RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

Performance Based Acquisition
Solid Waste Management Unit 57 (RAAP-022)
Pond by Buildings 4931 & 4928
Interim Measures Completion Report

DRAFT FINAL
June 2011

PREPARED BY:

UXB-KEMRON Remediation Services, LLC
2020 Kraft Drive, Suite 2100
Blacksburg, VA 24060
Tel 540.443.3700
Fax 540.443.3790
Contract No. W912DY-10-D-0027
Delivery Order Number: DA01

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

August 26, 2011

Commander,
Radford Army Ammunition Plant
Attn: SJMRF-OP-EQ (Jim McKenna)
P.O. Box 2
Radford, VA 24141-0099

P.W. Holt
Environmental Manager
Alliant Techsystems, Inc.
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24141-0100

VIA Electronic Mail

Re: Radford Army Ammunition Plant, Radford, Virginia
Solid Waste Management Unit 57
Interim Measures Completion Report

Dear Mr. McKenna and Ms. Holt:

The U.S. Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (VDEQ) have reviewed the U.S. Army's (Army's) Solid Waste Management Unit 57 Interim Measures Completion Report, located at the Radford Army Ammunition Plant (RFAAP) in Radford, Virginia. Based upon our review, the Report is approved, and in accordance with Part II. (E)(5) of RFAAP's Corrective Action Permit, the Report is considered final. If you have any questions, please call me at 215-814-3284.

Sincerely,

Erich Weissbart

Erich Weissbart, P.G.
RCRA Project Manager
Office of Remediation (3LC20)

c: James Cutler, VDEQ

DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MARYLAND 21010-5403

MCHB-IP-REH

8 AUG 2011

MEMORANDUM FOR Office of Environmental Quality (SJMRF-OP-EQ/Mr. Jim McKenna), Radford Army Ammunition Plant, P.O. Box 2, Radford, VA 24143-0002

SUBJECT: Review of Draft Final Performance Based Acquisition SWMU 57, Ponds by Buildings 4931 & 4928 Interim Measures Completion Report, Radford Army Ammunition Plant, Virginia, June 2011

1. The Army Institute of Public Health reviewed the subject document on behalf of the Office of The Surgeon General pursuant to Army Regulation 200-1 (Environmental Protection and Enhancement). We appreciate the opportunity to review this report.

2. We concur that the completed interim measures are protective of human health and the environment.

3. This document was reviewed by Mr. Jeffrey Leach, Environmental Health Risk Assessment Program. He can be reached at DSN 584-2953, commercial (410) 436-2953 or electronic mail, Jeff.Leach@us.army.mil.

FOR THE DIRECTOR:

JEFFREY S. KIRKPATRICK
Portfolio Director, Health Risk Management

CF:
HQDA (DASG-PPM-NC)
USACE (CEHNC-CX-ES)
PHCR-North

ATK Armament Systems
Energetic Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100

www.atk.com

June 20, 2011

Mr. Erich Weissbart and Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. James L. Cutler, Jr.
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Subject: With Certification, SWMU 57 (RAAP-022) Pond by Buildings 4931 & 4928 Interim Measures Completion Report, Draft Final Document, June 2011
EPA ID# VA1 210020730

Dear Mr. Weissbart, Mr. Geiger and Mr. Cutler:

Enclosed is the certification for the subject document that was sent to you on June 15, 2011. Also enclosed is the 15 June 2011 transmittal email. This report documents that clean closure was achieved per the remedy selected in the Final SWMU 57 RCRA Facility Investigation/Corrective Measures Study Report, September 2009.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jeremy Flint, ATK staff (540) 639-7668 or Jim McKenna, ACO Staff (540) 731-5782.

Sincerely,

P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Karen Sismour
Virginia Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

E. A. Lohman
Virginia Department of Environmental Quality
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019

11-815-82
JMcKenna

Rich Mendoza
US Army Environmental Center
11711 North IH 35, Suite 110
Attn: Richard Mendoza (C-23)
San Antonio, TX 78233

Tom Meyer
Corps of Engineers, Baltimore District
ATTN: CENAB-EN-HM
10 South Howard Street
Baltimore, MD 21201

11-815-82
JMcKenna

bc: P. W. Holt
J. McKenna, ACO Staff
J. J. Redder
Env. File

Coordination: J. McKenna

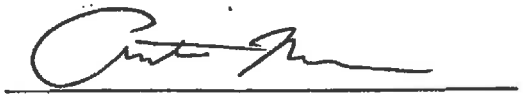
for M. A. Miano

11-815-82
JMcKenna

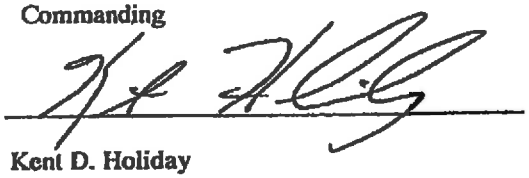
Concerning the following:

Radford Army Ammunition Plant
Solid Waste Management Unit 57 (RAAP-022)
Pond by Buildings 4931 & 4928
Interim Measures Completion Report
Draft Final Document, June 2011

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE: 

PRINTED NAME: Antonio Munera
TITLE: Lieutenant Colonel, US Army
Commanding

SIGNATURE: 

PRINTED NAME: Kent D. Holiday
TITLE: Vice President and General Manager
ATK Energetics Systems

11-815-82
JMcKenna

Greene, Anne

From: McKenna, Jim
Sent: Wednesday, June 15, 2011 10:36 AM
To: Weissbart.Erich@epamail.epa.gov; Cutler,Jim; ealohman@deq.virginia.gov
Cc: Meyer, Tom NAB02; Mendoza, Richard R Mr CIV USA IMCOM AEC; Redder, Jerome; Radford; Mary Lou Rochotte; Geiger.William@epamail.epa.gov; Pizarro.Luis@epamail.epa.gov
Subject: Draft Radford SWMU-57 IM Completion Report Shipment Fed Ex #s (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: FOUO

All,
The contractor will ship the subject document to the POCs with tracking numbers listed below. Also included is the current Fed Ex shipping address.

Thank you for your support of the Radford AAP Installation Restoration Program.
Jim McKenna

POC and Fed Ex #

Jim McKenna, RFAAP, 2 paper copies/1 CD - 797201789534

Tom Meyer, USACE Baltimore, 1 paper copy/1 CD - 797201799498

Rich Mendoza, USAEC, 1 CD - 797201866926

Erich Weissbart P.G. 2 paper copies/2 CDs, Land and Chemicals Division (3LC20) US EPA Region III 1650 Arch Street Philadelphia, PA 19103 - 794861003933

James Cutler 1 paper copy/1 CD, Virginia DEQ - 797201845836, 629 E. Main Street, Richmond, VA 23218

Karen Sismour, 1 CD, VDEQ (same address as James Cutler) - 797201878253

Elizabeth A. Lohman 1 CD, Environmental Program Planner Virginia DEQ - 797201886549, 3019 Peters Creek Road, Roanoke, VA 24019

Classification: UNCLASSIFIED
Caveats: FOUO

PREPARED FOR:

Baltimore District US Army Corp of Engineers
Thomas P. Meyer
Contracting Officer's Representative
HTRW Military
10 South Howard Street, Room 7000
Baltimore, MD 21201

Radford Army Ammunition Plant
Attn: Mr. Jim McKenna
SIORF-SE-EQ
P.O. Box 2
Radford, VA 24141-0099

USAEC
Richard Mendoza
11711 North IH 35, Suite 110
Attn: Richard Mendoza (C-23)
San Antonio, Texas 78233

PERFORMANCE BASED ACQUISITION
INTERIM MEASURES COMPLETION REPORT
TABLE OF CONTENTS

Section **Page**

PERFORMANCE BASED ACQUISITION
INTERIM MEASURES COMPLETION REPORT
TABLE OF CONTENTS
(CONTINUED)

LIST OF FIGURES

PERFORMANCE BASED ACQUISITION
INTERIM MEASURES COMPLETION REPORT
TABLE OF CONTENTS
(CONTINUED)

LIST OF TABLES

PERFORMANCE BASED ACQUISITION
INTERIM MEASURES COMPLETION REPORT
TABLE OF CONTENTS
(CONTINUED)

LIST OF APPENDICES

PERFORMANCE BASED ACQUISITION
INTERIM MEASURES COMPLETION REPORT
TABLE OF CONTENTS
(CONTINUED)

LIST OF ABBREVIATIONS AND ACRONYMS

AEDB-R	Army Environmental Database-Restoration
APP	Accident Prevention Plan
BGS	Below Ground Surface
BMP	Best Management Practices
BOD	Biological Oxygen Demand
BTAG	Biological Technical Assistance Group
CFR	Code of Federal Regulations
CMOs	Corrective Measures Objectives
CMS	Corrective Measures Study
COCs	Constituents of Concern
COD	Chemical Oxygen Demand
DERP	Defense Environmental Restoration Program
DFW	Definable Features of Work
DoD	Department of Defense
DOT	Department of Transportation
DQO	Data Quality Objectives
ESCP	Erosion and Sedimentation Control Plan
EPP	Environmental Protection Plan
FARs	Federal Acquisitions Regulations
FS	Field Supervisor
FSP	Field Sampling Plan
FT MSL	Feet Above Mean Sea Level
HI	Hazard Index
IM	Interim Measures
IMCR	Interim Measures Completion Report
IMWP	Interim Measures Work Plan
IDM	Investigative Derived Material
I-RBC	Industrial Risk Based Concentration
IRP	Installation Restoration Program
LOD	Limit of Detection
LTM	Long Term Monitoring
MMA	Main Manufacturing Area
MWP	Master Work Plan
MSDS	Material Safety Data Sheet
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSP	Master Site Plan
NCR	Notification Control Report
NRU	New River Unit
NTP	Notice to Proceed
OSHA	Occupational Safety and Health Administration
PBA TO	Performance Based Acquisition Firm Fixed Price Task Order
PCBs	Polychlorinated Biphenyls
PETN	Pentaerythritol Tetranitrate
PM	Project Manager

QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFAAP	Radford Army Ammunition Plant
RFI	RCRA Facility Investigation
RG	Remedial Goal
SM	Site Manager
SOP	Standard Operating Procedure
SSHO	Site Safety and Health Officer
SSHSP	Site Specific Health and Safety Plan
SSP	Site Screening Process
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
TSDF	Treatment, Storage, and Disposal Facility
URS	URS Corporation
USACE	United States Army Corp of Engineers
USEPA	United State Environmental Protection Agency
UTL	Upper Tolerance Limit
UXB-KEMRON	UXB-KEMRON Remediation Services, LLC
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VESCLR&C	Virginia Erosion and Sediment Control Law, Regulations, and Certifications
VOCs	Volatile Organic Compounds
WTDP	Waste Transportation and Disposal Plan
WWPT	Waste Water Treatment Plant

1.0 INTRODUCTION

UXB-KEMRON Remediation Services, LLC (UXB-KEMRON) was contracted by the U.S. Army Corps of Engineers (USACE) and US Army Environmental Command (USAEC) to plan and execute Interim Measures (IM) at the Pond by Buildings 4931 and 4928, Solid Waste Management Unit (SWMU) 57, at Radford Army Ammunition Plant (RFAAP), Radford, VA. The Army Environmental Database-Restoration (AEDB-R) identifier for the site is RAAP-022.

This Interim Measures Completion Report (IMCR) includes details of mobilization, sample collection and analysis, data validation site preparation, erosion control, excavation, disposal, backfill and site restoration at SWMU 57 (the Site). As documented in this IMCR, the Corrective Measures Objectives (CMOs) for the site have been achieved such that unrestricted use standards are met and no further monitoring or evaluation of SWMU 57, RAAP-022 is necessary.

Work was completed in accordance with the Interim Measures Work Plan (IMWP) prepared by UXB-KEMRON (2010), as approved by the US Environmental Protection Agency (USEPA), Region III and the Virginia Department of Environmental Quality (VDEQ). The Agencies provided written approval of the IMWP via email on January 06, 2011.

The IMWP incorporated standard operating procedures (SOPs) and relevant information established by the *RFAAP Master Work Plan (MWP)* [URS Corporation (URS), 2003], which has been approved by USEPA and VDEQ. SOPs referenced in this IMCR can be found in the 2010 IMWP and the 2003 MWP. The IMWP implementation also incorporated details specified in the *Solid Waste Management Unit (SWMU) 57 (RAAP-022) Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Corrective Measures Study (CMS) Report* (URS, 2009) and standards established by the RFAAP RCRA Permit.

The IMWP (UXB-KEMRON, 2010) detailed site-specific procedures for the IM at SWMU 57. Specifically, the IMWP addressed the excavation and off-site disposal of soil with concentrations of specific metals to achieve the residential (unrestricted) remedial goals (RGs) in order to facilitate clean closeout in accordance with Part II(D)(16) of the RFAAP Corrective Action Permit (USEPA, 2000a).

The SWMU 57, RAAP-022 IM work was performed under Task Order (TO) # DA01 issued by the US Army Corps of Engineers Baltimore District and the US Army Environmental Command, under UXB-KEMRON's Worldwide Environmental Remediation Services contract, number W912DY-10-D-0027, with an award date of 30 June 2010 and a Notice to Proceed (NTP) date of 15 July 2010.

1.1 Background

1.1.1 Site Description

RFAAP is a government owned; contractor operated manufacturing facility located in southwestern Virginia approximately 8 miles southwest of Blacksburg (Figure 1). ATK Energetics Systems was the operator during the cleanup effort. RFAAP consists of two noncontiguous areas, the Main Manufacturing Area (MMA) and the New River Unit (NRU). SWMU 57, RAAP-022 is located in the MMA. RFAAP is operating under a 2000 RCRA Corrective Action permit, with a new permit currently being negotiated.

SWMU 57 consisted of a 0.06 acre area (2,600 ft^2) inactive, fabricated, asphalt lined pond, an associated terra cotta drainage pipe leading from Building 4931 to the pond, associated terra cotta piping, and an adjacent drainage swale. SWMU 57, RAAP-022, is located in the MMA, adjacent to the Rocket Area Office at RFAAP (URS, 2009). A soil berm surrounded the pond, and a chain link fence also surrounded

the pond, providing a four foot high barrier. An approximately one inch thick asphalt liner was present in the pond. To the east of the SWMU is an asphalt-paved road and a system of aboveground and overhead steam lines (Figure 2). The Final RCRA Facility Investigation and Corrective Measures Study (Final RFI/CMS) (URS, 2009) for SWMU 57 was approved by the USEPA and the VDEQ in September 2009. The IMWP (UXB-KEMRON, 2010) was based upon the approved Final RFI/CMS, with the selected Corrective Measures being implemented as Interim Measures as requested by USEPA.

The area adjacent to the SWMU slopes downward to the northwest toward the New River. The pre-IM surface elevations range from approximately 1,810 feet above mean sea level (ft msl) to approximately 1,802 ft msl. The historic discharges from Building 4931 to the pond resulted in environmental impact within the pond and in the adjacent drainage swale. The Final RFI/CMS concluded that groundwater had not been adversely impacted by the historic site activities. However, the selected remedy for the site required that groundwater be sampled and analyzed prior to remedy implementation to provide final verification that clean closure of the site was achievable. The Final RFI/CMS stated that groundwater corrective measures were not required.

1.1.2 Site History

The URS 2009 Final RFI/CMS stated that as-built drawings from 1954 and 1967 illustrate the pond as the "Acid Settling Pool", with a diameter of approximately 50 feet and a capacity of 30,000 gallons. The Final RFI/CMS stated that a six-inch diameter terra cotta drainage pipe originated at a four-inch floor drain in Building 4931, located south of SWMU 57. The terra cotta pipe was still present, leading through the subsurface, emanating at the ground surface and into the pond. The Building 4931 floor drain is represented in the RFI/CMS as having been located near a chromic acid tank and Oakite-33 wash stations. The Final RFI/CMS indicated that chromic acid, hydraulic oil, Oakite-33 and zinc phosphate were reportedly discharged through the floor drain to the pond. According to the Final RFI/CMS, Oakite-33 is a mixture of phosphoric acid and butyl Cellosolve® which replaced chromic acid use after 1974 for purposes of rust stripping, conducted to clean rocket encasements.

The Final RFI/CMS indicated that no liquids were visible in the terra cotta pipe at the time of an August 2005 site visit. Likewise, during a May 19, 2010 site walk, UXB-KEMRON did not observe any liquids in the drain pipe. Use of Building 4931 has changed and liquids are no longer managed in the wash station area, nor does discharge from the terra cotta pipe to the pond occur.

1.2 Corrective Measures Objectives

CMOs were developed in the 2009 Final RFI/CMS for the constituents of concern (COCs) in soil at SWMU 57. Maximum detected concentrations of COCs in groundwater were below the established RGs, and therefore corrective measures for groundwater were not developed.

The following CMO was developed for soil at SWMU 57 based on the results of the site, risk, and fate and transport assessments and the most likely future land use at the site (industrial):

- Mitigate the potential risks/hazards that have been identified for evaluated future hypothetical industrial receptors for exposure to soil (construction workers) at the site.

The residential exposure pathway also was evaluated in the CMS to assess the remedial effort that would be required to achieve clean closure at SWMU 57 with unrestricted future land use without controls or long-term monitoring (LTM) requirements.

Remedial Goals (RGs) for COCs in soil were calculated for future industrial and residential scenarios in the Final RFI/CMS.

The CMS selected Alternative 4, remediation to unrestricted use. A summary of the soil RGs for the site is provided below:

- Aluminum
  - Residential = 40, 041 mg/kg
- Antimony
  - Residential = 13.2 mg/kg
- Manganese
  - Residential = 2,543 mg/kg
- Cadmium
  - Residential = 23.2 mg/kg
- Chromium
  - Residential = 65.3 mg/kg
- Iron
  - Residential = 50,962 mg/kg

As stated previously, no groundwater CMOs were required.

1.3 Project Objectives

Based on the *SWMU 57 Final RFI/CMS Report,* September 2009, Alternative Four: Excavation of Soil and Offsite Disposal for Clean Closure and Unrestricted Land Use was selected as the final alternative for SWMU 57.

The interim measures were conducted to reduce the concentrations of aluminum, antimony, cadmium, chromium, iron and manganese such that they do not exceed the residential RGs (as presented in Section 1.2); facilitate clean closeout in accordance with Part II (D) (11-21) IM of the *RFAAP Corrective Action Permit* (USEPA, 2000a); and to mitigate the threat of a contaminant release, migration, and/or exposure to the public and the environment. As summarized below, the interim measures required multiple phases and steps:

1. **Confirmation Groundwater Sampling for Closure:** Confirmation groundwater sampling was conducted in November 2010 prior to remedy implementation to verify findings in the Final RFI/CMS that COC concentrations in groundwater are below the applicable MCLs and risk-based criteria and to confirm that clean closure was achievable. Groundwater was analyzed for COCs as presented in Section 5.7 of the IMWP. The analytical data were summarized and submitted to the Army, who forwarded the data to USEPA and VDEQ on January 04, 2011. USEPA and VDEQ approved of the IMWP, including the determination that clean closure could be achieved based on the groundwater data, in a January 06, 2011 email (Appendix H).
2. **Surface Water and Soil Waste Characterization:** Surface water from the pond was sampled to determine disposal requirements for the water. Eight soil samples also were collected from multiple locations prior to excavation for waste characterization. The soil samples were collected from within the footprint of the pond and the immediately surrounding area. UXB-KEMRON coordinated with RFAAP and ATK regarding the waste characterization, profiling, as well as acquiring VDEQ and landfill agreement regarding appropriate strategy and adequacy of the waste characterization sampling.

3. **Pre-Excavation Confirmatory Sampling:** Consistent with Section 5.6 of the IMWP, hand augering was performed to facilitate soil sampling around the supports of the steam lines to determine concentrations of soil COCs immediately surrounding the overhead steam line supports. This sample data was used by UXB-KEMRON in pre-mobilization planning to determine appropriate engineering design for the excavation in the vicinity of the overhead steam line supports, and also was included in the dataset to illustrate achievement of the CMOs for the site.
4. **Identification and Sampling of Clean Backfill and Topsoil:** UXB-KEMRON identified potential sources of clean backfill and topsoil for use in filling and restoring the planned excavation at SWMU 57. Sampling and analysis of the sources was conducted in accordance with the IMWP, and the data were transmitted to the Army in advance of mobilization to demonstrate that the soils met the IMWP criteria for use.
5. **Mobilization and Site Preparation.** UXB-KEMRON coordinated with the Army regarding personnel security clearance and badging, verifying appropriate RFAAP permitting and approvals for access, and mobilized personnel to the site beginning March 18, 2011. Prior to commencement of work, a utility survey was performed in accordance with established RFAAP procedures and appropriate permits were obtained from RFAAP. In addition, erosion/sediment control measures were implemented prior to excavation at the site.
6. **Pond Water Removal and Soil Excavation.** All standing water in the pond was removed with a vacuum truck and based upon the collected waste characterization samples and RFAAP approval, was discharged at the on-site RFAAP Bio-Plant facility. Soil excavation was performed within the pond (maximum depth of 20 feet), the drainage swale and exposed portion of the terra cotta pipe (see Figure 5), such that remaining soil was below the residential RG for aluminum, antimony, cadmium, chromium, iron and manganese. The approximately 80 foot long section of the drainage swale closest to the pond was excavated to progressively shallower depths at increased distance from the pond based on pre-excavation soil sample data (Figure 5). The portion of the terra cotta pipe that was not excavated under the steam line was sealed with a grout plug; excavation of the terra cotta piping was limited by the soil berm, and steam line and associated supports, as specified in the IMWP and CMS.
7. **Confirmation Sampling.** Confirmation sampling was performed from the bottom and sidewalls of the excavation to confirm the vertical and lateral extent of the excavation resulting in removal of all soil containing COCs exceeding the RGs.
8. **Off-site Soil Disposal.** Pre-excavation soil characterization allowed for direct loading and disposal to occur. All excavated soil was determined to be non-hazardous waste and was disposed in a RCRA Subtitle D Landfill (New River Resource Facility).
9. **Site Restoration.** Following the receipt of the laboratory analytical data confirming achievement of the site RGs, the excavation was backfilled with the pre-sampled clean soil. The area was backfilled to a grade slightly lower than the base of the storm water culvert that conveys storm water under the adjacent road toward the drainage swale. From the elevation of the storm water culvert, backfill soil was graded consistent with the surrounding terrain and sloping towards the drainage swale. Limited rip rap/rock was placed at the mouth of the culvert discharge to prevent erosion during high flow storm water events. Following the completion of the excavation, off-site disposal of the contaminated soil, removal of the gravel in the truck area, and placement of clean backfill soil, the site was restored with placement of topsoil, seeding, and demobilization of all equipment. The sediment and erosion controls at the site were left in place until vegetation is established.

Sections 2 through 5 of this report provide additional details of the IM implementation steps 1 through 9 above.

2.0 PRE-EXCAVATION

2.1 Confirmation Groundwater Sampling

Groundwater samples were collected for chemical analysis in accordance with MWP SOP 30.2, as included in the IMWP, to confirm the ability to achieve clean closure. Groundwater sampling information was recorded in the field logbooks as described in SOPs 10.1 and 10.2 (Appendix G). To minimize excessive drawdown, low flow purging and sampling techniques were used, per the SOP, to collect the groundwater samples from monitoring wells 57MW2 and 57MW3. Sampling followed the procedures outlined in Section 3.3 of SOP 30.2 of the MWP. Equipment used to purge and sample wells was thoroughly decontaminated before and after use following SOP 80.1.

All equipment used for monitoring water quality parameters was calibrated before use according to the manufacturer's instructions and SOP 40.1 of the MWP. Prior to sampling, the depth to water was measured at each well to the nearest 0.01 ft using an electronic water level indicator in accordance with SOP 40.2 of the MWP. Calibration and measurement data was recorded in the field logbook and on groundwater sampling forms.

A stainless steel, adjustable flow rate submersible pump was used to collect the groundwater samples. The Teflon lined pump tubing was connected to an in-line flow-through cell and the multi parameter meter probe was connected to the flow cell to monitor water quality parameters during purging. Pumping started and the pump rate was adjusted to cause minimal drawdown. A YSI Model 6820V2-0 multi-parameter water quality meter was used to monitor pH, specific conductance, temperature, ORP (ORD), dissolved oxygen, and turbidity during purging. Purging continued until parameter stabilization was achieved. Once purging was complete, the pumping rate was reduced to its lowest steady rate and the in-line flow cell was disconnected from the tubing to allow for sampling from the tubing directly into clean sample containers provided by the laboratory.

The analytical results were submitted by RFAAP to USEPA and VDEQ via email on January 04, 2011 (Appendix H). The analytical results from the 2010 data were compared to the 2008 data from the RFI, and are presented in Table 1. 57MW3 samples were extremely turbid as indicated by the field parameters. The high turbidity is interpreted as the cause for the elevated total metals concentrations. However, the dissolved metals concentrations demonstrated values consistent with the 2008 concentrations. 2010 dissolved metals concentrations were either below the 2010 laboratory Limit of Detection (LOD) and/or less than 2008 sample concentrations and are presented in Figure 3.

Very low levels of methylene chloride were detected in the 2010 samples. However, the laboratory-provided trip blank had methylene chloride present at a concentration above the client samples. Therefore, this parameter was interpreted as a laboratory-derived contaminant. Low level o-xylene was detected in 57MW2 parent and duplicate samples. It is possible that this parameter was present due to polyethylene tubing and/or duct tape adhesive that was present inside the well on the interior of the cap when opened. Regardless, the concentration was extremely low, and was far below the current USEPA RBC for tap water and the USEPA total xylene Safe Drinking Water Act Maximum Contaminant Level (MCL).

Groundwater samples were collected and containerized in the order of volatilization sensitivity of the parameters. Samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs) via EPA method SW 846 Method 8260B, antimony, arsenic, chromium, and manganese by EPA SW 846 Method 6010B or 6020. Filtered and unfiltered samples were collected for metals analysis. The filtered metals samples were filtered with an in-line high capacity 0.45-micron disposable filter.

The appropriate sample containers were filled, labeled, and placed into coolers with ice and maintained at 4 °C.

Sampling equipment was decontaminated in accordance with the procedures outlined in the RFAAP MWP SOP 80.1 for non-dedicated sampling equipment. Non-dedicated sampling equipment, including any field monitoring device, was decontaminated between each sampling point. A decontamination station was established for sampling equipment. All purge water and decontamination fluids were containerized and stored at the RFAAP onsite IDM area until approval for discharge was granted at the RFAAP Bio-Plant facility. Liquid waste characterization samples from decontamination procedures were submitted to the analytical laboratory and analyzed for chemical oxygen demand (COD), biological oxygen demand (BOD), TAL metals, and pH (tested in the field). Approval was granted for disposal of IDW by RFAAP on December 9, 2010 and all purge and decontamination fluids were discharged at the RFAAP Bio-Plant facility (Appendix H).

2.2 Soil and Pond Water Waste Characterization Sampling

Waste characterization samples were collected and analyzed to determine the appropriate disposal requirements for waste resulting from the IM at SWMU 57. Two types of waste streams were generated during the IM: solid (soil) and liquid (decontamination water and pond water).

Soil Waste Characterization Sampling

Soil to be excavated was characterized to evaluate whether it was a RCRA characteristic hazardous waste as described in Part 40 of the Code of Federal Regulations (CFR) Part 261, Subpart C (as referenced in the Virginia Hazardous Waste Management Regulations).

Soil waste characterization samples were collected during site delineation to assess the appropriate disposal options for the soil excavated. This data was evaluated by UXB-KEMRON to identify the highest concentrations of soil COCs. UXB-KEMRON then selected additional sampling locations to assure none of the soils being excavated would be characteristic hazardous wastes.

Waste characterization soil samples were collected in the area of RFI soil samples 57SB2, 57SB3, 57SB7, 57SB8, and 57SB18, as well as various areas inside the proposed excavation, using a hand auger and followed the SOP 20.1 of the MWP for hand auger borings and soil sampling. Surface (0-2 foot) and subsurface (greater than 2 feet) samples were collected.

The RFI analytical results were reviewed and areas within the SWMU were identified where a soil sample exceeded the “rule of 20.” The “rule of 20” is based on the TCLP analytical method. This means that the TCLP maximum concentration is multiplied by 20, for a conservative evaluation of the regulatory limit for leachate in mg/L compared to total concentration in soil (mg/kg). In the TCLP method a sample is leached in an acetic acid solution with a ration of 20 parts fluid to 1 part sample. If all the material leaches out, the TCLP result is $1/20^{th}$ of the total result. Therefore, a conservative (protective) path is to compare total results to 20 times the TCLP “limit”, assuming 100% leaching. If the total result is less than 20 times the TCLP “limit,” the TCLP “limit” cannot be exceeded. If the total result is more than 20 times the TCLP “limit,” the TCLP “limit” may be exceeded and TCLP testing should be performed.

The only soil analytes in the RFI samples that exceeded the rule of 20 were cadmium, chromium, and lead, with all elevated concentrations occurring in the zero to 2 feet below grade depth interval. Based on the areal extent and depths of the RFI samples that exceeded the “rule of 20”, the estimated volume of soil that could potentially exceed an applicable TCLP limit was less than 400 cy. Therefore, UXB-KEMRON collected and analyzed four (4) samples for TCLP Metals from this area. In addition, to further confirm that the soil was not subject to hazardous waste disposal requirements, an additional three composite samples were collected within the SWMU and analyzed for TCLP Metals.

Both the anticipated landfill, New River Resource Facility and Ms. Beth Lohman, VDEQ, agreed with the waste characterization sampling strategy as developed and implemented by UXB-KEMRON. UXB-KEMRON mobilized and collected soil samples via hand auger from zero to 2 feet below grade in the approximate location of former RFI sample locations 57SB7, 57SB2, 57SB3 and 57SB18. RFI sample location 57SB6 was located in the middle of the pond, which had standing water at the time of sampling. Since the water also was to be characterized separately from the soil, it was determined that a preferential path downward could be created by augering through the asphalt liner in the center of the pond. Therefore, that location was not sampled for soil waste characterization. At each location, a 2-foot core was collected, homogenized, and a sample appropriately containerized and submitted for TCLP metals.

Additionally, three composite samples were collected by hand auger within the planned excavation footprint. At three locations, a composite sample was collected by homogenizing subsamples collected from depths of approximately 1 foot, 3 feet, and 6 feet below grade. The three composite samples were analyzed for TCLP metals.

The soil sample(s) were submitted to a DoD Environmental Laboratory Accreditation Program (ELAP) certified laboratory, Microbac Ohio Valley Division (OVD) as identified in the project specific Quality Assurance Project Plan (QAPP). In addition to analysis for TCLP metals, all seven soil waste characterization samples were sampled and analyzed for RCRA waste characteristics (corrosivity as pH, reactivity, and ignitability). The analytical results confirmed that all site soils would be nonhazardous waste for purposes of waste management and disposal. The complete laboratory analytical report for the soil waste characterization samples collected for the IM is included in Appendix D.

Pond Water Characterization

Surface water characterization samples were collected during pre-excavation sampling to assess if treatment was required prior to disposal at the RFAAP Bio-Plant facility, or if off-site disposal would be required. Surface water samples were collected in accordance with the procedures outlined in the SOP 30.3 of the MWP. The surface water samples were submitted to Microbac OVD and analyzed for parameters specified by the RFAAP Bio-Plant facility, including chemical oxygen demand (COD), biological oxygen demand (BOD), TAL metals, and pH (which was tested in the field). After evaluating the laboratory analytical data, RFAAP personnel approved the pond water for discharge at the RFAAP Bio-Plant facility. The pond water was removed with a Vac-Truck and transported to the RFAAP Bio-Plant facility (approximately 9,800 gallons of water).

The full laboratory analytical reports for all waste characterization analytical results are included in Appendix D.

2.3 Pre-Excavation Soil Confirmatory Sampling

At the same field mobilization in which the waste characterization samples were collected, hand auger borings were advanced around the supports for the steam pipes that were within the proposed excavation area. These samples were collected in accordance with Section 3.3 of the IMWP, to provide further definition of the required extent of excavation near the steam lines, and to provide additional confirmation soil samples in advance of the excavation.

Seven (7) hand augers borings were advanced to an estimated varying depth of 1 to 5 feet. The presence of footers around the supports was determined, and soil samples were collected at the estimated center point depth (2.5 ft bgs) of the excavation under the steam pipes and bottom of the excavation at that location (5 feet bgs). Hand auger borings were performed in accordance with the procedures for drilling presented in Section 5.2 of the MWP. The results of this allowed UXB-KEMRON to determine that no excavation needed to be performed directly under the supports. The results of the hand auger borings are illustrated on Figure 5, and the locations used as confirmation samples are included in Table 2.

All soil confirmation sample data are included in Appendix B.

2.4 Identification and Sampling of Clean Backfill and Topsoil

UXB-KEMRON researched potential local sites for acquisition of clean backfill and topsoil to be used during site restoration. After identifying potential locations, UXB-KEMRON evaluated the history of the various sites, and contacted the owners regarding access to sample the soils. After receiving authorization to enter sites to sample soil, the borrow material and top soil both were sampled at a rate of 1 sample/1,000 cubic yards (i.e., two samples from the borrow material, one sample from the top soil). The borrow material and top soil were analyzed for TAL metals, PAHs, pesticides/PCBs, and pH. The analytical results were compared to USEPA Regional Screening Levels (RSLs) and the range of RFAAP background soil concentrations established in the *Facility-Wide Background Study Report* (IT Corporation, 2001). The backfill and topsoil location selected for the site was the site of construction of a new school, located at 4021 Prices Fork Road, Radford, Va.

The data demonstrated that only arsenic and vanadium were detected above the USEPA RSLs for residential soil. However, the detections were below the range of RFAAP background. Based on the fact that no detections were above background and/or RSLs, and the source location of the soils having been approved for construction of a new school, the backfill soil (clay) and topsoil from the Prices Fork Road location were selected for use at SWMU 57, RAAP-022. The range of detections of arsenic and vanadium in the samples collected by UXB-KEMRON from the new school construction site located at 4021 Prices Fork Road are presented below. The complete laboratory analytical report is included in Appendix B.

Analyte	Background Study 95% UTL Concentration (mg/kg)	Backfill Clay Concentration (mg/kg)	Topsoil Concentration (mg/kg)
Arsenic	15.8	9.09-10.3	3.15-3.92
Vanadium	108	69.2-9.2	18.3-23.7

2.5 Site Preparation

UXB-KEMRON mobilized to the site on March 18, 2011, and began establishing appropriate controls at the site. Silt fencing was placed along the perimeter of the soil excavation and staging area(s) as illustrated in Figure 2 and in conformance with IMWP sediment and erosion controls. Straw bales were placed at the end of the drainage swale for improved stability along the silt fence. After initial installation, the silt fencing was inspected at least every 14 calendar days and within 24 hours after storm events of 0.5 inches or greater during active remediation to ensure it was intact and that there were no gaps where the fence meets the ground or tears along the length of the fence. In addition to the silt fence, an orange barrier fence was placed around the outer edge of the silt fence for additional safety.

Several loads of 357 gravel were delivered to install staging and loading zone areas. Excavation equipment and site facilities were delivered. The main staging area and access was established north of SWMU 57 (Figure 2). The main staging area was designed to have a designated area for employee parking, a decontamination area, a fueling area, and a portable toilet. A spill kit was brought to the site and was maintained throughout the IM implementation to ensure adequate spill protection and response during fueling and other site activities necessary to support the IM.

A utility survey was performed by Draper Aden Associates in accordance with established RFAAP procedures and appropriate permits were obtained from RFAAP. Draper Aden field personnel used a Metrotec 810 and a Pipe Horn model 100 in conducting the utility survey. The Metrotec 810 works on a high frequency 83 kHz and the Pipe Horn 100 works on 480 kHz. Both locating devices use

electromagnetic radio frequency and are capable of inducing a radio frequency onto a conductor. The Draper Aden field personnel indicated that he detected the presence of a conductor and attempted to follow it out but was not able to determine exactly what was detected; he marked the anomaly as "unknown". UXB-KEMRON conferred with RFAAP personnel, and verified that no subsurface utilities were identified either in the RFI/CMS information or in the RFAAP site engineering drawings. The Draper Aden utility survey indicated the anomaly could potentially represent a subsurface utility, at a depth of at least 8 feet below grade, passing through the central portion of the SWMU and running generally parallel to the adjacent roadway.

In response to the utility survey anomaly, UXB-KEMRON notified RFAAP and coordinated with on-site Army and ATK personnel to determine appropriate next steps. An area that was identified as likely within the line of the anomaly but outside of the SWMU was determined to be appropriate to excavate to assess the presence or absence of a subsurface utility. UXB-KEMRON used an excavator to remove soil in the designated area, excavating to a depth of approximately 23.5 feet. No utility was encountered. UXB-KEMRON discussed the appropriate means to proceed with the Army and ATK. After consultation with the Contracting Officer's Representative (COR), UXB-KEMRON determined it was appropriate to proceed with excavation in the SWMU per the IMWP, with increased caution. If a subsurface utility was encountered, UXB-KEMRON agreed to immediately stop work and notify RFAAP, ATK and the COR. No subsurface utility was encountered within the SWMU, though significant naturally occurring iron deposits were encountered. It is possible that the iron deposits were the source of the anomaly identified by Draper Aden during the utility survey.

During implementation of the IM, the culvert that conveys stormwater under the road immediately adjacent to the site, as depicted in Figure 2, was blocked to prevent stormwater discharge into the excavation.

3.0 EXCAVATION

3.1 Soil Excavation and Confirmation Sampling

Figure 5, illustrates the surveyed excavation areal extent and associated depths. Appropriate permits were coordinated and received from RFAAP prior to conduct of any subsurface intrusive activities.

The IMWP estimated the soil within the pond area, drainage swale, adjacent to the terra cotta piping, pond asphalt containment, and other associated solids as comprising an in-place volume of approximately 1,685 cubic yards, or 2,358 tons. The total amount disposed of during excavation was 2,799.37 tons Table 3 provide a load-specific record of soil transported to and disposed at the New River Resource Facility. As noted previously, analytical data demonstrated that all IDM was nonhazardous.

IM implementation began with the fence removal and monitoring well abandonment. The fence was transported to the New River Resource Facility. After confirmation of ability to achieve clean closure at the site, UXB-KEMRON permanently closed and abandoned the monitoring wells 57MW1, 57MW2 and 57MW3. The wells were abandoned in accordance with the VDEQ Memorandum of January 8, 2008 attached as IMWP Appendix C. The well abandonment was conducted by an appropriately experienced and licensed driller (Rorrer Drilling). The surface pad of each well and associated bollards were removed. An attempt was made to pull the casing from each well, and each well had bentonite or concrete grout emplaced from the bottom of casing until it returned to the surface. Each monitoring well was surveyed by a licensed surveyor, Anderson and Associates. Rorrer Drilling completed the required documentation of well abandonment for each well. The Rorrer documentation and associated information regarding the well closures was prepared by UXB-KEMRON, and submitted by RFAAP to VDEQ via email on April 29, 2011. The documentation of well closure also is included in Appendix A. A concrete pad was placed at the former location of each monitoring well as specified in the VDEQ Memorandum.

Excavation of impacted soils was conducted subsequently, with depths ranging up to 20 feet bgs. The excavation was completed based on the IMWP and soil analytical data from the 2009 RFI/CMS (Figure 4) and confirmatory samples collected and analyzed by UXB-KEMRON (Figure 5). The excavation began along the western end of the swale and moved east towards the pond progressively increasing in depth. The pond area excavation began along the south side of the SWMU and UXB-KEMRON excavated northeast in a counterclockwise direction around the SWMU gradually increasing depth, such that a total depth of 15 feet and maximum of 20 feet below ground surface was achieved until the western swale was reached. The exposed portion of the terra cotta pipe up to the soil embankment that underlies the steam piping on the north side of Building 4931 was excavated to the extent feasible without disturbing or compromising the soil embankment and related concrete supports to the overlying steam lines. The end of the terra cotta pipe was sealed with a grout plug. Soil within the remediation area was removed in approximately 1-ft lifts until RGs were achieved. Contaminated soils were excavated and directly loaded into dump trucks and transported off site. Excavation work conformed to the approved IMWP and UXB-KEMRON governing documents including the Accident Prevention Plan. Excavation areas greater than 4 feet in depth constituted a confined space; therefore personnel were not allowed to enter the excavation in sections greater than 4 feet depth.

Geotextile fabric (or 5 millimeter polyethylene sheeting) was used to construct a temporary loading zone on which the trucks used to transport excavated soil were staged while being loaded, to ensure contaminated soil spills to the ground surface did not occur. The sheeting/fabric extended from the truck to the edge of the excavation zone. The temporary loading zone was moved as the leading edge of the excavation moved forward toward the drainage swale. Backfilling commenced after the excavation had been completed and analytical results from the confirmation samples were available to demonstrate that soil above the RG's had been removed from the site.

