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Final Corrective Action Plan Progress Report #9 (April & June 2013)
Former Aboveground Storage Tanks 7001 & 7003
Bulk Fuel Facility (HAA-09) Release #3

Facility ID #9-025113*3
Hunter Army Airfield, Georgia

September 2013

DOCUMENT 19

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***Final* Corrective Action Plan**
Progress Report #9
(April & June 2013)
Former Aboveground Storage Tanks 7001 & 7003
Bulk Fuel Facility (HAA-09)
Release #3
Hunter Army Airfield

Prepared for:
U.S. Army Environmental Command

Prepared by:
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Our Ref.:
GP08HAFS.2012.NBLTR

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List of Acronyms

ACL	Alternate Concentration Limits
AST	Aboveground Storage Tank
ATL	Alternate Threshold Levels
BFF	Bulk Fuel Facility
bls	below land surface
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
CAP	Corrective Action Plan
COPC	Constituent of Potential Concern
DO	Dissolved oxygen
DPT	Direct Push Technology
FP	free product
ft	foot
GAEPD	Georgia Environmental Protection Division
HAA-09	Former Aboveground Storage Tanks 7001 and 7003
HAAF	Hunter Army Airfield
IWQS	In-stream Water Quality Standard
ORP	Oxidation-reduction potential
PAH	Polynuclear aromatic hydrocarbon
SESD	Science and Ecosystem Support Division
STL	Soil Threshold Level
UST	Underground Storage Tank
USEPA	United States Environmental Protection Agency
USTMP	Underground Storage Tank Management Program
µg/L	Micrograms per Liter

GEORGIA USTMP MONITORING ONLY REPORT

Facility ID: 9-025113*3 Submittal Date: 09/20/2013

Monitoring Report Number: CAP Progress Report #9 Report Date Range: 10/31/2012 to 6/17/2013

Facility Name: Former Aboveground Storage Tanks 7001 and 7003, Bulk Fuel Facility (HAA-09)

Address: Bulk Fuel Facility, HAAF

City: Hunter Army Airfield County: Chatham

Zip Code: 31409 Latitude: 32d 00m 54s Longitude: 81d 08m 26s

Submitted by UST Owner/Operator:		**Prepared by Consultant/Contractor:**	
Name:	Thomas C. Fry/Env. Branch	Name:	C. Scott Bostian
Company:	DPW Environmental Division	Company:	ARCADIS, U.S., Inc.
Address:	1550 Veterans Parkway, Bldg 1137	Address:	801 Corporate Center Drive Suite 300
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Zip Code:	31314-4927	Zip Code:	27607
Telephone:	(912) 767-2010	Telephone:	(919) 854-1282

I. Registered Professional Engineer or Professional Geologist Certification

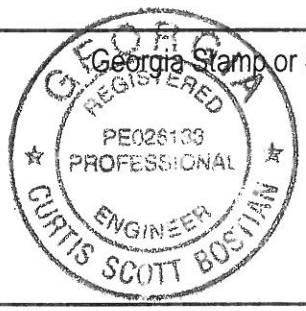
I hereby certify that I have directed and supervised the field work and preparation of this plan, in accordance with State Rules and Regulations. As a registered Professional Geologist and/or Professional Engineer, I certify that I am a qualified groundwater professional, as defined by the Georgia State Board of Professional Geologists. All of the information and laboratory data in this plan and in all of the attachments are true, accurate, complete, and in accordance with applicable State Rules and Regulations.

Name: C. Scott Bostian, PE

Signature: C. Scott Bostian

Date: 9/27/2013

Georgia Stamp or Seal



II. PROJECT SUMMARY

(Figure 1: Extent of Excavation and Monitor Well Locations)

Former Aboveground Storage Tanks (ASTs) 7001 and 7003 (HAA-09) were associated with the Bulk Fuel Facility (BFF) located at Hunter Army Airfield (HAAF) in Savannah, Georgia. This report summarizes monitoring activities at Release #3 within the BFF. Concrete foundations of former ASTs 7001 and 7003 were removed in May 2006. Free product was discovered approximately 3 to 4 feet (ft) below land surface (bls) at the former location of AST 7003 and identified as Release #3. Four (4) 2-foot diameter sumps were installed in the area of former AST 7003 to collect free product. The level of free product was measured in the sumps and free product was removed on a routine basis from May through August 2006. In November 2006, forty-two (42) free product (FP) monitoring points (FP-1 through FP-42) were installed on 50-foot centers (by Science Applications International Corporation) in the area of former ASTs 7001 and 7003. Monitor wells associated with Release #1 located throughout the BFF were abandoned in 2006. In December 2008, liquid levels were measured in the 42 FP monitoring points and 4 sumps. Free product was detected in 6 FP monitoring points and two sumps in the area around former AST 7003 and one FP monitoring point near former AST 7001. Free product was detected in a similar distribution in April 2009.

In the past, remediation activities have been conducted at the BFF to address impacts identified as Release #1 and Release #2. A no further action determination was issued by the Georgia Environmental Protection Division (GAEPD) UST Management Program (USTMP) on October 6, 2003 (Lewis 2003) for Release #1 (Underground Storage Tank [UST] 117, Facility ID #9-025113*1). Release #2 is associated with free product observed in well BF-MW-E5, which is in the vicinity of above ground storage tank (AST) 7009 (Facility ID #9-025113*2).

A Corrective Action Plan (CAP) Part B was prepared for Release #3 (ARCADIS 2009a), submitted on April 6, 2009, and approved by the GAEPD USTMP (Guentert 2009a) on April 17, 2009. The CAP Part B described the proposed corrective action which included excavation of impacted soil and installation of monitor wells to evaluate potential groundwater impacts. The CAP Part B also included plans for an investigation with direct push technology (DPT) prior to excavation and monitor well installation to define the extent of the soil and groundwater impacts in the former AST 7001/7003 area.

