 4,4'-DDE at 21.0%, endrin at 30.5%, 4,4'-DDD at 25.8%, endosulfan II at 20.6%, 4,4'-DDT at 26.4%, endrin aldehyde at 22.2% and methoxychlor at 27.1%. The CCV analyzed 11/18/14 at 001 had %D above 20% for alpha-BHC at 20.4%, gamma-BHC at 21.3%, beta-BHC at 25.7%, delta-BHC at 23.1%, heptachlor at 28.5%, endosulfan I at 22.6%, 4,4'-DDE at 28.7%, dieldrin at 21.5%, endrin at 39.6%, 4,4'-DDD at 36.6%, endosulfan II at 21.9%, 4,4'-DDT at 36.8%, endrin aldehyde at 25.4% and methoxychlor at 35.6. The CCV analyzed 11/18/14 at 0522 had %D above 20% for toxaphene at 30.4%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW.

Analytical Batch 161502

For the CCVs analyzed 12/17/14, endrin had a %D above control limits of 20% at 22.5% (1944) and 24.9% (2306). No qualification of the data was required as all CCV outliers were biased high and there were no detected endrin concentrations reported for the associated field sample FWGLL1mw-088-0502.

Blanks
The method blank associated with batch 240-150099 had alpha-BHC detected at 0.0207 µg/L, beta-BHC at 0.0280 µg/L, delta-BHC at 0.0552 µg/L and gamma-BHC at 0.0128 µg/L. No qualification of the data was required for the beta-BHC, delta-BHC or gamma-BHC contamination as there were no detected concentrations of beta-BHC, delta-BHC or gamma-BHC reported for the associated field samples. The alpha-BHC result for sample FWGLL1mw-088-0502-GW was qualified, "B", as the detected concentration was less than 5x method blank contamination.

LCS Recovery
The LCS associated with samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW recovered above control limits of 70-130% for toxaphene at 138% and below control limits of 50-110% at 49% for endosulfan I. As there were no detected toxaphene concentrations reported for samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW, no qualification of the toxaphene data was required. The endosulfan I results for samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW were qualified as estimated, "UJ".

The LCS associated with sample FWGEQUIPRINSE2-508-GW recovered above control limits of 25-150% for 4,4'-DDT at 157% and above control limits of 45-140% at 150% for 4,4'-DDT. No qualification was required as there were no detected pesticide concentrations reported for FWGEQUIPRINSE2-508-GW.
The LCS associated with samples FWGLL2mw-271-0503-GW, FWGLL3mw-246-504-GW and FWGLL3mw-DUP1-0506-GW recovered above control limits of 70-130% for toxaphene at 147%. As there were no detected toxaphene concentrations reported for samples FWGLL2mw-271-0503-GW, FWGLL3mw-246-504-GW or FWGLL3mw-DUP1-0506-GW, no qualification of the toxaphene data was required.

Surrogate Recovery
The surrogate, TCMX, recovered above control limits of 25-140% in sample FWGLL1mw-088-0502-GW at 174% on column CLP-1. No qualification of the data was required as there were no detected pesticide concentrations reported for sample FWGLL1mw-088-0502-GW from this column.

PCB- 8082
The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration criteria
- Retention time criteria
- ICV criteria
- CCV Criteria
- Method /field blank criteria
- LCS Recoveries
- Field Duplicate Criteria
- LOD and MRL verification criteria
- Matrix Spike Recovery Criteria and RPD
- Surrogate Recoveries
- Second Column confirmation criteria

Second Column Confirmation
No detected concentrations were reported for the field samples that required second column confirmation.

No QC outliers were noted.

Site: Ravenna Army Ammunition Plant
Sampling Event: October 2014 **Date:** January 27, 2015
Sample Delivery Group: 240-43449 **Revision:** 1

Metals - 6010B

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration criteria
- ICV and CCV criteria
- ICB /CCBs criteria
- Method /field blank criteria
- LOD and MRL verification criteria
- LCS percent recovery criteria
- Matrix Spike Recovery
- Lab and Field duplicate RPD criteria
- Post Digestion Spike Criteria

Blanks

The CCBs analyzed 10/29/14 had potassium detected from 75.1 µg/L to 94.7 µg/L. The CCB analyzed 10/29/14 at 1227 had nickel detected at 1.83 µg/L. The nickel results for samples FWGLL1mw-088-0502-GF, FWGLL3mw-246-0504-GF, FWGLL3mw-DUP1-0506-GF and FWGEQUIPRINSE1-0507-GW and the potassium result for sample FWGEQUIPRINSE1-0507-GW were qualified "U" as the reported concentrations were less than 5x blank contamination.

Manganese was detected in FWGEQUIPRINSE1-507-GW at 0.56 µg/L, nickel at 0.78 µg/L and potassium at 86 µg/L. The nickel result for sample FWGLL1mw-088-0502-GF, was qualified "B" as the reported concentration was less than five times the equipment rinse contamination. No qualification was required for the manganese or potassium contamination as the detected results for potassium and manganese in the associated field sample, FWGLL1mw-088-0502-GF, were greater than 5x contamination.

Laboratory Duplicate RPD

The laboratory duplicate analyzed on sample FWGLL2mw-271-0503-GF had an RPD above control limits of 20% for chromium at 27%. No qualification of the data was required as the detected chromium concentration was less than the LOQ.

Metals - 6020

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Tuning Criteria
- Initial Calibration criteria
- ICV and CCV criteria
- ICB /CCBs criteria
- Method /field blank criteria
- LOD and MRL verification criteria
- LCS percent recovery criteria
- Matrix Spike Recovery
- Lab and Field Duplicate RPD Criteria
- Post Digestion Spike Criteria

Blanks

The ICB analyzed 10/29/14 @ 0741 had thallium detected at 0.127µg/L. No qualification of the data was required as the detected thallium result for sample FWGLL2mw-271-0503 was greater than 5x blank contamination.

The CCBs analyzed 10/29/14 had thallium detected from 0.152 µg/L to 0.446 µg/L. The thallium result for sample FWGLL2mw-271-0503-GF was qualified "U" as the reported concentration was less than 5x blank contamination.

Cadmium was detected in the method blank at 0.423 µg/L. The cadmium result for sample FWGLL2mw-271-0503-GF was qualified "B" as the reported concentration was less than 5x method blank contamination.

Post Digestion Spike Criteria

The post digestion spike analysis performed on sample FWGLL2mw-271-0503-GF recovered above control limits for aluminum at 135%, antimony at 141%, iron at 137% and sodium at 143%. No qualifications were required for the iron or sodium outliers as the serial dilution for these analytes was within ± 10% of the original result. The detected antimony and aluminum results for samples FWGLL1MW-088-0502-GF, FWGLL3MW-246-504-GF, FWGEQUIPRINSE2-0508-GW were qualified as estimated, "J". As no qualification is required for the non detected results associated with a high post spike recovery, no qualification was made for the antimony or aluminum FWGLL3MW-DUP1-506-GF, FWGLL2MW-271-0503-GF or FWGEQUIPRINSE1-0507-GW results.

Mercury - 7470A

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration criteria
- ICV and CCV criteria
- ICB /CCBs criteria
- Method /field blank criteria
- LOD and MRL verification criteria
- LCS percent recovery criteria
- Matrix Spike Recovery
- Lab and Field duplicate RPD criteria

No QC outliers were noted.

Cyanide – 9012A

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration criteria
- ICV and CCV criteria
- ICB /CCBs criteria
- Method/Field blank criteria
- LOD and MRL verification criteria
- LCS percent recovery criteria
- Matrix Spike Recovery
- Field duplicate RPD criteria

No QC outliers were noted.

Explosives- 8330

The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Preservation and sample handling
- Initial Calibration Criteria
- ICV and CCV criteria
- Retention time criteria
- LOD and MRL verification criteria
- Surrogate recovery criteria
- Method /field blank criteria
- LCS/LCD Recovery and RPD Criteria
- Matrix spike/spike duplicate recovery criteria and RPD
- Second column confirmation

Second Column RPD
The confirmation column RPD was above control limits of 40% for 1,3,5-trinitrobenzene at 129.6% in sample FWGEQUIPRINSE1-507-GW. The 1,3,5-trinitrobenzene result for sample FWGEQUIPRINSE1-507-GW was qualified as estimated, "J".

Surrogate Recovery
The surrogate, 3,4-dinitrotolune recovered above control limits of 79-111% for samples FWGEQUIPRINSE1-507-GW and FWGEQUIPRINSE2-508-GW on the confirmation column (LC12) at 128% and 121%, respectively. No qualifications were applied as the sample results were reported from the primary column (LC11).

Nitroguanidine- 8330M
The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Holding times, preservation, sample handling
- Initial Calibration criteria
- Retention time criteria
- LOD and MRL verification criteria
- ICV and CCV criteria
- Method /field blank criteria
- LCS/LCSD percent recoveries and RPD value criteria
- Matrix spike recovery criteria
- Second column confirmation

No QC outliers were noted.

Nitrocellulose – WS-WC-0050
The following QC criteria were reviewed and determined to be acceptable, except as noted below:

- Holding times, preservation, sample handling
- Sample preparation criteria
- Initial Calibration criteria
- ICV and CCV criteria
- Method /field blank criteria
- LOD and MRL verification criteria
- ICB and CCBs were free from contamination
- LCS/LCSD percent recoveries and RPD value criteria
- MS/MSD percent recoveries and RPD

MRL Recovery
No closing MRL information was provided for evaluation. Since an opening MRL check was analyzed with acceptable recovery, the data was qualified as estimated, "UJ".

No additional QC outliers were noted.

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SAMPLE SUMMARY

Client: Environmental Quality Mgt., Inc. Job Number: 240-43449-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
240-43449-1	FWGTEAM2TRIP	Water	10/21/2014 1000	10/23/2014 1007
240-43449-2	FWGLL1MW-088-0502-GF	Water	10/21/2014 1500	10/23/2014 1007
240-43449-3	FWGLL1MW-088-0502-GW	Water	10/21/2014 1500	10/23/2014 1007
240-43449-4	FWGEQUIPRINSE1-507-GW	Water	10/21/2014 1630	10/23/2014 1007
240-43449-5	FWGTEAM2TRIP	Water	10/22/2014 0800	10/23/2014 1007
240-43449-6	FWGLL3MW-246-504-GW	Water	10/22/2014 1110	10/23/2014 1007
240-43449-7	FWGLL3MW-246-504-GF	Water	10/22/2014 1110	10/23/2014 1007
240-43449-8	FWGLL3MW-DUP1-506-GW	Water	10/22/2014 1200	10/23/2014 1007
240-43449-9	FWGLL3MW-DUP1-506-GF	Water	10/22/2014 1200	10/23/2014 1007
240-43449-10	FWGEQUIPRINSE2-0508-GW	Water	10/22/2014 1445	10/23/2014 1007
240-43449-11	FWGLL2MW-271-0503-GW	Water	10/22/2014 1630	10/23/2014 1007
240-43449-11MS	FWGLL2MW-271-0503-GW	Water	10/22/2014 1630	10/23/2014 1007
240-43449-11MSD	FWGLL2MW-271-0503-GW	Water	10/22/2014 1630	10/23/2014 1007
240-43449-12	FWGLL2MW-271-0503-GF	Water	10/22/2014 1630	10/23/2014 1007
240-43449-12MS	FWGLL2MW-271-0503-GF	Water	10/22/2014 1630	10/23/2014 1007
240-43449-12DU	FWGLL2MW-271-0503-GF	Water	10/22/2014 1630	10/23/2014 1007

METHOD SUMMARY

Client: Environmental Quality Mgt., Inc. Job Number: 240-43449-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL CAN	SW846 8260B	
Purge and Trap	TAL CAN		SW846 5030B
Semivolatile Organic Compounds (GC/MS)	TAL CAN	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL CAN		SW846 3520C
Organochlorine Pesticides (GC)	TAL CAN	SW846 8081A	
Liquid-Liquid Extraction (Continuous)	TAL CAN		SW846 3520C
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	TAL CAN	SW846 8082	
Liquid-Liquid Extraction (Continuous)	TAL CAN		SW846 3520C
Metals (ICP)	TAL CAN	SW846 6010B	
Preparation, Total Recoverable or Dissolved Metals	TAL CAN		SW846 3005A
Metals (ICP/MS)	TAL CAN	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals	TAL CAN		SW846 3005A
Mercury (CVAA)	TAL CAN	SW846 7470A	
Preparation, Mercury	TAL CAN		SW846 7470A
Cyanide, Total and/or Amenable	TAL CAN	SW846 9012A	
Cyanide, Total and/or Amenable, Distillation	TAL CAN		SW846 9012A
Nitroguanidine (HPLC)	TAL SAC	SW846 8330 Modified	
Sample Filtration	TAL SAC		Filtration
Nitroaromatics and Nitramines	TAL SAC	SW846 8330A	
Solid-Phase Extraction (Explosives)	TAL SAC		SW846 8330-Prep
Nitrocellulose	TAL SAC	TAL-SAC WS-WC-0050	
Nitrocellulose Sample Preparation (Hydrolysis)	TAL SAC		MCAWW 353 (NCell-Hyd)
Nitrocellulose Sample Preparation	TAL SAC		MCAWW 353.2 (NCell)

Lab References:

TAL CAN = TestAmerica Canton

TAL SAC = TestAmerica Sacramento

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-SAC = TestAmerica Laboratories, West Sacramento, Facility Standard Operating Procedure.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

240-43449 Chain of Custody

4101 Shuffel Street, N.W. North Canton, OH 44720 **tel** 330.497.9396 **fax** 330.497.0772 **www.testamericainc.com**

TestAmerica Canton
4101 Shuffel Street, N. W.
North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Client Contact			
Company Name: EQM	Project Manager: John Miller	Site Contact: E CORBIN	Date: 10/21/14
Address: 1800 CARILLON BLVD	Tel/Fax: 513 825 7495	Lab Contact: M LOEB	Carrier: LAB PICKUP 10/22/14
City/State/Zip: CINCINNATI, OH 45240			COC No: CAL102114
Phone: 513 825 7500			1 of 1 COCs
Fax: 513 825 7495			Sampler:
Project Name: RVAAP66			
Site: RVAAP			
PO#			

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below ______
☒ 2 weeks per SOW
☐ 1 week
☐ 2 days
☐ 1 day

For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOC 8260	SVOC 8270	Pest 8081	PCB 8082	EXPL 8330	Propellants	Cyanide 9012	Metals 6010/6020/7470		Sample Specific Notes: Cooler ID#
FWG Team 2 Trip	10/21/14	1000		W	2	N	N	X						[illegible]			080113-01
FWGLL1mw-088-0502-GF	↓	1500	G	GW	1	Y	N								X		080113-01
FWGLL1mw-088-0502-GW	↓	1500	G	GW	13	N	N	X	X	X	X	X	X	X			080113-01
FWG EQUIP Rinse 1-507 -GW	↓	1630	G	W	14	N	N	X	X	X	X	X	X	X	X		210501
FWG Team 2 Trip	10/22/14	0800		W	2	N	N	X									#801
FWG LL3mw246-504-GW	↓	1110	G	GW	13	N	N	X	X	X	X	X	X	X			C305
FWG LL3mw-246-504-GF	↓	↓	G	GW	1	Y	N								X		C305
FWG LL3mw-DUP1-506-GW	↓	1200	G	GW	13	N	N	X	X	X	X	X	X	X			#801
FWG LL3mw-DUP1-506-GF	↓	↓	G	GW	1	Y	N								X		#801
FWG EQUIP Rinse 2-0508-GW	10/22/14	1445	G	W	14	N	N	x	x	x	x	x	x	x	x		C240
FWG LL2mw-271-0503-GW	↓	1630	G	GW	31	N	Y	x	x	x	x	x	x	x			partial vol MSMSD P900, L061, ~~[illegible]~~
FWG LL2mw-271-0503-GF	↓	↓	G	GW	3	Y	Y								x		partial vol MSMSD P900, L061, ~~[illegible]~~
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	1	1	1	1	1	1	5	4	(4 COOLERS)

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments:
Metals (except rinses) are field filtered.
VOAs in cooler ID # 080113-01 (10/21/14)
VOAs in cooler ID #801 (10/22/14)

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temp. (°C): Obs'd: ______ Corr'd: ______ Therm ID No.: ______

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	EQM	10/23/14 0900	R. Reban [signature]	TestAmerica	10-23-14 - 0900
R C Reban [signature]	TestAmerica	10-23-14 1007	[signature]	TA Can	10/23/14 1007
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 43449

Client EQM Site Name Ravenna

Cooler unpacked by: Amy Burns

Cooler Received on 10/23/14 Opened on 10/23/14

FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other multiple

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A	(CF +2 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 4	(CF -2 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	☑ See Multiple Cooler Form
IR GUN# 5	(CF 0 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 8	(CF 0 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 each — Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? — Yes No NA
   -Were custody seals on the bottle(s)? — Yes No
3. Shippers' packing slip attached to the cooler(s)? — Yes No
4. Did custody papers accompany the sample(s)? — Yes No
5. Were the custody papers relinquished & signed in the appropriate place? — Yes No
6. Did all bottles arrive in good condition (Unbroken)? — Yes No
7. Could all bottle labels be reconciled with the COC? — Yes No
8. Were correct bottle(s) used for the test(s) indicated? — Yes No
9. Sufficient quantity received to perform indicated analyses? — Yes No
10. Were sample(s) at the correct pH upon receipt? — Yes No NA pH Strip Lot# HC412469
11. Were VOAs on the COC? — Yes No
12. Were air bubbles >6 mm in any VOA vials? — Yes No NA
13. Was a trip blank present in the cooler(s)? — Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: DT

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

TestAmerica Multiple Cooler Receipt Form/Narrative Login # : _____

Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
080113-01	8	0.6	0.6	ICE
210561		1.6	1.6	
*801		1.2	1.2	
C365		1.4	1.4	
C240		3.8	3.8	
P960		2.2	2.2	
L061		2.8	2.8	

CASE NARRATIVE
REVISED

Client: Environmental Quality Mgt., Inc.

Project: RVAAP (OH)

Report Number: 240-43449-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

The 353.2 Nitrocellulose, 8330 Nitroguanidine and 8330A Explosives analysis were performed at the TestAmerica Sacramento Laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

TestAmerica utilizes USEPA approved methods and DOD QSM, where applicable, in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

All parameters for which TestAmerica North Canton has certification were evaluated to the limit of detection (LOD) and include qualified results where applicable. Parameters not certified under QSM, if any, were evaluated to the detection limit (DL) and include qualified results where applicable.

REVSION 1: This report has been revised due to a linking issue with a Pesticide ICV. Supporting QC information was inadvertently omitted from the originally submitted report.

REVISION 2: Sample FWGLL1MW-088-0502-GW (240-43449-3) was reanalyzed at a lesser dilution for pesticides.

REVISION 3: The MRL 240-161502/11 was revised to reflect both columns and ICVs from 12/02/2014 were linked and now included in this report.

The sample(s) that contain constituents flagged with U are undetected. The result associated with this flag is the limit of detection (LOD).

RECEIPT

The samples were received on 10/23/2014 10:07 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.6° C, 1.2° C, 1.4° C, 1.6° C, 2.2° C, 2.8° C and 3.8° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples FWGTEAM2TRIP (240-43449-1), FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGTEAM2TRIP (240-43449-5), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B DoD. The samples were analyzed on 10/30/2014.

Acetone failed the recovery criteria low for MRL 240-154028/29. 2-Butanone (MEK), Acetone and Bromoform failed the recovery criteria low for MRL 240-154028/4. Chloromethane failed the recovery criteria high. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 10/24/2014 and 11/05/2014 and analyzed on 11/04/2014 and 11/12/2014.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Analysis Batch 154725; Prep Batch 153104

Due to an inadvertant laboratory error all surrogates for the following samples did not recovery. The samples were not spiked. FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4) and FWGLL2MW-271-0503-GW (240-43449-11). Samples were reextracted and reanalyzed. Reextraction occured outside the allowable 14 day extended hold time. The client was contacted and requested the laboratory report only the initial results.

The laboratory control sample (LCS) for prep batch 153104, associated with samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), and FWGLL2MW-271-0503-GW (240-43449-11), recovered outside acceptance limits for hexachlorocyclopentadiene. There was insufficient hold time remaining to perform a re-extraction or re-analysis; therefore, the data have been reported.

Hexachlorocyclopentadiene failed the recovery criteria low for the MS of sample FWGLL2MW-271-0503-GWMS (240-43449-11) in batch 240-154725. While Hexachlorocyclopentadiene and Pentachlorophenol failed the recovery criteria low for the MSD of sample FWGLL2MW-271-0503-GWMSD (240-43449-11) in batch 240-154725. Several analytes exceeded the RPD limit.

Analysis Batch 156166; Prep Batch 154942

Surrogate recoveries for the following samples were outside control limits: FWGEQUIPRINSE2-0508-GW (240-43449-10), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8). Re-extraction and/or re-analysis was performed outside of holding time, but within an allowable 14 day extended hold time. The results were acceptable. Only the re-extraction set of data only has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITROGUANIDINE (HPLC)

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for nitroguanidine (HPLC) in accordance with EPA SW-846 Method 8330_Ngu. The samples were prepared on 10/30/2014 and analyzed on 11/04/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED PESTICIDES

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for chlorinated pesticides in accordance with EPA SW-846 Method 8081A DoD. The samples were prepared on 10/24/2014, 11/02/2014 and 11/05/2014 and analyzed on 11/03/2014, 11/08/2014 and 11/17/2014.

Analysis Batch 154474; Prep Batch 153099

delta-BHC was detected in method blank MB 240-153099/15-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

alpha-BHC, beta-BHC and gamma-BHC (Lindane) were detected in method blank MB 240-153099/15-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

DCB Decachlorobiphenyl failed the surrogate recovery criteria high for FWGLL1MW-088-0502-GW (240-43449-3).

DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria high for MB 240-153099/15-A.

Endosulfan I failed the recovery criteria low for LCS 240-153099/16-A.

Sample FWGLL1MW-088-0502-GW (240-43449-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples was diluted due to the nature of the sample matrix: FWGLL1MW-088-0502-GW (240-43449-3). Elevated reporting

limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 154474 recovered above the upper control limit for Multiple Analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FWGEQUIPRINSE1-507-GW (240-43449-4) and FWGLL1MW-088-0502-GW (240-43449-3).

The method blank associated with prep batch 153099 contained delta-BHC, alpha-BHC, and beta-BHC greater than one-half the reporting limit (RL). Samples did not contain these analytes above the reporting limit; therefore, sample results have been qualified and reported.

Analysis Batch 155567; Prep Batch 154448

4,4'-DDD and 4,4'-DDT failed the recovery criteria high for LCS 240-154448/11-A. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

The continuing calibration verification (CCV) associated with batch 155567 recovered above the upper control limit for Multiple Analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FWGEQUIPRINSE2-0508-GW (240-43449-10).

Reanalysis of the following sample was performed outside of the analytical holding time due to re-extraction required due to LCS failing low for Endosulfan I: FWGEQUIPRINSE2-0508-GW (240-43449-10).

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 154448, 8081.

Analysis Batch 156929; Prep Batch 154929

Reanalysis of the following samples was performed outside of the analytical holding time due to re-extraction required due to method blank contamination and LCS failure. Both sets of data reported.: FWGLL2MW-271-0503-GW (240-43449-11), FWGLL2MW-271-0503-GW (240-43449-11 MS), FWGLL2MW-271-0503-GW (240-43449-11 MSD), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8).

The continuing calibration verification (CCV) associated with batch 156929 recovered above the upper control limit for Multiple Analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FWGLL2MW-271-0503-GW (240-43449-11), FWGLL2MW-271-0503-GW (240-43449-11 MS), FWGLL2MW-271-0503-GW (240-43449-11 MSD), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8).

Analysis Batch 161502; Prep Batch 153099

The continuing calibration verification (CCV) associated with batch 161502 recovered above the upper control limit for Endrin. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FWGLL1MW-088-0502-GW (240-43449-3).

The original extraction and analysis for sample 240-43449-3 was performed within the recommended prep and analytical hold times. The sample extract had been screened prior to analysis and the sample was analyzed at a dilution that was based on an unknown contamination. Per client request, the sample was reevaluated and reanalyzed at a lesser dilution trying to achieve project limits. Results of only the reanalysis are included in this report. The reanalysis was performed beyond the recommended analytical hold time, but within an allowable double hold time. Surrogate recoveries and target compound results were each chosen from the column which gave the most reliable result. FWGLL1MW-088-0502-GW (240-43449-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082 DoD. The samples were prepared on 10/24/2014 and 10/25/2014 and analyzed on 10/28/2014, 10/29/2014 and 10/30/2014.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required. All of the samples in this data set analyzed for PCBs were subjected to the sulfuric acid cleanup procedure before instrumental analysis, per EPA Method 3665A.

TCMX surrogate recovery for the following sample(s) was outside control limits on the confirmation column: FWGLL1MW-088-0502-GW (240-43449-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The following sample(s) required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: FWGLL1MW-088-0502-GW (240-43449-3). Reagents: 1714041,1526413 and 1647110

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 153285, 8082.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EXPLOSIVES

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for explosives in accordance with EPA SW-846 Method 8330A. The samples were prepared on 10/27/2014 and analyzed on 11/04/2014 and 11/07/2014.

Surrogate recovery for the following samples was outside control limits on confirmation analysis. As surrogate recovery is controlled from the primary analysis there is no corrective action. FWGEQUIPRINSE1-507-GW (240-43449-4), FWGEQUIPRINSE2-0508-GW (240-43449-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS (ICP)

Samples FWGLL1MW-088-0502-GF (240-43449-2), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GF (240-43449-7), FWGLL3MW-DUP1-506-GF (240-43449-9), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GF (240-43449-12) were analyzed for total recoverable metals (ICP) in accordance with EPA SW-846 Method 6010B DoD. The samples were prepared on 10/28/2014 and analyzed on 10/29/2014.

ICB, CCB, and ICSA samples are evaluated using the lowest LOD and DL criteria in LIMS. Using this criteria, an individual element may occasionally be flagged as out of control. If the element has a higher LOD or DL, the data is evaluated to the higher limit and determined to be acceptable.

Arsenic, Barium, Chromium, Cobalt, Nickel and Potassium exceeded the RPD limit for the duplicate of sample FWGLL2MW-271-0503-GFDU (240-43449-12). Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS (ICPMS)

Samples FWGLL1MW-088-0502-GF (240-43449-2), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GF (240-43449-7), FWGLL3MW-DUP1-506-GF (240-43449-9), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GF (240-43449-12) were analyzed for total recoverable metals (ICPMS) in accordance with EPA SW-846 Method 6020 DoD. The samples were prepared on 10/28/2014 and analyzed on 10/29/2014.

ICB, CCB, and ICSA samples are evaluated using the lowest LOD and DL criteria in LIMS. Using this criteria, an individual element may occasionally be flagged as out of control. If the element has a higher LOD or DL, the data is evaluated to the higher limit and determined to be acceptable.

Cadmium was detected in method blank MB 240-153655/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples FWGLL1MW-088-0502-GF (240-43449-2), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GF (240-43449-7), FWGLL3MW-DUP1-506-GF (240-43449-9), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GF (240-43449-12) were analyzed for total mercury in accordance with EPA SW-846 Method 7470A. The samples were prepared on 10/28/2014 and analyzed on 10/30/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITROCELLULOSE

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for Nitrocellulose in accordance with EPA Method 353.2. The samples were prepared on 10/28/2014 and analyzed on 10/29/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL CYANIDE

Samples FWGLL1MW-088-0502-GW (240-43449-3), FWGEQUIPRINSE1-507-GW (240-43449-4), FWGLL3MW-246-504-GW (240-43449-6), FWGLL3MW-DUP1-506-GW (240-43449-8), FWGEQUIPRINSE2-0508-GW (240-43449-10) and FWGLL2MW-271-0503-GW (240-43449-11) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012A DoD. The samples were prepared and analyzed on 10/31/2014.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
^	Instrument related QC exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
^	Instrument related QC exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
H	Sample was prepped or analyzed beyond the specified holding time
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
^	Instrument related QC exceeds the control limits

HPLC/IC

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Metals

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
D	The reported value is from a dilution.

General Chemistry

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGTEAM2TRIP
Date Collected: 10/21/14 10:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:10	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:10	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 16:10	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:10	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 16:10	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:10	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 16:10	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:10	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 16:10	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 16:10	1
Acetone	**4.1**	**J**	10	2.0	3.4	ug/L		10/30/14 16:10	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 16:10	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 16:10	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 16:10	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 16:10	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 16:10	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:10	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 16:10	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 16:10	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 16:10	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:10	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 16:10	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 16:10	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 16:10	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:10	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 16:10	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 16:10	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 16:10	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 16:10	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 16:10	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 16:10	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:10	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 16:10	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:10	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 16:10	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 16:10	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 16:10	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 16:10	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 120*		*10/30/14 16:10*	*1*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*10/30/14 16:10*	*1*
Toluene-d8 (Surr)	*93*		*85 - 120*		*10/30/14 16:10*	*1*
Dibromofluoromethane (Surr)	*90*		*85 - 115*		*10/30/14 16:10*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL1MW-088-0502-GF
Date Collected: 10/21/14 15:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-2
Matrix: Water

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	**27**		10	10	2.9	ug/L		10/29/14 12:47	1
Chromium	**1.1**	**J**	7.0	4.0	0.55	ug/L		10/29/14 12:47	1
Cobalt	4.0	U	7.0	4.0	0.56	ug/L		10/29/14 12:47	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 12:47	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 12:47	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 12:47	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 12:47	1
Barium	**44**	**J**	200	5.0	1.0	ug/L		10/29/14 12:47	1
Calcium	**80000**		5000	1000	260	ug/L		10/29/14 12:47	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 12:47	1
Magnesium	**36000**		5000	300	55	ug/L		10/29/14 12:47	1
Manganese	**60**		15	5.0	0.46	ug/L		10/29/14 12:47	1
Nickel	**1.4**	**J**	40	5.0	0.76	ug/L		10/29/14 12:47	1
Potassium	**3300**	**J**	5000	900	70	ug/L		10/29/14 12:47	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	**120**		60	60	20	ug/L		10/29/14 11:28	1
Antimony	1.0	U	2.0	1.0	0.33	ug/L		10/29/14 11:28	1
Beryllium	1.0	U	1.0	1.0	0.50	ug/L		10/29/14 11:28	1
Cadmium	1.0	U	2.0	1.0	0.40	ug/L		10/29/14 11:28	1
Iron	**1300**		150	100	44	ug/L		10/29/14 11:28	1
Sodium	**25000**		1000	400	160	ug/L		10/29/14 11:28	1
Thallium	1.5	U	2.0	1.5	0.79	ug/L		10/29/14 11:28	1
Zinc	50	U	50	50	27	ug/L		10/29/14 11:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 15:04	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL1MW-088-0502-GW — **Lab Sample ID: 240-43449-3**
Date Collected: 10/21/14 15:00 — **Matrix: Water**
Date Received: 10/23/14 10:07

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:33	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:33	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 16:33	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:33	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 16:33	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:33	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 16:33	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:33	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 16:33	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 16:33	1
Acetone	2.0	U	10	2.0	3.4	ug/L		10/30/14 16:33	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 16:33	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 16:33	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 16:33	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 16:33	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 16:33	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:33	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 16:33	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 16:33	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 16:33	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:33	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 16:33	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 16:33	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 16:33	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:33	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 16:33	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 16:33	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 16:33	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 16:33	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 16:33	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 16:33	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:33	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 16:33	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:33	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 16:33	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 16:33	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 16:33	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 16:33	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 120*		*10/30/14 16:33*	*1*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*10/30/14 16:33*	*1*
Toluene-d8 (Surr)	*94*		*85 - 120*		*10/30/14 16:33*	*1*
Dibromofluoromethane (Surr)	*96*		*85 - 115*		*10/30/14 16:33*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.099	U	0.20	0.099	0.044	ug/L		11/04/14 12:54	1
Acenaphthylene	0.099	U	0.20	0.099	0.048	ug/L		11/04/14 12:54	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL1MW-088-0502-GW — **Lab Sample ID: 240-43449-3**
Date Collected: 10/21/14 15:00 — **Matrix: Water**
Date Received: 10/23/14 10:07

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.099	U	0.20	0.099	0.087	ug/L		11/04/14 12:54	1
Benzo[a]anthracene	0.099	U	0.20	0.099	0.029	ug/L		11/04/14 12:54	1
Benzo[a]pyrene	0.099	U	0.20	0.099	0.051	ug/L		11/04/14 12:54	1
Benzo[b]fluoranthene	0.099	U	0.20	0.099	0.039	ug/L		11/04/14 12:54	1
Benzo[g,h,i]perylene	0.099	U	0.20	0.099	0.046	ug/L		11/04/14 12:54	1
Benzoic acid	20	U	25	20	9.9	ug/L		11/04/14 12:54	1
Benzo[k]fluoranthene	0.099	U	0.20	0.099	0.044	ug/L		11/04/14 12:54	1
Benzyl alcohol	0.50	U	5.0	0.50	0.38	ug/L		11/04/14 12:54	1
Bis(2-chloroethoxy)methane	0.50	U	0.99	0.50	0.32	ug/L		11/04/14 12:54	1
Bis(2-chloroethyl)ether	0.099	U	0.99	0.099	0.099	ug/L		11/04/14 12:54	1
Bis(2-ethylhexyl) phthalate	5.0	U	5.0	5.0	1.7	ug/L		11/04/14 12:54	1
4-Bromophenyl phenyl ether	0.50	U	2.0	0.50	0.22	ug/L		11/04/14 12:54	1
Butyl benzyl phthalate	0.50	U	5.0	0.50	0.26	ug/L		11/04/14 12:54	1
Carbazole	0.50	U	0.99	0.50	0.28	ug/L		11/04/14 12:54	1
4-Chloroaniline	0.50	U	2.0	0.50	0.21	ug/L		11/04/14 12:54	1
4-Chloro-3-methylphenol	0.50	U	2.0	0.50	0.21	ug/L		11/04/14 12:54	1
2-Chloronaphthalene	0.50	U	0.99	0.50	0.099	ug/L		11/04/14 12:54	1
2-Chlorophenol	0.50	U	0.99	0.50	0.29	ug/L		11/04/14 12:54	1
4-Chlorophenyl phenyl ether	0.50	U	2.0	0.50	0.30	ug/L		11/04/14 12:54	1
Chrysene	0.099	U	0.20	0.099	0.050	ug/L		11/04/14 12:54	1
Dibenz(a,h)anthracene	0.099	U	0.20	0.099	0.044	ug/L		11/04/14 12:54	1
Dibenzofuran	0.099	U	0.99	0.099	0.020	ug/L		11/04/14 12:54	1
1,2-Dichlorobenzene	0.50	U	0.99	0.50	0.29	ug/L		11/04/14 12:54	1
1,3-Dichlorobenzene	0.50	U	0.99	0.50	0.23	ug/L		11/04/14 12:54	1
1,4-Dichlorobenzene	0.50	U	0.99	0.50	0.34	ug/L		11/04/14 12:54	1
3,3'-Dichlorobenzidine	0.99	U	5.0	0.99	0.37	ug/L		11/04/14 12:54	1
2,4-Dichlorophenol	0.50	U	2.0	0.50	0.19	ug/L		11/04/14 12:54	1
Diethyl phthalate	0.99	U	2.0	0.99	0.59	ug/L		11/04/14 12:54	1
2,4-Dimethylphenol	0.50	U	2.0	0.50	0.25	ug/L		11/04/14 12:54	1
Dimethyl phthalate	0.50	U	2.0	0.50	0.29	ug/L		11/04/14 12:54	1
Di-n-butyl phthalate	5.0	U	5.0	5.0	1.7	ug/L		11/04/14 12:54	1
4,6-Dinitro-2-methylphenol	4.0	U	5.0	4.0	2.4	ug/L		11/04/14 12:54	1
2,4-Dinitrophenol	0.99	U	5.0	0.99	0.32	ug/L		11/04/14 12:54	1
Di-n-octyl phthalate	0.50	U	2.0	0.50	0.23	ug/L		11/04/14 12:54	1
Fluoranthene	0.099	U	0.20	0.099	0.044	ug/L		11/04/14 12:54	1
Fluorene	0.099	U	0.20	0.099	0.040	ug/L		11/04/14 12:54	1
Hexachlorobenzene	0.099	U	0.20	0.099	0.084	ug/L		11/04/14 12:54	1
Hexachlorobutadiene	0.50	U	0.99	0.50	0.27	ug/L		11/04/14 12:54	1
Hexachlorocyclopentadiene	0.50	U Q	9.9	0.50	0.24	ug/L		11/04/14 12:54	1
Hexachloroethane	0.50	U	0.99	0.50	0.19	ug/L		11/04/14 12:54	1
Indeno[1,2,3-cd]pyrene	0.099	U	0.20	0.099	0.043	ug/L		11/04/14 12:54	1
Isophorone	0.50	U	0.99	0.50	0.27	ug/L		11/04/14 12:54	1
2-Methylnaphthalene	0.099	U	0.20	0.099	0.090	ug/L		11/04/14 12:54	1
2-Methylphenol	0.50	U	0.99	0.50	0.17	ug/L		11/04/14 12:54	1
3 & 4 Methylphenol	0.99	U	2.0	0.99	0.79	ug/L		11/04/14 12:54	1
Naphthalene	0.099	U	0.20	0.099	0.062	ug/L		11/04/14 12:54	1
2-Nitroaniline	0.50	U	2.0	0.50	0.21	ug/L		11/04/14 12:54	1
3-Nitroaniline	0.50	U	2.0	0.50	0.28	ug/L		11/04/14 12:54	1
4-Nitroaniline	0.50	U	2.0	0.50	0.22	ug/L		11/04/14 12:54	1

Client Sample ID: FWGLL1MW-088-0502-GW
Date Collected: 10/21/14 15:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-3
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.50	U	2.0	0.50	0.28	ug/L		11/04/14 12:54	1
4-Nitrophenol	4.0	U	5.0	4.0	0.29	ug/L		11/04/14 12:54	1
N-Nitrosodi-n-propylamine	0.50	U	0.99	0.50	0.24	ug/L		11/04/14 12:54	1
N-Nitrosodiphenylamine	0.50	U	0.99	0.50	0.31	ug/L		11/04/14 12:54	1
2,2'-oxybis[1-chloropropane]	0.50	U	0.99	0.50	0.40	ug/L		11/04/14 12:54	1
Pentachlorophenol	0.99	U	5.0	0.99	0.27	ug/L		11/04/14 12:54	1
Phenanthrene	0.099	U	0.20	0.099	0.061	ug/L		11/04/14 12:54	1
Phenol	0.99	U	0.99	0.99	0.59	ug/L		11/04/14 12:54	1
Pyrene	0.099	U	0.20	0.099	0.042	ug/L		11/04/14 12:54	1
1,2,4-Trichlorobenzene	0.50	U	0.99	0.50	0.28	ug/L		11/04/14 12:54	1
2,4,5-Trichlorophenol	0.50	U	5.0	0.50	0.30	ug/L		11/04/14 12:54	1
2,4,6-Trichlorophenol	0.50	U	5.0	0.50	0.24	ug/L		11/04/14 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*Q*	*50 - 110*	*10/24/14 08:57*	*11/04/14 12:54*	*1*
2-Fluorophenol (Surr)	*0*	*Q*	*20 - 110*	*10/24/14 08:57*	*11/04/14 12:54*	*1*
Nitrobenzene-d5 (Surr)	*0*	*Q*	*40 - 110*	*10/24/14 08:57*	*11/04/14 12:54*	*1*
Phenol-d5 (Surr)	*0*	*Q*	*10 - 115*	*10/24/14 08:57*	*11/04/14 12:54*	*1*
Terphenyl-d14 (Surr)	*0*	*Q*	*50 - 135*	*10/24/14 08:57*	*11/04/14 12:54*	*1*
2,4,6-Tribromophenol (Surr)	*0*	*Q*	*40 - 125*	*10/24/14 08:57*	*11/04/14 12:54*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.053	U H Q	0.053	0.053	0.019	ug/L		12/17/14 21:25	1
4,4'-DDE	0.053	U H Q	0.053	0.053	0.0096	ug/L		12/17/14 21:25	1
4,4'-DDT	0.053	U H Q	0.053	0.053	0.015	ug/L		12/17/14 21:25	1
Aldrin	0.053	U H Q	0.053	0.053	0.014	ug/L		12/17/14 21:25	1
alpha-BHC	**0.028**	**J H**	0.053	0.053	0.015	ug/L		12/17/14 21:25	1
alpha-Chlordane	0.053	U H Q	0.053	0.053	0.013	ug/L		12/17/14 21:25	1
beta-BHC	0.053	U H	0.053	0.053	0.014	ug/L		12/17/14 21:25	1
delta-BHC	0.053	U H Q	0.053	0.053	0.031	ug/L		12/17/14 21:25	1
Dieldrin	0.053	U H Q	0.053	0.053	0.014	ug/L		12/17/14 21:25	1
Endosulfan I	0.053	U H Q	0.053	0.053	0.017	ug/L		12/17/14 21:25	1
Endosulfan II	0.053	U H Q	0.053	0.053	0.016	ug/L		12/17/14 21:25	1
Endosulfan sulfate	0.053	U H Q	0.053	0.053	0.012	ug/L		12/17/14 21:25	1
Endrin	0.053	U H Q	0.053	0.053	0.013	ug/L		12/17/14 21:25	1
Endrin aldehyde	0.053	U H Q	0.053	0.053	0.0085	ug/L		12/17/14 21:25	1
Endrin ketone	0.053	U H Q	0.053	0.053	0.0096	ug/L		12/17/14 21:25	1
gamma-BHC (Lindane)	0.053	U H	0.053	0.053	0.013	ug/L		12/17/14 21:25	1
gamma-Chlordane	0.053	U H Q	0.053	0.053	0.011	ug/L		12/17/14 21:25	1
Heptachlor	0.053	U H Q	0.053	0.053	0.0053	ug/L		12/17/14 21:25	1
Heptachlor epoxide	0.053	U H Q	0.053	0.053	0.015	ug/L		12/17/14 21:25	1
Methoxychlor	0.053	U H Q	0.11	0.053	0.013	ug/L		12/17/14 21:25	1
Toxaphene	1.1	U H Q	2.1	1.1	0.21	ug/L		12/17/14 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*70*	*M*	*30 - 135*	*10/24/14 08:42*	*12/17/14 21:25*	*1*
DCB Decachlorobiphenyl	*87*		*30 - 135*	*10/24/14 08:42*	*12/17/14 21:25*	*1*
Tetrachloro-m-xylene	*174*	*M Q*	*25 - 140*	*10/24/14 08:42*	*12/17/14 21:25*	*1*
Tetrachloro-m-xylene	*112*		*25 - 140*	*10/24/14 08:42*	*12/17/14 21:25*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL1MW-088-0502-GW
Date Collected: 10/21/14 15:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-3
Matrix: Water

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.21	U	0.53	0.21	0.18	ug/L		10/30/14 09:03	1
Aroclor-1221	0.21	U	0.53	0.21	0.14	ug/L		10/30/14 09:03	1
Aroclor-1232	0.21	U	0.53	0.21	0.17	ug/L		10/30/14 09:03	1
Aroclor-1242	0.43	U	0.53	0.43	0.23	ug/L		10/30/14 09:03	1
Aroclor-1248	0.21	U	0.53	0.21	0.11	ug/L		10/30/14 09:03	1
Aroclor-1254	0.21	U	0.53	0.21	0.17	ug/L		10/30/14 09:03	1
Aroclor-1260	0.21	U	0.53	0.21	0.18	ug/L		10/30/14 09:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*6016*	*Q*	*40 - 140*	*10/24/14 08:40*	*10/30/14 09:03*	*1*
Tetrachloro-m-xylene	*74*		*40 - 140*	*10/24/14 08:40*	*10/30/14 09:03*	*1*
DCB Decachlorobiphenyl	*81*		*40 - 135*	*10/24/14 08:40*	*10/30/14 09:03*	*1*
DCB Decachlorobiphenyl	*77*		*40 - 135*	*10/24/14 08:40*	*10/30/14 09:03*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 13:03	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.051	U	0.15	0.051	0.032	ug/L		11/04/14 18:27	1
1,3-Dinitrobenzene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 18:27	1
2,4,6-Trinitrotoluene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 18:27	1
2,4-Dinitrotoluene	0.10	U	0.13	0.10	0.051	ug/L		11/04/14 18:27	1
2,6-Dinitrotoluene	0.10	U	0.13	0.10	0.051	ug/L		11/04/14 18:27	1
2-Amino-4,6-dinitrotoluene	0.10	U	0.15	0.10	0.015	ug/L		11/04/14 18:27	1
2-Nitrotoluene	0.10	U	0.51	0.10	0.089	ug/L		11/04/14 18:27	1
3-Nitrotoluene	0.10	U	0.51	0.10	0.058	ug/L		11/04/14 18:27	1
4-Nitrotoluene	0.10	U	0.51	0.10	0.089	ug/L		11/04/14 18:27	1
4-Amino-2,6-dinitrotoluene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 18:27	1
HMX	0.051	U	0.15	0.051	0.037	ug/L		11/04/14 18:27	1
RDX	0.051	U	0.15	0.051	0.037	ug/L		11/04/14 18:27	1
Nitrobenzene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 18:27	1
Tetryl	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 18:27	1
Nitroglycerin	0.51	U	0.66	0.51	0.34	ug/L		11/04/14 18:27	1
PETN	0.51	U	0.66	0.51	0.31	ug/L		11/04/14 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*95*		*79 - 111*	*10/27/14 08:44*	*11/04/14 18:27*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:03	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:23	1