Confirmation soil samples were collected during 2 phases of the IM. Soil samples adjacent to steam line supports within the drainage swale were collected prior to mobilization (please refer to Section 2.3). These samples combined with the RFI sample data and samples taken during excavation allowed UXB-KEMRON to identify the horizontal and vertical extent of the excavation to meet the RG's. UXB-KEMRON conducted confirmation sampling from the bucket of the excavator when excavation depth was greater than 4 feet. The samples collected at depths greater than 4 feet were measured with an engineering tape at the side of the excavation to verify the proper depth of the sample point. Bucket samples were collected from the measured point by scraping the sidewall or floor (as applicable) of the excavation. The excavator bucket was then moved to a safe distance from the side of the excavation and a sample was collected from the bucket. All work was conducted in accordance with the project Accident Prevention Plan and applicable OSHA requirements regarding excavations of depths greater than 4 feet. The above measurement and sampling procedure was followed for all samples collected at depths where the excavation exceeded 4 feet, in accordance with the approved IMWP and the RFAAP master work plan (SOP 30.1).

Soil confirmation samples were collected during the excavation of the pond and the drainage swale. Confirmation samples were collected in accordance with the QAPP and were identified by a unique name. The sampling strategy employed was a biased sampling strategy (MWP SOP 30.7), because the source of the contamination was known. The excavation area is illustrated in Figure 5. The confirmatory soil sample locations as well as associated depths are illustrated on Figure 5. Please note that depths of the samples are indicated in the naming convention of each sample (e.g., sample identifier SWMU57-32511-SS-7.5SW-3 represents a sample collected at 7.5 feet bgs). Additional information regarding sample collection, identification, and management is included in the QAPP, Appendix B to the IMWP (UXB-KEMRON, 2010).

In accordance with the IMWP, one soil sample was collected for laboratory analysis from each 25-ft by 25-ft area of the floor of the remediation area and from every 20-ft section of the wall of the excavation. Sidewall samples were collected at the midpoint of the sidewall. For example, for an excavation wall 15 feet deep, the sidewall sample was collected at 7.5 feet depth below grade. Samples were also collected from inflection points and/or corners of the excavation at the base and side wall. Soil was extracted from the appropriate interval; sample containers were filled, labeled, and placed into coolers with ice and maintained at 4 degrees Celsius (°C). Confirmatory soil samples were shipped to Microbac OVD under chain of custody and analyzed for the site specific COCs.

The excavator was decontaminated prior to use, after completion of the excavation phase, and after completion of the project. When a piece of equipment was removed from an excavation area its tracks, wheels, buckets, or other portions that may have contacted contaminated soil were properly decontaminated. The primary method of decontamination was to remove clinging soil by using shovels, brooms, and brushes. The decontamination took place in the excavation area where the soil removed was picked up and placed into a dump truck for disposal. Once dry decontamination had been performed, decontamination procedures for the excavator followed those in SOP 80.1 for a drill rig, which requires steam cleaning. A decontamination pad was set up within the main staging area where pressure washing occurred. The decontamination pad consisted of a lined containment area designed to collect decontamination water, such that it could be collected with a sump pump, and containerized until analytical results determined the proper disposal alternative. Based upon analytical data, the decontamination fluids were approved to be discharged at the onsite RFAAP Bioplant facility.

The maximum excavation depth reached during the IM implementation was 20 feet below ground surface. The location of the 20 foot depth was initially excavated to 15 feet, and a confirmation sample was collected. That sample, SWMU-57-32611-FC-15-NUM3, was determined to have iron present above the RG, and over excavation was conducted. A resample at 20 feet depth, SWMU-57-33011-SS-FC-20-

NUM3b achieved all RGs. Sample SWMU-57-21811-B-3-SS-2 also had elevated levels of iron; this location was resampled at 2.5 feet (sample SWMU-57-32511-SS-FCB3-2.5), with excavation conducted to 2.5 feet as well, with analytical results from the resample confirming RGs were achieved.

Confirmatory samples demonstrated that the final excavation was completed such that soil remaining achieved all unrestricted use RGs. Figure 5 illustrates the locations of the samples and associated analytical results. Table 2 provides a complete listing of all sample results. The comprehensive analytical reports are included in Appendix B.

3.2 Confirmation Sample Data Review, Verification, and Validation

Laboratory analytical data for confirmation samples were reviewed and verified by UXB-KEMRON technical personnel to ensure all data were provided, and that the sampling program conformed to the applicable plans. Data review, verification and subsequent data validation were conducted to verify that the project-specific data quality objectives, as defined in the IMWP and associated QAPP were achieved. Field data were reviewed and verified based upon the standards established in the site specific work plans. All field procedures and data were found to conform to the work plans.

The complete laboratory analytical report is provided in Appendix B, and the data validation reports are included in Appendix C.

Data validation is conducted to determine whether the data quality is acceptable and whether it meets the criteria established in the QAPP. This thorough evaluation of the data allows for a determination to be made regarding the usability of the data for necessary decisions regarding the site. The SWMU 57, RAAP-022 data validation criteria was established in the project-specific QAPP, and was based on site specific information and decisions to be made, analytical method-specific criteria, USEPA Region III data validation guidance, the subcontract laboratory standard operating procedures and the standards imposed via the laboratory's Department of Defense ELAP certification (and the associated requirements and standards of the *DoD Quality Systems Manual*, or QSM).

All decision making laboratory analytical data packages were validated in accordance with the SWMU 57 QAPP (Appendix B of the approved IMWP).

The laboratory analyses were evaluated to determine the limitations and quality of the data. The quality of data resulting from SWMU 57 sampling activities was considered useable and acceptable unless an "R" qualifier was applied by the validator during the validation process, thus causing the data to be rejected. Samples qualified "J", "L", or "UL" were considered acceptable and are presented as estimated results consistent with the established definitions.

None of the SWMU 57, RAAP-022 soil sample data was rejected. In groundwater samples, 2-chloroethyl vinyl ether was analyzed for on acidified aliquots for all samples except SWMU57GWMW3. Highly reactive VOC compounds such as 2-chloroethyl vinyl ether can be lost due to acidification as illustrated by the MS/MSD recoveries. The associated sample results for the acidified samples were non-detects and, therefore, were qualified R; this compound was not a COPC at SWMU 57 but was included in the Total Compound List volatile organic compounds analyzed in groundwater. The analyte was not detected in the other site monitoring well, SWMU57GWMW2. While some groundwater and soil analytical results were estimated, with J or UJ qualifiers applied, the data were determined to be usable in making decisions relevant to the closure of SWMU 57. A complete set of the data validation reports is contained in Appendix C.

4.0 POST-EXCAVATION ACTIVITIES

4.1 Backfill and Site Restoration

Following removal of the soil containing COCs above RGs and receipt of confirmation sample laboratory analytical results demonstrating achievement of the CMOs, site restoration activities commenced. Off-site borrow material was placed from the grade of the storm water culvert under the adjacent road and sloping toward and into the drainage swale to provide proper drainage. The finished grade is such that the grass can be maintained and ponding will not occur. The backfilled areas were seeded with grass and straw was applied over the seed. Erosion and sediment controls were left in place to allow sufficient time for the grass to become established.

Clean borrow material was selected that had physical characteristics consistent with the existing soil at SWMU 57. Straw was mixed with the top soil to increase organic content during grading. All liquid IDM from equipment decontamination was discharged at the RFAAP Bioplant facility based on analytical data receipt and evaluation. After the site restoration activities were completed, UXB-KEMRON demobilized all equipment off site. Select photographs of the IM are provided in Appendix F.

5.0 CONCLUSIONS

UXB-KEMRON completed implementation of the approved IMWP during March-April 2011. The IMWP and its implementation were consistent with the final, approved RFI/CMS. The CMOs were achieved such that the site has been demonstrated to meet unrestricted use RGs and no further monitoring or evaluation is required.

6.0 REFERENCES

Alliant Techsystems, Inc. (ATK), 2005. *Safety, Security and Environmental Rules for Contractors, Subcontractors, Tenants and Government Employees.* March 2005.

Department of Defense, Environmental Data Quality Workgroup, 2009. *Department of Defense Quality Systems Manual for Environmental Laboratories, Version 4.1.* April 2009.

Intergovernmental Data Quality Task Force, 2005. *Uniform Federal Policy for Implementing Environmental Quality Systems; Evaluating, Assessing, and Documenting Environmental Data Collection/Use and Technology Program* (UFP QAPP), Final, Version 2. March 2005.

URS Corporation (URS), 2009. SWMU 57 *RCRA Facility Investigation/Corrective Measures Study Report.* Final. September 2009.

URS Corporation (URS), 2003. *Final Master Work Plan, Quality Assurance Plan, Health and Safety Plan*. Radford Army Ammunition Plant, Radford, Virginia. Prepared for the U.S. Army Corps of Engineers, Baltimore District. August 2003.

U.S. Army Corps of Engineers (USACE), 2001. *EM200-1-3, Requirements for the Preparation of Sampling and Analysis Plans*.

U.S. Environmental Protection Agency (USEPA), 2000a. *Permit for Corrective Action and Waste Minimization*: Pursuant to the Resource Conservation and Recovery Act as Amended by the Hazardous and Solid Waste Amendment of 1984, Radford Army Ammunition Plant, Radford, Virginia. VA1210020730.

UXB-KEMRON, 2010. Draft Final Interim Measures Work Plan for SWMU 57. Radford Army Ammunition Plant, Radford, VA. November, 2010.

Virginia Department of Conservation and Recreation, Division of Soil and Water Conservations, 1992. *Virginia Erosion and Sediment Control Handbook.* Third Edition, 1992.

FIGURES

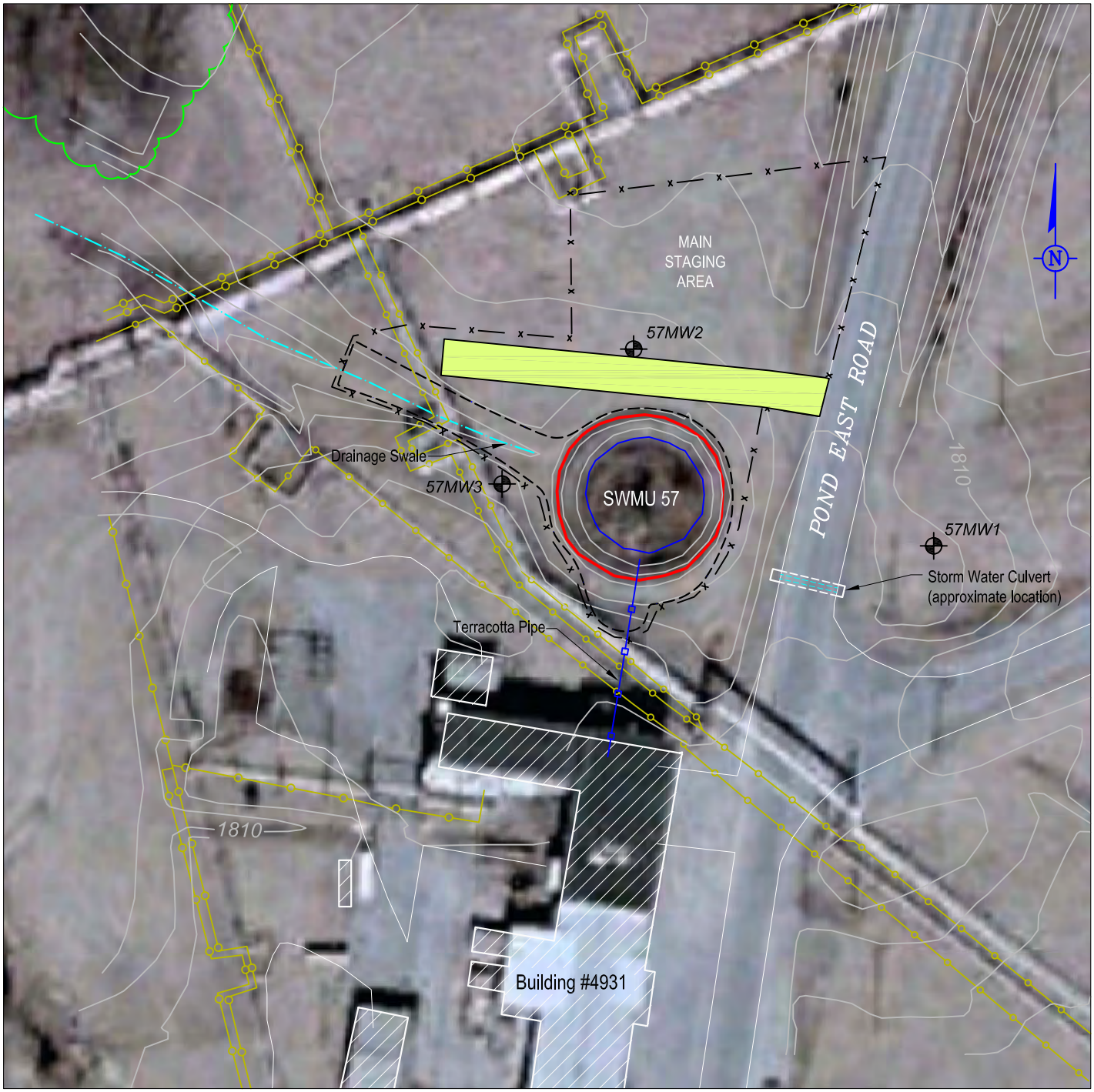
0 1000 2000 4000 6000 8000 Feet

N

Source: Google Earth; Imagery Date: February 1, 2007

KEMRON Environmental Services
1359-A Ellsworth Industrial Blvd.
Atlanta, GA 30318

PROJECT NO.	RADFORD	DRAWING DATE:	06/06/2011
DESIGNED	DRP	SITE LOCATION MAP	
DETAILED	DRP	SWMU 57	
CHECKED	KR	LOCATION: RADFORD ARMY AMMUNITION PLANT, RADFORD, VIRGINIA	FIGURE: 1



Note:
Areal Photo from
Google Earth, 2010

LEGEND

- BUILDINGS
- TERRACOTTA PIPE
- CONSTRUCTION ENTRANCE/EXIT
- SILT FENCE
- 57MW3 MONITORING WELL LOCATION
- VEGETATION
- APPROXIMATE SWMU BOUNDARY
- EXCAVATION AREA
- ABOVEGROUND PIPING
- TOPOGRAPHIC CONTOUR
- DRAINAGE SWALE

UXB Kemron Remediation Services, LLC

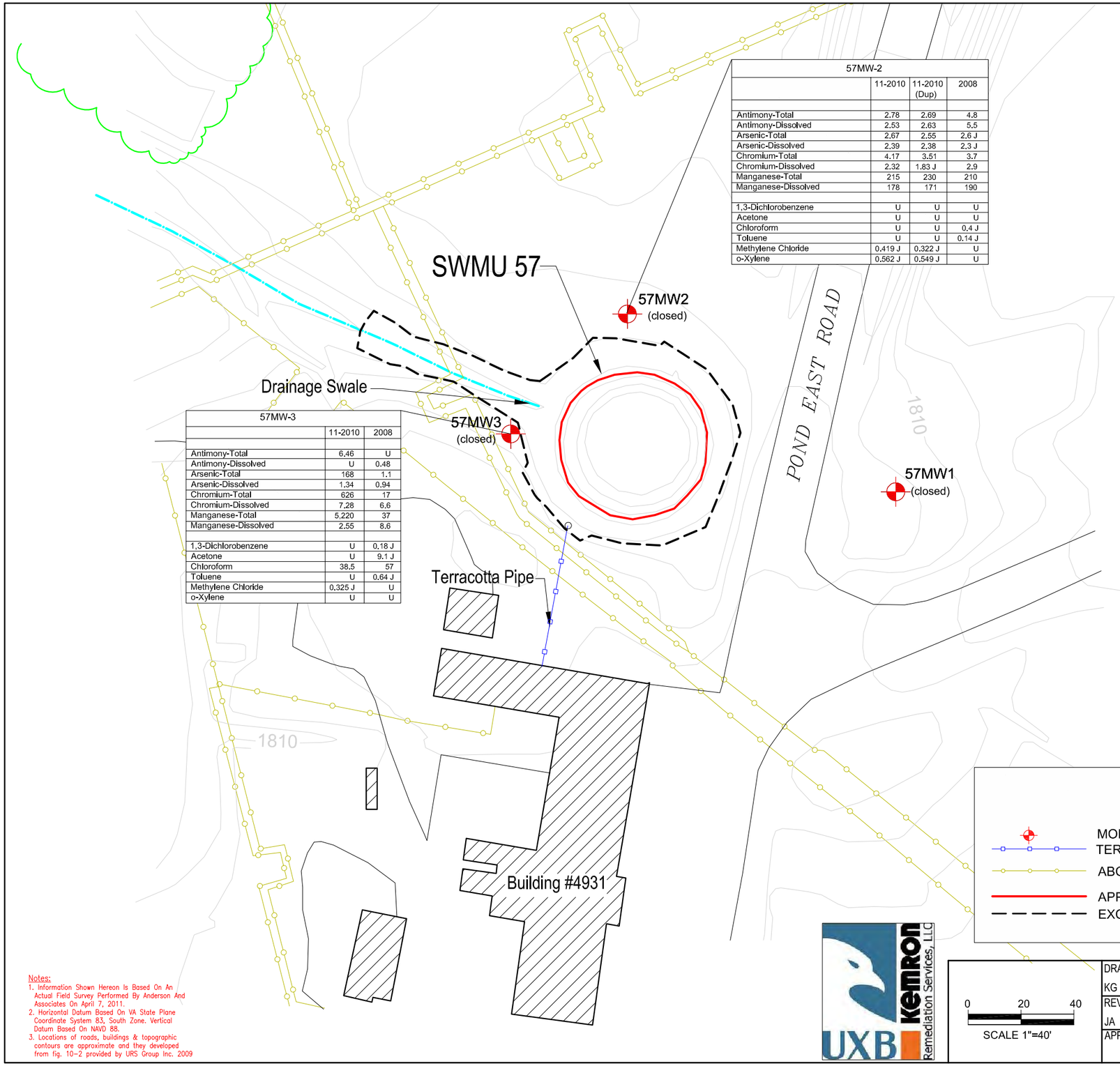
0 25 50
SCALE 1"=50'
(Approximate)

DRAWN BY: KG		DATE 17 MAY 2011
REVIEWED: JA	R 5	PROJECT NO. MR0669-400-002
APPROVED:		DWG. FILE NO. INTERIM MEASURES

FIGURE 2

IMCR SWMU 57

LAYOUT PRIOR TO INTERIM MEASURES
RADFORD ARMY AMMUNITION PLANT
RAAP-022
RADFORD, VIRGINIA



57MW-2			
	11-2010	11-2010 (Dup)	2008
Antimony-Total	2.78	2.69	4.8
Antimony-Dissolved	2.53	2.63	5.5
Arsenic-Total	2.67	2.55	2.6 J
Arsenic-Dissolved	2.39	2.38	2.3 J
Chromium-Total	4.17	3.51	3.7
Chromium-Dissolved	2.32	1.83 J	2.9
Manganese-Total	215	230	210
Manganese-Dissolved	178	171	190
1,3-Dichlorobenzene	U	U	U
Acetone	U	U	U
Chloroform	U	U	0.4 J
Toluene	U	U	0.14 J
Methylene Chloride	0.419 J	0.322 J	U
o-Xylene	0.562 J	0.549 J	U

57MW-3		
	11-2010	2008
Antimony-Total	6.46	U
Antimony-Dissolved	U	0.48
Arsenic-Total	168	1.1
Arsenic-Dissolved	1.34	0.94
Chromium-Total	626	17
Chromium-Dissolved	7.28	6.6
Manganese-Total	5,220	37
Manganese-Dissolved	2.55	8.6
1,3-Dichlorobenzene	U	0.18 J
Acetone	U	9.1 J
Chloroform	38.5	57
Toluene	U	0.64 J
Methylene Chloride	0.325 J	U
o-Xylene	U	U

	Adjusted Tap Water RBCNs	MCL
Antimony-Total	1.46	6
Antimony-Dissolved	1.46	6
Arsenic-Total	0.0446	10
Arsenic-Dissolved	0.04446	10
Chromium-Total	10.95	100
Chromium-Dissolved	10.95	100
Manganese-Total	73	NE
Manganese-Dissolved	73	NE
1,3-Dichlorobenzene	1,825	NE
Acetone	547.5	NE
Chloroform	0.155	80
Toluene	227.1	1,000
Methylene Chloride	4.8*	5
o-Xylene	1,200*	10,000 (total xylenes)

Notes:
J = Estimated value; the analyte concentration was either greater than the highest standard or less than the low standard (LOQ).
U = Analyte was not detected; the concentration is below the reported LOD.
1 Adjusted Tap Water RBCs taken from 2009 Final RFI/CMS; values noted with an asterisk (*) value from USEPA November 2010 tap water RBC listing
NE = Not Established
NOTES:
1) 57MW3 samples were highly turbid; the elevated total metals concentrations are interpreted as being related to turbidity.
2) Equipment blank had acetone (2.59 J ug/L) and methylene chloride (0.315 J ug/L) detections; field blank had 0.352 J ug/L detection methylene chloride; trip blank had 0.684 J ug/L detection methylene chloride.

Notes:
1. Information Shown Hereon Is Based On An Actual Field Survey Performed By Anderson And Associates On April 7, 2011.
2. Horizontal Datum Based On VA State Plane Coordinate System 83, South Zone. Vertical Datum Based On NAVD 88.
3. Locations of roads, buildings & topographic contours are approximate and they developed from fig. 10-2 provided by URS Group Inc. 2009

LEGEND

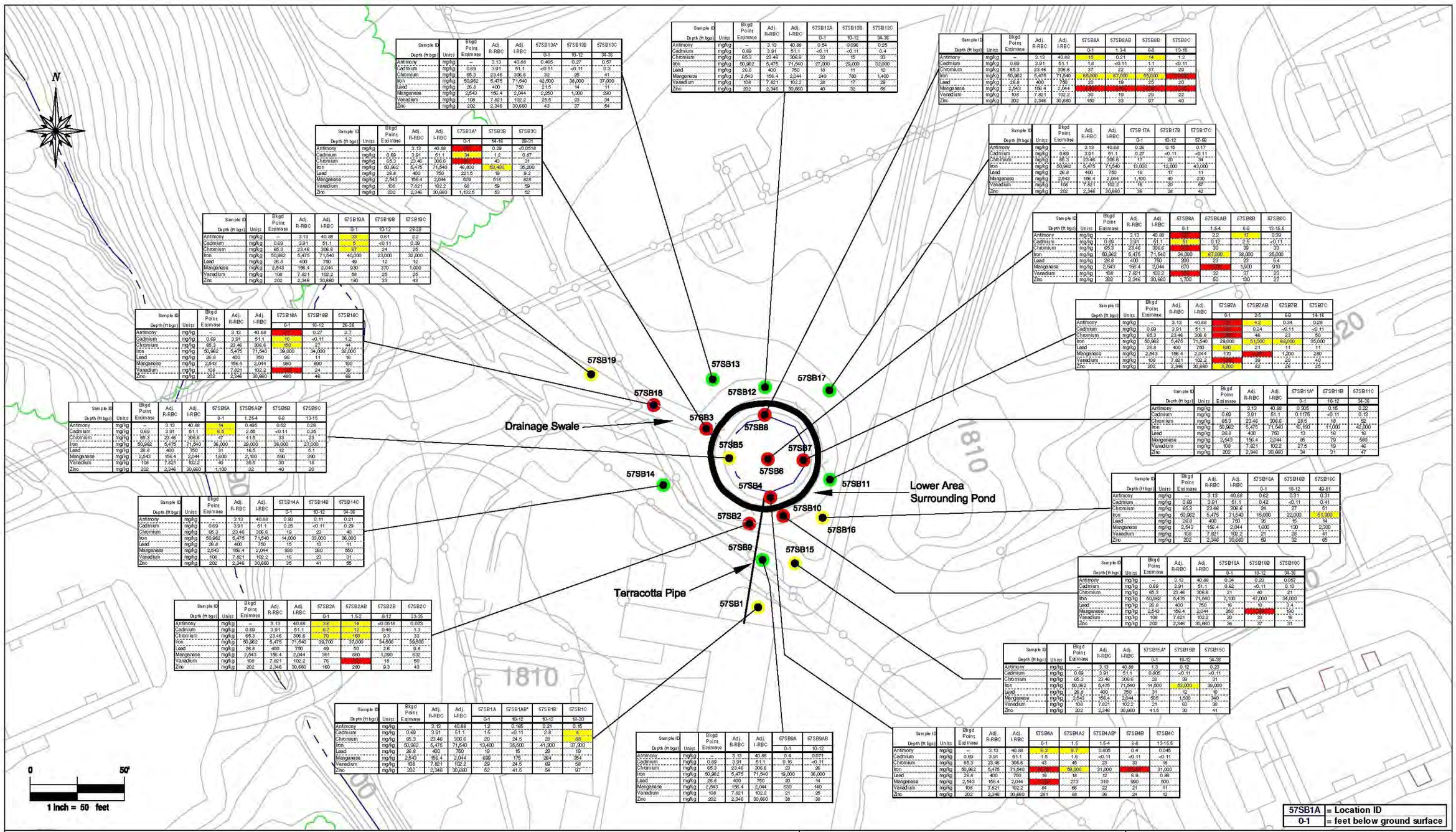
- MONITORING WELL LOCATION (CLOSED)
- TERRACOTTA PIPE
- ABOVEGROUND PIPING
- APPROXIMATE SWMU BOUNDARY
- EXCAVATION AREA
- BUILDINGS
- VEGETATION
- TOPOGRAPHIC CONTOUR
- DRAINAGE SWALE

UXB Kemron Remediation Services, LLC

0 20 40
SCALE 1"=40'

DRAWN BY: KG		DATE 17 MAY 2011	FIGURE 3
REVIEWED: JA	R 6	PROJECT NO. MR0669-400-002	
APPROVED:		DWG. FILE NO. GW SMP. RESULTS(11-2010)	

SWMU 57 IMCR
GROUNDWATER CONFIRMATION
SAMPLING RESULTS, NOVEMBER 2011
RADFORD ARMY AMMUNITION PLANT
SWMU-57, RAAP-022
RADFORD, VIRGINIA



Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB13A*	57SB13B	57SB13C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.88	0.465	0.27	0.57
Cadmium	mg/kg	0.69	3.91	51.1	<0.11	<0.11	0.3
Chromium	mg/kg	65.3	23.46	306.6	32	25	41
Iron	mg/kg	50,962	5,475	71,540	42,500	38,000	37,000
Lead	mg/kg	26.8	400	750	215	14	11
Manganese	mg/kg	2,543	156.4	2,044	2,260	1,300	330
Vanadium	mg/kg	108	7,821	102.2	25.5	23	34
Zinc	mg/kg	202	2,346	30,660	43	37	54

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB12A	57SB12B	57SB12C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.88	0.54	0.098	0.25
Cadmium	mg/kg	0.69	3.91	51.1	<0.11	<0.11	0.4
Chromium	mg/kg	65.3	23.46	306.6	33	16	33
Iron	mg/kg	50,962	5,475	71,540	27,000	29,000	32,000
Lead	mg/kg	26.8	400	750	18	11	12
Manganese	mg/kg	2,543	156.4	2,044	940	780	1,400
Vanadium	mg/kg	108	7,821	102.2	28	17	29
Zinc	mg/kg	202	2,346	30,660	40	32	58

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB8A	57SB8AB	57SB8B	57SB8C
Depth (ft bgs)	Units				0-1	1.5-4	6-9	13-15.5
Antimony	mg/kg	–	3.13	40.88	15	0.21	14	1.2
Cadmium	mg/kg	0.69	3.91	51.1	1.8	<0.11	1.1	<0.11
Chromium	mg/kg	65.3	23.46	306.6	37	22	37	29
Iron	mg/kg	50,962	5,475	71,540	65,000	67,000	100,000	23,000
Lead	mg/kg	26.8	400	750	20	19	25	20
Manganese	mg/kg	2,543	156.4	2,044	1,200	1,100	1,400	1,100
Vanadium	mg/kg	108	7,821	102.2	30	19	29	22
Zinc	mg/kg	202	2,346	30,660	150	33	97	40

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB3A*	57SB3B	57SB3C
Depth (ft bgs)	Units				0-1	14-16	29-31
Antimony	mg/kg	–	3.13	40.88	3.6	0.29	<0.0518
Cadmium	mg/kg	0.69	3.91	51.1	34	1.2	0.87
Chromium	mg/kg	65.3	23.46	306.6	1,100	43	31
Iron	mg/kg	50,962	5,475	71,540	46,800	23,400	35,200
Lead	mg/kg	26.8	400	750	221.5	19	9.2
Manganese	mg/kg	2,543	156.4	2,044	525	516	626
Vanadium	mg/kg	108	7,821	102.2	68	59	59
Zinc	mg/kg	202	2,346	30,660	1,152.5	53	52

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB17A	57SB17B	57SB17C
Depth (ft bgs)	Units				0-1	10-12	57-59
Antimony	mg/kg	–	3.13	40.68	0.26	0.15	0.17
Cadmium	mg/kg	0.69	3.91	51.1	0.27	<0.11	<0.11
Chromium	mg/kg	65.3	23.46	306.6	17	20	34
Iron	mg/kg	50,962	5,475	71,540	13,000	12,000	43,000
Lead	mg/kg	26.8	400	750	16	17	11
Manganese	mg/kg	2,543	156.4	2,044	1,100	40	230
Vanadium	mg/kg	108	7,821	102.2	16	20	57
Zinc	mg/kg	202	2,346	30,660	36	28	42

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB19A	57SB19B	57SB19C
Depth (ft bgs)	Units				0-1	10-12	26-28
Antimony	mg/kg	–	3.13	40.88	33	0.61	2.2
Cadmium	mg/kg	0.69	3.91	51.1	5	<0.11	0.39
Chromium	mg/kg	65.3	23.46	306.6	67	24	25
Iron	mg/kg	50,962	5,475	71,540	40,000	23,000	32,000
Lead	mg/kg	26.8	400	750	49	12	12
Manganese	mg/kg	2,543	156.4	2,044	930	370	1,000
Vanadium	mg/kg	108	7,821	102.2	58	25	25
Zinc	mg/kg	202	2,346	30,660	180	33	43

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB8A	57SB8AB	57SB8B	57SB8C
Depth (ft bgs)	Units				0-1	1.5-4	6-9	13-15.5
Antimony	mg/kg	–	3.13	40.88	15	2.2	17	0.29
Cadmium	mg/kg	0.69	3.91	51.1	1.8	0.72	1.5	<0.11
Chromium	mg/kg	65.3	23.46	306.6	37	30	39	23
Iron	mg/kg	50,962	5,475	71,540	34,000	67,000	38,000	35,000
Lead	mg/kg	26.8	400	750	200	23	22	5.4
Manganese	mg/kg	2,543	156.4	2,044	970	1,000	1,900	910
Vanadium	mg/kg	108	7,821	102.2	32	32	37	23
Zinc	mg/kg	202	2,346	30,660	1,700	60	190	27

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB16A	57SB16B	57SB16C
Depth (ft bgs)	Units				0-1	10-12	26-28
Antimony	mg/kg	–	3.13	40.88		0.27	2.7
Cadmium	mg/kg	0.69	3.91	51.1	16	<0.11	1.2
Chromium	mg/kg	65.3	23.46	306.6	150	27	44
Iron	mg/kg	50,962	5,475	71,540	39,000	34,000	32,000
Lead	mg/kg	26.8	400	750	96	11	16
Manganese	mg/kg	2,543	156.4	2,044	980	690	590
Vanadium	mg/kg	108	7,821	102.2		24	39
Zinc	mg/kg	202	2,346	30,660	480	46	69

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB7A	57SB7AB	57SB7B	57SB7C
Depth (ft bgs)	Units				0-1	2-5	6-9	14-16
Antimony	mg/kg	–	3.13	40.68		4.2	0.34	0.28
Cadmium	mg/kg	0.69	3.91	51.1		0.24	<0.11	<0.11
Chromium	mg/kg	65.3	23.46	306.6		46	23	50
Iron	mg/kg	50,962	5,475	71,540	29,000	51,000	68,000	35,000
Lead	mg/kg	26.8	400	750	680	21	11	11
Manganese	mg/kg	2,543	156.4	2,044	170	1,100	1,200	280
Vanadium	mg/kg	108	7,821	102.2		39	20	40
Zinc	mg/kg	202	2,346	30,660	3,700	82	26	25

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB5A	57SB5AB*	57SB5B	57SB5C
Depth (ft bgs)	Units				0-1	1.25-4	6-8	13-15
Antimony	mg/kg	–	3.13	40.88	14	0.495	0.52	0.26
Cadmium	mg/kg	0.69	3.91	51.1	5.5	2.95	<0.11	0.35
Chromium	mg/kg	65.3	23.46	306.6	47	41.5	33	23
Iron	mg/kg	50,962	5,475	71,540	36,000	29,000	36,000	27,000
Lead	mg/kg	26.8	400	750	31	16.5	12	6.1
Manganese	mg/kg	2,543	156.4	2,044	1,600	2,100	590	390
Vanadium	mg/kg	108	7,821	102.2	40	35.5	30	18
Zinc	mg/kg	202	2,346	30,660	1,100	32	40	26

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB11A*	57SB11B	57SB11C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.88	0.305	0.15	0.22
Cadmium	mg/kg	0.69	3.91	51.1	0.1175	<0.11	0.15
Chromium	mg/kg	65.3	23.46	306.6	28.5	18	52
Iron	mg/kg	50,962	5,475	71,540	10,150	11,000	42,000
Lead	mg/kg	26.8	400	750	15	16	16
Manganese	mg/kg	2,543	156.4	2,044	85	70	560
Vanadium	mg/kg	108	7,821	102.2	27.5	19	46
Zinc	mg/kg	202	2,346	30,660	34	31	47

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB14A	57SB14B	57SB14C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.68	0.93	0.11	0.21
Cadmium	mg/kg	0.69	3.91	51.1	0.25	<0.11	0.29
Chromium	mg/kg	65.3	23.46	306.6	19	23	40
Iron	mg/kg	50,962	5,475	71,540	14,000	33,000	36,000
Lead	mg/kg	26.8	400	750	15	13	11
Manganese	mg/kg	2,543	156.4	2,044	930	260	550
Vanadium	mg/kg	108	7,821	102.2	16	23	31
Zinc	mg/kg	202	2,346	30,660	35	41	55

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB16A*	57SB16B	57SB16C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.88	1.3	0.12	0.23
Cadmium	mg/kg	0.69	3.91	51.1	0.895	<0.11	<0.11
Chromium	mg/kg	65.3	23.46	306.6	39	39	31
Iron	mg/kg	50,962	5,475	71,540	34,500	63,000	39,000
Lead	mg/kg	26.8	400	750	31	12	10
Manganese	mg/kg	2,543	156.4	2,044	505	1,000	940
Vanadium	mg/kg	108	7,821	102.2	21	32	38
Zinc	mg/kg	202	2,346	30,660	415	30	41

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB10A	57SB10B	57SB10C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.68	0.34	0.23	0.057
Cadmium	mg/kg	0.69	3.91	51.1	0.62	<0.11	0.13
Chromium	mg/kg	65.3	23.46	306.6	21	40	21
Iron	mg/kg	50,962	5,475	71,540	7,100	47,000	34,000
Lead	mg/kg	26.8	400	750	16	10	3.4
Manganese	mg/kg	2,543	156.4	2,044	350		590
Vanadium	mg/kg	108	7,821	102.2	20	33	16
Zinc	mg/kg	202	2,346	30,660	34	37	31

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB2A	57SB2AB	57SB2B	57SB2C
Depth (ft bgs)	Units				0-1	1.5-2	8-12	33-35
Antimony	mg/kg	–	3.13	40.68	3.6	14	<0.0518	0.073
Cadmium	mg/kg	0.69	3.91	51.1	6.7	12	0.46	1.3
Chromium	mg/kg	65.3	23.46	306.6	160	70	33	33
Iron	mg/kg	50,962	5,475	71,540	39,700	37,000	34,600	35,500
Lead	mg/kg	26.8	400	750	49	50	2.6	9.8
Manganese	mg/kg	2,543	156.4	2,044	361	860	1,090	632
Vanadium	mg/kg	108	7,821	102.2	76	18	18	50
Zinc	mg/kg	202	2,346	30,660	180	280	9.3	43

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB1A	57SB1AB*	57SB1B	57SB1C
Depth (ft bgs)	Units				0-1	10-12	10-12	18-20
Antimony	mg/kg	–	3.13	40.88	1.2	0.165	0.21	0.15
Cadmium	mg/kg	0.69	3.91	51.1	1.5	<0.11	2.8	4
Chromium	mg/kg	65.3	23.46	306.6	20	24.5	28	88
Iron	mg/kg	50,962	5,475	71,540	13,400	35,500	41,000	37,300
Lead	mg/kg	26.8	400	750	19	15	20	19
Manganese	mg/kg	2,543	156.4	2,044	890	175	364	354
Vanadium	mg/kg	108	7,821	102.2	29	24.5	89	58
Zinc	mg/kg	202	2,346	30,660	52	41.5	54	97

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB9A	57SB9AB
Depth (ft bgs)	Units				0-1	10-12
Antimony	mg/kg	–	3.13	40.88	0.4	0.071
Cadmium	mg/kg	0.69	3.91	51.1	1.5	<0.11
Chromium	mg/kg	65.3	23.46	306.6	43	36
Iron	mg/kg	50,962	5,475	71,540	19,000	36,000
Lead	mg/kg	26.8	400	750	20	14
Manganese	mg/kg	2,543	156.4	2,044	630	140
Vanadium	mg/kg	108	7,821	102.2	21	25
Zinc	mg/kg	202	2,346	30,660	38	38

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB4A	57SB4A2	57SB4AB*	57SB4B	57SB4C
Depth (ft bgs)	Units				0-1	1.5	1.5-4	6-8	13-15.5
Antimony	mg/kg	–	3.13	40.88	6.2	9.7	0.805	0.4	0.045
Cadmium	mg/kg	0.69	3.91	51.1	1.5	1.6	<0.11	<0.11	<0.11
Chromium	mg/kg	65.3	23.46	306.6	43	46	23	33	18
Iron	mg/kg	50,962	5,475	71,540		59,000	31,000		31,000
Lead	mg/kg	26.8	400	750	59	18	12	6.9	0.46
Manganese	mg/kg	2,543	156.4	2,044		273	310	990	500
Vanadium	mg/kg	108	7,821	102.2	54	66	22	21	11
Zinc	mg/kg	202	2,346	30,660	281	68	36	24	12

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB18A	57SB18B	57SB18C
Depth (ft bgs)	Units				0-1	10-12	26-28
Antimony	mg/kg	–	3.13	40.88	0.62	0.31	0.31
Cadmium	mg/kg	0.69	3.91	51.1	0.42	<0.11	0.41
Chromium	mg/kg	65.3	23.46	306.6	24	27	51
Iron	mg/kg	50,962	5,475	71,540	15,000	22,000	51,000
Lead	mg/kg	26.8	400	750	35	16	14
Manganese	mg/kg	2,543	156.4	2,044	1,600	130	2,300
Vanadium	mg/kg	108	7,821	102.2	21	28	41
Zinc	mg/kg	202	2,346	30,660	59	32	65

Sample ID		Bkgd Point Estimate	Adj. R-RBC	Adj. I-RBC	57SB15A*	57SB15B	57SB15C
Depth (ft bgs)	Units				0-1	10-12	34-36
Antimony	mg/kg	–	3.13	40.88	1.3	0.12	0.23
Cadmium	mg/kg	0.69	3.91	51.1	0.895	<0.11	<0.11
Chromium	mg/kg	65.3	23.46	306.6	39	39	31
Iron	mg/kg	50,962	5,475	71,540	34,500	63,000	39,000
Lead	mg/kg	26.8	400	750	31	12	10
Manganese	mg/kg	2,543	156.4	2,044	505	1,000	940
Vanadium	mg/kg	108	7,821	102.2	21	32	38
Zinc	mg/kg	202	2,346	30,660	415	30	41

57SB1A	= Location ID
0-1	= feet below ground surface

Legend

- Approximate SWMU Boundary
- Soil Boring Location
- Exceeds Adjusted Residential Risk-Based Concentration (R-RBC) and Facility-wide Background Point Estimate
- Exceeds Adjusted R-RBC, Adjusted Industrial RBC (I-RBC), and Facility-wide Background Point Estimate
- Parameters do not exceed Adjusted RBCs
- Parameters exceed Adjusted Residential RBC and Facility-wide Background Point Estimate
- Parameters exceed Adjusted R-RBC, Adjusted I-RBC, and Facility-wide Background Point Estimate
- mg/kg — Concentrations in milligrams per kilogram
- * — Duplicate Average

FIGURE 4

RFI Soil Sample Analytical Results

Date: May 2011	Detailed by: DRP
Prepared by: DRP	Approved by: JA
Scale: 1 inch = 50 feet	File Name:

SWMU 57 IMCR

Taken from Fig. 4-1 URS
RFI/CMS 2009
Radford Army Ammunition Plant
Radford, Virginia

UXB Kemron Environmental Services, LLC
156 Starlite Drive
Marietta, OH 45750

SWMU-57-21711-DUP (mg/kg)		SWMU-57-21711-B-6-SS-1-2 (mg/kg)	
Al	18,200	Al	18,100
Sb	1.1	Sb	1.15
Cd	<0.243	Cd	<0.250
Cr	15.5	Cr	20.2
Fe	34,600	Fe	33,800
Mn	178	Mn	655