In accordance with the approved CAP-Part B, a DPT investigation was conducted in June 2009. Details of the DPT investigation were included in the CAP-Part B Addendum #1 (ARCADIS 2009b). The soil contamination was more widespread than expected and the extent of soil impacts above the soil threshold levels (STL) was not reached in some directions. The results indicated that most of the hydrocarbon mass was located between 2 and 6 ft bls, corresponding to the historic smear zone. In groundwater, vertical profile boring results indicated groundwater impacts were predominately located in the upper interval of the shallow aquifer and dissolved concentrations were much lower in samples from 11-15 ft bls. Downgradient groundwater samples did not contain benzene, toluene, ethylbenzene, or xylenes (BTEX) above the In-stream Water Quality Standard (IWQS). The DPT data were used to identify the Contaminants of Potential Concern (COPCs) at the site. The COPCs were determined using the Georgia USTMP STLs (GA EPD 2005) as screening levels for soil. Groundwater screening criteria were the Georgia IWQS (Environmental Rule 391-3-6-.03). COPCs identified in soil were BTEX. Groundwater COPCs identified were benzene and polynuclear aromatic hydrocarbon (PAH) constituents dibenzo(a,h)anthracene, ideno(1,2,3-c,d)pyrene, and naphthalene. Proposed alternative concentration limits (ACLs) and alternate threshold levels (ATLs) were included in the CAP Part B Addendum #1 (ARCADIS 2009b), submitted on November 10, 2009 and subsequently approved by GAEPD USTMP (Guentert 2009b) on November 20, 2009.

This Corrective Action Plan Progress Report presents a summary of the 6th semi-annual monitoring event conducted after the completion of one year of quarterly post-excavation monitoring. Monitoring activities included sampling of four wells (H9-MW-2, H9-MW-3, H9-MW-4 and H9-MW-5) for analysis of BTEX. A site map is included as Figure 1.

III. ACTIVITIES AND ASSESSMENT OF EXISTING CONDITIONS

A. Potentiometric Data:

(Figure 2a: Groundwater Potentiometric Map (October 2012))
(Figure 2b: Groundwater Potentiometric Map (April 2013))
(Table 1: Well Construction Details)
(Table 2: Groundwater Elevations)

A groundwater potentiometric figure for the October 2012 groundwater sampling event is presented in Figure 2a. A potentiometric map for April 2013 is presented in Figure 2b. In October 2012, the sampled wells (H9-MW-2, H9-MW-3 and H9-MW-5) were measured for water level. H9-MW-4 was covered by soil and high grass and could not be located. In April 2013, all wells were measured for water level except monitor well H9-MW-5, which was under approximately 6 inches of water. H9-MW-5 was subsequently sampled in June 2013.

A summary of monitor well construction details is presented in Table 1. Groundwater elevations collected between January 2010 and June 2013 are presented in Table 2.

B. Analytical Data:

(Figure 3a: BTEX Detected in Groundwater Monitor Wells (October 2012))
(Figure 3b: BTEX Detected in Groundwater Monitor Wells (April and June 2013))
(Table 3: Monitor-Well Groundwater Analytical Data)
(Appendix I: April and June 2013 Laboratory Analytical Data)

4th Semi-Annual Performance Monitoring Event (October 2012)

The sampling conducted on October 15, 2012 included the collection of groundwater samples from H9-MW-2, H9-MW-3 and H9-MW-5. Monitor well MW-4 could not be located. Monitor wells were sampled in accordance with the USEPA Region 4 SESD Guidance for Groundwater Sampling (USEPA 2007). Groundwater sampling was performed using low-flow procedures. Water quality parameters (pH, temperature, specific conductance, DO, ORP and turbidity) were collected during the purging process. All groundwater samples collected from monitor wells were analyzed by USEPA Method 8260B for BTEX. The results are summarized in Table 3 and are presented in Figure 3a.

Following sample collection, the samples were transported in properly cooled and sealed containers to Shealy Environmental Services, Inc. in West Columbia, South Carolina. Copies of the laboratory analytical reports are provided in Appendix I. Analytical results are summarized below:

- Benzene was detected in two monitor wells sampled at concentrations of 32 µg/L in H9-MW-2 and 53 µg/L in H9-MW-5. None of the wells exceeded the approved ACL of 700 µg/L.
- Toluene, ethylbenzene and/or total xylenes were detected in all three monitor wells sampled. An ACL has not been established for toluene, ethylbenzene or total xylenes. None of the concentrations exceeded their respective IWQS concentration.

5th Semi-Annual Performance Monitoring Event (April and June 2013)

The sampling conducted on April 15, 2013 included the collection of groundwater samples from H9-MW-2, H9-MW-3 and H9-MW-4. Monitor well MW-5 could not be sampled due to approximately 6 inches of standing water. Standing water was still present over and around the well during site visits on May 10,

June 4 and June 11. The standing water was gone on June 17 and H9-MW-5 was sampled. Monitor wells were sampled in accordance with the USEPA Region 4 SESD Guidance for Groundwater Sampling (USEPA 2007). Groundwater sampling was performed using low-flow procedures. Water quality parameters (pH, temperature, specific conductance, DO, ORP and turbidity) were collected during the purging process. All groundwater samples collected from monitor wells were analyzed by USEPA Method 8260B for BTEX. The results are summarized in Table 3 and are presented in Figure 3b.