Client Sample ID: FWGEQUIPRINSE1-507-GW
Date Collected: 10/21/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:56	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:56	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 16:56	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:56	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 16:56	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:56	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 16:56	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 16:56	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 16:56	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 16:56	1
Acetone	**3.5**	**J**	10	2.0	3.4	ug/L		10/30/14 16:56	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 16:56	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 16:56	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 16:56	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 16:56	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 16:56	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:56	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 16:56	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 16:56	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 16:56	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:56	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 16:56	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 16:56	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 16:56	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 16:56	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 16:56	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 16:56	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 16:56	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 16:56	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 16:56	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 16:56	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 16:56	1
Toluene	**0.24**	**J**	1.0	0.25	0.22	ug/L		10/30/14 16:56	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 16:56	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 16:56	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 16:56	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 16:56	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 16:56	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 120*		*10/30/14 16:56*	*1*
4-Bromofluorobenzene (Surr)	*85*		*75 - 120*		*10/30/14 16:56*	*1*
Toluene-d8 (Surr)	*92*		*85 - 120*		*10/30/14 16:56*	*1*
Dibromofluoromethane (Surr)	*90*		*85 - 115*		*10/30/14 16:56*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.097	U	0.19	0.097	0.043	ug/L		11/04/14 13:18	1
Acenaphthylene	0.097	U	0.19	0.097	0.047	ug/L		11/04/14 13:18	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE1-507-GW
Date Collected: 10/21/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-4
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.097	U	0.19	0.097	0.085	ug/L		11/04/14 13:18	1
Benzo[a]anthracene	0.097	U	0.19	0.097	0.029	ug/L		11/04/14 13:18	1
Benzo[a]pyrene	0.097	U	0.19	0.097	0.050	ug/L		11/04/14 13:18	1
Benzo[b]fluoranthene	0.097	U	0.19	0.097	0.038	ug/L		11/04/14 13:18	1
Benzo[g,h,i]perylene	0.097	U	0.19	0.097	0.045	ug/L		11/04/14 13:18	1
Benzoic acid	19	U	24	19	9.7	ug/L		11/04/14 13:18	1
Benzo[k]fluoranthene	0.097	U	0.19	0.097	0.043	ug/L		11/04/14 13:18	1
Benzyl alcohol	**0.40**	**J**	4.9	0.49	0.37	ug/L		11/04/14 13:18	1
Bis(2-chloroethoxy)methane	0.49	U	0.97	0.49	0.31	ug/L		11/04/14 13:18	1
Bis(2-chloroethyl)ether	0.097	U	0.97	0.097	0.097	ug/L		11/04/14 13:18	1
Bis(2-ethylhexyl) phthalate	4.9	U	4.9	4.9	1.7	ug/L		11/04/14 13:18	1
4-Bromophenyl phenyl ether	0.49	U	1.9	0.49	0.21	ug/L		11/04/14 13:18	1
Butyl benzyl phthalate	0.49	U	4.9	0.49	0.25	ug/L		11/04/14 13:18	1
Carbazole	0.49	U	0.97	0.49	0.27	ug/L		11/04/14 13:18	1
4-Chloroaniline	0.49	U	1.9	0.49	0.20	ug/L		11/04/14 13:18	1
4-Chloro-3-methylphenol	0.49	U	1.9	0.49	0.20	ug/L		11/04/14 13:18	1
2-Chloronaphthalene	0.49	U	0.97	0.49	0.097	ug/L		11/04/14 13:18	1
2-Chlorophenol	0.49	U	0.97	0.49	0.28	ug/L		11/04/14 13:18	1
4-Chlorophenyl phenyl ether	0.49	U	1.9	0.49	0.29	ug/L		11/04/14 13:18	1
Chrysene	0.097	U	0.19	0.097	0.049	ug/L		11/04/14 13:18	1
Dibenz(a,h)anthracene	0.097	U	0.19	0.097	0.043	ug/L		11/04/14 13:18	1
Dibenzofuran	0.097	U	0.97	0.097	0.019	ug/L		11/04/14 13:18	1
1,2-Dichlorobenzene	0.49	U	0.97	0.49	0.28	ug/L		11/04/14 13:18	1
1,3-Dichlorobenzene	0.49	U	0.97	0.49	0.22	ug/L		11/04/14 13:18	1
1,4-Dichlorobenzene	0.49	U	0.97	0.49	0.33	ug/L		11/04/14 13:18	1
3,3'-Dichlorobenzidine	0.97	U	4.9	0.97	0.36	ug/L		11/04/14 13:18	1
2,4-Dichlorophenol	0.49	U	1.9	0.49	0.18	ug/L		11/04/14 13:18	1
Diethyl phthalate	0.97	U	1.9	0.97	0.58	ug/L		11/04/14 13:18	1
2,4-Dimethylphenol	0.49	U	1.9	0.49	0.24	ug/L		11/04/14 13:18	1
Dimethyl phthalate	0.49	U	1.9	0.49	0.28	ug/L		11/04/14 13:18	1
Di-n-butyl phthalate	4.9	U	4.9	4.9	1.7	ug/L		11/04/14 13:18	1
4,6-Dinitro-2-methylphenol	3.9	U	4.9	3.9	2.3	ug/L		11/04/14 13:18	1
2,4-Dinitrophenol	0.97	U	4.9	0.97	0.31	ug/L		11/04/14 13:18	1
Di-n-octyl phthalate	0.49	U	1.9	0.49	0.22	ug/L		11/04/14 13:18	1
Fluoranthene	0.097	U	0.19	0.097	0.043	ug/L		11/04/14 13:18	1
Fluorene	0.097	U	0.19	0.097	0.039	ug/L		11/04/14 13:18	1
Hexachlorobenzene	0.097	U	0.19	0.097	0.083	ug/L		11/04/14 13:18	1
Hexachlorobutadiene	0.49	U	0.97	0.49	0.26	ug/L		11/04/14 13:18	1
Hexachlorocyclopentadiene	0.49	U Q	9.7	0.49	0.23	ug/L		11/04/14 13:18	1
Hexachloroethane	0.49	U	0.97	0.49	0.18	ug/L		11/04/14 13:18	1
Indeno[1,2,3-cd]pyrene	0.097	U	0.19	0.097	0.042	ug/L		11/04/14 13:18	1
Isophorone	0.49	U	0.97	0.49	0.26	ug/L		11/04/14 13:18	1
2-Methylnaphthalene	0.097	U	0.19	0.097	0.088	ug/L		11/04/14 13:18	1
2-Methylphenol	0.49	U	0.97	0.49	0.17	ug/L		11/04/14 13:18	1
3 & 4 Methylphenol	0.97	U	1.9	0.97	0.78	ug/L		11/04/14 13:18	1
Naphthalene	0.097	U	0.19	0.097	0.061	ug/L		11/04/14 13:18	1
2-Nitroaniline	0.49	U	1.9	0.49	0.20	ug/L		11/04/14 13:18	1
3-Nitroaniline	0.49	U	1.9	0.49	0.27	ug/L		11/04/14 13:18	1
4-Nitroaniline	0.49	U	1.9	0.49	0.21	ug/L		11/04/14 13:18	1

Client Sample ID: FWGEQUIPRINSE1-507-GW
Date Collected: 10/21/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-4
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.49	U	1.9	0.49	0.27	ug/L		11/04/14 13:18	1
4-Nitrophenol	3.9	U	4.9	3.9	0.28	ug/L		11/04/14 13:18	1
N-Nitrosodi-n-propylamine	0.49	U	0.97	0.49	0.23	ug/L		11/04/14 13:18	1
N-Nitrosodiphenylamine	0.49	U	0.97	0.49	0.30	ug/L		11/04/14 13:18	1
2,2'-oxybis[1-chloropropane]	0.49	U	0.97	0.49	0.39	ug/L		11/04/14 13:18	1
Pentachlorophenol	0.97	U	4.9	0.97	0.26	ug/L		11/04/14 13:18	1
Phenanthrene	0.097	U	0.19	0.097	0.060	ug/L		11/04/14 13:18	1
Phenol	0.97	U	0.97	0.97	0.58	ug/L		11/04/14 13:18	1
Pyrene	0.097	U	0.19	0.097	0.041	ug/L		11/04/14 13:18	1
1,2,4-Trichlorobenzene	0.49	U	0.97	0.49	0.27	ug/L		11/04/14 13:18	1
2,4,5-Trichlorophenol	0.49	U	4.9	0.49	0.29	ug/L		11/04/14 13:18	1
2,4,6-Trichlorophenol	0.49	U	4.9	0.49	0.23	ug/L		11/04/14 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*Q*	*50 - 110*	*10/24/14 08:57*	*11/04/14 13:18*	*1*
2-Fluorophenol (Surr)	*0*	*Q*	*20 - 110*	*10/24/14 08:57*	*11/04/14 13:18*	*1*
Nitrobenzene-d5 (Surr)	*0*	*Q*	*40 - 110*	*10/24/14 08:57*	*11/04/14 13:18*	*1*
Phenol-d5 (Surr)	*0*	*Q*	*10 - 115*	*10/24/14 08:57*	*11/04/14 13:18*	*1*
Terphenyl-d14 (Surr)	*0*	*Q*	*50 - 135*	*10/24/14 08:57*	*11/04/14 13:18*	*1*
2,4,6-Tribromophenol (Surr)	*0*	*Q*	*40 - 125*	*10/24/14 08:57*	*11/04/14 13:18*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.050	U	0.050	0.050	0.018	ug/L		11/03/14 17:02	1
4,4'-DDE	0.050	U	0.050	0.050	0.0090	ug/L		11/03/14 17:02	1
4,4'-DDT	0.050	U	0.050	0.050	0.014	ug/L		11/03/14 17:02	1
Aldrin	0.050	U	0.050	0.050	0.013	ug/L		11/03/14 17:02	1
alpha-BHC	0.050	U	0.050	0.050	0.014	ug/L		11/03/14 17:02	1
alpha-Chlordane	0.050	U	0.050	0.050	0.012	ug/L		11/03/14 17:02	1
beta-BHC	0.050	U	0.050	0.050	0.013	ug/L		11/03/14 17:02	1
delta-BHC	0.050	U	0.050	0.050	0.029	ug/L		11/03/14 17:02	1
Dieldrin	0.050	U	0.050	0.050	0.013	ug/L		11/03/14 17:02	1
Endosulfan I	0.050	U	0.050	0.050	0.016	ug/L		11/03/14 17:02	1
Endosulfan II	0.050	U	0.050	0.050	0.015	ug/L		11/03/14 17:02	1
Endosulfan sulfate	0.050	U	0.050	0.050	0.011	ug/L		11/03/14 17:02	1
Endrin	0.050	U	0.050	0.050	0.012	ug/L		11/03/14 17:02	1
Endrin aldehyde	0.050	U	0.050	0.050	0.0080	ug/L		11/03/14 17:02	1
Endrin ketone	0.050	U	0.050	0.050	0.0090	ug/L		11/03/14 17:02	1
gamma-BHC (Lindane)	0.050	U	0.050	0.050	0.012	ug/L		11/03/14 17:02	1
gamma-Chlordane	0.050	U	0.050	0.050	0.010	ug/L		11/03/14 17:02	1
Heptachlor	0.050	U	0.050	0.050	0.0050	ug/L		11/03/14 17:02	1
Heptachlor epoxide	0.050	U	0.050	0.050	0.014	ug/L		11/03/14 17:02	1
Methoxychlor	0.050	U	0.10	0.050	0.012	ug/L		11/03/14 17:02	1
Toxaphene	1.0	U	2.0	1.0	0.20	ug/L		11/03/14 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*128*		*30 - 135*	*10/24/14 08:42*	*11/03/14 17:02*	*1*
DCB Decachlorobiphenyl	*125*		*30 - 135*	*10/24/14 08:42*	*11/03/14 17:02*	*1*
Tetrachloro-m-xylene	*107*		*25 - 140*	*10/24/14 08:42*	*11/03/14 17:02*	*1*
Tetrachloro-m-xylene	*107*		*25 - 140*	*10/24/14 08:42*	*11/03/14 17:02*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE1-507-GW
Date Collected: 10/21/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-4
Matrix: Water

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 19:37	1
Aroclor-1221	0.20	U	0.50	0.20	0.13	ug/L		10/29/14 19:37	1
Aroclor-1232	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 19:37	1
Aroclor-1242	0.40	U	0.50	0.40	0.22	ug/L		10/29/14 19:37	1
Aroclor-1248	0.20	U	0.50	0.20	0.10	ug/L		10/29/14 19:37	1
Aroclor-1254	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 19:37	1
Aroclor-1260	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*84*		*40 - 140*	*10/24/14 08:40*	*10/29/14 19:37*	*1*
Tetrachloro-m-xylene	*81*		*40 - 140*	*10/24/14 08:40*	*10/29/14 19:37*	*1*
DCB Decachlorobiphenyl	*93*		*40 - 135*	*10/24/14 08:40*	*10/29/14 19:37*	*1*
DCB Decachlorobiphenyl	*88*		*40 - 135*	*10/24/14 08:40*	*10/29/14 19:37*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 13:20	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**1.1**	**J**	0.16	0.055	0.034	ug/L		11/04/14 19:24	1
1,3-Dinitrobenzene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 19:24	1
2,4,6-Trinitrotoluene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 19:24	1
2,4-Dinitrotoluene	0.11	U M	0.14	0.11	0.055	ug/L		11/04/14 19:24	1
2,6-Dinitrotoluene	0.11	U M	0.14	0.11	0.055	ug/L		11/04/14 19:24	1
2-Amino-4,6-dinitrotoluene	0.11	U	0.16	0.11	0.016	ug/L		11/04/14 19:24	1
2-Nitrotoluene	0.11	U	0.55	0.11	0.096	ug/L		11/04/14 19:24	1
3-Nitrotoluene	0.11	U	0.55	0.11	0.062	ug/L		11/04/14 19:24	1
4-Nitrotoluene	0.11	U	0.55	0.11	0.096	ug/L		11/04/14 19:24	1
4-Amino-2,6-dinitrotoluene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 19:24	1
HMX	0.055	U	0.16	0.055	0.039	ug/L		11/04/14 19:24	1
RDX	0.055	U	0.16	0.055	0.039	ug/L		11/04/14 19:24	1
Nitrobenzene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 19:24	1
Tetryl	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 19:24	1
Nitroglycerin	0.55	U	0.71	0.55	0.36	ug/L		11/04/14 19:24	1
PETN	0.55	U	0.71	0.55	0.33	ug/L		11/04/14 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*97*		*79 - 111*	*10/27/14 08:44*	*11/04/14 19:24*	*1*
3,4-Dinitrotoluene	*128*	*Q*	*79 - 111*	*10/27/14 08:44*	*11/07/14 01:09*	*1*

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	10	U	10	10	2.9	ug/L		10/29/14 12:51	1
Chromium	4.0	U	7.0	4.0	0.55	ug/L		10/29/14 12:51	1
Cobalt	4.0	U	7.0	4.0	0.56	ug/L		10/29/14 12:51	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 12:51	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 12:51	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 12:51	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 12:51	1
Barium	5.0	U	200	5.0	1.0	ug/L		10/29/14 12:51	1

Client Sample ID: FWGEQUIPRINSE1-507-GW
Lab Sample ID: 240-43449-4
Date Collected: 10/21/14 16:30
Matrix: Water
Date Received: 10/23/14 10:07

Method: 6010B - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Calcium	1000	U	5000	1000	260	ug/L		10/29/14 12:51	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 12:51	1
Magnesium	300	U	5000	300	55	ug/L		10/29/14 12:51	1
Manganese	**0.56**	**J**	15	5.0	0.46	ug/L		10/29/14 12:51	1
Nickel	**0.78**	**J**	40	5.0	0.76	ug/L		10/29/14 12:51	1
Potassium	**86**	**J**	5000	900	70	ug/L		10/29/14 12:51	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	60	U	60	60	20	ug/L		10/29/14 11:35	1
Antimony	1.0	U	2.0	1.0	0.33	ug/L		10/29/14 11:35	1
Beryllium	1.0	U	1.0	1.0	0.50	ug/L		10/29/14 11:35	1
Cadmium	1.0	U	2.0	1.0	0.40	ug/L		10/29/14 11:35	1
Iron	100	U	150	100	44	ug/L		10/29/14 11:35	1
Sodium	400	U	1000	400	160	ug/L		10/29/14 11:35	1
Thallium	1.5	U	2.0	1.5	0.79	ug/L		10/29/14 11:35	1
Zinc	50	U	50	50	27	ug/L		10/29/14 11:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 14:53	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:09	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:25	1

Client Sample ID: FWGTEAM2TRIP
Date Collected: 10/22/14 08:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:18	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:18	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 17:18	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 17:18	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 17:18	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:18	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 17:18	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:18	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 17:18	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 17:18	1
Acetone	**4.0**	**J**	10	2.0	3.4	ug/L		10/30/14 17:18	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 17:18	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 17:18	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 17:18	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 17:18	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 17:18	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 17:18	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 17:18	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 17:18	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 17:18	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:18	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 17:18	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 17:18	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 17:18	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 17:18	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 17:18	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 17:18	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 17:18	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 17:18	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 17:18	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 17:18	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:18	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 17:18	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 17:18	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 17:18	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 17:18	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 17:18	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 17:18	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 17:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 120*		*10/30/14 17:18*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 120*		*10/30/14 17:18*	*1*
Toluene-d8 (Surr)	*92*		*85 - 120*		*10/30/14 17:18*	*1*
Dibromofluoromethane (Surr)	*93*		*85 - 115*		*10/30/14 17:18*	*1*

Client Sample ID: FWGLL3MW-246-504-GW
Date Collected: 10/22/14 11:10
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:41	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:41	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 17:41	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 17:41	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 17:41	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:41	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 17:41	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 17:41	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 17:41	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 17:41	1
Acetone	2.0	U	10	2.0	3.4	ug/L		10/30/14 17:41	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 17:41	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 17:41	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 17:41	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 17:41	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 17:41	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 17:41	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 17:41	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 17:41	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 17:41	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:41	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 17:41	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 17:41	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 17:41	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 17:41	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 17:41	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 17:41	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 17:41	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 17:41	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 17:41	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 17:41	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 17:41	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 17:41	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 17:41	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 17:41	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 17:41	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 17:41	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 17:41	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 120*		*10/30/14 17:41*	*1*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*10/30/14 17:41*	*1*
Toluene-d8 (Surr)	*92*		*85 - 120*		*10/30/14 17:41*	*1*
Dibromofluoromethane (Surr)	*94*		*85 - 115*		*10/30/14 17:41*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 13:44	1
Acenaphthylene	0.10	U H	0.21	0.10	0.050	ug/L		11/12/14 13:44	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL3MW-246-504-GW — **Lab Sample ID: 240-43449-6**
Date Collected: 10/22/14 11:10 — **Matrix: Water**
Date Received: 10/23/14 10:07

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.10	U H	0.21	0.10	0.092	ug/L		11/12/14 13:44	1
Benzo[a]anthracene	0.10	U H	0.21	0.10	0.031	ug/L		11/12/14 13:44	1
Benzo[a]pyrene	0.10	U H	0.21	0.10	0.054	ug/L		11/12/14 13:44	1
Benzo[b]fluoranthene	0.10	U H	0.21	0.10	0.041	ug/L		11/12/14 13:44	1
Benzo[g,h,i]perylene	0.10	U H	0.21	0.10	0.048	ug/L		11/12/14 13:44	1
Benzoic acid	21	U H	26	21	10	ug/L		11/12/14 13:44	1
Benzo[k]fluoranthene	0.10	U H	0.21	0.10	0.047	ug/L		11/12/14 13:44	1
Benzyl alcohol	0.52	U H	5.2	0.52	0.40	ug/L		11/12/14 13:44	1
Bis(2-chloroethoxy)methane	0.52	U H	1.0	0.52	0.33	ug/L		11/12/14 13:44	1
Bis(2-chloroethyl)ether	0.10	U H	1.0	0.10	0.10	ug/L		11/12/14 13:44	1
Bis(2-ethylhexyl) phthalate	5.2	U H	5.2	5.2	1.8	ug/L		11/12/14 13:44	1
4-Bromophenyl phenyl ether	0.52	U H	2.1	0.52	0.23	ug/L		11/12/14 13:44	1
Butyl benzyl phthalate	0.52	U H	5.2	0.52	0.27	ug/L		11/12/14 13:44	1
Carbazole	0.52	U H	1.0	0.52	0.29	ug/L		11/12/14 13:44	1
4-Chloroaniline	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 13:44	1
4-Chloro-3-methylphenol	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 13:44	1
2-Chloronaphthalene	0.52	U H	1.0	0.52	0.10	ug/L		11/12/14 13:44	1
2-Chlorophenol	0.52	U H	1.0	0.52	0.30	ug/L		11/12/14 13:44	1
4-Chlorophenyl phenyl ether	0.52	U H	2.1	0.52	0.31	ug/L		11/12/14 13:44	1
Chrysene	0.10	U H	0.21	0.10	0.052	ug/L		11/12/14 13:44	1
Dibenz(a,h)anthracene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 13:44	1
Dibenzofuran	0.10	U H	1.0	0.10	0.021	ug/L		11/12/14 13:44	1
1,2-Dichlorobenzene	0.52	U H	1.0	0.52	0.30	ug/L		11/12/14 13:44	1
1,3-Dichlorobenzene	0.52	U H	1.0	0.52	0.24	ug/L		11/12/14 13:44	1
1,4-Dichlorobenzene	0.52	U H	1.0	0.52	0.35	ug/L		11/12/14 13:44	1
3,3'-Dichlorobenzidine	1.0	U H	5.2	1.0	0.39	ug/L		11/12/14 13:44	1
2,4-Dichlorophenol	0.52	U H	2.1	0.52	0.20	ug/L		11/12/14 13:44	1
Diethyl phthalate	1.0	U H	2.1	1.0	0.62	ug/L		11/12/14 13:44	1
2,4-Dimethylphenol	0.52	U H	2.1	0.52	0.26	ug/L		11/12/14 13:44	1
Dimethyl phthalate	0.52	U H	2.1	0.52	0.30	ug/L		11/12/14 13:44	1
Di-n-butyl phthalate	5.2	U H	5.2	5.2	1.8	ug/L		11/12/14 13:44	1
4,6-Dinitro-2-methylphenol	4.2	U H	5.2	4.2	2.5	ug/L		11/12/14 13:44	1
2,4-Dinitrophenol	1.0	U H	5.2	1.0	0.33	ug/L		11/12/14 13:44	1
Di-n-octyl phthalate	0.52	U H	2.1	0.52	0.24	ug/L		11/12/14 13:44	1
Fluoranthene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 13:44	1
Fluorene	0.10	U H	0.21	0.10	0.042	ug/L		11/12/14 13:44	1
Hexachlorobenzene	0.10	U H	0.21	0.10	0.089	ug/L		11/12/14 13:44	1
Hexachlorobutadiene	0.52	U H	1.0	0.52	0.28	ug/L		11/12/14 13:44	1
Hexachlorocyclopentadiene	0.52	U H	10	0.52	0.25	ug/L		11/12/14 13:44	1
Hexachloroethane	0.52	U H	1.0	0.52	0.20	ug/L		11/12/14 13:44	1
Indeno[1,2,3-cd]pyrene	0.10	U H	0.21	0.10	0.045	ug/L		11/12/14 13:44	1
Isophorone	0.52	U H	1.0	0.52	0.28	ug/L		11/12/14 13:44	1
2-Methylnaphthalene	0.10	U H	0.21	0.10	0.094	ug/L		11/12/14 13:44	1
2-Methylphenol	0.52	U H	1.0	0.52	0.18	ug/L		11/12/14 13:44	1
3 & 4 Methylphenol	1.0	U H	2.1	1.0	0.83	ug/L		11/12/14 13:44	1
Naphthalene	0.10	U H	0.21	0.10	0.065	ug/L		11/12/14 13:44	1
2-Nitroaniline	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 13:44	1
3-Nitroaniline	0.52	U H	2.1	0.52	0.29	ug/L		11/12/14 13:44	1
4-Nitroaniline	0.52	U H	2.1	0.52	0.23	ug/L		11/12/14 13:44	1

Client Sample ID: FWGLL3MW-246-504-GW
Date Collected: 10/22/14 11:10
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-6
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.52	U H	2.1	0.52	0.29	ug/L		11/12/14 13:44	1
4-Nitrophenol	4.2	U H	5.2	4.2	0.30	ug/L		11/12/14 13:44	1
N-Nitrosodi-n-propylamine	0.52	U H	1.0	0.52	0.25	ug/L		11/12/14 13:44	1
N-Nitrosodiphenylamine	0.52	U H	1.0	0.52	0.32	ug/L		11/12/14 13:44	1
2,2'-oxybis[1-chloropropane]	0.52	U H	1.0	0.52	0.42	ug/L		11/12/14 13:44	1
Pentachlorophenol	1.0	U H	5.2	1.0	0.28	ug/L		11/12/14 13:44	1
Phenanthrene	0.10	U H	0.21	0.10	0.064	ug/L		11/12/14 13:44	1
Phenol	1.0	U H	1.0	1.0	0.62	ug/L		11/12/14 13:44	1
Pyrene	0.10	U H	0.21	0.10	0.044	ug/L		11/12/14 13:44	1
1,2,4-Trichlorobenzene	0.52	U H	1.0	0.52	0.29	ug/L		11/12/14 13:44	1
2,4,5-Trichlorophenol	0.52	U H	5.2	0.52	0.31	ug/L		11/12/14 13:44	1
2,4,6-Trichlorophenol	0.52	U H	5.2	0.52	0.25	ug/L		11/12/14 13:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*50 - 110*	*11/05/14 07:46*	*11/12/14 13:44*	*1*
2-Fluorophenol (Surr)	*71*		*20 - 110*	*11/05/14 07:46*	*11/12/14 13:44*	*1*
Nitrobenzene-d5 (Surr)	*76*		*40 - 110*	*11/05/14 07:46*	*11/12/14 13:44*	*1*
Phenol-d5 (Surr)	*73*		*10 - 115*	*11/05/14 07:46*	*11/12/14 13:44*	*1*
Terphenyl-d14 (Surr)	*81*		*50 - 135*	*11/05/14 07:46*	*11/12/14 13:44*	*1*
2,4,6-Tribromophenol (Surr)	*81*		*40 - 125*	*11/05/14 07:46*	*11/12/14 13:44*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.048	U H	0.048	0.048	0.017	ug/L		11/17/14 21:05	1
4,4'-DDE	0.048	U H	0.048	0.048	0.0087	ug/L		11/17/14 21:05	1
4,4'-DDT	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
Aldrin	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
alpha-BHC	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
alpha-Chlordane	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:05	1
beta-BHC	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
delta-BHC	0.048	U H	0.048	0.048	0.028	ug/L		11/17/14 21:05	1
Dieldrin	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
Endosulfan I	0.048	U H	0.048	0.048	0.015	ug/L		11/17/14 21:05	1
Endosulfan II	0.048	U H	0.048	0.048	0.014	ug/L		11/17/14 21:05	1
Endosulfan sulfate	0.048	U H	0.048	0.048	0.011	ug/L		11/17/14 21:05	1
Endrin	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:05	1
Endrin aldehyde	0.048	U H	0.048	0.048	0.0077	ug/L		11/17/14 21:05	1
Endrin ketone	0.048	U H	0.048	0.048	0.0087	ug/L		11/17/14 21:05	1
gamma-BHC (Lindane)	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:05	1
gamma-Chlordane	0.048	U H	0.048	0.048	0.0096	ug/L		11/17/14 21:05	1
Heptachlor	0.048	U H	0.048	0.048	0.0048	ug/L		11/17/14 21:05	1
Heptachlor epoxide	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:05	1
Methoxychlor	0.048	U H	0.096	0.048	0.012	ug/L		11/17/14 21:05	1
Toxaphene	0.96	U H	1.9	0.96	0.19	ug/L		11/17/14 21:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*77*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:05*	*1*
DCB Decachlorobiphenyl	*76*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:05*	*1*
Tetrachloro-m-xylene	*98*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:05*	*1*
Tetrachloro-m-xylene	*102*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:05*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL3MW-246-504-GW — **Lab Sample ID: 240-43449-6**
Date Collected: 10/22/14 11:10 — **Matrix: Water**
Date Received: 10/23/14 10:07

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.21	U	0.52	0.21	0.18	ug/L		10/29/14 19:54	1
Aroclor-1221	0.21	U	0.52	0.21	0.14	ug/L		10/29/14 19:54	1
Aroclor-1232	0.21	U	0.52	0.21	0.17	ug/L		10/29/14 19:54	1
Aroclor-1242	0.42	U	0.52	0.42	0.23	ug/L		10/29/14 19:54	1
Aroclor-1248	0.21	U	0.52	0.21	0.10	ug/L		10/29/14 19:54	1
Aroclor-1254	0.21	U	0.52	0.21	0.17	ug/L		10/29/14 19:54	1
Aroclor-1260	0.21	U	0.52	0.21	0.18	ug/L		10/29/14 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*81*		*40 - 140*	*10/24/14 08:40*	*10/29/14 19:54*	*1*
Tetrachloro-m-xylene	*78*		*40 - 140*	*10/24/14 08:40*	*10/29/14 19:54*	*1*
DCB Decachlorobiphenyl	*84*		*40 - 135*	*10/24/14 08:40*	*10/29/14 19:54*	*1*
DCB Decachlorobiphenyl	*80*		*40 - 135*	*10/24/14 08:40*	*10/29/14 19:54*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 13:38	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.053	U	0.16	0.053	0.033	ug/L		11/04/14 20:21	1
1,3-Dinitrobenzene	0.11	U	0.16	0.11	0.053	ug/L		11/04/14 20:21	1
2,4,6-Trinitrotoluene	0.11	U	0.16	0.11	0.053	ug/L		11/04/14 20:21	1
2,4-Dinitrotoluene	0.11	U	0.14	0.11	0.053	ug/L		11/04/14 20:21	1
2,6-Dinitrotoluene	0.11	U	0.14	0.11	0.053	ug/L		11/04/14 20:21	1
2-Amino-4,6-dinitrotoluene	**0.38**	**M**	0.16	0.11	0.016	ug/L		11/04/14 20:21	1
2-Nitrotoluene	0.11	U	0.53	0.11	0.093	ug/L		11/04/14 20:21	1
3-Nitrotoluene	0.11	U	0.53	0.11	0.060	ug/L		11/04/14 20:21	1
4-Nitrotoluene	0.11	U	0.53	0.11	0.093	ug/L		11/04/14 20:21	1
4-Amino-2,6-dinitrotoluene	**0.34**		0.16	0.11	0.053	ug/L		11/04/14 20:21	1
HMX	0.053	U	0.16	0.053	0.038	ug/L		11/04/14 20:21	1
RDX	**0.16**		0.16	0.053	0.038	ug/L		11/04/14 20:21	1
Nitrobenzene	0.11	U	0.16	0.11	0.053	ug/L		11/04/14 20:21	1
Tetryl	0.11	U	0.16	0.11	0.053	ug/L		11/04/14 20:21	1
Nitroglycerin	0.53	U	0.69	0.53	0.35	ug/L		11/04/14 20:21	1
PETN	0.53	U	0.69	0.53	0.32	ug/L		11/04/14 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*94*	*M*	*79 - 111*	*10/27/14 08:44*	*11/04/14 20:21*	*1*
3,4-Dinitrotoluene	*104*		*79 - 111*	*10/27/14 08:44*	*11/07/14 02:15*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:09	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:27	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL3MW-246-504-GF
Date Collected: 10/22/14 11:10
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-7
Matrix: Water

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	10	U	10	10	2.9	ug/L		10/29/14 12:55	1
Chromium	4.0	U	7.0	4.0	0.55	ug/L		10/29/14 12:55	1
Cobalt	**0.59**	**J**	7.0	4.0	0.56	ug/L		10/29/14 12:55	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 12:55	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 12:55	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 12:55	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 12:55	1
Barium	**18**	**J**	200	5.0	1.0	ug/L		10/29/14 12:55	1
Calcium	**24000**		5000	1000	260	ug/L		10/29/14 12:55	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 12:55	1
Magnesium	**7700**		5000	300	55	ug/L		10/29/14 12:55	1
Manganese	**61**		15	5.0	0.46	ug/L		10/29/14 12:55	1
Nickel	**3.9**	**J**	40	5.0	0.76	ug/L		10/29/14 12:55	1
Potassium	**1500**	**J**	5000	900	70	ug/L		10/29/14 12:55	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	60	U	60	60	20	ug/L		10/29/14 11:43	1
Antimony	**0.33**	**J**	2.0	1.0	0.33	ug/L		10/29/14 11:43	1
Beryllium	1.0	U	1.0	1.0	0.50	ug/L		10/29/14 11:43	1
Cadmium	1.0	U	2.0	1.0	0.40	ug/L		10/29/14 11:43	1
Iron	100	U	150	100	44	ug/L		10/29/14 11:43	1
Sodium	**4000**		1000	400	160	ug/L		10/29/14 11:43	1
Thallium	1.5	U	2.0	1.5	0.79	ug/L		10/29/14 11:43	1
Zinc	50	U	50	50	27	ug/L		10/29/14 11:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 15:10	1

Client Sample ID: FWGLL3MW-DUP1-506-GW
Date Collected: 10/22/14 12:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:04	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:04	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 18:04	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:04	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 18:04	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:04	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 18:04	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:04	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 18:04	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 18:04	1
Acetone	2.0	U	10	2.0	3.4	ug/L		10/30/14 18:04	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 18:04	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 18:04	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 18:04	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 18:04	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 18:04	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:04	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 18:04	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 18:04	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 18:04	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:04	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 18:04	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 18:04	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 18:04	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:04	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 18:04	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 18:04	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 18:04	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 18:04	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 18:04	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 18:04	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:04	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 18:04	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:04	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 18:04	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 18:04	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 18:04	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 18:04	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 120*		*10/30/14 18:04*	*1*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*10/30/14 18:04*	*1*
Toluene-d8 (Surr)	*93*		*85 - 120*		*10/30/14 18:04*	*1*
Dibromofluoromethane (Surr)	*93*		*85 - 115*		*10/30/14 18:04*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 14:09	1
Acenaphthylene	0.10	U H	0.21	0.10	0.050	ug/L		11/12/14 14:09	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL3MW-DUP1-506-GW
Date Collected: 10/22/14 12:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-8
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.10	U H	0.21	0.10	0.092	ug/L		11/12/14 14:09	1
Benzo[a]anthracene	0.10	U H	0.21	0.10	0.031	ug/L		11/12/14 14:09	1
Benzo[a]pyrene	0.10	U H	0.21	0.10	0.054	ug/L		11/12/14 14:09	1
Benzo[b]fluoranthene	0.10	U H	0.21	0.10	0.041	ug/L		11/12/14 14:09	1
Benzo[g,h,i]perylene	0.10	U H	0.21	0.10	0.048	ug/L		11/12/14 14:09	1
Benzoic acid	21	U H	26	21	10	ug/L		11/12/14 14:09	1
Benzo[k]fluoranthene	0.10	U H	0.21	0.10	0.047	ug/L		11/12/14 14:09	1
Benzyl alcohol	0.52	U H	5.2	0.52	0.40	ug/L		11/12/14 14:09	1
Bis(2-chloroethoxy)methane	0.52	U H	1.0	0.52	0.33	ug/L		11/12/14 14:09	1
Bis(2-chloroethyl)ether	0.10	U H	1.0	0.10	0.10	ug/L		11/12/14 14:09	1
Bis(2-ethylhexyl) phthalate	5.2	U H	5.2	5.2	1.8	ug/L		11/12/14 14:09	1
4-Bromophenyl phenyl ether	0.52	U H	2.1	0.52	0.23	ug/L		11/12/14 14:09	1
Butyl benzyl phthalate	0.52	U H	5.2	0.52	0.27	ug/L		11/12/14 14:09	1
Carbazole	0.52	U H	1.0	0.52	0.29	ug/L		11/12/14 14:09	1
4-Chloroaniline	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 14:09	1
4-Chloro-3-methylphenol	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 14:09	1
2-Chloronaphthalene	0.52	U H	1.0	0.52	0.10	ug/L		11/12/14 14:09	1
2-Chlorophenol	0.52	U H	1.0	0.52	0.30	ug/L		11/12/14 14:09	1
4-Chlorophenyl phenyl ether	0.52	U H	2.1	0.52	0.31	ug/L		11/12/14 14:09	1
Chrysene	0.10	U H	0.21	0.10	0.052	ug/L		11/12/14 14:09	1
Dibenz(a,h)anthracene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 14:09	1
Dibenzofuran	0.10	U H	1.0	0.10	0.021	ug/L		11/12/14 14:09	1
1,2-Dichlorobenzene	0.52	U H	1.0	0.52	0.30	ug/L		11/12/14 14:09	1
1,3-Dichlorobenzene	0.52	U H	1.0	0.52	0.24	ug/L		11/12/14 14:09	1
1,4-Dichlorobenzene	0.52	U H	1.0	0.52	0.35	ug/L		11/12/14 14:09	1
3,3'-Dichlorobenzidine	1.0	U H	5.2	1.0	0.39	ug/L		11/12/14 14:09	1
2,4-Dichlorophenol	0.52	U H	2.1	0.52	0.20	ug/L		11/12/14 14:09	1
Diethyl phthalate	1.0	U H	2.1	1.0	0.62	ug/L		11/12/14 14:09	1
2,4-Dimethylphenol	0.52	U H	2.1	0.52	0.26	ug/L		11/12/14 14:09	1
Dimethyl phthalate	0.52	U H	2.1	0.52	0.30	ug/L		11/12/14 14:09	1
Di-n-butyl phthalate	5.2	U H	5.2	5.2	1.8	ug/L		11/12/14 14:09	1
4,6-Dinitro-2-methylphenol	4.2	U H	5.2	4.2	2.5	ug/L		11/12/14 14:09	1
2,4-Dinitrophenol	1.0	U H	5.2	1.0	0.33	ug/L		11/12/14 14:09	1
Di-n-octyl phthalate	0.52	U H	2.1	0.52	0.24	ug/L		11/12/14 14:09	1
Fluoranthene	0.10	U H	0.21	0.10	0.046	ug/L		11/12/14 14:09	1
Fluorene	0.10	U H	0.21	0.10	0.042	ug/L		11/12/14 14:09	1
Hexachlorobenzene	0.10	U H	0.21	0.10	0.089	ug/L		11/12/14 14:09	1
Hexachlorobutadiene	0.52	U H	1.0	0.52	0.28	ug/L		11/12/14 14:09	1
Hexachlorocyclopentadiene	0.52	U H	10	0.52	0.25	ug/L		11/12/14 14:09	1
Hexachloroethane	0.52	U H	1.0	0.52	0.20	ug/L		11/12/14 14:09	1
Indeno[1,2,3-cd]pyrene	0.10	U H	0.21	0.10	0.045	ug/L		11/12/14 14:09	1
Isophorone	0.52	U H	1.0	0.52	0.28	ug/L		11/12/14 14:09	1
2-Methylnaphthalene	0.10	U H	0.21	0.10	0.094	ug/L		11/12/14 14:09	1
2-Methylphenol	0.52	U H	1.0	0.52	0.18	ug/L		11/12/14 14:09	1
3 & 4 Methylphenol	1.0	U H	2.1	1.0	0.83	ug/L		11/12/14 14:09	1
Naphthalene	0.10	U H	0.21	0.10	0.065	ug/L		11/12/14 14:09	1
2-Nitroaniline	0.52	U H	2.1	0.52	0.22	ug/L		11/12/14 14:09	1
3-Nitroaniline	0.52	U H	2.1	0.52	0.29	ug/L		11/12/14 14:09	1
4-Nitroaniline	0.52	U H	2.1	0.52	0.23	ug/L		11/12/14 14:09	1

Client Sample ID: FWGLL3MW-DUP1-506-GW **Lab Sample ID: 240-43449-8**

Date Collected: 10/22/14 12:00 **Matrix: Water**

Date Received: 10/23/14 10:07

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.52	U H	2.1	0.52	0.29	ug/L		11/12/14 14:09	1
4-Nitrophenol	4.2	U H	5.2	4.2	0.30	ug/L		11/12/14 14:09	1
N-Nitrosodi-n-propylamine	0.52	U H	1.0	0.52	0.25	ug/L		11/12/14 14:09	1
N-Nitrosodiphenylamine	0.52	U H	1.0	0.52	0.32	ug/L		11/12/14 14:09	1
2,2'-oxybis[1-chloropropane]	0.52	U H	1.0	0.52	0.42	ug/L		11/12/14 14:09	1
Pentachlorophenol	1.0	U H	5.2	1.0	0.28	ug/L		11/12/14 14:09	1
Phenanthrene	0.10	U H	0.21	0.10	0.064	ug/L		11/12/14 14:09	1
Phenol	1.0	U H	1.0	1.0	0.62	ug/L		11/12/14 14:09	1
Pyrene	0.10	U H	0.21	0.10	0.044	ug/L		11/12/14 14:09	1
1,2,4-Trichlorobenzene	0.52	U H	1.0	0.52	0.29	ug/L		11/12/14 14:09	1
2,4,5-Trichlorophenol	0.52	U H	5.2	0.52	0.31	ug/L		11/12/14 14:09	1
2,4,6-Trichlorophenol	0.52	U H	5.2	0.52	0.25	ug/L		11/12/14 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*50 - 110*	*11/05/14 07:46*	*11/12/14 14:09*	*1*
2-Fluorophenol (Surr)	*80*		*20 - 110*	*11/05/14 07:46*	*11/12/14 14:09*	*1*
Nitrobenzene-d5 (Surr)	*79*		*40 - 110*	*11/05/14 07:46*	*11/12/14 14:09*	*1*
Phenol-d5 (Surr)	*82*		*10 - 115*	*11/05/14 07:46*	*11/12/14 14:09*	*1*
Terphenyl-d14 (Surr)	*83*		*50 - 135*	*11/05/14 07:46*	*11/12/14 14:09*	*1*
2,4,6-Tribromophenol (Surr)	*77*		*40 - 125*	*11/05/14 07:46*	*11/12/14 14:09*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.052	U H	0.052	0.052	0.019	ug/L		11/17/14 21:31	1
4,4'-DDE	0.052	U H	0.052	0.052	0.0093	ug/L		11/17/14 21:31	1
4,4'-DDT	0.052	U H	0.052	0.052	0.014	ug/L		11/17/14 21:31	1
Aldrin	0.052	U H	0.052	0.052	0.013	ug/L		11/17/14 21:31	1
alpha-BHC	0.052	U H	0.052	0.052	0.014	ug/L		11/17/14 21:31	1
alpha-Chlordane	0.052	U H	0.052	0.052	0.012	ug/L		11/17/14 21:31	1
beta-BHC	0.052	U H	0.052	0.052	0.013	ug/L		11/17/14 21:31	1
delta-BHC	0.052	U H	0.052	0.052	0.030	ug/L		11/17/14 21:31	1
Dieldrin	0.052	U H	0.052	0.052	0.013	ug/L		11/17/14 21:31	1
Endosulfan I	0.052	U H	0.052	0.052	0.016	ug/L		11/17/14 21:31	1
Endosulfan II	0.052	U H	0.052	0.052	0.015	ug/L		11/17/14 21:31	1
Endosulfan sulfate	0.052	U H	0.052	0.052	0.011	ug/L		11/17/14 21:31	1
Endrin	0.052	U H	0.052	0.052	0.012	ug/L		11/17/14 21:31	1
Endrin aldehyde	0.052	U H	0.052	0.052	0.0082	ug/L		11/17/14 21:31	1
Endrin ketone	0.052	U H	0.052	0.052	0.0093	ug/L		11/17/14 21:31	1
gamma-BHC (Lindane)	0.052	U H	0.052	0.052	0.012	ug/L		11/17/14 21:31	1
gamma-Chlordane	0.052	U H	0.052	0.052	0.010	ug/L		11/17/14 21:31	1
Heptachlor	0.052	U H	0.052	0.052	0.0052	ug/L		11/17/14 21:31	1
Heptachlor epoxide	0.052	U H	0.052	0.052	0.014	ug/L		11/17/14 21:31	1
Methoxychlor	0.052	U H	0.10	0.052	0.012	ug/L		11/17/14 21:31	1
Toxaphene	1.0	U H	2.1	1.0	0.20	ug/L		11/17/14 21:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*87*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:31*	*1*
DCB Decachlorobiphenyl	*88*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:31*	*1*
Tetrachloro-m-xylene	*101*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:31*	*1*
Tetrachloro-m-xylene	*102*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:31*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL3MW-DUP1-506-GW
Date Collected: 10/22/14 12:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-8
Matrix: Water

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 20:11	1
Aroclor-1221	0.20	U	0.50	0.20	0.13	ug/L		10/29/14 20:11	1
Aroclor-1232	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 20:11	1
Aroclor-1242	0.40	U	0.50	0.40	0.22	ug/L		10/29/14 20:11	1
Aroclor-1248	0.20	U	0.50	0.20	0.10	ug/L		10/29/14 20:11	1
Aroclor-1254	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 20:11	1
Aroclor-1260	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 20:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*40 - 140*	*10/24/14 08:40*	*10/29/14 20:11*	*1*
Tetrachloro-m-xylene	*68*		*40 - 140*	*10/24/14 08:40*	*10/29/14 20:11*	*1*
DCB Decachlorobiphenyl	*73*		*40 - 135*	*10/24/14 08:40*	*10/29/14 20:11*	*1*
DCB Decachlorobiphenyl	*69*		*40 - 135*	*10/24/14 08:40*	*10/29/14 20:11*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 13:56	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.054	U	0.16	0.054	0.034	ug/L		11/04/14 21:17	1
1,3-Dinitrobenzene	0.11	U	0.16	0.11	0.054	ug/L		11/04/14 21:17	1
2,4,6-Trinitrotoluene	0.11	U	0.16	0.11	0.054	ug/L		11/04/14 21:17	1
2,4-Dinitrotoluene	0.11	U	0.14	0.11	0.054	ug/L		11/04/14 21:17	1
2,6-Dinitrotoluene	0.11	U	0.14	0.11	0.054	ug/L		11/04/14 21:17	1
2-Amino-4,6-dinitrotoluene	**0.38**	**M**	0.16	0.11	0.016	ug/L		11/04/14 21:17	1
2-Nitrotoluene	0.11	U	0.54	0.11	0.096	ug/L		11/04/14 21:17	1
3-Nitrotoluene	0.11	U	0.54	0.11	0.062	ug/L		11/04/14 21:17	1
4-Nitrotoluene	0.11	U	0.54	0.11	0.096	ug/L		11/04/14 21:17	1
4-Amino-2,6-dinitrotoluene	**0.35**		0.16	0.11	0.054	ug/L		11/04/14 21:17	1
HMX	0.054	U	0.16	0.054	0.039	ug/L		11/04/14 21:17	1
RDX	**0.15**	**J**	0.16	0.054	0.039	ug/L		11/04/14 21:17	1
Nitrobenzene	0.11	U	0.16	0.11	0.054	ug/L		11/04/14 21:17	1
Tetryl	0.11	U	0.16	0.11	0.054	ug/L		11/04/14 21:17	1
Nitroglycerin	0.54	U	0.71	0.54	0.36	ug/L		11/04/14 21:17	1
PETN	0.54	U	0.71	0.54	0.33	ug/L		11/04/14 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*95*	*M*	*79 - 111*	*10/27/14 08:44*	*11/04/14 21:17*	*1*
3,4-Dinitrotoluene	*103*		*79 - 111*	*10/27/14 08:44*	*11/07/14 03:20*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:09	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:29	1