SWMU-57-21711-B-1-SS-2.5 (mg/kg)	
Al	15,200
Sb	3.12
Cd	<0.249
Cr	13.9
Fe	27,900
Mn	154

SWMU-57-21711-B-2-SS-2.5 (mg/kg)		SWMU-57-21711-B-2-SS-5 (mg/kg)	
Al	17,400	Al	13,200
Sb	10.5	Sb	3.7
Cd	2.53	Cd	0.395J
Cr	22.8	Cr	17.4
Fe	27,000	Fe	24,200
Mn	343	Mn	431

SWMU-57-21811-B7-SS-2 (mg/kg)	
Al	15,400
Sb	0.640J
Cd	<0.239
Cr	25.3
Fe	31,500
Mn	517

SWMU-57-32511-SS-FC2-Num1 (mg/kg)		SWMU-57-32511-SS-DUP (mg/kg)	
Al	26,500	Al	31,200
Sb	4.44	Sb	3.38
Cd	0.563J	Cd	0.603J
Cr	15.6	Cr	27.0
Fe	40,900	Fe	45,900
Mn	138	Mn	124

SWMU-57-21811-B-4-SS-2.5 (mg/kg)	
Al	20,000
Sb	2.13
Cd	2.23
Cr	31
Fe	34,700
Mn	119

SWMU-57-21811-B3-SS-2 (mg/kg)		SWMU-57-32511-SS-FC-B3-2.5" (mg/kg)	
Al	10,300	Al	24,900
Sb	3.42	Sb	3.44
Cd	1.71	Cd	0.460J
Cr	49.3	Cr	30.7
Fe	**63,500**	Fe	44,100
Mn	1,240	Mn	264

SWMU-57-21711-B-6-SS-2.5 (mg/kg)	
Al	14,900
Sb	9.2
Cd	0.424J
Cr	13.9
Fe	26,900
Mn	229

SWMU-57-32511-SS-2.5-SW4 (mg/kg)	
Al	30,300
Sb	<0.451
Cd	<0.316
Cr	17.6
Fe	40600
Mn	182

SWMU-57-4111-SS-7-SW-9 (mg/kg)	
Al	11,700
Sb	<0.441
Cd	0.367J
Cr	22.6
Fe	23,400
Mn	125

SWMU-57-4111-SS-15-FC-Num8 (mg/kg)	
Al	11,700
Sb	0.722J
Cd	0.614
Cr	22.3
Fe	17,100
Mn	251

SWMU-57-4111-SS-DUP (mg/kg)		SWMU-57-4111-SS-FC-2-Num7 (mg/kg)	
Al	17,200	Al	15,200
Sb	<0.491	Sb	<0.482
Cd	<0.328	Cd	<0.325
Cr	27.6	Cr	31.6
Fe	39,000	Fe	36,800
Mn	387	Mn	383

SWMU-57-4111-SS-8-SW8 (mg/kg)	
Al	13,600
Sb	<0.478
Cd	<0.311
Cr	21.2
Fe	28,700
Mn	461

SWMU-57-4411-SS-7.5-SW-11 (mg/kg)	
Al	16,100
Sb	2.69
Cd	<0.328
Cr	29.6
Fe	33,200
Mn	291

SWMU-57-4511-SS-DUP (mg/kg)		SWMU-57-4511-SS-7.5-SW12 (mg/kg)	
Al	15,500	Al	14,600
Sb	<0.486	Sb	<0.478
Cd	<0.308	Cd	<0.314
Cr	15.5	Cr	18.4
Fe	32,100	Fe	30,300
Mn	542	Mn	718

SWMU-57-4111-SS-7.5-SW13 (mg/kg)	
Al	8,380
Sb	0.424J
Cd	<0.290
Cr	1.16
Fe	17,000
Mn	15.8

SWMU-57-4411-SS-15-FC-Num10 (mg/kg)	
Al	14,600
Sb	<0.425
Cd	<0.312
Cr	27.1
Fe	28,800
Mn	420

SWMU-57-4411-SS-15-FC-Num9 (mg/kg)	
Al	13,700
Sb	<0.443
Cd	<0.318
Cr	27.7
Fe	28,600
Mn	335

SWMU-57-32911-SS-7-SW5 (mg/kg)	
Al	13,000
Sb	<0.453
Cd	<0.294
Cr	8.05
Fe	28,900
Mn	181

SWMU-57-32911-15-SS-FC-Num5 (mg/kg)	
Al	11,100
Sb	<0.493
Cd	<0.327
Cr	14.4
Fe	25,200
Mn	285

SWMU-57-33011-SS-FC-14-Num6 (mg/kg)	
Al	10,800
Sb	<0.464
Cd	<0.308
Cr	10.8
Fe	38,200
Mn	142

SWMU-57-32511-SS-7.5SW-3 (mg/kg)	
Al	21,300
Sb	<0.429
Cd	<0.312
Cr	13.1
Fe	27,400
Mn	223

SWMU-57-232511-FC-13-Num4 (mg/kg)	
Al	13,300
Sb	<0.441
Cd	<0.318
Cr	17.6
Fe	22,800
Mn	259

SWMU-57-4111-SS-7-SW10 (mg/kg)	
Al	15,000
Sb	0.621J
Cd	<0.329
Cr	15.5
Fe	30,600
Mn	420

SWMU-57-4111-SS-1-SW7 (mg/kg)	
Al	11,500
Sb	<0.489
Cd	<0.312
Cr	63.3
Fe	36,600
Mn	459

SWMU-57-4111-SS-4-SW6 (mg/kg)	
Al	16,400
Sb	<0.490
Cd	0.580J
Cr	51.4
Fe	30,700
Mn	183

SWMU-57-32511-SS-FC-8-Num2 (mg/kg)	
Al	18700
Sb	<0.478
Cd	<0.314
Cr	<1.25
Fe	28,300
Mn	211

SWMU-57-32511-SS-4SW-1 (mg/kg)	
Al	27,600
Sb	<0.506
Cd	<0.324
Cr	14.2
Fe	34,200
Mn	110

SWMU-57-32511-SS-7.5SW2 (mg/kg)	
Al	22,300
Sb	<0.478
Cd	<0.317
Cr	29.0
Fe	39,100
Mn	332

SWMU-57-32611-FC-15Num3 (mg/kg)		SWMU-57-33011-SS-FC-20ANum38" (mg/kg)	
Al	12,300	Al	NA
Sb	<2.43	Sb	NA
Cd	<0.329	Cd	NA
Cr	4.76	Cr	NA
Fe	**91,900**	Fe	16,800
Mn	444	Mn	NA

SWMU 57

57MW2 (closed)

57MW3 (closed)

57MW1 (closed)

Terracotta Pipe

POND EAST ROAD

1810

12-Straight Swale

Notes:
J = Estimated value; the analyte concentration was either greater than the highest standard or less than the low standard (LOQ).

< = Indicates sample result was U qualified, and result listed is less than LOD.

LEGEND

- MONITORING WELL LOCATION (CLOSED)
- TERRACOTTA PIPE
- ABOVEGROUND PIPING
- APPROXIMATE SWMU BOUNDARY
- EXCAVATION AREA
- SOIL SAMPLE LOCATION
- BUILDINGS
- VEGETATION
- TOPOGRAPHIC CONTOUR
- DRAINAGE SWALE

Notes:
1. Information Shown Hereon Is Based On An Actual Field Survey Performed By Anderson And Associates On April 7, 2011.
2. Horizontal Datum Based On VA State Plane Coordinate System 83, South Zone. Vertical Datum Based On NAVD 88.
3. Locations of roads, buildings & topographic contours are approximate and they developed from fig. 10-2 provided by URS Group Inc. 2009

UXB Kemron Remediation Services, LLC

0 20 40
SCALE 1"=40'

DRAWN BY: KG		DATE 17 MAY 2011
REVIEWED: JA	R 6	PROJECT NO. MR0669-400-002
APPROVED: MLR		DWG. FILE NO. SOIL SMP. RESULTS(3-2011)

FIGURE 5

SWMU 57 IMCR
SOIL CONFIRMATION SAMPLE RESULTS
MARCH-APRIL 2011
RADFORD ARMY AMMUNITION PLANT
SWMU-57, RAAP-022
RADFORD, VIRGINIA

TABLES

Table 1
Summary Comparison of Detected Constituents
RAAP-022, SWMU 57 Groundwater Samples

Sample ID	57MW-2 11_2010	57MW-2-D1 (Duplicate) 11_2010	57MW-2 2008	57MW-3 11_2010	57MW-3 2008	Adjusted Tap Water RBC[1]	MCL
METALS (ug/L)							
Antimony-Total	2.78	2.69	4.8	6.46	U	1.46	6
Antimony-**Dissolved**	2.53	2.63	5.5	U	0.48	1.46	6
Arsenic-Total	2.67	2.55	2.6 J	168	1.1	0.0446	10
Arsenic-**Dissolved**	2.39	2.38	2.3 J	1.34	0.94	0.0446	10
Chromium-Total	4.17	3.51	3.7	626	17	10.95	100
Chromium-**Dissolved**	2.32	1.83 J	2.9	7.28	6.6	10.95	100
Manganese-Total	215	230	210	5220	37	73	NE
Manganese-**Dissolved**	178	171	190	2.55	8.6	73	NE
TCL-VOC (ug/L)							
1,3-Dichlorobenzene	U	U	U	U	0.18 J	1.825	NE
Acetone	U	U	U	U	9.1 J	547.5	NE
Chloroform	U	U	0.4 J	38.5	57	0.155	80
Toluene	U	U	0.14 J	U	0.64 J	227.1	1000
Methylene Chloride	0.419 J	0.322 J	U	0.325 J	U	4.8*	5
o-Xylene	0.562 J	0.549 J	U	U	U	1200*	10,000 (total xylenes)
Field Parameters							
Dissolved Oxygen (mg/L)	8.1	8.1	0.00	7.78	5.55	NA	NA
Oxidation Reduction Potential (mV)	211.4	211.4	37.0	253.6	108.0	NA	NA
pH (SU)	7.39	7.39	7.00	7.91	7.38	NA	NA
Conductivity (mS)	0.304	0.304	0.361	0.270	0.390	NA	NA
Temperature (°C)	14.63	14.63	17.83	13.64	10.28	NA	NA
Turbidity (NTU)	33.2	33.2	15.02	1598.9	78.9	NA	NA

Notes:
J = Estimated value; the analyte concentration was either greater than the highest standard or less than the low standard (LOQ).
U = Analyte was not detected; the concentration is below the reported LOD.
NA = Not Applicable
[1] Adjusted Tap Water RBCs taken from 2009 Final RFI/CMS; values noted with an asterisk (*) value from USEPA November 2010 tap water RBC listing
NE = Not Established
NOTES: 1) 57MW3 samples were highly turbid; the elevated total metals concentrations are interpreted as being related to turbidity.
2) Equipment blank had acetone (2.59 J ug/L) and methylene chloride (0.315 J ug/L) detections; field blank had 0.352 J ug/L detection methylene chloride; trip blank had 0.684 J ug/L detection methylene chloride.

Table 2
Interim Measures Soil Confirmation Sample Results March-April 2011
RAAP-022, SWMU 57

COC	RG (mg/kg)	Sample Result (mg/kg)																		
		SWMU-57-21711-DUP	SWMU-57-21711-B-5-SS-1-2	SWMU-57-21711-B-2-SS-2.5	SWMU-57-21711-B-2-SS-5	SWMU-57-21711-B-1-SS-2.5	SWMU-57-21711-B-6-SS-2.5	SWMU-57-21811-B-3-SS-2	SWMU57-32511-SS-FCB3-2.5*	SWMU-57-21811-B-4-SS-2.5	SWMU-57-21811-B7-SS-2	SWMU57-32511-SS-FC-8-Num2	SWMU57-32511-SS-4SW-1	SWMU57-32511-SS-7.5SW2	SWMU57-32511-SS-7.5SW-3	SWMU57-32611-FC-15-NUM3	SWMU57-33011-SS-FC-20-NUM3B*	SWMU57-32511-FC-13-NUM4	SWMU57-32511-SS-DUP	SWMU57-32511-SS-FC2-NUM1
Al	**40,041**	18,200	18,100	17,400	13,200	15,200	14,900	10,300	24900	20,000	15,400	18,700	27,600	22,300	21,300	12,300	NA	13,300	31,200	26,500
Sb	**13.2**	1.1	1.15	10.5	3.7	3.12	9.2	3.42	3.44	2.13	0.640J	<0.478	<0.506	<0.478	<0.429	<2.43	NA	<0.441	3.38	4.44
Cd	**23.2**	<0.243	<0.250	2.53	0.395J	<0.249	0.424J	1.71	0.460J	2.23	<0.239	<0.314	<0.324	<0.317	<0.312	<0.329	NA	<0.318	0.603J	0.563J
Cr	**65.3**	15.5	20.2	22.8	17.4	13.9	13.9	49.3	30.7	31	25.3	<1.25	14.2	29.0	13.1	4.76	NA	17.6	27.0	15.6
Fe	**50,962**	34,600	33,800	27,000	24,200	27,900	26,900	**63,500**	44,100	34,700	31,500	28,300	34,200	39,100	27,400	**91,900**	16,800	22,800	45,900	40,900
Mn	**2,543**	178	655	343	431	154	229	1240	264	119	517	211	110	332	223	444	NA	259	124	138

COC	RG (mg/kg)	Sample Result (mg/kg)																	
		SWMU57-32511-SS-2.5 -SW4	SWMU57-32911-SS-7-SW5	SWMU57-32911-SS-13-FC-NUM5	SWMU57-33011-SS-FC-14-NUM6	SWMU57-4111-SS-4-SW6	SWMU57-4111-SS-1-SW7	SWMU-57-4111-SS-DUP	SWMU57-4111-SS-FC-2-NUM7	SWMU57-4111-SS-7-SW-8	SWMU57-4111-SS-7-SW-9	SWMU57-4111-SS-15-FC-NUM8	SWMU57-4111-SS-7.5-SW13	SWMU57-4111-SS-7.5-SW10	SWMU57-4411-SS-7.5-SW-11	SWMU57-4411-SS-15-FC-NUM9	SWMU57-4411-SS-15-FC-NUM10	SWMU-57-4511-SS-DUP	SWMU57-4511-SS-7.5-SW12
Al	**40,041**	30,300	13,000	11,100	10,800	16,400	11,500	17,200	15,200	13,600	11,700	11,700	8,380	15,000	16,100	13,700	14,600	15,500	14,600
Sb	**13.2**	<0.451	<0.453	<0.493	<0.464	<0.490	<0.489	<0.491	<0.482	<0.478	<0.441	0.722J	0.424J	0.621J	2.69	<0.443	<0.425	<0.486	<0.478
Cd	**23.2**	<0.316	<0.294	<0.327	<0.308	0.580J	<0.312	<0.328	<0.325	<0.311	0.367J	0.614	<0.290	<0.329	<0.328	<0.318	<0.312	<0.308	<0.314
Cr	**65.3**	17.6	8.05	14.4	10.8	51.4	63.3	27.6	31.6	21.2	22.6	22.3	1.16	15.5	29.6	27.7	27.1	15.5	18.4
Fe	**50,962**	40,600	28,900	25,200	38,200	30,700	36,600	39,000	36,800	28,700	23,400	17,100	17,000	30,600	33,200	28,600	28,800	32,100	30,300
Mn	**2,543**	182	181	285	142	183	459	387	383	461	125	251	15.8	420	291	335	420	542	718

*** Indicates resample in overexcavated location due to prior elevated concentration of Fe in Sample SWMU57-32511-FC-15-NUM3 and Sample SWMU-57-21811-B-3-SS-2**
< indicates sample result was U qualified, and result is listed as less than LOD
Note **: Sample ID nomenclature includes the following: site identifier (SWMU-57), Date of sample, Solid Soil (SS), Depth in feet, Floor Confirmation (FC), Boring (B), or Side Wall sample (SW). "Num X" indicates number of floor confirmation sample. See Figure 5 for sample locations in map view.**

Table 3
Off-site Waste Disposal
RAAP-022, SWMU 57

Loads	Date	Net Weight (tons)
1	3/26/2011	22.7
2	3/26/2011	26.32
3	3/28/2011	27.67
4	3/28/2011	27.3
5	3/28/2011	18.6
6	3/28/2011	17.02
7	3/28/2011	17.68
8	3/28/2011	17.31
9	3/28/2011	17.58
10	3/28/2011	20.66
11	3/28/2011	19.07
12	3/28/2011	21.1
13	3/28/2011	24.79
14	3/29/2011	20.66
15	3/29/2011	18.87
16	3/29/2011	22.58
17	3/29/2011	20.84
18	3/29/2011	19.71
19	3/29/2011	20.02
20	3/29/2011	20.03
21	3/29/2011	20.64
22	3/29/2011	22.9
23	3/29/2011	18.18
24	3/29/2011	17.51
25	3/29/2011	20.97
26	3/29/2011	18.18
27	3/29/2011	23.81
28	3/29/2011	20.97
29	3/29/2011	20.43
30	3/29/2011	19.51
31	3/29/2011	21.42
32	3/29/2011	18.99
33	3/29/2011	20.26
34	3/30/2011	16.14
35	3/30/2011	15.84
36	3/30/2011	14.55
37	3/30/2011	23.75
38	3/30/2011	20.66
39	3/30/2011	18.77
40	3/30/2011	19.64
41	3/30/2011	18.98
42	3/30/2011	20.78
43	3/30/2011	20.78
44	3/30/2011	20.09

Table 3
Off-site Waste Disposal
RAAP-022, SWMU 57

Loads	Date	Net Weight (tons)
45	3/30/2011	20.45
46	3/30/2011	21.99
47	3/30/2011	23.48
48	3/30/2011	27.79
49	3/31/2011	19.03
50	3/31/2011	20.39
51	3/31/2011	23.6
52	3/31/2011	21.29
53	3/31/2011	22.83
54	4/1/2011	21.01
55	4/1/2011	21.61
56	4/1/2011	21.2
57	4/1/2011	25.37
58	4/1/2011	23.21
59	4/1/2011	21.91
60	4/1/2011	20.67
61	4/1/2011	20
62	4/1/2011	22.01
63	4/1/2011	24.95
64	4/1/2011	23.48
65	4/1/2011	23.81
66	4/1/2011	23.06
67	4/1/2011	23.17
68	4/1/2011	22.59
69	4/1/2011	21.31
70	4/1/2011	21
71	4/1/2011	23.93
72	4/1/2011	21.68
73	4/1/2011	21.08
74	4/1/2011	23.18
75	4/1/2011	21.25
76	4/1/2011	23.77
77	4/2/2011	21.09
78	4/2/2011	24.12
79	4/2/2011	22.05
80	4/2/2011	21.17
81	4/2/2011	21.61
82	4/2/2011	21.34
83	4/2/2011	26.35
84	4/2/2011	22.66
85	4/2/2011	21.5
86	4/2/2011	24.94
87	4/2/2011	24.81
88	4/2/2011	26.13

Table 3
Off-site Waste Disposal
RAAP-022, SWMU 57

Loads	Date	Net Weight (tons)
89	4/4/2011	20.45
90	4/4/2011	23.09
91	4/4/2011	17.53
92	4/4/2011	19.18
93	4/4/2011	24.08
94	4/4/2011	21.3
95	4/4/2011	19.89
96	4/4/2011	20.88
97	4/4/2011	23.25
98	4/4/2011	21.51
99	4/4/2011	20.56
100	4/4/2011	20.24
101	4/4/2011	20.77
102	4/4/2011	21.07
103	4/4/2011	18.7
104	4/4/2011	21.3
105	4/4/2011	22.2
106	4/4/2011	22.59
107	4/4/2011	23.45
108	4/4/2011	25.83
109	4/4/2011	22.05
110	4/4/2011	20.94
111	4/5/2011	20.89
112	4/5/2011	20.67
113	4/5/2011	18.04
114	4/5/2011	19.51
115	4/5/2011	20.06
116	4/5/2011	20.94
117	4/5/2011	22.42
118	4/5/2011	19.87
119	4/5/2011	19.44
120	4/5/2011	19.26
121	4/5/2011	21.25
122	4/5/2011	21.44
123	4/5/2011	22.44
124	4/5/2011	21.44
125	4/6/2011	20.79
126	4/6/2011	22.62
127	4/6/2011	23.49
128	4/6/2011	22
129	4/6/2011	19.99
130	4/6/2011	21.11
131	4/6/2011	22.71
	TOTAL	**2799.37**

APPENDIX A

Groundwater Monitoring Well Closure Documentation

ATK Armament Systems
Energetic Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100

www.atk.com

April 28, 2011

Mr. Sam Hale
Department of Environmental Quality
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, Virginia 24019

Subject: SWMU 57 Monitoring Well Abandonment Report
Radford Army Ammunition Plant (RFAAP)
VA 1210020730 – Site Wide Corrective Action

Dear Mr. Hale:

As part of the site wide corrective action, Radford Army Ammunition Plant (RFAAP) conducted an interim measure at Solid Waste Management Unit 57. This work was conducted in accordance with the November 2010 Interim Measures Work Plan for RFAAP SWMU 57, RAAP-022 previously approved by U.S. EPA Region 3 and VDEQ Central Office (Jim Cutler). This approved document can be found on the RFAAP Information Repository website (http://www.radfordaapirp.org/inforepo/Library/2010-09.pdf). As part of this interim measure, three (3) monitoring wells were abandoned. Enclosed is the well closure documentation prepared by UXB-KEMRON. This documentation will also be included in the Interim Measures Completion Report for SWMU 57. The Interim Measure Completion Report will also be available on the RFAAP Information Repository website when approved by EPA and DEQ.

If you have any question or comments, please contact Jeremy Flint, of my staff, at 540-639-7668 or by e-mail at Jeremy.Flint@atk.com.

Sincerely,

P. W. Holt, Environmental Manager
Alliant Techsystems Inc.

ec: Mr. Erich Weissbart, EPA Region 3
Mr. Jim Cutler, DEQ Central
Mr. Aziz Farahmand, DEQ BRRO
Ms. Elizabeth Lohman, DEQ BRRO

11-815-70
JFlint

Coordination: Jim McKenna

bc: Administrative File
P. W. Holt
Jim McKenna
Jerome Redder
Env File

11-815-70
JFlint

UXB-KEMRON Remediation Services, LLC
2020 Kraft Drive, Suite 2100 • Blacksburg, Virginia 24060
Tel: 540.443.3700 Fax: 540.443.3790

April 27, 2011

Baltimore District US Army Corp of Engineers
Thomas P. Meyer
Contracting Officer's Representative
HTRW Military
10 South Howard Street, Room 7000
Baltimore, MD 21201

via email: tom.meyer@usace.army.mil

RE: Documentation of Monitoring Well Closures per SWMU 57 Interim Measures Work Plan, Radford Army Ammunition Plant, Virginia

Dear Mr. Meyer:

Please find attached documentation of closure of monitoring wells 57MW01, 57MW02 and 57MW03. These three wells were closed in conformance with the standards and requirements specified in the USEPA and VDEQ approved November 2010 Interim Measures Work Plan for RFAAP SWMU 57, RAAP-022.

The well closures were conducted by Rorrer Well Drilling Inc. (Virginia Class A Contractor #2705040836A) under subcontract to UXB-KEMRON. The wells were closed in accordance with the specifications of the approved work plan, as detailed in Appendix C of that plan. As noted in the attached documentation, an attempt was made to pull casing from each well. All three wells were grouted by lowering a tremie pipe to the bottom of the borehole and pumping grout through the tremie pipe until a consistent grout flow was returned to the surface. A four inch thick by six foot diameter concrete cap was placed at each closed well location. Rorrer Well Drilling has prepared the attached letters documenting the well closure, and a map illustrating the closed wells also is attached for reference.

These well closure records, as well as other details regarding implementation of the SWMU 57 Interim Measures Work Plan, will be included in an Interim Measures Completion Report that is being prepared by UXB-KEMRON under contract to the Army.

The attached well closure information has been prepared for submittal by Radford Army Ammunition Plant to VDEQ, in accordance with Appendix C of the Interim Measures Work Plan.

Please contact me at mrochotte@kemron.com, or by phone at (740) 373-1266, if you have any questions.

Sincerely,
UXB-KEMRON Remediation Services, LLC

Mary Lou Rochotte

Mary Lou Rochotte, C.P.G.
Project Manager

Attachment

cc: Rich Mendoza, USAEC ERM
Jim McKenna, RFAAP
Jerome Redder, RFAAP
Rich Dugger, UXB-KEMRON Program Manager
Tracy Bergquist, UXB-KEMRON Technical Manager
File

RORRER
WELL DRILLING INC.

March 30, 2011

Department of Environmental Quality
Attn: Sam Hale
3019 Peters Creek Road
Roanoke, VA 24019

To Whom It may Concern:

On March 22, 2011 we completed the abandonment of the below indicated 2" Monitor well with PVC riser and screen at the RFAAP in Radford Virginia. We completed this work for UXB-KEMRON Environmental Services.

Well # 57MW-2

GPS Coordinates: 37° 19429 N
080.56338° W

Well Depth: 65'

Work Performed:

Pulled cover off well. Pulled 2" riser, broke off just below grade. Grouted borehole with bentonite from the bottom to the surface through a 1" tremie pipe.

Thanks,

G. Matthew Harvey

G.Matthew Harvey
Rorrer Well Drilling, Inc.

560 Depot Street, Christiansburg, VA 24073
Phone: (540) 552-6029/389-0070/745-6448/297-8677/(276)964-4114 Fax: (540) 381-1297
On the Web @ www.RorrerDrilling.com
Virginia Class A Contractor: 2705040836A
West Virginia Class A Contractor: WV041019

RORRER
WELL DRILLING INC.

March 30, 2011

Department of Environmental Quality
Attn: Sam Hale
3019 Peters Creek Road
Roanoke, VA 24019

To Whom It may Concern:

On March 22, 2011 we completed the abandonment of the below indicated 2" Monitor well with PVC riser and screen at the RFAAP in Radford Virginia. We completed this work for UXB-KEMRON Environmental Services.

Well # 57MW-3

GPS Coordinates: 37° 19236 N
080.56439° W

Well Depth: 65'

Work Performed:

Pulled cover off well. Pulled 35' of the 2" riser. The screen and remaining riser was left in the hole. Grouted borehole with Portland Cement from the bottom to the surface through a 1" tremie pipe.

Thanks,

G. Matthew Harvey

G.Matthew Harvey
Rorrer Well Drilling, Inc.

560 Depot Street, Christiansburg, VA 24073
Phone: (540) 552-6029/389-0070/745-6448/297-8677/(276)964-4114 Fax: (540) 381-1297
On the Web @ www.RorrerDrilling.com
Virginia Class A Contractor: 2705040836A
West Virginia Class A Contractor: WV041019

RORRER
WELL DRILLING INC.

March 30, 2011

Department of Environmental Quality
Attn: Sam Hale
3019 Peters Creek Road
Roanoke, VA 24019

To Whom It may Concern:

On March 22, 2011 we completed the abandonment of the below indicated 2" Monitor well with PVC riser and screen at the RFAAP in Radford Virginia. We completed this work for UXB-KEMRON Environmental Services.

Well # 57MW-1

GPS Coordinates: 37° 19231 N
080.56301° W

Well Depth: 73'

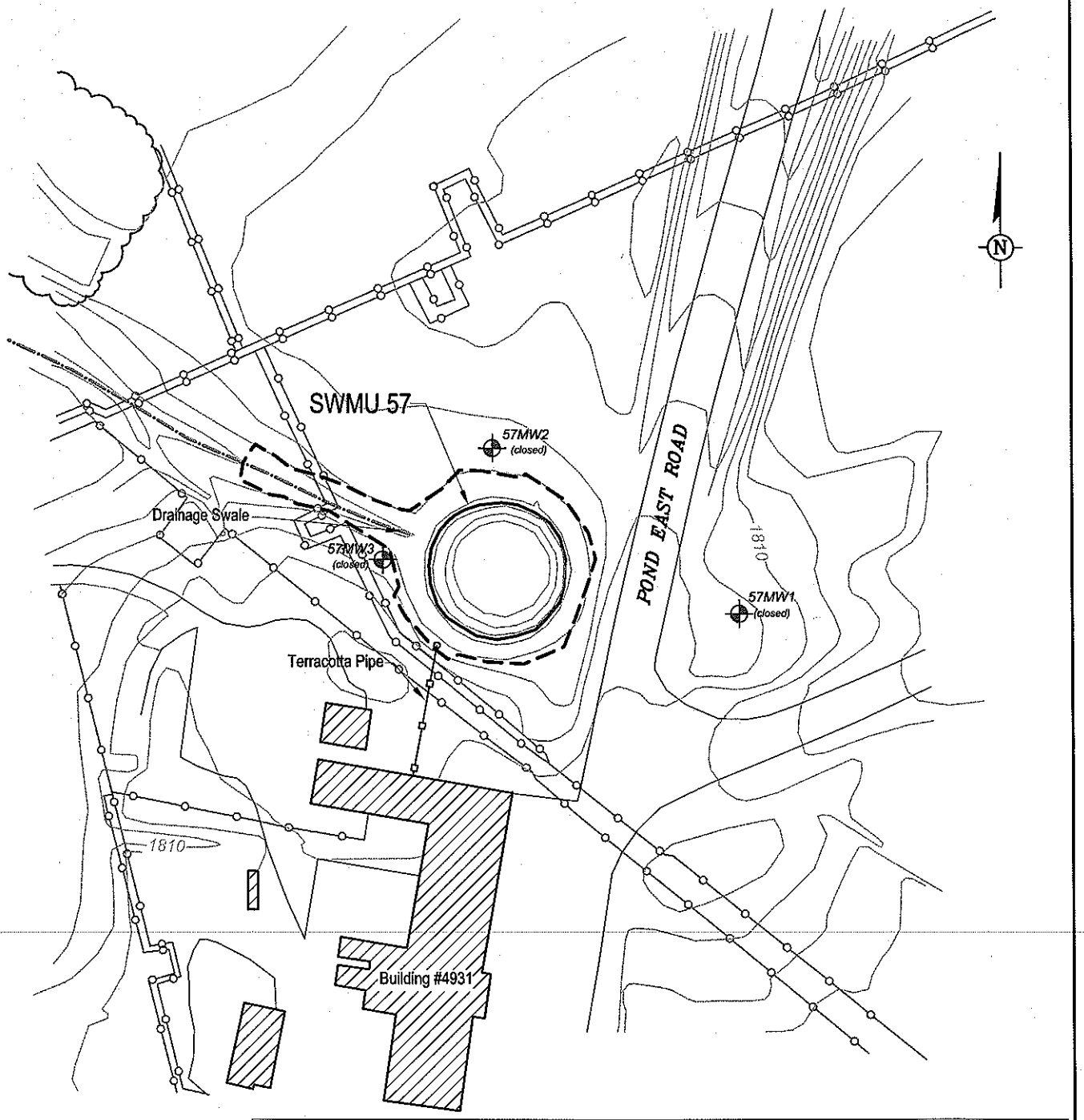
Work Performed:

Pulled cover off well. Pulled 2" riser, broke off 10' below grade. Grouted borehole with bentonite from the bottom to the surface through a 1" tremmie pipe.

Thanks,

G. Matthew Harvey
Drilling Supervisor

560 Depot Street, Christiansburg, VA 24073
Phone: (540) 552-6029/389-0070/745-6448/297-8677/(276)964-4114 Fax: (540) 381-1297
On the Web @ www.RorrerDrilling.com
Virginia Class A Contractor: 2705040836A
West Virginia Class A Contractor: WV041019



Notes:

1. Information Shown Hereon Is Based On An Actual Field Survey Performed By Anderson And Associates On April 7, 2011.
2. Horizontal Datum Based On VA State Plane Coordinate System 83, South Zone. Vertical Datum Based On NAVD 88.
3. Locations of roads, buildings & topographic contours are approximate and they developed from fig. 10-2 provided by URS Group Inc. 4-2008

LEGEND

- 57MW3 — MONITORING WELL LOCATION(CLOSED)
- TERRACOTTA PIPE
- ABOVEGROUND PIPING
- APPROXIMATE SWMU BOUNDARY
- EXCAVATION AREA
- BUILDINGS
- VEGETATION
- TOPOGRAPHIC CONTOUR
- DRAINAGE SWALE

UXB Kemron Remediation Services, LLC

0 30 60

SCALE 1"=60'

DRAWN BY: KG		DATE 27 APRIL 2011	
REVIEWED: DSR	R 6	PROJECT NO. MR0669-400-002	FIGURE ..
APPROVED:		DWG. FILE NO. CLOSED MONITORING WELLS	

SWMU 57, RAAP-022

CLOSED MONITORING WELLS

RADFORD, VIRGINIA

FILE PATH: (LOCATION) M:\MARIETTA\0 MR 0669 003-001\UXB KEMRON\MR0669. FIG...SWMU 57 .RAAP-022 CLOSED MONITORING WELLS.DWG [FIG. 3] 4/27/11

PLOTTED: April 27, 2011 - 11:43 AM, BY: Karen Grigoryan

APPENDIX B

Groundwater and Soil Confirmation Sample Laboratory Analytical Reports;
Off-site Backfill Soil Laboratory Analytical Report
(on CD)

APPENDIX C

Data Validation Reports
(on CD)

APPENDIX D

Waste Characterization Laboratory Analytical Reports
(on CD)

APPENDIX E

Waste Disposal Documentation

- **Waste Profile**
- **Non-Hazardous Waste Manifests**

(on CD)

APPENDIX F

Site Photographs

Photo 1 - View to the North East of the vacuum truck for the pond water removal.

Photo 2 - View to the North West of abandonment of well 57-MW1.

Photo 3 - Completion of abandonment of 57 MW-1.

Photo 4 - View to West of silt fence installation, barrier fence, and separation of fencing from the pond.

Photo 5 - View to the North West of the construction entrance.

Photo 6 - View to the West of the excavation around steam line supports.

Photo 7 - View to the West of direct loading of the material for disposal.

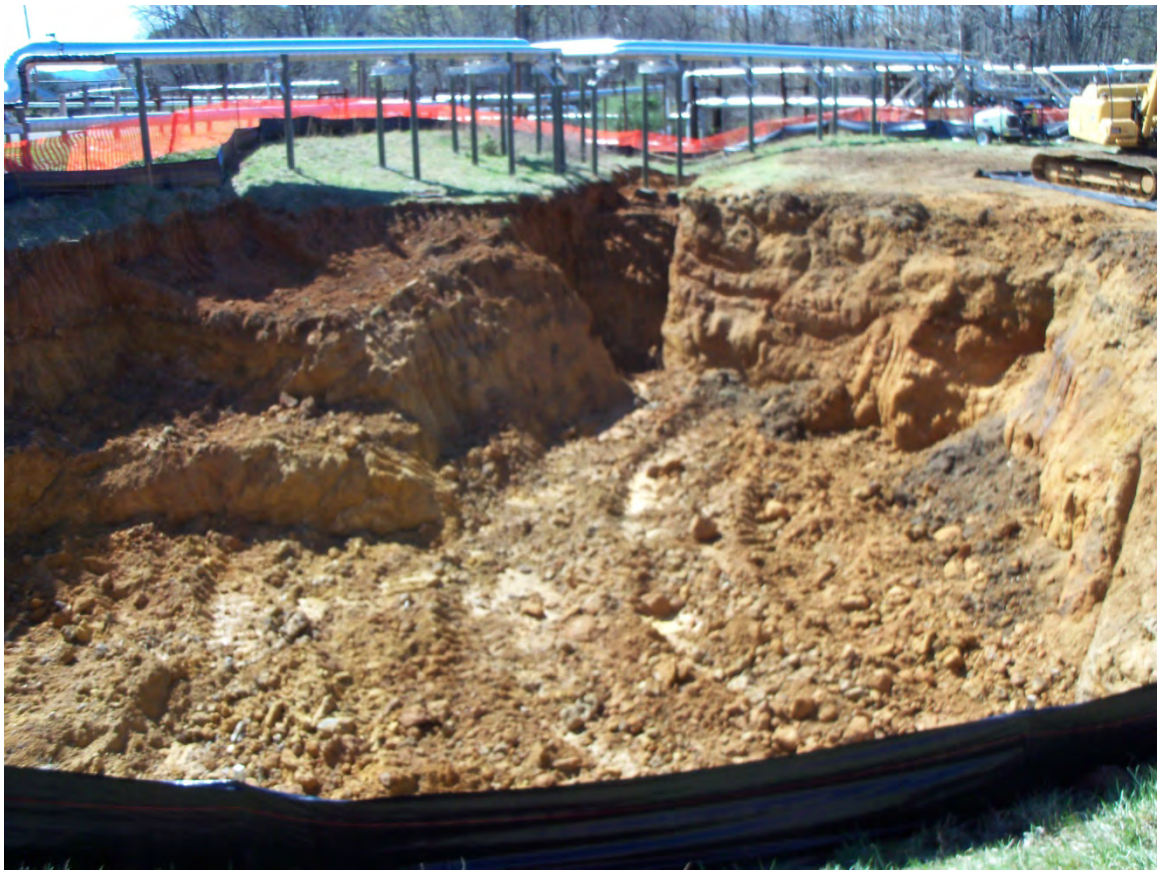


Photo 8 - View to the West of removal completion of contaminated soils.

Photo 9 - View to the South of decontamination procedures.

Photo 10 - View to the South of plugged Terra-cotta pipe.

Photo 11 - View to South East of clean backfill and compaction.

Photo 12 - View to West of completed site restoration.

APPENDIX G

Field Documentation

DAILY SAFETY MEETING

Project Name: RFAAP / MR01669 **Date:** 11-16-10

Location: SWMU-57 **Presented by:** JONAH ANDERSON

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☑ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☑ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☐ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONAH ANDERSON		UXB-KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

NOTE: ONLY PERSON ON SITE 11-16-10 JCA.

DAILY SAFETY MEETING

Project Name: RFAAP / MR0669 **Date:** 11-17-10

Location: SWMU-57 / DRUM MOA **Presented by:** JONATH ANDERSON

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation N/A
- ☐ full face respirators with proper cartridges N/A
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☑ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☐ confined space entry N/A
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONATH ANDERSON		UXB - KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

NOTE: ONLY PERSON ON SITE 11-17-10 JA.

FIELD CALIBRATION FORM

INITIAL CALIBRATION		FINAL CALIBRATION	
DATE:	11-16-10	DATE:	11-16-10
TIME:	1210	TIME:	1300

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID YSI 650 MDS

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0	7.04	7.00	7.00
10.0	10.05	10.00	10.00
4.0	4.34	4.00	4.00

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID YSI 650 MDS

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
1.413	1.427	1.413	1.413

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID YSI 650 MDS

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
TAP	93.4	98.7	98.7

FIELD CALIBRATION FORM

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID YSI 650 MDS

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
DI ~~Zero~~ SA	3.8	0.0	0.0
100 NTU	128.7	100	100

ORD METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID YSI 650 MDS

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
Zeroing 254	254.3	253.9	253.9

PID CALIBRATION

CALIBRATION STANDARD REFERENCE NO: GP11010

METER ID KEMRON 003-177

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
Isobutylene	99.8 ppm	100 ppm	100 ppm

COMMENTS —

SIGNATURE

Location SWMU-57 Date 11-10-10

Project / Client RFAAP, RADFORD VA

0915 - ONSITE / JONAH ANDERSON (SH)
- CLOUDY / RAINY 10°C
- ONSITE TO PERFORM GW MONITORING ON WELLS 57MW2 & 57MW3
0930 - COMPLETED DAILY SAFETY MEETING.
0935 - CALIBRATING PID FOR VOC
VOC - 99.8 ppm CAL - 100ppm
FRESH AIR - ZEROED
0950 - STARTING ON 57MW2
LOOK PRESENT / WELL IN GOOD CONDITION / WELL CAP IN PLACE / PID IN GOOD CONDITION
SMOOTH SURFACE AROUND
PID READING 0950 - 0.0
0951 - 0.0
- PLACED PLASTIC SHEETING AROUND 57MW2
- DECONED SUBMERSIBLE PUMP w/ APX. 20 gallons ALCONOX/WATER & DI WATER FOR RINSE PER SOP.
- DECONED IP PROBE PER SOP.
- DTW FOR 57MW2 = 54.09'

Location SWMU-57 Date 11-10-10

Project / Client RFAAP, RADFORD VA

57MW2 DTW - 54.09' (TOC)
TD - 65'
SCREENED INTERVAL - 40-65'
1055 - SETTING PUMP ON 57MW2 @ 60'
1100 - COULD NOT SET PUMP PRIOR TUBING WAS LEFT IN WELL. RETRIEVED & HARNESS WAS REMOVED.
1130 - CHECKED 57MW3.
PID - 1130 - 0.0
1131 - 0.0
- TUBING STUCK IN WELL. RETRIEVED W/ HARNESS
1210 - SET PUMP IN 57MW2 @ 60'
- CALIBRATING YSI WHILE ALLOWING WATER LEVEL TO STABILIZE.
pH - INITIAL - 7.04 FINAL - 7.00
10.05 10.00
4.04 4.00
COND - INITIAL - 1.42 FINAL - 1.413

Location SWMU-57 Date 11-16-10

Project / Client RADFORD, VA
RFAAP

DO - INITIAL - 92.7 FINAL 95.7

TURBIDITY - INITIAL DI - 3.8 FINAL - 0.00
100 NTU - 100.7 FINAL - 100

ORP - INITIAL 259.3 FINAL - 253.9
- COMPLETE 1300

1305 - START TIME LOW-FLOW
ON 57MW2

1530 - SAMPLED 57MW2
FINAL READINGS DTW - 54.71
FLOW - 100 ml/min T - 14.63 C°
pH - 7.39 COND. - 0.304 TURB. - 33.2
ORP - 211.4 DO - 8.1
The FOLLOWING PARAMETERS
WERE IN ACCORDANCE WITH
THE RFAAP SOP.
* COLLECTED - MS, MSD, DUP, WELL SAMPLE,

1540 - DISCONNECTED PUMP & IP PROBE
1600 - COLLECTED EB SAMPLE
1615 - TOOK DECON WATER TO
MAE AREA FOR CONTAINMENT

Location SWMU-57 Date 11-16-10

Project / Client RADFORD, VA RFAAP

1700 - STARTED SETTING UP
FOR LOW-FLOW ON
57MW3, DTW - 44.17'
- SET PUMP @ 59' FOR 57MW3
- WELL PAD IS IN GOOD
CONDITION, CAP IS PRESENT,
SOME WEEDS ARE GROWN
UP AROUND WELL AREA

1730 - STARTED LOW-FLOW
ON 57MW3

- SAMPLE IS VERY TURBID
BUT IS WITHIN LIMITS
FOR SOP

1822 - SAMPLED WELL 57MW3

1850 - TOOK SAMPLE PURGE WATER
AND DECON WATER TO MAE
AREA FOR CONTAINMENT.