Following sample collection, the samples were transported in properly cooled and sealed containers to Shealy Environmental Services, Inc. in West Columbia, South Carolina. Copies of the laboratory analytical reports are provided in Appendix I. Analytical results are summarized below:

- Benzene was detected in three (3) of the four (4) monitor wells that were sampled at concentrations of 62 µg/L in H9-MW-2, 11 µg/L in H9-MW-4, and 3.2 µg/L in H9-MW-5. None of the wells exceeded the approved ACL of 700 µg/L.
- Toluene, ethylbenzene and/or total xylenes were also detected in three of the four monitor wells sampled. An ACL has not been established for toluene, ethylbenzene or total xylenes. None of the concentrations exceeded their respective IWQS concentration.

C. Other Activities:

Not Applicable.

IV. SITE RANKING *(Note: re-rank site with latest sampling data)*

(Appendix II: Site Ranking Results)

Environmental Site Sensitivity Score: 260

V. CONCLUSIONS/RECOMMENDATIONS

COPCs identified in soil were BTEX. Proposed ATLs were included in the CAP Part B Addendum #1 (ARCADIS 2009b), submitted on November 10, 2009 and subsequently approved by GAEPD USTMP (Guentert 2009b) on November 20, 2009. All soil impacted with BTEX above approved ATLs was removed during the excavation activities performed from December 8, 2009 through January 14, 2010 and soil remediation has been completed.

Groundwater screening criteria were the Georgia IWQS (Environmental Rule 391-3-6-.03). Groundwater COPCs identified were benzene and PAH constituents dibenzo(a,h)anthracene, ideno(1,2,3-c,d)pyrene, and naphthalene. Proposed ACLs were also included in the CAP Part B Addendum #1 (ARCADIS 2009b) and subsequently approved by GAEPD USTMP (Guentert 2009b). PAH's have not been detected above the approved ACL's since the completion of the excavation.

Benzene and BTEX concentrations have had an overall decreasing trend in all monitor wells since the post-excavation sampling was completed in January 2010. None of the monitor wells had benzene concentrations above the approved ACL during the last two (2) semiannual sampling events in October 2012 and April/June 2013.

Since all constituent concentrations have been below the approved ACL for two (2) consecutive semiannual sampling events, no further action status is requested. Upon approval from the GAEPD, the semiannual monitoring program will be discontinued and all monitor wells will be abandoned.

VI. REIMBURSEMENT (CHECK IF APPLICABLE) Yes ☐ No ☒

(Appendix III: The following information must be provided if Applicable.)

A. Type of GUST Trust Fund Coverage:

- ☐ 2-Party Reimbursement for Incurred Costs
- ☐ Direct Reimbursement to Responsible Party for Incurred Costs
- ☐ State Contractor Oversight

B. Reimbursement Documents (Check All That Are Attached):

- ☐ **Invoices**: Must be legible with support documentation, i.e., Rate Sheet, Sub-Contractor invoices, etc.
- ☐ **Cost Review Forms (CRFs)**: Summary Page(s), Task Page(s), and the GUST 4-D (list of invoices with details).
  Note: The Scope of Work for each Task should also reference the associated invoice #(s) covering this work.
- ☐ **Payment Request Form (formerly GUST-4A)**: This form must be signed by an authorized representative for the Responsible Party (Payee) and be an original signature.
- ☐ **Proof of Payment (Check Which Provided)**:
  - ☐ Front & Back Copies of Canceled Check or Other Documentation
  - ☐ 2-Party Reimbursement Affidavits

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Tables

Table 1
Well Construction Details
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

Well Number	Date Installed	Boring Depth (ft bgs)	Diameter (in)	Screened Interval (ft bgs)	Screen Size (in)	Type of Completion	Coordinates		Elevation (ft amsl)	
							Northing	Easting	TOV	TOC
H9-MW-1	1/4/2010	12	2	2 - 12	0.01	Schedule 40 PVC	739130.63	972995.71	14.83	14.26
H9-MW-2	1/4/2010	12	2	2 - 12	0.01	Schedule 40 PVC	739271.79	973212.36	15.52	15.02
H9-MW-3	1/6/2010	12	2	2 - 12	0.01	Schedule 40 PVC	739432.96	973134.71	15.24	14.82
H9-MW-4	1/6/2010	12	2	2 - 12	0.01	Schedule 40 PVC	739364.73	973122.81	14.87	14.54
H9-MW-5	1/13/2010	12	4	2 - 12	0.01	Schedule 40 PVC	739376.13	973174.62	15.06	14.81
H9-MW-6	1/14/2010	12	2	2 - 12	0.01	Schedule 40 PVC	739247.95	972951.37	14.34	14.01

Notes:
bgs - below ground surface
PVC - polyvinyl chloride
TOC - Top of Casing
TOV - Top of Vault
amsl - above mean sea level
ft - feet
in - inches

Table 2
Groundwater Elevations
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

Well Number	Top of Casing	1/18/2010		4/20/2010		7/7/2010		10/15/2010		4/20/2011		10/26/2011		4/23/2012	
	(ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)
H9-MW-1	14.26	2.76	11.50	3.85	10.41	4.61	9.65	4.73	9.53	NM	NM	NM	NM	5.52	8.74
H9-MW-2	15.02	2.84	12.18	4.13	10.89	5.06	9.96	5.26	9.76	4.37	10.65	5.37	9.65	5.91	9.11
H9-MW-3	14.82	1.50	13.32	2.50	12.32	2.27	12.55	2.92	11.90	2.13	12.69	3.04	11.78	3.39	11.43
H9-MW-4	14.54	1.13	13.41	2.57	11.97	2.05	12.49	2.71	11.83	2.06	12.48	2.65	11.89	3.10	11.44
H9-MW-5	14.81	1.61	13.20	2.68	12.13	2.61	12.20	3.19	11.62	2.65	12.16	3.49	11.32	3.70	11.11
H9-MW-6	14.01	2.04	11.97	1.95	12.06	1.96	12.05	2.62	11.39	NM	NM	NM	NM	2.95	11.06