Client Sample ID: FWGLL3MW-DUP1-506-GF
Date Collected: 10/22/14 12:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-9
Matrix: Water

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	10	U	10	10	2.9	ug/L		10/29/14 12:59	1
Chromium	**0.66**	**J**	7.0	4.0	0.55	ug/L		10/29/14 12:59	1
Cobalt	**0.68**	**J**	7.0	4.0	0.56	ug/L		10/29/14 12:59	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 12:59	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 12:59	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 12:59	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 12:59	1
Barium	**17**	**J**	200	5.0	1.0	ug/L		10/29/14 12:59	1
Calcium	**24000**		5000	1000	260	ug/L		10/29/14 12:59	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 12:59	1
Magnesium	**7600**		5000	300	55	ug/L		10/29/14 12:59	1
Manganese	**59**		15	5.0	0.46	ug/L		10/29/14 12:59	1
Nickel	**3.6**	**J**	40	5.0	0.76	ug/L		10/29/14 12:59	1
Potassium	**1400**	**J**	5000	900	70	ug/L		10/29/14 12:59	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	60	U	60	60	20	ug/L		10/29/14 11:50	1
Antimony	1.0	U	2.0	1.0	0.33	ug/L		10/29/14 11:50	1
Beryllium	1.0	U	1.0	1.0	0.50	ug/L		10/29/14 11:50	1
Cadmium	1.0	U	2.0	1.0	0.40	ug/L		10/29/14 11:50	1
Iron	100	U	150	100	44	ug/L		10/29/14 11:50	1
Sodium	**4000**		1000	400	160	ug/L		10/29/14 11:50	1
Thallium	1.5	U	2.0	1.5	0.79	ug/L		10/29/14 11:50	1
Zinc	50	U	50	50	27	ug/L		10/29/14 11:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 15:08	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE2-0508-GW
Date Collected: 10/22/14 14:45
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:27	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:27	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 18:27	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:27	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 18:27	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:27	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 18:27	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:27	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 18:27	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 18:27	1
Acetone	2.0	U	10	2.0	3.4	ug/L		10/30/14 18:27	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 18:27	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 18:27	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 18:27	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 18:27	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 18:27	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:27	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 18:27	1
Chloroform	**0.69**	**J**	1.0	0.50	0.21	ug/L		10/30/14 18:27	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 18:27	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:27	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 18:27	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 18:27	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 18:27	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:27	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 18:27	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 18:27	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 18:27	1
Methylene Chloride	**1.1**		1.0	0.50	0.28	ug/L		10/30/14 18:27	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 18:27	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 18:27	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:27	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 18:27	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:27	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 18:27	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 18:27	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 18:27	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 18:27	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 120*		*10/30/14 18:27*	*1*
4-Bromofluorobenzene (Surr)	*86*		*75 - 120*		*10/30/14 18:27*	*1*
Toluene-d8 (Surr)	*94*		*85 - 120*		*10/30/14 18:27*	*1*
Dibromofluoromethane (Surr)	*95*		*85 - 115*		*10/30/14 18:27*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.11	U H	0.21	0.11	0.047	ug/L		11/12/14 14:34	1
Acenaphthylene	0.11	U H	0.21	0.11	0.051	ug/L		11/12/14 14:34	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE2-0508-GW
Date Collected: 10/22/14 14:45
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-10
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.11	U H	0.21	0.11	0.093	ug/L		11/12/14 14:34	1
Benzo[a]anthracene	0.11	U H	0.21	0.11	0.031	ug/L		11/12/14 14:34	1
Benzo[a]pyrene	0.11	U H	0.21	0.11	0.054	ug/L		11/12/14 14:34	1
Benzo[b]fluoranthene	0.11	U H	0.21	0.11	0.041	ug/L		11/12/14 14:34	1
Benzo[g,h,i]perylene	0.11	U H	0.21	0.11	0.049	ug/L		11/12/14 14:34	1
Benzoic acid	21	U H	26	21	11	ug/L		11/12/14 14:34	1
Benzo[k]fluoranthene	0.11	U H	0.21	0.11	0.047	ug/L		11/12/14 14:34	1
Benzyl alcohol	0.53	U H	5.3	0.53	0.40	ug/L		11/12/14 14:34	1
Bis(2-chloroethoxy)methane	0.53	U H	1.1	0.53	0.34	ug/L		11/12/14 14:34	1
Bis(2-chloroethyl)ether	0.11	U H	1.1	0.11	0.11	ug/L		11/12/14 14:34	1
Bis(2-ethylhexyl) phthalate	5.3	U H	5.3	5.3	1.8	ug/L		11/12/14 14:34	1
4-Bromophenyl phenyl ether	0.53	U H	2.1	0.53	0.23	ug/L		11/12/14 14:34	1
Butyl benzyl phthalate	0.53	U H	5.3	0.53	0.27	ug/L		11/12/14 14:34	1
Carbazole	0.53	U H	1.1	0.53	0.29	ug/L		11/12/14 14:34	1
4-Chloroaniline	0.53	U H	2.1	0.53	0.22	ug/L		11/12/14 14:34	1
4-Chloro-3-methylphenol	0.53	U H	2.1	0.53	0.22	ug/L		11/12/14 14:34	1
2-Chloronaphthalene	0.53	U H	1.1	0.53	0.11	ug/L		11/12/14 14:34	1
2-Chlorophenol	0.53	U H	1.1	0.53	0.31	ug/L		11/12/14 14:34	1
4-Chlorophenyl phenyl ether	0.53	U H	2.1	0.53	0.32	ug/L		11/12/14 14:34	1
Chrysene	0.11	U H	0.21	0.11	0.053	ug/L		11/12/14 14:34	1
Dibenz(a,h)anthracene	0.11	U H	0.21	0.11	0.047	ug/L		11/12/14 14:34	1
Dibenzofuran	0.11	U H	1.1	0.11	0.021	ug/L		11/12/14 14:34	1
1,2-Dichlorobenzene	0.53	U H	1.1	0.53	0.31	ug/L		11/12/14 14:34	1
1,3-Dichlorobenzene	0.53	U H	1.1	0.53	0.24	ug/L		11/12/14 14:34	1
1,4-Dichlorobenzene	0.53	U H	1.1	0.53	0.36	ug/L		11/12/14 14:34	1
3,3'-Dichlorobenzidine	1.1	U H	5.3	1.1	0.39	ug/L		11/12/14 14:34	1
2,4-Dichlorophenol	0.53	U H	2.1	0.53	0.20	ug/L		11/12/14 14:34	1
Diethyl phthalate	1.1	U H	2.1	1.1	0.63	ug/L		11/12/14 14:34	1
2,4-Dimethylphenol	0.53	U H	2.1	0.53	0.26	ug/L		11/12/14 14:34	1
Dimethyl phthalate	0.53	U H	2.1	0.53	0.31	ug/L		11/12/14 14:34	1
Di-n-butyl phthalate	5.3	U H	5.3	5.3	1.8	ug/L		11/12/14 14:34	1
4,6-Dinitro-2-methylphenol	4.2	U H	5.3	4.2	2.5	ug/L		11/12/14 14:34	1
2,4-Dinitrophenol	1.1	U H	5.3	1.1	0.34	ug/L		11/12/14 14:34	1
Di-n-octyl phthalate	0.53	U H	2.1	0.53	0.24	ug/L		11/12/14 14:34	1
Fluoranthene	0.11	U H	0.21	0.11	0.047	ug/L		11/12/14 14:34	1
Fluorene	0.11	U H	0.21	0.11	0.043	ug/L		11/12/14 14:34	1
Hexachlorobenzene	0.11	U H	0.21	0.11	0.090	ug/L		11/12/14 14:34	1
Hexachlorobutadiene	0.53	U H	1.1	0.53	0.28	ug/L		11/12/14 14:34	1
Hexachlorocyclopentadiene	0.53	U H	11	0.53	0.25	ug/L		11/12/14 14:34	1
Hexachloroethane	0.53	U H	1.1	0.53	0.20	ug/L		11/12/14 14:34	1
Indeno[1,2,3-cd]pyrene	0.11	U H	0.21	0.11	0.046	ug/L		11/12/14 14:34	1
Isophorone	0.53	U H	1.1	0.53	0.28	ug/L		11/12/14 14:34	1
2-Methylnaphthalene	0.11	U H	0.21	0.11	0.095	ug/L		11/12/14 14:34	1
2-Methylphenol	0.53	U H	1.1	0.53	0.18	ug/L		11/12/14 14:34	1
3 & 4 Methylphenol	1.1	U H	2.1	1.1	0.84	ug/L		11/12/14 14:34	1
Naphthalene	0.11	U H	0.21	0.11	0.066	ug/L		11/12/14 14:34	1
2-Nitroaniline	0.53	U H	2.1	0.53	0.22	ug/L		11/12/14 14:34	1
3-Nitroaniline	0.53	U H	2.1	0.53	0.29	ug/L		11/12/14 14:34	1
4-Nitroaniline	0.53	U H	2.1	0.53	0.23	ug/L		11/12/14 14:34	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE2-0508-GW
Date Collected: 10/22/14 14:45
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-10
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.53	U H	2.1	0.53	0.29	ug/L		11/12/14 14:34	1
4-Nitrophenol	4.2	U H	5.3	4.2	0.31	ug/L		11/12/14 14:34	1
N-Nitrosodi-n-propylamine	0.53	U H	1.1	0.53	0.25	ug/L		11/12/14 14:34	1
N-Nitrosodiphenylamine	0.53	U H	1.1	0.53	0.33	ug/L		11/12/14 14:34	1
2,2'-oxybis[1-chloropropane]	0.53	U H	1.1	0.53	0.42	ug/L		11/12/14 14:34	1
Pentachlorophenol	1.1	U H	5.3	1.1	0.28	ug/L		11/12/14 14:34	1
Phenanthrene	0.11	U H	0.21	0.11	0.065	ug/L		11/12/14 14:34	1
Phenol	1.1	U H	1.1	1.1	0.63	ug/L		11/12/14 14:34	1
Pyrene	0.11	U H	0.21	0.11	0.044	ug/L		11/12/14 14:34	1
1,2,4-Trichlorobenzene	0.53	U H	1.1	0.53	0.29	ug/L		11/12/14 14:34	1
2,4,5-Trichlorophenol	0.53	U H	5.3	0.53	0.32	ug/L		11/12/14 14:34	1
2,4,6-Trichlorophenol	0.53	U H	5.3	0.53	0.25	ug/L		11/12/14 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*71*		*50 - 110*	*11/05/14 07:46*	*11/12/14 14:34*	*1*
2-Fluorophenol (Surr)	*73*		*20 - 110*	*11/05/14 07:46*	*11/12/14 14:34*	*1*
Nitrobenzene-d5 (Surr)	*74*		*40 - 110*	*11/05/14 07:46*	*11/12/14 14:34*	*1*
Phenol-d5 (Surr)	*74*		*10 - 115*	*11/05/14 07:46*	*11/12/14 14:34*	*1*
Terphenyl-d14 (Surr)	*82*		*50 - 135*	*11/05/14 07:46*	*11/12/14 14:34*	*1*
2,4,6-Tribromophenol (Surr)	*75*		*40 - 125*	*11/05/14 07:46*	*11/12/14 14:34*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.053	U H Q	0.053	0.053	0.019	ug/L		11/08/14 21:33	1
4,4'-DDE	0.053	U H Q	0.053	0.053	0.0096	ug/L		11/08/14 21:33	1
4,4'-DDT	0.053	U H Q	0.053	0.053	0.015	ug/L		11/08/14 21:33	1
Aldrin	0.053	U H	0.053	0.053	0.014	ug/L		11/08/14 21:33	1
alpha-BHC	0.053	U H	0.053	0.053	0.015	ug/L		11/08/14 21:33	1
alpha-Chlordane	0.053	U H	0.053	0.053	0.013	ug/L		11/08/14 21:33	1
beta-BHC	0.053	U H	0.053	0.053	0.014	ug/L		11/08/14 21:33	1
delta-BHC	0.053	U H	0.053	0.053	0.031	ug/L		11/08/14 21:33	1
Dieldrin	0.053	U H	0.053	0.053	0.014	ug/L		11/08/14 21:33	1
Endosulfan I	0.053	U H	0.053	0.053	0.017	ug/L		11/08/14 21:33	1
Endosulfan II	0.053	U H	0.053	0.053	0.016	ug/L		11/08/14 21:33	1
Endosulfan sulfate	0.053	U H	0.053	0.053	0.012	ug/L		11/08/14 21:33	1
Endrin	0.053	U H Q	0.053	0.053	0.013	ug/L		11/08/14 21:33	1
Endrin aldehyde	0.053	U H	0.053	0.053	0.0085	ug/L		11/08/14 21:33	1
Endrin ketone	0.053	U H	0.053	0.053	0.0096	ug/L		11/08/14 21:33	1
gamma-BHC (Lindane)	0.053	U H	0.053	0.053	0.013	ug/L		11/08/14 21:33	1
gamma-Chlordane	0.053	U H	0.053	0.053	0.011	ug/L		11/08/14 21:33	1
Heptachlor	0.053	U H	0.053	0.053	0.0053	ug/L		11/08/14 21:33	1
Heptachlor epoxide	0.053	U H	0.053	0.053	0.015	ug/L		11/08/14 21:33	1
Methoxychlor	0.053	U H Q	0.11	0.053	0.013	ug/L		11/08/14 21:33	1
Toxaphene	1.1	U H	2.1	1.1	0.21	ug/L		11/08/14 21:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*73*		*30 - 135*	*11/02/14 09:39*	*11/08/14 21:33*	*1*
DCB Decachlorobiphenyl	*69*		*30 - 135*	*11/02/14 09:39*	*11/08/14 21:33*	*1*
Tetrachloro-m-xylene	*83*		*25 - 140*	*11/02/14 09:39*	*11/08/14 21:33*	*1*
Tetrachloro-m-xylene	*83*		*25 - 140*	*11/02/14 09:39*	*11/08/14 21:33*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE2-0508-GW
Date Collected: 10/22/14 14:45
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-10
Matrix: Water

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.21	U	0.53	0.21	0.18	ug/L		10/28/14 22:14	1
Aroclor-1221	0.21	U	0.53	0.21	0.14	ug/L		10/28/14 22:14	1
Aroclor-1232	0.21	U	0.53	0.21	0.17	ug/L		10/28/14 22:14	1
Aroclor-1242	0.43	U	0.53	0.43	0.23	ug/L		10/28/14 22:14	1
Aroclor-1248	0.21	U	0.53	0.21	0.11	ug/L		10/28/14 22:14	1
Aroclor-1254	0.21	U	0.53	0.21	0.17	ug/L		10/28/14 22:14	1
Aroclor-1260	0.21	U	0.53	0.21	0.18	ug/L		10/28/14 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*80*		*40 - 140*	*10/25/14 10:01*	*10/28/14 22:14*	*1*
Tetrachloro-m-xylene	*77*		*40 - 140*	*10/25/14 10:01*	*10/28/14 22:14*	*1*
DCB Decachlorobiphenyl	*64*		*40 - 135*	*10/25/14 10:01*	*10/28/14 22:14*	*1*
DCB Decachlorobiphenyl	*60*		*40 - 135*	*10/25/14 10:01*	*10/28/14 22:14*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 14:14	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	**0.089**	**J**	0.15	0.051	0.032	ug/L		11/04/14 22:14	1
1,3-Dinitrobenzene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 22:14	1
2,4,6-Trinitrotoluene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 22:14	1
2,4-Dinitrotoluene	0.10	U M	0.13	0.10	0.051	ug/L		11/04/14 22:14	1
2,6-Dinitrotoluene	**0.074**	**J M**	0.13	0.10	0.051	ug/L		11/04/14 22:14	1
2-Amino-4,6-dinitrotoluene	0.10	U	0.15	0.10	0.015	ug/L		11/04/14 22:14	1
2-Nitrotoluene	0.10	U	0.51	0.10	0.090	ug/L		11/04/14 22:14	1
3-Nitrotoluene	0.10	U	0.51	0.10	0.059	ug/L		11/04/14 22:14	1
4-Nitrotoluene	0.10	U	0.51	0.10	0.090	ug/L		11/04/14 22:14	1
4-Amino-2,6-dinitrotoluene	0.10	U	0.15	0.10	0.051	ug/L		11/04/14 22:14	1
HMX	0.051	U	0.15	0.051	0.037	ug/L		11/04/14 22:14	1
RDX	0.051	U	0.15	0.051	0.037	ug/L		11/04/14 22:14	1
Nitrobenzene	0.10	U M	0.15	0.10	0.051	ug/L		11/04/14 22:14	1
Tetryl	0.10	U M	0.15	0.10	0.051	ug/L		11/04/14 22:14	1
Nitroglycerin	0.51	U	0.67	0.51	0.34	ug/L		11/04/14 22:14	1
PETN	0.51	U	0.67	0.51	0.31	ug/L		11/04/14 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*93*		*79 - 111*	*10/27/14 08:44*	*11/04/14 22:14*	*1*
3,4-Dinitrotoluene	*121*	*Q*	*79 - 111*	*10/27/14 08:44*	*11/07/14 04:26*	*1*

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	10	U	10	10	2.9	ug/L		10/29/14 13:03	1
Chromium	4.0	U	7.0	4.0	0.55	ug/L		10/29/14 13:03	1
Cobalt	4.0	U	7.0	4.0	0.56	ug/L		10/29/14 13:03	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 13:03	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 13:03	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 13:03	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 13:03	1
Barium	5.0	U	200	5.0	1.0	ug/L		10/29/14 13:03	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGEQUIPRINSE2-0508-GW
Date Collected: 10/22/14 14:45
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-10
Matrix: Water

Method: 6010B - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Calcium	1000	U	5000	1000	260	ug/L		10/29/14 13:03	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 13:03	1
Magnesium	300	U	5000	300	55	ug/L		10/29/14 13:03	1
Manganese	5.0	U	15	5.0	0.46	ug/L		10/29/14 13:03	1
Nickel	5.0	U	40	5.0	0.76	ug/L		10/29/14 13:03	1
Potassium	900	U	5000	900	70	ug/L		10/29/14 13:03	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	**750**		60	60	20	ug/L		10/29/14 11:57	1
Antimony	1.0	U	2.0	1.0	0.33	ug/L		10/29/14 11:57	1
Beryllium	1.0	U	1.0	1.0	0.50	ug/L		10/29/14 11:57	1
Cadmium	1.0	U	2.0	1.0	0.40	ug/L		10/29/14 11:57	1
Iron	100	U	150	100	44	ug/L		10/29/14 11:57	1
Sodium	400	U	1000	400	160	ug/L		10/29/14 11:57	1
Thallium	1.5	U	2.0	1.5	0.79	ug/L		10/29/14 11:57	1
Zinc	**27**	**J**	50	50	27	ug/L		10/29/14 11:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 15:06	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:13	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:31	1

Client Sample ID: FWGLL2MW-271-0503-GW
Date Collected: 10/22/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:50	1
1,1,2,2-Tetrachloroethane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:50	1
1,1,2-Trichloroethane	0.50	U	1.0	0.50	0.17	ug/L		10/30/14 18:50	1
1,1-Dichloroethane	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:50	1
1,1-Dichloroethene	0.50	U	1.0	0.50	0.45	ug/L		10/30/14 18:50	1
1,2-Dichloroethane	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:50	1
1,2-Dichloroethene, Total	1.0	U	2.0	1.0	0.20	ug/L		10/30/14 18:50	1
1,2-Dichloropropane	0.50	U	1.0	0.50	0.22	ug/L		10/30/14 18:50	1
2-Hexanone	1.0	U	10	1.0	3.9	ug/L		10/30/14 18:50	1
Bromochloromethane	0.50	U	1.0	0.50	0.25	ug/L		10/30/14 18:50	1
Acetone	2.0	U	10	2.0	3.4	ug/L		10/30/14 18:50	1
Benzene	0.25	U	1.0	0.25	0.24	ug/L		10/30/14 18:50	1
Bromoform	1.0	U	1.0	1.0	0.56	ug/L		10/30/14 18:50	1
Bromomethane	1.0	U	1.0	1.0	0.63	ug/L		10/30/14 18:50	1
Carbon disulfide	0.25	U	1.0	0.25	0.28	ug/L		10/30/14 18:50	1
Carbon tetrachloride	0.25	U	1.0	0.25	0.17	ug/L		10/30/14 18:50	1
Chlorobenzene	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:50	1
Chloroethane	0.50	U	1.0	0.50	0.33	ug/L		10/30/14 18:50	1
Chloroform	0.50	U	1.0	0.50	0.21	ug/L		10/30/14 18:50	1
Chloromethane	0.50	U	1.0	0.50	0.44	ug/L		10/30/14 18:50	1
cis-1,2-Dichloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:50	1
cis-1,3-Dichloropropene	0.25	U	1.0	0.25	0.46	ug/L		10/30/14 18:50	1
Bromodichloromethane	0.25	U	1.0	0.25	0.15	ug/L		10/30/14 18:50	1
Ethylbenzene	0.50	U	1.0	0.50	0.23	ug/L		10/30/14 18:50	1
1,2-Dibromoethane	0.50	U	1.0	0.50	0.19	ug/L		10/30/14 18:50	1
m-Xylene & p-Xylene	0.50	U	2.0	0.50	0.22	ug/L		10/30/14 18:50	1
2-Butanone (MEK)	1.0	U	10	1.0	4.1	ug/L		10/30/14 18:50	1
4-Methyl-2-pentanone (MIBK)	1.0	U	10	1.0	3.6	ug/L		10/30/14 18:50	1
Methylene Chloride	0.50	U	1.0	0.50	0.28	ug/L		10/30/14 18:50	1
o-Xylene	0.25	U	1.0	0.25	0.21	ug/L		10/30/14 18:50	1
Styrene	0.25	U	1.0	0.25	0.45	ug/L		10/30/14 18:50	1
Tetrachloroethene	0.50	U	1.0	0.50	0.20	ug/L		10/30/14 18:50	1
Toluene	0.25	U	1.0	0.25	0.22	ug/L		10/30/14 18:50	1
trans-1,2-Dichloroethene	0.50	U	1.0	0.50	0.26	ug/L		10/30/14 18:50	1
trans-1,3-Dichloropropene	0.50	U	1.0	0.50	0.56	ug/L		10/30/14 18:50	1
Trichloroethene	0.50	U	1.0	0.50	0.15	ug/L		10/30/14 18:50	1
Vinyl chloride	0.50	U	1.0	0.50	0.29	ug/L		10/30/14 18:50	1
Xylenes, Total	1.0	U	2.0	1.0	0.43	ug/L		10/30/14 18:50	1
Dibromochloromethane	0.50	U	1.0	0.50	0.43	ug/L		10/30/14 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 120*		*10/30/14 18:50*	*1*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*10/30/14 18:50*	*1*
Toluene-d8 (Surr)	*93*		*85 - 120*		*10/30/14 18:50*	*1*
Dibromofluoromethane (Surr)	*92*		*85 - 115*		*10/30/14 18:50*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acenaphthene	0.099	U Q	0.20	0.099	0.044	ug/L		11/04/14 14:56	1
Acenaphthylene	0.099	U Q	0.20	0.099	0.048	ug/L		11/04/14 14:56	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL2MW-271-0503-GW
Date Collected: 10/22/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-11
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Anthracene	0.099	U Q	0.20	0.099	0.087	ug/L		11/04/14 14:56	1
Benzo[a]anthracene	0.099	U Q	0.20	0.099	0.029	ug/L		11/04/14 14:56	1
Benzo[a]pyrene	0.099	U Q	0.20	0.099	0.051	ug/L		11/04/14 14:56	1
Benzo[b]fluoranthene	0.099	U Q	0.20	0.099	0.039	ug/L		11/04/14 14:56	1
Benzo[g,h,i]perylene	0.099	U Q	0.20	0.099	0.046	ug/L		11/04/14 14:56	1
Benzoic acid	20	U Q J	25	20	9.9	ug/L		11/04/14 14:56	1
Benzo[k]fluoranthene	0.099	U Q	0.20	0.099	0.044	ug/L		11/04/14 14:56	1
Benzyl alcohol	0.50	U Q	5.0	0.50	0.38	ug/L		11/04/14 14:56	1
Bis(2-chloroethoxy)methane	0.50	U Q	0.99	0.50	0.32	ug/L		11/04/14 14:56	1
Bis(2-chloroethyl)ether	0.099	U Q	0.99	0.099	0.099	ug/L		11/04/14 14:56	1
Bis(2-ethylhexyl) phthalate	5.0	U	5.0	5.0	1.7	ug/L		11/04/14 14:56	1
4-Bromophenyl phenyl ether	0.50	U	2.0	0.50	0.22	ug/L		11/04/14 14:56	1
Butyl benzyl phthalate	0.50	U	5.0	0.50	0.26	ug/L		11/04/14 14:56	1
Carbazole	0.50	U	0.99	0.50	0.28	ug/L		11/04/14 14:56	1
4-Chloroaniline	0.50	U Q	2.0	0.50	0.21	ug/L		11/04/14 14:56	1
4-Chloro-3-methylphenol	0.50	U Q	2.0	0.50	0.21	ug/L		11/04/14 14:56	1
2-Chloronaphthalene	0.50	U	0.99	0.50	0.099	ug/L		11/04/14 14:56	1
2-Chlorophenol	0.50	U Q	0.99	0.50	0.29	ug/L		11/04/14 14:56	1
4-Chlorophenyl phenyl ether	0.50	U	2.0	0.50	0.30	ug/L		11/04/14 14:56	1
Chrysene	0.099	U Q	0.20	0.099	0.050	ug/L		11/04/14 14:56	1
Dibenz(a,h)anthracene	0.099	U	0.20	0.099	0.044	ug/L		11/04/14 14:56	1
Dibenzofuran	0.099	U	0.99	0.099	0.020	ug/L		11/04/14 14:56	1
1,2-Dichlorobenzene	0.50	U Q	0.99	0.50	0.29	ug/L		11/04/14 14:56	1
1,3-Dichlorobenzene	0.50	U Q	0.99	0.50	0.23	ug/L		11/04/14 14:56	1
1,4-Dichlorobenzene	0.50	U Q	0.99	0.50	0.34	ug/L		11/04/14 14:56	1
3,3'-Dichlorobenzidine	0.99	U	5.0	0.99	0.37	ug/L		11/04/14 14:56	1
2,4-Dichlorophenol	0.50	U Q	2.0	0.50	0.19	ug/L		11/04/14 14:56	1
Diethyl phthalate	0.99	U	2.0	0.99	0.59	ug/L		11/04/14 14:56	1
2,4-Dimethylphenol	0.50	U Q	2.0	0.50	0.25	ug/L		11/04/14 14:56	1
Dimethyl phthalate	0.50	U	2.0	0.50	0.29	ug/L		11/04/14 14:56	1
Di-n-butyl phthalate	5.0	U	5.0	5.0	1.7	ug/L		11/04/14 14:56	1
4,6-Dinitro-2-methylphenol	4.0	U Q J	5.0	4.0	2.4	ug/L		11/04/14 14:56	1
2,4-Dinitrophenol	0.99	U Q J	5.0	0.99	0.32	ug/L		11/04/14 14:56	1
Di-n-octyl phthalate	0.50	U	2.0	0.50	0.23	ug/L		11/04/14 14:56	1
Fluoranthene	0.099	U Q	0.20	0.099	0.044	ug/L		11/04/14 14:56	1
Fluorene	0.099	U Q	0.20	0.099	0.040	ug/L		11/04/14 14:56	1
Hexachlorobenzene	0.099	U	0.20	0.099	0.084	ug/L		11/04/14 14:56	1
Hexachlorobutadiene	0.50	U Q	0.99	0.50	0.27	ug/L		11/04/14 14:56	1
Hexachlorocyclopentadiene	0.50	U Q J	9.9	0.50	0.24	ug/L		11/04/14 14:56	1
Hexachloroethane	0.50	U Q	0.99	0.50	0.19	ug/L		11/04/14 14:56	1
Indeno[1,2,3-cd]pyrene	0.099	U Q	0.20	0.099	0.043	ug/L		11/04/14 14:56	1
Isophorone	0.50	U Q	0.99	0.50	0.27	ug/L		11/04/14 14:56	1
2-Methylnaphthalene	0.099	U	0.20	0.099	0.090	ug/L		11/04/14 14:56	1
2-Methylphenol	0.50	U Q	0.99	0.50	0.17	ug/L		11/04/14 14:56	1
3 & 4 Methylphenol	0.99	U Q	2.0	0.99	0.79	ug/L		11/04/14 14:56	1
Naphthalene	0.099	U Q	0.20	0.099	0.062	ug/L		11/04/14 14:56	1
2-Nitroaniline	0.50	U	2.0	0.50	0.21	ug/L		11/04/14 14:56	1
3-Nitroaniline	0.50	U	2.0	0.50	0.28	ug/L		11/04/14 14:56	1
4-Nitroaniline	0.50	U	2.0	0.50	0.22	ug/L		11/04/14 14:56	1

Client Sample ID: FWGLL2MW-271-0503-GW
Date Collected: 10/22/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-11
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Nitrophenol	0.50	U Q	2.0	0.50	0.28	ug/L		11/04/14 14:56	1
4-Nitrophenol	4.0	U Q	5.0	4.0	0.29	ug/L		11/04/14 14:56	1
N-Nitrosodi-n-propylamine	0.50	U Q	0.99	0.50	0.24	ug/L		11/04/14 14:56	1
N-Nitrosodiphenylamine	0.50	U	0.99	0.50	0.31	ug/L		11/04/14 14:56	1
2,2'-oxybis[1-chloropropane]	0.50	U Q	0.99	0.50	0.40	ug/L		11/04/14 14:56	1
Pentachlorophenol	0.99	U Q J	5.0	0.99	0.27	ug/L		11/04/14 14:56	1
Phenanthrene	0.099	U Q	0.20	0.099	0.061	ug/L		11/04/14 14:56	1
Phenol	0.99	U Q	0.99	0.99	0.59	ug/L		11/04/14 14:56	1
Pyrene	0.099	U Q	0.20	0.099	0.042	ug/L		11/04/14 14:56	1
1,2,4-Trichlorobenzene	0.50	U Q	0.99	0.50	0.28	ug/L		11/04/14 14:56	1
2,4,5-Trichlorophenol	0.50	U Q	5.0	0.50	0.30	ug/L		11/04/14 14:56	1
2,4,6-Trichlorophenol	0.50	U Q	5.0	0.50	0.24	ug/L		11/04/14 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*Q*	*50 - 110*	*10/24/14 08:57*	*11/04/14 14:56*	*1*
2-Fluorophenol (Surr)	*0*	*Q*	*20 - 110*	*10/24/14 08:57*	*11/04/14 14:56*	*1*
Nitrobenzene-d5 (Surr)	*0*	*Q*	*40 - 110*	*10/24/14 08:57*	*11/04/14 14:56*	*1*
Phenol-d5 (Surr)	*0*	*Q*	*10 - 115*	*10/24/14 08:57*	*11/04/14 14:56*	*1*
Terphenyl-d14 (Surr)	*0*	*Q*	*50 - 135*	*10/24/14 08:57*	*11/04/14 14:56*	*1*
2,4,6-Tribromophenol (Surr)	*0*	*Q*	*40 - 125*	*10/24/14 08:57*	*11/04/14 14:56*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - RE

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4,4'-DDD	0.048	U H	0.048	0.048	0.017	ug/L		11/17/14 21:56	1
4,4'-DDE	0.048	U H	0.048	0.048	0.0086	ug/L		11/17/14 21:56	1
4,4'-DDT	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:56	1
Aldrin	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:56	1
alpha-BHC	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:56	1
alpha-Chlordane	0.048	U H	0.048	0.048	0.011	ug/L		11/17/14 21:56	1
beta-BHC	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:56	1
delta-BHC	0.048	U H	0.048	0.048	0.028	ug/L		11/17/14 21:56	1
Dieldrin	0.048	U H	0.048	0.048	0.012	ug/L		11/17/14 21:56	1
Endosulfan I	0.048	U H	0.048	0.048	0.015	ug/L		11/17/14 21:56	1
Endosulfan II	0.048	U H	0.048	0.048	0.014	ug/L		11/17/14 21:56	1
Endosulfan sulfate	0.048	U H	0.048	0.048	0.010	ug/L		11/17/14 21:56	1
Endrin	0.048	U H	0.048	0.048	0.011	ug/L		11/17/14 21:56	1
Endrin aldehyde	0.048	U H	0.048	0.048	0.0076	ug/L		11/17/14 21:56	1
Endrin ketone	0.048	U H	0.048	0.048	0.0086	ug/L		11/17/14 21:56	1
gamma-BHC (Lindane)	0.048	U H	0.048	0.048	0.011	ug/L		11/17/14 21:56	1
gamma-Chlordane	0.048	U H	0.048	0.048	0.0095	ug/L		11/17/14 21:56	1
Heptachlor	0.048	U H	0.048	0.048	0.0048	ug/L		11/17/14 21:56	1
Heptachlor epoxide	0.048	U H	0.048	0.048	0.013	ug/L		11/17/14 21:56	1
Methoxychlor	0.048	U H	0.095	0.048	0.011	ug/L		11/17/14 21:56	1
Toxaphene	0.95	U H	1.9	0.95	0.19	ug/L		11/17/14 21:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*82*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:56*	*1*
DCB Decachlorobiphenyl	*77*		*30 - 135*	*11/05/14 07:38*	*11/17/14 21:56*	*1*
Tetrachloro-m-xylene	*82*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:56*	*1*
Tetrachloro-m-xylene	*91*		*25 - 140*	*11/05/14 07:38*	*11/17/14 21:56*	*1*

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL2MW-271-0503-GW
Date Collected: 10/22/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-11
Matrix: Water

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor-1016	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 21:01	1
Aroclor-1221	0.20	U	0.50	0.20	0.13	ug/L		10/29/14 21:01	1
Aroclor-1232	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 21:01	1
Aroclor-1242	0.40	U	0.50	0.40	0.22	ug/L		10/29/14 21:01	1
Aroclor-1248	0.20	U	0.50	0.20	0.099	ug/L		10/29/14 21:01	1
Aroclor-1254	0.20	U	0.50	0.20	0.16	ug/L		10/29/14 21:01	1
Aroclor-1260	0.20	U	0.50	0.20	0.17	ug/L		10/29/14 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*40 - 140*	*10/24/14 08:40*	*10/29/14 21:01*	*1*
Tetrachloro-m-xylene	*80*		*40 - 140*	*10/24/14 08:40*	*10/29/14 21:01*	*1*
DCB Decachlorobiphenyl	*79*		*40 - 135*	*10/24/14 08:40*	*10/29/14 21:01*	*1*
DCB Decachlorobiphenyl	*75*		*40 - 135*	*10/24/14 08:40*	*10/29/14 21:01*	*1*

Method: 8330 Modified - Nitroguanidine (HPLC)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Nitroguanidine	6.0	U	20	6.0	2.4	ug/L		11/04/14 14:31	1

Method: 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.055	U	0.16	0.055	0.034	ug/L		11/04/14 23:11	1
1,3-Dinitrobenzene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 23:11	1
2,4,6-Trinitrotoluene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 23:11	1
2,4-Dinitrotoluene	0.11	U	0.14	0.11	0.055	ug/L		11/04/14 23:11	1
2,6-Dinitrotoluene	0.11	U	0.14	0.11	0.055	ug/L		11/04/14 23:11	1
2-Amino-4,6-dinitrotoluene	0.11	U	0.16	0.11	0.016	ug/L		11/04/14 23:11	1
2-Nitrotoluene	0.11	U	0.55	0.11	0.097	ug/L		11/04/14 23:11	1
3-Nitrotoluene	0.11	U	0.55	0.11	0.063	ug/L		11/04/14 23:11	1
4-Nitrotoluene	0.11	U	0.55	0.11	0.097	ug/L		11/04/14 23:11	1
4-Amino-2,6-dinitrotoluene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 23:11	1
HMX	0.055	U	0.16	0.055	0.040	ug/L		11/04/14 23:11	1
RDX	0.055	U	0.16	0.055	0.040	ug/L		11/04/14 23:11	1
Nitrobenzene	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 23:11	1
Tetryl	0.11	U	0.16	0.11	0.055	ug/L		11/04/14 23:11	1
Nitroglycerin	0.55	U	0.71	0.55	0.36	ug/L		11/04/14 23:11	1
PETN	0.55	U	0.71	0.55	0.33	ug/L		11/04/14 23:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
3,4-Dinitrotoluene	*97*		*79 - 111*	*10/27/14 08:44*	*11/04/14 23:11*	*1*
3,4-Dinitrotoluene	*107*		*79 - 111*	*10/27/14 08:44*	*11/07/14 05:31*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cyanide, Total	0.0050	U	0.010	0.0050	0.0020	mg/L		10/31/14 14:03	1
Nitrocellulose	1.0	U	2.0	1.0	0.48	mg/L		10/29/14 14:33	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH)

TestAmerica Job ID: 240-43449-1

Client Sample ID: FWGLL2MW-271-0503-GF
Date Collected: 10/22/14 16:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43449-12
Matrix: Water

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Arsenic	**6.0**	**J**	10	10	2.9	ug/L		10/29/14 12:19	1
Chromium	**0.69**	**J**	7.0	4.0	0.55	ug/L		10/29/14 12:19	1
Cobalt	**6.1**	**J**	7.0	4.0	0.56	ug/L		10/29/14 12:19	1
Lead	5.0	U	10	5.0	1.9	ug/L		10/29/14 12:19	1
Selenium	10	U	15	10	4.0	ug/L		10/29/14 12:19	1
Silver	5.0	U	7.0	5.0	0.92	ug/L		10/29/14 12:19	1
Vanadium	4.0	U	7.0	4.0	2.4	ug/L		10/29/14 12:19	1
Barium	**3.2**	**J**	200	5.0	1.0	ug/L		10/29/14 12:19	1
Calcium	**60000**		5000	1000	260	ug/L		10/29/14 12:19	1
Copper	10	U	25	10	1.9	ug/L		10/29/14 12:19	1
Magnesium	**17000**		5000	300	55	ug/L		10/29/14 12:19	1
Manganese	**390**		15	5.0	0.46	ug/L		10/29/14 12:19	1
Nickel	**25**	**J**	40	5.0	0.76	ug/L		10/29/14 12:19	1
Potassium	**1100**	**J**	5000	900	70	ug/L		10/29/14 12:19	1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aluminum	60	U J	60	60	20	ug/L		10/29/14 10:25	1
Antimony	1.0	U J	2.0	1.0	0.33	ug/L		10/29/14 10:25	1
Beryllium	1.0	U J	1.0	1.0	0.50	ug/L		10/29/14 10:25	1
Cadmium	**0.58**	**J**	2.0	1.0	0.40	ug/L		10/29/14 10:25	1
Iron	**3200**	**J**	150	100	44	ug/L		10/29/14 10:25	1
Sodium	**4300**	**J**	1000	400	160	ug/L		10/29/14 10:25	1
Thallium	**1.5**	**J**	2.0	1.5	0.79	ug/L		10/29/14 10:25	1
Zinc	50	U	50	50	27	ug/L		10/29/14 10:25	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hg	0.20	U	0.20	0.20	0.090	ug/L		10/30/14 14:55	1

Attachment 1

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 6010/6020/7470A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1, NELAC
3. Were holding times met?	X				QAPP Table *5-1* J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table *5-1*
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-1
6. Was a LOD Verification performed once per quarter with all target analytes detected?	X				DoD QSM Table F-8
7. Tuning (ICP MS Only)					
7a. Was a tune performed daily prior to calibration	X				DoD QSM Table F-8 R
7b. Mass Calibration <0.1 amu from true value	X				
7c. Resolution <0.9 amu full width at 10 % peak height	X				
7d. RSD <%5 for a minimum of four replicate analyses	X				
8.Calibration	X				
8a. Was the ICAL performed daily with at least	X			ICPMS & ICP-10/29/14, and Hg 10/30/14	DoD QSM Tables F-8 and F-7
1high standard and a blank for ICP & ICPMS	X				
5 standards and a blank for Hg	X				
8b. Was the correlation coefficient r≥0.995 for Hg?	X				DoD QSM Tables F-8 and F-7 r<0.995=J/R
8c. Was the ICV (second source verification) analyzed after the ICAL with results 90-110% of the true value?	X				DoD QSM Tables F-8 and F-7
8d. Was the ICB analyzed after the ICV with detected results <1/2 the MRL?		X		ICPMS-The ICB analyzed 10/29/14 @ 0741 had thallium detected at 0.127µg/L. No qualification of the data was required as the detected thallium result for sample FWGLL2mw-271-0503 was greater than 5x blank contamination.	DoD QSM, Tables F-8 and F-7 < 5x = U
Sample Analysis					
9. Was a MRL Level Verification performed at the beginning of the daily sequence and end of the analytical sequence bracketing samples? Were results 70-130%?	X				LS, DoD QSM Table G-18, >130%=J; 70-80%=J/UJ; <70%=J/UJ <65%=R, unless DL check with detected results

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 6010/6020/7470A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
10. Were CCVs analyzed every 10 samples and at the end of the analytical sequence with results 90-110% of the true value?	X				DoD QSM, Tables F-8 and F-7 >110%=J, <85%=J/R 90-85%=J/UJ;
11. Were the CCBs run every 10 samples and at the end of the analytical sequence? Were results <1/2 the MRL?	**X**			ICP The CCBs analyzed 10/29/14 had potassium detected from 75.1 µg/L to 94.7 µg/L. The CCB analyzed 10/29/14 at 1227 had nickel detected at 1.83 µg/L. The nickel results for samples FWGLL1mw-088-0502-GF, FWGLL3mw-246-0504-GF, FWGLL3mw-DUP1-0506-GF and FWGEQUIPRINSE1-0507-GW and the potassium result for sample FWGEQUIPRINSE1-0507-GW were qualified "U" as the reported concentrations were less than 5x blank contamination. ICPMS The CCBs analyzed 10/29/14 had thallium detected from 0.152 µg/L to 0.446 µg/L. The thallium result for sample FWGLL2mw-271-0503-GF was qualified "U" as the reported concentration was less than 5x blank contamination.	DoD QSM Tables F-8 and F-7 <5x = U
12. Was an Interelement Check Standard run at the beginning of the analytical sequence and every 12 hours with the ICS recovery within 80 to 120% of true value for each element of interest (ICP and ICPMS only)?	**X**				DoD QSM Tables F-8 and F-7 >120%=J; 50-79%=J/UJ; <50%=Pj/R
13. Was a method blank prepared and analyzed with each batch?	**X**				DoD QSM Tables F-8 and F-7
14. Were target analytes detected >1/2 the MRL in the method blank?		**X**		Checked by ADR. ICPMS-Cadmium was detected in the method blank at 0.423 µg/L. The cadmium result for sample FWGLL2mw-271-0503-GF was qualified "B" as the reported concentration was less than 5x method blank contamination.	DoD QSM Tables F-8 and F-7 <5x = B
15. Was a field blank collected and analyzed?	**X**			FWGEQUIPRINSE1-0507-GW and FWGEQUIPRINSE2-0508-GW	
16. Were target analytes reported in the field blank analyses >1/2 the MRL?	**X**			ADR checked section. Manganese was detected in FWGEQUIPRINSE1-507-GW at 0.56 µg/L, nickel at 0.78 µg/L and potassium at 86 µg/L. The nickel result for sample FWGLL1mw-088-0502-GF, was qualified "B" as the reported concentration was less than five times the equipment rinse contamination. No qualification was required for the manganese or potassium contamination as the detected results for potassium and manganese in the associated field sample,	DoD QSM Tables F-8 and F-7

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 6010/6020/7470A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				FWGLL1mw-088-0502-GF, were greater than 5x contamination.	
17. Was a LCS prepared and analyzed with each batch?	X				DoD QSM Tables F-8 and F-7
18. Were the LCS recoveries within limits specified in LCG Appendix C?	X			Checked by ADR.	DoD QSM Tables G-18, F-8 and F-7>120%=J; 70-79%=J/UJ; <70%=J/R
19. Was a matrix spike (MS) and lab duplicate sample prepared with each batch?	X				DoD QSM Tables F-8 and F-7
20. Was the MS and Lab Duplicate parent a Ravenna sample?	X			A matrix spike analysis and laboratory duplicate analysis was performed on sample FWGLL2mw-271-0503-GF.	
21. Were the MS recoveries within 80-120%?	X				DoD QSM Tables G-18, F-8 and F-7, >120%=J; 70-79%=J/UJ; <70%=J/R All samples in batch
22. Was the lab sample duplicate RPD ≤ 20%, for sample results detected above the LOQ?		X		ICP-The laboratory duplicate analyzed on sample FWGLL2mw-271-0503-GF had an RPD above control limits of 20% for chromium at 27%. No qualification of the data was required as the detected chromium concentration were less than the LOQ.	DoD QSM Tables F-8 and F-7 >20% = J, All samples in batch
23. Was a serial dilution performed, with the fivefold dilution within ± 10% of the original result?	X			FWGLL2mw-271-0503-GF	DoD QSM, Tables F-8 and F-7 >20% = J. Only evaluate results above the LOQ . Qualify all samples in batch
24. Was a Post Digestion Spike analyzed as needed? Were results within 75-125%?		X		ICPMS-The post digestion spike analysis performed on sample FWGLL2mw-271-0503-GF recovered above control limits for aluminum at 135%, antimony at 141%, iron at 137% and sodium at 143%. No qualifications were required for the iron or sodium outliers as the serial dilution for these analytes was within ± 10% of the original result. The detected antimony and aluminum results for samples FWGLL1MW-088-0502-GF, FWGLL3MW-246-504-GF, FWGEQUIPRINSE2-0508-GW were qualified as estimated, "J". As no qualification is required for the non detected	LCG Table 7, >125%=J; 30-75%=J/UJ; <30%=R

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 6010/6020/7470A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				results associated with a high post spike recovery, no qualification was made for the antimony or aluminum FWGLL3MW-DUP1-506-GF, FWGLL2MW-271-0503-GF or FWGEQUIPRINSE1-0507-GW results.	
25. Was a field duplicate analyzed? Were the RPDs ± 50% for sample results detected above the LOQ?	**X**			Checked by ADR. A field duplicate was analyzed on sample FWGLL3mw-246-504-GW. All detected results above the LOQ had RPD within acceptable limits.	>30% = J. Qualify parent sample only and only evaluate results above the LOQ
26. Were internal standards added to all ICPMS samples with intensity within 30-120% of the intensity of the ICAL internal standard?	**X**				DoD QSM Table F-8. >120%=J/R, <20%=J