* 57MW3 FINAL READINGS
DTW - 49.89, FLOW - 100 ml/min, T - 13.69 C°
pH - 7.91, COND - 0.270, TURB - 1598.9

Location SWMU-57 Date 11-16-10

Project / Client RADFORD, VA RFAAP

CONT... - ORP - 253.6 DO - 7.78 mg/L

SAMPLES ARE WITHIN LIMITS FOR THIS SOP.

1930 - COLLECTED FIELD BLANK

NOTE:

	DTW	TD	PUMP SETTING
~~JAA 57MW3~~	~~54.09~~	~~64.7~~	~~58'~~
~~JAA 57MW2~~	~~44.17~~	~~64.7~~	~~58'~~ ~~60'~~

- 57MW2 HAS CONSIDERABLE AMOUNT OF SILT COLLECTED ON BOTTOM OF WELL, IT WAS EVIDENT ON THE IP PROBE AND IN THE TURBITY DURING SAMPLING.

* CROSSED OUT NOTE BECAUSE I FORGOT THEM BEFORE)

	DTW	TD	PUMP SETTING
57MW3 -	44.17	64.7	58'
57MW2 -	54.09	65.6'	60'

- ALL SAMPLES COLLECTED WERE GRAB SAMPLES AND ANALYZED FOR TCL-VOCs - 8260, METALS - CONT...

Location SWMU-57 Date 11-16-10

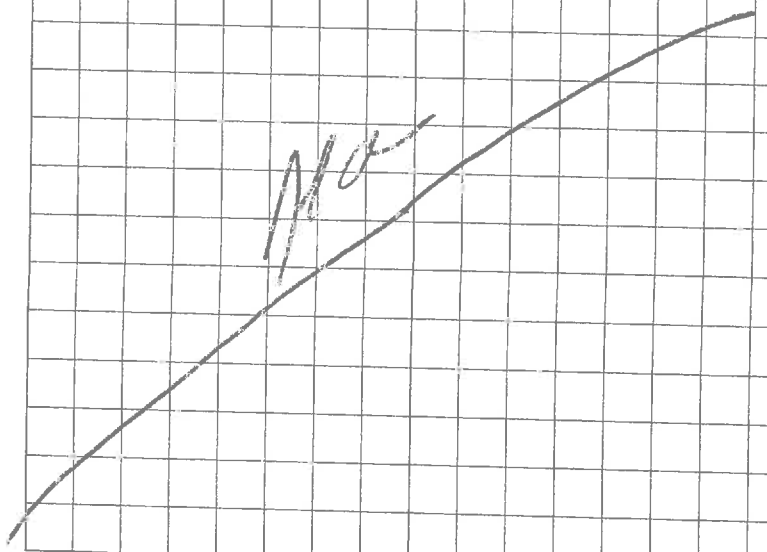
Project / Client RADFORD, VA RFAAP

METALS - FILTERED & UNFILTERED for ~~6010B~~ ANTIMONY, ARSENIC, CHROMIUM, & MANGANESE METHOD 6010B OR 6020

- PACKAGED COOLED ON ICE

- PURGED APPROXIMATELY
  - ~ 7 gallons for 57MW2
  - ~ 3 gallons for 57MW3

OFFSITE @ 2000



Location SWMU-57 Date 11-17-10

Project / Client RADFORD, VA RFAAP

0900 - ONSITE / SAMM ANDERSON (USA)
- CLEAR/SUNNY 8°C
- ONSITE TO FINISH DECON FROM 11-16-10
GW SAMPLING EVENT, CONTAMINATED WASTE / MW1
COLLECT BOD & CBOD SAMPLES FOR WASTE CHARACTERIZATION

1015 - FINISHED DECON LABELED DRUMS W/ ONCHAM WASTE LABELS

1030 - TOOK COMPOSITE SAMPLES FOR BOD & CBOD, PACKED GW ICE IN COOLER

1040 - SEALED DRUMS

OFFSITE 1130

Location Date

Project / Client

GROUNDWATER SAMPLING FIELD DATA SHEET

Facility: RFAAP

Location: Ravenna, WA

Sample Matrix: Ground Water

Sample Point ID: SWMU5-TMW2

Field Representatives: JA

Lab Sample #: SWMU5-76W MW2

PURGE INFORMATION:

Method of Well Purge: Low-Flow

Date/Time Initiated 11-16-10 1350

Initial Water Level (ft) 54.09

Mid-screen Depth (ft) 52.5'

Well Total Depth (ft) 65.6'

Casing Diameter, (inches) 2"

Sand Pack Diameter, (inches) 4"

Dedicated: Y or (N)

Well Volume of Standing Water (gal) 1.88 gal

Total Volume Purged (gal) ≈ 7 gall.

Was well purged to dryness? No

Water Level After Purge (ft) JWA ~~54.85'~~ 54.71'

Date/Time Completed 11-16-10 1530

PURGE DATA:

Time	Depth to Water	Flow Rate (mL/min)	Temp (^{0}C)	pH (su)	Specific Cond. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1350	54.79	200	14.65	7.33	0.304	864.3	239.6	12.9
1354	54.65	210	14.62	7.32	0.305	438.2	237.5	11.8
1358	54.64	150	14.50	7.31	0.305	274.0	236.1	11.4
1402	54.65	150	14.48	7.28	0.305	233.0	235.3	11.2
1406	54.65	150	14.59	7.32	0.305	176.1	233.9	11.0
1410	54.82	150	15.58	7.31	0.304	60.7	230.1	10.98
1414	54.92	150	15.57	7.31	0.305	58.2	229.7	10.0
1418	55.10	200	15.19	7.33	0.308	330.9	226.7	9.7
1422	54.85	200	14.63	7.34	0.309	30.6	225.4	9.3
1426	54.77	100	14.52	7.33	0.308	264.6	224.6	9.1
1430	54.78	100	14.11	7.35	0.309	245.4	224.1	9.4

GROUNDWATER SAMPLING FIELD DATA SHEET (continued)

Time	Depth to Water	Flow Rate (mL/min)	Temp (^{0}C)	pH (su)	Specific Cond. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1434	54.66	100	14.17	7.34	0.307	213.5	222.9	8.7
1438	54.70	100	13.98	7.32	0.307	180.4	224.4	9.0
1442	54.71	100	14.02	7.37	0.307	158.0	220.4	8.8
1446	54.70	100	14.00	7.34	0.306	128.0	219.6	8.9
1450	54.72	100	14.42	7.37	0.305	93.8	218.2	8.2
1454	54.75	100	14.49	7.39	0.306	89.4	217.2	8.4
1458	54.71	100	14.54	7.37	0.305	75.1	216.0	7.5
1502	54.72	100	14.62	7.39	0.304	57.0	215.0	8.3
1506	54.73	100	14.69	7.39	0.304	43.8	213.0	8.0
1510	54.72	100	14.57	7.39	0.304	35.6	212.5	8.2
1514	54.73	100	14.61	7.38	0.304	36.8	212.0	8.3
1518	54.71	100	14.66	7.39	0.304	33.8	211.9	8.3
1522	54.73	100	14.65	7.38	0.304	34.0	211.7	7.9
1526	54.72	100	14.64	7.37	0.304	32.0	211.5	8.0
1530	54.71	100	14.63	7.39	0.304	33.2	211.4	8.1

SAMPLING INFORMATION:

Sample Point ID: SWMU57 MW2 **Method of Sampling:** LOW-FLOW

Dedicated?: NO

Water Level at time of Sample Collection: 54.71'

PARAMETERS: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (X)

SAMPLING DATA:

Sample Time	Depth to Water (ft)	Sample Rate (ml/min)	Temp. (^{0}C)	pH (su)	Specific Conduct. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1530	54.71	100	14.63	7.39	0.304	53.2	211.4	8.1

GENERAL INFORMATION:

Weather conditions at time of sample collection: RAINY 10°C

Sample Characteristics: CLEAR, NO ODOR

COMMENTS AND OBSERVATIONS: FOUND TUBING STUCK IN WELL PRIOR TO SAMPLING, REMOVED. PID = 0.0

DATE: 11-16-10

SAMPLER: [signature]

DATE: 11-17-10

QC Check By: [signature]

GROUNDWATER SAMPLING FIELD DATA SHEET

Facility: RFAAP

Location: RADFORD, VA

Sample Matrix: Ground Water

Sample Point ID: SWMU57MW3

Field Representatives: SA

Lab Sample #: SWMU57GWMW3

PURGE INFORMATION:

Method of Well Purge: Low-Flow

Dedicated: Y or N

Date/Time Initiated 11-16-10 1730

Well Volume of Standing Water (gal) N/A ~~2.38 gall.~~ 3.35 gall.

Initial Water Level (ft) ~~SURFACE~~ 44.17'

Total Volume Purged (gal) ≈ 3 gallons

Mid-screen Depth (ft) 52.5'

Was well purged to dryness? NO

Well Total Depth (ft) 64.7'

Water Level After Purge (ft) 49.89'

Casing Diameter, (inches) 2"

Date/Time Completed 11-16-10 1822

Sand Pack Diameter, (inches) 4"

PURGE DATA:

Time	Depth to Water	Flow Rate (mL/min)	Temp (°C)	pH (su)	Specific Cond. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1730	50.71	100	13.35	7.91	0.265	1595	251.0	7.81
1734	50.56	100	13.38	7.92	0.264	1595	252.1	7.83
1738	50.21	100	13.37	7.92	0.267	1595	251.9	7.82
1742	49.85	100	13.39	7.94	0.267	1595	252.8	7.91
1746	49.00	100	13.36	7.95	0.268	1595	253.4	7.84
1750	48.40	100	13.34	7.96	0.269	1594.9	253.8	7.79
1754	48.60	100	13.38	7.92	0.268	1597.0	253.5	7.81
1758	48.75	100	13.42	7.90	0.269	1596.8	253.6	7.83
1802	49.21	100	13.58	7.87	0.269	1597.8	253.7	7.84
1806	49.31	100	13.46	7.86	0.270	1596.2	253.3	7.85
1810	49.32	100	13.44	7.90	0.270	1596.0	254.2	7.76

GROUNDWATER SAMPLING FIELD DATA SHEET (continued)

Time	Depth to Water	Flow Rate (mL/min)	Temp (^{0}C)	pH (su)	Specific Cond. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1814	49.47	100	13.48	7.93	0.270	1597.1	253.9	7.66
1818	49.85	100	13.75	7.92	0.270	1600	253.4	7.72
1822	49.89	100	13.64	7.91	0.270	1598.9	253.6	7.78

SAMPLING INFORMATION:

Sample Point ID: SWMU57MW3 **Method of Sampling:** LOW-FLOW

Dedicated?: NO

Water Level at time of Sample Collection: 49.89'

PARAMETERS: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (X)

SAMPLING DATA:

Sample Time	Depth to Water (ft)	Sample Rate (ml/min)	Temp. (^{0}C)	pH (su)	Specific Conduct. (mS/cm)	Turbidity (NTU)	ORD (mV)	DO (mg/L)
1822	49.89	100	13.64	7.91	0.270	1598.9	253.6	7.78

GENERAL INFORMATION:

Weather conditions at time of sample collection: RAINY 10°C

Sample Characteristics: TURBID, NO ODOR

COMMENTS AND OBSERVATIONS: FOUND TUBING STUCK IN WELL PRIOR TO SAMPLING, REMOVED. PID = 0.0

DATE: 11-16-10

SAMPLER:

DATE: 11-17-10

QC Check By: CMartin

COC No. A 2397

156 Starlite Drive
Marietta, OH 45750

KEMRON
ENVIRONMENTAL SERVICES

CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4308
Fax: 740-376-2536

Company Name: UXB - KEMRON

Project Contact: MARY LOU ROCHOTTE

Contact Phone #: 740-373-4308

Turn Around Requirements: 10 DAY

Location: RFAAP, RADFORD, VA

Project ID: M20606 9-400-002

Sampler (print): JOHN ANDERSON

Signature:

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	TCL - VOC	METALS	BOD	CBOD	TOTAL # (LAB USE)	ADDITIONAL REQUIREMENTS
SWMU57GWMW2		X	11-16-10	1530	W	5		3	2				* METALS - TOTAL & DISSOLVED (ANTIMONY, ARSENIC, MANGANESE, CHROMIUM)
SWMU57GW11610MS		X	11-16-10	1530	W	5		3	2				
SWMU57GW11610MSD		X	11-16-10	1530	W	5		3	2				
SWMU57GW11610D1		X	11-16-10	1530	W	5		3	2				
SWMU57111610EB		X	11-16-10	1600	W	5		3	2				
SWMU57GWMW3		X	11-16-10	1822	W	5		3	2				FILTERED & UNFILTERED
SWMU57111610FB		X	11-16-10	1930	W	5		3	2				
SWMU57111610TB		X	11-16-10	-	W	3		3	-				
SWMU57111710LC	X		11-17-10	1030	W	2				1	1		* PEL * QAPP

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
	11-17-10	1630					

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks:
			Brenda Thompson	11/17/10	1640	

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Location SWMU-57 Date 12-9-10

Project / Client RADFORD, VA RFAAP

1330 - ONSITE / JONAH ANDERSON (Geo)
- CLEAR / SUNNY 24°F
- ONSITE TO MEET W/ MATT ALBERTS TO DISPOSE OF LIQUID IDW FROM THE SWMU-57 GW EVENT (11-16-10)
- CONDUCTED CAFDM BRIEF (Geo)
- MET W/ MATT ALBERTS @ DRUM DISPOSAL AREA, PICKED UP WASTE AND PROCEEDED TO BIO-PLANT FOR DISPOSAL

1430 - UNLOADED IN W/ BIO-PLANT CONTROL ROOM. MATT ALBERTS VERIFIED ALL CHEMICALS FOR DISPOSAL OF IDW @ BIO-PLANT

1440 - PROCEEDED TO RELEASE IDW (@ 70 gallons) ~~FROM~~ INTO CATCH BASIN FOR BIO-PLANT. IDW CONSISTED OF PURGE & DECON WATER AS WELL AS CALIBRATION

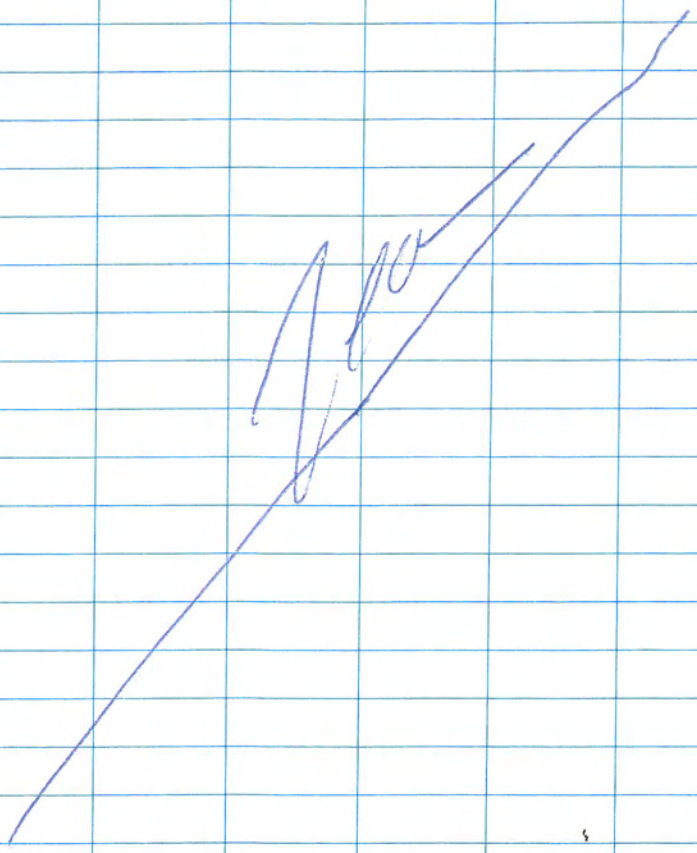
Location SWMU - 57 Date 12-9-10

Project / Client RADFORD, VA RFAAP

CONT... STANDARDS.

LOADED DRUMS AND PROCEEDED TO LUNCH.

1500 - OFFSITE JCL



DAILY SAFETY MEETING

Project Name: SWMU-57 IDW DISPOSAL Date: 12-9-10

Location: RFAAP, VA Presented by: JA

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☑ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☑ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☑ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONATH ANDERSON (JA)		UXB-KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: SWMU-57 RFAAP Date: 2-16-11

Location: RFAAP, RADFORD VA Presented by: JA

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☑ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☑ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☑ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonah Anderson		UXB-Komex

Instructions:

- # Conduct a daily safety meeting prior to beginning each day=s site activities.
- # Complete form, obtain signatures, and file with the Daily Summary.
- # Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: SWMU-57 RFAAP **Date:** 2-17-11

Location: RFAAP, RADFORD VA **Presented by:** J.A

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☑ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☑ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☐ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☐ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☐ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☐ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONATH ANDERSON		UXB-KEMRON

Instructions:

- # Conduct a daily safety meeting prior to beginning each day=s site activities.
- # Complete form, obtain signatures, and file with the Daily Summary.
- # Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: SWMU-57 **Date:** 2-18-11

Location: RFAAP RADFORD VA **Presented by:** JA

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☐ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☑ noise hazards
- ☑ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONAH ANDERSON		JKB - LOWER

Instructions:

- # Conduct a daily safety meeting prior to beginning each day=s site activities.
- # Complete form, obtain signatures, and file with the Daily Summary.
- # Follow-up on any noted items and document resolution of any action items.

FIELD CALIBRATION FORM

INITIAL CALIBRATION	FINAL CALIBRATION
DATE: 2-17-11	DATE: 2-17-11
TIME: 0800	TIME:

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0	6.98	7.0	✓
10.0	9.35	9.99	✓
4.0	3.86	3.99	✓

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

2-17-11

FIELD CALIBRATION FORM

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

ORD METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

PID CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
ISOBUTYLENE	99.9	—	—
FRESH AIR	ZEROED	—	—

COMMENTS_____

SIGNATURE_____

FIELD CALIBRATION FORM

INITIAL CALIBRATION	FINAL CALIBRATION
DATE: 2-18-11	DATE:
TIME: 0800	TIME:

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: YSI

METER ID n/a

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0	7.03	7.00	✓
10.0	9.87	10.01	✓
4.0	3.89	3.99	✓

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

FIELD CALIBRATION FORM

2-18-11

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

ORD METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

PID CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
ISOBUTYLENE	100	✓	✓

COMMENTS_____

SIGNATURE_____

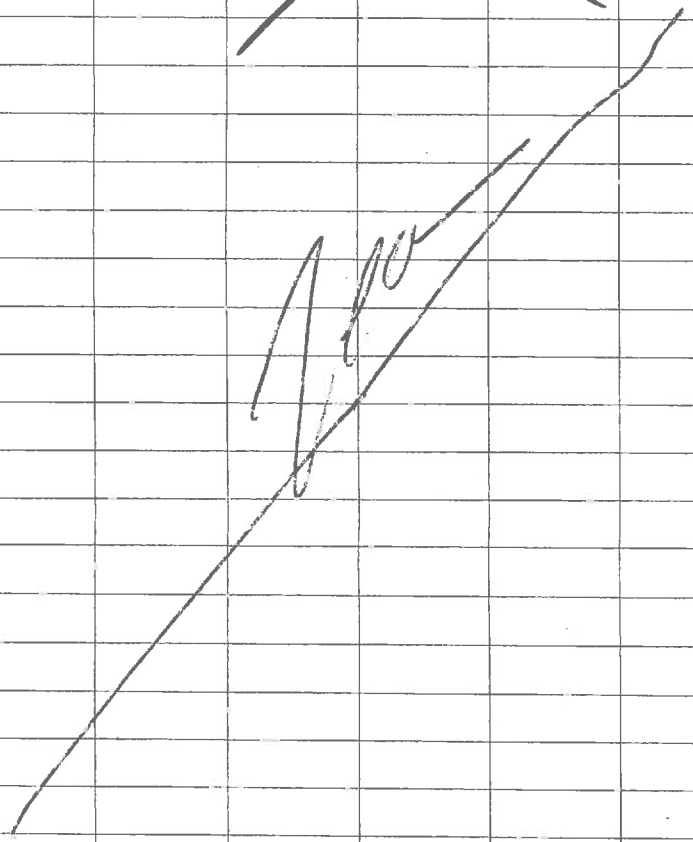
Location SWMU-57 Date 1/29-10

Project / Client RADFORD, VA RFAAP

CONT... STANDARDS.

LOADED DRUMS AND PROCEEDED TO LUNCH.

1500 - OFFSITE JLL



Location SWMU-57 Date 2-16-11

Project / Client RADFORD, VA RFAAP

- ONSITE @ 1030 JLL
  LOCATION 4021 PRICES FORK RD
  TO COLLECT SAMPLES FOR
  BACKFILL CHARACTERIZATION.
- 48°F, SUNNY & CLEAR

- SAMPLE ONE (1) COLLECTED
  @ 1100, COMPOSITE SAMPLE
  FROM THREE POINTS TO
  ANALYZE TOP SOIL

  [SITE #1 - TPS - 2-14-11 - COMP]
  COLLECTED MS/MSD, DUP @ THIS
  LOCATION @ 1120 (SAMPLE MRS)
  1100 - CALIBRATED PID TO
  CHECK FOR VOC'S
  VOC - READING 1115 - 0.0 PPM

- PICTURES 1, 2, & 3 ARE OF
  TOP SOIL PILE
- @ 1220 COLLECTED FIELD BLANKS

- 1230 COLLECTE CLAY FILL COMP'S
  [SITE #1 - 2-16-11 - CLAY-C 9...C-2']

Location SWMU-57 Date 2-16-11

Project / Client RADFORD, VA RFAAP

CONT....

1235 - RAN VOC WITH PID ON COMPS FOR CLAY FILL - 0.0 ppm

- 1240 - COLLECTED SAMPLES FOR CLAY COMPOSITE SAMPLES

- 1245 - COLLECTED SECOND ROUND OF SAMPLES FOR CLAY COMP SAMPLES

TOOK PICTURES OF CLAY FILL AREA PICTURES 4, 5, 6

ALL SAMPLES TO BE ANALYZED FOR TAL-METALS, PAH, PESTICIDES, PCB, & pH

- LEAVING SITE TO GO TO FEDEX @ 1250

- PACKED COOLER ON ICE AND SHIPPED @ 1355

#871043837860

Location SWMU-57 Date 2-16-11

Project / Client RADFORD, VA RFAAP

- ONSITE @ 1500 TO MEET W/ SHIPPING & RECEIVING TO GET TOOL LIST APPROVED

- TOOL LIST APPROVED 1530

- ARRIVED @ SWMU-57 @ 1550 TO CONDUCT SOIL SAMPLING AROUND STEAM LINE SUPPORTS

- SUNNY, CLEAR, 65° F

- LOCATING POINTS W/ GPS

STEAM LINE:

HAND AUGER BORING	LOCATIONS	# SATS
B-1	37.19241341 °N 80.56357342 °W	(6)
B-2	37.19241547 °N 80.56356365 °W	(6)
B-3	37.19242618 °N 80.56341530 °W	(5)
B-4	37.19242617 °N 80.56362118 °W	(5)
B-5	37.19240469 °N 80.5635 7306 °W	(6)
B-6	37.19241438 °N 80.56359671 °W	(6)

Location: SWMU-57 Date: 2-16-11
Project / Client: RADFORD, VA RFAAP

CONT....

B-7 37.19244480 °N (6)
80.56361329 °W

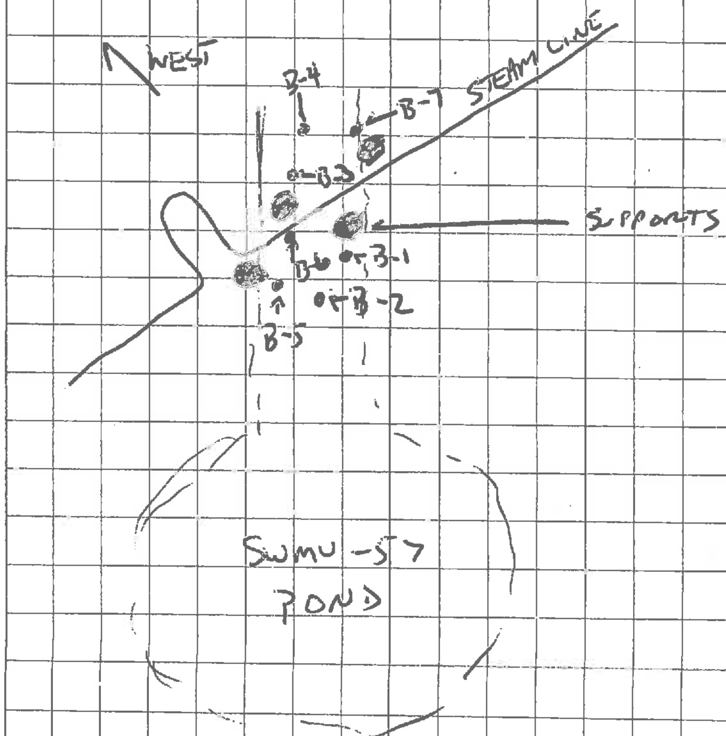
MONITORING WELL GPS LOCATIONS		SATS
57-MW1	37.19230102 °N 80.56301090 °W	8
57-MW2	37.19247684 °N 80.56337043 °W	7
57-MW3	37.19235830 °N 80.56351376 °W	6

PIPE UNDER ROAD -
APPEARS TO BE 16" ON EAST SIDE OF ROAD / WEST SIDE IS COVERED WITH SEDIMENT AND MAY BE 10-12"
37.19227580 °N (8)
80.56322997 °W

CONT.....

Location: SWMU-57 Date: 2-16-11
Project / Client: RADFORD, VA RFAAP

CONT....
MAP OF SOIL BORING POINTS AROUND STEAM LINE:



OFFSITE @ 1825

Location SWMU-57 Date 2-17-11

Project / Client RADFORD, VA RFAAP

JLA - ONSITE @ 0800 TO CONDUCT SOIL SAMPLING

- CLEAR & SUNNY 35°F

0900 COLLECTED FB, & EB
- SWMU-57-21711-EB @ 0900
- SWMU-57-21711-FB @ 0905

EB - USED LAB GRADE DI WATER AND POURED OVER AUGER (AUGER WAS DECONED IN ACCORDANCE W/ PROPER SOP PRIOR TO SAMPLE)

FB - USED LAB GRADE DI WATER

0915 CALIBRATED PID 99.9 ✓

955 - COLLECTED B-5 1-2'
SWMU-57-21711-B-5-SS-1-2' @ 1010
VOC = 0.0 ppm

1000 - COLLECTED MS, MSD, & DUP FROM B-5

Location SWMU-57 Date 2-17-11

Project / Client RADFORD, VA RFAAP

CONT....

MS COLLECTED @ 1000
MSD COLLECTED @ 1005
DUPLICATE COLLECTED @ 1010

1055 - COLLECTED SAMPLE FROM
B-2 @ 2.5' VOC = 0.0 ppm
SWMU-57-21711-B-2-SS-2.5'

1135 - COLLECTED SAMPLE FROM
B-2 @ 5' VOC = 0.0 ppm
SWMU-57-21711-B-2-SS-5'

1205 - COLLECTED SAMPLE FROM
B-1 @ 2.5' VOC = 0.0 ppm
SWMU-57-21711-B-1-SS-2.5'

1335 - COLLECTED SAMPLE FROM
B-6 @ 2.5' VOC = 0.0 ppm
SWMU-57-21711-B-6-SS-2.5'

CALIBRATING YSI TO COLLECT pH FOR POND SAMPLE
3-POINT CAL FOR 7, 10, 4 STAND.
COMPLETE @ 1415

POND pH GRAB = 5.70 SU

COLLECTED POND SAMPLE @ 1445

Location Swmu-57 Date 2-17-11

Project / Client RADFORD, VA RFAAP

cont....

for TCLP-METALS (Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ni, Se, Ag, Tl, & V)

- SWMU-57-POND-21711-W

1500 COLLECTED IDM COD & BOD

pH = N/A

COD @ 1500, SWMU-57-21711-IDM-W

BOD @ 1505 " "

- TOOK IDM TO STORAGE AREA OFFSITE @ 1550

PACKAGED POND & IDM SAMPLES FOR SHIPMENT

FEDEX # 875043837860

Location Swmu-57 Date 2-17-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 1700 TO COLLECT SAMPLE FOR BACKFILL @ NEW CHURCH AREA BEING BUILT

- LARGE PILE OF CLAY BACKFILL (SITE #2)

- COMPOSITE - SAMPLE FOR PAH, PESTICIDES/PCB, pH, & TAL METALS

SAMPLE COLLECTION @ 1710

- SITE #2 - 21711-CLAY-COMP - PID = 0 ppm

OFFSITE - 1720

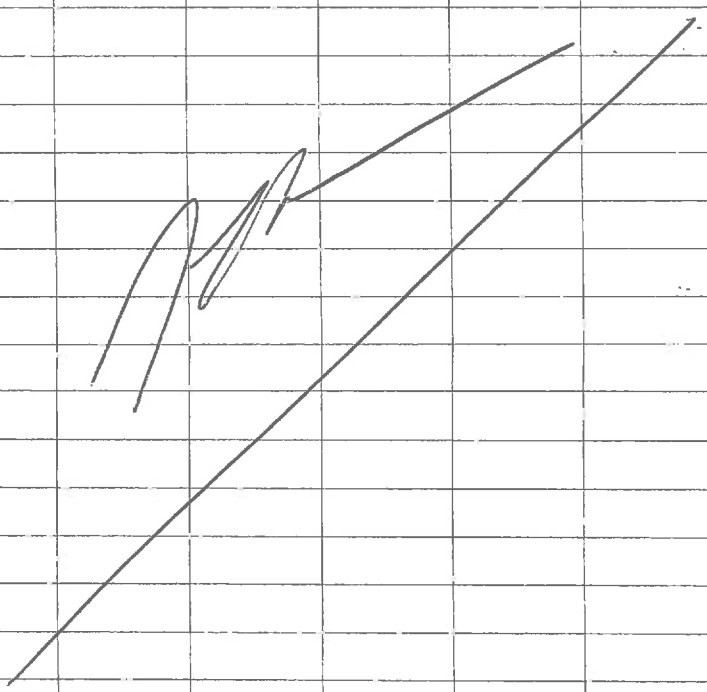
Location SWMU-57 Date 2-17-11

Project / Client RADFORD, VA RFAAP

ONSITE 1745 TO SAMPLE
SITE #3 FOR BACKFILL
TOPSOIL SAMPLES
SAMPLE 1800 VOC = 0.0

SITE #3 - 21711 - 3 TPS - COMP -

OFFSITE 1805



Location SWMU-57 Date 2-18-11

Project / Client RADFORD, VA RFAAP

ONSITE ~~0754~~ 0745 - TO COLLECT
SOIL SAMPLES AROUND
STEAM LINES & WASTE
CHARACTERIZATION SAMPLED
AROUND SWMU-57

- 0800 CALIBRATED PID
100 ppm Check

0855 - COLLECTED B-3 @ 2'
AROUND STEAM LINE
SWMU-57-21811-B-3-SS-2'
VOC - 0.0 ppm

0945 - COLLECTED B-4 @ 2.5'
AROUND STEAM LINE
SWMU-57-21811-B-4-SS-2.5'
VOC - 0.0 ppm

1035 - COLLECTED SAMPLE @ B-4
0-1', 3', & 6' COMP FOR
DISPOSAL CHARTE, @ 1035
VOC = 0.0 ppm
SWMU-57-B-4-0-6'-WC

Location SWMU-57 Date 2-18-11

Project / Client RADFORD, VA RFAAP

Cont...

1105 - COLLECTED SAMPLE @ B-7
AROUND STEAM LINE @ 2'
VOC = 0.0 ppm
SWMU-57-21811-B7-SS-2'

1120 - COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-2' comp
@ URS SB7 LOCATION INSIDE POND
VOC = 0.7 ppm
SWMU-57-SB7-0-2'-WC

1220 - COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-1', 3', 6' comp
CLOSE TO URS SP7 LOCATION INSIDE
POND VOC = 0.1 ppm
SWMU-57-PS-0-6' ~~-comp~~ -WC

1300 - COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-2' comp
CLOSE TO URS SB2 VOC = 0.0 ppm
SWMU-57-SB2-0-2-WC

Location SWMU-57 Date 2-18-11

Project / Client RADFORD, VA RFAAP

Cont...

1320 - COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-2' comp
CLOSE TO URS-SB3 VOC = 0.0 ppm
SWMU-57-SB3-0-2'-WC

1345 - COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-2' comp
CLOSE TO URS-SB18 VOC = 0.0 ppm
SWMU-57-SB18-0-2'-WC

1430 COLLECTED SAMPLE FOR WASTE
DISPOSAL CHARACTERIZATION 0-1', 3', 6' comp
INSIDE POND AREA VOC = 0.1 ppm
SWMU-57-PS2-0-6'-WC

MEASURED POND ≈ 40 diameter
and varies from 2" ~~with~~ 1.5' in
spots for standing water.

TRANSPORTED IDW TO
HOLDING AREA -

Location SWMU-57 Date 2-18-11

Project / Client RADFORD, VA RFAAP

Cont...

CALIBRATED YSI FOR pH @ 1530

pH of DECON = 4.38

COLLECTED TAL METALS SAMPLE OF DECON @ 1545
x 18 gallons total of IDW

OFFSITE 1605 JA

Location Date

Project / Client

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN A 24-HOUR PERIOD OF A RAINFALL EVENT OF 0.5 INCHES OR MORE OCCURRING WITHIN A 24-HOUR PERIOD.

INSPECTOR: John Hatten DATE: 3/24/11

DAYS SINCE LAST RAINFALL: 1 AMOUNT OF LAST RAINFALL: .55 INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES / NO)	STABILIZED WITH	CONDITION
	3/22/11	N/A	Yes	Stakes/dirt	good

STRUCTURAL CONTROLS

EARTH DIKE

FROM	TO	IS DIKE STABILIZED?	EVIDENCE OF WASHOUT OR OVERTOPPING?
N/A			

STRUCTURAL CONTROLS
SILT FENCE OR STRAW BALE BARRIER

TYPE (SF OR SB) AND LOCATION OF BARRIER	CONDITION OF BARRIER	EVIDENCE OF FLOW UNDER OR AROUND BARRIER	DEPTH OF SEDIMENT BEHIND BARRIER
SF	good	NO	None

STRUCTURAL CONTROLS
STABILIZED CONSTRUCTION ENTRANCE

DOES SEDIMENT GET TRACKED ON TO ROAD	IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT	DOES ALL TRAFFIC USE THE DESIGNATED ENTRANCE TO LEAVE THE SITE
NO	Yes	Yes

MAINTENANCE REQUIRED:

None

MAINTENANCE COMPLETED BY: John Hafey DATE COMPLETED: 3/24/11

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN A 24-HOUR PERIOD OF A RAINFALL EVENT OF 0.5 INCHES OR MORE OCCURRING WITHIN A 24-HOUR PERIOD.

INSPECTOR: John Hatten DATE: 4/4/11

DAYS SINCE LAST RAINFALL: 2 AMOUNT OF LAST RAINFALL: 0.001 INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES / NO)	STABILIZED WITH	CONDITION
Sum-57	none	N/A	yes	dirt	good

STRUCTURAL CONTROLS

EARTH DIKE

FROM	TO	IS DIKE STABILIZED?	EVIDENCE OF WASHOUT OR OVERTOPPING?
		~~YES~~ N/A	no

STRUCTURAL CONTROLS

SILT FENCE OR STRAW BALE BARRIER

TYPE (SF OR SB) AND LOCATION OF BARRIER	CONDITION OF BARRIER	EVIDENCE OF FLOW UNDER OR AROUND BARRIER	DEPTH OF SEDIMENT BEHIND BARRIER
SF	good	no	none

STRUCTURAL CONTROLS
STABILIZED CONSTRUCTION ENTRANCE

DOES SEDIMENT GET TRACKED ON TO ROAD	IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT	DOES ALL TRAFFIC USE THE DESIGNATED ENTRANCE TO LEAVE THE SITE
no	clean	yes

MAINTENANCE REQUIRED:

none

MAINTENANCE COMPLETED BY: John Hatten DATE COMPLETED: 4/4/11

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN A 24-HOUR PERIOD OF A RAINFALL EVENT OF 0.5 INCHES OR MORE OCCURRING WITHIN A 24-HOUR PERIOD.

INSPECTOR: John Hutton DATE: 4-5-11

DAYS SINCE LAST RAINFALL: 3 AMOUNT OF LAST RAINFALL: 1.1 INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES / NO)	STABILIZED WITH	CONDITION
SWMU-57	NONE	N/A	YES	DIRT	GOOD

STRUCTURAL CONTROLS

EARTH DIKE

FROM	TO	IS DIKE STABILIZED?	EVIDENCE OF WASHOUT OR OVERTOPPING?
		N/A	NO

STRUCTURAL CONTROLS
SILT FENCE OR STRAW BALE BARRIER

TYPE (SF OR SB) AND LOCATION OF BARRIER	CONDITION OF BARRIER	EVIDENCE OF FLOW UNDER OR AROUND BARRIER	DEPTH OF SEDIMENT BEHIND BARRIER
SF	GOOD	NO	NONE

STRUCTURAL CONTROLS
STABILIZED CONSTRUCTION ENTRANCE

DOES SEDIMENT GET TRACKED ON TO ROAD	IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT	DOES ALL TRAFFIC USE THE DESIGNATED ENTRANCE TO LEAVE THE SITE
NO	CLEAN	YES

MAINTENANCE REQUIRED:

NONE

MAINTENANCE COMPLETED BY: John Hatter DATE COMPLETED: 4-5-11

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN A 24-HOUR PERIOD OF A RAINFALL EVENT OF 0.5 INCHES OR MORE OCCURRING WITHIN A 24-HOUR PERIOD.

INSPECTOR: John Hatton DATE: 4-12-11

DAYS SINCE LAST RAINFALL: 0 AMOUNT OF LAST RAINFALL: 0.5 INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES / NO)	STABILIZED WITH	CONDITION
SWMU-57	4-12-11	N/A	YES	STONES / DIRT	GOOD

STRUCTURAL CONTROLS

EARTH DIKE

FROM	TO	IS DIKE STABILIZED?	EVIDENCE OF WASHOUT OR OVERTOPPING?
N/A			

STRUCTURAL CONTROLS
SILT FENCE OR STRAW BALE BARRIER

TYPE (SF OR SB) AND LOCATION OF BARRIER	CONDITION OF BARRIER	EVIDENCE OF FLOW UNDER OR AROUND BARRIER	DEPTH OF SEDIMENT BEHIND BARRIER
SF	GOOD	NO	NONE

STRUCTURAL CONTROLS
STABILIZED CONSTRUCTION ENTRANCE

DOES SEDIMENT GET TRACKED ON TO ROAD	IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT	DOES ALL TRAFFIC USE THE DESIGNATED ENTRANCE TO LEAVE THE SITE
NO	YES	YES

MAINTENANCE REQUIRED:

NONE

MAINTENANCE COMPLETED BY: JH DATE COMPLETED: 4-12-11

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN A 24-HOUR PERIOD OF A RAINFALL EVENT OF 0.5 INCHES OR MORE OCCURRING WITHIN A 24-HOUR PERIOD.