Well Number	Top of Casing	10/15/2012		4/15/2013	
	(ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)	Water Depth (ft btoc)	Groundwater Elevation (ft amsl)
H9-MW-1	14.26	NM	NM	3.20	11.06
H9-MW-2	15.02	5.40	9.62	3.83	11.19
H9-MW-3	14.82	3.03	11.79	1.64	13.18
H9-MW-4	14.54	NL	NL	1.72	12.82
H9-MW-5	14.81	3.31	11.50	UW	UW
H9-MW-6	14.01	NM	NM	1.91	12.10

Notes:
btoc - below top of casing
ft - feet
amsl - above mean sea level
NM - not measured
NL - not located
UW - under water in April, sampled in June

Table 3
Monitor-Well Groundwater Analytical Data
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

			Sample ID	DUP-H-9	HAA-09-MW-1 (011910)	HAA-09-MW-1 (042010)	HAA-09-MW-1 (070710)	HAA-09-MW-1 (101510)	HAA-09-MW-2 (011910)	HAA-09-MW-2 (042010)	HAA-09-MW-2 (070710)	HAA-09-MW-2 (101510)	HAA-09-MW-2(042011)
			Location ID	MW-1 (DUP)	MW-1	MW-1	MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-2
			Sample Date	1/19/2010	1/19/2010	4/20/2010	7/7/2010	10/15/2010	1/19/2010	4/20/2010	7/7/2010	10/15/2010	4/20/2011
Chemical Name	Analytical Method	Alternative Concentration Limit (ACL)	Unit										
VOCs													
Benzene	SW8260B	700	µg/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**330**	**330**	**240**	**180**	**230**
Ethylbenzene	SW8260B	--	µg/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**510**	**450**	**330**	**350**	**510**
Toluene	SW8260B	--	µg/L	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**16**	**14**	**8.2**	**6.1**	**11**
Xylenes (total)	SW8260B	--	µg/L	< 0.5 U	< 0.5 U	< 0.5 U	**0.3 J**	< 0.5 U	**950**	**910**	**570**	**630**	**1000**
SVOCs			µg/L										
1-Methylnaphthalene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	**50**	**56**	**84**	**52**	NA
2-Methylnaphthalene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	**63**	**77**	**110**	**50**	NA
Acenaphthene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Acenaphthylene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Anthracene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Benz(a)anthracene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	NA
Benzo(a)pyrene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 R	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	NA
Benzo(b)fluoranthene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	NA
Benzo(ghi)perylene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	NA
Benzo(k)fluoranthene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	NA
Chrysene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	NA
Dibenz(a,h)anthracene	SW8270C	2.6	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 R	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	NA
Fluoranthene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Fluorene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	**0.24 J**	NA
Indeno(1,2,3-cd)pyrene	SW8270C	2.6	µg/L	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	NA
Naphthalene	SW8270C	942.5	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	**180**	**230**	**340**	**170**	NA
Phenanthrene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Pyrene	SW8270C	--	µg/L	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA

Notes:
µg/L - microgram per Liter
J - estimated result
U - non-detect
ft -feet
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
NA - not analyzed
Concentration exceeds ACL

Table 3
Monitor-Well Groundwater Analytical Data
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

Chemical Name	Analytical Method	Alternative Concentration Limit (ACL)	Unit	Sample ID	HAA-09-MW-2(10262011)	HAA-09-MW-2_20120423	HAA-09-MW-2_20121015	HAA-09-MW-2(041513)	HAA-09-MW-3 (011910)	HAA-09-DUP-1 (042010)	HAA-09-MW-3 (042010)	HAA-09-MW-3 (070710)	HAA-09-MW-3 (101510)	HAA-09-MW-3(042011)
				Location ID	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3 (DUP)	MW-3	MW-3	MW-3	MW-3
				Sample Date	10/26/2011	4/23/2012	10/15/2012	4/15/2013	1/19/2010	4/20/2010	4/20/2010	7/7/2010	10/15/2010	4/20/2011
VOCs														
Benzene	SW8260B	700	µg/L		**130**	**130**	**32**	**62**	**360**	**840 J**	**420 J**	**400**	**370**	**41**
Ethylbenzene	SW8260B	--	µg/L		**340**	**240**	**210**	**320**	**200**	**380 J**	**250 J**	**230**	**290**	**41**
Toluene	SW8260B	--	µg/L		**6.6**	**4.5 J**	**3 J**	**4.1**	**130**	**110 J**	**14 J**	**26**	**16**	< 2.5 U
Xylenes (total)	SW8260B	--	µg/L		**630**	**410**	**340**	**710**	**740**	**1500 J**	**640 J**	**590**	**450**	**2.2 J**
SVOCs			µg/L											
1-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	**19**	**42 J**	**15 J**	**22**	**27**	NA
2-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	**17**	**49 J**	**17 J**	**22**	**28**	NA
Acenaphthene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Acenaphthylene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Benz(a)anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Benzo(a)pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Benzo(b)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Benzo(ghi)perylene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Benzo(k)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Chrysene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Dibenz(a,h)anthracene	SW8270C	2.6	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Fluorene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Indeno(1,2,3-cd)pyrene	SW8270C	2.6	µg/L		NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	NA
Naphthalene	SW8270C	942.5	µg/L		NA	NA	NA	NA	**70**	**160 J**	**87 J**	**100**	**99**	NA
Phenanthrene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA
Pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	NA

Notes:
µg/L - microgram per Liter
J - estimated result
U - non-detect
ft -feet
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
NA - not analyzed
Concentration exceeds ACL

Table 3
Monitor-Well Groundwater Analytical Data
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