References:

- *DoD Quality Systems Manual (QSM), version 4.1, October 2010*
- *Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007*
- *Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012*
- *Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011*

Ravenna, OH Data Review Checklist

Project Number: 030174.0016 **SDG**: 240-43449
Sample Event: October 2014 **Analysis**: SW846 8330M Nitroguanidine
Data Reviewer/Date: Angela Dragotta/December 10, 2014

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1
3. Were holding times met?	X			The holding time for samples FWGEQUIPRINSE2-0508-GW, FWGEQUIPRINSE1-0507-GW, FWGLL3mw-246-504-504-GW, FWGLL1mw-088-504-502-GW, FWGLL2mw-271-503-GW and FWGLL3mw-DUP1-506-GW were extracted outside 7 day hold time but within 2x hold. The nitroguanidine results for samples FWGEQUIPRINSE2-0508-GW, FWGEQUIPRINSE1-0507-GW, FWGLL3mw-246-504-504-GW, FWGLL1mw-088-504-502-GW, FWGLL2mw-271-503-GW and FWGLL3mw-DUP1-506-GW were qualified as estimated, "UJ".	QAPP Table 5-1 J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-3
6. Was a LOD Verification analyzed once per quarter with all target analytes detected?	X				DoD QSM Table F-3 R
7.Calibration					
7a. Does the initial calibration curve consist of 5 concentration levels? (6 stds for quadratic curves)	X			PDA-1 7/10/14	DoD QSM Table F-3 R
7b. Did all target analytes using avg response have an RSD $\leq$ 15% ?	X				
7c. If a linear regression curve was used, was the correlation coefficient r≥0.995? (0.990 for Quadratic curve).			X		
7d. Did reanalysis of the low level standard after calibration, recover within 15%?	X				
8. Was a second source verification (ICV) analyzed after the ICAL and all analytes 80-120%?	X			7/10/14 @ 1719	DoD QSM Table F-3 >120%=J; <80%= J/UJ;
Sample Analysis					
9. Was a CCV run at the beginning of the analytical sequence, every 10 samples and at the end of the analytical run with targets and surrogates recovering	X				DoD QSM Table F-3 J/UJ

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/December 10, 2014

SDG: 240-43449
Analysis: SW846 8330M Nitroguanidine

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
80-120% of the true value?					
10. Was a MRL Level verification run at the beginning and end of every daily sequence or every 12 hours? Was the %D < 30%?	**X**				LCG Table 5 >30%=J
11. Was a method blank prepared and analyzed with each batch?	**X**				DoD QSM Table F-3
12. Were target analytes detected in the method blank <1/2 the MRL?				Checked by ADR.	DoD QSM Table F-3 <5x = B
13. Was a field blank collected and analyzed?	**X**				
14. Were target analytes detected in the field blank analyses < ½ the MRL?				Checked by ADR.	DoD QSM Table F-3 <5x=B
15. Was a field duplicate analyzed? Were the RPDs ≤30%?	**X**				RPD >30=J
16. Were all positive results confirmed with a second column confirmation? Were the RPDs ≤ 40%?			**X**	No detected concentrations were reported.	DoD QSM Table F-3 RPD>40%=J
17. Was an LCS prepared and analyzed with each batch?	**X**				DoD QSM Table F-3
18. Were the LCS recoveries within laboratory limits of 79%-119%?	**X**			Checked by ADR.	DoD QSM Table F-3 <UL=J; 30-LL=J/UJ; <30%=J/R
19. Was a MS/MSD or MS and sample duplicate prepared with each batch?	**X**				DoD QSM Table F-3
20. Were MS/MSD recoveries within laboratory limits of 40%-150% with an RPD ≤20%?	X				DoD QSM Table F-3 Pj

References:
DoD Quality Systems Manual (QSM), version 4.1, October 2010
Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007
Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012
Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Additional Comments:

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: TAL SOP WS-WC-0050

Review Questions:	Yes	No	N/A	Comments	Qualifier
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1
3. Were holding times met?	X				QAPP Table 5-1 J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-1
6. Does the initial calibration curve consist of 5 concentration levels with the low standard near but > MDL?	X				SOP Section 10.2 R
7. Was the correlation coefficient >0.995?	X				SOP Section 10.2
8. Was a MRL Level Verification run at the beginning and end of every daily sequence or every 12 hours? Was the %D <30%?		X		No closing MRL information was provided for evaluation. Since an opening MRL check was analyzed with acceptable recovery, the data was qualified as estimated "UJ " instead of unusable.	>30%=J
9. Was a second source verification (ICV) analyzed after the ICAL? Were all analytes 90-110%?	X				>110%=J; 90-85%=J/UJ; <85%=J/R
10. Was the ICB analyzed after the ICV with results <1/2 the MRL?	X				STL SOP Section 9.8, LCG ,< 5x = U
11. Was a CCV run every 10 samples and at the end of the analytical run?	X				STL SOP Section 10.4
12. Was the ICV and CCV a mid-level standard from the initial calibration curve?	X				STL SOP Section 10.3.1
13. Were all CCV calibration analytes within 90-110%?	X				>110%=J; 85-90%=J/UJ; <85%=J/R
14. Was the ICB analyzed after the ICV with results <1/2 the MRL?	X				QSM, < 5x = U
15. Was a method blank prepared and analyzed with each batch?	X				
16. Were target analytes detected in the method blank <1/2 the MRL?		X		ADR checked section.	LCG, *<5x=B*
17. Was a field blank collected and analyzed?	X				

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: TAL SOP WS-WC-0050

Review Questions:	Yes	No	N/A	Comments	Qualifier
18. Were target analytes detected in the field blank analyses <1/2 the MRL?		X			<5x=B
19. Was a field duplicate analyzed? Were the RPDs ≤30%?	X			ADR checked section	QAPP Table 3-2 RPD > 30% = J
20. Was an LCS prepared and analyzed with each batch? Was the LCS recovery within lab's in-house limits% (26-144%)?	X				>UL%=J; 50-LL%=J/UJ; <50%=J/R
21. Was a MS/MSD pair prepared with each batch?	X				
22. Was the MS/MSD parent a Ravenna sample?	X			Sample FWGLL2mw-271-0503-GW was the parent for the matrix spike analysis.	
23. Were MS/MSD recoveries 26-144% and RPD ≤20?	X				Method EPA 353.2 Section 9.4.2 >UL%=J;<LL%=J/UJ; RPD>20%=J/UJ

References:

SOP SAC-WC-0050 "Preparation and Analysis of Nitrocellulose in Aqueous and Soil/Sediment Samples by Colorimetric Autoanalyzer", Jan 2007, rev. 2.0

DoD Quality Systems Manual (QSM)

Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007

Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012

Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Additional Comments:

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/December 12, 2014

SDG: 240-43449
Analysis: SW846 8330 Explosives

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1
3. Were holding times met?	X				QAPP Table 5-1 J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-3
6. Was a LOD Verification analyzed once per quarter with all target analytes detected?	X				DoD QSM Table F-3 R
7.Calibration					
7a. Does the initial calibration curve consist of 5 concentration levels? (6 stds for quadratic curves)	X			LC11 10/31/14 LC12 11/4/14	DoD QSM Table F-3 R
7b. Did all target analytes using avg response have an RSD ≤ 15% ?	X				
7c. If a linear regression curve was used, was the correlation coefficient r≥0.995? (0.990 for non-linear).	X			LC11-RDX, 1,3,5-trinitrobenzene and 3,5-dinitroaniline used a linear fit LC12-Nitrobenzene, 2-amino-4,6-dinitrotoluene, HMX and 3,4-ditrotoluene used a linear fit	
8. Was a second source verification (ICV) analyzed after the ICAL and all analytes 80-120%?	X			LC11 11/1/14@1016 LC12 11/3/14 @1647	DoD QSM Table F-3 >120%=J; <80%= J/UJ;
Sample Analysis					
9. Was a CCV run at the beginning of the analytical sequence, every 10 samples and at the end of the analytical run with targets and surrogates recovering 80-120% of the true value?	X			LC11- 11/4/2014 @1538, 11/5/14 @ 0007 and 0257 LC12-11/6/2014@2152, 11/7/14 @ 0637	DoD QSM Table F-3 J/UJ
10.Was a MRL Level verification run at the beginning and end of every daily? Was the %D< 30%?	X			LC11- 11/4/2014 @1441, 11/5/14 @ 0354 LC12-11/6/2014@2047, 11/7/14 @ 0743	LCG Table 5 >30%=J
11. Was a method blank prepared and analyzed with each batch?	X				DoD QSM Table F-3
12. Were target analytes detected in the method blank <1/2 the MRL?	X			Checked by ADR.	DoD QSM Table F-3 <5x = B
13. Was a field blank collected and analyzed?	X				
14. Were target analytes detected in the field blank analyses > ½ the MRL?		X		Checked by ADR.	DoD QSM Table F-3 <5x=B

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/December 12, 2014

SDG: 240-43449
Analysis: SW846 8330 Explosives

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
15. Was a field duplicate analyzed? Were the RPDs ≤30%?	X			Checked by ADR.	RPD >30=J
16. Were all positive results confirmed with a second column confirmation? Were the RPDs ≤ 40%?		X		The confirmation column RPD was above control limits of 40% for 1,3,5-trinitrobenzene at 129.6% in sample FWGEQUIPRINSE1-507-GW. The 1,3,5-trinitrobenzene results for sample FWGEQUIPRINSE1-507-GW was qualified as estimated, "J".	DoD QSM Table F-3 RPD>40%=J Only detected results above the LOQ were evaluated
17. Was an LCS prepared and analyzed with each batch?	X				DoD QSM Table F-3
18. Were the LCS recoveries within limits specified in table G-12 of the DoD QSM?	X			Checked by ADR.	DoD QSM Table F-3 <UL=J;30-LL=J/UJ; <30%=J/R
19.Was a MS/MSD or MS and sample duplicate prepared with each batch?	X				DoD QSM Table F-3
20. Were MS/MSD recoveries within limits specified in table G-12 of the DoD QSM with an RPD ≤30%?	X				DoD QSM Table F-3 Pj
21. Were surrogate recoveries within laboratory limits (79-111%)?	X			The surrogate, 3,4-dinitrotolune recovered above control limits of 79-111% for samples FWGEQUIPRINSE1-507-GW and FWGEQUIPRINSE2-508-GW on the confirmation column (LC12) at 128% and 121%, respectively. No qualifications were applied as the sample results were reported from the primary column (LC11).	QSM Tables F-2 >UL=J; <LL =J/UJ

References: DoD Quality Systems Manual (QSM), version 4.1, October 2010
Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007
Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012
Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 9012A

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1
3. Were holding times met?	X				QAPP Table *5-1* J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table *5-1*
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-1
6. Does the initial calibration curve consist of at least 6 standards and one blank, with the correlation coefficient R $\geq$ 0.995? ?	X				*DoD QSM Table F-10* R
7. Were a high and low standard distilled and analyzed with results within $\pm$ 15%?	X				*DoD QSM Table F-10* R
8. Was an LOD Verification performed at least once per quarter with all target analytes detected?	X				LCG Table 10 R
9. Was a MRL Level Verification performed at the beginning and end of the daily sequence? Were results within 70-130%?	X				LCG Table 10, LS >130%=J; 65-70%=J/UJ; <65%=J/R
10. Was a second source verification (ICV) analyzed after the ICAL and all analytes 85-115%?	X			10/31/14 @ 1328	*DoD QSM Table F-10* >115%=J; 80-85%=J/UJ; <80%=J/R
11. Was a method blank prepared and analyzed with each batch?	X				*DoD QSM Table F-10*
12. Were target analytes detected in the method blank >1/2 the MRL?		X		Checked by ADR.	*DoD QSM Table F-10* <5x=B
13. Was a field blank collected and analyzed?	X				
14. Were target analytes in the field blank analyses <1/2 the MRL?	X				*DoD QSM Table F-10* <5x=B
15. Was a field duplicate analyzed? Were the RPDs $\leq$20%?	X			Checked by ADR.	>30% = J
16. Was an LCS prepared and analyzed with each batch?	X				DoD QSM Table F-10

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 10, 2014

SDG: 240-43449
Analysis: SW846 9012A

Review Questions:	Yes	No	N/A	Comments	QUAL/Criteria
17. Were the LCS recoveries 80-118%?	X			Checked by ADR.	*DoD QSM Table F-10* Lab Limits >118%=J; 50-79%=J/UJ; <50%=R
18. Was a MS and duplicate (sample or matrix) prepared once per every 10 samples?	X				DoD QSM Table F-10
19. Was the MS parent a Ravenna sample?	X				
20. Were matrix spike recoveries 42-140%?	X				DoD QSM Table F-10 >140%=J; <42%=J/UJ/R

References:
DoD Quality Systems Manual (QSM), version 4.1, October 2010

Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007

Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012

Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011
Additional Comments:

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 8, 2014

SDG: 240-43449
Analysis: SW846 8270

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1,
3.Were holding times met?		X		The holding time for samples FWGEQUIPRINSE2-0508-GW, FWGLL3mw-246-504-504-GW and FWGLL3mw-DUP1-506-GW were reextracted outside 7 day hold time at 14 days. The SVOC results for samples FWGEQUIPRINSE2-0508-GW, FWGLL3mw-246-504-504-GW and FWGLL3mw-DUP1-506-GW were qualified as estimated, "UJ", since the re-extraction was completed within 2x hold time.	QAPP Table 5-1, J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1,
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-6
6. Was the GC/MS system tuned each 12 hour shift (prior to ICAL and Cal Ver.)?	X				QSM Table F-4
7. Initial Calibration					
7a. Did the initial calibration curve consist of 5 concentration levels?	X			Instrument A4HP9–10/23/14, 11/5/14	QSM Table F-4 R
7b. Did the Calibration Check Compounds (CCCs) (see Table 1 below) relative standard deviations (%RSD) ≤ 30%?	X				QSM Table F-4 R
7c. Were the minimum response factors (RFs) for the System Performance Check Compounds (SPCCs) (see Table 2 below) ≤0.050?	X				QSM Table F-4
7d. Were all other target analytes reported with an avg response have an RSD ≤ 15%?	X				QSM Table F-4 15% <RSD< 20% = J/UJ
7e. IF the RSD was >15% was a different calibration option used?	X				
7f. If a linear regression curve was used, was the correlation coefficient r>0.995?	X				QSM Table F-4 R<0.99=-J/R
7g. If a non-linear regression was used, was the COD r≥0.99, with a minimum of 6 points for second order and 7 points for third order?	X			10/23/14-Benzoic acid and 2,4-Dinitrophenol used a linear fit. 11/5/14-Benzoic acid used a linear fit	QSM Table F-4 R<0.99=-J/R

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 8, 2014

SDG: 240-43449
Analysis: SW846 8270

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
8. Was a LOD Level Verification performed quarterly for each reported analyte?	X				QSM Table F-4 and section D.1.2.1
9 Was a breakdown check run at the beginning of every 12 hours with DDT degradation <20% and tailing factors of benzidine and pentachlorophenol ≤2?	X				QSM Table F-4 R
10. Was a MRL Level Verification run at the beginning and end of every daily sequence or every 12 hours with recoveries within 70-130%?		X		11/4/14 @0937 and 1609, 11/12/14 @0912 and 1524. The closing MRL analyzed 11/4/14 @ 1609 recovered below control limits of 70-130% for 2,4-dinitrophenol at 69%. The closing MRL analyzed 11/12/14 @ 1524 recovered below control limits of 70-130% for 2,4-dinitrophenol at 56%. An LOD verification check was analyzed following MRL standard with detected results. The 2,4-dinitrophenol results for samples FWGLL1mw-088-0502-GW FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW, FWGEQUIPRINSE1-0507-GW and FWGEQUIPRINSE2-0508-GW were qualified as estimated, "UJ".	Louisville Supplement to the DOD QSM
11. Was a second source verification (ICV) analyzed? Were results 80-120%?	X			10/23/14 @1337, 11/5/14 @1455	QSM Table F-4 J=<80% and >120%
12. Was a CCV run daily prior to analysis and every 12 hours of analysis time?	X			11/4/14 @0912, 11/12/14 @847	QSM Table F-4
12a. Were the average response factors (RFs) for the System Performance Check Compounds (SPCCs) ≥0.050?	X				QSM Table F-4
12b. Were all target analytes ≤ 20%D?	X			The CCV analyzed 11/4/14 had 4-nitroaniline recover above the 20% criteria for %D with a %D of 22.2%, carbazole recovered above control limits with a %D of 26.2% and 4,6-dinitro-2-methylphenol with a %D of 21.3%. No qualification of the data was required as there were no detected concentrations of 4-nitroaniline, carbazole or 4,6-dinitro-2-methylphenol reported for the associated field samples.	QSM Table F-4 %D <20% = J/UJ
13. Were the internal standards added to every sample?	X				QSM Table F-4
13a. Was the EICP area between -50% and +100% of the ICAL mid-point standard?	X				QSM Table F-4 R
13b. Were the retention times for all IS compounds within ±30 seconds from the RT of the mid-point	X				QSM Table F-4 J/UJ

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 8, 2014

SDG: 240-43449
Analysis: SW846 8270

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
standard in the ICAL?					
14. Were the retention times for target analytes within ±0.06 RRT units from the RT of the mid-point standard in the ICAL or the most recently updated RRT for all samples?	X				QSM Table F-4 J
15. Was a method blank prepared and analyzed with each batch?	X				QSM Table F-4
15a. Were target analytes detected in the method blank >1/2 the MRL, >RL for common contaminants?		X		Checked by ADR.	QSM Table F-4 <5/10X =B
16. Was a field blank (equipment and/or trip) collected and analyzed?	X			FWGEQUIPRINSE1-0507-GW and FWGEQUIPRINSE2-0508-GW	
16a. Were target analytes detected in the field blank?		X			QSM Table F-4 <5/10X =B
17. Was a LCS prepared and analyzed with each batch?	X				QSM Table F-4
17a. Were the LCS recoveries within limits specified in Table G-6 of the DoD QSM?		X		ADR checked section; The LCS analyzed with batch 240-153104 recovered below control limits of 10-115% for hexachlorocyclopentadiene at 3%. The hexachlorocyclopentadiene LCS from batch 240-154942 recovered below limits at 5%. All hexachlorocyclopentadiene results were qualified as estimated, "UJ"	QSM Table F-4, Table G-6 J/UJ
18. Was a MS/MSD prepared with each batch?	X			A matrix spike and spike duplicate were prepped analyzed on sample FWGLL2mw-271-0503-GW.	
18a. Were the MS/MSD recoveries within limits specified in Table G-6 of the DoD QSM with an RPD <30%?		X		Checked by ADR. The hexachlorocyclopentadiene matrix spike and matrix spike recoveries were below control limits of 10-115% at 5% and 4%, respectively. The pentachlorophenol MSD recovered below control limits of 40-115% at 39%. The MS/MSD RPD was above control limits for 2,4-dinitrophenol at 75%, 4,6-dinitro-2-methylphenol at 47% and benzoic acid at 200%. The hexachlorocyclopentadiene and pentachlorophenol results for FWGLL2mw-271-0503-GW were qualified as estimated, "UJ". No qualification was made for the MS/MSD RPD outliers as there were no detected 4-dinitrophenol, 4,6-dinitro-2-methylphenol or benzoic acid results reported for sample FWGLL2mw-271-0503-GW.	QSM Table F-4, Table G-6 J/UJ Parent sample only
19. Was a field duplicate analyzed?	X			A field duplicate was collected for FWGLL3mw-246-504-GW.	

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta/ December 8, 2014

SDG: 240-43449
Analysis: SW846 8270

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
19a. Were the field duplicates RPDs within ±50%?			X	No detected sample results were reported.	QSM Table F-4, RPD >50=J Parent sample only
20. Were surrogate recoveries within control limits specified in the DOD QSM?	X			Samples FWGLL1mw-088-0502-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE1-0507-GW were not spiked with surrogate so no evaluation could be made. The results for samples FWGLL1mw-088-0502-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE1-0507-GW were qualified as estimated, "UJ".	QSM Tables F-4 & G-3 >150%=J; 10% - 50%=J/UJ; <10%=J/R
21. Were reported sample concentrations within calibration range?	X				

References:

- *DoD Quality Systems Manual (QSM), version 4.1, October 2010*
- *Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007*
- *Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012*
- *Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011*

Additional Comments:

Table 1: CCCs *(All analytes if CCCs not included in standard)*

Base / Neutral Compounds	Acid Compounds
Acenaphthalene	4-Chloro-3-methylphenol
1,4-Dichlorobenzene	2,4-Dichlorophenol
Hexachlorobutadiene	2-Nitrophenol
N-Nitrosodiphehylamine	Phenol
Di-n-octylphthalate	Pentachlorophenol
Fluoroanthene	2,4,6-Trichlorophenol
Benzo(a)pyrene	

Table 2: SPCCs -

N-Nitroso-di-n-propylamine	0.050
Hexachlorocyclopentadiene	0.050
2,4-Dinitrophenol	0.050
4-Nitrophenol	0.050

Ravenna, OH Data Review Checklist

Project Number: 030174.0016 **SDG**: 240-43449
Sample Event: October 2014 **Analysis**: SW846 8260B
Data Reviewer/Date: Angye Dragotta/December 7, 2014

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1,
3. Were holding times met?	X				QAPP Table 5-1, J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1,
5. Were all QAPP addendum-specified target analytes reported?	X				QAPP Table 4-5
6. Was the GC/MS system tuned with bromofluorobenzene (BFB) during each 12 hour shift (prior to ICAL and Cal Ver.)?	X				QSM Table F-4
7. Calibration					
7a. Did the initial calibration curve consist of 5 concentration levels?	X			Instrument A3UX16–10/27/14	QSM Table F-4 R
7b. Did the Calibration Check Compounds (CCCs) (see Table 1 below) relative standard deviations (%RSD) ≤ 30%?	X				QSM Table F-4 R
7c. Were the minimum response factors (RFs) for the System Performance Check Compounds (SPCCs) (see Table 2 below) met?	X				QSM Table F-4
7d. Did target analytes with an average calibration type have an RSD ≤ 15%?	X				QSM Table F-4 15% <RSD< 20% = J/UJ
7e. IF the RSD was >15% was a different calibration option used?	X				
7f. If a linear regression curve was used, was the correlation coefficient r>0.995?	X			Acetone and methylene chloride used a linear fit	QSM Table F-4 R<0.995=-J/R
7g. If a non-linear regression was used, was the COD r≥0.99, with a minimum of 6 points for second order and 7 points for third order?	X				QSM Table F-4 R<0.99=-J/R
8. Was a LOD Level Verification performed quarterly for each reported analyte with detected results?	X				QSM Table F-4 and section D.1.2.1

Ravenna, OH Data Review Checklist

Project Number: 030174.0016 **SDG**: 240-43449
Sample Event: October 2014 **Analysis**: SW846 8260B
Data Reviewer/Date: Angye Dragotta/December 7, 2014

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
9. Was a MRL Level Verification run at the beginning and end of every daily sequence or every 12 hours?	X			10/30/14 @ 1159 and 2127	
10. Were the QC/MRL recoveries 70-130%	X			• The opening MRL analyzed on 10/30/14 @ 1159 recovered below control limits for acetone at 31%, bromoform at 69% and 2-butanone at 68%. Chloromethane recovered above control limits of 70-130% at 131. A LOD verification check sample was analyzed following the closing MRL with detected results for the outlier analytes. • The closing MRL analyzed 10/30/14 @ 2127 recovered below control limits of 70-130% for acetone at 50%. A verification check sample was analyzed following the closing MRL with detected results for the outlier analytes. The acetone, bromoform and 2-butanone results for samples FWGLL1MW-088-0502-GW, FWGTEAM2TRIP, FWGEQUIPRINSE1-0507-GW, FWGEQUIPRINSE2-0508-GW, FWGLL3MW-246-504-GW, FWGLL3MW-DUP1-506-GW, and FWGLL2MW-271-0503-GW were qualified as estimated, "J/ UJ". No qualifications were required for the chloromethane outlier as there were no detected concentrations of chloromethane reported for the bracketed field samples.	Louisville Supplement to the DOD QSM
11. Was a second source verification (ICV) analyzed? Were results 80-120%?	X			10/28/14 @0053	QSM Table F-4 J=<80% and >120%
12. Was a CCV run daily prior to analysis and every 12 hours of analysis time?	X			10/30/14 @1102	QSM Table F-4
12a. Were the average response factors (RFs) for the (SPCCs) (see Table 2 below) met?	X				QSM Table F-4
12b. Were all target analytes ≤ 20%D?	X				QSM Table F-4 %D <20% = J/UJ
13. Were the internal standards added to every sample?	X				QSM Table F-4
13a. Was the EICP area between -50% and +100% of the ICAL mid-point standard?	X				QSM Table F-4 R
13b. Were the retention times for all IS compounds within ±30 seconds from the RT of the mid-point standard in the ICAL?	X				QSM Table F-4 J/UJ

Ravenna, OH Data Review Checklist

Project Number: 030174.0016 **SDG**: 240-43449
Sample Event: October 2014 **Analysis**: SW846 8260B
Data Reviewer/Date: Angye Dragotta/December 7, 2014

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
14. Were the retention times for target analytes within ±0.06 RRT units from the RT of the mid-point standard in the ICAL or the most recently updated RRT for all samples?	X				QSM Table F-4 J
15. Was a method blank prepared and analyzed with each batch?	X				QSM Table F-4
15a. Were target analytes detected in the method blank >1/2 the MRL and >RL for common contaminants?		X		Checked by ADR.	QSM Table F-4 <5/10X =B
16. Was a field blank (equipment and/or trip) collected and analyzed?	X				
16a. Were target analytes detected in the field blanks?	X			Checked by ADR. Acetone was detected in FWGTEAM2Trip collected 10/21/14 at 4.1µg/L and FWGTEAM2Trip collected 10/22/14 at 4.0µg/L. The acetone result for FWGEQUIPRINSE1-0507-GW was qualified, "B". FWGEQUIPRINSE1-0507-GW had acetone detected at 3.5µg/L and toluene at 0.24µg/L. FWGEQUIPRINSE2-0508-GW had chloroform detected at 0.69µg/L and methylene chloride at 1.1µg/L. There were no detected concentrations of acetone, toluene, chloroform or methylene chloride reported for the associated field samples, so no qualifications were made for the noted equipment rinse contamination.	QSM Table F-4 <5/10X =B
17. Was a LCS prepared and analyzed with each batch?	X				QSM Table F-4
17a. Were the LCS recoveries within limits specified in Table G-5 of the DoD QSM?	X			ADR checked section;	QSM Table F-4, Table G-5, J/UJ
18. Was a MS/MSD prepared with each batch?	X			A matrix spike and spike duplicate were analyzed on sample FWGLL2MW-271-0503-GW.	QSM Table F-4
18a. Were the MS/MSD recoveries within limits specified in Table G-4 of the DoD QSM with an RPD <30%?	X				QSM Table F-4, Table G-5 J/UJ Parent sample only
19. Was a field duplicate analyzed?	X			A field duplicate was collected for sample FWGLL3MW-246-504-GW.	QSM Table F-4,

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angye Dragotta/December 7, 2014

SDG: 240-43449
Analysis: SW846 8260B

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
19a. Were the field duplicates RPDs within ±30%?			**X**	There were no detected concentrations reported for the parent and field duplicate analysis.	QSM Table F-4, RPD >30=J Parent sample only
20. Were surrogate recoveries within control limits specified in the DOD QSM?	X				QSM Tables F-4 & G-3 >150%=J; 10% -50%=J/UJ; <10%=J/R
21. Were reported sample concentrations within calibration range?	**X**				

References:
DoD Quality Systems Manual (QSM), version 4.1, October 2010
Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007
Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012
Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Additional Comments:

Table1- CCCs

Analyte
1,1-Dichloroethene
Chloroform
1,2-Dichloropropane
Toluene
Ethylbenzene
Vinyl chloride

Table 2- SPCCs

Analyte	Minimum RF
Chloromethane	0.10
1,1-Dichlorethane	0.10
Bromoform	0.10
Chlorobenzene	0.30
1,1,2,2-Tetrachloroethane	0.30

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta / December 19, 2014

SDG: 240-43449
Analysis: SW846 8081A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	X				QAPP Table 5-1, NELAC
3. Were holding times met?		X		Checked by ADR. Samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE2-0508-GW were extracted outside the seven day hold time but within 2x hold time. The pesticide results for samples, FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW and FWGEQUIPRINSE2-0508-GW were qualified as estimated, "UJ" instead of unusable, since the re-extraction was completed within 2x hold time. In addition, sample FWGLL1mw-088-504-502-GW was analyzed outside the analytical hold time of 40 days at 54 days. As the analysis took place within 2x analytical hold, the results for sample FWGLL1mw-088-504-502-GW were qualified as estimated, "J/UJ".	QAPP Table 5-1 J/UJ/R
4. Were sample storage requirements met?	X				QAPP Table 5-1
5. Were all QAPP-specified target analytes reported?	X				QAPP Table 4-3
6. Was a DDT standard analyzed every 12 hours? Was the DDT %breakdown <15%?	X				QSM Table F-2 >15%=J/R
7. Was an endrin standard analyzed every 12 hours? Was the endrin %breakdown <15%?	X				QSM Table F-2 >15%=J/R
8. Initial Calibration					
8a. Does the initial calibration curve consist of 5 concentration levels?	X			A2HP3 on 10/21/14 (tox), 10/29/14, 12/2/14 (all)	QSM Table F-2 R
8a. Were the %RSDs for each analyte $\leq$ 20%? OR was the average %RSD $\geq$20% with the r^2 >0.990?	X				QSM Table F-2 RSD>20% or r<0.99=J/R
9. Was a LOD Level Verification performed once per quarter with all target analytes detected?	X				QSM Table F-2 R
10. Was a MRL Verification performed at the beginning and end of the sequence or every 12 hours with results within limits of 70-130%?	X			*Analytical Batch 154474* The MRL analyzed 11/3/14 @ 0009 had toxaphene recover above control limits of 70-130% at 142%. No qualification was required as toxaphene was not reported as detected for sample FWGEQUIPRINSE1-507-GW. *Analytical Batch 155567* The MRL analyzed 11/8/14 @ 1721 had toxaphene recover above control limits of 70-130% at 183% and at 2305 toxaphene recovered above limits at 170%. The MRL analyzed 11/8/14 @ 1807 recovered above limits of 70-130% at	QSM Table F-2, G-14 >UL=J; <LL=J/UJ/R

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				142% for 4,4'-DDD. The MRL analyzed 11/8/14 @ 2350 recovered above limits of 70-130% at 173% for 4,4'-DDD, at 131% for endrin and at 149% for methoxychlor. No qualifications were required as there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE2-508-GW. *Analytical Batch 156929* The MRL analyzed 11/17/14 @ 1832 had toxaphene recover above control limits of 70-130% at 133%. The MRL analyzed on 11/17/14 @ 1923 recovered above limits of 70-130% for beta BHC at 139%. No qualifications were required as there were no detected toxaphene or beta-BHC concentrations reported for samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW, FWGLL2mw-271-0503-GW. *Analytical Batch 161502* The opening MRL analyzed 12/17/14 @ 2100 recovered above limits of 70-130% for aldrin at 133%, alpha chlordane at 137%, dieldrin at 139%, endosulfan I at 141%, endosulfan II at 138%, endosulfan sulfate at 133%, endrin at 147%, endrin aldehyde at 132%, gamma chlordane at 137%, heptachlor at 139% and heptachlor epoxide at 139%. The closing MRL analyzed 12/17/14 @ 2241 recovered above limits of 70-130% for 4,4'-DDD at 136%, 4,4'-DDE at 142%, 4,4'-DDT at 136%, aldrin at 140%, alpha chlordane at 144%, beta-BHC at 132%, dieldrin at 144%, endosulfan I at 148%, endosulfan II at 147%, endosulfan sulfate at 141%, endrin at 156%, endrin ketone at 135%, endrin aldehyde at 141%, gamma chlordane at 144%, heptachlor at 145%, heptachlor epoxide at 146% and methoxychlor at 136%. No qualifications were required as there were no detected 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha chlordane, beta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin ketone, endrin aldehyde, gamma chlordane, heptachlor, heptachlor epoxide or methoxychlor concentrations reported for sample FWGLL1mw-088-0502.	
11. Was a second source (ICV) verification analyzed after the ICAL? Were results 80-120%?	X			10/21/14@ 12322(tox) and on 10/29/14@0445, 12/2/14 @ 1650 (tox) and 2223	QSM Table F-2 >120%=J;<80%=J/UJ
12. Was a CCV run every 12 hours or at the beginning and end of the analytical run with the %D for all target analytes ≤20%?	X			*Analytical Batch 154474* The CCV analyzed 11/3/14 at 1435 had %D above 20% for alpha-BHC at 29.1%, gamma-BHC at 30.6%, beta-BHC at 31.6%, delta-BHC at 35.5%, heptachlor at 36.7%, aldrin at 27.1%, heptachlor epoxide at 29.5%, gamma-chlordane at 28.7%, alpha-chlordane at 28.1%, endosulfan I at 32.3%, 4,4'-DDE at 43.4%, dieldrin at 31.9%, endrin at 52.8%, 4,4'-DDD at 68.6%, endosulfan II at 28.8%, 4,4'-DDT at 41.1%, endrin aldehyde at 36.0%,	QSM Table F-2 >120%=J; <80%=J/UJ

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				methoxychlor at 52.9%, endosulfan at 30.6%, endrin ketone at 28.3%, TCMX at 23.5% and DCB at 25.2%. The CCV analyzed 11/3/14 at 1817 had %D above 20% for alpha-BHC at 23.7%, gamma-BHC at 24.8%, beta-BHC at 26.6%, delta-BHC at 30.1%, heptachlor at 29.5%, aldrin at 22.8%, heptachlor epoxide at 26.4%, gamma-chlordane at 26.6%, alpha-chlordane at 24.0%, endosulfan I at 27.7%, 4,4'-DDE at 49.1%, dieldrin at 27.5%, endrin at 43.7%, 4,4'-DDD at 62.1%, endosulfan II at 27.5%, 4,4'-DDT at 33.0%, endrin aldehyde at 34.9%, methoxychlor at 43.7%, endosulfan at 29%, endrin ketone at 27.2% and DCB at 27.5%. The CCV analyzed 11/4/14 at 0036 had %D above 20% for 4,4'-DDE at 27.5%, endrin at 26.6%, 4,4'-DDD at 41.1%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE1-507-GW. *Analytical Batch 155567* The CCV analyzed 11/8/14 at 1612 had %D above 20% for toxaphene at 38.6%. The CCV analyzed 11/8/14 at 1658 had %D above 20% for 4,4'-DDE at 21.6%, 4,4'-DDD at 58.5%, and methoxychlor at 26.5%. The CCV analyzed 11/8/14 at 1658 had %D above 20% for 4,4'-DDE at 24.3%, endrin at 23.3%, 4,4'-DDD at 59.4%, 4,4'-DDT at 29.8% and methoxychlor at 34.9%. The CCV analyzed 11/9/14 at 0059 had %D above 20% 4,4'-DDE at 24.3%, endrin at 22.0%, 4,4'-DDD at 57.0%, 4,4'-DDT at 26.6% and methoxychlor at 32.0%. The CCV analyzed 11/9/14 at 0014 had %D above 20% for toxaphene at 41.98%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for sample FWGEQUIPRINSE2-508-GW. *Analytical Batch 156929* The CCV analyzed 11/17/14 at 1557 had %D above 20% for endrin at 23.8%. The CCV analyzed 11/17/14 at 1806 had %D above 20% for beta-BHC at 24.0%, heptachlor at 25.5%, 4,4'-DDE at 21.0%, endrin at 30.5%, 4,4'-DDD at 25.8%, endosulfan II at 20.6%, 4,4'-DDT at 26.4%, endrin aldehyde at 22.2% and methoxychlor at 27.1%. The CCV analyzed 11/18/14 at 001 had %D above 20% for alpha-BHC at 20.4%, gamma-BHC at 21.3%, beta-BHC at 25.7%, delta-BHC at 23.1%, heptachlor at 28.5%, endosulfan I at 22.6%, 4,4'-DDE at 28.7%, dieldrin at 21.5%, endrin at 39.6%, 4,4'-DDD at 36.6%, endosulfan II at 21.9%, 4,4'-DDT at 36.8%, endrin aldehyde at 25.4% and methoxychlor at 35.6. The CCV analyzed 11/18/14 at 0522 had %D above 20% for toxaphene at 30.4%. No qualification of the data was required as all CCV outliers were biased high and there were no detected pesticide concentrations reported for	

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta / December 19, 2014

SDG: 240-43449
Analysis: SW846 8081A

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				samples FWGLL3mw-246-504-GW, FWGLL3mw-DUP1-506-GW or FWGLL2mw-271-0503-GW. *Analytical Batch 161502* For the CCVs analyzed 12/17/14, endrin had a %D above control limits of 20% at 22.5% (1944) and 24.9% (2306). No qualification of the data was required as all CCV outliers were biased high and there were no detected endrin concentrations reported for the associated field sample FWGLL1mw-088-0502.	
13. Was a method blank prepared and analyzed with each batch?	X				QSM Table F-2
14. Were target analytes detected> ½ the RL?		X		Checked by ADR. The method blank associated with prep batch 240-150099 had alpha-BHC detected at 0.0207 µg/L, beta-BHC at 0.0280 µg/L, delta-BHC at 0.0552 µg/L and gamma-BHC at 0.0128 µg/L. No qualification of the data was required for beta-BHC, delta-BHC or gamma-BHC contamination as there were no detected concentrations of beta-BHC, delta-BHC or gamma-BHC reported for the associated field samples. The alpha-BHC result for sample FWGLL1mw-088-0502-GW was qualified, "B", as the detected concentration was less than 5x method blank contamination.	QSM Table F-2 <5x=B
15. Was a field blank collected and analyzed?	X				
16. Were target analytes detected in the field blank analyses >1/2 the MRL?		X			QSM Table F-2 <5x=B
17. Was an LCS prepared and analyzed with each batch?	X				QSM Table F-2
18. Were the LCS recoveries within limits specified in QSM Table G-14?		X		Checked by ADR. The LCS associated with samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW recovered above control limits of 70-130% for toxaphene at 138% and below control limits of 50-110% at 49% for endosulfan I. As there were no detected toxaphene concentrations reported for samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW, no qualification of the toxaphene data was required. The endosulfan I results for samples FWGEQUIPRINSE1-507-GW and FWGLL1mw-088-0502-GW were qualified as estimated, "UJ". The LCS associated with sample FWGEQUIPRINSE2-508-GW recovered above control limits of 25-150% for 4,4'-DDT at 157% and above control limits of 45-140% at 150% for 4,4'-DDT. No qualification was required as there were no detected pesticide concentrations reported for FWGEQUIPRINSE2-508-GW. The LCS associated with samples FWGLL2mw-271-0503-GW, FWGLL3mw-246-504-GW and FWGLL3mw-DUP1-0506-GW recovered above control	QSM Table G-14 >UL=J; <LL=J/UJ/R

Project Number: 030174.0016 **SDG**: 240-43449
Sample Event: October 2014 **Analysis**: SW846 8081A
Data Reviewer/Date: Angela Dragotta / December 19, 2014

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
				limits of 70-130% for toxaphene at 147%. As there were no detected toxaphene concentrations reported for samples FWGLL2mw-271-0503-GW, FWGLL3mw-246-504-GW or FWGLL3mw-DUP1-0506-GW, no qualification of the toxaphene data was required.	
19. Was a MS/MSD pair prepared with each batch?	X				QSM Table F-2
20. Was the MS/MSD parent a Ravenna sample?	X			The parent sample for matrix spike and spike duplicate analysis was sample FWGLL2mw-271-0503-GW.	
21. Were MS/MSD recoveries and RPD within limits specified in QSM Table G-14?	X				QSM Table F-2 Pj with >UL=J; <LL=J/UJ/R
22. Were surrogate recoveries as specified in QSM table G-3?		X		Checked by ADR. The surrogate, TCMX, recovered above control limits of 25-140% in sample FWGLL1mw-088-0502-GW at 174% on column CLP-1. No qualification of the data was required as there were no detected pesticide concentrations reported for sample FWGLL1mw-088-0502-GW from this column.	QSM Table F-2 >LL=J; <LL=UJ/J/R
23. Was a field duplicate analyzed? Were the RPDs ≤50%?			X	Checked by ADR. No detected pesticide concentrations were reported.	RPD >50=J parent sample only
24. Were all positive results greater than the LOQ verified by a second column confirmation? Were the RPD's ≤ 40?	X				QSM Table F-2 >40 RPD=J

References:
DoD Quality Systems Manual (QSM), version 4.1, October 2010
Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007
Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012
Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Additional Comments:
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Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta//December 10, 2014

SDG: 240-343449
Analysis: SW846 8082

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
1. Did Chain-of-Custody information agree with laboratory report?	X				
2. Were samples preserved properly and received in good condition?	**X**				QAPP Table 5-1
3. Were holding times met?	**X**				QAPP Table 5-1 J/UJ/R
4. Were sample storage requirements met?	**X**				QAPP Table 5-1
5. Were all QAPP-specified target analytes reported?	**X**				QAPP Table 4-3
6. Calibration					
6a. Does the initial calibration curve consist of 5 concentration levels of Aroclors 1016 and 1260?	**X**			Instrument A2HP12 10/22/14 Stds = 0.05, 0.1, 0.2, 0.5, 1.0, 2.0	QSM Table F-2 R
6b. Was the % RSD ≤ 20%? or Were the r^2s >0.990?	**X**				QSM Table F-2 RSD>20% or r<0.99= J/R
7. Was a LOD Verification performed once per quarter? Were all target analytes detected?	**X**				QSM Table F-2 R
8. Was an MRL Level Verification performed at the beginning and end of the sequence or every 12 hours? Were recoveries 70-130%?	**X**			10/28/14@2001, 2321 & 10/29/14@1757 and 2224 10/30/14 @0846, 1010	LCG Table 3 >UCL=J; <LCL=J/UJ/R;
9. Was a second source (ICV) verification performed after the ICAL? Were the avg of all peaks for each aroclor 80-120%?	**X**			10/23/14	QSM Table F-2 >120%=J; <80%=J/ UJ/R
10. Were single standards of the other five Aroclors run to aid in pattern recognition and to determine a single point calibration factor?		**X**		All aroclors had a multi-point calibration.	Method 8082 Section 5.6.2
11. Was a CCV run every 12 hours?	**X**			10/28/14@1944, 2304 & 10/29/14@1740, 2044 and 2207 10/30/14 @0456, 0953	QSM Table F-2
12. Was the % D ≤ 20 % for each analyte?	**X**				QSM Table F-2 D>20%(neg)=J/R D>20% (pos) =J

Ravenna, OH Data Review Checklist

Project Number: 030174.0016
Sample Event: October 2014
Data Reviewer/Date: Angela Dragotta//December 10, 2014

SDG: 240-343449
Analysis: SW846 8082

Review Questions:	Yes	No	N/A	Comments	Qual/Criteria
13. Was a method blank prepared and analyzed with each batch?	X			Section checked by ADR.	QSM Table F-2
14. Were target analytes <1/2 the MRL?	X				QSM Table F-2 <5x = B
15. Was an equipment blank collected and analyzed?	X				
16. Were target analytes in the field blank analyses (equipment) <1/2 the MRL?	X			Section checked by ADR.	QSM Table F-2 <5x = B
17. Was an LCS prepared and analyzed with each batch?	X				QSM Table F-2
18. Were the LCS recoveries within limits specified in LCG Appendix C?	X			Section checked by ADR.	QSM Table F-2, Table G-16, >UL=J; <LCL%=J/R/UJ;
19. Was a MS/MSD pair prepared with each batch?	X			A matrix spike and spike duplicate was analyzed on sample FWGLL2mw-271-0503-GW.	LCG Table 3
20. Was the MS/MSD parent a Ravenna sample?	X				
21. Were MS/MSD recoveries and RPD within limits specified in the DOD QSM Table G-16?	X				QSM Table F-2, Table G-16, >UL=J; <LCL%=J/R/UJ;
22. Was the surrogate spiked into all samples?	X				
23. Were surrogate recoveries As specified in table G-3 of the DoD QSM?	X			Checked by ADR.	QSM Table F-2, Table G-3 >UCL=J; <LCL=J/UJ/R
24. Was a field duplicate analyzed? Were the RPDs <50%?	X			Checked by ADR. A field duplicate was submitted for sample FWGLL3mw-246-504-GW.	QSM Table F-2, RPD >50=J
25. Were all positive results verified by a second dissimilar column confirmation? Was the RPD ≤ 40?			X	No detected concentrations were reported that required confirmation.	QSM Table F-2, RPD>40=J

References:

DoD Quality Systems Manual (QSM), version 4.1, October 2010
Louisville DoD Quality Systems Manual Supplement (LS), Version 1 March 2007
Final Facility Wide Groundwater Monitoring Program, RVAAP-66 Facility Wide Groundwater Quality Assurance Project Plan (QAPP) Addendum for the Ravenna Army Ammunition Plant, Ravenna, OH, Environmental Quality Management, January 2012
Final Facility Wide Quality Assurance Project Plan for Environmental Investigations Groundwater for the Ravenna Army Ammunition Plant, Ravenna, OH, SAIC, February 2011

Attachment 2

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
6010B	FWGEQUIPRINSE1-507-GW	AQ	EB							
				CHROMIUM	4.0	4.0U		UJ	ug/L	Ld
				MANGANESE	5.0	0.56J		J	ug/L	Rl
				NICKEL	5.0	0.78J		U	ug/L	Cb
				POTASSIUM	900	86J		U	ug/L	Cb
6010B	FWGEQUIPRINSE2-0508-GW	AQ	EB							
				CHROMIUM	4.0	4.0U		UJ	ug/L	Ld
6010B	FWGLL1MW-088-0502-GF	AQ	N							
				CHROMIUM	4.0	1.1J		J	ug/L	Ld, Rl
				NICKEL	5.0	1.4J		U	ug/L	Eb, Cb
6010B	FWGLL2MW-271-0503-GF	AQ	N							
				ARSENIC	10	6.0J		J	ug/L	Rl
				BARIUM	5.0	3.2J		J	ug/L	Rl
				CHROMIUM	4.0	0.69J		J	ug/L	Ld, Rl
6010B	FWGLL3MW-246-504-GF	AQ	N							
				CHROMIUM	4.0	4.0U		UJ	ug/L	Ld
				COBALT	4.0	0.59J		J	ug/L	Rl
				NICKEL	5.0	3.9J		U	ug/L	Cb
6010B	FWGLL3MW-DUP1-506-GF	AQ	FD							
				CHROMIUM	4.0	0.66J		J	ug/L	Ld, Rl
				COBALT	4.0	0.68J		J	ug/L	Rl
				NICKEL	5.0	3.6J		U	ug/L	Cb
6020	FWGEQUIPRINSE1-507-GW	AQ	EB							
				ANTIMONY	1.0	1.0U		J	ug/L	ProfJudg