INSPECTOR: Jonah Anderson DATE: 4-17-11

DAYS SINCE LAST RAINFALL: 2 AMOUNT OF LAST RAINFALL: 0.6 INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES / NO)	STABILIZED WITH	CONDITION
SWM057	none	n/a	yes	dirt	good

STRUCTURAL CONTROLS

EARTH DIKE

FROM	TO	IS DIKE STABILIZED?	EVIDENCE OF WASHOUT OR OVERTOPPING?
		n/a	no

STRUCTURAL CONTROLS
SILT FENCE OR STRAW BALE BARRIER

TYPE (SF OR SB) AND LOCATION OF BARRIER	CONDITION OF BARRIER	EVIDENCE OF FLOW UNDER OR AROUND BARRIER	DEPTH OF SEDIMENT BEHIND BARRIER
SF	GOOD	NO	NONE

STRUCTURAL CONTROLS
STABILIZED CONSTRUCTION ENTRANCE

DOES SEDIMENT GET TRACKED ON TO ROAD	IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT	DOES ALL TRAFFIC USE THE DESIGNATED ENTRANCE TO LEAVE THE SITE
NO	CLEAN	YES

MAINTENANCE REQUIRED:

NONE

MAINTENANCE COMPLETED BY: JA DATE COMPLETED: 4-17-11

Operator Daily Report of Inspection

Forklift (boxed)   Ram   Mobile Crane   Ross Carrier   JLG Lift

Department ______________________   Vehicle ID mini Ex 246-03-5025

Date 3/21/11

	Yes	No	N/A
Do travel brakes function properly?	✓		
Does deadman control function properly?	✓		
Does speed control function properly?	✓		
Do hoist controls function properly?	✓		
Does horn operate satisfactorily?	✓		
Does back up alarm operate?	✓		
Does warning light operate?	✓		
Do lights operate if required?			✓
Does signal equipment operate?	✓		
Do hoist limit switches operate properly?	✓		
Do directional controls function properly?	✓		
Does steering equipment operate satisfactorily?	✓		
Does clutch function properly?	✓		
Does emergency brake work?	✓		
Are the control levers operable?	✓		
Is a fire extinguisher present?	added @3PM ok mb	✓	
Is the fire extinguisher gauge in the green area?			✓
Mast weld points in good condition?	✓		
Roller track greased?	✓		
Hydraulic fluid levels within operating ranges?	✓		
Hydraulic lines not crimped or worn excessively?	✓		
Lift and tilt cylinders sealed and in good condition?	✓		
Mounting hardware on cylinders are secure?	✓		
Tires in good condition?			✓
If pneumatic tires, inflated to proper pressure?			✓
Power source in good condition?	✓		

Remarks: getting fire Extinguisher

Operator's Signature ______________________

Operator Daily Report of Inspection

Forklift Ram Mobile Crane Ross Carrier JLG Lift

Department _____ Vehicle ID Dingo 240-92-5903

Date 3/21/11

	Yes	No	N/A
Do travel brakes function properly?	/		
Does deadman control function properly?	/		
Does speed control function properly?	/		
Do hoist controls function properly?	/		
Does horn operate satisfactorily?			/
Does back up alarm operate?			/
Does warning light operate?			/
Do lights operate if required?			/
Does signal equipment operate?			/
Do hoist limit switches operate properly?	/		
Do directional controls function properly?	/		
Does steering equipment operate satisfactorily?	/		
Does clutch function properly?	/		
Does emergency brake work?	/		
Are the control levers operable?	/		
Is a fire extinguisher present?	OK mb	Added @ 3pm	
Is the fire extinguisher gauge in the green area?			/
Mast weld points in good condition?	/		
Roller track greased?	/		
Hydraulic fluid levels within operating ranges?	/		
Hydraulic lines not crimped or worn excessively?	/		
Lift and tilt cylinders sealed and in good condition?	/		
Mounting hardware on cylinders are secure?	/		
Tires in good condition?			/
If pneumatic tires, inflated to proper pressure?			/
Power source in good condition?	/		

Remarks: getting fire Extinguisher

Operator's Signature _____

Operator Daily Report of Inspection

Forklift Ram Mobile Crane Ross Carrier JLG Lift

Department _____ Vehicle ID Bobcat 206-05-6116

Date 3-22-11

	Yes	No	N/A
Do travel brakes function properly?	✓		
Does deadman control function properly?	✓		
Does speed control function properly?	✓		
Do hoist controls function properly?	✓		
Does horn operate satisfactorily?	✓		
Does back up alarm operate?	✓		
Does warning light operate?	✓		
Do lights operate if required?	✓		
Does signal equipment operate?			✓
Do hoist limit switches operate properly?	✓		
Do directional controls function properly?	✓		
Does steering equipment operate satisfactorily?	✓		
Does clutch function properly?	✓		
Does emergency brake work?	✓		
Are the control levers operable?	✓		
Is a fire extinguisher present?	✓		
Is the fire extinguisher gauge in the green area?	✓		
Mast weld points in good condition?	✓		
Roller track greased?	✓		
Hydraulic fluid levels within operating ranges?	✓		
Hydraulic lines not crimped or worn excessively?	✓		
Lift and tilt cylinders sealed and in good condition?	✓		
Mounting hardware on cylinders are secure?	✓		
Tires in good condition?	✓		
If pneumatic tires, inflated to proper pressure?			✓
Power source in good condition?	✓		

Remarks: _____

Operator's Signature _____

Operator Daily Report of Inspection

Forklift Ram Mobile Crane Ross Carrier JLG Lift

Department _____ Vehicle ID John Deere 200C

Date 3-22-11

	Yes	No	N/A
Do travel brakes function properly?	✓		
Does deadman control function properly?	✓		
Does speed control function properly?	✓		
Do hoist controls function properly?	✓		
Does horn operate satisfactorily?	✓		
Does back up alarm operate?		✓	
Does warning light operate?	✓		
Do lights operate if required?			✓
Does signal equipment operate?			✓
Do hoist limit switches operate properly?	✓		
Do directional controls function properly?	✓		
Does steering equipment operate satisfactorily?	✓		
Does clutch function properly?	✓		
Does emergency brake work?	✓		
Are the control levers operable?	✓		
Is a fire extinguisher present?	✓		
Is the fire extinguisher gauge in the green area?	✓		
Mast weld points in good condition?	✓		
Roller track greased?	✓		
Hydraulic fluid levels within operating ranges?	✓		
Hydraulic lines not crimped or worn excessively?	✓		
Lift and tilt cylinders sealed and in good condition?	✓		
Mounting hardware on cylinders are secure?	✓		
Tires in good condition?			✓
If pneumatic tires, inflated to proper pressure?			✓
Power source in good condition?	✓		

Remarks: _____

Operator's Signature J Roberts

Daily Safety Meeting

Project Name: RFAAP SWMU-57 **Date:** 3-21-11

Location: RADFORD, VA **Presented by:** _____

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☑ hazard analysis for all tasks or new technology
- ☑ chemical hazards
- ☑ first aid, safety, and PPE location
- ☑ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☑ full face respirators with proper cartridges
- ☑ upgrade to Level C at:
- ☑ work stoppage at:
- ☑ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☑ anticipated visitors
- ☑ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☑ orderly site and housekeeping
- ☑ smoking in designated areas
- ☑ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☑ vibration related injuries
- ☑ noise hazards
- ☑ confined space entry
- ☑ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☑ fire extinguisher locations
- ☑ eye wash station locations
- ☑ directions to hospital
- ☑ heat and cold stress
- ☑ decontamination steps
- ☑ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☑ accidents can be costly
- ☑ no horse play
- ☑ dust and vapor control
- ☑ refueling procedures
- ☑ flying debris hazards
- ☑ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jamal Anderson		UXB - Kemron
Michael Swartz		UXB - Kemron
Michael Brantley		UXB Kemron
John Hatten		UXB - Kemron
Matthew Rife		Eagle SWS

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 3-22-11

Location: RADFORD, VA **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☐ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☐ slips, trips, and falls
- ☐ strains and sprains
- ☑ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared? meeting @ 10 AM 3/23
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

Pay Attention - Think Before Doing

Drillers - overhead Powerlines, Added Hazards.

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten	[signature]	UXB Kemron
Jonath Amoroso	[signature]	UXB Kemron
Michael Swartz	[signature]	UXB Kemron
Matt Harvey	[signature]	Rorrer Well
Devin Webb	[signature]	Rorrer Well
Derek Canaday	[signature]	Rorrer Well

Instructions:

- \# Conduct a daily safety meeting prior to beginning each day=s site activities.
- \# Complete form, obtain signatures, and file with the Daily Summary.
- \# Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting Tuesday

Project Name: RFAAP SWMU 57 **Date:** 3-22-11

Location: Radford, VA **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☑ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☐ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☐ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hattery		UXB Kemron
Jonah Anderson		UXB Kemron
Michael Sparks		UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

wednesday

Project Name: RFAAP SWMU 57 **Date:** 3-23-11

Location: Radford, VA **Presented by:** M. Bentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☐ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☑ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatter	[signature]	UXB Kemron
Jonah Anderson	[signature]	UXB Kemron
Alkmar Sckartz	[signature]	UXB Kemron

Instructions:

- \# Conduct a daily safety meeting prior to beginning each day=s site activities.
- \# Complete form, obtain signatures, and file with the Daily Summary.
- \# Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting Thursday

Project Name: RAAP SWMU 57 **Date:** 3-24-11

Location: Radford, VA **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☐ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatley	[signature]	UXB Kemron
Jonathan Anderson	[signature]	UXB Kemron
Michael Schultz	[signature]	UXB Kemron

Instructions:

- \# Conduct a daily safety meeting prior to beginning each day=s site activities.
- \# Complete form, obtain signatures, and file with the Daily Summary.
- \# Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Friday

Project Name: RFAAP SWMU 57 **Date:** 3-25-2011

Location: Radford, VA **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- [x] Daily work scope reviewed
- [ ] safety is everyone=s responsibility
- [ ] site health and safety plan reviewed
- [x] safety glasses, hard hat, safety boots
- [ ] employee Right-To- Know/MSDS location
- [ ] vehicle safety and driving/road conditions
- [ ] hazard analysis for all tasks or new technology
- [ ] chemical hazards
- [x] first aid, safety, and PPE location
- [ ] sharp object, rebar, and scrap metal hazards
- [ ] latex gloves inner/nitrile gloves outer
- [x] open pits, excavations, and trenching hazards
- [x] excavation/trenching inspections/documentation
- [ ] full face respirators with proper cartridges
- [ ] upgrade to Level C at:
- [ ] work stoppage at: Visual/or unknown utility
- [ ] portable tool safety and awareness
- [x] slips, trips, and falls
- [ ] strains and sprains
- [ ] anticipated visitors
- [ ] electrical ground fault
- [ ] public safety and fences
- [ ] excavator swing and loading
- [ ] orderly site and housekeeping
- [ ] smoking in designated areas
- [ ] leather gloves for protection
- [ ] effects of the night before? Rain or snow?
- [ ] vibration related injuries
- [ ] noise hazards
- [ ] confined space entry
- [ ] hot work permits
- [ ] overhead utility locations cleared?
- [ ] all underground utilities cleared?
- [ ] equipment and machinery familiarization
- [ ] fire extinguisher locations
- [ ] eye wash station locations
- [ ] directions to hospital
- [ ] heat and cold stress
- [ ] decontamination steps
- [ ] review emergency protocol
- [ ] parking and laydown area
- [ ] vehicle backing up hazards
- [ ] accidents can be costly
- [ ] no horse play
- [ ] dust and vapor control
- [ ] refueling procedures
- [ ] flying debris hazards
- [ ] poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten	[signature]	UXB Kemron
Jonah Ammons	[signature]	UXB Kemron
Henry Churchill Sweeney	[signature]	UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RAMS **Date:** 3/26/11

Location: SWMU 57 **Presented by:** M. Bartley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to ~~hospital~~
- ☑ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

Fall Protection @ Edge of Excavation
Truck TRAFFIC

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten		UXB Kemron
Scott Anderson		UXB Kemron
Michael Ward		UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 3-28-11

Location: SWMU 57 **Presented by:** M. Bartley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☑ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☑ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

Truck traffic + loading trucks

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten	John Hatten	UXB Kemron
Jonah Anderson		UXB Kemron
Michael Swartz		UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 3/29/11

Location: SWMU 57 **Presented by:** M. Bradley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☑ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☑ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

Truck Turnover @ Condition II
ICY Ground

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonah Anderson		UXB - Kemron
John Hatten		UXB - Kemron
MIKE SWARTZ		UXB - Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 3/30/11

Location: SWMU 57 **Presented by:** M. Bartley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☐ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonat Anderson		UXB-KEMRON
John Hatten		UXB Kemron
MIKE SWARTZ		UXB-KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 3/31/11

Location: SWMU 57 **Presented by:** MBentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☑ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☐ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
JONAH ANDERSON		UXB-Kemron
JOHN HATTEN		UXB - Kemron
MIKE SCHMITZ		UXB - Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP

Date: 4/1/11

Location: SWMU57

Presented by: M. Brantley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☑ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☑ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

Windy
Eating, Drinking in Designated Area

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonah Anderson		UXB-Kemron
John Hatten		UXB - Kemron
Mike Swartz		UXB- Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/2/11

Location: SWMU 57 **Presented by:** M. Bentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☑ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☑ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☑ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten		UXB Kemron
Scott Anderson		UXB Kemron
Mike Schultz		UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/4/11

Location: SWMU 57 **Presented by:** M. Smalley

Check the Topics/Information Reviewed:

- [x] Daily work scope reviewed
- [x] safety is everyone=s responsibility
- [ ] site health and safety plan reviewed
- [ ] safety glasses, hard hat, safety boots
- [ ] employee Right-To- Know/MSDS location
- [ ] vehicle safety and driving/road conditions
- [ ] hazard analysis for all tasks or new technology
- [ ] chemical hazards
- [x] first aid, safety, and PPE location
- [ ] sharp object, rebar, and scrap metal hazards
- [ ] latex gloves inner/nitrile gloves outer
- [x] open pits, excavations, and trenching hazards
- [x] excavation/trenching inspections/documentation
- [ ] full face respirators with proper cartridges
- [ ] upgrade to Level C at:
- [ ] work stoppage at:
- [ ] portable tool safety and awareness
- [x] slips, trips, and falls
- [ ] strains and sprains
- [ ] anticipated visitors
- [ ] electrical ground fault
- [ ] public safety and fences
- [x] excavator swing and loading
- [ ] orderly site and housekeeping
- [ ] smoking in designated areas
- [x] leather gloves for protection
- [ ] effects of the night before? Rain or snow?
- [ ] vibration related injuries
- [ ] noise hazards
- [ ] confined space entry
- [ ] hot work permits
- [ ] overhead utility locations cleared?
- [ ] all underground utilities cleared?
- [ ] equipment and machinery familiarization
- [ ] fire extinguisher locations
- [ ] eye wash station locations
- [ ] directions to hospital
- [x] heat and cold stress
- [ ] decontamination steps
- [ ] review emergency protocol
- [ ] parking and laydown area
- [ ] vehicle backing up hazards
- [ ] accidents can be costly
- [ ] no horse play
- [ ] dust and vapor control
- [ ] refueling procedures
- [ ] flying debris hazards
- [ ] poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Mike Swartz		UXB-Kemron
Jonah Anderson		UXB-Kemron
John Hatten		UXB-Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/5/11

Location: SWMU 57 **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- [x] Daily work scope reviewed
- [ ] safety is everyone=s responsibility
- [ ] site health and safety plan reviewed
- [ ] safety glasses, hard hat, safety boots
- [ ] employee Right-To- Know/MSDS location
- [ ] vehicle safety and driving/road conditions
- [ ] hazard analysis for all tasks or new technology
- [ ] chemical hazards
- [ ] first aid, safety, and PPE location
- [ ] sharp object, rebar, and scrap metal hazards
- [ ] latex gloves inner/nitrile gloves outer
- [x] open pits, excavations, and trenching hazards
- [x] excavation/trenching inspections/documentation
- [ ] full face respirators with proper cartridges
- [ ] upgrade to Level C at:
- [ ] work stoppage at:
- [ ] portable tool safety and awareness
- [x] slips, trips, and falls
- [ ] strains and sprains
- [ ] anticipated visitors
- [ ] electrical ground fault
- [ ] public safety and fences
- [x] excavator swing and loading
- [x] orderly site and housekeeping
- [ ] smoking in designated areas
- [x] leather gloves for protection
- [ ] effects of the night before? Rain or snow?
- [ ] vibration related injuries
- [ ] noise hazards
- [ ] confined space entry
- [ ] hot work permits
- [ ] overhead utility locations cleared?
- [ ] all underground utilities cleared?
- [ ] equipment and machinery familiarization
- [ ] fire extinguisher locations
- [ ] eye wash station locations
- [ ] directions to hospital
- [x] heat and cold stress
- [ ] decontamination steps
- [ ] review emergency protocol
- [ ] parking and laydown area
- [x] vehicle backing up hazards
- [ ] accidents can be costly
- [ ] no horse play
- [ ] dust and vapor control
- [ ] refueling procedures
- [ ] flying debris hazards
- [ ] poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonah Anderson		UXB-Kenlon
John Hatton		UXB-Kenlon
Mike Suentz		UXB-Kenlon

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/6/11

Location: SWMU 57 **Presented by:** M. Bentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Anderson		UXB-Kemron
John Hatton		UXB-Kemron
Mike Swartz		UXB-Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/7/11

Location: SWMU 57 **Presented by:** M. Bradley

Check the Topics/Information Reviewed:

- [x] Daily work scope reviewed
- [x] safety is everyone=s responsibility
- [ ] site health and safety plan reviewed
- [x] safety glasses, hard hat, safety boots
- [ ] employee Right-To- Know/MSDS location
- [ ] vehicle safety and driving/road conditions
- [ ] hazard analysis for all tasks or new technology
- [ ] chemical hazards
- [ ] first aid, safety, and PPE location
- [ ] sharp object, rebar, and scrap metal hazards
- [ ] latex gloves inner/nitrile gloves outer
- [x] open pits, excavations, and trenching hazards
- [x] excavation/trenching inspections/documentation
- [ ] full face respirators with proper cartridges
- [ ] upgrade to Level C at:
- [ ] work stoppage at:
- [ ] portable tool safety and awareness
- [x] slips, trips, and falls
- [ ] strains and sprains
- [ ] anticipated visitors
- [ ] electrical ground fault
- [ ] public safety and fences
- [x] excavator swing and loading
- [ ] orderly site and housekeeping
- [ ] smoking in designated areas
- [x] leather gloves for protection
- [ ] effects of the night before? Rain or snow?
- [ ] vibration related injuries
- [x] noise hazards
- [ ] confined space entry
- [ ] hot work permits
- [ ] overhead utility locations cleared?
- [ ] all underground utilities cleared?
- [ ] equipment and machinery familiarization
- [ ] fire extinguisher locations
- [ ] eye wash station locations
- [ ] directions to hospital
- [ ] heat and cold stress
- [ ] decontamination steps
- [ ] review emergency protocol
- [ ] parking and laydown area
- [x] vehicle backing up hazards
- [ ] accidents can be costly
- [ ] no horse play
- [ ] dust and vapor control
- [ ] refueling procedures
- [ ] flying debris hazards
- [ ] poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:
Pressure washing - Face shield

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Mike Swartz		UXB-Kenmon
Jonah Anderson		UXB-Kenmon
John Hatten		UXB Kenmon

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/8/11

Location: SWMU 52 **Presented by:** M. Bartley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Mike Swartz		UXB - KEMRON
Jonah Anderson		UXB - KEMRON
John Hatten		UXB - KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/1?/11

Location: SWMU 57 **Presented by:** M. Brantley

Check the Topics/Information Reviewed:

- [x] Daily work scope reviewed
- [ ] safety is everyone=s responsibility
- [ ] site health and safety plan reviewed
- [ ] safety glasses, hard hat, safety boots
- [ ] employee Right-To- Know/MSDS location
- [ ] vehicle safety and driving/road conditions
- [ ] hazard analysis for all tasks or new technology
- [ ] chemical hazards
- [ ] first aid, safety, and PPE location
- [ ] sharp object, rebar, and scrap metal hazards
- [ ] latex gloves inner/nitrile gloves outer
- [x] open pits, excavations, and trenching hazards
- [x] excavation/trenching inspections/documentation
- [ ] full face respirators with proper cartridges
- [ ] upgrade to Level C at:
- [ ] work stoppage at:
- [ ] portable tool safety and awareness
- [x] slips, trips, and falls
- [ ] strains and sprains
- [ ] anticipated visitors
- [ ] electrical ground fault
- [ ] public safety and fences
- [x] excavator swing and loading
- [ ] orderly site and housekeeping
- [ ] smoking in designated areas
- [x] leather gloves for protection
- [ ] effects of the night before? Rain or snow?
- [ ] vibration related injuries
- [ ] noise hazards
- [ ] confined space entry
- [ ] hot work permits
- [ ] overhead utility locations cleared?
- [ ] all underground utilities cleared?
- [ ] equipment and machinery familiarization
- [ ] fire extinguisher locations
- [ ] eye wash station locations
- [ ] directions to hospital
- [x] heat and cold stress
- [ ] decontamination steps
- [ ] review emergency protocol
- [ ] parking and laydown area
- [x] vehicle backing up hazards
- [ ] accidents can be costly
- [ ] no horse play
- [ ] dust and vapor control
- [ ] refueling procedures
- [ ] flying debris hazards
- [ ] poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
John Hatten	[signature]	UXB Kemron
JOHN ANDERSON	[signature]	UXB Kemron
MICHAEL SWARTZ	[signature]	UXB Kemron

Instructions:

- \# Conduct a daily safety meeting prior to beginning each day=s site activities.
- \# Complete form, obtain signatures, and file with the Daily Summary.
- \# Follow-up on any noted items and document resolution of any action items.

site\mkz\ucc\health&safety\daily safety meeting.doc

Daily Safety Meeting

Project Name: RFAAP **Date:** 4/13/11

Location: SWMU 57 **Presented by:** M Bentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Kristen Swartz		VXB-Kemron
Jonah Anderson		VXB-Kemron
John Hatten		VXB-Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: RFATA? **Date:** 4-14-11

Location: SWMU 57 **Presented by:** M. Bentley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☑ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☑ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Michael Schmitz		UXB Kemron
John Hatten		UXB Kemron
Jarrett Anderson		UXB Kemron

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: RFAAP

Date: 4/15/11

Location: SWMU 57

Presented by: M. Brattlie

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☑ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☑ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☑ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☑ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☑ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☑ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Mike Swartz		UXB-KEMRON
John Hatten	John Hatten	UXB. KEMRON
Jonah Anderson		UXB-KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

Attachment 25-3

Daily Safety Meeting

Project Name: RFATP

Date: 4/18/11

Location: SWMU 57

Presented by: M. Bottomley

Check the Topics/Information Reviewed:

- ☑ Daily work scope reviewed
- ☐ safety is everyone=s responsibility
- ☐ site health and safety plan reviewed
- ☐ safety glasses, hard hat, safety boots
- ☐ employee Right-To- Know/MSDS location
- ☐ vehicle safety and driving/road conditions
- ☐ hazard analysis for all tasks or new technology
- ☐ chemical hazards
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ latex gloves inner/nitrile gloves outer
- ☐ open pits, excavations, and trenching hazards
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ upgrade to Level C at:
- ☐ work stoppage at:
- ☐ portable tool safety and awareness
- ☑ slips, trips, and falls
- ☐ strains and sprains
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☑ public safety and fences
- ☑ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☑ leather gloves for protection
- ☐ effects of the night before? Rain or snow?
- ☐ vibration related injuries
- ☐ noise hazards
- ☐ confined space entry
- ☐ hot work permits
- ☐ overhead utility locations cleared?
- ☐ all underground utilities cleared?
- ☐ equipment and machinery familiarization
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ directions to hospital
- ☐ heat and cold stress
- ☐ decontamination steps
- ☐ review emergency protocol
- ☐ parking and laydown area
- ☑ vehicle backing up hazards
- ☐ accidents can be costly
- ☐ no horse play
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ flying debris hazards
- ☐ poison ivy/oak/sumac

Other Discussion Items/Comments/Follow-up Actions:

TAKE Down Fence + Pull up Fence Post. Grass & Hay

NAME (PRINT)	NAME (SIGNATURE)	COMPANY
Jonah Anderson		U+B - KEMRON
John Hatten		U+B - KEMRON
Mike Swartz		U+B KEMRON

Instructions:

Conduct a daily safety meeting prior to beginning each day=s site activities.
Complete form, obtain signatures, and file with the Daily Summary.
Follow-up on any noted items and document resolution of any action items.

FIELD CALIBRATION FORM

INITIAL CALIBRATION	FINAL CALIBRATION
DATE: 3-18-11	DATE: 3-18-11
TIME: 1615	TIME: —

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: —

METER ID 010828 SLOPE = 95.7 VERIFY = 8.00 = 8.01

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0	—	7.01	—
10.0	—	10.03	—
4.0	—	7.01	—

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: _____

METER ID _____ N/A

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: _____

METER ID _____ N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

FIELD CALIBRATION FORM

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____ N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

ORD METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____ N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

PID CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____ N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

COMMENTS 3-18-11

SIGNATURE

FIELD CALIBRATION FORM

INITIAL CALIBRATION	FINAL CALIBRATION
DATE: 4-15-11	DATE: 4-15-11
TIME: 0915	TIME: 0920

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: _____

METER ID 010828

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0	7.03		
10.0	10.07		
4.0	4.01		

SLOPE - 96.7

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: _____

METER ID _____ N/A

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: _____

METER ID _____ N/A

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

FIELD CALIBRATION FORM

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

ORP METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

PID CALIBRATION

CALIBRATION STANDARD REFERENCE NO: N/A

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

COMMENTS_____

SIGNATURE_____

4-15-11

Date 2-18-11

RFAAP

...on - pH @

...8

...TAS SAMPLE

...of IDM

Location SWMU-57 Date 3-17-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 1330

JA & MB

- CLEAR & 63°F

- TO MEET w/ MATT ALBERTS FOR HOT WORK PERMITS & DEAN FOR IDM AREA & KAREN G. FOR MEETING TIME ON 3-18-11

OFFSITE @ 1530

Location SWMU-57 ; 40 Date 3-18-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0800 w/ JLA & MIKE SWARTZ, CLEAR ; 56°F MET w/ DRAPER ADEN TO LOCATE UTILITIES FOR SWMU-57 & SWMU-40

OFFSITE @ 1200 FOR LUNCH

—

ONSITE @ 1330 JLA, MS, MB TO MEET w/ KAREN C.

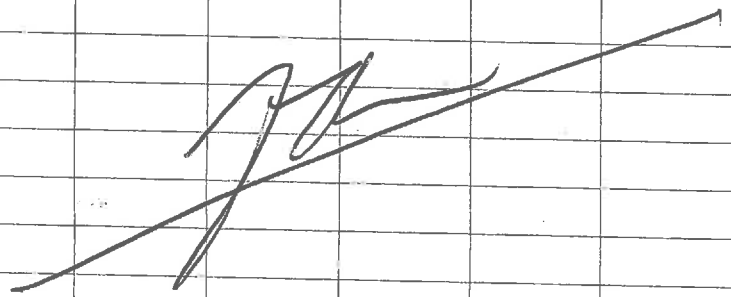
MOBED TO SWMU-57 @ 1615

CALIBRATED pH meter to CORRECT POND pH

pH = 7.07 ; 19.6°C

*JIM MCKENNA STOPPED BY @ WE NOTIFIED ABOUT NEW LINE ?

OFFSITE @ 1700



Location SWMU-57 Date 3-19-11

Project / Client RADFORD, VA RFAAP

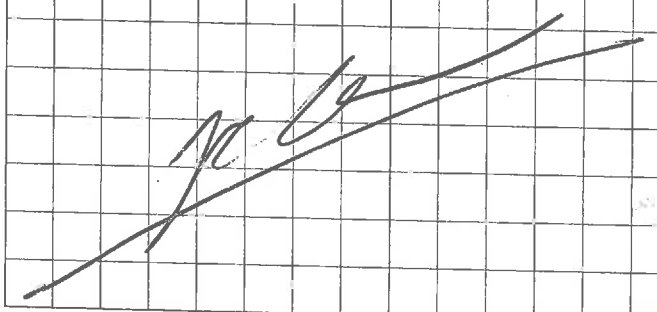
ONSITE 1430 SA/MS TO MARK GPS POINTS @ SWMU-57, CLEAR ; 68°F

57MW2
3600213.45 N
1088196 8.12 E

57MW3
3600166.64 N
1088142 4.86 E

57MW1
3600149.52 N
1088207 1.34 E

OFFSITE @ 1630



Location SWMU-57 Date 3-21-11

Project / Client RFAAP, RADFORD VA

ON SITE @ 0700 JA; MS
CLEAR & COOL 38°F
0720 COMPLETED H:S MEETING

0830 EAGLE SWS ONSITE TO REMOVE POND WATER
0835 REVIEWED H&S W/ SWS DRIVER
0940 MB & JH ONSITE REVIEWED H&S
0900 TRANSPORTING FIRST LOAD OF WATER TO ONSITE WWTP.
1015 CHECKED IN W/ BIO PLANT TO UNLOAD ≈ 3,000 gallons @ LIFT STATION
1100 ONSITE (SWMU-57) TO REMOVE MORE WATER FROM POND
1130 TRANSPORTING SECOND LOAD OF WATER TO ONSITE BIO PLANT
1200 CHECKED IN W/ BIO PLANT TO UNLOAD ≈ 3,000 gallons @ LIFT STATION.
1300 ONSITE TO REMOVE WATER FROM POND

Location SWMU-57 Date 3-21-11

Project / Client RFAAP, RADFORD VA

CONT...
1405 TRANSPORTING THIRD LOAD OF WATER TO BIOPLANT
1430 CHECKED IN W/ BIO PLANT AND UNLOADED ≈ 3000 gallons @ LIFT STATION.
1515 ONSITE TO REMOVE REMAINING WATER FROM POND
- MIKE BRANTLEY OFFSITE @ 1600 TO GO TO FIELD
1645 CHECKED IN W/ BIO PLANT AND UNLOADED ≈ 800 gallons @ LIFT STATION
TOTAL ≈ 9,800 gallons from SWMU-57 POND
NOTE STARTED SILT FENCE EQUIPMENT DROP OFF SITE 1645 JA, MS, JH.

Location SWMU-57 Date 3-22-11

Project / Client RFAAP, RADFORD VA

ONSITE @ 0740 JA, MS, JH, MB
COMPLETED H&S MEETING 0800
- CLEAR, 55°F
- ROPER DRILLING ONSITE TO ABANDON MW-1, 2, & 3 @ 0930
REVIEWED H&S PLAN W/DRILLER

- STARTING ON 57MW-1
57-MW-1
37.19232° N
80.56303° W
PULLED CONCRETE CAP AND WELL PROTECTIVE CASING
- ATTEMPTED PULL AND TOP 10' RISER ~~BROKE~~ SHEARED OFF
- GROUTED TO TOP & PULLED BALLARDS

- 1215 STARTED PULLING 57 MW-2
REMOVED BALLARDS, PAD, & PROTECTIVE CASING. GROUTED TO TOP (RISER BROKE 1' DOWN)

Location SWMU-57 Date 3-22-11

Project / Client RFAAP, RADFORD,

Cont...

1400 STARTED PULLING 57MW-3
REMOVED BALLARDS, PAD, & PROTECTIVE CASING.
PULLED 35' OF RISER
GROUTED TO TOP.

57MW-2
37.19249° N ★ DRILLER
80.56338° W GPS

57MW-3
37.19236° N ★
80.56349° W

DRILLER GPS MODEL
MAGELLAN, MERIDIAN
- PLATINUM

DRILLER OFFSITE @ 1530

INSTALLED SILT FENCE & ~~BARRIER~~ FENCE

Location RADFORD SWMU-57 Date 3-22-11

Project / Client RFAAP, RADFORD VA

CONT...

HAD 3 LOADS OF GRAVEL DROPPED OFF TO BUILD UP ROAD

OFFSITE @ 1600 JA, MS, MB, JH

Location RADFORD SWMU-57 Date 3-23-11

Project / Client RFAAP, RADFORD VA

ONSITE @ 0810 JA, MS, JH

MB ONSITE 0900

- SUNNY, 55°F
- 0905 MEETING FOR UNKNOWN LINE LOCATION W/ GARY JENNINGS, JIM MCKENNA, MATT ROBERTS, ARMY CORP - CLINT VENABLE,
- CANNOT IDENTIFY LINE POSSIBLY OLD WATER LINE
- CORP. R. PEELS NEED TO IDENTIFY LINE
- WAITING FOR DIRECTION FROM JIM MCKENNA

1200 HOURS ONSITE TO PICK-UP TRENCHER

- COMPLETED 6'x6'x6" PAD FOR SWMU-1
- RFAAP UTILITY PERSONNEL VERIFIED PRESENCE OF LINE BUT COULD NOT IDENTIFY
- JA, MS 7.5 hours on line/unknown UTILITY ISSUE.

OFFSITE @ 1530 JA, MS, MB, JH

Location SWMU-57 Date 3-24-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0710 JA, MS
- 48°F, WINDY, & ~~LIGHT~~ LITTLE RAIN
0710 - CLINT VERCH ONSITE
ARMY CORP REP

MB ONSITE @ 0725
- ONSITE MEETING FOR UNKNOWN LINE
0725 RFAAP AREA SAFETY
PERSONNEL DAVE HURLEY
0730 MATT ARENTS ONSITE

540 - 730 - 4659 > SAFETY NUMBER
540 - 953 - 9318

RFAAP SAFETY GAVE OK FOR EXCAVATION / STATED ONCE LINE IS EXPOSED RFAAP UTILITY STAND COME & IDENTIFY

0815 MATT ARENTS CLINT VERCH & JONAH ANDERSON, MIKE SWARTZ BEGIN EXCAVATION TO LOCATE LINE

Location SWMU-57 Date 3-24-11

Project / Client RADFORD, VA RFAAP

CONT...

- 0835 JOHN HATTEN ONSITE COMPLETING SILT FENCE B.M.P. INSPECTION (COMPLETED @ 1035 > 0.5" OF RAIN
- 0925 JIM MCKENNA ONSITE
- 0945 21' DEPTH NO LINE LOCATED
- JIM STATED TRACEY W/UXO SAID THEY DID NOT HAVE LOCATIONS ONSITE.

SURVEYED DEPTH
HOLE - 23.46'
CENTER POND - 10.20'

- CONCENSUS IS TO BACK FILL & PROCEED W/ CAUTION ON POND EXCAVATION
- STARTED BACK FILLING @ 1053 ~1300 cy.

SEEDING & STRAW ON EXCAVATED COMPLETED @ 1430 JA, MB

JA/MS STARTED TO MARK BOUNDARY HORZ./DEP.

Location SWMU-57 Date 3-24-11

Project / Client RADFORD, VA RFAAP

1400 – ELEVATION BELOW BENCH MARK

575810	-2.40'
575B2	-2.40'
575B6	-5.75'

* MARK ON STEAM LINE SUPPORT

1415 - MARKED HORIZONTAL EXCAVATION

1540 - FINISHED MARKING SWMU-57 POND EXCAVATION AREA

1545 - INSTALLED SAND BAGS ON PIPE TO BYPASS WATER FROM MOVING INTO POND

OFFSITE JA, MS, MB, & JH @ 1600

Location SWMU-57 Date 3-25-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0715 JA
CLOUDY, 36°F NO RAIN RECORDED
MB & JH ONSITE @ 0645
MS ONSITE @ 0710

0730 CONDUCTED H&S MEETING

0745 STARTED EXCAVATION ON BACK SIDE OF SWMU-57

MB STARTED AIR MONITORING @ 0810

0815 COLLECTED FLOOR CONFIRMATION SAMPLE @ 2' JA 2' W/ MS/MSD & DUP
SWMU-57-32511-SS-FC-2'-MM1

* 0930 CLINT TIPPINS ONSITE

1100 COLLECTED FLOOR SAMPLE SAMPLE @ 2.5'
SWMU-57-32511-SS-FC-B-3-2.5'

CLINT TIPPINS OFFSITE @ 1125

Location SWMU-57 Date 3-25-11

Project / Client RFAAP, RADFORD VA

cont...

COLLECTED FLOOR CONFIRMATION SAMPLE @ 8' @ 1355

~~SWMU-57-32511-55-FC-8'-NUM2~~ JWA

SWMU-57-32511-55-FC-8'-NUM2

COLLECTED SIDE WALL SAMPLE (SW-1) @ 1400 @ 4'

SWMU-57-32511-55-4'SW-1

COLLECTED SIDE WALL SAMPLE (SW-2) @ 1445 @ 7.5'

SWMU-57-32511-55-7.5'SW-2

* COMPLETED AIR MON. TUR @ 1230

SAMPLE - SWMU57-32511-AIR-001

FOR GASON LAB

NOTE - PDR STARTED @ 0810

TOTAL 7 hrs 45 min

MAX TOTAL DUST 0.506 mg/m3

STEL 0.398 mg/m3

TWA 0.344 mg/m3

MB: JH OFFSITE @ 1615

Location SWMU-57 Date 3-25-11

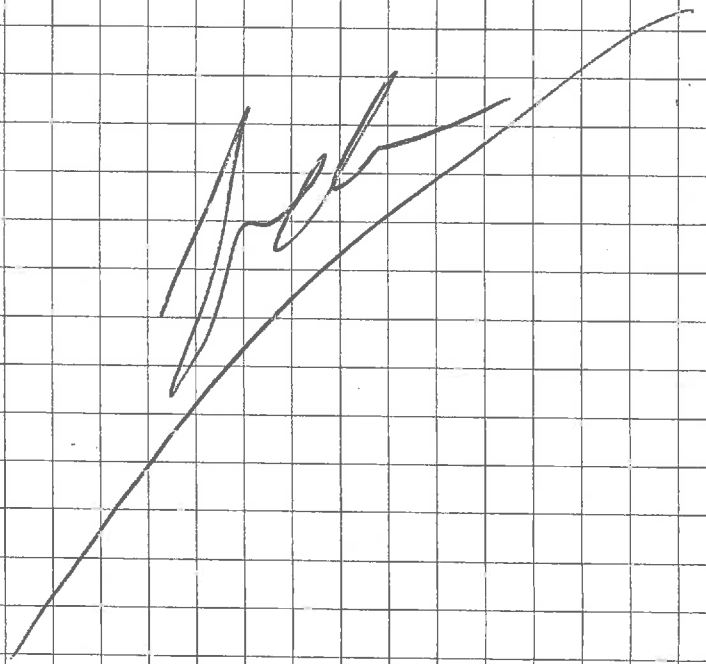
Project / Client RFAAP, RADFORD VA

cont...