			Sample ID	HAA-09-MW-3(10262011)	HAA-09-MW-3_20120423	HAA-09-MW-3(101512)	DUP-1_20121016	H9-MW-3(041913)	HAA-09-MW-4 (1/19/10)	HAA-09-MW-4 (042010)	HAA-09-MW-4 (070710)	HAA-09-DUP-01 (101510)	HAA-09-MW-4 (101510)
			Location ID	MW-3	MW-3	MW-3	MW-3 (DUP)	MW-3	MW-4	MW-4	MW-4	MW-4	MW-4
			Sample Date	10/26/2011	4/23/2012	10/15/2012	10/16/2012	4/19/2013	1/19/2010	4/20/2010	7/7/2010	10/15/2010	10/15/2010
Chemical Name	Analytical Method	Alternative Concentration Limit (ACL)	Unit										
VOCs													
Benzene	SW8260B	700	µg/L	**9.3**	**3.3**	< 0.5 U	< 0.5 U	< 0.5 U	**820**	**830**	**730**	**550**	**620**
Ethylbenzene	SW8260B	--	µg/L	**47**	**0.62**	**0.39 J**	**0.48 J**	< 0.5 U	**400**	**380**	**400**	**360**	**390**
Toluene	SW8260B	--	µg/L	< 1 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	**350**	**100**	**110**	**92**	**98**
Xylenes (total)	SW8260B	--	µg/L	< 1 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	**1500**	**1400**	**1200**	**1200**	**1300**
SVOCs			µg/L										
1-Methylnaphthalene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	**55**	**40**	**37**	**47**	**36**
2-Methylnaphthalene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	**64**	**63**	**22**	**51**	**41**
Acenaphthene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Acenaphthylene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Anthracene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Benz(a)anthracene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Benzo(a)pyrene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Benzo(b)fluoranthene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Benzo(ghi)perylene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Benzo(k)fluoranthene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Chrysene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibenz(a,h)anthracene	SW8270C	2.6	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Fluoranthene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Fluorene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Indeno(1,2,3-cd)pyrene	SW8270C	2.6	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Naphthalene	SW8270C	942.5	µg/L	NA	NA	NA	NA	NA	**150**	**150**	**87**	**91**	**100**
Phenanthrene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
Pyrene	SW8270C	--	µg/L	NA	NA	NA	NA	NA	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U

Notes:
µg/L - microgram per Liter
J - estimated result
U - non-detect
ft -feet
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
NA - not analyzed
Concentration exceeds ACL

Table 3
Monitor-Well Groundwater Analytical Data
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

Chemical Name	Analytical Method	Alternative Concentration Limit (ACL)	Unit	Sample ID	HAA-09-MW-4(042011)	HAA-09-MW-4(10262011)	DUP-1_20120423	HAA-09-MW-4_20120423	H9-DUP-1(041513)	HAA-09-MW-4_041513	HAA-09-MW-5 (011910)	HAA-09-MW-5 (042010)	HAA-09-MW-5 (070710)	HAA-09-MW-5 (101510)
				Location ID	MW-4	MW-4	MW-4 (DUP)	MW-4	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5
				Sample Date	4/20/2011	10/26/2011	4/23/2012	4/23/2012	4/15/2013	4/15/2013	1/19/2010	4/20/2010	7/7/2010	10/15/2010
VOCs														
Benzene	SW8260B	700	µg/L		**500**	**280**	**210**	**210**	**14**	**11**	**2300**	**2400**	**1500**	**1700**
Ethylbenzene	SW8260B	--	µg/L		**430**	**340**	**280**	**300**	**30**	**25**	**250**	**430**	**290**	**440**
Toluene	SW8260B	--	µg/L		**45**	**8**	**3.7**	**3.7**	< 0.5 U	< 0.5 U	**2000**	**2000**	**1200**	**1400**
Xylenes (total)	SW8260B	--	µg/L		**1200**	**280**	**170**	**170**	**6.6**	**5.1**	**2400**	**2600**	**1700**	**2200**
SVOCs			µg/L											
1-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	**36**	**29**	**30**	**30**
2-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	**48**	**39**	**39**	**37**
Acenaphthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Acenaphthylene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Benz(a)anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Benzo(a)pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Benzo(b)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Benzo(ghi)perylene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Benzo(k)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Chrysene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Dibenz(a,h)anthracene	SW8270C	2.6	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Fluorene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Indeno(1,2,3-cd)pyrene	SW8270C	2.6	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1.1 U
Naphthalene	SW8270C	942.5	µg/L		NA	NA	NA	NA	NA	NA	**99**	**140**	**100**	**96**
Phenanthrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U
Pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1.1 U

Notes:
µg/L - microgram per Liter
J - estimated result
U - non-detect
ft -feet
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
NA - not analyzed
Concentration exceeds ACL

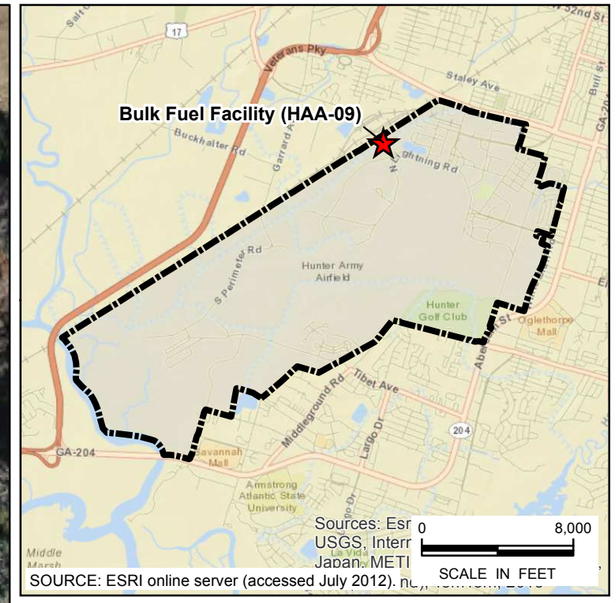
Table 3
Monitor-Well Groundwater Analytical Data
Corrective Action Plan Progress Report #9
HAA-9 Bulk Fuel Facility Release #3
Hunter Army Airield, Georgia