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
6020	FWGEQUIPRINSE2-0508-GW	AQ	EB							
				ALUMINUM	60	750		J	ug/L	ProfJudg
				ANTIMONY	1.0	1.0U		J	ug/L	ProfJudg
				ZINC	50	27J		J	ug/L	RI
6020	FWGLL1MW-088-0502-GF	AQ	N							
				ALUMINUM	60	120		J	ug/L	ProfJudg
				ANTIMONY	1.0	1.0U		J	ug/L	ProfJudg
6020	FWGLL2MW-271-0503-GF	AQ	N							
				ANTIMONY	1.0	1.0U J		J	ug/L	ProfJudg
				CADMIUM	1.0	0.58J		B	ug/L	Mb
				THALLIUM	1.5	1.5J		U	ug/L	Cb
6020	FWGLL3MW-246-504-GF	AQ	N							
				ANTIMONY	1.0	0.33J		J	ug/L	RI
6020	FWGLL3MW-DUP1-506-GF	AQ	FD							
				ANTIMONY	1.0	1.0U		J	ug/L	ProfJudg
8081A	FWGEQUIPRINSE1-507-GW	AQ	EB							
				ENDOSULFAN I	0.050	0.050U		UJ	ug/L	Lcs

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8081A	FWGEQUIPRINSE2-0508-GWRE	AQ	EB							
				4,4'-DDD	0.053	0.053U H Q		UJ	ug/L	StoE
				4,4'-DDE	0.053	0.053U H Q		UJ	ug/L	StoE
				4,4'-DDT	0.053	0.053U H Q		UJ	ug/L	StoE
				ALDRIN	0.053	0.053U H		UJ	ug/L	StoE
				ALPHA-BHC	0.053	0.053U H		UJ	ug/L	StoE
				ALPHA-CHLORDANE	0.053	0.053U H		UJ	ug/L	StoE
				BETA-BHC	0.053	0.053U H		UJ	ug/L	StoE
				DELTA-BHC	0.053	0.053U H		UJ	ug/L	StoE
				DIELDRIN	0.053	0.053U H		UJ	ug/L	StoE
				ENDOSULFAN I	0.053	0.053U H		UJ	ug/L	StoE
				ENDOSULFAN II	0.053	0.053U H		UJ	ug/L	StoE
				ENDOSULFAN SULFATE	0.053	0.053U H		UJ	ug/L	StoE
				ENDRIN	0.053	0.053U H Q		UJ	ug/L	StoE
				ENDRIN ALDEHYDE	0.053	0.053U H		UJ	ug/L	StoE
				ENDRIN KETONE	0.053	0.053U H		UJ	ug/L	StoE
				gamma-BHC (Lindane)	0.053	0.053U H		UJ	ug/L	StoE
				GAMMA-CHLORDANE	0.053	0.053U H		UJ	ug/L	StoE
				HEPTACHLOR	0.053	0.053U H		UJ	ug/L	StoE
				HEPTACHLOR EPOXIDE	0.053	0.053U H		UJ	ug/L	StoE
				METHOXYCHLOR	0.053	0.053U H Q		UJ	ug/L	StoE
				TOXAPHENE	1.1	1.1U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8081A	FWGLL1MW-088-0502-GW	AQ	N							
				4,4'-DDD	0.053	0.053U H Q		UJ	ug/L	EtoA
				4,4'-DDE	0.053	0.053U H Q		UJ	ug/L	EtoA
				4,4'-DDT	0.053	0.053U H Q		UJ	ug/L	EtoA
				ALDRIN	0.053	0.053U H Q		UJ	ug/L	EtoA
				ALPHA-BHC	0.053	0.028J H		JB	ug/L	EtoA, Mb,
				ALPHA-CHLORDANE	0.053	0.053U H Q		UJ	ug/L	EtoA
				BETA-BHC	0.053	0.053U H		UJ	ug/L	EtoA
				DELTA-BHC	0.053	0.053U H Q		UJ	ug/L	EtoA
				DIELDRIN	0.053	0.053U H Q		UJ	ug/L	EtoA
				ENDOSULFAN I	0.053	0.053U H Q		UJ	ug/L	EtoA, Lcs
				ENDOSULFAN II	0.053	0.053U H Q		UJ	ug/L	EtoA
				ENDOSULFAN SULFATE	0.053	0.053U H Q		UJ	ug/L	EtoA
				ENDRIN	0.053	0.053U H Q		UJ	ug/L	EtoA
				ENDRIN ALDEHYDE	0.053	0.053U H Q		UJ	ug/L	EtoA
				ENDRIN KETONE	0.053	0.053U H Q		UJ	ug/L	EtoA
				gamma-BHC (Lindane)	0.053	0.053U H		UJ	ug/L	EtoA
				GAMMA-CHLORDANE	0.053	0.053U H Q		UJ	ug/L	EtoA
				HEPTACHLOR	0.053	0.053U H Q		UJ	ug/L	EtoA
				HEPTACHLOR EPOXIDE	0.053	0.053U H Q		UJ	ug/L	EtoA

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				METHOXYCHLOR	0.053	0.053U H Q		UJ	ug/L	EtoA
				TOXAPHENE	1.1	1.1U H Q		UJ	ug/L	EtoA
8081A	FWGLL2MW-271-0503-GWRE	AQ	N							
				4,4'-DDD	0.048	0.048U H		UJ	ug/L	StoE
				4,4'-DDE	0.048	0.048U H		UJ	ug/L	StoE
				4,4'-DDT	0.048	0.048U H		UJ	ug/L	StoE
				ALDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ALPHA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				ALPHA-CHLORDANE	0.048	0.048U H		UJ	ug/L	StoE
				BETA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				DELTA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				DIELDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN I	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN II	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN SULFATE	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN ALDEHYDE	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN KETONE	0.048	0.048U H		UJ	ug/L	StoE
				gamma-BHC (Lindane)	0.048	0.048U H		UJ	ug/L	StoE
				GAMMA-CHLORDANE	0.048	0.048U H		UJ	ug/L	StoE
				HEPTACHLOR	0.048	0.048U H		UJ	ug/L	StoE
				HEPTACHLOR EPOXIDE	0.048	0.048U H		UJ	ug/L	StoE
				METHOXYCHLOR	0.048	0.048U H		UJ	ug/L	StoE
				TOXAPHENE	0.95	0.95U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8081A	FWGLL3MW-246-504-GWRE	AQ	N							
				4,4'-DDD	0.048	0.048U H		UJ	ug/L	StoE
				4,4'-DDE	0.048	0.048U H		UJ	ug/L	StoE
				4,4'-DDT	0.048	0.048U H		UJ	ug/L	StoE
				ALDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ALPHA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				ALPHA-CHLORDANE	0.048	0.048U H		UJ	ug/L	StoE
				BETA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				DELTA-BHC	0.048	0.048U H		UJ	ug/L	StoE
				DIELDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN I	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN II	0.048	0.048U H		UJ	ug/L	StoE
				ENDOSULFAN SULFATE	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN ALDEHYDE	0.048	0.048U H		UJ	ug/L	StoE
				ENDRIN KETONE	0.048	0.048U H		UJ	ug/L	StoE
				gamma-BHC (Lindane)	0.048	0.048U H		UJ	ug/L	StoE
				GAMMA-CHLORDANE	0.048	0.048U H		UJ	ug/L	StoE
				HEPTACHLOR	0.048	0.048U H		UJ	ug/L	StoE
				HEPTACHLOR EPOXIDE	0.048	0.048U H		UJ	ug/L	StoE
				METHOXYCHLOR	0.048	0.048U H		UJ	ug/L	StoE
				TOXAPHENE	0.96	0.96U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8081A	FWGLL3MW-DUP1-506-GWRE	AQ	FD							
				4,4'-DDD	0.052	0.052U H		UJ	ug/L	StoE
				4,4'-DDE	0.052	0.052U H		UJ	ug/L	StoE
				4,4'-DDT	0.052	0.052U H		UJ	ug/L	StoE
				ALDRIN	0.052	0.052U H		UJ	ug/L	StoE
				ALPHA-BHC	0.052	0.052U H		UJ	ug/L	StoE
				ALPHA-CHLORDANE	0.052	0.052U H		UJ	ug/L	StoE
				BETA-BHC	0.052	0.052U H		UJ	ug/L	StoE
				DELTA-BHC	0.052	0.052U H		UJ	ug/L	StoE
				DIELDRIN	0.052	0.052U H		UJ	ug/L	StoE
				ENDOSULFAN I	0.052	0.052U H		UJ	ug/L	StoE
				ENDOSULFAN II	0.052	0.052U H		UJ	ug/L	StoE
				ENDOSULFAN SULFATE	0.052	0.052U H		UJ	ug/L	StoE
				ENDRIN	0.052	0.052U H		UJ	ug/L	StoE
				ENDRIN ALDEHYDE	0.052	0.052U H		UJ	ug/L	StoE
				ENDRIN KETONE	0.052	0.052U H		UJ	ug/L	StoE
				gamma-BHC (Lindane)	0.052	0.052U H		UJ	ug/L	StoE
				GAMMA-CHLORDANE	0.052	0.052U H		UJ	ug/L	StoE
				HEPTACHLOR	0.052	0.052U H		UJ	ug/L	StoE
				HEPTACHLOR EPOXIDE	0.052	0.052U H		UJ	ug/L	StoE
				METHOXYCHLOR	0.052	0.052U H		UJ	ug/L	StoE
				TOXAPHENE	1.0	1.0U H		UJ	ug/L	StoE
8260B	FWGEQUIPRINSE1-507-GW	AQ	EB							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	3.5J		JB	ug/L	Tb, ProfJu
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
				TOLUENE	0.25	0.24J		J	ug/L	RI

N = Normal Sample *TB = Trip Blank*
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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8260B	FWGEQUIPRINSE2-0508-GW	AQ	EB							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	2.0U		UJ	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
8260B	FWGLL1MW-088-0502-GW	AQ	N							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	2.0U		UJ	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
8260B	FWGLL2MW-271-0503-GW	AQ	N							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	2.0U		UJ	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
8260B	FWGLL3MW-246-504-GW	AQ	N							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	2.0U		UJ	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
8260B	FWGLL3MW-DUP1-506-GW	AQ	FD							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	2.0U		UJ	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg
8260B	FWGTEAM2TRIP	AQ	TB							
				2-BUTANONE	1.0	1.0U		UJ	ug/L	ProfJudg
				ACETONE	2.0	4.0J		J	ug/L	ProfJudg
				ACETONE	2.0	4.1J		J	ug/L	ProfJudg
				BROMOFORM	1.0	1.0U		UJ	ug/L	ProfJudg

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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGEQUIPRINSE1-507-GW	AQ	EB							
				1,2,4-TRICHLOROBENZENE	0.49	0.49U		UJ	ug/L	Surr
				1,2-DICHLOROBENZENE	0.49	0.49U		UJ	ug/L	Surr
				1,3-DICHLOROBENZENE	0.49	0.49U		UJ	ug/L	Surr
				1,4-DICHLOROBENZENE	0.49	0.49U		UJ	ug/L	Surr
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.49	0.49U		UJ	ug/L	Surr
				2,4,5-TRICHLOROPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2,4,6-TRICHLOROPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2,4-DICHLOROPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2,4-DIMETHYLPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2,4-DINITROPHENOL	0.97	0.97U		UJ	ug/L	Surr, ProfJ
				2-CHLORONAPHTHALENE	0.49	0.49U		UJ	ug/L	Surr
				2-CHLOROPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2-METHYLNAPHTHALENE	0.097	0.097U		UJ	ug/L	Surr
				2-METHYLPHENOL	0.49	0.49U		UJ	ug/L	Surr
				2-NITROANILINE	0.49	0.49U		UJ	ug/L	Surr
				2-NITROPHENOL	0.49	0.49U		UJ	ug/L	Surr
				3,3'-DICHLOROBENZIDINE	0.97	0.97U		UJ	ug/L	Surr
				3-methylphenol/4-methylphenol	0.97	0.97U		UJ	ug/L	Surr
				3-NITROANILINE	0.49	0.49U		UJ	ug/L	Surr
				4,6-DINITRO-2-METHYLPHENOL	3.9	3.9U		UJ	ug/L	Surr
				4-BROMOPHENYL-PHENYLETHER	0.49	0.49U		UJ	ug/L	Surr
				4-CHLORO-3-METHYLPHENOL	0.49	0.49U		UJ	ug/L	Surr
				4-CHLOROANILINE	0.49	0.49U		UJ	ug/L	Surr
				4-CHLOROPHENYL-PHENYLETHER	0.49	0.49U		UJ	ug/L	Surr
				4-NITROANILINE	0.49	0.49U		UJ	ug/L	Surr
				4-NITROPHENOL	3.9	3.9U		UJ	ug/L	Surr
				ACENAPHTHENE	0.097	0.097U		UJ	ug/L	Surr
				ACENAPHTHYLENE	0.097	0.097U		UJ	ug/L	Surr
				ANTHRACENE	0.097	0.097U		UJ	ug/L	Surr
				BENZO(A)ANTHRACENE	0.097	0.097U		UJ	ug/L	Surr
				BENZO(A)PYRENE	0.097	0.097U		UJ	ug/L	Surr

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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				BENZO(B)FLUORANTHENE	0.097	0.097U		UJ	ug/L	Surr
				BENZO(G,H,I)PERYLENE	0.097	0.097U		UJ	ug/L	Surr
				BENZO(K)FLUORANTHENE	0.097	0.097U		UJ	ug/L	Surr
				BENZOIC ACID	19	19U		UJ	ug/L	Surr
				BENZYL ALCOHOL	0.49	0.40J		J	ug/L	Surr, RI
				BIS(2-CHLOROETHOXY)METHANE	0.49	0.49U		UJ	ug/L	Surr
				Bis(2-chloroethyl)ether	0.097	0.097U		UJ	ug/L	Surr
				BIS(2-ETHYLHEXYL)PHTHALATE	4.9	4.9U		UJ	ug/L	Surr
				Butylbenzylphthalate	0.49	0.49U		UJ	ug/L	Surr
				CARBAZOLE	0.49	0.49U		UJ	ug/L	Surr
				CHRYSENE	0.097	0.097U		UJ	ug/L	Surr
				DIBENZ(A,H)ANTHRACENE	0.097	0.097U		UJ	ug/L	Surr
				DIBENZOFURAN	0.097	0.097U		UJ	ug/L	Surr
				Diethylphthalate	0.97	0.97U		UJ	ug/L	Surr
				Dimethylphthalate	0.49	0.49U		UJ	ug/L	Surr
				DI-N-BUTYL PHTHALATE	4.9	4.9U		UJ	ug/L	Surr
				DI-N-OCTYL PHTHALATE	0.49	0.49U		UJ	ug/L	Surr
				FLUORANTHENE	0.097	0.097U		UJ	ug/L	Surr
				FLUORENE	0.097	0.097U		UJ	ug/L	Surr
				HEXACHLOROBENZENE	0.097	0.097U		UJ	ug/L	Surr
				HEXACHLOROBUTADIENE	0.49	0.49U		UJ	ug/L	Surr
				HEXACHLOROCYCLOPENTADIENE	0.49	0.49U Q		UJ	ug/L	Surr, Lcs
				HEXACHLOROETHANE	0.49	0.49U		UJ	ug/L	Surr
				INDENO(1,2,3-CD)PYRENE	0.097	0.097U		UJ	ug/L	Surr
				ISOPHORONE	0.49	0.49U		UJ	ug/L	Surr
				NAPHTHALENE	0.097	0.097U		UJ	ug/L	Surr
				N-NITROSO-DI-N-PROPYLAMINE	0.49	0.49U		UJ	ug/L	Surr
				N-NITROSODIPHENYLAMINE	0.49	0.49U		UJ	ug/L	Surr
				PENTACHLOROPHENOL	0.97	0.97U		UJ	ug/L	Surr
				PHENANTHRENE	0.097	0.097U		UJ	ug/L	Surr
				PHENOL	0.97	0.97U		UJ	ug/L	Surr
				PYRENE	0.097	0.097U		UJ	ug/L	Surr

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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGEQUIPRINSE2-0508-GWRE	AQ	EB							
				1,2,4-TRICHLOROBENZENE	0.53	0.53U H		UJ	ug/L	StoE
				1,2-DICHLOROBENZENE	0.53	0.53U H		UJ	ug/L	StoE
				1,3-DICHLOROBENZENE	0.53	0.53U H		UJ	ug/L	StoE
				1,4-DICHLOROBENZENE	0.53	0.53U H		UJ	ug/L	StoE
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.53	0.53U H		UJ	ug/L	StoE
				2,4,5-TRICHLOROPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2,4,6-TRICHLOROPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2,4-DICHLOROPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2,4-DIMETHYLPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2,4-DINITROPHENOL	1.1	1.1U H		UJ	ug/L	StoE
				2-CHLORONAPHTHALENE	0.53	0.53U H		UJ	ug/L	StoE
				2-CHLOROPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2-METHYLNAPHTHALENE	0.11	0.11U H		UJ	ug/L	StoE
				2-METHYLPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				2-NITROANILINE	0.53	0.53U H		UJ	ug/L	StoE
				2-NITROPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				3,3'-DICHLOROBENZIDINE	1.1	1.1U H		UJ	ug/L	StoE
				3-methylphenol/4-methylphenol	1.1	1.1U H		UJ	ug/L	StoE
				3-NITROANILINE	0.53	0.53U H		UJ	ug/L	StoE
				4,6-DINITRO-2-METHYLPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				4-BROMOPHENYL-PHENYLETHER	0.53	0.53U H		UJ	ug/L	StoE
				4-CHLORO-3-METHYLPHENOL	0.53	0.53U H		UJ	ug/L	StoE
				4-CHLOROANILINE	0.53	0.53U H		UJ	ug/L	StoE
				4-CHLOROPHENYL-PHENYLETHER	0.53	0.53U H		UJ	ug/L	StoE
				4-NITROANILINE	0.53	0.53U H		UJ	ug/L	StoE
				4-NITROPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				ACENAPHTHENE	0.11	0.11U H		UJ	ug/L	StoE
				ACENAPHTHYLENE	0.11	0.11U H		UJ	ug/L	StoE
				ANTHRACENE	0.11	0.11U H		UJ	ug/L	StoE
				BENZO(A)ANTHRACENE	0.11	0.11U H		UJ	ug/L	StoE
				BENZO(A)PYRENE	0.11	0.11U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				BENZO(B)FLUORANTHENE	0.11	0.11U H		UJ	ug/L	StoE
				BENZO(G,H,I)PERYLENE	0.11	0.11U H		UJ	ug/L	StoE
				BENZO(K)FLUORANTHENE	0.11	0.11U H		UJ	ug/L	StoE
				BENZOIC ACID	21	21U H		UJ	ug/L	StoE
				BENZYL ALCOHOL	0.53	0.53U H		UJ	ug/L	StoE
				BIS(2-CHLOROETHOXY)METHANE	0.53	0.53U H		UJ	ug/L	StoE
				Bis(2-chloroethyl)ether	0.11	0.11U H		UJ	ug/L	StoE
				BIS(2-ETHYLHEXYL)PHTHALATE	5.3	5.3U H		UJ	ug/L	StoE
				Butylbenzylphthalate	0.53	0.53U H		UJ	ug/L	StoE
				CARBAZOLE	0.53	0.53U H		UJ	ug/L	StoE
				CHRYSENE	0.11	0.11U H		UJ	ug/L	StoE
				DIBENZ(A,H)ANTHRACENE	0.11	0.11U H		UJ	ug/L	StoE
				DIBENZOFURAN	0.11	0.11U H		UJ	ug/L	StoE
				Diethylphthalate	1.1	1.1U H		UJ	ug/L	StoE
				Dimethylphthalate	0.53	0.53U H		UJ	ug/L	StoE
				DI-N-BUTYL PHTHALATE	5.3	5.3U H		UJ	ug/L	StoE
				DI-N-OCTYL PHTHALATE	0.53	0.53U H		UJ	ug/L	StoE
				FLUORANTHENE	0.11	0.11U H		UJ	ug/L	StoE
				FLUORENE	0.11	0.11U H		UJ	ug/L	StoE
				HEXACHLOROBENZENE	0.11	0.11U H		UJ	ug/L	StoE
				HEXACHLOROBUTADIENE	0.53	0.53U H		UJ	ug/L	StoE
				HEXACHLOROCYCLOPENTADIENE	0.53	0.53U H		UJ	ug/L	StoE, Lcs
				HEXACHLOROETHANE	0.53	0.53U H		UJ	ug/L	StoE
				INDENO(1,2,3-CD)PYRENE	0.11	0.11U H		UJ	ug/L	StoE
				ISOPHORONE	0.53	0.53U H		UJ	ug/L	StoE
				NAPHTHALENE	0.11	0.11U H		UJ	ug/L	StoE
				N-NITROSO-DI-N-PROPYLAMINE	0.53	0.53U H		UJ	ug/L	StoE
				N-NITROSODIPHENYLAMINE	0.53	0.53U H		UJ	ug/L	StoE
				PENTACHLOROPHENOL	1.1	1.1U H		UJ	ug/L	StoE
				PHENANTHRENE	0.11	0.11U H		UJ	ug/L	StoE
				PHENOL	1.1	1.1U H		UJ	ug/L	StoE
				PYRENE	0.11	0.11U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGLL1MW-088-0502-GW	AQ	N							
				1,2,4-TRICHLOROBENZENE	0.50	0.50U		UJ	ug/L	Surr
				1,2-DICHLOROBENZENE	0.50	0.50U		UJ	ug/L	Surr
				1,3-DICHLOROBENZENE	0.50	0.50U		UJ	ug/L	Surr
				1,4-DICHLOROBENZENE	0.50	0.50U		UJ	ug/L	Surr
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.50	0.50U		UJ	ug/L	Surr
				2,4,5-TRICHLOROPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2,4,6-TRICHLOROPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2,4-DICHLOROPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2,4-DIMETHYLPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2,4-DINITROPHENOL	0.99	0.99U		UJ	ug/L	Surr, ProfJ
				2-CHLORONAPHTHALENE	0.50	0.50U		UJ	ug/L	Surr
				2-CHLOROPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2-METHYLNAPHTHALENE	0.099	0.099U		UJ	ug/L	Surr
				2-METHYLPHENOL	0.50	0.50U		UJ	ug/L	Surr
				2-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				2-NITROPHENOL	0.50	0.50U		UJ	ug/L	Surr
				3,3'-DICHLOROBENZIDINE	0.99	0.99U		UJ	ug/L	Surr
				3-methylphenol/4-methylphenol	0.99	0.99U		UJ	ug/L	Surr
				3-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				4,6-DINITRO-2-METHYLPHENOL	4.0	4.0U		UJ	ug/L	Surr
				4-BROMOPHENYL-PHENYLETHER	0.50	0.50U		UJ	ug/L	Surr
				4-CHLORO-3-METHYLPHENOL	0.50	0.50U		UJ	ug/L	Surr
				4-CHLOROANILINE	0.50	0.50U		UJ	ug/L	Surr
				4-CHLOROPHENYL-PHENYLETHER	0.50	0.50U		UJ	ug/L	Surr
				4-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				4-NITROPHENOL	4.0	4.0U		UJ	ug/L	Surr
				ACENAPHTHENE	0.099	0.099U		UJ	ug/L	Surr
				ACENAPHTHYLENE	0.099	0.099U		UJ	ug/L	Surr
				ANTHRACENE	0.099	0.099U		UJ	ug/L	Surr
				BENZO(A)ANTHRACENE	0.099	0.099U		UJ	ug/L	Surr
				BENZO(A)PYRENE	0.099	0.099U		UJ	ug/L	Surr

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				BENZO(B)FLUORANTHENE	0.099	0.099U		UJ	ug/L	Surr
				BENZO(G,H,I)PERYLENE	0.099	0.099U		UJ	ug/L	Surr
				BENZO(K)FLUORANTHENE	0.099	0.099U		UJ	ug/L	Surr
				BENZOIC ACID	20	20U		UJ	ug/L	Surr
				BENZYL ALCOHOL	0.50	0.50U		UJ	ug/L	Surr
				BIS(2-CHLOROETHOXY)METHANE	0.50	0.50U		UJ	ug/L	Surr
				Bis(2-chloroethyl)ether	0.099	0.099U		UJ	ug/L	Surr
				BIS(2-ETHYLHEXYL)PHTHALATE	5.0	5.0U		UJ	ug/L	Surr
				Butylbenzylphthalate	0.50	0.50U		UJ	ug/L	Surr
				CARBAZOLE	0.50	0.50U		UJ	ug/L	Surr
				CHRYSENE	0.099	0.099U		UJ	ug/L	Surr
				DIBENZ(A,H)ANTHRACENE	0.099	0.099U		UJ	ug/L	Surr
				DIBENZOFURAN	0.099	0.099U		UJ	ug/L	Surr
				Diethylphthalate	0.99	0.99U		UJ	ug/L	Surr
				Dimethylphthalate	0.50	0.50U		UJ	ug/L	Surr
				DI-N-BUTYL PHTHALATE	5.0	5.0U		UJ	ug/L	Surr
				DI-N-OCTYL PHTHALATE	0.50	0.50U		UJ	ug/L	Surr
				FLUORANTHENE	0.099	0.099U		UJ	ug/L	Surr
				FLUORENE	0.099	0.099U		UJ	ug/L	Surr
				HEXACHLOROBENZENE	0.099	0.099U		UJ	ug/L	Surr
				HEXACHLOROBUTADIENE	0.50	0.50U		UJ	ug/L	Surr
				HEXACHLOROCYCLOPENTADIENE	0.50	0.50U Q		UJ	ug/L	Surr, Lcs
				HEXACHLOROETHANE	0.50	0.50U		UJ	ug/L	Surr
				INDENO(1,2,3-CD)PYRENE	0.099	0.099U		UJ	ug/L	Surr
				ISOPHORONE	0.50	0.50U		UJ	ug/L	Surr
				NAPHTHALENE	0.099	0.099U		UJ	ug/L	Surr
				N-NITROSO-DI-N-PROPYLAMINE	0.50	0.50U		UJ	ug/L	Surr
				N-NITROSODIPHENYLAMINE	0.50	0.50U		UJ	ug/L	Surr
				PENTACHLOROPHENOL	0.99	0.99U		UJ	ug/L	Surr
				PHENANTHRENE	0.099	0.099U		UJ	ug/L	Surr
				PHENOL	0.99	0.99U		UJ	ug/L	Surr
				PYRENE	0.099	0.099U		UJ	ug/L	Surr

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGLL2MW-271-0503-GW	AQ	N							
				1,2,4-TRICHLOROBENZENE	0.50	0.50U Q		UJ	ug/L	Surr
				1,2-DICHLOROBENZENE	0.50	0.50U Q		UJ	ug/L	Surr
				1,3-DICHLOROBENZENE	0.50	0.50U Q		UJ	ug/L	Surr
				1,4-DICHLOROBENZENE	0.50	0.50U Q		UJ	ug/L	Surr
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.50	0.50U Q		UJ	ug/L	Surr
				2,4,5-TRICHLOROPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2,4,6-TRICHLOROPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2,4-DICHLOROPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2,4-DIMETHYLPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2,4-DINITROPHENOL	0.99	0.99U Q J		UJ	ug/L	Surr, ProfJ
				2-CHLORONAPHTHALENE	0.50	0.50U		UJ	ug/L	Surr
				2-CHLOROPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2-METHYLNAPHTHALENE	0.099	0.099U		UJ	ug/L	Surr
				2-METHYLPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				2-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				2-NITROPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				3,3'-DICHLOROBENZIDINE	0.99	0.99U		UJ	ug/L	Surr
				3-methylphenol/4-methylphenol	0.99	0.99U Q		UJ	ug/L	Surr
				3-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				4,6-DINITRO-2-METHYLPHENOL	4.0	4.0U Q J		UJ	ug/L	Surr
				4-BROMOPHENYL-PHENYLETHER	0.50	0.50U		UJ	ug/L	Surr
				4-CHLORO-3-METHYLPHENOL	0.50	0.50U Q		UJ	ug/L	Surr
				4-CHLOROANILINE	0.50	0.50U Q		UJ	ug/L	Surr
				4-CHLOROPHENYL-PHENYLETHER	0.50	0.50U		UJ	ug/L	Surr
				4-NITROANILINE	0.50	0.50U		UJ	ug/L	Surr
				4-NITROPHENOL	4.0	4.0U Q		UJ	ug/L	Surr
				ACENAPHTHENE	0.099	0.099U Q		UJ	ug/L	Surr
				ACENAPHTHYLENE	0.099	0.099U Q		UJ	ug/L	Surr

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				ANTHRACENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZO(A)ANTHRACENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZO(A)PYRENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZO(B)FLUORANTHENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZO(G,H,I)PERYLENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZO(K)FLUORANTHENE	0.099	0.099U Q		UJ	ug/L	Surr
				BENZOIC ACID	20	20U Q J		UJ	ug/L	Surr
				BENZYL ALCOHOL	0.50	0.50U Q		UJ	ug/L	Surr
				BIS(2-CHLOROETHOXY)METHANE	0.50	0.50U Q		UJ	ug/L	Surr
				Bis(2-chloroethyl)ether	0.099	0.099U Q		UJ	ug/L	Surr
				BIS(2-ETHYLHEXYL)PHTHALATE	5.0	5.0U		UJ	ug/L	Surr
				Butylbenzylphthalate	0.50	0.50U		UJ	ug/L	Surr
				CARBAZOLE	0.50	0.50U		UJ	ug/L	Surr
				CHRYSENE	0.099	0.099U Q		UJ	ug/L	Surr
				DIBENZ(A,H)ANTHRACENE	0.099	0.099U		UJ	ug/L	Surr
				DIBENZOFURAN	0.099	0.099U		UJ	ug/L	Surr
				Diethylphthalate	0.99	0.99U		UJ	ug/L	Surr
				Dimethylphthalate	0.50	0.50U		UJ	ug/L	Surr
				DI-N-BUTYL PHTHALATE	5.0	5.0U		UJ	ug/L	Surr
				DI-N-OCTYL PHTHALATE	0.50	0.50U		UJ	ug/L	Surr
				FLUORANTHENE	0.099	0.099U Q		UJ	ug/L	Surr
				FLUORENE	0.099	0.099U Q		UJ	ug/L	Surr
				HEXACHLOROBENZENE	0.099	0.099U		UJ	ug/L	Surr
				HEXACHLOROBUTADIENE	0.50	0.50U Q		UJ	ug/L	Surr
				HEXACHLOROCYCLOPENTADIENE	0.50	0.50U Q J		UJ	ug/L	Surr, Ms, L

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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				HEXACHLOROETHANE	0.50	0.50U Q		UJ	ug/L	Surr
				INDENO(1,2,3-CD)PYRENE	0.099	0.099U Q		UJ	ug/L	Surr
				ISOPHORONE	0.50	0.50U Q		UJ	ug/L	Surr
				NAPHTHALENE	0.099	0.099U Q		UJ	ug/L	Surr
				N-NITROSO-DI-N-PROPYLAMINE	0.50	0.50U Q		UJ	ug/L	Surr
				N-NITROSODIPHENYLAMINE	0.50	0.50U		UJ	ug/L	Surr
				PENTACHLOROPHENOL	0.99	0.99U Q J		UJ	ug/L	Surr, Ms
				PHENANTHRENE	0.099	0.099U Q		UJ	ug/L	Surr
				PHENOL	0.99	0.99U Q		UJ	ug/L	Surr
				PYRENE	0.099	0.099U Q		UJ	ug/L	Surr

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGLL3MW-246-504-GWRE	AQ	N							
				1,2,4-TRICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,2-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,3-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,4-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.52	0.52U H		UJ	ug/L	StoE
				2,4,5-TRICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4,6-TRICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DIMETHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DINITROPHENOL	1.0	1.0U H		UJ	ug/L	StoE
				2-CHLORONAPHTHALENE	0.52	0.52U H		UJ	ug/L	StoE
				2-CHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2-METHYLNAPHTHALENE	0.10	0.10U H		UJ	ug/L	StoE
				2-METHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				2-NITROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				3,3'-DICHLOROBENZIDINE	1.0	1.0U H		UJ	ug/L	StoE
				3-methylphenol/4-methylphenol	1.0	1.0U H		UJ	ug/L	StoE
				3-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4,6-DINITRO-2-METHYLPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				4-BROMOPHENYL-PHENYLETHER	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLORO-3-METHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLOROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLOROPHENYL-PHENYLETHER	0.52	0.52U H		UJ	ug/L	StoE
				4-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4-NITROPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				ACENAPHTHENE	0.10	0.10U H		UJ	ug/L	StoE
				ACENAPHTHYLENE	0.10	0.10U H		UJ	ug/L	StoE
				ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(A)ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(A)PYRENE	0.10	0.10U H		UJ	ug/L	StoE

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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				BENZO(B)FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(G,H,I)PERYLENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(K)FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZOIC ACID	21	21U H		UJ	ug/L	StoE
				BENZYL ALCOHOL	0.52	0.52U H		UJ	ug/L	StoE
				BIS(2-CHLOROETHOXY)METHANE	0.52	0.52U H		UJ	ug/L	StoE
				Bis(2-chloroethyl)ether	0.10	0.10U H		UJ	ug/L	StoE
				BIS(2-ETHYLHEXYL)PHTHALATE	5.2	5.2U H		UJ	ug/L	StoE
				Butylbenzylphthalate	0.52	0.52U H		UJ	ug/L	StoE
				CARBAZOLE	0.52	0.52U H		UJ	ug/L	StoE
				CHRYSENE	0.10	0.10U H		UJ	ug/L	StoE
				DIBENZ(A,H)ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				DIBENZOFURAN	0.10	0.10U H		UJ	ug/L	StoE
				Diethylphthalate	1.0	1.0U H		UJ	ug/L	StoE
				Dimethylphthalate	0.52	0.52U H		UJ	ug/L	StoE
				DI-N-BUTYL PHTHALATE	5.2	5.2U H		UJ	ug/L	StoE
				DI-N-OCTYL PHTHALATE	0.52	0.52U H		UJ	ug/L	StoE
				FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				FLUORENE	0.10	0.10U H		UJ	ug/L	StoE
				HEXACHLOROBENZENE	0.10	0.10U H		UJ	ug/L	StoE
				HEXACHLOROBUTADIENE	0.52	0.52U H		UJ	ug/L	StoE
				HEXACHLOROCYCLOPENTADIENE	0.52	0.52U H		UJ	ug/L	StoE, Lcs
				HEXACHLOROETHANE	0.52	0.52U H		UJ	ug/L	StoE
				INDENO(1,2,3-CD)PYRENE	0.10	0.10U H		UJ	ug/L	StoE
				ISOPHORONE	0.52	0.52U H		UJ	ug/L	StoE
				NAPHTHALENE	0.10	0.10U H		UJ	ug/L	StoE
				N-NITROSO-DI-N-PROPYLAMINE	0.52	0.52U H		UJ	ug/L	StoE
				N-NITROSODIPHENYLAMINE	0.52	0.52U H		UJ	ug/L	StoE
				PENTACHLOROPHENOL	1.0	1.0U H		UJ	ug/L	StoE
				PHENANTHRENE	0.10	0.10U H		UJ	ug/L	StoE
				PHENOL	1.0	1.0U H		UJ	ug/L	StoE
				PYRENE	0.10	0.10U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8270C-SVOC4	FWGLL3MW-DUP1-506-GWRE	AQ	FD							
				1,2,4-TRICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,2-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,3-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				1,4-DICHLOROBENZENE	0.52	0.52U H		UJ	ug/L	StoE
				2,2'-OXYBIS (1-CHLOROPROPANE)	0.52	0.52U H		UJ	ug/L	StoE
				2,4,5-TRICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4,6-TRICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DICHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DIMETHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2,4-DINITROPHENOL	1.0	1.0U H		UJ	ug/L	StoE
				2-CHLORONAPHTHALENE	0.52	0.52U H		UJ	ug/L	StoE
				2-CHLOROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2-METHYLNAPHTHALENE	0.10	0.10U H		UJ	ug/L	StoE
				2-METHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				2-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				2-NITROPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				3,3'-DICHLOROBENZIDINE	1.0	1.0U H		UJ	ug/L	StoE
				3-methylphenol/4-methylphenol	1.0	1.0U H		UJ	ug/L	StoE
				3-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4,6-DINITRO-2-METHYLPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				4-BROMOPHENYL-PHENYLETHER	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLORO-3-METHYLPHENOL	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLOROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4-CHLOROPHENYL-PHENYLETHER	0.52	0.52U H		UJ	ug/L	StoE
				4-NITROANILINE	0.52	0.52U H		UJ	ug/L	StoE
				4-NITROPHENOL	4.2	4.2U H		UJ	ug/L	StoE
				ACENAPHTHENE	0.10	0.10U H		UJ	ug/L	StoE
				ACENAPHTHYLENE	0.10	0.10U H		UJ	ug/L	StoE
				ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(A)ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(A)PYRENE	0.10	0.10U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
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Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
				BENZO(B)FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(G,H,I)PERYLENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZO(K)FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				BENZOIC ACID	21	21U H		UJ	ug/L	StoE
				BENZYL ALCOHOL	0.52	0.52U H		UJ	ug/L	StoE
				BIS(2-CHLOROETHOXY)METHANE	0.52	0.52U H		UJ	ug/L	StoE
				Bis(2-chloroethyl)ether	0.10	0.10U H		UJ	ug/L	StoE
				BIS(2-ETHYLHEXYL)PHTHALATE	5.2	5.2U H		UJ	ug/L	StoE
				Butylbenzylphthalate	0.52	0.52U H		UJ	ug/L	StoE
				CARBAZOLE	0.52	0.52U H		UJ	ug/L	StoE
				CHRYSENE	0.10	0.10U H		UJ	ug/L	StoE
				DIBENZ(A,H)ANTHRACENE	0.10	0.10U H		UJ	ug/L	StoE
				DIBENZOFURAN	0.10	0.10U H		UJ	ug/L	StoE
				Diethylphthalate	1.0	1.0U H		UJ	ug/L	StoE
				Dimethylphthalate	0.52	0.52U H		UJ	ug/L	StoE
				DI-N-BUTYL PHTHALATE	5.2	5.2U H		UJ	ug/L	StoE
				DI-N-OCTYL PHTHALATE	0.52	0.52U H		UJ	ug/L	StoE
				FLUORANTHENE	0.10	0.10U H		UJ	ug/L	StoE
				FLUORENE	0.10	0.10U H		UJ	ug/L	StoE
				HEXACHLOROBENZENE	0.10	0.10U H		UJ	ug/L	StoE
				HEXACHLOROBUTADIENE	0.52	0.52U H		UJ	ug/L	StoE
				HEXACHLOROCYCLOPENTADIENE	0.52	0.52U H		UJ	ug/L	StoE, Lcs
				HEXACHLOROETHANE	0.52	0.52U H		UJ	ug/L	StoE
				INDENO(1,2,3-CD)PYRENE	0.10	0.10U H		UJ	ug/L	StoE
				ISOPHORONE	0.52	0.52U H		UJ	ug/L	StoE
				NAPHTHALENE	0.10	0.10U H		UJ	ug/L	StoE
				N-NITROSO-DI-N-PROPYLAMINE	0.52	0.52U H		UJ	ug/L	StoE
				N-NITROSODIPHENYLAMINE	0.52	0.52U H		UJ	ug/L	StoE
				PENTACHLOROPHENOL	1.0	1.0U H		UJ	ug/L	StoE
				PHENANTHRENE	0.10	0.10U H		UJ	ug/L	StoE
				PHENOL	1.0	1.0U H		UJ	ug/L	StoE
				PYRENE	0.10	0.10U H		UJ	ug/L	StoE

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 240-43449-1										
8330	FWGEQUIPRINSE1-507-GW	AQ	EB							
				1,3,5-TRINITROBENZENE	0.055	1.1J		J	ug/L	ProfJudg
8330	FWGEQUIPRINSE2-0508-GW	AQ	EB							
				2,6-DINITROTOLUENE	0.10	0.074J M		J	ug/L	RI
WS-WC-0050	FWGEQUIPRINSE1-507-GW	AQ	EB							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg
WS-WC-0050	FWGEQUIPRINSE2-0508-GW	AQ	EB							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg
WS-WC-0050	FWGLL1MW-088-0502-GW	AQ	N							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg
WS-WC-0050	FWGLL2MW-271-0503-GW	AQ	N							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg
WS-WC-0050	FWGLL3MW-246-504-GW	AQ	N							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg
WS-WC-0050	FWGLL3MW-DUP1-506-GW	AQ	FD							
				Nitrocellulose	1.0	1.0U		UJ	mg/L	ProfJudg

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: **GENCHEM**

Method: **WS-WC-0050** ***Matrix:*** **AQ**

Sample ID: **FWGEQUIPRINSE1-507-GW** ***Collected:*** **10/21/2014 4:30:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

Sample ID: **FWGEQUIPRINSE2-0508-GW** ***Collected:*** **10/22/2014 2:45:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

Sample ID: **FWGLL1MW-088-0502-GW** ***Collected:*** **10/21/2014 3:00:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

Sample ID: **FWGLL2MW-271-0503-GW** ***Collected:*** **10/22/2014 4:30:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

Sample ID: **FWGLL3MW-246-504-GW** ***Collected:*** **10/22/2014 11:10:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

Sample ID: **FWGLL3MW-DUP1-506-GW** ***Collected:*** **10/22/2014 12:00:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrocellulose	1.0	U	0.48	MDL	1.0	LOD	mg/L	UJ	ProfJudg

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: METALS

Method: 6010B **Matrix:** AQ

Sample ID: FWGEQUIPRINSE1-507-GW **Collected:** 10/21/2014 4:30:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHROMIUM	4.0	U	0.55	MDL	4.0	LOD	ug/L	UJ	Ld
MANGANESE	0.56	J	0.46	MDL	5.0	LOD	ug/L	J	RI
NICKEL	0.78	J	0.76	MDL	5.0	LOD	ug/L	U	Cb
POTASSIUM	86	J	70	MDL	900	LOD	ug/L	U	Cb

Sample ID: FWGEQUIPRINSE2-0508-GW **Collected:** 10/22/2014 2:45:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHROMIUM	4.0	U	0.55	MDL	4.0	LOD	ug/L	UJ	Ld

Sample ID: FWGLL1MW-088-0502-GF **Collected:** 10/21/2014 3:00:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHROMIUM	1.1	J	0.55	MDL	4.0	LOD	ug/L	J	RI, Ld
NICKEL	1.4	J	0.76	MDL	5.0	LOD	ug/L	U	Eb, Cb

Sample ID: FWGLL2MW-271-0503-GF **Collected:** 10/22/2014 4:30:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	6.0	J	2.9	MDL	10	LOD	ug/L	J	RI
BARIUM	3.2	J	1.0	MDL	5.0	LOD	ug/L	J	RI
CHROMIUM	0.69	J	0.55	MDL	4.0	LOD	ug/L	J	RI, Ld

Sample ID: FWGLL3MW-246-504-GF **Collected:** 10/22/2014 11:10:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHROMIUM	4.0	U	0.55	MDL	4.0	LOD	ug/L	UJ	Ld
COBALT	0.59	J	0.56	MDL	4.0	LOD	ug/L	J	RI
NICKEL	3.9	J	0.76	MDL	5.0	LOD	ug/L	U	Cb

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: METALS

Method: 6010B **Matrix: AQ**

Sample ID: FWGLL3MW-DUP1-506-GF *Collected:* 10/22/2014 12:00:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHROMIUM	0.66	J	0.55	MDL	4.0	LOD	ug/L	J	RI, Ld
COBALT	0.68	J	0.56	MDL	4.0	LOD	ug/L	J	RI
NICKEL	3.6	J	0.76	MDL	5.0	LOD	ug/L	U	Cb

Method Category: METALS

Method: 6020 **Matrix: AQ**

Sample ID: FWGEQUIPRINSE1-507-GW *Collected:* 10/21/2014 4:30:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	1.0	U	0.33	MDL	1.0	LOD	ug/L	J	ProfJudg

Sample ID: FWGEQUIPRINSE2-0508-GW *Collected:* 10/22/2014 2:45:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ALUMINUM	750		20	MDL	60	LOD	ug/L	J	ProfJudg
ANTIMONY	1.0	U	0.33	MDL	1.0	LOD	ug/L	J	ProfJudg
ZINC	27	J	27	MDL	50	LOD	ug/L	J	RI

Sample ID: FWGLL1MW-088-0502-GF *Collected:* 10/21/2014 3:00:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ALUMINUM	120		20	MDL	60	LOD	ug/L	J	ProfJudg
ANTIMONY	1.0	U	0.33	MDL	1.0	LOD	ug/L	J	ProfJudg

Sample ID: FWGLL2MW-271-0503-GF *Collected:* 10/22/2014 4:30:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	1.0	U J	0.33	MDL	1.0	LOD	ug/L	J	ProfJudg
CADMIUM	0.58	J	0.40	MDL	1.0	LOD	ug/L	UB	Mb
THALLIUM	1.5	J	0.79	MDL	1.5	LOD	ug/L	U	Cb

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: METALS

Method: 6020 **Matrix: AQ**

Sample ID: FWGLL3MW-246-504-GF *Collected:* 10/22/2014 11:10:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.33	J	0.33	MDL	1.0	LOD	ug/L	J	RI

Sample ID: FWGLL3MW-DUP1-506-GF *Collected:* 10/22/2014 12:00:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	1.0	U	0.33	MDL	1.0	LOD	ug/L	J	ProfJudg

Method Category: SVOA

Method: 8081A **Matrix: AQ**

Sample ID: FWGEQUIPRINSE1-507-GW *Collected:* 10/21/2014 4:30:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ENDOSULFAN I	0.050	U	0.016	MDL	0.050	LOD	ug/L	UJ	Lcs