COLLECTED SIDEWALL SAMPLE SW-3 @ 7' @ 1625

SWMU-57-32511-55-7'SW-3

OFFSITE DA & MS 1650



Location SWMU-57 Date 3-26-11

Project / Client RFAAP - RADFORD, VA

ONSITE @ 0700 JA, MS, MB, JH
- THOMPSON TRUCK ONSITE 0700
37°F, CLOUDY, NO PRECIPITATION RECEIVED
- CONDUCTED H&S MEETING
- LAID DOWN FABRIC FOR LOADING AREA
- FIRST LOAD OF SOIL OUT @ 0815
WEIGHT - 82,700 lbs
LAND FILL WEIGHT - 78,000 lbs
- COLLECTED SIDEWALL SAMPLE
SW-4 @ 0815 @ 2.5'
SWMU-57-32611-SS-2.5'SW-4

- COLLECTED FLOOR CONF. SAMPLE
NUM-3 @ 15' @ 0845
SWMU-57-32611-FC-15'-NUM-3

- COLLECTED FLOOR CONF. SAMPLE
NUM-4 @ 13' @ 0920
SWMU-57-32611-FC-13'-NUM 4
0945 SECOND LOAD TRUCK OUT @
WEIGHT - 83,500 lbs * SCRAP & FENCE
LAND FILL WEIGHT - 96,000 lbs
JA OFFSITE 1100 TO SHIP SAMPLES

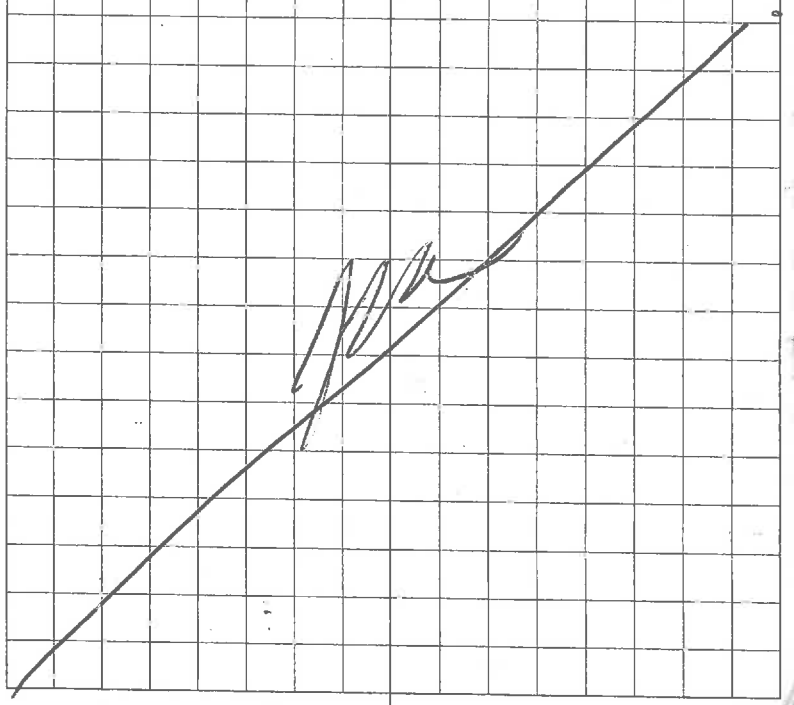
Location SWMU-57 Date 3-26-11

Project / Client RFAAP RADFORD, VA

CONT...
- SHIPED SAMPLES @ 1135 & PACKED ON ICE. JA
BACK ONSITE @ 1200 JA

- STOCK PILE WAS COVERED W/ PLASTIC & SITE SECURED

- OFFSITE @ 1215 JA, MS, JH, MB -



Location SUMU-57 Date 3-28-11

Project / Client RFAAP, RADFORD VA

ONSITE @ 0645 JA, MS, JH, MB
COLD, CLOUDY, 36°F
- CHECKED RAIN GAUGE <0.1" OF PRECIPITATION
- 0700 PERFORMED H&S MEETING
- UNCOVERED STOCK PILE
- SET UP SCALES
- ONSITE 0745 — THOMPSON TRUCKING
- FIRST TRUCK #63
ONSITE WEIGHT - 93,500 lbs
DISPOSAL WEIGHT - 85,260 lbs
- SECOND TRUCK #29
ONSITE WEIGHT - 91,800 lbs
DISPOSAL WEIGHT - 84,860 lbs
- THIRD TRUCK #46 (*DISPATCH TOLD NOT TO USE PLASTIC)
ONSITE WEIGHT - 78,000 lbs
DISPOSAL WEIGHT - 73,740 lbs
- FOURTH TRUCK #31
ONSITE WEIGHT - 84,600 lbs
DISPOSAL WEIGHT - 78,220 lbs
- FIFTH TRUCK #23
ONSITE WEIGHT - 70,700 lbs
DISPOSAL WEIGHT - 64,280 lbs

Location SUMU-57 Date 3-28-11

Project / Client RFAAP, RADFORD VA

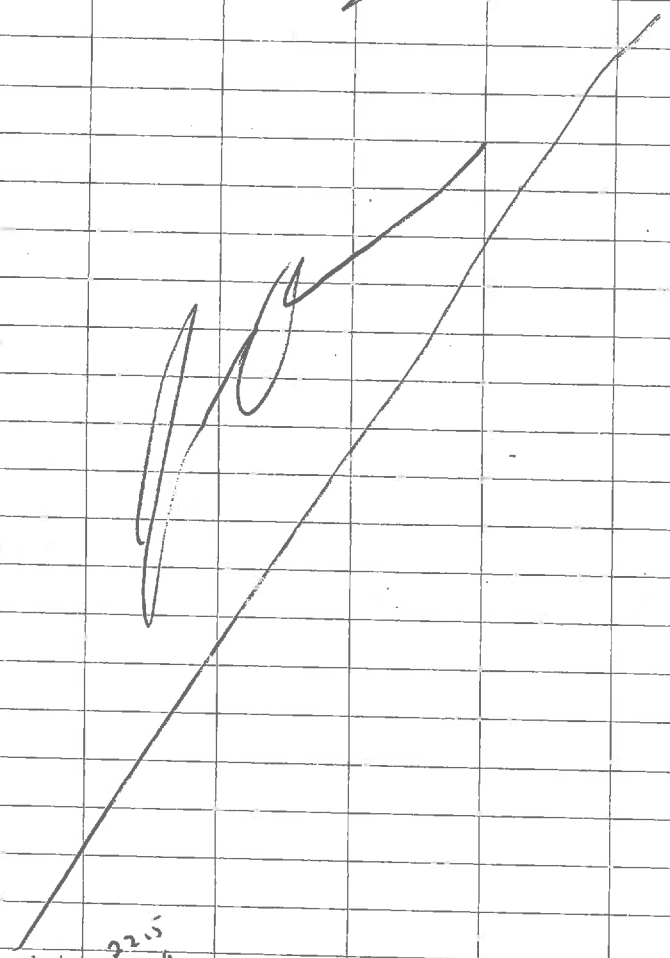
CONT...

- SIXTH TRUCK - #63
ONSITE WEIGHT - 74,600 lbs
DISPOSAL WEIGHT - 69,260 lbs
- SEVENTH TRUCK - #29
ONSITE - 77,800 lbs
DISPOSAL - 69,540 lbs
- EIGHTH TRUCK - #26
ONSITE - 71,100 lbs
DISPOSAL - 64,940 lbs
- NINTH TRUCK - #46
ONSITE - 74,200 lbs
DISPOSAL - 73,640 lbs
- TENTH TRUCK - #23
ONSITE - 76,400 lbs
DISPOSAL - 74,100 lbs
- ELEVENTH TRUCK - #31
ONSITE - 85,500 lbs
DISPOSAL - 89540 lbs
- ~~TWELFTH TRUCK - #~~
- OFFSITE @ 1600 JA, MS, MB, JH
- COVERED STOCK PILE.

Location SUMMIT-57 Date 3-28-11

Project / Client RFATP, RADFORD

ONSITE - 1700 JA, JH
COVERED STOCK PILE w/PLASTIC
OFFSITE - 1800 TRUCK



Location SUMMIT-57 Date 3-29-11

Project / Client RFATP, RADFORD

ONSITE @ 0645 JA, JH, MS, MB
COLD CLEAR, 29°F
NO PRECIPITATION
PERFORMED H&S MEETING
UNCOVERED STOCK PILE
FIRST TRUCK ONSITE 0700
TRUCK #23
ONSITE - 77,800 lbs
OFFSITE - 73,280 lbs
SECOND TRUCK #40
ONSITE - 76,100 lbs
OFFSITE - 70,660 lbs
THIRD TRUCK #77
ONSITE - NO WEIGHT, WRONG
OFFSITE - TRUCK SENT FOR RETURN
FOURTH TRUCK #26
ONSITE - 86,060 lbs
OFFSITE - 77,180 lbs
FIFTH TRUCK #31
~~OFFSITE~~ ONSITE - 78,200 lbs
OFFSITE - 73,880 lbs
SIXTH TRUCK #73
ONSITE - 75,900 lbs
OFF SITE - 71,260 lbs

Location SWMU-57 Date 3-29-11

Project / Client RFAAP, RADFORD VA

CONT. . . .

SEVENTH TRUCK #40
ONSITE - 78,300 lbs
OFFSITE - 72,760 lbs
EIGHTH TRUCK #46
ONSITE - 74,000 lbs
OFFSITE - 72,220 lbs
NINTH TRUCK #26
ONSITE - 81,700 lbs
OFFSITE - 72,760 lbs
TENTH TRUCK #31
ONSITE - 85,100 lbs
OFFSITE - 77,740 lbs
ELEVENTH TRUCK #23
ONSITE - 72,100 lbs
OFFSITE - 68,506 lbs
- JOHNNY FLINT ONSITE FROM 1000-1100 SAID EVERYTHING LOOKS GOOD
TWELTH TRUCK # 46
ONSITE - 77,000 lbs
OFFSITE - 74,040 lbs

CONT. . . .

Location SWMU-57 Date 3-29-11

Project / Client RFAAP, RADFORD VA

CONT. . . .

1200 COLLECTED SIDEWALL SAMPLE SW-5 @ 7'
SWMU-57-32911-SS-7'-SW-5

-THIRTEENTH TRUCK #40
ONSITE - 74,200 lbs
OFFSITE - 68,800 lbs
FOURTEENTH TRUCK #45
ONSITE - 82,100 lbs
OFFSITE - 68,500 lbs
1300 COLLECTED FLOOR SAMPLE NUMBER 5 @ 13'
SWMU-57-32911-SS-13'-FC-NUM 5
FIFTHTEENTH TRUCK #26
ONSITE - * SCALES MIXED UP.
OFFSITE - 72,360
SIXTEENTH TRUCK #31
ONSITE - 80,200 lbs
OFFSITE - 73,460 lbs
1320 - ARMY COLT ONSITE WAYNE WASBRAUM

CONT. . .

Location SWMU-57 Date 3-29-11

Project / Client RFAAP, RADFORD VA

cont'd

SEVENTEENTH TRUCK #23

ONSITE - 74,200 lbs

OFFSITE - 46,800

EIGHTEENTH TRUCK #46

ONSITE - 86,200 lbs

OFFSITE - 74,660 lbs

NINETEENTH TRUCK #40

ONSITE - 75,700 lbs

OFFSITE - 70,240 lbs

TWENTIETH TRUCK #45

ONSITE - 72,300 lbs

OFFSITE - 72,300 lbs

DRAPER ADEN (JASON)

- METROTECH 810 (LOCATOR) | DETECT 8-10' + MORE POWERFUL
- PIPE HORN

* BASED ON SOUND

---

* ALL TRUCKS PUT PLASTIC DOWN IN BED OFFSITE @ 1630 JA, JH, MS, MB

Location SWMU-57 Date 3-30-11

Project /.Client RFAAP, RADFORD VA

ONSITE 0730 JA, MS

RAIN, 39°F

CHECKED RAIN GAUGE RECEIVED 0.1" OF PRECIPITATION

JH, MB ONSITE @ 0745

COMPLETED H&S MEETING 0800

ARMY COMP REP ONSITE

WAYNE ~~MIKE~~ JH SCHMINSKY

- THOMPSON TRUCKING

TRUCK #224 (FIRST)

ONSITE - 38,800 lbs

OFFSITE - 58,300 lbs

SECOND TRUCK #3081

ONSITE - 48,600

OFFSITE - 57,740

THIRD TRUCK #100

ONSITE - 58,700

OFFSITE - 55,240

FOURTH TRUCK #161

ONSITE 76,300

OFFSITE 74,680

FIFTH TRUCK #195

ONSITE - 72300

OFFSITE - 60,860

Location SWMU-57 Date 3-30-11

Project / Client RFAAP, RADFORD VA

cont. . .

SIXTH TRUCK # 224
ONSITE - 66,300
OFFSITE - 63,360
SEVENTH TRUCK # 3081
ONSITE - 66,200
OFFSITE - 65,440
EIGHTH TRUCK # 100
ONSITE - 66,500
OFFSITE - 64,100
NINTH TRUCK # 195
ONSITE - 67,500
OFFSITE - 66,880
TENTH TRUCK # 161
ONSITE - 73,200
OFFSITE - 68,720
ELEVENTH TRUCK # 224
ONSITE - 61,900
OFFSITE - 64,240
TWELTH TRUCK # 3081
ONSITE - 65,100 lbs
OFFSITE - 67,200 lbs

cont. . .

Location SWMU-57 Date 3-30-11

Project / Client RFAAP, RADFORD VA

cont. . .

THIRTEENTH TRUCK # 100
ONSITE - 73,000
OFFSITE 70,300
FOURTEENTH TRUCK # 195
ONSITE - 74,200 lbs
OFFSITE - 72,320
FIFTEENTH TRUCK # 161
ONSITE - 87,300 lbs
OFFSITE - 82,760
COLLECTED CONFIRM SAMPLE @
FLOOR SAMPLE #3 FOR FC
SAMPLE DEPTH @ 20' @ 1555
SWMU-57-3011-SS-FC-20'-NUM 3.B
COLLECTION SAMPLE #6 FLOOR CONF.
@ 14' @ 1625
SWMU-57-3011-SS-FC-14'-NUM 6
JA OFFSITE 1635 TO 66 TO
FEDEX - SHIPPED SAMPLES @ 1715
- MB OFFSITE @ 1600
- MS & JH OFFSITE @ 1700

Location SWMU-57 Date 3-31-11

Project / Client RFAAP, RADFORD VA

ONSITE @ 0645 SA, MB, JH
MS ONSITE @ 0630
-CONDUCTED H&S MEETING
-CHECKED RAIN GAUGE 0.1" OF PRECIPATATION
-SPOKE w/ JIM MCKENNA ON PHONE @ 0725 TO ASK ABOUT STOCK PILE ON GRASS / w/SHEETING AND MATTING UNDERNEATH. JIM SAID THIS WOULD BE FINE SINCE IT IS A NON-HAZ WASTE. BUT WOULD LIKE FOR US TO COVER WELL AND BE SURE NOT TO SPREAD OFF OF PLASTIC.

FIRST TRUCK ONSITE @ 0740
THOMPSON

FIRST TRUCK #100
ONSITE - 67,100 lbs
OFFSITE - 99,440 lbs

Location SWMU-57 Date 3-31-11

Project / Client RFAAP, RADFORD VA

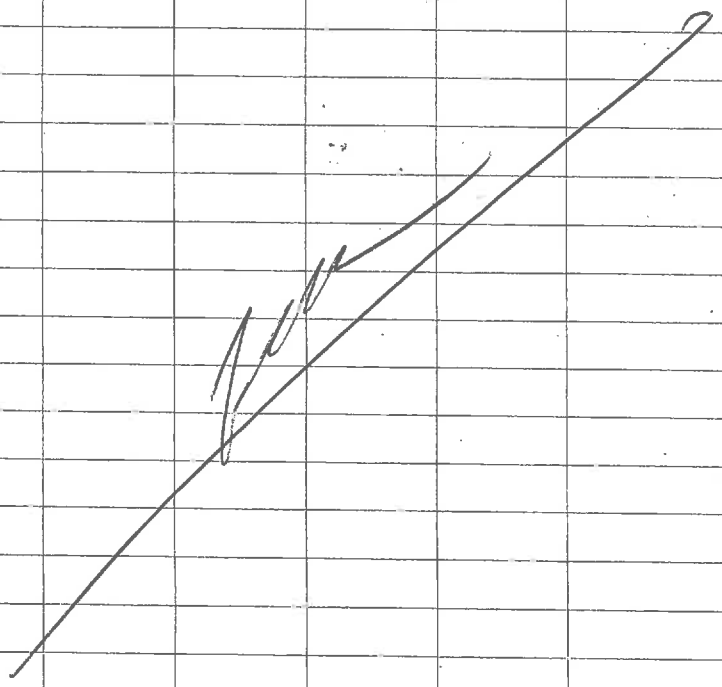
cont.
0830 ARMY CORP REP ONSITE
MIKE SA ~~[illegible]~~ RATHBUN
SECOND TRUCK #100
ONSITE - 70,600
OFFSITE - 69,160
THIRD TRUCK #100
ONSITE - 74,600
OFFSITE - 71,380
JA OFFSITE FOR ONE HOUR TO PICK UP SUPPLIES
FOURTH TRUCK #100
ONSITE - 71,400 lbs
OFFSITE - 3[illegible]9,180
FIFTH TRUCK #100
ONSITE - 74,300 lbs
OFFSITE - 73,450 lbs
MATT ALBOIS STOPPED BY TO DISCUSS ENGINEERING LIMITS @ THE EDGE OF THE ROAD HE AGREED THAT THE LIMIT HAD BEEN REACHED AND STATED HE WOULD INFORM JEREMY PLUNT & NOTIFY BASE PE THAT

Location SWMU-57 Date 3-31-11

Project / Client RFAAP, RADFORD VA

cont...
PENDING ANALYSIS. WE MAY NEED TO DISCUSS FURTHER HORIZONTAL EXCAVATION, WHETHER TO DO OR NOT TO DO.

OFFSITE 1630 JA, MS, JH, MB



Location SWMU-57 Date 4-1-11

Project / Client RFAAP, RADFORD VA

ONSITE @ 0645 JA, MS, JH, MB
- CITECKED RAIN GAUGE 0.05" OF PRECIPITATION
- COMPLETED H&S MEETING
- UNCOVERED STOCK PILE

THOMPSON ONSITE @ 0725 -
① TRUCK #224
ONSITE - 70,500
OFFSITE - 64,240
② TRUCK #100
ONSITE - 72100
OFFSITE - 69820
③ TRUCK #3021
ONSITE - 71,400
OFFSITE - 68860
④ TRUCK #161
ONSITE - 82,100
OFFSITE - 77,840
ARMY CORP REP. WAYNE RATHBUN
ONSITE @ 0800
⑤ TRUCK #129
ONSITE - 75400
OFFSITE - 71600

Location SWMU-57 Date 4-1-11

Project / Client RADFORD, VA RFAAP

cont...

(6) TRUCK # 195
ONSITE - 72,000
OFFSITE - 69,340

(7) TRUCK #224
ONSITE - 70,300
OFFSITE - 67,840

(8) TRUCK #100
ONSITE - 69,200
OFFSITE - 66,660

0940 COLLECTED SIDE WALL SAMPLE
SW-6 @ 4'
SWMU-57-4111-SS ~~-SW-6~~ - 4' - SW-6

(9) TRUCK # 3081
ONSITE - 66,800
OFFSITE - 70,780

1100 JIM MCKENNA & JEREMY FLINT STOPPED BY TO SEE SLOPE ISSUE BESIDE ROAD, STATED WAIT & SEE ATTITUDE FOR ANALYSIS OF SAMPLES

(10) TRUCK # 3161
ONSITE - 80,400
OFFSITE - 74,780

Location SWMU-57 Date 4-1-11

Project / Client RADFORD, VA RFAAP

cont..

(11) TRUCK # 3129
ONSITE - 74,100
OFFSITE - 72,160

(12) TRUCK #195
ONSITE - 77,000
OFFSITE - 73,040

(13) TRUCK #100
ONSITE - 74,000
OFFSITE - 72,000

(14) TRUCK #224
ONSITE - 74,000
OFFSITE - 72,950

1145 COLLECTED SIDE WALL SAMLE SW-7 @ 1'
SWMU-57-4111-SS-1'-SW-7

1200 COLLECTED FLOOR CONF. #7 @ 2' W/ MSD, MS, & DUP
SWMU-57-4111-SS-FC-2'-NUM 7
SWMU-57-4111-SS-DUP
SWMU-57-4111-SS-MS
SWMU-57-4111-SS-MSD

Location SWMU-57 Date 4-1-11

Project / Client RADFORD, VA RFAAP

CONT....

(17) TRUCK # 3081
ONSITE - 74,000
OFFSITE - 71,480

(16) TRUCK # 3129
ONSITE - 71,600
OFFSITE - 67,620

(17) TRUCK # 195
ONSITE - 71,00
OFFSITE - 67,320

(18) TRUCK # 3161
ONSITE - 79,600
OFFSITE - 74,620

(19) TRUCK # 100
ONSITE - 71,200
OFFSITE - 69,720

(20) TRUCK # 224
ONSITE - 71,600
OFFSITE - 69,060

COLLECTED SIDE WALL SAMPLE SW-8
@ 1400 @ 7'
SWMU-57-4111-SS-7'-SW-8

(21) TRUCK # 3081
ONSITE - 75,200
OFFSITE 72,760

Location SWMU-57 Date 4-1-11

Project / Client RADFORD, VA RFAAP

CONT...

- COLLECTED SIDE WALL SAMPLE
SW-9 @ 1425 @ 7'
SWMU-57-4111-SS-7'-SW-9
- COLLECTED FLOOR CONFIRMATION
SAMPLE @ 1455 @ 15' #8
SWMU-57-4111-SS-15'-FC-NUM 8

(22) TRUCK # 195
ONSITE - 77,000
OFFSITE - 72,750

(23) TRUCK # 3129
ONSITE - 71,100
OFFSITE - 67,450

- MIKE BRANTLEY OFFSITE 1600

- COLLECTED SIDE WALL SAMPLE
SW-13 @ 7.5' @ 1625
SWMU-57-4111-SS-7.5'-SW-13
- SECURED SITE / COVERED
STOCK PILE
- OFFSITE JA, MS, JH @ 1700

Location SWMU-57 Date 4-2-11

Project / Client RADFORD, VA RFAAP

ONSITE 0645- JA, MS, MB, JH
- COMPLETED HSS MEETING
- OPENED UP SITE UNLOCKED STOCK PILE
- CHECKED RAIN GAUGE 0.05" OF PRECIPITATION
- 0725 Thompson TRUCKING ONSITE

(1) TRUCK # 3081
ONSITE - 71,900
OFFSITE - 68,860

(2) TRUCK #101
ONSITE - 79,000
OFFSITE - 75,140

COLLECTED SIDE WALL SAMPLE
SW-10 @ 7.5' @ 0750
SWMU-57-4211-SS-7.5'-SW-10

(3) TRUCK #100
ONSITE - 71,800
OFFSITE - 70,300

(4) TRUCK # 224
ONSITE - 72,000
OFFSITE - 68,880

Cont...

Location SWMU 57 Date 4-2-11

Project / Client RADFORD, VA RFAAP

Cont.

(5) TRUCK # 195
ONSITE - 69,700
OFFSITE - ~~68,860~~ JA 68,750

(6) TRUCK # 3081
ONSITE - 72,300
OFFSITE - 69,340

(7) TRUCK # 161
ONSITE - 86,700
OFFSITE - 82,240

(8) TRUCK # 100
ONSITE - 74,100
OFFSITE - 71,720

(9) TRUCK # 224
ONSITE - 69,000
OFFSITE - 69,540

JA OFFSITE TO SHIP SAMPLES
1000-1130 SHIPPED @ 1100 (FED EX)

(10) TRUCK # 195
ONSITE - 77,200
OFFSITE - 75,300

(11) TRUCK # 3081
ONSITE - 73,900
OFFSITE - 75,880

Location SWMU-57 Date 4-2-11

Project / Client RADFORD, VA RFAAP

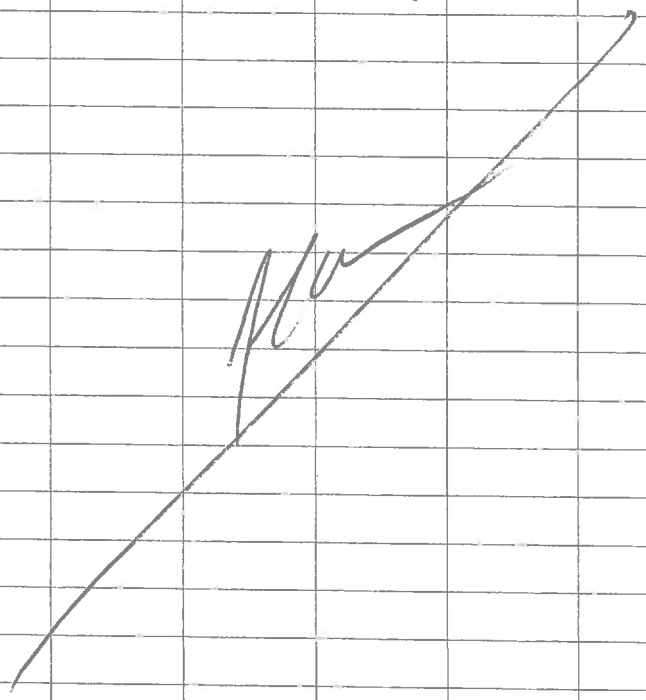
cont...

(3) TRUCK # 3161

ONSITE - 84,300

OFFSITE - 79,740

OFFSITE JA, MS, MB, JH @ 1230



Location SWMU-57 Date 4-4-11

Project / Client RADFORD, VA RFAAP

ONSITE 0630 SA, MS, MB, JH

- CHECKED RAIN GAUGE 0.0" OF PRECIPITATION (44°F, CLEAR)
- (COMPLETED) H&S UNDERTAKEN
- UNCOVERED PILE
- THOMPSON ONSITE @ 0700

(1) TRUCK # 3161

ONSITE - 69,800

OFFSITE - 73,020

(2) TRUCK # 3081

ONSITE - 77,900

OFFSITE - 67,040

(3) TRUCK # 084

ONSITE - 64,600

OFFSITE - 41,520

(4) TRUCK # 100

ONSITE - 67,300

OFFSITE - 64,600

- H&S (JH) COMPLETED MONTHLY INSPECTION FOR FIRE EXTINGUISHER (000 COLLECTED) SW-11 (SIDE WALL) @ 7.5'

SWMU-57-4411-SS-7.5'-SW-11

Location SWMU-57 Date 4-4-11

Project / Client RADFORD, VA RFAAP

Cont..

CONDUCTED SILT FENCE INSPECTION

(5) TRUCK # 3161
ONSITE - 78,000
OFFSITE - ~~73,220~~ 74,940

(6) TRUCK # 3081
ONSITE - 72,700
OFFSITE - ~~67,040~~ 68,460

(7) TRUCK # 100
ONSITE - 67,800
OFFSITE - ~~64,600~~ 65,400

(8) TRUCK # 224
ONSITE - 70,300
OFFSITE - ~~64,500~~ 68,220

(9) TRUCK # 3129
ONSITE - 75,600
OFFSITE - ~~74,000~~ 71,620

(10) TRUCK # 161
ONSITE - 74,500
OFFSITE - ~~74,940~~ 69,740

(11) TRUCK # 3081
ONSITE - 69,600
OFFSITE - ~~68,440~~ 67,080

Location SWMU-57 Date 4-4-11

Project / Client RADFORD, VA RFAAP

CONT. ...

(12) TRUCK # 100
ONSITE - 61,600
OFFSITE - ~~66,800~~ 64,540

(13) TRUCK # 224
ONSITE - 70,300
OFFSITE - ~~68,200~~ 67,500

(14) TRUCK # 129
ONSITE - 52,600
OFFSITE - 67,240

(15) TRUCK # 3161
ONSITE - 46,800
OFFSITE - ~~69,740~~ 64,080

(16) TRUCK # 3081
ONSITE - 54200
OFFSITE - ~~67,080~~ 68,540

(17) TRUCK # 100
ONSITE - 51700
OFFSITE - ~~66,540~~ 70,380

(18) TRUCK # 224
ONSITE - 55 100
OFFSITE - ~~67,500~~ 70,980

Location SWMU-57 Date 4-4-11

Project / Client RADFORD, VA RFAAP

Cont...

(19) TRUCK #129
ONSITE - 57,000
OFFSITE - ~~67,240~~ 72,000

- COLLECTED FLOOR CONFIRMATION SAMPLE @ 15' @ 1400
SWMU-57-4411-SS-15'-FC-NUM 9

(20) TRUCK #161
ONSITE - 66,400
OFFSITE - 78,280

(21) TRUCK #3081
ONSITE - 52,700
OFFSITE - 69,540

(22) TRUCK #100
ONSITE - 53,900
OFFSITE - 67,780

- COLLECTED FLOOR CONFIRMATION SAMPLE @ 15' @ 1500
SWMU-57-4411-SS-15'-FC-NUM10

COVERED STOCK PILE AND SECURED SITE

OFFSITE 1600 SA, MS, MB, JH

Location SWMU-57 Date 4-5-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0645 SA, JH
- CHECKED RAIN GAUGE 1.1" OF PRECIPATATION 44°F ; RAIN
- PERFORMED SILT FENCE INSPECTION
- MB & MS ONSITE @ 0700
- COMPLETED H&S MEETING
- THOMPSON TRUCKING ONSITE @ 0700
- (1) TRUCK # 3161
ONSITE - 73400
OFFSITE - 68,800
(2) TRUCK # 3129
ONSITE - 71800
OFFSITE - 66,600
(3) TRUCK # 3113
ONSITE - 65400
OFFSITE - 62,120
(4) TRUCK # 3118/224
ONSITE - 69400
OFFSITE - 65,100
(5) TRUCK #100
ONSITE 69000
OFFSITE 66380

Location SWMU-57 Date 4-5-11

Project / Client RADFORD, VA RFAAP

cont...

(6) TRUCK # 3195
ONSITE - 71,400
OFFSITE 67,220

(7) TRUCK #3161
ONSITE - 74,300
OFFSITE - 71,560

(8) TRUCK # 129
ONSITE - 68,800
OFFSITE - 65,020

(9) TRUCK # 113
ONSITE - 63,500
OFFSITE - 64,980

(10) TRUCK # 100
ONSITE - 68,000
OFFSITE - 65,500

(11) TRUCK # 224
ONSITE - 71,900
OFFSITE - 68,520

(12) TRUCK # 195
ONSITE - 71,900
OFFSITE 68,060

(13) TRUCK # 161
ONSITE - 74,800
OFFSITE - 71,740

Location SWMU-57 Date 4-5-11

Project / Client RADFORD, VA RFAAP

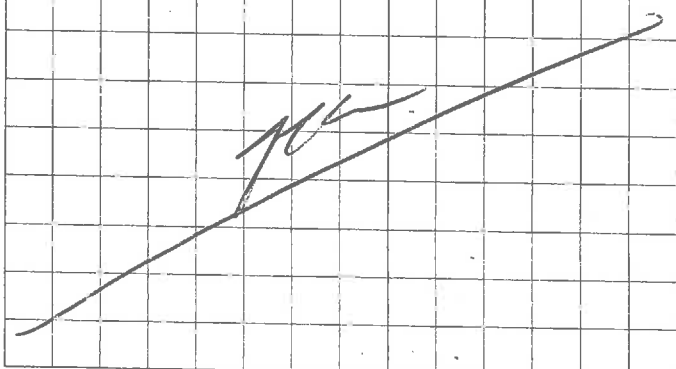
cont...

(14) TRUCK # 129
ONSITE - 71,200
OFFSITE - 68,040

1330 COLLECTED SIDEWALL SAMPLE SW-12 @ 7.5'
SWMU-57-4571-SS-7.5'-SW-12
SWMU-57-4571-SS-DUP
SWMU-57-4571-SS-MS
SWMU-57-4571-SS-MSD

- STOCK PILED FOR WEDNESDAY COVERED & SECURED SITE
- OFFSITE 1445 JA, MS, JH, MB.

SHIPED SAMPLES @ 1530



Location SWMU-57 Date 4-6-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0645 JA, MS, SH, MB
- CHECKED RAIN GAUGE VERIFIED 0.0" OF PRECIPATATION
- 30°F CLEAR
- COMPLETED H&S PLANT MEETING

THOMPSON ONSITE @ 0820

① TRUCK #143
ONSITE - 74,200
OFFSITE - 47,740

① TRUCK #129
ONSITE - 74,800
OFFSITE - 70,340

② TRUCK #143
ONSITE - 81,600
OFFSITE - 73,160

④ TRUCK #129
ONSITE - 77,400
OFFSITE - 68,980

⑤ TRUCK #143 75
ONSITE - 75,600
OFFSITE - 46,000

⑥ TRUCK #129
ONSITE - 73,400
OFFSITE - 66,900

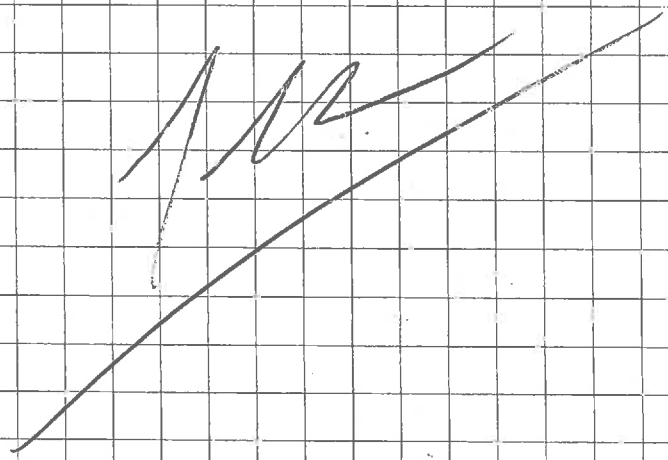
Location SWMU-57 Date 4-6-11

Project / Client RADFORD, VA RFAAP

cont...

⑥ TRUCK #143
ONSITE - 80,400
OFFSITE - 71,420

- CLEANED UP AREA & PREPED FOR DECON
- IMPROVED STAGING AREA W/ LOAD OF GRAVEL FROM DOWNING
- SECURED SITE
- OFFSITE @ 1615 JA, MS, MB, SH



Location SWMU-57 Date 4-7-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0800 SA, MS, JH, MB
- CHECKED RAIN GAUGE 0.0" OF PRECIPATATION SUNNY ; 40°F
- COMPLETED H&S SAF MEETING
WELL LOCATION POINT #1 53'
POINT #2 61'
- STARTED CLEANING EQUIPMENT
- ANDERSON & ASSC. ON SITE FROM FOR SURVEY @ 1100

- DECONED EQUIPMENT W/ PRESSURE WASHER & STEAM
SETUP STRAW BAIL BARRIER & COVERED W/ PLASTIC.

ANDERSON & ASSC.

MW-1 = 3600137.89 N 1807.503
1088049.61 E ELEV.

- STATE PLANE
VIRGINIA SOUTH
FOR ARSENAL

MW-2 = 3600159 3600205.21 N 1804.742
1881948.03 E ELEV.

MW-3 = 3600159.80 N 1803.955
1088 1903.88 E ELEV.

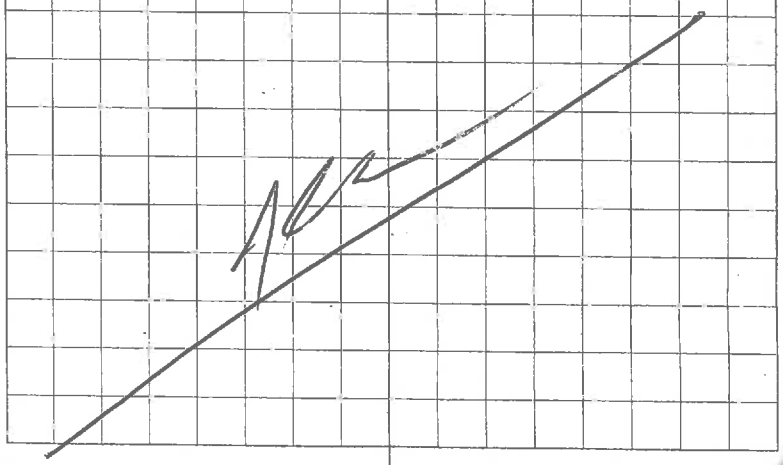
Location SWMU-57 Date 4-7-11

Project / Client RADFORD, VA RFAAP

cont...
POINT -0.6' TO MW-3
- DROPPED & UNLOADED DECON WATER @ IDW AREA
COLLECTED SAMPLES BOD COD, & TOTAL METALS FOR CHARACTERIZATION & 50 gallons COLLECTED SAMPLES @ 1430

- PACKED & SHIPED SAMPLES
- FINISHED DECON & CLEANED UP SITE & SECURED

OFFSITE @ 1500 JA, MB, JH, MS



Location SWMU-57 Date 4-8-11

Project / Client RADFORD, VA RFAAP

ONSITE 0645 MS, MB, SA, JH
- CHECKED RAIN GAUGE 0.0"
OF PRECIPITATION 51°F, & CLEAR
- COMPLETED H&S MEETING

DON KING & DAUGHTERS ONSITE
@ 0800 TO DELIVER CLAY BACKFILL
TRUCK COUNT
~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~
~~IIII~~
0915 MATT ALBERTS SITE VISIT
1045 JIM McKENNA SITE VISIT
1300 CANCELED HAULING DUE TO
RAIN (PROVIDER WILL NOT LOAD ANYMORE)
SECURED SITE
MB OFFSITE @ 1330
MS, JH, SA OFFSITE @ 1345
-540-639-7350 (GUARD SHACK)

[signature]

- CASCADE FALLS / HOT SPRINGS-HOMESTEAD

Location SWMU-57 Date 4-9-11

Project / Client RADFORD, VA RFAAP

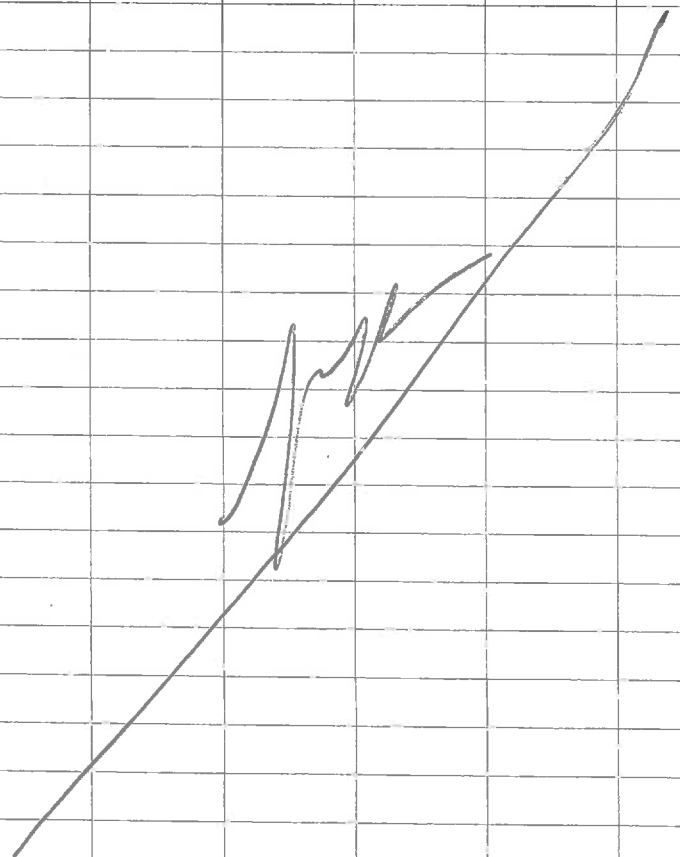
SA ONSITE @ 1300 TO
CHECK RAIN GAUGE 0.3" OF
PRECIPITATION VERIFIED, SILT
FILT IS STABLE
OFFSITE 1400 SA

[signature]

Location SWMU-57 Date 4-10-11

Project / Client RADFORD, VA RFAAP

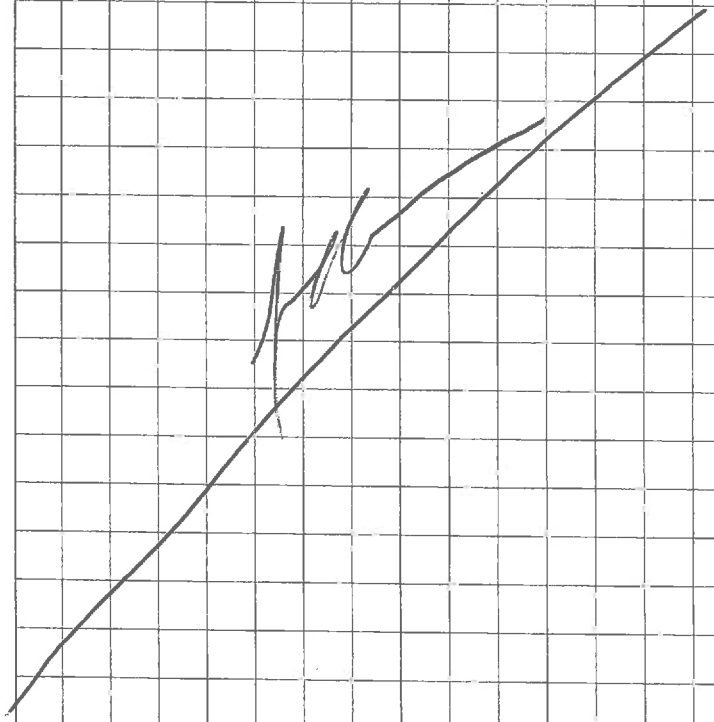
ONSITE (JA) @ 1300 TO CHECK RAIN GAUGES 0.2" OF PRECIPITATION VERIFIED, SILT FENCE IS STABLE OFFSITE @ 1400 JA



Location SWMU-57 Date 4-11-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0700 JA, MS, JH, MB
- OBSERVED RAIN GAUGE 0.0" OF PRECIPITATION (SUN, CLOUDY)
- COMPLETED H&S MEETING
- PROVIDER WILL NOT HAUL DUE TO MUDDY CONDITIONS
- SECURED SITE
- OFFSITE @ 1030 JA, JH, MB, MS



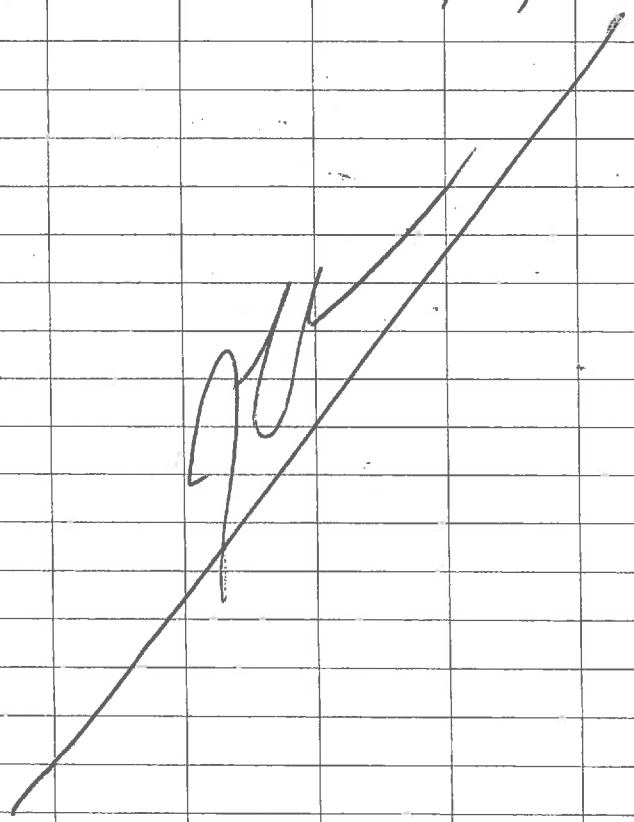
82

Location SWMU-57 Date 4-12-11

Project / Client RADFORD, VA RFAAP

- ONSITE @ 0800 JA, JH, MS
- VERIFIED 0.5" OF PRECIPATATION IN RAIN GAUGE
- PERFORMED SILT FENCE INSPECTION
- SILT FENCE IS STABLE