Chemical Name	Analytical Method	Alternative Concentration Limit (ACL)	Unit	Sample ID	HAA-0-9-MW-5(042011)	HAA-09-MW-5(10262011)	HAA-09-MW-5_20120423	HAA-09-MW-5(101512)	HAA-09-MW-5	HAA-09-MW-6 (011910)	HAA-09-MW-6 (042010)	HAA-09-MW-6 (070710)	HAA-09-MW-6 (101510)
				Location ID	MW-5	MW-5	MW-5	MW-5	MW-5	MW-6	MW-6	MW-6	MW-6
				Sample Date	4/20/2011	10/26/2011	4/23/2012	10/15/2012	6/17/2013	1/19/2010	4/20/2010	7/7/2010	10/15/2010
VOCs													
Benzene	SW8260B	700	µg/L		**1700**	**230**	**1100**	**53**	**3.2**	**7.1**	**0.12 J**	< 0.5 U	< 0.5 U
Ethylbenzene	SW8260B	--	µg/L		**430**	**99**	**480**	**25**	**1.2**	**1.5**	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	SW8260B	--	µg/L		**1300**	**180**	**530**	**8.7**	**5.4**	**0.85**	< 0.5 U	< 0.5 U	< 0.5 U
Xylenes (total)	SW8260B	--	µg/L		**2500**	**490**	**2400**	**94**	**4.2**	**5.5**	< 0.5 U	< 0.5 U	< 0.5 U
SVOCs			µg/L										
1-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
2-Methylnaphthalene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Acenaphthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Acenaphthylene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Benz(a)anthracene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Benzo(a)pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Benzo(b)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Benzo(ghi)perylene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Benzo(k)fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Chrysene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Dibenz(a,h)anthracene	SW8270C	2.6	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Fluoranthene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Fluorene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Indeno(1,2,3-cd)pyrene	SW8270C	2.6	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 UJ	< 1 U	< 1 U
Naphthalene	SW8270C	942.5	µg/L		NA	NA	NA	NA	NA	**0.12 J**	< 1 U	< 1 U	< 1 U
Phenanthrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U
Pyrene	SW8270C	--	µg/L		NA	NA	NA	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U

Notes:
µg/L - microgram per Liter
J - estimated result
U - non-detect
ft -feet
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
NA - not analyzed
Concentration exceeds ACL

ARCADIS

Figures



LEGEND

- Hunter Army Airfield
- Storm Water Drainage Canal
- Surface Water Flow Direction
- Former Fuel Transfer Line/ASTs
- Approximate Excavation Area
- Monitor Well (shallow)

0 150 300
SCALE IN FEET

NOTE: Monitor wells (H9-MW-1 through H9-MW-6) were surveyed by Bateman Civil Survey (February 2010).

PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: U.S. ARMY (2011).

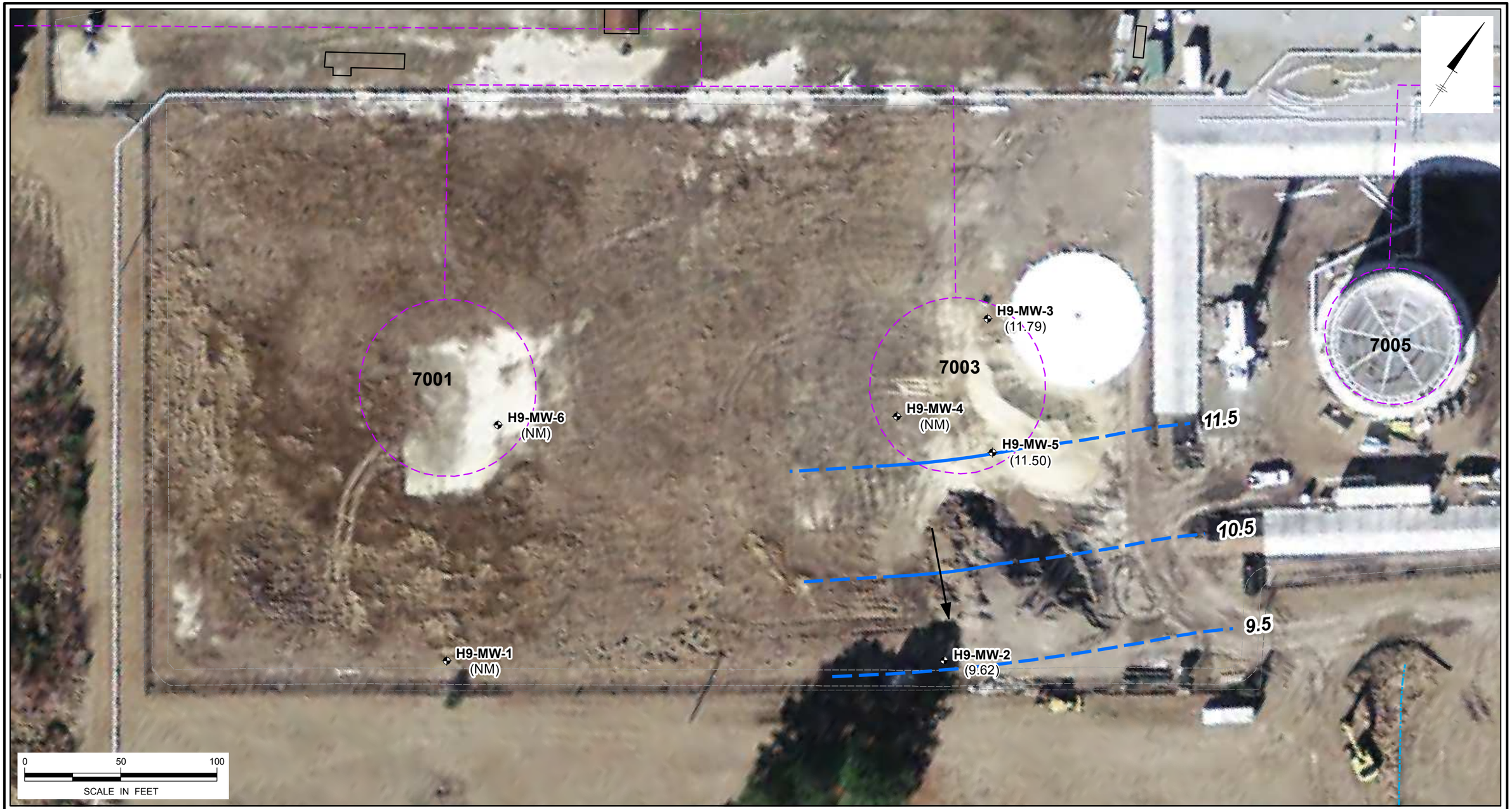
HUNTER army AIRFIELD, GEORGIA
FORMER ASTS 7001 AND 7003
BULK FUEL FACILITY (HAA-09 – RELEASE #3)
CORRECTIVE ACTION PLAN PROGRESS REPORT #9