Sample ID: FWGEQUIPRINSE2-0508-GWRE *Collected:* 10/22/2014 2:45:00 *Analysis Type:* RE *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDD	0.053	U H Q	0.019	MDL	0.053	LOD	ug/L	UJ	StoE
4,4'-DDE	0.053	U H Q	0.0096	MDL	0.053	LOD	ug/L	UJ	StoE
4,4'-DDT	0.053	U H Q	0.015	MDL	0.053	LOD	ug/L	UJ	StoE
ALDRIN	0.053	U H	0.014	MDL	0.053	LOD	ug/L	UJ	StoE
ALPHA-BHC	0.053	U H	0.015	MDL	0.053	LOD	ug/L	UJ	StoE
ALPHA-CHLORDANE	0.053	U H	0.013	MDL	0.053	LOD	ug/L	UJ	StoE
BETA-BHC	0.053	U H	0.014	MDL	0.053	LOD	ug/L	UJ	StoE
DELTA-BHC	0.053	U H	0.031	MDL	0.053	LOD	ug/L	UJ	StoE
DIELDRIN	0.053	U H	0.014	MDL	0.053	LOD	ug/L	UJ	StoE
ENDOSULFAN I	0.053	U H	0.017	MDL	0.053	LOD	ug/L	UJ	StoE
ENDOSULFAN II	0.053	U H	0.016	MDL	0.053	LOD	ug/L	UJ	StoE
ENDOSULFAN SULFATE	0.053	U H	0.012	MDL	0.053	LOD	ug/L	UJ	StoE
ENDRIN	0.053	U H Q	0.013	MDL	0.053	LOD	ug/L	UJ	StoE
ENDRIN ALDEHYDE	0.053	U H	0.0085	MDL	0.053	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8081A **Matrix:** AQ

Sample ID: FWGEQUIPRINSE2-0508-GWRE ***Collected:*** 10/22/2014 2:45:00 ***Analysis Type:*** RE ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ENDRIN KETONE	0.053	U H	0.0096	MDL	0.053	LOD	ug/L	UJ	StoE
gamma-BHC (Lindane)	0.053	U H	0.013	MDL	0.053	LOD	ug/L	UJ	StoE
GAMMA-CHLORDANE	0.053	U H	0.011	MDL	0.053	LOD	ug/L	UJ	StoE
HEPTACHLOR	0.053	U H	0.0053	MDL	0.053	LOD	ug/L	UJ	StoE
HEPTACHLOR EPOXIDE	0.053	U H	0.015	MDL	0.053	LOD	ug/L	UJ	StoE
METHOXYCHLOR	0.053	U H Q	0.013	MDL	0.053	LOD	ug/L	UJ	StoE
TOXAPHENE	1.1	U H	0.21	MDL	1.1	LOD	ug/L	UJ	StoE

Sample ID: FWGLL1MW-088-0502-GW ***Collected:*** 10/21/2014 3:00:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDD	0.053	U H Q	0.019	MDL	0.053	LOD	ug/L	UJ	EtoA
4,4'-DDE	0.053	U H Q	0.0096	MDL	0.053	LOD	ug/L	UJ	EtoA
4,4'-DDT	0.053	U H Q	0.015	MDL	0.053	LOD	ug/L	UJ	EtoA
ALDRIN	0.053	U H Q	0.014	MDL	0.053	LOD	ug/L	UJ	EtoA
ALPHA-BHC	0.028	J H	0.015	MDL	0.053	LOD	ug/L	UJ 3B	Mb, Surr, EtoA
ALPHA-CHLORDANE	0.053	U H Q	0.013	MDL	0.053	LOD	ug/L	UJ	EtoA
BETA-BHC	0.053	U H	0.014	MDL	0.053	LOD	ug/L	UJ	EtoA
DELTA-BHC	0.053	U H Q	0.031	MDL	0.053	LOD	ug/L	UJ	EtoA
DIELDRIN	0.053	U H Q	0.014	MDL	0.053	LOD	ug/L	UJ	EtoA
ENDOSULFAN I	0.053	U H Q	0.017	MDL	0.053	LOD	ug/L	UJ	Lcs, EtoA
ENDOSULFAN II	0.053	U H Q	0.016	MDL	0.053	LOD	ug/L	UJ	EtoA
ENDOSULFAN SULFATE	0.053	U H Q	0.012	MDL	0.053	LOD	ug/L	UJ	EtoA
ENDRIN	0.053	U H Q	0.013	MDL	0.053	LOD	ug/L	UJ	EtoA
ENDRIN ALDEHYDE	0.053	U H Q	0.0085	MDL	0.053	LOD	ug/L	UJ	EtoA
ENDRIN KETONE	0.053	U H Q	0.0096	MDL	0.053	LOD	ug/L	UJ	EtoA
gamma-BHC (Lindane)	0.053	U H	0.013	MDL	0.053	LOD	ug/L	UJ	EtoA
GAMMA-CHLORDANE	0.053	U H Q	0.011	MDL	0.053	LOD	ug/L	UJ	EtoA
HEPTACHLOR	0.053	U H Q	0.0053	MDL	0.053	LOD	ug/L	UJ	EtoA
HEPTACHLOR EPOXIDE	0.053	U H Q	0.015	MDL	0.053	LOD	ug/L	UJ	EtoA
METHOXYCHLOR	0.053	U H Q	0.013	MDL	0.053	LOD	ug/L	UJ	EtoA
TOXAPHENE	1.1	U H Q	0.21	MDL	1.1	LOD	ug/L	UJ	EtoA

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8081A **Matrix: AQ**

Sample ID: FWGLL2MW-271-0503-GWRE **Collected:** 10/22/2014 4:30:00 **Analysis Type:** RE **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDD	0.048	U H	0.017	MDL	0.048	LOD	ug/L	UJ	StoE
4,4'-DDE	0.048	U H	0.0086	MDL	0.048	LOD	ug/L	UJ	StoE
4,4'-DDT	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ALDRIN	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
ALPHA-BHC	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ALPHA-CHLORDANE	0.048	U H	0.011	MDL	0.048	LOD	ug/L	UJ	StoE
BETA-BHC	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
DELTA-BHC	0.048	U H	0.028	MDL	0.048	LOD	ug/L	UJ	StoE
DIELDRIN	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN I	0.048	U H	0.015	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN II	0.048	U H	0.014	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN SULFATE	0.048	U H	0.010	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN	0.048	U H	0.011	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN ALDEHYDE	0.048	U H	0.0076	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN KETONE	0.048	U H	0.0086	MDL	0.048	LOD	ug/L	UJ	StoE
gamma-BHC (Lindane)	0.048	U H	0.011	MDL	0.048	LOD	ug/L	UJ	StoE
GAMMA-CHLORDANE	0.048	U H	0.0095	MDL	0.048	LOD	ug/L	UJ	StoE
HEPTACHLOR	0.048	U H	0.0048	MDL	0.048	LOD	ug/L	UJ	StoE
HEPTACHLOR EPOXIDE	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
METHOXYCHLOR	0.048	U H	0.011	MDL	0.048	LOD	ug/L	UJ	StoE
TOXAPHENE	0.95	U H	0.19	MDL	0.95	LOD	ug/L	UJ	StoE

Sample ID: FWGLL3MW-246-504-GWRE **Collected:** 10/22/2014 11:10:00 **Analysis Type:** RE **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDD	0.048	U H	0.017	MDL	0.048	LOD	ug/L	UJ	StoE
4,4'-DDE	0.048	U H	0.0087	MDL	0.048	LOD	ug/L	UJ	StoE
4,4'-DDT	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ALDRIN	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ALPHA-BHC	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ALPHA-CHLORDANE	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
BETA-BHC	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8081A **Matrix:** AQ

Sample ID: FWGLL3MW-246-504-GWRE **Collected:** 10/22/2014 11:10:00 **Analysis Type:** RE **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
DELTA-BHC	0.048	U H	0.028	MDL	0.048	LOD	ug/L	UJ	StoE
DIELDRIN	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN I	0.048	U H	0.015	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN II	0.048	U H	0.014	MDL	0.048	LOD	ug/L	UJ	StoE
ENDOSULFAN SULFATE	0.048	U H	0.011	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN ALDEHYDE	0.048	U H	0.0077	MDL	0.048	LOD	ug/L	UJ	StoE
ENDRIN KETONE	0.048	U H	0.0087	MDL	0.048	LOD	ug/L	UJ	StoE
gamma-BHC (Lindane)	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
GAMMA-CHLORDANE	0.048	U H	0.0096	MDL	0.048	LOD	ug/L	UJ	StoE
HEPTACHLOR	0.048	U H	0.0048	MDL	0.048	LOD	ug/L	UJ	StoE
HEPTACHLOR EPOXIDE	0.048	U H	0.013	MDL	0.048	LOD	ug/L	UJ	StoE
METHOXYCHLOR	0.048	U H	0.012	MDL	0.048	LOD	ug/L	UJ	StoE
TOXAPHENE	0.96	U H	0.19	MDL	0.96	LOD	ug/L	UJ	StoE

Sample ID: FWGLL3MW-DUP1-506-GWRE **Collected:** 10/22/2014 12:00:00 **Analysis Type:** RE **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDD	0.052	U H	0.019	MDL	0.052	LOD	ug/L	UJ	StoE
4,4'-DDE	0.052	U H	0.0093	MDL	0.052	LOD	ug/L	UJ	StoE
4,4'-DDT	0.052	U H	0.014	MDL	0.052	LOD	ug/L	UJ	StoE
ALDRIN	0.052	U H	0.013	MDL	0.052	LOD	ug/L	UJ	StoE
ALPHA-BHC	0.052	U H	0.014	MDL	0.052	LOD	ug/L	UJ	StoE
ALPHA-CHLORDANE	0.052	U H	0.012	MDL	0.052	LOD	ug/L	UJ	StoE
BETA-BHC	0.052	U H	0.013	MDL	0.052	LOD	ug/L	UJ	StoE
DELTA-BHC	0.052	U H	0.030	MDL	0.052	LOD	ug/L	UJ	StoE
DIELDRIN	0.052	U H	0.013	MDL	0.052	LOD	ug/L	UJ	StoE
ENDOSULFAN I	0.052	U H	0.016	MDL	0.052	LOD	ug/L	UJ	StoE
ENDOSULFAN II	0.052	U H	0.015	MDL	0.052	LOD	ug/L	UJ	StoE
ENDOSULFAN SULFATE	0.052	U H	0.011	MDL	0.052	LOD	ug/L	UJ	StoE
ENDRIN	0.052	U H	0.012	MDL	0.052	LOD	ug/L	UJ	StoE
ENDRIN ALDEHYDE	0.052	U H	0.0082	MDL	0.052	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8081A **Matrix: AQ**

Sample ID: FWGLL3MW-DUP1-506-GWRE *Collected:* 10/22/2014 12:00:00 *Analysis Type:* RE *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ENDRIN KETONE	0.052	U H	0.0093	MDL	0.052	LOD	ug/L	UJ	StoE
gamma-BHC (Lindane)	0.052	U H	0.012	MDL	0.052	LOD	ug/L	UJ	StoE
GAMMA-CHLORDANE	0.052	U H	0.010	MDL	0.052	LOD	ug/L	UJ	StoE
HEPTACHLOR	0.052	U H	0.0052	MDL	0.052	LOD	ug/L	UJ	StoE
HEPTACHLOR EPOXIDE	0.052	U H	0.014	MDL	0.052	LOD	ug/L	UJ	StoE
METHOXYCHLOR	0.052	U H	0.012	MDL	0.052	LOD	ug/L	UJ	StoE
TOXAPHENE	1.0	U H	0.20	MDL	1.0	LOD	ug/L	UJ	StoE

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix: AQ**

Sample ID: FWGEQUIPRINSE1-507-GW *Collected:* 10/21/2014 4:30:00 *Analysis Type:* RES-ACID *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.49	U	0.29	MDL	0.49	LOD	ug/L	UJ	Surr
2,4,6-TRICHLOROPHENOL	0.49	U	0.23	MDL	0.49	LOD	ug/L	UJ	Surr
2,4-DICHLOROPHENOL	0.49	U	0.18	MDL	0.49	LOD	ug/L	UJ	Surr
2,4-DIMETHYLPHENOL	0.49	U	0.24	MDL	0.49	LOD	ug/L	UJ	Surr
2,4-DINITROPHENOL	0.97	U	0.31	MDL	0.97	LOD	ug/L	UJ	ProfJudg, Surr
2-CHLOROPHENOL	0.49	U	0.28	MDL	0.49	LOD	ug/L	UJ	Surr
2-METHYLPHENOL	0.49	U	0.17	MDL	0.49	LOD	ug/L	UJ	Surr
2-NITROPHENOL	0.49	U	0.27	MDL	0.49	LOD	ug/L	UJ	Surr
3-methylphenol/4-methylphenol	0.97	U	0.78	MDL	0.97	LOD	ug/L	UJ	Surr
4,6-DINITRO-2-METHYLPHENOL	3.9	U	2.3	MDL	3.9	LOD	ug/L	UJ	Surr
4-CHLORO-3-METHYLPHENOL	0.49	U	0.20	MDL	0.49	LOD	ug/L	UJ	Surr
4-NITROPHENOL	3.9	U	0.28	MDL	3.9	LOD	ug/L	UJ	Surr
BENZOIC ACID	19	U	9.7	MDL	19	LOD	ug/L	UJ	Surr
PENTACHLOROPHENOL	0.97	U	0.26	MDL	0.97	LOD	ug/L	UJ	Surr
PHENOL	0.97	U	0.58	MDL	0.97	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: **SVOA**

Method: **8270C-SVOC4** ***Matrix:*** **AQ**

Sample ID: FWGEQUIPRINSE1-507-GW ***Collected:*** 10/21/2014 4:30:00 ***Analysis Type:*** RES-BASE/NEUTRAL ***Dilution:*** 1

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
1,2,4-TRICHLOROBENZENE	0.49	U	0.27	MDL	0.49	LOD	ug/L	UJ	Surr
1,2-DICHLOROBENZENE	0.49	U	0.28	MDL	0.49	LOD	ug/L	UJ	Surr
1,3-DICHLOROBENZENE	0.49	U	0.22	MDL	0.49	LOD	ug/L	UJ	Surr
1,4-DICHLOROBENZENE	0.49	U	0.33	MDL	0.49	LOD	ug/L	UJ	Surr
2,2'-OXYBIS (1-CHLOROPROPANE)	0.49	U	0.39	MDL	0.49	LOD	ug/L	UJ	Surr
2-CHLORONAPHTHALENE	0.49	U	0.097	MDL	0.49	LOD	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.097	U	0.088	MDL	0.097	LOD	ug/L	UJ	Surr
2-NITROANILINE	0.49	U	0.20	MDL	0.49	LOD	ug/L	UJ	Surr
3,3'-DICHLOROBENZIDINE	0.97	U	0.36	MDL	0.97	LOD	ug/L	UJ	Surr
3-NITROANILINE	0.49	U	0.27	MDL	0.49	LOD	ug/L	UJ	Surr
4-BROMOPHENYL-PHENYLETHER	0.49	U	0.21	MDL	0.49	LOD	ug/L	UJ	Surr
4-CHLOROANILINE	0.49	U	0.20	MDL	0.49	LOD	ug/L	UJ	Surr
4-CHLOROPHENYL-PHENYLETHER	0.49	U	0.29	MDL	0.49	LOD	ug/L	UJ	Surr
4-NITROANILINE	0.49	U	0.21	MDL	0.49	LOD	ug/L	UJ	Surr
ACENAPHTHENE	0.097	U	0.043	MDL	0.097	LOD	ug/L	UJ	Surr
ACENAPHTHYLENE	0.097	U	0.047	MDL	0.097	LOD	ug/L	UJ	Surr
ANTHRACENE	0.097	U	0.085	MDL	0.097	LOD	ug/L	UJ	Surr
BENZO(A)ANTHRACENE	0.097	U	0.029	MDL	0.097	LOD	ug/L	UJ	Surr
BENZO(A)PYRENE	0.097	U	0.050	MDL	0.097	LOD	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.097	U	0.038	MDL	0.097	LOD	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.097	U	0.045	MDL	0.097	LOD	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.097	U	0.043	MDL	0.097	LOD	ug/L	UJ	Surr
BENZYL ALCOHOL	0.40	J	0.37	MDL	0.49	LOD	ug/L	J	RI, Surr
BIS(2-CHLOROETHOXY)METHANE	0.49	U	0.31	MDL	0.49	LOD	ug/L	UJ	Surr
Bis(2-chloroethyl)ether	0.097	U	0.097	MDL	0.097	LOD	ug/L	UJ	Surr
BIS(2-ETHYLHEXYL)PHTHALATE	4.9	U	1.7	MDL	4.9	LOD	ug/L	UJ	Surr
Butylbenzylphthalate	0.49	U	0.25	MDL	0.49	LOD	ug/L	UJ	Surr
CARBAZOLE	0.49	U	0.27	MDL	0.49	LOD	ug/L	UJ	Surr
CHRYSENE	0.097	U	0.049	MDL	0.097	LOD	ug/L	UJ	Surr
DIBENZ(A,H)ANTHRACENE	0.097	U	0.043	MDL	0.097	LOD	ug/L	UJ	Surr
DIBENZOFURAN	0.097	U	0.019	MDL	0.097	LOD	ug/L	UJ	Surr
Diethylphthalate	0.97	U	0.58	MDL	0.97	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGEQUIPRINSE1-507-GW ***Collected:*** 10/21/2014 4:30:00 ***Analysis Type:*** RES-BASE/NEUTRAL ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Dimethylphthalate	0.49	U	0.28	MDL	0.49	LOD	ug/L	UJ	Surr
DI-N-BUTYL PHTHALATE	4.9	U	1.7	MDL	4.9	LOD	ug/L	UJ	Surr
DI-N-OCTYL PHTHALATE	0.49	U	0.22	MDL	0.49	LOD	ug/L	UJ	Surr
FLUORANTHENE	0.097	U	0.043	MDL	0.097	LOD	ug/L	UJ	Surr
FLUORENE	0.097	U	0.039	MDL	0.097	LOD	ug/L	UJ	Surr
HEXACHLOROBENZENE	0.097	U	0.083	MDL	0.097	LOD	ug/L	UJ	Surr
HEXACHLOROBUTADIENE	0.49	U	0.26	MDL	0.49	LOD	ug/L	UJ	Surr
HEXACHLOROCYCLOPENTADIENE	0.49	U Q	0.23	MDL	0.49	LOD	ug/L	UJ	Lcs, Surr
HEXACHLOROETHANE	0.49	U	0.18	MDL	0.49	LOD	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.097	U	0.042	MDL	0.097	LOD	ug/L	UJ	Surr
ISOPHORONE	0.49	U	0.26	MDL	0.49	LOD	ug/L	UJ	Surr
NAPHTHALENE	0.097	U	0.061	MDL	0.097	LOD	ug/L	UJ	Surr
N-NITROSO-DI-N-PROPYLAMINE	0.49	U	0.23	MDL	0.49	LOD	ug/L	UJ	Surr
N-NITROSODIPHENYLAMINE	0.49	U	0.30	MDL	0.49	LOD	ug/L	UJ	Surr
PHENANTHRENE	0.097	U	0.060	MDL	0.097	LOD	ug/L	UJ	Surr
PYRENE	0.097	U	0.041	MDL	0.097	LOD	ug/L	UJ	Surr

Sample ID: FWGEQUIPRINSE2-0508-GWRE ***Collected:*** 10/22/2014 2:45:00 ***Analysis Type:*** RE-ACID ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.53	U H	0.32	MDL	0.53	LOD	ug/L	UJ	StoE
2,4,6-TRICHLOROPHENOL	0.53	U H	0.25	MDL	0.53	LOD	ug/L	UJ	StoE
2,4-DICHLOROPHENOL	0.53	U H	0.20	MDL	0.53	LOD	ug/L	UJ	StoE
2,4-DIMETHYLPHENOL	0.53	U H	0.26	MDL	0.53	LOD	ug/L	UJ	StoE
2,4-DINITROPHENOL	1.1	U H	0.34	MDL	1.1	LOD	ug/L	UJ	StoE
2-CHLOROPHENOL	0.53	U H	0.31	MDL	0.53	LOD	ug/L	UJ	StoE
2-METHYLPHENOL	0.53	U H	0.18	MDL	0.53	LOD	ug/L	UJ	StoE
2-NITROPHENOL	0.53	U H	0.29	MDL	0.53	LOD	ug/L	UJ	StoE
3-methylphenol/4-methylphenol	1.1	U H	0.84	MDL	1.1	LOD	ug/L	UJ	StoE
4,6-DINITRO-2-METHYLPHENOL	4.2	U H	2.5	MDL	4.2	LOD	ug/L	UJ	StoE
4-CHLORO-3-METHYLPHENOL	0.53	U H	0.22	MDL	0.53	LOD	ug/L	UJ	StoE
4-NITROPHENOL	4.2	U H	0.31	MDL	4.2	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix: AQ**

Sample ID: FWGEQUIPRINSE2-0508-GWRE *Collected:* 10/22/2014 2:45:00 *Analysis Type:* RE-ACID *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZOIC ACID	21	U H	11	MDL	21	LOD	ug/L	UJ	StoE
PENTACHLOROPHENOL	1.1	U H	0.28	MDL	1.1	LOD	ug/L	UJ	StoE
PHENOL	1.1	U H	0.63	MDL	1.1	LOD	ug/L	UJ	StoE

Sample ID: FWGEQUIPRINSE2-0508-GWRE *Collected:* 10/22/2014 2:45:00 *Analysis Type:* RE-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,4-TRICHLOROBENZENE	0.53	U H	0.29	MDL	0.53	LOD	ug/L	UJ	StoE
1,2-DICHLOROBENZENE	0.53	U H	0.31	MDL	0.53	LOD	ug/L	UJ	StoE
1,3-DICHLOROBENZENE	0.53	U H	0.24	MDL	0.53	LOD	ug/L	UJ	StoE
1,4-DICHLOROBENZENE	0.53	U H	0.36	MDL	0.53	LOD	ug/L	UJ	StoE
2,2'-OXYBIS (1-CHLOROPROPANE)	0.53	U H	0.42	MDL	0.53	LOD	ug/L	UJ	StoE
2-CHLORONAPHTHALENE	0.53	U H	0.11	MDL	0.53	LOD	ug/L	UJ	StoE
2-METHYLNAPHTHALENE	0.11	U H	0.095	MDL	0.11	LOD	ug/L	UJ	StoE
2-NITROANILINE	0.53	U H	0.22	MDL	0.53	LOD	ug/L	UJ	StoE
3,3'-DICHLOROBENZIDINE	1.1	U H	0.39	MDL	1.1	LOD	ug/L	UJ	StoE
3-NITROANILINE	0.53	U H	0.29	MDL	0.53	LOD	ug/L	UJ	StoE
4-BROMOPHENYL-PHENYLETHER	0.53	U H	0.23	MDL	0.53	LOD	ug/L	UJ	StoE
4-CHLOROANILINE	0.53	U H	0.22	MDL	0.53	LOD	ug/L	UJ	StoE
4-CHLOROPHENYL-PHENYLETHER	0.53	U H	0.32	MDL	0.53	LOD	ug/L	UJ	StoE
4-NITROANILINE	0.53	U H	0.23	MDL	0.53	LOD	ug/L	UJ	StoE
ACENAPHTHENE	0.11	U H	0.047	MDL	0.11	LOD	ug/L	UJ	StoE
ACENAPHTHYLENE	0.11	U H	0.051	MDL	0.11	LOD	ug/L	UJ	StoE
ANTHRACENE	0.11	U H	0.093	MDL	0.11	LOD	ug/L	UJ	StoE
BENZO(A)ANTHRACENE	0.11	U H	0.031	MDL	0.11	LOD	ug/L	UJ	StoE
BENZO(A)PYRENE	0.11	U H	0.054	MDL	0.11	LOD	ug/L	UJ	StoE
BENZO(B)FLUORANTHENE	0.11	U H	0.041	MDL	0.11	LOD	ug/L	UJ	StoE
BENZO(G,H,I)PERYLENE	0.11	U H	0.049	MDL	0.11	LOD	ug/L	UJ	StoE
BENZO(K)FLUORANTHENE	0.11	U H	0.047	MDL	0.11	LOD	ug/L	UJ	StoE
BENZYL ALCOHOL	0.53	U H	0.40	MDL	0.53	LOD	ug/L	UJ	StoE
BIS(2-CHLOROETHOXY)METHANE	0.53	U H	0.34	MDL	0.53	LOD	ug/L	UJ	StoE
Bis(2-chloroethyl)ether	0.11	U H	0.11	MDL	0.11	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGEQUIPRINSE2-0508-GWRE ***Collected:*** 10/22/2014 2:45:00 ***Analysis Type:*** RE-BASE/NEUTRAL ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BIS(2-ETHYLHEXYL)PHTHALATE	5.3	U H	1.8	MDL	5.3	LOD	ug/L	UJ	StoE
Butylbenzylphthalate	0.53	U H	0.27	MDL	0.53	LOD	ug/L	UJ	StoE
CARBAZOLE	0.53	U H	0.29	MDL	0.53	LOD	ug/L	UJ	StoE
CHRYSENE	0.11	U H	0.053	MDL	0.11	LOD	ug/L	UJ	StoE
DIBENZ(A,H)ANTHRACENE	0.11	U H	0.047	MDL	0.11	LOD	ug/L	UJ	StoE
DIBENZOFURAN	0.11	U H	0.021	MDL	0.11	LOD	ug/L	UJ	StoE
Diethylphthalate	1.1	U H	0.63	MDL	1.1	LOD	ug/L	UJ	StoE
Dimethylphthalate	0.53	U H	0.31	MDL	0.53	LOD	ug/L	UJ	StoE
DI-N-BUTYL PHTHALATE	5.3	U H	1.8	MDL	5.3	LOD	ug/L	UJ	StoE
DI-N-OCTYL PHTHALATE	0.53	U H	0.24	MDL	0.53	LOD	ug/L	UJ	StoE
FLUORANTHENE	0.11	U H	0.047	MDL	0.11	LOD	ug/L	UJ	StoE
FLUORENE	0.11	U H	0.043	MDL	0.11	LOD	ug/L	UJ	StoE
HEXACHLOROBENZENE	0.11	U H	0.090	MDL	0.11	LOD	ug/L	UJ	StoE
HEXACHLOROBUTADIENE	0.53	U H	0.28	MDL	0.53	LOD	ug/L	UJ	StoE
HEXACHLOROCYCLOPENTADIENE	0.53	U H	0.25	MDL	0.53	LOD	ug/L	UJ	Lcs, StoE
HEXACHLOROETHANE	0.53	U H	0.20	MDL	0.53	LOD	ug/L	UJ	StoE
INDENO(1,2,3-CD)PYRENE	0.11	U H	0.046	MDL	0.11	LOD	ug/L	UJ	StoE
ISOPHORONE	0.53	U H	0.28	MDL	0.53	LOD	ug/L	UJ	StoE
NAPHTHALENE	0.11	U H	0.066	MDL	0.11	LOD	ug/L	UJ	StoE
N-NITROSO-DI-N-PROPYLAMINE	0.53	U H	0.25	MDL	0.53	LOD	ug/L	UJ	StoE
N-NITROSODIPHENYLAMINE	0.53	U H	0.33	MDL	0.53	LOD	ug/L	UJ	StoE
PHENANTHRENE	0.11	U H	0.065	MDL	0.11	LOD	ug/L	UJ	StoE
PYRENE	0.11	U H	0.044	MDL	0.11	LOD	ug/L	UJ	StoE

Sample ID: FWGLL1MW-088-0502-GW ***Collected:*** 10/21/2014 3:00:00 ***Analysis Type:*** RES-ACID ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.50	U	0.30	MDL	0.50	LOD	ug/L	UJ	Surr
2,4,6-TRICHLOROPHENOL	0.50	U	0.24	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DICHLOROPHENOL	0.50	U	0.19	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DIMETHYLPHENOL	0.50	U	0.25	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DINITROPHENOL	0.99	U	0.32	MDL	0.99	LOD	ug/L	UJ	ProfJudg, Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix: AQ**

Sample ID: FWGLL1MW-088-0502-GW **Collected:** 10/21/2014 3:00:00 **Analysis Type:** RES-ACID **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-CHLOROPHENOL	0.50	U	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
2-METHYLPHENOL	0.50	U	0.17	MDL	0.50	LOD	ug/L	UJ	Surr
2-NITROPHENOL	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
3-methylphenol/4-methylphenol	0.99	U	0.79	MDL	0.99	LOD	ug/L	UJ	Surr
4,6-DINITRO-2-METHYLPHENOL	4.0	U	2.4	MDL	4.0	LOD	ug/L	UJ	Surr
4-CHLORO-3-METHYLPHENOL	0.50	U	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
4-NITROPHENOL	4.0	U	0.29	MDL	4.0	LOD	ug/L	UJ	Surr
BENZOIC ACID	20	U	9.9	MDL	20	LOD	ug/L	UJ	Surr
PENTACHLOROPHENOL	0.99	U	0.27	MDL	0.99	LOD	ug/L	UJ	Surr
PHENOL	0.99	U	0.59	MDL	0.99	LOD	ug/L	UJ	Surr

Sample ID: FWGLL1MW-088-0502-GW **Collected:** 10/21/2014 3:00:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,4-TRICHLOROBENZENE	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
1,2-DICHLOROBENZENE	0.50	U	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
1,3-DICHLOROBENZENE	0.50	U	0.23	MDL	0.50	LOD	ug/L	UJ	Surr
1,4-DICHLOROBENZENE	0.50	U	0.34	MDL	0.50	LOD	ug/L	UJ	Surr
2,2'-OXYBIS (1-CHLOROPROPANE)	0.50	U	0.40	MDL	0.50	LOD	ug/L	UJ	Surr
2-CHLORONAPHTHALENE	0.50	U	0.099	MDL	0.50	LOD	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.099	U	0.090	MDL	0.099	LOD	ug/L	UJ	Surr
2-NITROANILINE	0.50	U	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
3,3'-DICHLOROBENZIDINE	0.99	U	0.37	MDL	0.99	LOD	ug/L	UJ	Surr
3-NITROANILINE	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
4-BROMOPHENYL-PHENYLETHER	0.50	U	0.22	MDL	0.50	LOD	ug/L	UJ	Surr
4-CHLOROANILINE	0.50	U	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
4-CHLOROPHENYL-PHENYLETHER	0.50	U	0.30	MDL	0.50	LOD	ug/L	UJ	Surr
4-NITROANILINE	0.50	U	0.22	MDL	0.50	LOD	ug/L	UJ	Surr
ACENAPHTHENE	0.099	U	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
ACENAPHTHYLENE	0.099	U	0.048	MDL	0.099	LOD	ug/L	UJ	Surr
ANTHRACENE	0.099	U	0.087	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(A)ANTHRACENE	0.099	U	0.029	MDL	0.099	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: **SVOA**

Method: **8270C-SVOC4** ***Matrix:*** **AQ**

Sample ID: **FWGLL1MW-088-0502-GW** ***Collected:*** **10/21/2014 3:00:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
BENZO(A)PYRENE	0.099	U	0.051	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.099	U	0.039	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.099	U	0.046	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.099	U	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
BENZYL ALCOHOL	0.50	U	0.38	MDL	0.50	LOD	ug/L	UJ	Surr
BIS(2-CHLOROETHOXY)METHANE	0.50	U	0.32	MDL	0.50	LOD	ug/L	UJ	Surr
Bis(2-chloroethyl)ether	0.099	U	0.099	MDL	0.099	LOD	ug/L	UJ	Surr
BIS(2-ETHYLHEXYL)PHTHALATE	5.0	U	1.7	MDL	5.0	LOD	ug/L	UJ	Surr
Butylbenzylphthalate	0.50	U	0.26	MDL	0.50	LOD	ug/L	UJ	Surr
CARBAZOLE	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
CHRYSENE	0.099	U	0.050	MDL	0.099	LOD	ug/L	UJ	Surr
DIBENZ(A,H)ANTHRACENE	0.099	U	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
DIBENZOFURAN	0.099	U	0.020	MDL	0.099	LOD	ug/L	UJ	Surr
Diethylphthalate	0.99	U	0.59	MDL	0.99	LOD	ug/L	UJ	Surr
Dimethylphthalate	0.50	U	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
DI-N-BUTYL PHTHALATE	5.0	U	1.7	MDL	5.0	LOD	ug/L	UJ	Surr
DI-N-OCTYL PHTHALATE	0.50	U	0.23	MDL	0.50	LOD	ug/L	UJ	Surr
FLUORANTHENE	0.099	U	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
FLUORENE	0.099	U	0.040	MDL	0.099	LOD	ug/L	UJ	Surr
HEXACHLOROBENZENE	0.099	U	0.084	MDL	0.099	LOD	ug/L	UJ	Surr
HEXACHLOROBUTADIENE	0.50	U	0.27	MDL	0.50	LOD	ug/L	UJ	Surr
HEXACHLOROCYCLOPENTADIENE	0.50	U Q	0.24	MDL	0.50	LOD	ug/L	UJ	Lcs, Surr
HEXACHLOROETHANE	0.50	U	0.19	MDL	0.50	LOD	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.099	U	0.043	MDL	0.099	LOD	ug/L	UJ	Surr
ISOPHORONE	0.50	U	0.27	MDL	0.50	LOD	ug/L	UJ	Surr
NAPHTHALENE	0.099	U	0.062	MDL	0.099	LOD	ug/L	UJ	Surr
N-NITROSO-DI-N-PROPYLAMINE	0.50	U	0.24	MDL	0.50	LOD	ug/L	UJ	Surr
N-NITROSODIPHENYLAMINE	0.50	U	0.31	MDL	0.50	LOD	ug/L	UJ	Surr
PHENANTHRENE	0.099	U	0.061	MDL	0.099	LOD	ug/L	UJ	Surr
PYRENE	0.099	U	0.042	MDL	0.099	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix: AQ**

Sample ID: FWGLL2MW-271-0503-GW *Collected:* 10/22/2014 4:30:00 *Analysis Type:* RES-ACID *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.50	U Q	0.30	MDL	0.50	LOD	ug/L	UJ	Surr
2,4,6-TRICHLOROPHENOL	0.50	U Q	0.24	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DICHLOROPHENOL	0.50	U Q	0.19	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DIMETHYLPHENOL	0.50	U Q	0.25	MDL	0.50	LOD	ug/L	UJ	Surr
2,4-DINITROPHENOL	0.99	U Q J	0.32	MDL	0.99	LOD	ug/L	UJ	ProfJudg, Surr
2-CHLOROPHENOL	0.50	U Q	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
2-METHYLPHENOL	0.50	U Q	0.17	MDL	0.50	LOD	ug/L	UJ	Surr
2-NITROPHENOL	0.50	U Q	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
3-methylphenol/4-methylphenol	0.99	U Q	0.79	MDL	0.99	LOD	ug/L	UJ	Surr
4,6-DINITRO-2-METHYLPHENOL	4.0	U Q J	2.4	MDL	4.0	LOD	ug/L	UJ	Surr
4-CHLORO-3-METHYLPHENOL	0.50	U Q	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
4-NITROPHENOL	4.0	U Q	0.29	MDL	4.0	LOD	ug/L	UJ	Surr
BENZOIC ACID	20	U Q J	9.9	MDL	20	LOD	ug/L	UJ	Surr
PENTACHLOROPHENOL	0.99	U Q J	0.27	MDL	0.99	LOD	ug/L	UJ	Ms, Surr
PHENOL	0.99	U Q	0.59	MDL	0.99	LOD	ug/L	UJ	Surr

Sample ID: FWGLL2MW-271-0503-GW *Collected:* 10/22/2014 4:30:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,4-TRICHLOROBENZENE	0.50	U Q	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
1,2-DICHLOROBENZENE	0.50	U Q	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
1,3-DICHLOROBENZENE	0.50	U Q	0.23	MDL	0.50	LOD	ug/L	UJ	Surr
1,4-DICHLOROBENZENE	0.50	U Q	0.34	MDL	0.50	LOD	ug/L	UJ	Surr
2,2'-OXYBIS (1-CHLOROPROPANE)	0.50	U Q	0.40	MDL	0.50	LOD	ug/L	UJ	Surr
2-CHLORONAPHTHALENE	0.50	U	0.099	MDL	0.50	LOD	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.099	U	0.090	MDL	0.099	LOD	ug/L	UJ	Surr
2-NITROANILINE	0.50	U	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
3,3'-DICHLOROBENZIDINE	0.99	U	0.37	MDL	0.99	LOD	ug/L	UJ	Surr
3-NITROANILINE	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
4-BROMOPHENYL-PHENYLETHER	0.50	U	0.22	MDL	0.50	LOD	ug/L	UJ	Surr
4-CHLOROANILINE	0.50	U Q	0.21	MDL	0.50	LOD	ug/L	UJ	Surr
4-CHLOROPHENYL-PHENYLETHER	0.50	U	0.30	MDL	0.50	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGLL2MW-271-0503-GW *Collected:* 10/22/2014 4:30:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4-NITROANILINE	0.50	U	0.22	MDL	0.50	LOD	ug/L	UJ	Surr
ACENAPHTHENE	0.099	U Q	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
ACENAPHTHYLENE	0.099	U Q	0.048	MDL	0.099	LOD	ug/L	UJ	Surr
ANTHRACENE	0.099	U Q	0.087	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(A)ANTHRACENE	0.099	U Q	0.029	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(A)PYRENE	0.099	U Q	0.051	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.099	U Q	0.039	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.099	U Q	0.046	MDL	0.099	LOD	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.099	U Q	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
BENZYL ALCOHOL	0.50	U Q	0.38	MDL	0.50	LOD	ug/L	UJ	Surr
BIS(2-CHLOROETHOXY)METHANE	0.50	U Q	0.32	MDL	0.50	LOD	ug/L	UJ	Surr
Bis(2-chloroethyl)ether	0.099	U Q	0.099	MDL	0.099	LOD	ug/L	UJ	Surr
BIS(2-ETHYLHEXYL)PHTHALATE	5.0	U	1.7	MDL	5.0	LOD	ug/L	UJ	Surr
Butylbenzylphthalate	0.50	U	0.26	MDL	0.50	LOD	ug/L	UJ	Surr
CARBAZOLE	0.50	U	0.28	MDL	0.50	LOD	ug/L	UJ	Surr
CHRYSENE	0.099	U Q	0.050	MDL	0.099	LOD	ug/L	UJ	Surr
DIBENZ(A,H)ANTHRACENE	0.099	U	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
DIBENZOFURAN	0.099	U	0.020	MDL	0.099	LOD	ug/L	UJ	Surr
Diethylphthalate	0.99	U	0.59	MDL	0.99	LOD	ug/L	UJ	Surr
Dimethylphthalate	0.50	U	0.29	MDL	0.50	LOD	ug/L	UJ	Surr
DI-N-BUTYL PHTHALATE	5.0	U	1.7	MDL	5.0	LOD	ug/L	UJ	Surr
DI-N-OCTYL PHTHALATE	0.50	U	0.23	MDL	0.50	LOD	ug/L	UJ	Surr
FLUORANTHENE	0.099	U Q	0.044	MDL	0.099	LOD	ug/L	UJ	Surr
FLUORENE	0.099	U Q	0.040	MDL	0.099	LOD	ug/L	UJ	Surr
HEXACHLOROBENZENE	0.099	U	0.084	MDL	0.099	LOD	ug/L	UJ	Surr
HEXACHLOROBUTADIENE	0.50	U Q	0.27	MDL	0.50	LOD	ug/L	UJ	Surr
HEXACHLOROCYCLOPENTADIENE	0.50	U Q J	0.24	MDL	0.50	LOD	ug/L	UJ	Ms, Lcs, Surr
HEXACHLOROETHANE	0.50	U Q	0.19	MDL	0.50	LOD	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.099	U Q	0.043	MDL	0.099	LOD	ug/L	UJ	Surr
ISOPHORONE	0.50	U Q	0.27	MDL	0.50	LOD	ug/L	UJ	Surr
NAPHTHALENE	0.099	U Q	0.062	MDL	0.099	LOD	ug/L	UJ	Surr
N-NITROSO-DI-N-PROPYLAMINE	0.50	U Q	0.24	MDL	0.50	LOD	ug/L	UJ	Surr

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGLL2MW-271-0503-GW *Collected:* 10/22/2014 4:30:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
N-NITROSODIPHENYLAMINE	0.50	U	0.31	MDL	0.50	LOD	ug/L	UJ	Surr
PHENANTHRENE	0.099	U Q	0.061	MDL	0.099	LOD	ug/L	UJ	Surr
PYRENE	0.099	U Q	0.042	MDL	0.099	LOD	ug/L	UJ	Surr

Sample ID: FWGLL3MW-246-504-GWRE *Collected:* 10/22/2014 11:10:00 *Analysis Type:* RE-ACID *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.52	U H	0.31	MDL	0.52	LOD	ug/L	UJ	StoE
2,4,6-TRICHLOROPHENOL	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DICHLOROPHENOL	0.52	U H	0.20	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DIMETHYLPHENOL	0.52	U H	0.26	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DINITROPHENOL	1.0	U H	0.33	MDL	1.0	LOD	ug/L	UJ	StoE
2-CHLOROPHENOL	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
2-METHYLPHENOL	0.52	U H	0.18	MDL	0.52	LOD	ug/L	UJ	StoE
2-NITROPHENOL	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
3-methylphenol/4-methylphenol	1.0	U H	0.83	MDL	1.0	LOD	ug/L	UJ	StoE
4,6-DINITRO-2-METHYLPHENOL	4.2	U H	2.5	MDL	4.2	LOD	ug/L	UJ	StoE
4-CHLORO-3-METHYLPHENOL	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
4-NITROPHENOL	4.2	U H	0.30	MDL	4.2	LOD	ug/L	UJ	StoE
BENZOIC ACID	21	U H	10	MDL	21	LOD	ug/L	UJ	StoE
PENTACHLOROPHENOL	1.0	U H	0.28	MDL	1.0	LOD	ug/L	UJ	StoE
PHENOL	1.0	U H	0.62	MDL	1.0	LOD	ug/L	UJ	StoE

Sample ID: FWGLL3MW-246-504-GWRE *Collected:* 10/22/2014 11:10:00 *Analysis Type:* RE-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,4-TRICHLOROBENZENE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
1,2-DICHLOROBENZENE	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
1,3-DICHLOROBENZENE	0.52	U H	0.24	MDL	0.52	LOD	ug/L	UJ	StoE
1,4-DICHLOROBENZENE	0.52	U H	0.35	MDL	0.52	LOD	ug/L	UJ	StoE
2,2'-OXYBIS (1-CHLOROPROPANE)	0.52	U H	0.42	MDL	0.52	LOD	ug/L	UJ	StoE
2-CHLORONAPHTHALENE	0.52	U H	0.10	MDL	0.52	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: **SVOA**

Method: **8270C-SVOC4** ***Matrix:*** **AQ**

Sample ID: **FWGLL3MW-246-504-GWRE** ***Collected:*** **10/22/2014 11:10:00** ***Analysis Type:*** **RE-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
2-METHYLNAPHTHALENE	0.10	U H	0.094	MDL	0.10	LOD	ug/L	UJ	StoE
2-NITROANILINE	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
3,3'-DICHLOROBENZIDINE	1.0	U H	0.39	MDL	1.0	LOD	ug/L	UJ	StoE
3-NITROANILINE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
4-BROMOPHENYL-PHENYLETHER	0.52	U H	0.23	MDL	0.52	LOD	ug/L	UJ	StoE
4-CHLOROANILINE	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
4-CHLOROPHENYL-PHENYLETHER	0.52	U H	0.31	MDL	0.52	LOD	ug/L	UJ	StoE
4-NITROANILINE	0.52	U H	0.23	MDL	0.52	LOD	ug/L	UJ	StoE
ACENAPHTHENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
ACENAPHTHYLENE	0.10	U H	0.050	MDL	0.10	LOD	ug/L	UJ	StoE
ANTHRACENE	0.10	U H	0.092	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(A)ANTHRACENE	0.10	U H	0.031	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(A)PYRENE	0.10	U H	0.054	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(B)FLUORANTHENE	0.10	U H	0.041	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(G,H,I)PERYLENE	0.10	U H	0.048	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(K)FLUORANTHENE	0.10	U H	0.047	MDL	0.10	LOD	ug/L	UJ	StoE
BENZYL ALCOHOL	0.52	U H	0.40	MDL	0.52	LOD	ug/L	UJ	StoE
BIS(2-CHLOROETHOXY)METHANE	0.52	U H	0.33	MDL	0.52	LOD	ug/L	UJ	StoE
Bis(2-chloroethyl)ether	0.10	U H	0.10	MDL	0.10	LOD	ug/L	UJ	StoE
BIS(2-ETHYLHEXYL)PHTHALATE	5.2	U H	1.8	MDL	5.2	LOD	ug/L	UJ	StoE
Butylbenzylphthalate	0.52	U H	0.27	MDL	0.52	LOD	ug/L	UJ	StoE
CARBAZOLE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
CHRYSENE	0.10	U H	0.052	MDL	0.10	LOD	ug/L	UJ	StoE
DIBENZ(A,H)ANTHRACENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
DIBENZOFURAN	0.10	U H	0.021	MDL	0.10	LOD	ug/L	UJ	StoE
Diethylphthalate	1.0	U H	0.62	MDL	1.0	LOD	ug/L	UJ	StoE
Dimethylphthalate	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
DI-N-BUTYL PHTHALATE	5.2	U H	1.8	MDL	5.2	LOD	ug/L	UJ	StoE
DI-N-OCTYL PHTHALATE	0.52	U H	0.24	MDL	0.52	LOD	ug/L	UJ	StoE
FLUORANTHENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
FLUORENE	0.10	U H	0.042	MDL	0.10	LOD	ug/L	UJ	StoE
HEXACHLOROBENZENE	0.10	U H	0.089	MDL	0.10	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGLL3MW-246-504-GWRE **Collected:** 10/22/2014 11:10:00 **Analysis Type:** RE-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
HEXACHLOROBUTADIENE	0.52	U H	0.28	MDL	0.52	LOD	ug/L	UJ	StoE
HEXACHLOROCYCLOPENTADIENE	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	Lcs, StoE
HEXACHLOROETHANE	0.52	U H	0.20	MDL	0.52	LOD	ug/L	UJ	StoE
INDENO(1,2,3-CD)PYRENE	0.10	U H	0.045	MDL	0.10	LOD	ug/L	UJ	StoE
ISOPHORONE	0.52	U H	0.28	MDL	0.52	LOD	ug/L	UJ	StoE
NAPHTHALENE	0.10	U H	0.065	MDL	0.10	LOD	ug/L	UJ	StoE
N-NITROSO-DI-N-PROPYLAMINE	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	StoE
N-NITROSODIPHENYLAMINE	0.52	U H	0.32	MDL	0.52	LOD	ug/L	UJ	StoE
PHENANTHRENE	0.10	U H	0.064	MDL	0.10	LOD	ug/L	UJ	StoE
PYRENE	0.10	U H	0.044	MDL	0.10	LOD	ug/L	UJ	StoE