OFFSITE @ 0845 JA, JH, MS



83

Location SWMU-57 Date 4-13-11

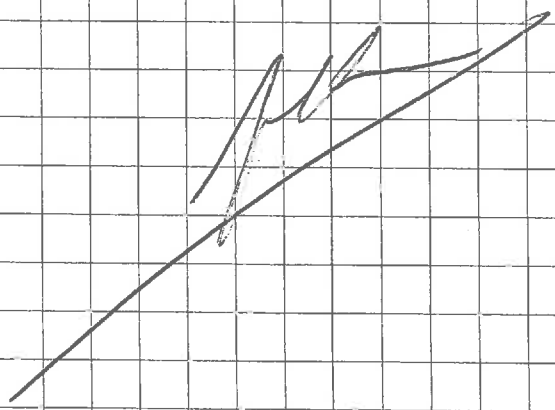
Project / Client RADFORD, VA RFAAP

- ONSITE 0830 JA, MS, MB, JH
- COMPLETED H&S MEETING
- CHECKED RAIN GAUGE VERIFIED 0.15" OF RAIN (44°F, cloudy)
- DON KING'S EXCAVATING LLC ONSITE 0845 TO DELIVER BACKFILL CLAY

TRUCK COUNT

~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~
~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~
11 = 72 LOADS

OFFSITE @ 1730 JA, MS, MB, JH



Location SWMU-57 Date 4-14-11

Project / Client RADFORD, VA RFAAP

0645 - ONSITE JA, MS, MB, JH
- CHECKED RAIN GAUGE VERIFIED
0.0" OF PRECIPATATION (41°F, CLEAR)
- COMPLETED HES MEETING
- DON KING & DAUGHTERS LLC
ONSITE @ 0725 TO DELIVER
CLAY BACKFILL

TRUCK COUNT
~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~
~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~ ~~卌~~
~~卌~~ | TOTAL = 86 Loads
- PLUGGED TERRA COTTA PIPE
w/ HYDRAULIC CEMENT
- MATT ALBOITS ONSITE FOR VISIT

OFFSITE @ 2000 JA, MS, JH, MB

Location SWMU-57 Date 4-15-11

Project / Client RADFORD, VA RFAAP

0645 ONSITE JA, MB, MS, JH
- CHECKED RAIN GAUGE VERIFIED
0.0" OF PRECIPATATION (42°F, CLEAR)
- COMPLETED HES MEETING
- DON KING & DAUGHTERS LLC
ONSITE TO DELIVER STRAW
(60 BALES)
- SWALE FROM DRAIN TO END
144' x 12' @ WIDEST SPOT
- FILL LOADS

TOPSOIL	CLAY
~~卌~~ ~~卌~~ I = (11)	III = (3)

- MIXED STRAW w/ TOPSOIL
TO BRING UP ORGANIC
CONTENT

CALIBRATED pH Meter - SLOPE 96.7
- JEREMY FLINT & JIM MCKENNA
STOPPED BY FOR VISIT
BOTH SAID THINGS LOOK GOOD

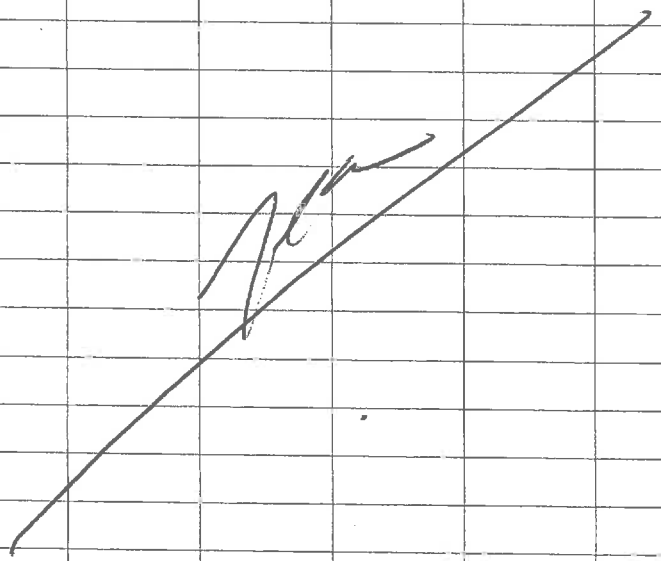
- CHECKED pH of DECON WATER
@ 1250 = pH 7.86, 15.5°C

86

Location SUMU-57 Date 4-15-11

Project / Client RADFORD, VA RFAAP

cont...
- SA OFFSITE 1330 - 1530 TO PAY FOR DISPOSAL OF TRASH LEFT @/FROM SITE
- STARTED SEEDING AND LAYING DOWN STRAW AFTER GRADED IN TOPSOIL TO NATURAL GRADE
- STARTED FORMING WELL PAD @ 57MW-3 (6'x6'x6") FINISHED AND LEVELED
- OFFSITE @ 1730 SA, MB, MS, SH

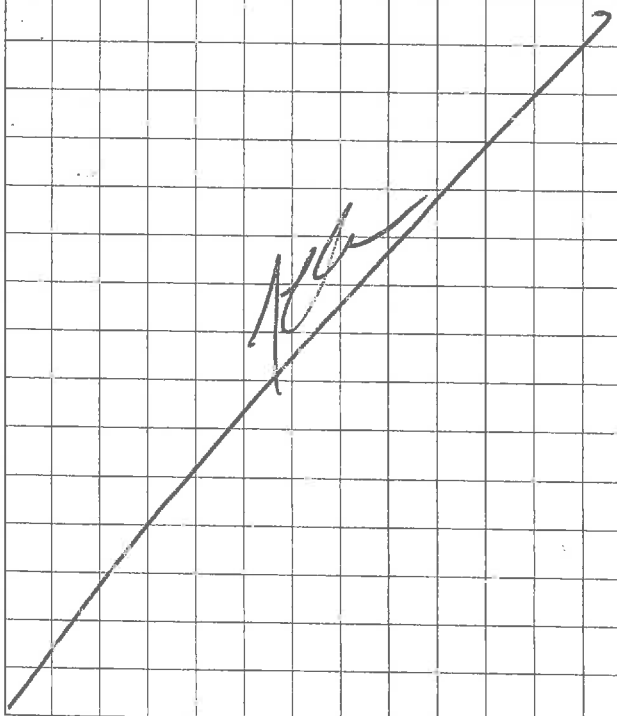


87

Location SUMU-57 Date 4-17-11

Project / Client RADFORD, VA RFAAP

ONSITE @ 0900 SA (46°F sunny)
- CITE CLEAN RAIN GAUGE VERIFIED 0.6" OF PRECIPITATION
- CONDUCTED SILT FENCE INSPECTION
- COMPLETED - SILT FENCE HAS NO ISSUES NEEDING MAINTENANCE
OFFSITE @ 1000 SH



Location SWMU-57 Date 4-18-11

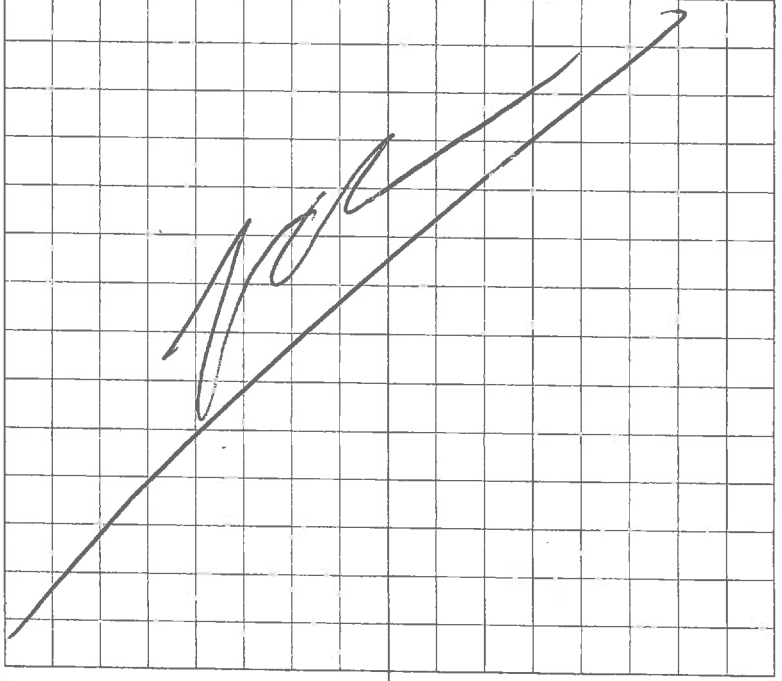
Project / Client RADFORD, VA RFAAP

ONSITE @ 0700 SA, MS, JH, MB
- CHECKED RAIN GAUGE - VERIFIED 0.01" OF PRECIPITATION
- COMPLETED H&S MEETING
- STARTED TAKING DOWN BARRIER FENCE
- STARTED AND COMPLETED 6'x6'x6" CONCRETE PAD FOR 57MW-2
- HEWITT ONSITE @ 0930 TO TAKE AWAY EQUIPMENT (200 - BACKHOE TRACK-HOE FIRST)
- HEWITT ONSITE @ 1130 TO PICK-UP BOBCAT
- JIM McKENNA (SITE VISIT) SAID THINGS LOOK GOOD ASKED TO REGRADE SW SIDE OF ROAD.
- COMPLETED GRADE ON SIDE OF ROAD AND LAID DOWN STRAW
- MS OFFSITE @ 1200
- 1400 LOADED DECON WATER @ BIO PLANT - DISPOSED OF 250 gallons
- MET W/ MATT ARGENTIS @ SITE TO TAKE FINAL

Location SWMU-57 Date 4-18-11

Project / Client RADFORD, VA RFAAP

Cont.
PICTURES & SEE FINAL SEEDING & STRAW
- MATT SAID WE NEED TO SEND (SCAN & email) MANIFEST TO BLANKENSHIP.
- OFFSITE @ 1500 SA, MB, JH



APPENDIX H

Interim Measures Correspondence

- EPA approval to sample SWMU 57 groundwater (October 15, 2010);
- Army submittal of 2010 Groundwater Analytical Data Summary;
- USEPA and VDEQ approval of IMWP, and ability to achieve clean closure;
- VDEQ approval of soil IDM characterization strategy and analytical results;
- RFAAP approval to dispose of liquid IDM.

Mary Lou Rochotte

From: Geiger.William@epamail.epa.gov
Sent: Friday, October 15, 2010 2:56 PM
To: McKenna, Jim J Mr CIV USA AMC
Cc: Cutler,Jim; jeremy.flint@atk.com; Redder, Jerome; Mary Lou Rochotte; Richard Mendoza (External); Meyer, Tom NAB02
Subject: Re: DRAFT email regarding sampling of SWMU 57 monitoring wells (UNCLASSIFIED)

EPA approves the sampling

William A. Geiger
Remedial Project Manager
Office of Remediation (3LC20)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: 215.814.3413
Geiger.William@epa.gov

From: "McKenna, Jim J Mr CIV USA AMC" <jim.mckenna@us.army.mil>
To: William Geiger/R3/USEPA/US@EPA, "Cutler,Jim" <James.Cutler@deq.virginia.gov>
Cc: "Mary Lou Rochotte" <mrochotte@kemron.com>, "Meyer, Tom NAB02" <Tom.Meyer@usace.army.mil>, "Mendoza, Richard R Mr CIV USA IMCOM" <richard.r.mendoza@us.army.mil>, "Redder, Jerome" <Jerome.Redder@ATK.COM>, <jeremy.flint@atk.com>
Date: 10/12/2010 10:18 AM
Subject: DRAFT email regarding sampling of SWMU 57 monitoring wells (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Will and Jim,

This is a follow up to our Friday, October 8, 2010 conversation.

Request approval to sample the existing wells 57MW2 and 57MW3 at SWMU 57 per Section 10.4.2, pages 10-7 and 10-8 of the Final CMS to "verify RFI findings that COC concentrations in groundwater are below applicable MCLs and risk-based criteria and confirm that clean closure is achievable at the site". Plan is for UXB/Kemron to sample in late October or early November once they get through their pre-work security and site access requirements.

We're still reviewing the internal draft IMWP but believe it would greatly help the schedule if we could go out and get this gw data now as it is a relatively straightforward exercise plus we don't anticipate it would result in a change to our action. As in similar sampling efforts (i.e. SWMU 37) we can provide the data as a separate email with attachment/s.

Let me know if you have any questions or need additional information.

Thanks,
Jim
Classification: UNCLASSIFIED
Caveats: FOUO

-----Original Message-----
From: McKenna, Jim J Mr CIV USA AMC [mailto:jim.mckenna@us.army.mil]
Sent: Tuesday, January 04, 2011 8:04 AM
To: Geiger.William@epamail.epa.gov; Cutler,Jim
Cc: Meyer, Tom NAB02; Mary Lou Rochotte; Richard Mendoza; jeremy.flint@atk.com; jerome.redder@atk.com; Richard Mendoza (External)
Subject: FW: SWMU 57 groundwater data status update (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: FOUO

Will Geiger and Jim Cuter,

FYI as you review the SWMU 57 Interim Measures Work Plan, note that per the S10.4.2 from the CMS we were to resample the SWMU 57 wells to confirm if clean closure could be achieved. We performed that sampling effort during the preparation of the work plan and attached are the results. As they are very near the 2008 levels and in some instances below, we believe this confirms that clean closure can be achieved and we can proceed as discussed in the work plan we submitted to you on November 17, 2010.

Thanks,
JJM

-----Original Message-----
From: Mary Lou Rochotte [mailto:mrochotte@kemron.com]
Sent: Thursday, December 09, 2010 5:09 PM
To: McKenna, Jim J Mr CIV USA AMC; Meyer, Tom NAB02; Richard Mendoza (External); Jerome Redder; Flint, Jeremy; Alberts, Matthew
Cc: Radford
Subject: RE: SWMU 57 groundwater data status update (UNCLASSIFIED)

Please find attached a table comparing the 2008 and 2010 analytical results for 57MW2 and 57MW3. Our evaluation of the data indicates these results demonstrate absence of impact to groundwater at SWMU 57 and should demonstrate to USEPA that the wells should be closed and clean closure can be achieved at the site. Please note that the data will be subject to validation per the QAPP included in the Draft Final IMWP, November 2010, after we receive the laboratory full Level 4 data package. The Level 2 data package is attached to this email for your reference.

The following summarizes the 2010 sample collection, observations, and findings.

UXB-KEMRON mobilized to the site and 15 November 2010 and conducted sampling on 16 November 2010. Waste management onsite and collection of waste characterization samples were conducted on 17 November 2010.

Upon unlocking and opening the well cap at both wells, UXB-KEMRON personnel observed duct tape present on the inside of each well cap. Additionally, polyethylene tubing was present submerged in both wells. It appears that the tubing was initially taped to the well cap; the adhesive had not held since well sampling in 2008 and the tubing had fallen into the wells. UXB-KEMRON personnel removed the tape from the caps and retrieved the polyethylene tubing from each well prior to collection of samples.

UXB-KEMRON conducted sampling in accordance with the Draft Final IMWP for SWMU 57. Samples were collected using low flow method specified, and Teflon lined tubing. The 57MW3 samples were extremely turbid (note value for field parameter), which is interpreted as the cause for the elevated total metals concentrations. However, the dissolved metals concentrations demonstrate values consistent with the 2008 concentrations. 2010 dissolved metals concentrations are either below the 2010 laboratory LOD and/or less than 2008 sample concentrations.

Very low levels of methylene chloride were detected in the 2010 samples. However, we note that the laboratory-provided trip blank had methylene chloride present at a concentration above the client samples. Therefore, this parameter is interpreted as a laboratory-derived contaminant. Low level o-xylene was detected in 57MW2 parent and duplicate samples. It is possible that this parameter was present due to polyethylene tubing and/or duct tape adhesive that was present in the well when opened. Regardless, the concentration is extremely low, and is far below the current USEPA RBC for tap water and the USEPA total xylene MCL.

We will plan to review the data on Monday's call. Jim and Tom, please let us know if anything else is needed from UXB-KEMRON for submittal of these results to USEPA and VDEQ to acquire their concurrence regarding clean closure at the site.

The IDM from this sampling event was approved for disposal at the RFAAP WWTP. UXB-KEMRON coordinated with Matthew Alberts and Matt Habersack regarding the IDM. Jonah Anderson was present at RFAAP today to complete disposal of the IDM. As of close of business today, no UXB-KEMRON IDM remains at RFAAP.

Best regards,

Mary Lou

Mary Lou Rochotte, C.P.G.

Senior Project Manager

KEMRON Environmental Services, Inc.

156 Starlite Drive

Marietta, OH 45750

Office: (740)373-4308, ext. 1266

Direct dial: (740) 373-1266

Fax: (740) 376-2536

mrochotte@kemron.com <blockedmailto:mrochotte@kemron.com>

Visit us at www.kemron.com <blockedhttp://www.kemron.com/>

Classification: UNCLASSIFIED
Caveats: FOUO

Summary Comparison of Detected Constituents: RAAP-022, SWMU 57 Groundwater Samples

Sample ID	57MW-2 11_2010	57MW-2-D1 (Duplicate) 11_2010	57MW-2 2008	57MW-3 11_2010	57MW-3 2008	Adjusted Tap Water RBC[1]	MCL
METALS (ug/L)							
Antimony-Total	2.78	2.69	4.8	6.46	U	1.46	6
Antimony-**Dissolved**	2.53	2.63	5.5	U	0.48	1.46	6
Arsenic-Total	2.67	2.55	2.6 J	168	1.1	0.0446	10
Arsenic-**Dissolved**	2.39	2.38	2.3 J	1.34	0.94	0.0446	10
Chromium-Total	4.17	3.51	3.7	626	17	10.95	100
Chromium-**Dissolved**	2.32	1.83 J	2.9	7.28	6.6	10.95	100
Manganese-Total	215	230	210	5220	37	73	NE
Manganese-**Dissolved**	178	171	190	2.55	8.6	73	NE
TCL-VOC (ug/L)							
1,3-Dichlorobenzene	U	U	U	U	0.18 J	1.825	NE
Acetone	U	U	U	U	9.1 J	547.5	NE
Chloroform	U	U	0.4 J	38.5	57	0.155	80
Toluene	U	U	0.14 J	U	0.64 J	227.1	1000
Methylene Chloride	0.419 J	0.322 J	U	0.325 J	U	4.8*	5
o-Xylene	0.562 J	0.549 J	U	U	U	1200*	10,000 (total xylenes)
Field Parameters							
Dissolved Oxygen (mg/L)	8.1	8.1		7.78			
Oxidation Reduction Potential (mV)	211.4	211.4		253.6			
pH (SU)	7.39	7.39		7.91			
Conductivity (mS)	0.304	0.304		0.27			
Temperature (°C)	14.63	14.63		13.64			
Turbidity (NTU)	33.2	33.2		1598.9			

Notes:

J = Estimated value; the analyte concentration was either greater than the highest standard or less than the low standard (LOQ).

U = Analyte was not detected; the concentration is below the reported LOD.

[1] Adjusted Tap Water RBCs taken from 2009 Final RFI/CMS; values noted with an asterisk (*) value from USEPA November 2010 tap water RBC listing

NE = Not Established

NOTES: 1) 57MW3 samples were highly turbid; the elevated total metals concentrations are interpreted as being related to turbidity.

2) Equipment blank had acetone (2.59 J ug/L) and methylene chloride (0.315 J ug/L) detections; field blank had 0.352 J ug/L detection methylene chloride; trip blank had 0.684 J ug/L detection methylene chloride.

Microbac

158 Starlite Drive, Marietta, OH 45750 • T:740-373-4071 • F:740-373-4835 • http://www.microbac.com

Laboratory Report Number: L10110608

Client: Mary Lou Rochette, 156 Starlite Drive, Marietta, OH, 45750

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories.

Review and compilation of your report was completed by Microbac's Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box below at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Kathy Albertson	*Team Chemist/Data Specialist*	Kathy.Albertson@microbac.com
Stephanie Mossburg	*Team Chemist/Data Specialist*	Stephanie.Mossburg@microbac.com
Tony Long	*Team Chemist/Data Specialist*	Tony.Long@microbac.com
Amanda Fickiesen	*Client Services Specialist*	Amanda.Fickiesen@microbac.com
Annie Brown	*Client Services Specialist*	Annie.Brown@microbac.com

This report was reviewed on December 06, 2010.

Stephanie Mossburg

Stephanie Mossburg - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in this report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on December 06, 2010.

David E. Vandenberg

David Vandenberg - Managing Director

State of origin: Virginia
Accrediting authority: N/A ID:N/A
QAPP: DOD Ver 4.1
This report contains a total of 102 pages.

Look closer. Go further. Do more.

Microbac REPORT L10110608
PREPARED FOR Kemron Environmental Services
WORK ID:

1.0 Introduction

Login Number: L10110608

Department: Login

Analyst: N/A
Analyst #2: N/A

Chain of Custody:

Shipment Conditions

COC #	Cooler #	Temperature
COC2397	0015127	3.0

Sample Management: All samples were received intact.

Sample Identification

Lab ID	Client ID
L10110608-01	SWMU57GWMW2
L10110608-02	SWMU57GWMW2
L10110608-03	SWMU57GW111610MS
L10110608-04	SWMU57GW111610MS
L10110608-05	SWMU57GW111610MSD
L10110608-06	SWMU57GW111610MSD
L10110608-07	SWMU57GW111610D1
L10110608-08	SWMU57GW111610D1
L10110608-09	SWMU57111610EB
L10110608-10	SWMU57111610EB
L10110608-11	SWMU57GWMW3
L10110608-12	SWMU57GWMW3
L10110608-13	SWMU57111610FB
L10110608-14	SWMU57111610FB
L10110608-15	SWMU57111610TB
L10110608-16	SWMU57111710WC

Narrative ID: 15619
Approved By: Stephanie Mossburg
Stephanie Mossburg

2.0 Data Package

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

Login Number: L10110608

Department: Volatiles

Analyst: Mary Schilling
Analyst #2: N/A

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260B

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: Recoveries out of range were observed for the following analytes: Naphthalene. Please see the applicable QC report for a detailed presentation of the failures.

BATCH QA/QC All acceptance criteria were met.

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: Recoveries out of range were observed for the following analytes: 2-Chloroethyl vinyl ether. Please see the applicable QC report for a detailed presentation of the failures.

SAMPLES All acceptance criteria were met.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: None.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

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

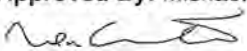
Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

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

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 16484
Approved By: Michael Albertson



LABORATORY REPORT

L10110608

12/06/10 11:10

Submitted By

Microbac Laboratories Inc.
158 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Kemron Environmental Services
156 Starlite Drive

Marietta, OH 45750
Attention: Mary Lou Rochette

Project Number: 2820.216
Project: Radford AAP
Site: RADFORD VIRGINIA

P.O. Number: MSA

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SWMU57GWMW2	L10110608-01	8260B	1	17-NOV-10
SWMU57GW111610MS	L10110608-03	8260B	1	17-NOV-10
SWMU57GW111610MSD	L10110608-05	8260B	1	17-NOV-10
SWMU57GW111610D1	L10110608-07	8260B	1	17-NOV-10
SWMU57111610EB	L10110608-09	8260B	1	17-NOV-10
SWMU57GWMW3	L10110608-11	8260B	1	17-NOV-10
SWMU57111610FB	L10110608-13	8260B	1	17-NOV-10
SWMU57111610TB	L10110608-15	8260B	1	17-NOV-10

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-01
Client ID: SWMU57GWMW2
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 14:45
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 14:45
File ID: 8M366012

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.419	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6	0.562	J	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-01
Client ID: SWMU57GWMW2
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 14:45
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 14:45
File ID: 8M366012

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	116	70	120	
4-Bromofluorobenzene	106	75	120	
Dibromofluoromethane	110	85	115	
Toluene-d8	103	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-03
Client ID: SWMU57GW111610MS
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 15:17
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 15:17
File ID: 8M366013

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6	20.7		1.00	0.250
1,1,1-Trichloroethane	71-55-6	23.3		1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5	17.6		1.00	0.200
1,1,2-Trichloroethane	79-00-5	19.1		1.00	0.250
1,1-Dichloroethane	75-34-3	21.0		1.00	0.125
1,1-Dichloroethene	75-35-4	20.8		1.00	0.500
1,1-Dichloropropene	563-58-6	20.6		1.00	0.250
1,2,3-Trichlorobenzene	87-61-6	17.8		1.00	0.150
1,2,3-Trichloropropane	96-18-4	19.4		1.00	0.500
1,2,4-Trichlorobenzene	120-82-1	17.6		1.00	0.200
1,2,4-Trimethylbenzene	95-63-6	20.3		1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8	20.0		5.00	1.00
1,2-Dibromoethane	106-93-4	19.5		1.00	0.250
1,2-Dichlorobenzene	95-50-1	19.2		1.00	0.125
1,2-Dichloroethane	107-06-2	23.2		1.00	0.250
1,2-Dichloropropane	78-87-5	20.0		1.00	0.200
1,3,5-Trimethylbenzene	108-67-8	20.5		1.00	0.250
1,3-Dichlorobenzene	541-73-1	19.0		1.00	0.250
1,3-Dichloropropane	142-28-9	19.0		1.00	0.200
1,4-Dichlorobenzene	106-46-7	18.3		1.00	0.125
2,2-Dichloropropane	594-20-7	20.6		1.00	0.250
2-Butanone	78-93-3	18.2		10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8	20.1		1.00	0.125
2-Hexanone	591-78-6	16.8		10.0	2.50
4-Chlorotoluene	106-43-4	19.5		1.00	0.250
4-Methyl-2-pentanone	108-10-1	16.7		10.0	2.50
Acetone	67-64-1	20.8		10.0	2.50
Benzene	71-43-2	19.0		1.00	0.125
Bromobenzene	108-86-1	19.2		1.00	0.125
Bromochloromethane	74-97-5	20.3		1.00	0.200
Bromodichloromethane	75-27-4	23.1		1.00	0.250
Bromoform	75-25-2	19.9		1.00	0.500
Bromomethane	74-83-9	21.2		1.00	0.500
Carbon disulfide	75-15-0	14.5		1.00	0.500
Carbon tetrachloride	56-23-5	23.6		1.00	0.250
Chlorobenzene	108-90-7	19.1		1.00	0.125
Chlorodibromomethane	124-48-1	21.1		1.00	0.250
Chloroethane	75-00-3	20.2		1.00	0.500
Chloroform	67-66-3	21.7		1.00	0.125
Chloromethane	74-87-3	21.6		1.00	0.500
cis-1,2-Dichloroethene	156-59-2	20.0		1.00	0.250
cis-1,3-Dichloropropene	10061-01-5	20.0		1.00	0.250
Dibromomethane	74-95-3	21.4		1.00	0.250
Dichlorodifluoromethane	75-71-8	20.5		1.00	0.250
Ethylbenzene	100-41-4	19.8		1.00	0.250
Hexachlorobutadiene	87-68-3	18.5		1.00	0.250
Isopropylbenzene	98-82-8	18.2		1.00	0.250
m-,p-Xylene	179601-23-1	39.1		1.00	0.500
Methylene chloride	75-09-2	18.2		5.00	0.250
n-Butylbenzene	104-51-8	19.7		1.00	0.250
n-Propylbenzene	103-65-1	19.7		1.00	0.125
Naphthalene	91-20-3	17.6		1.00	0.200
o-Xylene	95-47-6	19.4		1.00	0.250
p-Isopropyltoluene	99-87-6	19.8		1.00	0.250
sec-Butylbenzene	135-98-8	20.0		1.00	0.250
Styrene	100-42-5	19.6		1.00	0.125
tert-Butylbenzene	98-06-6	19.8		1.00	0.250
Tetrachloroethene	127-18-4	19.0		1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-03
Client ID: SWMU57GW111610MS
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 15:17
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 15:17
File ID: 8M366013

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3	19.5		1.00	0.250
trans-1,2-Dichloroethene	156-60-5	20.4		1.00	0.250
trans-1,3-Dichloropropene	10061-02-6	18.6		1.00	0.500
Trichloroethene	79-01-6	20.3		1.00	0.250
Trichlorofluoromethane	75-69-4	22.7		1.00	0.250
Vinyl acetate	108-05-4	12.5		10.0	2.50
Vinyl chloride	75-01-4	22.4		1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	112	70	120	
4-Bromofluorobenzene	105	75	120	
Dibromofluoromethane	110	85	115	
Toluene-d8	100	85	120	

U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-05
Client ID: SWMU57GW111610MSD
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 15:48
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 15:48
File ID: 8M366014

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6	21.1		1.00	0.250
1,1,1-Trichloroethane	71-55-6	23.0		1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5	18.3		1.00	0.200
1,1,2-Trichloroethane	79-00-5	19.3		1.00	0.250
1,1-Dichloroethane	75-34-3	21.2		1.00	0.125
1,1-Dichloroethene	75-35-4	21.4		1.00	0.500
1,1-Dichloropropene	563-58-6	20.6		1.00	0.250
1,2,3-Trichlorobenzene	87-61-6	18.4		1.00	0.150
1,2,3-Trichloropropane	96-18-4	19.5		1.00	0.500
1,2,4-Trichlorobenzene	120-82-1	18.1		1.00	0.200
1,2,4-Trimethylbenzene	95-63-6	20.8		1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8	20.2		5.00	1.00
1,2-Dibromoethane	106-93-4	19.6		1.00	0.250
1,2-Dichlorobenzene	95-50-1	19.6		1.00	0.125
1,2-Dichloroethane	107-06-2	23.5		1.00	0.250
1,2-Dichloropropane	78-87-5	20.3		1.00	0.200
1,3,5-Trimethylbenzene	108-67-8	20.9		1.00	0.250
1,3-Dichlorobenzene	541-73-1	19.8		1.00	0.250
1,3-Dichloropropane	142-28-9	19.8		1.00	0.200
1,4-Dichlorobenzene	106-46-7	18.5		1.00	0.125
2,2-Dichloropropane	594-20-7	20.5		1.00	0.250
2-Butanone	78-93-3	18.6		10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8	21.8		1.00	0.125
2-Hexanone	591-78-6	18.1		10.0	2.50
4-Chlorotoluene	106-43-4	19.1		1.00	0.250
4-Methyl-2-pentanone	108-10-1	17.4		10.0	2.50
Acetone	67-64-1	21.0		10.0	2.50
Benzene	71-43-2	19.3		1.00	0.125
Bromobenzene	108-86-1	19.5		1.00	0.125
Bromochloromethane	74-97-5	20.7		1.00	0.200
Bromodichloromethane	75-27-4	23.4		1.00	0.250
Bromoform	75-25-2	20.1		1.00	0.500
Bromomethane	74-83-9	23.0		1.00	0.500
Carbon disulfide	75-15-0	14.5		1.00	0.500
Carbon tetrachloride	56-23-5	23.4		1.00	0.250
Chlorobenzene	108-90-7	19.4		1.00	0.125
Chlorodibromomethane	124-48-1	21.2		1.00	0.250
Chloroethane	75-00-3	20.0		1.00	0.500
Chloroform	67-66-3	21.8		1.00	0.125
Chloromethane	74-87-3	22.3		1.00	0.500
cis-1,2-Dichloroethene	156-59-2	20.3		1.00	0.250
cis-1,3-Dichloropropene	10061-01-5	20.4		1.00	0.250
Dibromomethane	74-95-3	21.8		1.00	0.250
Dichlorodifluoromethane	75-71-8	20.5		1.00	0.250
Ethylbenzene	100-41-4	20.0		1.00	0.250
Hexachlorobutadiene	87-68-3	18.5		1.00	0.250
Isopropylbenzene	98-82-8	18.3		1.00	0.250
m-,p-Xylene	179601-23-1	39.9		1.00	0.500
Methylene chloride	75-09-2	18.9		5.00	0.250
n-Butylbenzene	104-51-8	20.3		1.00	0.250
n-Propylbenzene	103-65-1	20.0		1.00	0.125
Naphthalene	91-20-3	18.1		1.00	0.200
o-Xylene	95-47-6	19.9		1.00	0.250
p-Isopropyltoluene	99-87-6	20.3		1.00	0.250
sec-Butylbenzene	135-98-8	20.3		1.00	0.250
Styrene	100-42-5	20.0		1.00	0.125
tert-Butylbenzene	98-06-6	19.8		1.00	0.250
Tetrachloroethene	127-18-4	19.0		1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-05
Client ID: SWMU57GW111610MSD
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 15:48
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 15:48
File ID: 8M366014

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3	19.6		1.00	0.250
trans-1,2-Dichloroethene	156-60-5	20.9		1.00	0.250
trans-1,3-Dichloropropene	10061-02-6	18.8		1.00	0.500
Trichloroethene	79-01-6	20.0		1.00	0.250
Trichlorofluoromethane	75-69-4	22.8		1.00	0.250
Vinyl acetate	108-05-4	12.3		10.0	2.50
Vinyl chloride	75-01-4	22.9		1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	115	70	120	
4-Bromofluorobenzene	105	75	120	
Dibromofluoromethane	111	85	115	
Toluene-d8	99.7	85	120	

U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-07
Client ID: SWMU57GW111610D1
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 12:40
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 12:40
File ID: 8M366008

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.322	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6	0.549	J	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-07
Client ID: SWMU57GW111610D1
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 12:40
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 12:40
File ID: 8M366008

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	113	70	120	
4-Bromofluorobenzene	108	75	120	
Dibromofluoromethane	107	85	115	
Toluene-d8	102	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-09
Client ID: SWMU57111610EB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 16:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 13:11
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 13:11
File ID: 8M366009

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.59	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.315	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6		U	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-09
Client ID: SWMU57111610EB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 16:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 13:11
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 13:11
File ID: 8M366009

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	114	70	120	
4-Bromofluorobenzene	104	75	120	
Dibromofluoromethane	106	85	115	
Toluene-d8	102	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-11
Client ID: SWMU57GWMW3
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 18:22
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 13:42
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 13:42
File ID: 8M366010

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	38.5		1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.325	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6		U	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-11
Client ID: SWMU57GWMW3
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 18:22
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 13:42
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 13:42
File ID: 8M366010

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	117	70	120	
4-Bromofluorobenzene	106	75	120	
Dibromofluoromethane	109	85	115	
Toluene-d8	101	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-13
Client ID: SWMU57111610FB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 19:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 14:14
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 14:14
File ID: 8M366011

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.352	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6		U	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-13
Client ID: SWMU57111610FB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 19:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 14:14
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 14:14
File ID: 8M366011

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	114	70	120	
4-Bromofluorobenzene	106	75	120	
Dibromofluoromethane	109	85	115	
Toluene-d8	101	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-15
Client ID: SWMU57111610TB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 00:01
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 12:08
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 12:08
File ID: 8M366007

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,1,1,2-Tetrachloroethane	630-20-6		U	1.00	0.250
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,1-Dichloropropene	563-58-6		U	1.00	0.250
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.150
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,3-Dichloropropane	142-28-9		U	1.00	0.200
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2,2-Dichloropropane	594-20-7		U	1.00	0.250
2-Butanone	78-93-3		U	10.0	2.50
2-Chloroethyl vinyl ether	110-75-8		U	10.0	2.00
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	10.0	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromochloromethane	74-97-5		U	1.00	0.200
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dibromomethane	74-95-3		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
m-,p-Xylene	179601-23-1		U	1.00	0.500
Methylene chloride	75-09-2	0.684	J	5.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
o-Xylene	95-47-6		U	1.00	0.250
p-Isopropyltoluene	99-87-6		U	1.00	0.250
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250

Microbac

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-15
Client ID: SWMU57111610TB
Matrix: Water
Workgroup Number: WG349416
Collect Date: 11/16/2010 00:01
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 5030B/5030C/5035
Analytical Method: 8260B
Analyst: MES
Dilution: 1
Units: ug/L

Instrument: HPMS8
Prep Date: 11/22/2010 12:08
Cal Date: 11/08/2010 15:03
Run Date: 11/22/2010 12:08
File ID: 8M366007

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	10.0	2.50
Vinyl chloride	75-01-4		U	1.00	0.250

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dichloroethane-d4	112	70	120	
4-Bromofluorobenzene	105	75	120	
Dibromofluoromethane	108	85	115	
Toluene-d8	101	85	120	

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

2.2 Metals Data

2.2.1 Metals ICP-MS Data

2.2.1.1 Summary Data

Login Number: L10110608

Department: Metals

Analyst: Ji Hu
Analyst #2: N/A

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC All acceptance criteria were met.

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG349360 - All acceptance criteria were met.

WG349857 - All acceptance criteria were met.

Matrix Spikes: WG349360 - Sample was 01 chosen by the client for MS/MSD analysis. Samples 03(MS) and 05(MSD) met all acceptance criteria.

WG349857 - Sample 02 was chosen by the client for MS/MSD analysis. Samples 04(MS) and 06(MSD) yielded a noncompliant recovery for manganese.

SAMPLES

Samples: WG349360 - Client samples 03, 05 and 11 required dilution analyses in order to obtain results for manganese within the linear range. For consistency with samples 03(MS) and 05(MSD), reference sample 01 was also reanalyzed at a dilution for manganese. Client sample 11 required dilution analysis in order to obtain a result for chromium within the linear range.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 15974
Approved By: Sheri Pfalzgraf

LABORATORY REPORT

L10110608

12/06/10 11:10

Submitted By

Microbac Laboratories Inc.
158 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Kemron Environmental Services
156 Starlite Drive

Marietta, OH 45750
Attention: Mary Lou Rochette

Project Number: 2820.216
Project: Radford AAP
Site: RADFORD VIRGINIA

P.O. Number: MSA

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SWMU57GWMW2	L10110608-01	6020	1	17-NOV-10
SWMU57GWMW2	L10110608-01	6020	50	17-NOV-10
SWMU57GWMW2	L10110608-02	6020	1	17-NOV-10
SWMU57GW111610MS	L10110608-03	6020	1	17-NOV-10
SWMU57GW111610MS	L10110608-03	6020	50	17-NOV-10
SWMU57GW111610MS	L10110608-04	6020	1	17-NOV-10
SWMU57GW111610MSD	L10110608-05	6020	1	17-NOV-10
SWMU57GW111610MSD	L10110608-05	6020	50	17-NOV-10
SWMU57GW111610MSD	L10110608-06	6020	1	17-NOV-10
SWMU57GW111610D1	L10110608-07	6020	1	17-NOV-10
SWMU57GW111610D1	L10110608-08	6020	1	17-NOV-10
SWMU57111610EB	L10110608-09	6020	1	17-NOV-10
SWMU57111610EB	L10110608-10	6020	1	17-NOV-10
SWMU57GWMW3	L10110608-11	6020	1	17-NOV-10
SWMU57GWMW3	L10110608-11	6020	50	17-NOV-10
SWMU57GWMW3	L10110608-12	6020	1	17-NOV-10
SWMU57111610FB	L10110608-13	6020	1	17-NOV-10
SWMU57111610FB	L10110608-14	6020	1	17-NOV-10

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-01
Client ID: SWMU57GWMW2
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 16:52
File ID: EL.112210.165258

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0	0.00278		0.00100	0.000500
Arsenic, Total	7440-38-2	0.00267		0.00100	0.000500
Chromium, Total	7440-47-3	0.00417		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-01
Client ID: SWMU57GWMW2
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 50
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/23/2010 15:32
Run Date: 11/23/2010 18:41
File ID: EL.112310.184139

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Manganese, Total	7439-96-5	0.215		0.100	0.0500

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-02
Client ID: SWMU57GWMW2
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:39
File ID: EL.112910.143925

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0	0.00253		0.00100	0.000500
Arsenic, Dissolved	7440-38-2	0.00239		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00232		0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.178		0.00200	0.00100

Report Number: **L10110608**
Report Date : **December 6, 2010**

Sample Number: **L10110608-03**
Client ID: **SWMU57GW111610MS**
Matrix: **Water**
Workgroup Number: **WG349360**
Collect Date: **11/16/2010 15:30**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **3015**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **1**
Units: **mg/L**

Instrument: **ELAN-ICP**
Prep Date: **11/19/2010 06:02**
Cal Date: **11/22/2010 10:47**
Run Date: **11/22/2010 16:59**
File ID: **EL.112210.165946**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0	0.0616		0.00100	0.000500
Arsenic, Total	7440-38-2	0.0607		0.00100	0.000500
Chromium, Total	7440-47-3	0.0718		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-03
Client ID: SWMU57GW111610MS
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 50
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/23/2010 15:32
Run Date: 11/23/2010 18:48
File ID: EL.112310.184826

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Manganese, Total	7439-96-5	0.274		0.100	0.0500

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-04
Client ID: SWMU57GW111610MS
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:46
File ID: EL.112910.144609

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0	0.0597		0.00100	0.000500
Arsenic, Dissolved	7440-38-2	0.0616		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.0706		0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.209		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-05
Client ID: SWMU57GW111610MSD
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 17:06
File ID: EL.112210.170633

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0	0.0625		0.00100	0.000500
Arsenic, Total	7440-38-2	0.0619		0.00100	0.000500
Chromium, Total	7440-47-3	0.0702		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-05
Client ID: SWMU57GW111610MSD
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 50
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/23/2010 15:32
Run Date: 11/23/2010 18:55
File ID: EL.112310.185512

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Manganese, Total	7439-96-5	0.285		0.100	0.0500

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-06
Client ID: SWMU57GW111610MSD
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:52
File ID: EL.112910.145253

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0	0.0611		0.00100	0.000500
Arsenic, Dissolved	7440-38-2	0.0612		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.0706		0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.238		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-07
Client ID: SWMU57GW111610D1
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 17:13
File ID: EL.112210.171320

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0	0.00269		0.00100	0.000500
Arsenic, Total	7440-38-2	0.00255		0.00100	0.000500
Chromium, Total	7440-47-3	0.00351		0.00200	0.00100
Manganese, Total	7439-96-5	0.230		0.00200	0.00100

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-08
Client ID: SWMU57GW111610D1
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 15:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:59
File ID: EL.112910.145938

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0	0.00263		0.00100	0.000500
Arsenic, Dissolved	7440-38-2	0.00238		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00183	J	0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.171		0.00200	0.00100

J Estimated value ; the analyte concentration was less than the low standard (LOQ)

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-09
Client ID: SWMU57111610EB
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 16:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 17:20
File ID: EL.112210.172005

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2		U	0.00100	0.000500
Chromium, Total	7440-47-3	0.00271		0.00200	0.00100
Manganese, Total	7439-96-5	0.00342		0.00200	0.00100

U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-10
Client ID: SWMU57111610EB
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 16:00
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 15:06
File ID: EL.112910.150623

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0		U	0.00100	0.000500
Arsenic, Dissolved	7440-38-2		U	0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00104	J	0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.00227		0.00200	0.00100

J Estimated value ; the analyte concentration was less than the low standard (LOQ)
U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-11
Client ID: SWMU57GWMW3
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 18:22
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 17:26
File ID: EL.112210.172651

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0	0.00646		0.00100	0.000500
Arsenic, Total	7440-38-2	0.168		0.00100	0.000500

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-11
Client ID: SWMU57GWMW3
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 18:22
Sample Tag: DL01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 50
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/24/2010 10:38
Run Date: 11/24/2010 13:13
File ID: EL.112410.131343

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Chromium, Total	7440-47-3	0.626		0.100	0.0500
Manganese, Total	7439-96-5	5.22		0.100	0.0500

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-12
Client ID: SWMU57GWMW3
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 18:22
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:25
File ID: EL.112910.142554

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0		U	0.00100	0.000500
Arsenic, Dissolved	7440-38-2	0.00134		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00728		0.00200	0.00100
Manganese, Dissolved	7439-96-5	0.00255		0.00200	0.00100

U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-13
Client ID: SWMU57111610FB
Matrix: Water
Workgroup Number: WG349360
Collect Date: 11/16/2010 19:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:02
Cal Date: 11/22/2010 10:47
Run Date: 11/22/2010 17:33
File ID: EL.112210.173336

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2		U	0.00100	0.000500
Chromium, Total	7440-47-3		U	0.00200	0.00100
Manganese, Total	7439-96-5		U	0.00200	0.00100

U Analyte was not detected. The concentration is below the reported LOD.