Extent of Excavation and Monitor Well Locations

ARCADIS

FIGURE
1

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) LD:(B.ALTOM) PIC:(T.TAHALE) PM:(S.GIBBONS) APM:(S.BOSTIAN)
PROJECT: GP08HAFS.2012.N09RP PATH: G:\GIS\HAAF\MAPDOCS\H09\2013\CAP PROGRESS 9\F1 H09_CAP9 SITE.MXD SAVED: 10/3/2013 BY: CCSMITH



LEGEND

- Monitor Well
- Former Fuel Transfer Line/ASTs
- Groundwater Contour (ft amsl)
- (inferred where dashed)
- Direction of Groundwater Flow
- (9.62) Groundwater Elevation (ft amsl) Measured October 15, 2012
- (NM) Not Measured

NOTE: Monitor wells (H9-MW-1 through H9-MW-6) were surveyed by Bateman Civil Survey (February 2010).

PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: U.S. ARMY (2011).

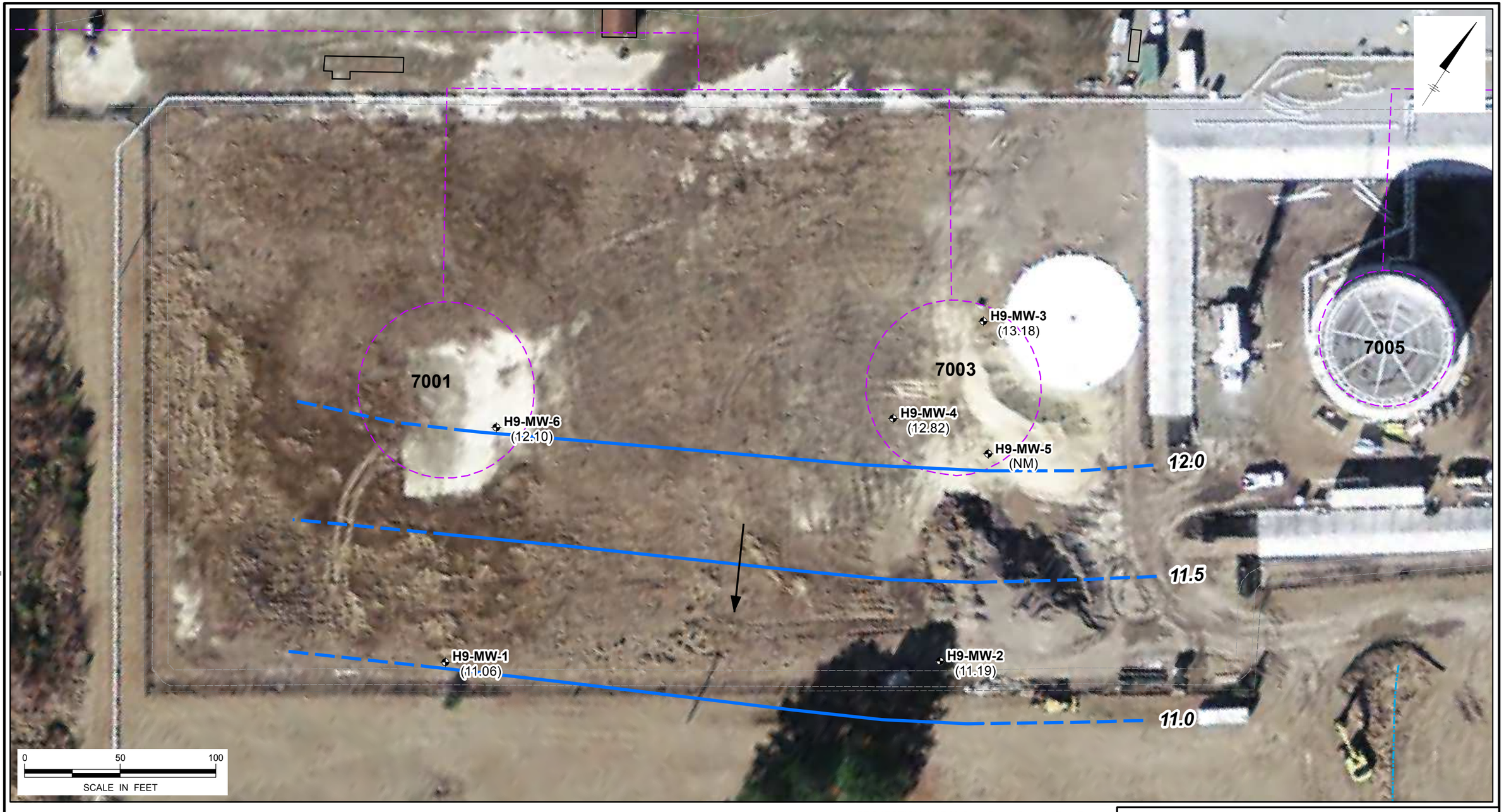
HUNTER army AIRFIELD, GEORGIA
FORMER ASTS 7001 AND 7003
BULK FUEL FACILITY (HAA-09 – RELEASE #3)
CORRECTIVE ACTION PLAN PROGRESS REPORT #9