Sample ID: FWGLL3MW-DUP1-506-GWRE **Collected:** 10/22/2014 12:00:00 **Analysis Type:** RE-ACID **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,4,5-TRICHLOROPHENOL	0.52	U H	0.31	MDL	0.52	LOD	ug/L	UJ	StoE
2,4,6-TRICHLOROPHENOL	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DICHLOROPHENOL	0.52	U H	0.20	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DIMETHYLPHENOL	0.52	U H	0.26	MDL	0.52	LOD	ug/L	UJ	StoE
2,4-DINITROPHENOL	1.0	U H	0.33	MDL	1.0	LOD	ug/L	UJ	StoE
2-CHLOROPHENOL	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
2-METHYLPHENOL	0.52	U H	0.18	MDL	0.52	LOD	ug/L	UJ	StoE
2-NITROPHENOL	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
3-methylphenol/4-methylphenol	1.0	U H	0.83	MDL	1.0	LOD	ug/L	UJ	StoE
4,6-DINITRO-2-METHYLPHENOL	4.2	U H	2.5	MDL	4.2	LOD	ug/L	UJ	StoE
4-CHLORO-3-METHYLPHENOL	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
4-NITROPHENOL	4.2	U H	0.30	MDL	4.2	LOD	ug/L	UJ	StoE
BENZOIC ACID	21	U H	10	MDL	21	LOD	ug/L	UJ	StoE
PENTACHLOROPHENOL	1.0	U H	0.28	MDL	1.0	LOD	ug/L	UJ	StoE
PHENOL	1.0	U H	0.62	MDL	1.0	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix:** AQ

Sample ID: FWGLL3MW-DUP1-506-GWRE *Collected:* 10/22/2014 12:00:00 *Analysis Type:* RE-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,4-TRICHLOROBENZENE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
1,2-DICHLOROBENZENE	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
1,3-DICHLOROBENZENE	0.52	U H	0.24	MDL	0.52	LOD	ug/L	UJ	StoE
1,4-DICHLOROBENZENE	0.52	U H	0.35	MDL	0.52	LOD	ug/L	UJ	StoE
2,2'-OXYBIS (1-CHLOROPROPANE)	0.52	U H	0.42	MDL	0.52	LOD	ug/L	UJ	StoE
2-CHLORONAPHTHALENE	0.52	U H	0.10	MDL	0.52	LOD	ug/L	UJ	StoE
2-METHYLNAPHTHALENE	0.10	U H	0.094	MDL	0.10	LOD	ug/L	UJ	StoE
2-NITROANILINE	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
3,3'-DICHLOROBENZIDINE	1.0	U H	0.39	MDL	1.0	LOD	ug/L	UJ	StoE
3-NITROANILINE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
4-BROMOPHENYL-PHENYLETHER	0.52	U H	0.23	MDL	0.52	LOD	ug/L	UJ	StoE
4-CHLOROANILINE	0.52	U H	0.22	MDL	0.52	LOD	ug/L	UJ	StoE
4-CHLOROPHENYL-PHENYLETHER	0.52	U H	0.31	MDL	0.52	LOD	ug/L	UJ	StoE
4-NITROANILINE	0.52	U H	0.23	MDL	0.52	LOD	ug/L	UJ	StoE
ACENAPHTHENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
ACENAPHTHYLENE	0.10	U H	0.050	MDL	0.10	LOD	ug/L	UJ	StoE
ANTHRACENE	0.10	U H	0.092	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(A)ANTHRACENE	0.10	U H	0.031	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(A)PYRENE	0.10	U H	0.054	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(B)FLUORANTHENE	0.10	U H	0.041	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(G,H,I)PERYLENE	0.10	U H	0.048	MDL	0.10	LOD	ug/L	UJ	StoE
BENZO(K)FLUORANTHENE	0.10	U H	0.047	MDL	0.10	LOD	ug/L	UJ	StoE
BENZYL ALCOHOL	0.52	U H	0.40	MDL	0.52	LOD	ug/L	UJ	StoE
BIS(2-CHLOROETHOXY)METHANE	0.52	U H	0.33	MDL	0.52	LOD	ug/L	UJ	StoE
Bis(2-chloroethyl)ether	0.10	U H	0.10	MDL	0.10	LOD	ug/L	UJ	StoE
BIS(2-ETHYLHEXYL)PHTHALATE	5.2	U H	1.8	MDL	5.2	LOD	ug/L	UJ	StoE
Butylbenzylphthalate	0.52	U H	0.27	MDL	0.52	LOD	ug/L	UJ	StoE
CARBAZOLE	0.52	U H	0.29	MDL	0.52	LOD	ug/L	UJ	StoE
CHRYSENE	0.10	U H	0.052	MDL	0.10	LOD	ug/L	UJ	StoE
DIBENZ(A,H)ANTHRACENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
DIBENZOFURAN	0.10	U H	0.021	MDL	0.10	LOD	ug/L	UJ	StoE
Diethylphthalate	1.0	U H	0.62	MDL	1.0	LOD	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: SVOA

Method: 8270C-SVOC4 **Matrix: AQ**

Sample ID: FWGLL3MW-DUP1-506-GWRE *Collected:* 10/22/2014 12:00:00 *Analysis Type:* RE-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Dimethylphthalate	0.52	U H	0.30	MDL	0.52	LOD	ug/L	UJ	StoE
DI-N-BUTYL PHTHALATE	5.2	U H	1.8	MDL	5.2	LOD	ug/L	UJ	StoE
DI-N-OCTYL PHTHALATE	0.52	U H	0.24	MDL	0.52	LOD	ug/L	UJ	StoE
FLUORANTHENE	0.10	U H	0.046	MDL	0.10	LOD	ug/L	UJ	StoE
FLUORENE	0.10	U H	0.042	MDL	0.10	LOD	ug/L	UJ	StoE
HEXACHLOROBENZENE	0.10	U H	0.089	MDL	0.10	LOD	ug/L	UJ	StoE
HEXACHLOROBUTADIENE	0.52	U H	0.28	MDL	0.52	LOD	ug/L	UJ	StoE
HEXACHLOROCYCLOPENTADIENE	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	Lcs, StoE
HEXACHLOROETHANE	0.52	U H	0.20	MDL	0.52	LOD	ug/L	UJ	StoE
INDENO(1,2,3-CD)PYRENE	0.10	U H	0.045	MDL	0.10	LOD	ug/L	UJ	StoE
ISOPHORONE	0.52	U H	0.28	MDL	0.52	LOD	ug/L	UJ	StoE
NAPHTHALENE	0.10	U H	0.065	MDL	0.10	LOD	ug/L	UJ	StoE
N-NITROSO-DI-N-PROPYLAMINE	0.52	U H	0.25	MDL	0.52	LOD	ug/L	UJ	StoE
N-NITROSODIPHENYLAMINE	0.52	U H	0.32	MDL	0.52	LOD	ug/L	UJ	StoE
PHENANTHRENE	0.10	U H	0.064	MDL	0.10	LOD	ug/L	UJ	StoE
PYRENE	0.10	U H	0.044	MDL	0.10	LOD	ug/L	UJ	StoE

Method Category: SVOA

Method: 8330 **Matrix: AQ**

Sample ID: FWGEQUIPRINSE1-507-GW *Collected:* 10/21/2014 4:30:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,3,5-TRINITROBENZENE	1.1	J	0.034	MDL	0.055	LOD	ug/L	J	ProfJudg

Sample ID: FWGEQUIPRINSE2-0508-GW *Collected:* 10/22/2014 2:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,6-DINITROTOLUENE	0.074	J M	0.051	MDL	0.10	LOD	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: VOA

Method: 8260B **Matrix:** AQ

Sample ID: FWGEQUIPRINSE1-507-GW ***Collected:*** 10/21/2014 4:30:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	3.5	J	3.4	MDL	2.0	LOD	ug/L	UJ	Tb, ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg
TOLUENE	0.24	J	0.22	MDL	0.25	LOD	ug/L	J	RI

Sample ID: FWGEQUIPRINSE2-0508-GW ***Collected:*** 10/22/2014 2:45:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	2.0	U	3.4	MDL	2.0	LOD	ug/L	UJ	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

Sample ID: FWGLL1MW-088-0502-GW ***Collected:*** 10/21/2014 3:00:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	2.0	U	3.4	MDL	2.0	LOD	ug/L	UJ	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

Sample ID: FWGLL2MW-271-0503-GW ***Collected:*** 10/22/2014 4:30:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	2.0	U	3.4	MDL	2.0	LOD	ug/L	UJ	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

Sample ID: FWGLL3MW-246-504-GW ***Collected:*** 10/22/2014 11:10:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	2.0	U	3.4	MDL	2.0	LOD	ug/L	UJ	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Method Category: VOA

Method: 8260B **Matrix: AQ**

Sample ID: **FWGLL3MW-DUP1-506-GW** ***Collected:*** **10/22/2014 12:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	2.0	U	3.4	MDL	2.0	LOD	ug/L	UJ	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

Sample ID: **FWGTEAM2TRIP** ***Collected:*** **10/21/2014 10:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	4.1	J	3.4	MDL	2.0	LOD	ug/L	J	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

Sample ID: **FWGTEAM2TRIP** ***Collected:*** **10/22/2014 8:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-BUTANONE	1.0	U	4.1	MDL	1.0	LOD	ug/L	UJ	ProfJudg
ACETONE	4.0	J	3.4	MDL	2.0	LOD	ug/L	J	ProfJudg
BROMOFORM	1.0	U	0.56	MDL	1.0	LOD	ug/L	UJ	ProfJudg

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Data Qualifier Summary

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 12_19_14A3 **eQAPP Name: RVAAP 66-rev August 2014**

Reason Code Legend

Reason Code	*Description*
Cb	Calibration Blank Contamination
Eb	Equipment Blank Contamination
EtoA	Extraction to Analysis Estimation
Lcs	Laboratory Control Spike Lower Estimation
Lcs	Laboratory Control Spike Upper Estimation
Ld	Laboratory Duplicate Precision
Mb	Method Blank Contamination
Ms	Matrix Spike Lower Estimation
Ms	Matrix Spike Precision
ProfJudg	Professional Judgment
RI	Reporting Limit Trace Value
StoE	Sampling to Extraction Estimation
Surr	Surrogate/Tracer Recovery Lower Estimation
Surr	Surrogate/Tracer Recovery Lower Rejection
Surr	Surrogate/Tracer Recovery Upper Estimation
Tb	Trip Blank Contamination

* denotes a non-reportable result

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: **6010B**
Matrix: **AQ**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FWGEQUIPRINSE1-507-GW (RES/TOT)	10/21/2014 4:30:00 PM	MANGANESE NICKEL POTASSIUM	0.56 ug/L 0.78 ug/L 86 ug/L	FWGLL1MW-088-0502-GF FWGLL1MW-088-0502-GW

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
FWGLL1MW-088-0502-GF(RES/TOT)	NICKEL	1.4 ug/L	1.4U ug/L

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: 8081A **Preparation Method: 3520C**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
FWGEQUIPRINSE2-0508-GWRE (F	Sampling To Extraction	11.00	7.00	DAYS	J (all detects)
FWGLL2MW-271-0503-GWRE (RE)		14.00	7.00	DAYS	UJ (all non-detects)
FWGLL2MW-271-0503-GWREMS (		14.00	7.00	DAYS	
FWGLL2MW-271-0503-GWREMS (		14.00	7.00	DAYS	
FWGLL2MW-271-0503-GWREMSD		14.00	7.00	DAYS	
FWGLL2MW-271-0503-GWREMSD		14.00	7.00	DAYS	
FWGLL3MW-246-504-GWRE (RE)		14.00	7.00	DAYS	
FWGLL3MW-DUP1-506-GWRE (RE		14.00	7.00	DAYS	
FWGLL1MW-088-0502-GW (RES)	Extraction To Analysis	54.00	40.00	DAYS	J(all detects) UJ(all non-detects)

Method: 8270C-SVOC4 **Preparation Method: 3520C**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
FWGEQUIPRINSE2-0508-GWRE (F	Sampling To Extraction	14.00	7.00	DAYS	J(all detects)
FWGLL3MW-246-504-GWRE (RE)		14.00	7.00	DAYS	UJ(all non-detects)
FWGLL3MW-DUP1-506-GWRE (RE		14.00	7.00	DAYS	

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: 8081A
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 240-153099/17-A (FWGEQUIPRINSE1-507-GW FWGLL1MW-088-0502-GW)	TOXAPHENE	138	-	70.00-130.00	-	TOXAPHENE	J (all detects)
LCS 240-153099/16-A (FWGEQUIPRINSE1-507-GW FWGLL1MW-088-0502-GW)	ENDOSULFAN I	49	-	50.00-110.00	-	ENDOSULFAN I	J(all detects) UJ(all non-detects)

Method: 8270C-SVOC4
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 240-153104/20-A (FWGEQUIPRINSE1-507-GW FWGLL1MW-088-0502-GW FWGLL2MW-271-0503-GW)	HEXACHLOROCYCLOPENTADIEN	3	-	10.00-115.00	-	HEXACHLOROCYCLOPENTADIE	J(all detects) UJ(all non-detects)

Method: 8081A
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 240-154448/11-A (FWGEQUIPRINSE2-0508-GWRE)	4,4'-DDD 4,4'-DDT	157 150	- -	25.00-150.00 45.00-140.00	- -	4,4'-DDD 4,4'-DDT	J(all detects)
LCS 240-154929/17-A (FWGLL2MW-271-0503-GWRE FWGLL3MW-246-504-GWRE FWGLL3MW-DUP1-506-GWRE)	TOXAPHENE	147	-	70.00-130.00	-	TOXAPHENE	J(all detects)

Method: 8270C-SVOC4
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 240-154942/8-A (FWGEQUIPRINSE2-0508-GWRE FWGLL3MW-246-504-GWRE FWGLL3MW-DUP1-506-GWRE)	HEXACHLOROCYCLOPENTADIEN	5	-	10.00-115.00	-	HEXACHLOROCYCLOPENTADIE	J(all detects) UJ(all non-detects)

Lab Duplicate Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: 6010B
Matrix: AQ

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
FWGLL2MW-271-0503-GFDUP (TOT) (FWGEQUIPRINSE1-507-GW FWGEQUIPRINSE2-0508-GW FWGLL1MW-088-0502-GF FWGLL2MW-271-0503-GF FWGLL3MW-246-504-GF FWGLL3MW-DUP1-506-GF)	CHROMIUM	27	20.00	J (all detects) UJ (all non-detects)

Project Name and Number: 30174.0016.001.10.1 - RVAAP 66

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: **8270C-SVOC4**

Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
FWGLL2MW-271-0503-GWMSD (FWGLL2MW-271-0503-GW)	2,4-DINITROPHENOL 4,6-DINITRO-2-METHYLPHENOL BENZOIC ACID	- - -	- - -	15.00-140.00 40.00-130.00 0.00-125.00	75 (30.00) 47 (30.00) 200 (30.00)	2,4-DINITROPHENOL 4,6-DINITRO-2-METHYLPHENOL BENZOIC ACID	J (all detects)
FWGLL2MW-271-0503-GWMS FWGLL2MW-271-0503-GWMSD (FWGLL2MW-271-0503-GW)	HEXACHLOROCYCLOPENTADIEN PENTACHLOROPHENOL	5 -	4 39	10.00-115.00 40.00-115.00	32 (30.00) 43 (30.00)	HEXACHLOROCYCLOPENTADIE PENTACHLOROPHENOL	J(all detects) UJ(all non-detects)

Method Blank Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: **6020**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 240-153655/1-A	10/29/2014 10:11:00 AM	CADMIUM	0.423 ug/L	FWGEQUIPRINSE1-507-GW FWGEQUIPRINSE2-0508-GW FWGLL1MW-088-0502-GF FWGLL2MW-271-0503-GF FWGLL3MW-246-504-GF FWGLL3MW-DUP1-506-GF

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
FWGLL2MW-271-0503-GF(RES/TOT)	CADMIUM	0.58 ug/L	0.58U ug/L

Method: **8081A**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 240-153099/15-A	11/3/2014 8:47:00 PM	ALPHA-BHC BETA-BHC DELTA-BHC gamma-BHC (Lindane)	0.0207 ug/L 0.0280 ug/L 0.0552 ug/L 0.0128 ug/L	FWGEQUIPRINSE1-507-GW FWGLL1MW-088-0502-GW

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
FWGLL1MW-088-0502-GW(RES)	ALPHA-BHC	0.028 ug/L	0.028U ug/L

Surrogate Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: **8081A**
Matrix: **AQ**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
FWGLL1MW-088-0502-GW	TETRACHLORO-M-XYLENE	174	25.00-140.00	All Target Analytes	J(all detects)

Method: **8270C-SVOC4**
Matrix: **AQ**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
FWGEQUIPRINSE1-507-GW	2,4,6-TRIBROMOPHENOL	0	40.00-125.00	All Target Analytes	J (all detects) R (all non-detects)
	2-FLUOROBIPHENYL	0	50.00-110.00		
	2-FLUOROPHENOL	0	20.00-110.00		
	Nitrobenzene-d5	0	40.00-110.00		
	PHENOL-D5	0	10.00-115.00		
	Terphenyl-d14	0	50.00-135.00		
FWGLL1MW-088-0502-GW	2,4,6-TRIBROMOPHENOL	0	40.00-125.00	All Target Analytes	J(all detects) R(all non-detects)
	2-FLUOROBIPHENYL	0	50.00-110.00		
	2-FLUOROPHENOL	0	20.00-110.00		
	Nitrobenzene-d5	0	40.00-110.00		
	PHENOL-D5	0	10.00-115.00		
	Terphenyl-d14	0	50.00-135.00		
FWGLL2MW-271-0503-GW	2,4,6-TRIBROMOPHENOL	0	40.00-125.00	All Target Analytes	J(all detects) R(all non-detects)
	2-FLUOROBIPHENYL	0	50.00-110.00		
	2-FLUOROPHENOL	0	20.00-110.00		
	Nitrobenzene-d5	0	40.00-110.00		
	PHENOL-D5	0	10.00-115.00		
	Terphenyl-d14	0	50.00-135.00		

Trip Blank Outlier Report

Lab Reporting Batch ID: 240-43449-1 **Laboratory: TA CAN**

EDD Filename: 240-43449-1 **eQAPP Name: RVAAP 66-rev August 2014**

Method: **8260B**
Matrix: **AQ**

Trip Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FWGTEAM2TRIP(RES)	10/21/2014 10:00:00 AM	ACETONE	4.1 ug/L	FWGEQUIPRINSE1-507-GW FWGLL1MW-088-0502-GW

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
FWGEQUIPRINSE1-507-GW(RES)	ACETONE	3.5 ug/L	3.5U ug/L

APPENDIX C

INVESTIGATION-DERIVED WASTE CHARACTERIZATION AND DISPOSAL PLAN

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

December 3, 2014

Mr. Brett Merkel
Army National Guard Directorate
ARNGD-ILE Clean Up
111 South George Mason Drive
Arlington, VA 22203

Re: US Army Ravenna Ammunition Plt RVAAP
Assessment
Remedial Response
Portage
267000859

Subject: Ravenna Army Ammunition Plant Portage/Trumbull Counties, Approval Letter, Re. FWGWMP Draft Facility-Wide Groundwater Investigation Derived Waste Characterization and Disposal Plan, October 2014 Groundwater Sampling Event, Dated November 24, 2014, Ohio EPA ID # 267-000859-036

Dear Mr. Merkel:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the, "Draft Investigation Derived Waste (IDW) Characterization and Disposal Plan, October 2014 Groundwater Sampling Event Report" in support of the Facility-Wide Groundwater Monitoring Program at the Ravenna Army Ammunition Plant, Ravenna, OH. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), on November 25, 2014, and is dated November 24, 2014. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-11-F-0266.

The IDW consists of purge water from the ground water sampling event and decontamination wastewater, which were placed in separate drums. Three wells were purged and sampled during this event, which generated a total volume of water estimated at 35 gallons stored in one drum. A second drum contained less than 1 gallon of decontamination water, of which the entire volume was used for laboratory analysis. Based on the analytical results, the remaining single drum of purge water can be classified as nonhazardous and be sent offsite for disposal at a permitted water treatment facility.

E-MAILED 12-08-2014 RMH

The Plan is hereby approved and Ohio EPA concurs the wastewater can be disposed of as nonhazardous waste and sent off-site for disposal at a permitted water treatment facility.

Scanned By: RMH Date: 12-08-2014

Northeast District Office • 2110 East Aurora Road • Twinsburg, OH 44087-1924
www.epa.ohio.gov • (330) 963-1200 • (330) 487-0769 (fax)

RECEIVED 12-08-2014

Pursuant to the CERCLA process, the property owner usually can provide the expected land uses to assist in ensuring that the investigation addresses all receptors for both current and future land uses. Be advised that due to land use uncertainty, Ohio EPA may require additional work in the future, to address data gaps. It is incumbent upon the Army to finalize land use at Camp Ravenna as soon as possible, otherwise additional work and schedule slippage may result.

If you have any questions, please call me at (330) 963-1292.

Sincerely,

Kevin M. Palombo
Environmental Specialist
Division of Environmental Response and Revitalization

KP/nvr

cc: Katie Tait, OHARNG RTLS
Kevin Sedlak, ARNG
Gregory F. Moore, USACE
Mark Nichter, USACE
Rebecca Haney/Gail Harris, Vista Sciences Corp.

ec: Nancy Zikmanis, Ohio EPA, NEDO DERR
Justin Burke, Ohio EPA, CO, DERR
Rod Beals, Ohio EPA, NEDO DERR

FINAL

FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
RVAAP-66 FACILITY-WIDE GROUNDWATER

INVESTIGATION-DERIVED WASTE CHARACTERIZATION AND DISPOSAL PLAN
OCTOBER 2014 GROUNDWATER SAMPLING EVENT REPORT

FORMER RAVENNA ARMY AMMUNITION PLANT, PORTAGE AND TRUMBULL COUNTIES, OHIO

November 24, 2014

GSA Contract Number GS-10F-0293K
Delivery Order W912QR-11-F-0266

Prepared for:

U.S. Army Corps of Engineers
600 Martin Luther King Jr. Place
Louisville, Kentucky 40202

Prepared by:

Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240

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TABLES

APPENDICES

ACRONYMS

AOC	area of concern
ARNG	Army National Guard
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
^{o}F	degrees Fahrenheit
FWG	Facility-Wide Groundwater
FWGWMP	Facility-Wide Groundwater Monitoring Program
FWGWMPP	Facility-Wide Groundwater Monitoring Program Plan
FWSAP	Facility-Wide Sampling and Analysis Plan
gal	gallon
IDW	investigation-derived waste
mg/L	milligram per liter
OHARNG	Ohio Army National Guard
RCRA	Resource Conservation and Recovery Act
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
S.U.	standard unit
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
USACE	United States Army Corps of Engineers
VOC	volatile organic compound

1.0 INTRODUCTION

Investigative activities were conducted during the Facility-Wide Groundwater Monitoring Program (FWGWMP) sampling event in October 2014 at the former Ravenna Army Ammunition Plant (RVAAP), Portage and Trumbull Counties, Ohio, resulting in the generation of investigation-derived wastes (IDW). The IDW consists of purge water and equipment decontamination wastewater. The IDW purge water was generated in the course of field activities during sampling of three wells. The IDW decontamination waters were generated from the cleaning and decontamination of non-dedicated equipment used to sample the wells. The purpose of this report is to characterize and classify the IDW for proper disposal. The report includes:

- A summary of the IDW generated and its origin.
- A review of the analytical results used for waste characterization.
- Classification of the IDW per the *Facility Wide Sampling and Analysis Plan* (FWSAP).
- Recommendations for disposal.

This document follows guidance established by the United States Army Corps of Engineers (USACE), the Army National Guard (ARNG)/Ohio Army National Guard (OHARNG), and the Ohio Environmental Protection Agency (EPA) regarding IDW disposition at RVAAP.

2.0 OPERATIONAL HISTORY AND WASTE GENERATION

Information regarding the operational history and suspected contaminants for the Facility-Wide Groundwater Monitoring Program Plan (FWGWMPP) is presented in Section 1.2 of the *Final Part 1 - Sampling and Analysis Plan Addendum for the Facility-Wide Groundwater Monitoring Program Plan at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAP Addendum; Portage, 2004). Section 4.6 of the FWGWMP SAP Addendum describes procedures used for sampling and managing IDW at the former RVAAP.

Water (purged groundwater and decontamination water) IDW was generated during the October 2014 sampling event (three wells). The purge water collected from the sampled areas of concern (AOCs) was stored in drums labeled for purge water disposal. Purge water was generated in accordance with the FWSAP, Section 5.4.4.2 (SAIC, 2011) under the micropurging criteria. Decontamination water was generated from the washing, rinsing, and decontamination procedures used for all non-dedicated sampling equipment. Initially, the decontamination water was stored in a drum separate from the purge water. During waste characterization sampling, all of the decontamination fluids in the drum were removed to fill sample bottles; consequently, no decontamination fluids remain on site. The decontamination procedures are described in Section 5.4.8 of the FWSAP.

The drum container label, type and size of the drum container used, estimated volume per drum, and the source of purge wastewater or decontamination fluid is presented in Table 2-1. Note that there were no residual decontamination fluids remaining after filling sample containers for laboratory analysis of the waste characterization parameters. This waste stream was ultimately disposed of by the laboratory.

Table 2-1. IDW Inventory of Drums

Drum Label	Drum Type & Size	Contents	Estimated Volume	Location/ Source
EQM 2014-9	55-gal Steel	Purge Water	~35 gallons	Three wells located outside the perimeter fence of the facility and downgradient of Load Lines 1, 2, and 3.

3.0 MANAGEMENT OF ENVIRONMENTAL MEDIA

All environmental media were managed in a manner that minimized potential risk to human health and the environment. Based on past sampling and IDW reports for similar groundwater monitoring activities, investigation-derived waste was handled as nonhazardous material pending waste characterization and classification based on analytical results. The FWSAP and the FWGWMPP SAP Addendum describe approved procedures used for containerizing and handling IDW.

All purged groundwater IDW generated from each micropurging event was placed into a 55-gal drum as previously agreed upon by the Army, USACE, and Ohio EPA. The purge water was transferred daily from each well location after sampling via closed-top 5-gal buckets to the appropriately labeled 55-gal drum located and staged on secondary containment inside Building 1036.

4.0 DISCUSSION OF ANALYTICAL RESULTS

As described in Section 8.4 of the FWSAP (IDW Characterization and Classification for Disposal), all IDW were characterized for disposal by taking composite samples collected from each of the segregated waste streams. There were only two segregated waste streams during this sampling event that required characterization: one for the generated purge water and one for the decontamination wastewater. A composite sample was taken of each waste stream using a disposable bailer until a total of approximately 4 liters was withdrawn in equal amounts from all drums of that particular waste stream. Each waste stream composite sample was submitted to TestAmerica Laboratories in North Canton, Ohio, for full Toxicity Characteristic Leaching Procedure (TCLP) analysis in accordance with the FWSAP using the following methods:

- TCLP mercury by EPA Method SW-846 1311/7470A.
- TCLP metals (silver, arsenic, barium, cadmium, chromium, lead, and selenium) by EPA Method SW-846 1311/6010B.
- TCLP semivolatile organic compounds (SVOCs) by EPA Method SW-846 1311/8270C.
- TCLP volatile organic compounds (VOCs) by EPA Method SW-846 1311/8260B.
- TCLP pesticides by EPA Method SW-846 1311/8081A
- TCLP herbicides by EPA Method SW-846 1311/8151A
- Total cyanide by EPA Method SW-846 9012A
- Total sulfide by EPA Method SW-846 9034
- Flashpoint by EPA Method SW-846 1010
- pH by EPA Method SW-846 9040B

A trip blank was submitted with the samples and analyzed for VOCs. The IDW analytical results are presented in Appendix A.

5.0 RECOMMENDATIONS FOR DISPOSAL

Table 8-1 in the FWSAP presents the maximum concentrations of contaminants for the toxicity characteristic for hazardous wastes as per 40 CFR 261.24. Analytical results for the IDW generated during the October 2014 groundwater sampling event were compared against these criteria to determine whether the waste streams generated were potentially hazardous or non-hazardous. No volatile organic compounds were identified in the trip blank.

5.1 Purge Water

During micro-purging of the monitoring wells, liquid IDW was generated and sampled. The analytical results for the purged groundwater were compared to the regulatory levels from Table 8-1 in the FWSAP. The regulatory criteria (TCLP) for Resource Conservation and Recovery Act (RCRA) hazardous waste determinations were not exceeded. Table 5-1 presents the detected results compared to the regulatory characteristics for hazardous wastes as per 40 CFR 261.24.

The drum containing purged groundwater will be classified as non-hazardous and will be sent offsite for disposal to a permitted water treatment facility in accordance with Section 8.0 of the FWSAP.

5.2 Decontamination Fluids

A composite sample was collected of the decontamination fluids generated during cleaning of non-dedicated sampling equipment. The regulatory criteria (TCLP) for RCRA hazardous waste determinations were not exceeded. Table 5-1 presents the detected results compared to the regulatory characteristics for hazardous wastes as per 40 CFR 261.24.

As mentioned in Section 2.0, there were no residual decontamination fluids remaining after filling sample containers for laboratory analysis of the waste characterization parameters. This waste stream was ultimately disposed of as non-hazardous waste by the laboratory.

5.3 Summary of Disposal Recommendations

The drum will be classified as non-hazardous. The purge water drum will be sent offsite to a permitted water treatment facility for disposal. No decontamination fluids remain on site; this waste stream was disposed of by the laboratory as part of the analytical process. The results for both composite samples were below regulatory limits and therefore classified as non-hazardous waste. Table 5-2 presents a summary of the waste and the recommended disposal options. Upon review and acceptance of the IDW report,

Environmental Quality Management, Inc. (EQM) will proceed with the appropriate waste disposal.

Table 5-1. Detected Analytical Results When Compared to USEPA Regulatory Characteristic Levels (40 CFR 261.20 - 24)

Sample ID	Detected Contaminant	Detected Result, mg/L	Characteristic Levels for Determining Hazardous Waste[1], mg/L	Above Regulatory Yes/No
FWG-IDW-MWPURGEOCT2014	Barium	0.020 JB	100	No
	Cadmium	0.00018 J	1.0	No
	Chromium	0.0016 JB	5.0	No
	Flashpoint	>200°F	<140°F	No
	pH[2]	7.23	<2 or >12.5	No
FWG-IDW-MWDECONOCT2014	Barium	0.0047 JB	100	No
	Cadmium	0.00018 J	1.0	No
	Chromium	0.0016 JB	5.0	No
	Mercury	0.11	0.20	No
	Flashpoint	>200°F	<140°F	No
	Cyanide, Total	0.0076 JB	See Notes	No
	pH[2]	7.08	<2 or >12.5	No

1 = USEPA Regulatory Characteristic Levels (40 CFR 261.20 through 24).
2 = pH measured in Standard Units (S.U.).
J = estimated result. Result is less than reporting limit.
B = blank contamination.
Reactive Cyanide Note: Despite the presence of a low concentration of cyanide, the waste streams are deemed nonhazardous as they do not meet the hazardous waste criteria set forth in OAC 3725-51-23 (i.e., reacts violently with water or produces toxic gases, fumes, or vapors between the pH of 2 and 12.5).

Table 5-2. Summary of Waste*, TCLP/Characteristic Waste Criteria, and Disposal Recommendations

Drum Container Label	Media	TCLP Criteria	Disposal Recommendation
EQM 2014-9 Purge Water	Water	Regulatory limits not exceeded.	Offsite disposal as non-hazardous waste.

* Note that there were no residual decontamination fluids remaining after filling sample containers for laboratory analysis of the waste characterization parameters.

6.0 REFERENCES

Science Applications International Corporation (SAIC). February 24, 2011. *Final Facility-Wide Sampling and Analysis Plan for Environmental Investigations, Ravenna Army Ammunition Plant, Ravenna, Ohio.*

Portage Environmental. 2004. *RVAAP Facility Wide Groundwater Monitoring Program Plan*.

APPENDIX A

INVESTIGATION-DERIVED WASTE ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-43456-1
Client Project/Site: RVAAP (OH) - IDW

For:
Environmental Quality Mgt., Inc.
1800 Carillon Blvd
Cincinnati, Ohio 45240

Attn: Mr. Erik Corbin

Authorized for release by:
11/4/2014 5:21:57 PM

Mark Loeb, Project Manager II
(330)966-9387
mark.loeb@testamericainc.com

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 240-43456-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Environmental Quality Mgt., Inc.

Project: RVAAP (OH) - IDW

Report Number: 240-43456-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 10/23/2014 10:07 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.2° C.

TCLP VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP volatile organic compounds (GCMS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 10/27/2014 and analyzed on 10/28/2014.

Sample FWG-IDW-MWDECONOCT2014 (240-43456-4)[2X] required dilution prior to analysis due to foaming at the time of purging during the original sample analysis: FWG-IDW-MWDECONOCT2014. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples FWG-IDW-MWTBOCT2014PURGE (240-43456-1) and FWG-IDW-MWTBOCT2014 (240-43456-3) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/30/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 240-43456-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Methods 1311/8270C. The samples were leached on 10/27/2014, prepared on 10/28/2014 and analyzed on 10/30/2014 and 11/02/2014.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED PESTICIDES

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP chlorinated pesticides in accordance with EPA SW-846 Methods 1311/8081A. The samples were leached on 10/27/2014, prepared on 10/28/2014 and analyzed on 11/02/2014.

DCB Decachlorobiphenyl failed the surrogate recovery criteria low for FWG-IDW-MWDECONOCT2014 (240-43456-4). Refer to the QC report for details.

2 surrogates are used for this analysis. The laboratory's SOP allows 1 of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: FWG-IDW-MWDECONOCT2014. These results have been reported and qualified.

Due to a time change, the system reported an incorrect date for samples selected: FWG-IDW-MWDECONOCT2014.

The continuing calibration verification (CCV) associated with batch 154295 recovered above the upper control limit for Methoxychlor, and Heptachlor. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FWG-IDW-MWDECONOCT2014, and FWG-IDW-MWPURGEOCT2014.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED HERBICIDES

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/8151A. The samples were leached on 10/27/2014, prepared on 10/28/2014 and analyzed on 10/29/2014.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP METALS (ICP)

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010B. The samples were leached on 10/27/2014, prepared on 10/28/2014 and analyzed on 10/29/2014.

Arsenic, Chromium and Selenium were detected in method blank LB 240-153529/1-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Barium was detected in method blanks MB 240-153672/2-A, and LB 240-153529/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 240-43456-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

TCLP MERCURY

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 10/27/2014, prepared on 10/28/2014 and analyzed on 10/29/2014 and 10/30/2014.

Sample FWG-IDW-MWDECONOCT2014 (240-43456-4)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

FLASHPOINT

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for flashpoint in accordance with EPA SW-846 Method 1010. The samples were analyzed on 10/24/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL CYANIDE

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012A. The samples were prepared and analyzed on 10/30/2014.

Cyanide, Total was detected in method blank MB 240-154071/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 10/28/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PH

Samples FWG-IDW-MWPURGEOCT2014 (240-43456-2) and FWG-IDW-MWDECONOCT2014 (240-43456-4) were analyzed for pH in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 10/23/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8081A	Organochlorine Pesticides (GC)	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CAN
6010B	Metals (ICP)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
1010	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL CAN
9012A	Cyanide, Total and/or Amenable	SW846	TAL CAN
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL CAN
9040B	pH	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-43456-1	FWG-IDW-MWTBOCT2014PURGE	Water	10/23/14 07:30	10/23/14 10:07
240-43456-2	FWG-IDW-MWPURGEOCT2014	Water	10/23/14 08:00	10/23/14 10:07
240-43456-3	FWG-IDW-MWTBOCT2014	Water	10/23/14 07:30	10/23/14 10:07
240-43456-4	FWG-IDW-MWDECONOCT2014	Water	10/23/14 08:15	10/23/14 10:07

Detection Summary

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Client Sample ID: FWG-IDW-MWTBOCT2014PURGE — Lab Sample ID: 240-43456-1

No Detections.

Client Sample ID: FWG-IDW-MWPURGEOCT2014 — Lab Sample ID: 240-43456-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.020	J B	10	0.0010	mg/L	1		6010B	TCLP
Cadmium	0.00018	J	0.10	0.00014	mg/L	1		6010B	TCLP
Chromium	0.0016	J B	0.50	0.00055	mg/L	1		6010B	TCLP
Flashpoint	>200		1.00	1.00	Degrees F	1		1010	Total/NA
pH	7.23		0.100	0.100	SU	1		9040B	Total/NA

Client Sample ID: FWG-IDW-MWTBOCT2014 — Lab Sample ID: 240-43456-3

No Detections.

Client Sample ID: FWG-IDW-MWDECONOCT2014 — Lab Sample ID: 240-43456-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0047	J B	10	0.0010	mg/L	1		6010B	TCLP
Cadmium	0.00018	J	0.10	0.00014	mg/L	1		6010B	TCLP
Chromium	0.0016	J B	0.50	0.00055	mg/L	1		6010B	TCLP
Mercury	0.11		0.040	0.0018	mg/L	20		7470A	TCLP
Flashpoint	>200		1.00	1.00	Degrees F	1		1010	Total/NA
Cyanide, Total	0.0076	J B	0.010	0.0020	mg/L	1		9012A	Total/NA
pH	7.08		0.100	0.100	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Client Sample ID: FWG-IDW-MWTBOCT2014PURGE
Date Collected: 10/23/14 07:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.45	ug/L			10/30/14 22:26	1
1,2-Dichloroethane	1.0	U	1.0	0.20	ug/L			10/30/14 22:26	1
Benzene	1.0	U	1.0	0.24	ug/L			10/30/14 22:26	1
Carbon tetrachloride	1.0	U	1.0	0.17	ug/L			10/30/14 22:26	1
Chlorobenzene	1.0	U	1.0	0.19	ug/L			10/30/14 22:26	1
Chloroform	1.0	U	1.0	0.21	ug/L			10/30/14 22:26	1
2-Butanone (MEK)	10	U	10	4.1	ug/L			10/30/14 22:26	1
Tetrachloroethene	1.0	U	1.0	0.20	ug/L			10/30/14 22:26	1
Trichloroethene	1.0	U	1.0	0.15	ug/L			10/30/14 22:26	1
Vinyl chloride	1.0	U	1.0	0.29	ug/L			10/30/14 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*63 - 129*		*10/30/14 22:26*	*1*
4-Bromofluorobenzene (Surr)	*87*		*66 - 120*		*10/30/14 22:26*	*1*
Toluene-d8 (Surr)	*92*		*74 - 120*		*10/30/14 22:26*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 121*		*10/30/14 22:26*	*1*

Client Sample ID: FWG-IDW-MWPURGEOCT2014
Date Collected: 10/23/14 08:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			10/28/14 20:21	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			10/28/14 20:21	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			10/28/14 20:21	1
Benzene	0.025	U	0.025	0.0065	mg/L			10/28/14 20:21	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			10/28/14 20:21	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			10/28/14 20:21	1
Chloroform	0.025	U	0.025	0.0080	mg/L			10/28/14 20:21	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			10/28/14 20:21	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			10/28/14 20:21	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			10/28/14 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 121*		*10/28/14 20:21*	*1*
4-Bromofluorobenzene (Surr)	*80*		*70 - 124*		*10/28/14 20:21*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/28/14 20:21*	*1*
Dibromofluoromethane (Surr)	*89*		*80 - 128*		*10/28/14 20:21*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.0040	U	0.0040	0.00034	mg/L		10/28/14 07:53	10/30/14 21:38	1
2,4,5-Trichlorophenol	0.020	U	0.020	0.00030	mg/L		10/28/14 07:53	10/30/14 21:38	1
2,4,6-Trichlorophenol	0.020	U	0.020	0.00024	mg/L		10/28/14 07:53	10/30/14 21:38	1
2,4-Dinitrotoluene	0.020	U	0.020	0.00025	mg/L		10/28/14 07:53	10/30/14 21:38	1
Hexachlorobenzene	0.020	U	0.020	0.000085	mg/L		10/28/14 07:53	10/30/14 21:38	1
Hexachlorobutadiene	0.020	U	0.020	0.00027	mg/L		10/28/14 07:53	10/30/14 21:38	1
Hexachloroethane	0.020	U	0.020	0.00019	mg/L		10/28/14 07:53	10/30/14 21:38	1
3 & 4 Methylphenol	0.040	U	0.040	0.00080	mg/L		10/28/14 07:53	10/30/14 21:38	1
2-Methylphenol	0.0040	U	0.0040	0.00017	mg/L		10/28/14 07:53	10/30/14 21:38	1
Nitrobenzene	0.0040	U	0.0040	0.000040	mg/L		10/28/14 07:53	10/30/14 21:38	1
Pentachlorophenol	0.040	U	0.040	0.00027	mg/L		10/28/14 07:53	10/30/14 21:38	1
Pyridine	0.020	U	0.020	0.00035	mg/L		10/28/14 07:53	10/30/14 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*30 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*
2-Fluorophenol (Surr)	*49*		*20 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*23 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*
Nitrobenzene-d5 (Surr)	*60*		*28 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*
Phenol-d5 (Surr)	*47*		*21 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*
Terphenyl-d14 (Surr)	*89*		*48 - 110*	*10/28/14 07:53*	*10/30/14 21:38*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	0.0050	U	0.0050	0.000033	mg/L		10/28/14 07:49	11/02/14 23:56	1
Endrin	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/02/14 23:56	1
Heptachlor	0.00050	U	0.00050	0.0000050	mg/L		10/28/14 07:49	11/02/14 23:56	1
Heptachlor epoxide	0.00050	U	0.00050	0.000014	mg/L		10/28/14 07:49	11/02/14 23:56	1
gamma-BHC (Lindane)	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/02/14 23:56	1
Methoxychlor	0.0010	U	0.0010	0.000012	mg/L		10/28/14 07:49	11/02/14 23:56	1
Toxaphene	0.020	U	0.020	0.00020	mg/L		10/28/14 07:49	11/02/14 23:56	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Client Sample ID: FWG-IDW-MWPURGEOCT2014
Date Collected: 10/23/14 08:00
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-2
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*82*		*40 - 129*	*10/28/14 07:49*	*11/02/14 23:56*	*1*
Tetrachloro-m-xylene	*87*		*40 - 129*	*10/28/14 07:49*	*11/02/14 23:56*	*1*
DCB Decachlorobiphenyl	*81*		*40 - 152*	*10/28/14 07:49*	*11/02/14 23:56*	*1*
DCB Decachlorobiphenyl	*82*		*40 - 152*	*10/28/14 07:49*	*11/02/14 23:56*	*1*

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 18:31	1
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 18:31	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 18:31	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*98*		*56 - 120*	*10/28/14 07:50*	*10/29/14 18:31*	*1*
2,4-Dichlorophenylacetic acid	*100*		*56 - 120*	*10/28/14 07:50*	*10/29/14 18:31*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.50	U	0.50	0.0029	mg/L		10/28/14 11:00	10/29/14 15:00	1
Barium	**0.020**	**J B**	10	0.0010	mg/L		10/28/14 11:00	10/29/14 15:00	1
Cadmium	**0.00018**	**J**	0.10	0.00014	mg/L		10/28/14 11:00	10/29/14 15:00	1
Chromium	**0.0016**	**J B**	0.50	0.00055	mg/L		10/28/14 11:00	10/29/14 15:00	1
Lead	0.50	U	0.50	0.0019	mg/L		10/28/14 11:00	10/29/14 15:00	1
Selenium	0.25	U	0.25	0.0040	mg/L		10/28/14 11:00	10/29/14 15:00	1
Silver	0.50	U	0.50	0.00092	mg/L		10/28/14 11:00	10/29/14 15:00	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		10/28/14 15:55	10/29/14 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>200**		1.00	1.00	Degrees F			10/24/14 09:09	1
Cyanide, Total	0.010	U	0.010	0.0020	mg/L		10/30/14 09:58	10/30/14 12:13	1
Sulfide	3.0	U	3.0	0.94	mg/L		10/28/14 08:10	10/28/14 08:10	1
pH	**7.23**		0.100	0.100	SU			10/23/14 15:32	1

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Client Sample ID: FWG-IDW-MWTBOCT2014
Date Collected: 10/23/14 07:30
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.45	ug/L			10/30/14 22:49	1
1,2-Dichloroethane	1.0	U	1.0	0.20	ug/L			10/30/14 22:49	1
Benzene	1.0	U	1.0	0.24	ug/L			10/30/14 22:49	1
Carbon tetrachloride	1.0	U	1.0	0.17	ug/L			10/30/14 22:49	1
Chlorobenzene	1.0	U	1.0	0.19	ug/L			10/30/14 22:49	1
Chloroform	1.0	U	1.0	0.21	ug/L			10/30/14 22:49	1
2-Butanone (MEK)	10	U	10	4.1	ug/L			10/30/14 22:49	1
Tetrachloroethene	1.0	U	1.0	0.20	ug/L			10/30/14 22:49	1
Trichloroethene	1.0	U	1.0	0.15	ug/L			10/30/14 22:49	1
Vinyl chloride	1.0	U	1.0	0.29	ug/L			10/30/14 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*63 - 129*		*10/30/14 22:49*	*1*
4-Bromofluorobenzene (Surr)	*88*		*66 - 120*		*10/30/14 22:49*	*1*
Toluene-d8 (Surr)	*92*		*74 - 120*		*10/30/14 22:49*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*10/30/14 22:49*	*1*