Report Number: L10110608
Report Date : December 6, 2010

Sample Number: L10110608-14
Client ID: SWMU57111610FB
Matrix: Water
Workgroup Number: WG349857
Collect Date: 11/16/2010 19:30
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3015
Analytical Method: 6020
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ELAN-ICP
Prep Date: 11/19/2010 06:46
Cal Date: 11/29/2010 09:36
Run Date: 11/29/2010 14:32
File ID: EL.112910.143240

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Antimony, Dissolved	7440-36-0		U	0.00100	0.000500
Arsenic, Dissolved	7440-38-2		U	0.00100	0.000500
Chromium, Dissolved	7440-47-3		U	0.00200	0.00100
Manganese, Dissolved	7439-96-5		U	0.00200	0.00100

U Analyte was not detected. The concentration is below the reported LOD.

Mary Lou Rochotte

From: Geiger.William@epamail.epa.gov
Sent: Thursday, January 06, 2011 3:33 PM
To: McKenna, Jim J Mr CIV USA AMC
Cc: Richard Mendoza; Cutler,Jim; jeremy.flint@atk.com; jerome.redder@atk.com; Mary Lou Rochotte; Richard Mendoza (External); Meyer, Tom NAB02
Subject: Re: FW: SWMU 57 groundwater data status update (UNCLASSIFIED)

Jim, EPA/VDEQ approve of the SWMU 57 IMWP. Below are several comments from Mike Cramer. While they do not affect this approval, I've included them for future reference. Please call or email me with any questions. Thanks

Ground water samples described in Subsection 5.7 of the IMWP include a purge rate of 500 ug/min for low flow sampling.

EPA region III guidance recommends a low flow purge rate of 400 ug/min when sampling for VOC, and to keep turbidity low for metals sampling.

The field water quality analytical parameters for ground water samples is not listed on the field forms. Generally, field personnel purge a certain volume and just record the parameter results without reference to whether the parameters meet the standard. The standards should be available in the field and the forms should be annotated for compliance/non-compliance(with justification) for each ground water sample.

William A. Geiger
Remedial Project Manager
Federal Remedial (3LC20)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029
Phone 215-814-3417
Geiger.William@epa.gov

From: "McKenna, Jim J Mr CIV USA AMC" <jim.mckenna@us.army.mil>
To: William Geiger/R3/USEPA/US@EPA, "Cutler,Jim" <James.Cutler@deq.virginia.gov>
Cc: "Meyer, Tom NAB02" <Tom.Meyer@usace.army.mil>, "Mary Lou Rochotte" <mrochotte@kemron.com>, "Richard Mendoza" <havnfn2@gmail.com>, <jeremy.flint@atk.com>, <jerome.redder@atk.com>, "Mendoza, Richard R Mr CIV USA IMCOM AEC" <richard.r.mendoza@us.army.mil>
Date: 01/04/2011 08:05 AM
Subject: FW: SWMU 57 groundwater data status update (UNCLASSIFIED)

[attachment "SWMU-57 RFAAP Analytical Comparison Table.pdf" deleted by William Geiger/R3/USEPA/US]
[attachment "L10110608_level2.pdf" deleted by William Geiger/R3/USEPA/US]

Classification: UNCLASSIFIED
Caveats: FOUO

Will Geiger and Jim Cuter,

FYI as you review the SWMU 57 Interim Measures Work Plan, note that per the S10.4.2 from the CMS we were to resample the SWMU 57 wells to confirm if clean closure could be achieved. We performed that sampling effort during the preparation of the work plan and attached are the results. As they are very near the 2008 levels and in some instances below, we believe this confirms that clean closure can be achieved and we can proceed as discussed in the work plan we submitted to you on November 17, 2010.

Thanks,
JJM

-----Original Message-----
From: Mary Lou Rochotte [mailto:mrochotte@kemron.com]
Sent: Thursday, December 09, 2010 5:09 PM
To: McKenna, Jim J Mr CIV USA AMC; Meyer, Tom NAB02; Richard Mendoza (External); Jerome Redder; Flint, Jeremy; Alberts, Matthew
Cc: Radford
Subject: RE: SWMU 57 groundwater data status update (UNCLASSIFIED)

Please find attached a table comparing the 2008 and 2010 analytical results for 57MW2 and 57MW3. Our evaluation of the data indicates these results demonstrate absence of impact to groundwater at SWMU 57 and should demonstrate to USEPA that the wells should be closed and clean closure can be achieved at the site. Please note that the data will be subject to validation per the QAPP included in the Draft Final IMWP, November 2010, after we receive the laboratory full Level 4 data package. The Level 2 data package is attached to this email for your reference.

The following summarizes the 2010 sample collection, observations, and findings.

UXB-KEMRON mobilized to the site and 15 November 2010 and conducted sampling on 16 November 2010. Waste management onsite and collection of waste characterization samples were conducted on 17 November 2010.

Upon unlocking and opening the well cap at both wells, UXB-KEMRON personnel observed duct tape present on the inside of each well cap. Additionally, polyethylene tubing was present submerged in both wells. It appears that the tubing was initially taped to the well cap; the adhesive had not held since well sampling in 2008 and the tubing had fallen into the wells. UXB-KEMRON personnel removed the tape from the caps and retrieved the polyethylene tubing from each well prior to collection of samples.

UXB-KEMRON conducted sampling in accordance with the Draft Final IMWP for SWMU 57. Samples were collected using low flow method specified, and Teflon lined tubing. The 57MW3 samples were extremely turbid (note value for field parameter), which is interpreted as the cause for the elevated total metals concentrations. However, the dissolved metals concentrations demonstrate values consistent with the 2008 concentrations. 2010 dissolved metals concentrations are either below the 2010 laboratory LOD and/or less than 2008 sample concentrations.

Very low levels of methylene chloride were detected in the 2010 samples. However, we note that the laboratory-provided trip blank had methylene chloride present at a concentration above the client samples. Therefore, this parameter is interpreted as a

laboratory-derived contaminant. Low level o-xylene was detected in 57MW2 parent and duplicate samples. It is possible that this parameter was present due to polyethylene tubing and/or duct tape adhesive that was present in the well when opened. Regardless, the concentration is extremely low, and is far below the current USEPA RBC for tap water and the USEPA total xylene MCL.

We will plan to review the data on Monday's call. Jim and Tom, please let us know if anything else is needed from UXB-KEMRON for submittal of these results to USEPA and VDEQ to acquire their concurrence regarding clean closure at the site.

The IDM from this sampling event was approved for disposal at the RFAAP WWTP. UXB-KEMRON coordinated with Matthew Alberts and Matt Habersack regarding the IDM. Jonah Anderson was present at RFAAP today to complete disposal of the IDM. As of close of business today, no UXB-KEMRON IDM remains at RFAAP.

Best regards,

Mary Lou

Mary Lou Rochotte, C.P.G.

Senior Project Manager

KEMRON Environmental Services, Inc.

156 Starlite Drive

Marietta, OH 45750

Office: (740)373-4308, ext. 1266

Direct dial: (740) 373-1266

Fax: (740) 376-2536

mrochotte@kemron.com <blockedmailto:mrochotte@kemron.com>

Visit us at www.kemron.com <blockedhttp://www.kemron.com/>

directly, send to postmaster@kemron.com. Thank you.

Classification: UNCLASSIFIED
Caveats: FOUO

Diane Dennis

From: Lohman, Elizabeth (DEQ) [Elizabeth.Lohman@deq.virginia.gov]
Sent: Thursday, February 17, 2011 11:51 AM
To: Flint, Jeremy; Brent Williams
Cc: Mary Lou Rochotte; McKenna, Jim; Alberts, Matthew; Wright, Rebecca (DEQ); Farahmand, Aziz (DEQ); Cutler, Jim (DEQ)
Subject: RE: RFAAP- SWMU 57 waste characterization samples

Jeremy and Brent,
I have reviewed the below sampling and analysis proposal for characterizing the soils to be excavated and sent off site for disposal. At this time, the DEQ has no further comments and believes the proposal is reasonable given the historical information for the site.

If you have any further questions, please let us know.
Beth

From: Flint, Jeremy [mailto:Jeremy.Flint@ATK.COM]
Sent: Wednesday, February 16, 2011 10:16 PM
To: Lohman, Elizabeth (DEQ); Brent Williams
Cc: Mary Lou Rochotte; McKenna, Jim; Alberts, Matthew
Subject: RE: RFAAP- SWMU 57 waste characterization samples

Brent and Beth,
SWMU 57 is in Pulaski County.

Based on our conversation this afternoon, UXB-Kemron has analyzed the historical data in the EPA/DEQ approved RFI/CMS to identify areas of soil that need additional characterization. Up to 64 samples were analyzed as part of the RFI/CMS to characterize the site. The estimated quantity to be removed is 1600 cubic yards which would require 16 samples (versus the 64 collected and analyzed) using the rule of thumb of 1 sample per 100 cubic yards (from the petroleum contaminated soil regulations). A detailed discussion of the analytical results is presented at the end that justifies no additional information is required for PCBs, TCLP-VOC, TCLP-SVOC, and TCLP-Pest/Herb. Additional analytical results are required for TCLP metals. Any material with free liquids will not be sent to the NRRA facility. The site supervisor is very experienced with the paint filter test and will not load any suspect material. If suspect material is found during excavation a sample will be collected for paint filter analysis, or the material will be shipped to an alternate disposal facility.

The analytical results were reviewed for areas where the soil exceeded the "rule of 20." The only data that exceeded the rule of 20 was for the metals cadmium, chromium, and lead. An annotated copy of Figure 4-1 from the RFI/CMS (Metals vs Rule of 20s SWMU57.pdf) is attached that shows the sample locations where rule of 20 was exceeded. These are all in the zone of zero to 2 feet below grade. Based on the area and the depth the estimated volume of material to be removed in these areas is less than 400 cy. Therefore, UXB-KEMRON proposes to collect and analyze 4 samples for TCLP Metals from this area. IN ADDITION, to confirm the "rule of 20" an additional three composite samples will be collected for TCLP Metals. All seven samples will be analyzed for soil pH.

Sample Collection:

UXB-KEMRON proposes to hand auger from zero to 2 feet below grade in the approximate location of former samples 57SB7, 57SB2, 57SB3 and 57SB18. (Sample location 57SB6 is in the middle of the "pond," which currently has standing water. Since the water also must be characterized separately from the soil, we do not wish to create a preferential path downward by augering through the asphalt liner in the center of the pond.) At each location the 2-foot core will be homogenized, a sample appropriately containerized and submitted for TCLP metals and soil pH analysis.

Additionally, three composite samples will be collected by hand auger within the planned excavation footprint. At three locations, a composite sample will be collected by homogenizing sub samples collected from depths of approximately 1 foot, 3 feet, and 6 feet. The three composite samples will be analyzed for TCLP metals and soil pH.

Note: The "rule of 20" is based on the TCLP analytical method. This means that the TCLP maximum concentration is multiplied by 20, for a conservative evaluation of the regulatory limit for leachate in mg/L compared to total concentration in soil (mg/kg). In the TCLP method a sample is leached in an acetic acid solution with a ration of 20 parts fluid to 1 part sample. If all the material leaches out the TCLP result is $1/20^{th}$ of the total result. Therefore, a conservative (protective) path is to compare total results to 20 times the TCLP "limit" (assumes 100% leaching). If the total result is less than 20 times the TCLP "limit," the TCLP "limit" cannot be exceeded. If the total result is more than 20 times the TCLP "limit," the TCLP "limit" may be exceeded and TCLP testing should be performed. The TCLP Rule of 20s comparison table is attached (TCLP table w Ruleof20s values.pdf).

JUSTIFICATION for No Additional Analytical Methods required:
Paint filter testing is not considered appropriate. Any material with free liquids will not be sent to the NRRA facility. The site supervisor is very experienced with the paint filter test and will not load any suspect material. If suspect material is found during excavation, a sample will be collected for paint filter analysis or the material will be shipped to an alternate disposal facility. Please note that all liquid and semi-solids will be removed from the "pond" via vac truck, if liquids are present. The top of groundwater is approx. 50' below grade based on measurements as recently as November 2010. The excavated material we are characterizing is soil.

PCBs, pesticides, VOCs, and SVOCs, as well as reactivity and flash, do not require further analyses. Justification for each of these analyte groups is provided below.

Total cyanide concentration in 12 soil samples had a maximum detection of 0.165 mg/kg. No reactive sulfides were detected. No explosives were detected. No further reactivity analyses are appropriate.

The material is soil. Flash point analysis is not required.

1) **PCB historic data**: 20 soil samples; maximum detection of 2.0 mg/kg, far below TSCA standards of 50 mg/kg.

2) **Pesticide analyses**: 20 soil samples; only two compounds detected that have TCLP regulatory standards. Both well below TCLP value x 20. (Heptachlor epoxide had a maximum detection of 0.0096 mg/kg, (vs. rule of 20's value: 0.008x20=0.120 mg/kg); endrin max detection was 0.0062 mg/kg (vs. rule of 20's value: 0.0.02x20=0.4 mg/kg).)

3) **TCL SVOCs**: 30 soil samples analyzed. No TCLP compounds detected above laboratory detection limit.

4) **Metals**: 64 soil samples analyzed, a total of 5 locations have up to three metals compounds exceed the "rule of 20s". (See attached map):
    a. Soil sample 57SB2 had a Cr concentration of 160 mg/kg at a depth of 1.5-2' below grade (vs. 5x20=100 mg/kg)
    b. Soil sample 57SB3 had had Cr, Cd and Pb at concentrations above the rule of 20s values for each compound in the 0-1' below grade interval.
    c. Soil sample 57SB18 had Cr above rule of 20s at 0-1' below grade (150 mg/kg vs. 100 mg/kg rule of 20s value).

d. Soil samples 57 SB6 and 57SB7 both had Cd, Cr and Pb above the rule of 20s values at 0-1' sample interval.
e. **NO soil samples exceeded any rule of 20s value for metals at a depth greater than 2' below grade.**

5) **TCL VOCs**: 64 soil samples analyzed. Only 4 TCLP VOC compounds detected; none meet or exceed the "rule of 20s". Maximum detections compared to rule of 20s are:
   a. Benzene: max detection = 0.00034 mg/kg (vs. 0.5x20 = 10 mg/kg)
   b. Chloroform: max detection = 0.024 mg/kg (vs. 6.0x20 = 120 mg/kg)
   c. Tetrachloroethene (aka tetrachloroethylene): max detection = 0.0018 mg/kg (vs. 0.7x20 = 14 mg/kg)
   d. Trichloroethene (aka trichloroethylene): max detection = 0.00374 mg/kg (vs. 0.5x20 = 10 mg/kg)

From: Brent Williams [mailto:btwilliams@wildblue.net]
Sent: Wednesday, February 16, 2011 12:33 PM
To: Flint, Jeremy
Cc: Elizabeth Lohman ; Rebecca Wright
Subject: RE: RFAAP- SWMU 57 waste characterization

Jeremy,

I have tried to call you this am but got your voice mail. Can you let me know where this location is? Pulaski or Montgomery? I am not clear why you have some of the tests listed but I will agree that they need to be done, and neither Beth nor Becky saw a need to add to your list. But, I believe there should be one representative sample for every 100 yds. So we will be looking for 16 samples (assuming 1600yds) with paint filter test and a description of how you achieved a representative sample in the "pond". Can you please tell me where the PCB test results are in you testing, I must be overlooking it? Also, are the drums that you listed in the First Piedmont waste Characterization the same drums that were asked to be disposed of at our facility prior to the first of the year?

Please contact your contractor ASAPwith this information: Mike Swartz (cell) 404-825-2985. He has a person on your site that is waiting to take samples.

Call me if you have any questions.

Thanks

Brent Williams
Operations Manager
New River Resource Authority

www.newriverresourceauthority.org

From: Flint, Jeremy [mailto:Jeremy.Flint@ATK.COM]
Sent: Tuesday, February 15, 2011 5:46 PM
To: Brent Williams
Cc: Mary Lou Rochotte; McKenna, Jim; Lohman, Elizabeth (DEQ)
Subject: FW: RFAAP- SWMU 57 waste characterization

Brent,
The Army has contracted UXB-KEMRON to do work at RFAAP SWMU 57. They are currently planning the excavation of soil that exceeds residential risk based end points for metals so that we will have unrestricted use of the site. There has been extensive characterization of this area which is summarized in the Final RFI/CMS (http://www.radfordaapirp.org/inforepo/Library/2009-04.pdf). If you remember the four way stop sign at the rocket area office, the site is the asphalt "pond" just north of the office. I have attached two summary tables of data (units are generally MICROgrams (ppb) except for metals). Based on reviewing these tables, I think that two composite samples analyzed for TCLP Metals, PCBs (even though <50 ppm), soil pH, reactive Cyanides, reactive Sulfides, and flash point is adequate for characterization of the approximately 1600 yards of material to removed. No explosives were detected

during the RFI/CMS process. All material will pass the paint filter test. We believe that these samples will be nonhazardous based on the investigation derived waste disposal results from 2008 (see attached). UXB-KEMRON is collecting the composite samples Wednesday February 16 and want to make sure that the work they do is adequate for gaining approval at your facility should NRRA be selected. When the results come in a completed waste profile will be submitted with the results. Call me at 540-639-7668 and page me at 540-953-6781 to discuss this.

As additional information, I have enclosed a site description and sampling summary

Site Description:
SWMU 57 consists of a 0.06 acre area (2,600 ft_2) inactive, fabricated, asphalt lined pond, an associated terra cotta drainage pipe that leads from Building 4931 to the pond, associated terra cotta piping, and an adjacent drainage swale. SWMU 57, is located adjacent to the Rocket Area Office at RFAAP (URS, 2009). To the east of the pond are an asphalt-paved road and a system of aboveground and overhead steam lines (Figure 2). A Final RCRA Facility Investigation and Corrective Measures Study (Final RFI/CMS) (URS, 2009) for SWMU 57 was approved by the US Environmental Protection Agency (USEPA) and the Virginia Department of Environmental Quality (VDEQ) in September 2009. UXB-KEMRON prepared an Interim Measures Work Plan (IMWP) in 2010. USEPA and VDEQ approved the IMWP January 06, 2011.

The Final documents as approved are located at the following links:
Go to the Final RFI/CMS here: http://www.radfordaapirp.org/inforepo/Library/2009-04.pdf
Go to the Final IMWP here: http://www.radfordaapirp.org/inforepo/Library/2010-09.pdf

The URS 2009 Final RFI/CMS states that as-built drawings from 1954 and 1967 illustrate the pond as the "Acid Settling Pool", with a diameter of approximately 50 feet and a capacity of 30,000 gallons. The Final RFI/CMS states that a six-inch diameter terra cotta drainage pipe originated at a four-inch floor drain in Building 4931, located south of SWMU 57. The terra cotta pipe is still present, and leads through the subsurface, emanating at the ground surface and into the pond. The Building 4931 floor drain is represented in the RFI/CMS as having been located near a chromic acid tank and Oakite-33 wash stations. The Final RFI/CMS indicates that chromic acid, hydraulic oil, Oakite-33 and zinc phosphate were reportedly discharged through the floor drain to the pond. According to the Final RFI/CMS, Oakite- 33 is a mixture of phosphoric acid and butyl Cellosolve® which replaced chromic acid use after 1974 for purposes of rust stripping, conducted to clean rocket encasements. The Final RFI/CMS indicates that no liquids were visible in the terra cotta pipe at the time of an August 2005 site visit. Likewise, during the May 19, 2010 site walk, UXB-KEMRON did not observe any liquids in the drain pipe. Use of Building 4931 has changed and liquids are no longer managed in the wash station area at Building 4931, nor does discharge from the terra cotta pipe to the pond occur. UXB-KEMRON visited the site again in October 2010 and again confirmed the absence of any discharge from RFAAP operations to the SWU 57 pond area.

UXB-KEMRON is conducting final preparations to schedule and implement the approved IMWP. As part of that planning process, UXB-KEMRON is identifying potential disposal facilities for direct load and haul of the soil and associated site materials to be removed from the site to conduct the interim measures.

Historic Sampling and Analyses: As detailed in Section 3.1.1 of the USEPA and VDEQ approved SWMU 57, RAAP-022 RFI/CMS (URS, 2009), a 2003 SSP included sampling and analyses for TAL Metals, TCL VOCs, TCL SVOCs, TCL PAHs, TCL PCBs, TCL Pesticides and Herbicides (selected samples), and Explosives. The 2008 RFI also included soil sampling and analyses for TAL Metals, TCL VOCs, TCL SVOCs, TCL PCBs, TCL Pesticides, and Explosives.

Samples were collected for explosives during the RFI. Explosive compounds were not detected in any of the samples collected at SWMU 57. Data from the RFI are fully usable and, taken in conjunction with the known history of the site, demonstrate that site soils have not been impacted by explosive compounds.

Site specific Compounds of Concern: The compounds detected during the RFI sampling and analyses are provided in Table 4-1 of the RFI/CMS (attached). Table 4-6 provides a SUMMARY of soil detections, including the number of samples in which each compound was detected and the range of detections.

The only compounds of concern that required corrective measures at the site were metals, specifically, aluminum, antimony, cadmium, chromium, iron and manganese. The site is being remediated to unrestricted (residential) standards.

Mary Lou Rochotte

From: Mary Lou Rochotte
Sent: Wednesday, December 08, 2010 3:59 PM
To: Radford
Subject: FW: SWMU 57 GW sampling IDM analytical

From: Alberts, Matthew [mailto:Matthew.Alberts@ATK.COM]
Sent: Wednesday, December 08, 2010 3:45 PM
To: Habersack, Matt; Mary Lou Rochotte; Flint, Jeremy
Cc: McKenna, Jim; Jonah Anderson
Subject: RE: SWMU 57 GW sampling IDM analytical

Thanks Matt. I have set this up for tomorrow afternoon with Red Ball to move the drums. I'll show Jonah how to log in at the control room and get Bioplant operator to sign off.

Matt Alberts, Environmental Dept.
Alliant Techsystems Inc., RFAAP
540-639-8722
Cell 540-230-3294

From: Habersack, Matt
Sent: Wednesday, December 08, 2010 2:06 PM
To: Alberts, Matthew; 'Mary Lou Rochotte'; Flint, Jeremy
Cc: McKenna, Jim; 'Jonah Anderson'
Subject: RE: SWMU 57 GW sampling IDM analytical

The higher than expected levels of BOD and COD are troubling since we were not expecting them and are not completely sure what is causing them. However, the metals and VOC analyses do not show anything and the volumes (~150gallons) of water are small enough that the BOD and COD levels will not cause us an issue at the Bioplant. They can be discharged after coordinating with the Bioplant operator.

Thank you,
Matt

****

Matt Habersack
Environmental Department
ATK Ammunition Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford , VA 24143-0100
Phone: 540 - 639 - 7427
Fax: 540 - 639 - 8109

From: Alberts, Matthew
Sent: Wednesday, December 08, 2010 9:49 AM
To: Habersack, Matt; 'Mary Lou Rochotte'; Flint, Jeremy
Cc: McKenna, Jim; Jonah Anderson
Subject: FW: SWMU 57 GW sampling IDM analytical

Matt – please look over data and let us know if treatment at B-470 is approved. Please respond to all.

Mary Lou – I will be tied up Thursday from 0800 to 1330 but I can assist Jonah after that and or Jeremy may be able to assist.

Matt Alberts, Environmental Dept.
Alliant Techsystems Inc., RFAAP
540-639-8722
Cell 540-230-3294

From: Mary Lou Rochotte [mailto:mrochotte@kemron.com]
Sent: Wednesday, December 08, 2010 9:34 AM
To: Alberts, Matthew
Cc: McKenna, Jim; Meyer, Tom NAB02; Richard Mendoza (External); Radford
Subject: SWMU 57 GW sampling IDM analytical

Matt,
Please find attached the BOD, COD and pH data for the groundwater sampling event at SMWU 57, RAAP-022 that UXB-KEMRON conducted last month. These are the parameters that were agreed upon for determination of acceptability for disposal at the RFAAP WWTP.

Please let us know if this liquid IDM is acceptable for disposal via the WWTP. Jonah is coming down for the RAB meeting this Thursday and we would like to coordinate with you to address the next steps for this material in conjunction with that trip, if possible. We are available to discuss by phone today or tomorrow as needed.

Best regards,
Mary Lou

Mary Lou Rochotte, C.P.G.
Senior Project Manager
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750

Office: (740)373-4308, ext. 1266
Direct dial: (740) 373-1266
Fax: (740) 376-2536
mrochotte@kemron.com

Visit us at www.kemron.com


Before printing, think about ENVIRONMENTAL responsibility

Mary Lou Rochotte

From: Habersack, Matt [Mathew.Habersack@ATK.COM]
Sent: Wednesday, March 09, 2011 6:42 AM
To: Alberts, Matthew; Martin, Louis; Herschler, Nichole; Jonah Anderson
Cc: Flint, Jeremy; McKenna, Jim; Mary Lou Rochotte
Subject: RE: Pond Water Disposal at the WWTP at RFAAP

I do not see anything in the analytical reports that should be a concern with discharging this pond water to the Bioplant. The low pH could be a concern if the volume of water is extremely high, but if it is less than 2,000 or 3,000 gallons it shouldn't be a problem. If the volume is greater than that please let me know and we can try and work out a treatment schedule so we don't overload the system at one time.

Thanks,
Matt

From: Alberts, Matthew
Sent: Tue 3/8/2011 3:20 PM
To: Habersack, Matt; Martin, Louis; Herschler, Nichole; 'Jonah Anderson'
Cc: Flint, Jeremy; McKenna, Jim; Mary Lou Rochotte
Subject: FW: Pond Water Disposal at the WWTP at RFAAP

Matt H.– I know you are extremely busy but will you please review data and let Kemron know if the pond water from Solid Waste Management Unit 57 can go to Bioplant Lift station?

Jonah – what's your best estimate of the volume of water to be released to treatment system... total? Per load? The pH may be alittle low, but I'll let Habersack make that call, how would you all make a pH adjustment if needed?

Matt Alberts, Environmental Dept.
Alliant Techsystems Inc., RFAAP
540-639-8722
Cell 540-230-3294

From: Jonah Anderson [mailto:janderson@kemron.com]
Sent: Tuesday, March 08, 2011 1:04 PM
To: Alberts, Matthew
Cc: Mary Lou Rochotte; Meyer, Tom NAB02; McKenna, Jim; Mendoza, Richard R Mr CIV USA IMCOM AEC; Flint, Jeremy; Redder, Jerome
Subject: Pond Water Disposal at the WWTP at RFAAP

Hi Matt, I have attached the results for the analytical for the SWMU-57 pond water characterization. The pH was run in the field and is 5.70. Please let us know if the onsite waste water treatment plant will except this water once we start work at SWMU-57 and pump out the pond. Thanks, Jonah

Jonah L. Anderson
Environmental Scientist
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750
Cell: 740-629-8456
Direct: 740-373-1077
Office: 740-373-4308

Mary Lou Rochotte

From: Jonah Anderson
Sent: Friday, March 18, 2011 8:16 PM
To: Alberts, Matthew
Cc: Mathew.Habersack@ATK.COM; Flint, Jeremy; Mary Lou Rochotte; McKenna, Jim J Mr CIV USA AMC
Subject: SWMU-57 Pond Water pH

Hi Matt, While on site today we measured the pH at the SWMU-57 pond and the reading was 7.07. I believe this will satisfy all the requirements for the RFAAP Wastewater treatment Plant for disposal at the facility. The change I believe was due to the increase in rain water in the pond. Please let us know if we have the OK for disposal. Thanks, Jonah

Jonah L. Anderson
Environmental Scientist
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750
Cell: 740-629-8456
Direct: 740-373-1077
Office: 740-373-4308
Fax: 740-376-2536
Email: janderson@kemron.com

Visit our website at www.kemron.com-

Mary Lou Rochotte

From: Habersack, Matt [Mathew.Habersack@ATK.COM]
Sent: Wednesday, March 09, 2011 10:30 AM
To: Mary Lou Rochotte; Alberts, Matthew; Martin, Louis; Herschler, Nichole; Jonah Anderson
Cc: Flint, Jeremy; McKenna, Jim; Mike Swartz
Subject: RE: Pond Water Disposal at the WWTP at RFAAP

That would be a suitable solution if needed. I'm hopeful we will not need to do any pH adjustment. Our influent normally runs a little on the basic side so as long as we are above 5 and it's not like we are disposing of thousands of gallons it will not be a problem.

****

Matt Habersack
Environmental Engineer
ATK Armament Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford , VA 24143-0100
Phone: 540 - 639 - 7427
Fax: 540 - 639 - 8109

From: Mary Lou Rochotte [mailto:mrochotte@kemron.com]
Sent: Wednesday, March 09, 2011 10:24 AM
To: Habersack, Matt; Alberts, Matthew; Martin, Louis; Herschler, Nichole; Jonah Anderson
Cc: Flint, Jeremy; McKenna, Jim; Mike Swartz
Subject: RE: Pond Water Disposal at the WWTP at RFAAP

All, Given the rain we've been having, UXB-KEMRON suggests we retest pH when we arrive (either on 3/17 or 3/18), and provide you with the volume at that time also.

I think whatever we would provide today as far as volume is too speculative at this moment – it could be significantly more or less in a week to 10 days from now.

If the pH were too low with the retest, based on your permitting and treatment standards, we also can consider mixing NaOH into the tank prior to discharge and verifying and documenting the appropriate pH adjustment prior to discharge at the WWTP, if that would be acceptable. That should resolve any concerns about effects of the pH. Do you agree?

Thank you much for your consideration! Let us know if additional discussion is necessary, or if this will resolve the potential issues.

Best regards,
Mary Lou

Mary Lou Rochotte, C.P.G.
Senior Project Manager
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750

Office: (740)373-4308, ext. 1266

Direct dial: (740) 373-1266
Fax: (740) 376-2536
mrochotte@kemron.com

Visit us at www.kemron.com

From: Habersack, Matt [mailto:Mathew.Habersack@ATK.COM]
Sent: Wednesday, March 09, 2011 6:42 AM
To: Alberts, Matthew; Martin, Louis; Herschler, Nichole; Jonah Anderson
Cc: Flint, Jeremy; McKenna, Jim; Mary Lou Rochotte
Subject: RE: Pond Water Disposal at the WWTP at RFAAP

I do not see anything in the analytical reports that should be a concern with discharging this pond water to the Bioplant. The low pH could be a concern if the volume of water is extremely high, but if it is less than 2,000 or 3,000 gallons it shouldn't be a problem. If the volume is greater than that please let me know and we can try and work out a treatment schedule so we don't overload the system at one time.

Thanks,
Matt

From: Alberts, Matthew
Sent: Tue 3/8/2011 3:20 PM
To: Habersack, Matt; Martin, Louis; Herschler, Nichole; 'Jonah Anderson'
Cc: Flint, Jeremy; McKenna, Jim; Mary Lou Rochotte
Subject: FW: Pond Water Disposal at the WWTP at RFAAP

Matt H.– I know you are extremely busy but will you please review data and let Kemron know if the pond water from Solid Waste Management Unit 57 can go to Bioplant Lift station?

Jonah – what's your best estimate of the volume of water to be released to treatment system... total? Per load? The pH may be alittle low, but I'll let Habersack make that call, how would you all make a pH adjustment if needed?

Matt Alberts, Environmental Dept.
Alliant Techsystems Inc., RFAAP
540-639-8722
Cell 540-230-3294

From: Jonah Anderson [mailto:janderson@kemron.com]
Sent: Tuesday, March 08, 2011 1:04 PM
To: Alberts, Matthew
Cc: Mary Lou Rochotte; Meyer, Tom NAB02; McKenna, Jim; Mendoza, Richard R Mr CIV USA IMCOM AEC; Flint, Jeremy; Redder, Jerome
Subject: Pond Water Disposal at the WWTP at RFAAP

Hi Matt, I have attached the results for the analytical for the SWMU-57 pond water characterization. The pH was run in the field and is 5.70. Please let us know if the onsite waste water treatment plant will except this water once we start work at SWMU-57 and pump out the pond. Thanks, Jonah

Jonah L. Anderson
Environmental Scientist
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750
Cell: 740-629-8456
Direct: 740-373-1077
Office: 740-373-4308
Fax: 740-376-2536
Email: janderson@kemron.com

Visit our website at www.kemron.com-

Before printing, think about ENVIRONMENTAL responsibility

Before printing, think about ENVIRONMENTAL responsibility

The information contained in this email may be confidential and/or legally privileged. It has been sent for the sole use of the intended recipient(s). If the reader of this message is not an intended recipient, you are hereby notified that any unauthorized review, use, disclosure, dissemination, distribution, or copying of this communication, or any of its contents, is strictly prohibited. If you have received this communication in error, please reply to the sender and destroy all copies of the message. To contact us directly, send to postmaster@kemron.com. Thank you.

Mary Lou Rochotte

From: Habersack, Matt [Mathew.Habersack@ATK.COM]
Sent: Wednesday, March 09, 2011 8:24 AM
To: Alberts, Matthew; Flint, Jeremy; Jonah Anderson; Mary Lou Rochotte; McKenna, Jim
Subject: RE: IDM from SWMU-57 RFAAP decon water

Approved

****

Matt Habersack
Environmental Engineer
ATK Armament Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford , VA 24143-0100
Phone: 540 - 639 - 7427
Fax: 540 - 639 - 8109

From: Alberts, Matthew
Sent: Wednesday, March 09, 2011 7:00 AM
To: Habersack, Matt; Flint, Jeremy; 'Jonah Anderson'; Mary Lou Rochotte; McKenna, Jim
Subject: FW: IDM from SWMU-57 RFAAP decon water

Matt – Kemron also has ~ 20 gallons of decon water they'd like to pour into lift station. Results attached, pH ~ 4.4. Please let us know, thank you for your time.

Matt Alberts, Environmental Dept.
Alliant Techsystems Inc., RFAAP
540-639-8722
Cell 540-230-3294

From: Jonah Anderson [mailto:janderson@kemron.com]
Sent: Tuesday, March 08, 2011 1:36 PM
To: Alberts, Matthew
Cc: Mary Lou Rochotte; Meyer, Tom NAB02; McKenna, Jim; Mendoza, Richard R Mr CIV USA IMCOM AEC; Flint, Jeremy; Redder, Jerome
Subject: IDM from SWMU-57 RFAAP decon water

Hi Matt, I have attached the analytical for the decon water from the soil sampling we conducted in February. The pH was conducted in the field and is 4.38. We produced approximately 18 gallons and it is stored at your IDM storage facility. We would like to know if we can dispose of this water at the RFAAP waste water treatment plant. You will notice that the COD and BOD are much lower this time so hopefully they will except the IDM. If you have any questions please let me know. Thanks, Jonah

Jonah L. Anderson
Environmental Scientist
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750
Cell: 740-629-8456
Direct: 740-373-1077
Office: 740-373-4308
Fax: 740-376-2536
Email: janderson@kemron.com

Diane Dennis

From: Mary Lou Rochotte
Sent: Wednesday, June 08, 2011 1:27 PM
To: Jonah Anderson; Diane Dennis
Subject: FW: Decon Water from SWMU-57 RFAAP

From: "Habersack, Matt" <Mathew.Habersack@ATK.COM>
Date: April 18, 2011 11:47:46 AM EDT
To: "Jonah Anderson" <janderson@kemron.com>, "Alberts, Matthew" <Matthew.Alberts@ATK.COM>
Cc: "Flint, Jeremy" <Jeremy.Flint@ATK.COM>, "McKenna, Jim" <jim.mckenna@us.army.mil>, "Mike Swartz" <mswartz@kemron.com>
Subject: RE: Decon Water from SWMU-57 RFAAP

This material is OK to go to the Bioplant.

Thanks,

Matt

****

Matt Habersack

Environmental Engineer

ATK Armament Systems

Radford Army Ammunition Plant

Route 114, P.O. Box 1

Radford , VA 24143-0100

Phone: 540 - 639 - 7427

Fax: 540 - 639 - 8109

From: Jonah Anderson [mailto:janderson@kemron.com]
Sent: Monday, April 18, 2011 10:41 AM
To: Alberts, Matthew
Cc: Habersack, Matt; Flint, Jeremy; McKenna, Jim; Mike Swartz; Jonah Anderson
Subject: FW: Decon Water from SWMU-57 RFAAP

From: Jonah Anderson
Sent: Fri 4/15/2011 10:53 PM
To: Alberts, Matthew
Cc: Mathew.Habersack@ATK.COM; Flint, Jeremy; McKenna, Jim J Mr CIV USA AMC; Mary Lou Rochotte
Subject: Decon Water from SWMU-57 RFAAP

Hi Matt, I have attached the analytical for the decon water from SWMU-57. We analyzed for COD, BOD, and TAL Metals. This round of decon we only used a steam pressure washer so there is no other chemicals mixed in from the decon process. We measured the pH in the field and recorded (pH=7.86). The COD was 73.7 and the BOD was 9.74. As you will see there are no significant metal results. We would like to dispose of at the onsite RFAAP Bio-Plant on Monday before we complete our work at SWMU-57. There is only 50 gallons of water to be disposed of so if you could let us know Monday if this is approved that would be great. Thanks again Matt for all your help. Your attentiveness in the field was invaluable in the completion of this project. Thanks, Jonah

Jonah L. Anderson
Environmental Scientist
KEMRON Environmental Services, Inc.
156 Starlite Drive
Marietta, OH 45750

Cell: 740-629-8456
Direct: 740-373-1077
Office: 740-373-4308

Fax: 740-376-2536
Email: janderson@kemron.com

Visit our website at www.kemron.com-