Client Sample ID: FWG-IDW-MWDECONOCT2014
Date Collected: 10/23/14 08:15
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.050	U	0.050	0.019	mg/L			10/28/14 20:44	2
1,2-Dichloroethane	0.050	U	0.050	0.022	mg/L			10/28/14 20:44	2
2-Butanone (MEK)	0.50	U	0.50	0.057	mg/L			10/28/14 20:44	2
Benzene	0.050	U	0.050	0.013	mg/L			10/28/14 20:44	2
Carbon tetrachloride	0.050	U	0.050	0.013	mg/L			10/28/14 20:44	2
Chlorobenzene	0.050	U	0.050	0.015	mg/L			10/28/14 20:44	2
Chloroform	0.050	U	0.050	0.016	mg/L			10/28/14 20:44	2
Tetrachloroethene	0.050	U	0.050	0.029	mg/L			10/28/14 20:44	2
Trichloroethene	0.050	U	0.050	0.017	mg/L			10/28/14 20:44	2
Vinyl chloride	0.050	U	0.050	0.022	mg/L			10/28/14 20:44	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*		*10/28/14 20:44*	*2*
4-Bromofluorobenzene (Surr)	*80*		*70 - 124*		*10/28/14 20:44*	*2*
Toluene-d8 (Surr)	*88*		*80 - 120*		*10/28/14 20:44*	*2*
Dibromofluoromethane (Surr)	*94*		*80 - 128*		*10/28/14 20:44*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.0040	U	0.0040	0.00034	mg/L		10/28/14 07:53	11/02/14 01:10	1
2,4,5-Trichlorophenol	0.020	U	0.020	0.00030	mg/L		10/28/14 07:53	11/02/14 01:10	1
2,4,6-Trichlorophenol	0.020	U	0.020	0.00024	mg/L		10/28/14 07:53	11/02/14 01:10	1
2,4-Dinitrotoluene	0.020	U	0.020	0.00025	mg/L		10/28/14 07:53	11/02/14 01:10	1
Hexachlorobenzene	0.020	U	0.020	0.000085	mg/L		10/28/14 07:53	11/02/14 01:10	1
Hexachlorobutadiene	0.020	U	0.020	0.00027	mg/L		10/28/14 07:53	11/02/14 01:10	1
Hexachloroethane	0.020	U	0.020	0.00019	mg/L		10/28/14 07:53	11/02/14 01:10	1
3 & 4 Methylphenol	0.040	U	0.040	0.00080	mg/L		10/28/14 07:53	11/02/14 01:10	1
2-Methylphenol	0.0040	U	0.0040	0.00017	mg/L		10/28/14 07:53	11/02/14 01:10	1
Nitrobenzene	0.0040	U	0.0040	0.000040	mg/L		10/28/14 07:53	11/02/14 01:10	1
Pentachlorophenol	0.040	U	0.040	0.00027	mg/L		10/28/14 07:53	11/02/14 01:10	1
Pyridine	0.020	U	0.020	0.00035	mg/L		10/28/14 07:53	11/02/14 01:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*30 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*
2-Fluorophenol (Surr)	*55*		*20 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*
2,4,6-Tribromophenol (Surr)	*86*		*23 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*
Nitrobenzene-d5 (Surr)	*54*		*28 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*
Phenol-d5 (Surr)	*52*		*21 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*
Terphenyl-d14 (Surr)	*85*		*48 - 110*	*10/28/14 07:53*	*11/02/14 01:10*	*1*

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	0.0050	U	0.0050	0.000033	mg/L		10/28/14 07:49	11/02/14 00:40	1
Endrin	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/02/14 00:40	1
Heptachlor	0.00050	U	0.00050	0.0000050	mg/L		10/28/14 07:49	11/02/14 00:40	1
Heptachlor epoxide	0.00050	U	0.00050	0.000014	mg/L		10/28/14 07:49	11/02/14 00:40	1
gamma-BHC (Lindane)	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/02/14 00:40	1
Methoxychlor	0.0010	U	0.0010	0.000012	mg/L		10/28/14 07:49	11/02/14 00:40	1
Toxaphene	0.020	U	0.020	0.00020	mg/L		10/28/14 07:49	11/02/14 00:40	1

Client Sample ID: FWG-IDW-MWDECONOCT2014
Date Collected: 10/23/14 08:15
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-4
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	73		40 - 129	10/28/14 07:49	11/02/14 00:40	1
Tetrachloro-m-xylene	72		40 - 129	10/28/14 07:49	11/02/14 00:40	1
DCB Decachlorobiphenyl	10	X	40 - 152	10/28/14 07:49	11/02/14 00:40	1
DCB Decachlorobiphenyl	10	X	40 - 152	10/28/14 07:49	11/02/14 00:40	1

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 18:54	1
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 18:54	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 18:54	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	82		56 - 120	10/28/14 07:50	10/29/14 18:54	1
2,4-Dichlorophenylacetic acid	219	X	56 - 120	10/28/14 07:50	10/29/14 18:54	1

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.50	U	0.50	0.0029	mg/L		10/28/14 11:00	10/29/14 15:04	1
Barium	**0.0047**	**J B**	10	0.0010	mg/L		10/28/14 11:00	10/29/14 15:04	1
Cadmium	**0.00018**	**J**	0.10	0.00014	mg/L		10/28/14 11:00	10/29/14 15:04	1
Chromium	**0.0016**	**J B**	0.50	0.00055	mg/L		10/28/14 11:00	10/29/14 15:04	1
Lead	0.50	U	0.50	0.0019	mg/L		10/28/14 11:00	10/29/14 15:04	1
Selenium	0.25	U	0.25	0.0040	mg/L		10/28/14 11:00	10/29/14 15:04	1
Silver	0.50	U	0.50	0.00092	mg/L		10/28/14 11:00	10/29/14 15:04	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.11**		0.040	0.0018	mg/L		10/28/14 15:55	10/30/14 13:09	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>200**		1.00	1.00	Degrees F			10/24/14 08:43	1
Cyanide, Total	**0.0076**	**J B**	0.010	0.0020	mg/L		10/30/14 09:58	10/30/14 12:13	1
Sulfide	3.0	U	3.0	0.94	mg/L		10/28/14 08:10	10/28/14 08:10	1
pH	**7.08**		0.100	0.100	SU			10/23/14 15:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(63-129)	(66-120)	(74-120)	(75-121)
240-43456-1	FWG-IDW-MWTBOCT2014PURGE	98	87	92	101
240-43456-3	FWG-IDW-MWTBOCT2014	96	88	92	98
LCS 240-154123/4	Lab Control Sample	89	95	87	90
MB 240-154123/5	Method Blank	98	89	93	98

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(80-121)	(70-124)	(80-120)	(80-128)
LCS 240-153741/8	Lab Control Sample	99	87	95	91

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(80-121)	(70-124)	(80-120)	(80-128)
240-43456-2	FWG-IDW-MWPURGEOCT2014	97	80	92	89
240-43456-4	FWG-IDW-MWDECONOCT2014	100	80	88	94
LB 240-153635/1-A MB	Method Blank	95	80	87	93

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	TBP	NBZ	PHL	TPH
Lab Sample ID	Client Sample ID	(30-110)	(20-110)	(23-110)	(28-110)	(21-110)	(48-110)
LCS 240-153590/17-A	Lab Control Sample	74	68	84	73	62	84
MB 240-153590/16-A	Method Blank	54	54	57	51	51	72

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	TBP	NBZ	PHL	TPH
Lab Sample ID	Client Sample ID	(30-110)	(20-110)	(23-110)	(28-110)	(21-110)	(48-110)
240-43456-2	FWG-IDW-MWPURGEOCT2014	64	49	66	60	47	89
240-43456-4	FWG-IDW-MWDECONOCT2014	60	55	86	54	52	85

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(40-129)	(40-129)	(40-152)	(40-152)
LCS 240-153587/5-A	Lab Control Sample	83	78	90	93
MB 240-153587/4-A	Method Blank	76	79	76	75

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(40-129)	(40-129)	(40-152)	(40-152)
240-43456-2	FWG-IDW-MWPURGEOCT2014	82	87	81	82
240-43456-2 MS	FWG-IDW-MWPURGEOCT2014	72	71	47	45
240-43456-4	FWG-IDW-MWDECONOCT2014	73	72	10 X	10 X

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Surrogate Summary

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1	DCPA2
Lab Sample ID	Client Sample ID	(56-120)	(56-120)
LCS 240-153588/5-A	Lab Control Sample	93	89
MB 240-153588/4-A	Method Blank	108	99

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1	DCPA2
Lab Sample ID	Client Sample ID	(56-120)	(56-120)
240-43456-2	FWG-IDW-MWPURGEOCT2014	98	100
240-43456-4	FWG-IDW-MWDECONOCT2014	82	219 X
240-43456-4 MS	FWG-IDW-MWDECONOCT2014	84	204 X

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 240-153741/8
Matrix: Water
Analysis Batch: 153741

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.00	0.827		mg/L		83	71 - 133
1,2-Dichloroethane	1.00	0.938		mg/L		94	80 - 120
Benzene	1.00	0.991		mg/L		99	80 - 120
2-Butanone (MEK)	2.00	2.09		mg/L		105	49 - 120
Carbon tetrachloride	1.00	0.668		mg/L		67	54 - 122
Chlorobenzene	1.00	0.925		mg/L		92	80 - 120
Chloroform	1.00	0.969		mg/L		97	80 - 123
Tetrachloroethene	1.00	0.814		mg/L		81	79 - 134
Trichloroethene	1.00	0.938		mg/L		94	78 - 130
Vinyl chloride	1.00	0.947		mg/L		95	56 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 121*
4-Bromofluorobenzene (Surr)	*87*		*70 - 124*
Toluene-d8 (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*91*		*80 - 128*

Lab Sample ID: MB 240-154123/5
Matrix: Water
Analysis Batch: 154123

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.45	ug/L			10/30/14 22:03	1
1,2-Dichloroethane	1.0	U	1.0	0.20	ug/L			10/30/14 22:03	1
Benzene	1.0	U	1.0	0.24	ug/L			10/30/14 22:03	1
2-Butanone (MEK)	10	U	10	4.1	ug/L			10/30/14 22:03	1
Carbon tetrachloride	1.0	U	1.0	0.17	ug/L			10/30/14 22:03	1
Chlorobenzene	1.0	U	1.0	0.19	ug/L			10/30/14 22:03	1
Chloroform	1.0	U	1.0	0.21	ug/L			10/30/14 22:03	1
Tetrachloroethene	1.0	U	1.0	0.20	ug/L			10/30/14 22:03	1
Trichloroethene	1.0	U	1.0	0.15	ug/L			10/30/14 22:03	1
Vinyl chloride	1.0	U	1.0	0.29	ug/L			10/30/14 22:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*63 - 129*		*10/30/14 22:03*	*1*
4-Bromofluorobenzene (Surr)	*89*		*66 - 120*		*10/30/14 22:03*	*1*
Toluene-d8 (Surr)	*93*		*74 - 120*		*10/30/14 22:03*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*10/30/14 22:03*	*1*

Lab Sample ID: LCS 240-154123/4
Matrix: Water
Analysis Batch: 154123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.68		ug/L		97	78 - 131
1,2-Dichloroethane	10.0	11.6		ug/L		116	71 - 127
Benzene	10.0	10.7		ug/L		107	80 - 120

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-154123/4
Matrix: Water
Analysis Batch: 154123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	20.0	24.1		ug/L		121	60 - 126
Carbon tetrachloride	10.0	9.60		ug/L		96	66 - 128
Chlorobenzene	10.0	10.5		ug/L		105	80 - 120
Chloroform	10.0	10.7		ug/L		107	79 - 120
Tetrachloroethene	10.0	8.84		ug/L		88	79 - 120
Trichloroethene	10.0	10.1		ug/L		101	76 - 120
Vinyl chloride	10.0	8.83		ug/L		88	53 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*63 - 129*
4-Bromofluorobenzene (Surr)	*95*		*66 - 120*
Toluene-d8 (Surr)	*87*		*74 - 120*
Dibromofluoromethane (Surr)	*90*		*75 - 121*

Lab Sample ID: LB 240-153635/1-A MB
Matrix: Water
Analysis Batch: 153741

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			10/28/14 17:01	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			10/28/14 17:01	1
Benzene	0.025	U	0.025	0.0065	mg/L			10/28/14 17:01	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			10/28/14 17:01	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			10/28/14 17:01	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			10/28/14 17:01	1
Chloroform	0.025	U	0.025	0.0080	mg/L			10/28/14 17:01	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			10/28/14 17:01	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			10/28/14 17:01	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			10/28/14 17:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*80 - 121*		*10/28/14 17:01*	*1*
4-Bromofluorobenzene (Surr)	*80*		*70 - 124*		*10/28/14 17:01*	*1*
Toluene-d8 (Surr)	*87*		*80 - 120*		*10/28/14 17:01*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 128*		*10/28/14 17:01*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-153590/16-A
Matrix: Water
Analysis Batch: 154049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153590

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.0040	U	0.0040	0.00034	mg/L		10/28/14 07:53	10/30/14 10:57	1
2,4,5-Trichlorophenol	0.020	U	0.020	0.00030	mg/L		10/28/14 07:53	10/30/14 10:57	1
2,4,6-Trichlorophenol	0.020	U	0.020	0.00024	mg/L		10/28/14 07:53	10/30/14 10:57	1
2,4-Dinitrotoluene	0.020	U	0.020	0.00025	mg/L		10/28/14 07:53	10/30/14 10:57	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-153590/16-A
Matrix: Water
Analysis Batch: 154049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153590

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	0.020	U	0.020	0.000085	mg/L		10/28/14 07:53	10/30/14 10:57	1
Hexachlorobutadiene	0.020	U	0.020	0.00027	mg/L		10/28/14 07:53	10/30/14 10:57	1
Hexachloroethane	0.020	U	0.020	0.00019	mg/L		10/28/14 07:53	10/30/14 10:57	1
3 & 4 Methylphenol	0.040	U	0.040	0.00080	mg/L		10/28/14 07:53	10/30/14 10:57	1
2-Methylphenol	0.0040	U	0.0040	0.00017	mg/L		10/28/14 07:53	10/30/14 10:57	1
Nitrobenzene	0.0040	U	0.0040	0.000040	mg/L		10/28/14 07:53	10/30/14 10:57	1
Pentachlorophenol	0.040	U	0.040	0.00027	mg/L		10/28/14 07:53	10/30/14 10:57	1
Pyridine	0.020	U	0.020	0.00035	mg/L		10/28/14 07:53	10/30/14 10:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*54*		*30 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*
2-Fluorophenol (Surr)	*54*		*20 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*
2,4,6-Tribromophenol (Surr)	*57*		*23 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*
Nitrobenzene-d5 (Surr)	*51*		*28 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*
Phenol-d5 (Surr)	*51*		*21 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*
Terphenyl-d14 (Surr)	*72*		*48 - 110*	*10/28/14 07:53*	*10/30/14 10:57*	*1*

Lab Sample ID: LCS 240-153590/17-A
Matrix: Water
Analysis Batch: 154049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153590

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0800	0.0532		mg/L		67	52 - 110
2,4,5-Trichlorophenol	0.0800	0.0607		mg/L		76	51 - 110
2,4,6-Trichlorophenol	0.0800	0.0609		mg/L		76	46 - 110
2,4-Dinitrotoluene	0.0800	0.0663		mg/L		83	54 - 110
Hexachlorobenzene	0.0800	0.0610		mg/L		76	50 - 110
Hexachlorobutadiene	0.0800	0.0530		mg/L		66	34 - 110
Hexachloroethane	0.0800	0.0523		mg/L		65	41 - 110
3 & 4 Methylphenol	0.0800	0.0588		mg/L		74	48 - 110
2-Methylphenol	0.0800	0.0590		mg/L		74	44 - 111
Nitrobenzene	0.0800	0.0587		mg/L		73	40 - 110
Pentachlorophenol	0.160	0.113		mg/L		71	12 - 110
Pyridine	0.0800	0.0509		mg/L		64	30 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*74*		*30 - 110*
2-Fluorophenol (Surr)	*68*		*20 - 110*
2,4,6-Tribromophenol (Surr)	*84*		*23 - 110*
Nitrobenzene-d5 (Surr)	*73*		*28 - 110*
Phenol-d5 (Surr)	*62*		*21 - 110*
Terphenyl-d14 (Surr)	*84*		*48 - 110*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-153587/4-A
Matrix: Water
Analysis Batch: 154295

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153587

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	0.0050	U	0.0050	0.000033	mg/L		10/28/14 07:49	11/03/14 01:01	1
Endrin	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/03/14 01:01	1
Heptachlor	0.00050	U	0.00050	0.0000050	mg/L		10/28/14 07:49	11/03/14 01:01	1
Heptachlor epoxide	0.00050	U	0.00050	0.000014	mg/L		10/28/14 07:49	11/03/14 01:01	1
gamma-BHC (Lindane)	0.00050	U	0.00050	0.000012	mg/L		10/28/14 07:49	11/03/14 01:01	1
Methoxychlor	0.0010	U	0.0010	0.000012	mg/L		10/28/14 07:49	11/03/14 01:01	1
Toxaphene	0.020	U	0.020	0.00020	mg/L		10/28/14 07:49	11/03/14 01:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*76*		*40 - 129*	*10/28/14 07:49*	*11/03/14 01:01*	*1*
Tetrachloro-m-xylene	*79*		*40 - 129*	*10/28/14 07:49*	*11/03/14 01:01*	*1*
DCB Decachlorobiphenyl	*76*		*40 - 152*	*10/28/14 07:49*	*11/03/14 01:01*	*1*
DCB Decachlorobiphenyl	*75*		*40 - 152*	*10/28/14 07:49*	*11/03/14 01:01*	*1*

Lab Sample ID: LCS 240-153587/5-A
Matrix: Water
Analysis Batch: 154295

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	0.00200	0.00189	J	mg/L		94	73 - 146
Heptachlor	0.00200	0.00172	J	mg/L		86	60 - 140
Heptachlor epoxide	0.00200	0.00174	J	mg/L		87	73 - 158
gamma-BHC (Lindane)	0.00200	0.00155	J	mg/L		78	63 - 157
Methoxychlor	0.00400	0.00366	J	mg/L		92	49 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*83*		*40 - 129*
Tetrachloro-m-xylene	*78*		*40 - 129*
DCB Decachlorobiphenyl	*90*		*40 - 152*
DCB Decachlorobiphenyl	*93*		*40 - 152*

Lab Sample ID: 240-43456-2 MS
Matrix: Water
Analysis Batch: 154295

Client Sample ID: FWG-IDW-MWPURGEOCT2014
Prep Type: TCLP
Prep Batch: 153587

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	0.00050	U	0.00200	0.00174	J	mg/L		87	47 - 140
Heptachlor	0.00050	U	0.00200	0.00148	J	mg/L		74	44 - 129
Heptachlor epoxide	0.00050	U	0.00200	0.00158	J	mg/L		79	48 - 146
gamma-BHC (Lindane)	0.00050	U	0.00200	0.00139	J	mg/L		70	36 - 146
Methoxychlor	0.0010	U	0.00400	0.00333	J	mg/L		83	35 - 152

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*72*		*40 - 129*
Tetrachloro-m-xylene	*71*		*40 - 129*
DCB Decachlorobiphenyl	*47*		*40 - 152*
DCB Decachlorobiphenyl	*45*		*40 - 152*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 240-153588/4-A
Matrix: Water
Analysis Batch: 153942

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 19:42	1
2,4-D	0.0040	U	0.0040	0.00041	mg/L		10/28/14 07:50	10/29/14 19:42	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 19:42	1
Silvex (2,4,5-TP)	0.0010	U	0.0010	0.00020	mg/L		10/28/14 07:50	10/29/14 19:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*108*		*56 - 120*	*10/28/14 07:50*	*10/29/14 19:42*	*1*
2,4-Dichlorophenylacetic acid	*99*		*56 - 120*	*10/28/14 07:50*	*10/29/14 19:42*	*1*

Lab Sample ID: LCS 240-153588/5-A
Matrix: Water
Analysis Batch: 154175

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	0.0200	0.0170		mg/L		85	50 - 120
Silvex (2,4,5-TP)	0.00500	0.00399		mg/L		80	45 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*93*		*56 - 120*
2,4-Dichlorophenylacetic acid	*89*		*56 - 120*

Lab Sample ID: 240-43456-4 MS
Matrix: Water
Analysis Batch: 153942

Client Sample ID: FWG-IDW-MWDECONOCT2014
Prep Type: TCLP
Prep Batch: 153588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	0.0040	U	0.0200	0.0153		mg/L		77	44 - 124
2,4-D	0.0040	U	0.0200	0.0138		mg/L		69	44 - 124
Silvex (2,4,5-TP)	0.0010	U	0.00500	0.00387		mg/L		77	35 - 135
Silvex (2,4,5-TP)	0.0010	U	0.00500	0.00423		mg/L		85	35 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*84*		*56 - 120*
2,4-Dichlorophenylacetic acid	*204*	*X*	*56 - 120*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-153672/2-A
Matrix: Water
Analysis Batch: 153854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153672

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.50	U	0.50	0.0029	mg/L		10/28/14 11:00	10/29/14 09:28	1
Barium	0.00202	J	10	0.0010	mg/L		10/28/14 11:00	10/29/14 09:28	1
Cadmium	0.10	U	0.10	0.00014	mg/L		10/28/14 11:00	10/29/14 09:28	1
Chromium	0.50	U	0.50	0.00055	mg/L		10/28/14 11:00	10/29/14 09:28	1
Lead	0.50	U	0.50	0.0019	mg/L		10/28/14 11:00	10/29/14 09:28	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 240-153672/2-A
Matrix: Water
Analysis Batch: 153854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153672

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	0.25	U	0.25	0.0040	mg/L		10/28/14 11:00	10/29/14 09:28	1
Silver	0.50	U	0.50	0.00092	mg/L		10/28/14 11:00	10/29/14 09:28	1

Lab Sample ID: LCS 240-153672/3-A
Matrix: Water
Analysis Batch: 153854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153672

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.16		mg/L		108	50 - 150
Barium	2.00	2.03	J	mg/L		102	50 - 150
Cadmium	0.0500	0.0541	J	mg/L		108	50 - 150
Chromium	0.200	0.204	J	mg/L		102	50 - 150
Lead	0.500	0.487	J	mg/L		97	50 - 150
Selenium	2.00	2.25		mg/L		113	50 - 150
Silver	0.0500	0.0566	J	mg/L		113	50 - 150

Lab Sample ID: LB 240-153529/1-B
Matrix: Water
Analysis Batch: 153854

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 153672

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00372	J	0.50	0.0029	mg/L		10/28/14 11:00	10/29/14 09:24	1
Barium	0.00230	J	10	0.0010	mg/L		10/28/14 11:00	10/29/14 09:24	1
Cadmium	0.10	U	0.10	0.00014	mg/L		10/28/14 11:00	10/29/14 09:24	1
Chromium	0.00119	J	0.50	0.00055	mg/L		10/28/14 11:00	10/29/14 09:24	1
Lead	0.50	U	0.50	0.0019	mg/L		10/28/14 11:00	10/29/14 09:24	1
Selenium	0.00861	J	0.25	0.0040	mg/L		10/28/14 11:00	10/29/14 09:24	1
Silver	0.50	U	0.50	0.00092	mg/L		10/28/14 11:00	10/29/14 09:24	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-153674/2-A
Matrix: Water
Analysis Batch: 154085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153674

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		10/28/14 15:55	10/29/14 15:21	1

Lab Sample ID: LCS 240-153674/3-A
Matrix: Water
Analysis Batch: 154085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153674

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00430		mg/L		86	50 - 150

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LB 240-153529/1-C
Matrix: Water
Analysis Batch: 154085

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 153674

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.000090	mg/L		10/28/14 15:55	10/29/14 15:19	1

Method: 1010 - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-153202/1
Matrix: Water
Analysis Batch: 153202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	83.00		Degrees F		102	97 - 103

Lab Sample ID: 240-43456-4 DU
Matrix: Water
Analysis Batch: 153202

Client Sample ID: FWG-IDW-MWDECONOCT2014
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Flashpoint	>200		>200		Degrees F		NC	20

Method: 9012A - Cyanide, Total and/or Amenable

Lab Sample ID: MB 240-154071/1-A
Matrix: Water
Analysis Batch: 154152

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.00416	J	0.010	0.0020	mg/L		10/30/14 09:58	10/30/14 12:02	1

Lab Sample ID: LCS 240-154071/2-A
Matrix: Water
Analysis Batch: 154152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0921	0.0865		mg/L		94	69 - 118

Lab Sample ID: MRL 240-154152/6
Matrix: Water
Analysis Batch: 154152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0100	0.0103		mg/L		103	70 - 130

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-153599/1-A
Matrix: Water
Analysis Batch: 153685

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153599

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	3.0	U	3.0	0.94	mg/L		10/28/14 08:10	10/28/14 08:10	1

Lab Sample ID: LCS 240-153599/2-A
Matrix: Water
Analysis Batch: 153685

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	8.23	7.19		mg/L		87	70 - 130

Method: 9040B - pH

Lab Sample ID: LCS 240-153024/2
Matrix: Water
Analysis Batch: 153024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	6.47	6.530		SU		101	97 - 103

Lab Sample ID: 240-43456-2 DU
Matrix: Water
Analysis Batch: 153024

Client Sample ID: FWG-IDW-MWPURGEOCT2014
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.23		7.220		SU		0.1	20

GC/MS VOA

Leach Batch: 153635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	1311	
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	1311	
LB 240-153635/1-A MB	Method Blank	TCLP	Water	1311	

Analysis Batch: 153741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8260B	153635
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	8260B	153635
LB 240-153635/1-A MB	Method Blank	TCLP	Water	8260B	153635
LCS 240-153741/8	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 154123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-1	FWG-IDW-MWTBOCT2014PURGE	Total/NA	Water	8260B	
240-43456-3	FWG-IDW-MWTBOCT2014	Total/NA	Water	8260B	
LCS 240-154123/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-154123/5	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Leach Batch: 153529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	1311	
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	1311	

Prep Batch: 153590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	3510C	153529
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	3510C	153529
LCS 240-153590/17-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-153590/16-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 154049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8270C	153590
LCS 240-153590/17-A	Lab Control Sample	Total/NA	Water	8270C	153590
MB 240-153590/16-A	Method Blank	Total/NA	Water	8270C	153590

Analysis Batch: 154435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	8270C	153590

GC Semi VOA

Leach Batch: 153529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	1311	
240-43456-2 MS	FWG-IDW-MWPURGEOCT2014	TCLP	Water	1311	
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	1311	
240-43456-4 MS	FWG-IDW-MWDECONOCT2014	TCLP	Water	1311	

GC Semi VOA (Continued)

Prep Batch: 153587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	3520C	153529
240-43456-2 MS	FWG-IDW-MWPURGEOCT2014	TCLP	Water	3520C	153529
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	3520C	153529
LCS 240-153587/5-A	Lab Control Sample	Total/NA	Water	3520C	
MB 240-153587/4-A	Method Blank	Total/NA	Water	3520C	

Prep Batch: 153588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8151A	153529
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	8151A	153529
240-43456-4 MS	FWG-IDW-MWDECONOCT2014	TCLP	Water	8151A	153529
LCS 240-153588/5-A	Lab Control Sample	Total/NA	Water	8151A	
MB 240-153588/4-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 153942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8151A	153588
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	8151A	153588
240-43456-4 MS	FWG-IDW-MWDECONOCT2014	TCLP	Water	8151A	153588
MB 240-153588/4-A	Method Blank	Total/NA	Water	8151A	153588

Analysis Batch: 154175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-153588/5-A	Lab Control Sample	Total/NA	Water	8151A	153588

Analysis Batch: 154295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8081A	153587
240-43456-2 MS	FWG-IDW-MWPURGEOCT2014	TCLP	Water	8081A	153587
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	8081A	153587
LCS 240-153587/5-A	Lab Control Sample	Total/NA	Water	8081A	153587
MB 240-153587/4-A	Method Blank	Total/NA	Water	8081A	153587

Metals

Leach Batch: 153529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	1311	
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	1311	
LB 240-153529/1-B	Method Blank	TCLP	Water	1311	
LB 240-153529/1-C	Method Blank	TCLP	Water	1311	

Prep Batch: 153672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	3010A	153529
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	3010A	153529
LB 240-153529/1-B	Method Blank	TCLP	Water	3010A	153529
LCS 240-153672/3-A	Lab Control Sample	Total/NA	Water	3010A	
MB 240-153672/2-A	Method Blank	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 153674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	7470A	153529
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	7470A	153529
LB 240-153529/1-C	Method Blank	TCLP	Water	7470A	153529
LCS 240-153674/3-A	Lab Control Sample	Total/NA	Water	7470A	
MB 240-153674/2-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 153854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	6010B	153672
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	6010B	153672
LB 240-153529/1-B	Method Blank	TCLP	Water	6010B	153672
LCS 240-153672/3-A	Lab Control Sample	Total/NA	Water	6010B	153672
MB 240-153672/2-A	Method Blank	Total/NA	Water	6010B	153672

Analysis Batch: 154085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	TCLP	Water	7470A	153674
LB 240-153529/1-C	Method Blank	TCLP	Water	7470A	153674
LCS 240-153674/3-A	Lab Control Sample	Total/NA	Water	7470A	153674
MB 240-153674/2-A	Method Blank	Total/NA	Water	7470A	153674

Analysis Batch: 154255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-4	FWG-IDW-MWDECONOCT2014	TCLP	Water	7470A	153674

General Chemistry

Analysis Batch: 153024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9040B	
240-43456-2 DU	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9040B	
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	9040B	
LCS 240-153024/2	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 153202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	1010	
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	1010	
240-43456-4 DU	FWG-IDW-MWDECONOCT2014	Total/NA	Water	1010	
LCS 240-153202/1	Lab Control Sample	Total/NA	Water	1010	

Prep Batch: 153599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9030B	
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	9030B	
LCS 240-153599/2-A	Lab Control Sample	Total/NA	Water	9030B	
MB 240-153599/1-A	Method Blank	Total/NA	Water	9030B	

General Chemistry (Continued)

Analysis Batch: 153685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9034	153599
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	9034	153599
LCS 240-153599/2-A	Lab Control Sample	Total/NA	Water	9034	153599
MB 240-153599/1-A	Method Blank	Total/NA	Water	9034	153599

Prep Batch: 154071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9012A	
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	9012A	
LCS 240-154071/2-A	Lab Control Sample	Total/NA	Water	9012A	
MB 240-154071/1-A	Method Blank	Total/NA	Water	9012A	

Analysis Batch: 154152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-43456-2	FWG-IDW-MWPURGEOCT2014	Total/NA	Water	9012A	154071
240-43456-4	FWG-IDW-MWDECONOCT2014	Total/NA	Water	9012A	154071
LCS 240-154071/2-A	Lab Control Sample	Total/NA	Water	9012A	154071
MB 240-154071/1-A	Method Blank	Total/NA	Water	9012A	154071
MRL 240-154152/6	Lab Control Sample	Total/NA	Water	9012A	

Client Sample ID: FWG-IDW-MWTBOCT2014PURGE

Lab Sample ID: 240-43456-1

Date Collected: 10/23/14 07:30

Matrix: Water

Date Received: 10/23/14 10:07

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	154123	10/30/14 22:26	LEE	TAL CAN

Client Sample ID: FWG-IDW-MWPURGEOCT2014

Lab Sample ID: 240-43456-2

Date Collected: 10/23/14 08:00

Matrix: Water

Date Received: 10/23/14 10:07

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			153635	10/27/14 18:45	SMH	TAL CAN
TCLP	Analysis	8260B		1	153741	10/28/14 20:21	TJL1	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3510C			153590	10/28/14 07:53	CSC	TAL CAN
TCLP	Analysis	8270C		1	154049	10/30/14 21:38	JMG	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3520C			153587	10/28/14 07:49	CSC	TAL CAN
TCLP	Analysis	8081A		1	154295	11/02/14 23:56	BPM	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	8151A			153588	10/28/14 07:50	CSC	TAL CAN
TCLP	Analysis	8151A		1	153942	10/29/14 18:31	DEB	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3010A			153672	10/28/14 11:00	WAL	TAL CAN
TCLP	Analysis	6010B		1	153854	10/29/14 15:00	KLC	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	7470A			153674	10/28/14 15:55	WAL	TAL CAN
TCLP	Analysis	7470A		1	154085	10/29/14 15:32	AMM2	TAL CAN
Total/NA	Analysis	1010		1	153202	10/24/14 09:09	TPH	TAL CAN
Total/NA	Prep	9012A			154071	10/30/14 09:58	SEM	TAL CAN
Total/NA	Analysis	9012A		1	154152	10/30/14 12:13	SEM	TAL CAN
Total/NA	Analysis	9034		1	153685	10/28/14 08:10	BLW	TAL CAN
Total/NA	Prep	9030B			153599	10/28/14 08:10	BLW	TAL CAN
Total/NA	Analysis	9040B		1	153024	10/23/14 15:32	SEM	TAL CAN

Client Sample ID: FWG-IDW-MWTBOCT2014

Lab Sample ID: 240-43456-3

Date Collected: 10/23/14 07:30

Matrix: Water

Date Received: 10/23/14 10:07

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	154123	10/30/14 22:49	LEE	TAL CAN

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Client Sample ID: FWG-IDW-MWDECONOCT2014
Date Collected: 10/23/14 08:15
Date Received: 10/23/14 10:07

Lab Sample ID: 240-43456-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			153635	10/27/14 18:45	SMH	TAL CAN
TCLP	Analysis	8260B		2	153741	10/28/14 20:44	TJL1	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3510C			153590	10/28/14 07:53	CSC	TAL CAN
TCLP	Analysis	8270C		1	154435	11/02/14 01:10	JMG	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3520C			153587	10/28/14 07:49	CSC	TAL CAN
TCLP	Analysis	8081A		1	154295	11/02/14 00:40	BPM	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	8151A			153588	10/28/14 07:50	CSC	TAL CAN
TCLP	Analysis	8151A		1	153942	10/29/14 18:54	DEB	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	3010A			153672	10/28/14 11:00	WAL	TAL CAN
TCLP	Analysis	6010B		1	153854	10/29/14 15:04	KLC	TAL CAN
TCLP	Leach	1311			153529	10/27/14 17:30	DRJ	TAL CAN
TCLP	Prep	7470A			153674	10/28/14 15:55	WAL	TAL CAN
TCLP	Analysis	7470A		20	154255	10/30/14 13:09	AMM2	TAL CAN
Total/NA	Analysis	1010		1	153202	10/24/14 08:43	TPH	TAL CAN
Total/NA	Prep	9012A			154071	10/30/14 09:58	SEM	TAL CAN
Total/NA	Analysis	9012A		1	154152	10/30/14 12:13	SEM	TAL CAN
Total/NA	Analysis	9034		1	153685	10/28/14 08:10	BLW	TAL CAN
Total/NA	Prep	9030B			153599	10/28/14 08:10	BLW	TAL CAN
Total/NA	Analysis	9040B		1	153024	10/23/14 15:41	SEM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: Environmental Quality Mgt., Inc.
Project/Site: RVAAP (OH) - IDW

TestAmerica Job ID: 240-43456-1

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-15
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-15
Georgia	State Program	4	N/A	06-30-15
Illinois	NELAP	5	200004	07-31-15
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-15
New Jersey	NELAP	2	OH001	06-30-15
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-15
Texas	NELAP	6		08-31-15
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-15
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-15

* Certification renewal pending - certification considered valid.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

240-43456 Chain of Custody

TestAmerica Canton
4101 Shuffel Street, N. N.

North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Client Contact	Project Manager: JOHN MILLER	Site Contact: E CORBIN	Date: 10/23/14	COC No: IDW 102314
Company Name: EQM	Tel/Fax:	Lab Contact: M. LOEB	Carrier: LAB PICKUP	1 of 1 COCs
Address: 1800 Carillon Blvd	Analysis Turnaround Time			Sampler:
City/State/Zip: Cincinnati OH 45240	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 513 8257500	TAT if different from Below ____			Walk-in Client:
Fax: 513 825 7495	☒ 2 weeks per SOW			Lab Sampling:
Project Name: RVAAP 66	☐ 1 week			Job / SDG No.:
Site: RVAAP	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCLP SVOC	TCLP VOC	TCLP Metals, Mercury	TCLP Pest/Herb	Total Cyanide	Silicide	Flashpoint, pH	Sample Specific Notes:
FWG-IDW-MWTBOCT2014 purge	10/23/14	0730			2	N	N		X						IDW Purge
FWG-IDW-MWPURGEOCT2014	10/23/14	0800	C	GW	9	N	N	X	X	X	X	X	X	X	↓
FWG-IDW-MWTBOCT2014	10/23/14	0730			2	N	N		X						IDW Decon
FWG-IDW-MWDECONOCT2014	10/23/14	0815	C	GW	9	N	N	X	X	X	X	X	X	X	↓

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:			Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: EQM	Date/Time: 10-23-14 0900	Received by:	Company: TestAmerica		Date/Time: 10-23-14 0900
Relinquished by:	Company: TestAm 10-22-14	Date/Time: 1007	Received by:	Company: TA Can		Date/Time: 10/23/14 1007
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:		Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 43450

Client EQM Site Name Ravenna

Cooler unpacked by: Greg Burns

Cooler Received on 10/23/14 Opened on 10/23/14

FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other

TestAmerica Cooler # Foam Box Client Cooler Box Other Multiple

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A	(CF +2 °C)	Observed Cooler Temp. ____ °C	Corrected Cooler Temp. ____ °C	
IR GUN# 4	(CF -2 °C)	Observed Cooler Temp. ____ °C	Corrected Cooler Temp. ____ °C	~~See Multiple Cooler Form~~
IR GUN# 5	(CF 0 °C)	Observed Cooler Temp. ____ °C	Corrected Cooler Temp. ____ °C	
IR GUN# 8	(CF 0 °C)	Observed Cooler Temp. ____ °C	Corrected Cooler Temp. ____ °C	

2. ~~Were custody seals on the outside of the cooler(s)?~~ If Yes Quantity 3 Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were custody seals on the bottle(s)? Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Did all bottles arrive in good condition (Unbroken)? Yes No
7. Could all bottle labels be reconciled with the COC? Yes No
8. Were correct bottle(s) used for the test(s) indicated? Yes No
9. Sufficient quantity received to perform indicated analyses? Yes No
10. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC412469
11. Were VOAs on the COC? Yes No
12. Were air bubbles >6 mm in any VOA vials? Yes No NA
13. Was a trip blank present in the cooler(s)? Yes No

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: HH

15. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.

Sample(s) ____ were received in a broken container.

Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.

Time preserved: ____ Preservative(s) added/Lot number(s): ____

TestAmerica Multiple Cooler Receipt Form/Narrative Login #: 43456
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
1DW Purge	8	1.2	1.2	ICE
1DW Decon	1	0.8	0.8	1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
FWG-IDW-MWPURGEOCT2014	240-43456-B-2	Plastic 250ml - with Sodium Hydro›	>12	_____	_____
FWG-IDW-MWPURGEOCT2014	240-43456-C-2	Plastic 500ml - with Zn Acetate and	>9	_____	_____
FWG-IDW-MWDECONOCT2014	240-43456-B-4	Plastic 250ml - with Sodium Hydro›	>12	_____	_____
FWG-IDW-MWDECONOCT2014	240-43456-C-4	Plastic 500ml - with Zn Acetate and	>9	_____	_____

Cincinnati

210501

APPENDIX D

REPORTING LIMITS THAT CURRENTLY DO NOT MEET THE RVAAP QAPP PROJECT ACTION REQUIRMENTS, MCLS, AND/OR RSL (November 2014)

VOCs

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
79-34-5	1,1,2,2-Tetrachloroethane	µg/L	0.18	0.25	1	1	NS	0.076
106-93-4	1,2-Dibromoethane	µg/L	0.19	0.5	1	1	NS	0.0075
107-06-2	1,2-Dichloroethane	µg/L	0.2	0.5	1	1	5	0.17
75-27-4	Bromodichloromethane	µg/L	0.15	0.25	1	1	80	0.13
124-48-1	Dibromochloromethane	µg/L	0.43	0.5	1	1	NS	0.17
75-01-4	Vinyl chloride	µg/L	0.29	0.5	1	1	2	0.019

SVOCS

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
91-94-1	3,3'-Dichlorobenzidine	µg/L	0.37	1	5	5	NS	0.12
534-52-1	4,6-Dinitro-2-methylphenol	µg/L	2.4	4	5	25	NS	1.5
50-32-8	Benzo(a)pyrene	µg/L	0.051	0.1	0.2	0.2	0.2	0.0034
205-99-2	Benzo(b)fluoranthene	µg/L	0.045	0.1	0.2	0.2	NS	0.034
111-44-4	bis(2-Chloroethyl)ether	µg/L	0.1	0.1	1	1	NS	0.014
53-70-3	Dibenzo(a,h)anthracene	µg/L	0.45	0.1	0.2	50	NS	0.0065
118-74-1	Hexachlorobenzene	µg/L	0.085	0.1	0.2	10	1	0.049
87-68-3	Hexachlorobutadiene	µg/L	0.27	0.5	1	10	NS	0.3
193-39-5	Indeno(1,2,3-cd)pyrene	µg/L	0.043	0.1	0.2	0.2	NS	0.034
180-60-1	2,2'-Oxybis (1-Chloropropane)	µg/L	0.4	0.5	1	10	NS	0.36
621-64-7	N-Nitroso-di-n-propylamine	µg/L	0.24	0.5	1	10	NS	0.011
87-86-5	Pentachlorophenol	µg/L	0.27	1	5	5	1	0.04

Pesticides

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
309-00-2	Aldrin	µg/L	0.013	0.05	0.05	0.03	NS	0.00046
319-84-6	alpha-BHC	µg/L	0.014	0.05	0.05	0.03	NS	0.0071
60-57-1	Dieldrin	µg/L	0.013	0.05	0.05	0.03	NS	0.0017
76-44-8	Heptachlor	µg/L	0.005	0.05	0.05	0.03	0.4	0.002
1024-57-3	Heptachlor epoxide	µg/L	0.014	0.05	0.05	0.03	0.2	0.0038
8001-35-2	Toxaphene	µg/L	0.02	1	2	2	3	0.015

PCB

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
11104-28-2	PCB- 1221	µg/L	0.13	0.2	0.5	0.2	0.5	0.0046
11141-16-5	PCB- 1232	µg/L	0.16	0.2	0.5	0.2	0.5	0.0046
53469-21-9	PCB- 1242	µg/L	0.22	0.4	0.5	0.4	0.5	0.039
12672-29-6	PCB- 1248	µg/L	0.1	0.2	0.5	0.2	0.5	0.039
11097-69-1	PCB- 1254	µg/L	0.16	0.2	0.5	0.2	0.5	0.039
11096-82-5	PCB- 1260	µg/L	0.17	0.2	0.5	0.2	0.5	0.039

Explosives

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
606-20-2	2,6-Dinitrotoluene	µg/L	0.2	0.4	0.52	0.1	NS	0.048

Inorganics

CAS No.	Analyte Name	Units	DL	LOD[1]	LOQ	PAR[2]	MCL	RSL
7440-38-2	Arsenic	µg/L	2.9	10	10	5	10	0.052
7440-70-2	Calcium	µg/L	260	1000	5000	100	NS	NS
7440-09-7	Potassium	µg/L	70	900	5000	200	NS	NS
7439-95-4	Magnesium	µg/L	55	300	5000	100	NS	NS
7440-66-6	Zinc	µg/L	27	50	50	10	NS	6000
7440-28-0	Thallium	µg/L	0.79	1.5	2	1	2	0.2
57-12-5	Cyanide	mg/L	0.002	0.005	0.1	0.01	0.2	0.0015

Notes:
1- LOD= The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate is 1%.
2- Project Action Requirements from table 4 of the Facility Wide QAPP
NS= No Standard

APPENDIX E

CORRESPONDENCE AND COMMENTS/RESPONSES

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

March 5, 2015

Mr. Mark Leeper
Army National Guard Directorate
ARNGD-ILE Clean Up
111 South George Mason Drive
Arlington, VA 22204

Re: US Army Ammunition Plt RVAAP
Assessment
Remedial Response
Portage
267000859

Subject: Ravenna Army Ammunition Plant, Portage/Trumbull Counties. Approval of the RVAAP-66 Draft Facility-Wide Groundwater Report on the October 2014 Sampling Event, Dated January, 2015. Ohio EPA ID # 267-000859-036

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received the "Draft Facility-Wide Groundwater Monitoring Program RVAAP-66 Facility-Wide Groundwater Report on the October 2014 Sampling Event" at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio. This document was received at Ohio EPA's Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), on January 30, 2015. The report was prepared for the US Army Corps of Engineers (USACE) Louisville District by Environmental Quality Management, Inc. under Contract Number W912QR-11-F-0266.

The Draft Report provided the results of the sampling of the three newest monitoring wells; one unconsolidated glacial aquifer well LL1mw-088 and two Sharon Sandstone wells, LL2mw-271 and LL3mw-246. All three wells are located near the eastern boundary of the facility, just beyond the perimeter fence. This sampling event is the fourth quarterly sampling event for these three wells. The sampling occurred October 21 through October 22, 2014.

Ground water samples were analyzed for: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, organochlorinated pesticides,

explosives/propellants, cyanide, nitrate/nitrite, and metals (field filtered). Samples were analyzed by Test America. Ground water results were compared to Ohio EPA Drinking Water MCLs and U.S. EPA November 2014 Regional Screening Levels (RSLs) for tap water. Note: the practical quantification limit (PQL) exceeded RSLs for a number of compounds (refer to Appendix D of the report). Ground Water Results are summarized in Table 3-3 of the report.

Concentrations of the explosive/propellant compounds 2-amino-4,6-dinitrotoluene, 4-amino-2,6-dinitrotoluene and Research Department Formula (RDX) were detected in one of the three sampled wells LL3mw-246 at concentrations below their respective RSLs. There are no MCLs for the three aforementioned explosive/propellant compounds.

Concentrations of arsenic (LL1mw-088 and LL2mw-271), iron (LL1mw-088 and LL2-271), and manganese (LL1mw-088, LL2mw-271, and LL3mw-246) were detected at concentrations exceeding their respective MSLs and/or RSLs in the sampled wells.

No VOCs, SVOCs, or PCBs were detected at levels exceeding the PQL in the three sampled wells.

Analytical results indicate an estimated concentration of one pesticide 3-5, alpha-BHC in one of the three sampled wells (LL1MW-88) above its respective RSL (0.0071 µg/L). However, the method blank associated with the aforementioned sample was found to contain alpha-BHC contamination; therefore, the alpha-BHC detected in the sample from LL1MW-88 is attributed to low-level lab contamination and is so designated with a "B" qualifier.

This document was reviewed by personnel from Ohio EPA's DERR, pursuant to the Director's Findings and Orders paragraph 39 (b), Ohio EPA has no comments on this document and it may be finalized.

Pursuant to the CERCLA process, the property owner usually can provide the expected land uses to assist in ensuring that the investigation addresses all receptors for both current and future land uses. Be advised that due to land use uncertainty, Ohio EPA may require additional work in the future to address data gaps. It is incumbent upon the Army to finalize land use at camp Ravenna as soon as possible, otherwise additional work and schedule slippage may result.

If you have any questions, please call me at (330) 963-1292.

Sincerely,

Kevin M. Palombo
Environmental Specialist
Division of Environmental Response and Revitalization

KP/nvr

cc: Katie Tait/Kevin Sedlak, OHARNG RTLS
Gregory F. Moore, USACE
Rebecca Haney/Gail Harris, VISTA Sciences Corp.

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