Groundwater Potentiometric Map (October 2012)

ARCADIS

FIGURE
2a

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) LD:(B.ALTOM) PIC:(T.TAHALE) PM:(S.GIBBONS) APM:(S.BOSTIAN)
PROJECT: GP08HAFS.2012.N09RP PATH: G:\GIS\HAAF\MAPDOCS\H09\2013\CAP PROGRESS 9\F2A H09_CAP9 201210 POT.MXD SAVED: 6/26/2013 BY: BALTOM



LEGEND

- Monitor Well
- Former Fuel Transfer Line/ASTs
- Groundwater Contour (ft amsl)
- (inferred where dashed)
- Direction of Groundwater Flow
- (11.06) Groundwater Elevation (ft amsl) Measured April 15-19, 2013

PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: U.S. ARMY (2011).

NOTE: Monitor wells (H9-MW-1 through H9-MW-6) were surveyed by Bateman Civil Survey (February 2010).

HUNTER ARMY AIRFIELD, GEORGIA
FORMER ASTS 7001 AND 7003
BULK FUEL FACILITY (HAA-09 – RELEASE #3)
CORRECTIVE ACTION PLAN PROGRESS REPORT #9

Groundwater Potentiometric Map (April 2013)

ARCADIS

FIGURE
2b

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) LD:(B.ALTOM) PIC:(T.TAHALE) PM:(S.GIBBONS) APM:(S.BOSTIAN)
PROJECT:'GP08HAFS.2012.N09RP PATH: G:\GIS\HAAF\MAPDOCS\H09\2013\CAP PROGRESS 9\F2B H09_CAP9 201304 POT.MXD SAVED: 6/26/2013 BY: BALTOM

H9-MW-3	10/15/2012	10/16/2012
Benzene	< 0.5 U	< 0.5 U
Toluene	< 0.5 U	< 0.5 U
Ethylbenzene	0.39 J	0.48 J
Xylenes (total)	< 0.5 U	< 0.5 U

H9-MW-5	10/15/2012
Benzene	53
Toluene	8.7
Ethylbenzene	25
Xylenes (total)	94

H9-MW-2	10/15/2012
Benzene	32
Toluene	3 J
Ethylbenzene	210
Xylenes (total)	340

7001

7003

7005

H9-MW-1

H9-MW-2

H9-MW-3

H9-MW-4

H9-MW-5

H9-MW-6

0 50 100

SCALE IN FEET

LEGEND

- Monitor Well
- Former Fuel Transfer Line/ASTs
- Approximate Excavation Area (2009)
- U Not Detected
- J Estimated Value

Constituent	ACL
VOCs	
Benzene	700
Toluene	--
Ethylbenzene	--
Xylenes (total)	--

PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: U.S. ARMY (2011).

NOTES:

1) Monitor wells (H9-MW-1 through H9-MW-6) were surveyed by Bateman Civil Survey (February 2010).
2) H9-MW-1 and H9-MW-6 not sampled as part of semiannual monitoring activities.
3) H9-MW-4 could not be located.
4) All concentrations reported in micrograms per liter (µg/L).
5) No values exceed the Alternative Concentration Limit (ACL).

HUNTER ARMY AIRFIELD, GEORGIA
FORMER ASTS 7001 AND 7003
BULK FUEL FACILITY (HAA-09 – RELEASE #3)
CORRECTIVE ACTION PLAN PROGRESS REPORT #9

BTEX Detected in Groundwater Monitor Wells (October 2012)

ARCADIS

FIGURE
3a

H9-MW-4	4/15/2013	DUP
Benzene	11	14
Toluene	< 0.5 U	< 0.5 U
Ethylbenzene	25	30
Xylenes (total)	5.1	6.6

H9-MW-3	4/19/2013
Benzene	< 0.5 U
Toluene	< 0.5 U
Ethylbenzene	< 0.5 U
Xylenes (total)	< 0.5 U

H9-MW-5	6/17/2013
Benzene	3.2
Toluene	5.4
Ethylbenzene	1.2
Xylenes (total)	4.2

H9-MW-2	4/15/2013
Benzene	62
Toluene	4.1
Ethylbenzene	320
Xylenes (total)	710

7001

7003

7005

H9-MW-1

H9-MW-2

H9-MW-3

H9-MW-4

H9-MW-5

H9-MW-6

0 50 100

SCALE IN FEET

LEGEND

- Monitor Well
- Former Fuel Transfer Line/ASTs
- Approximate Excavation Area (2009)
- U Not Detected

Constituent	ACL
VOCs	
Benzene	700
Toluene	--
Ethylbenzene	--
Xylenes (total)	--

PROJECTION: NAD83 State Plane Georgia East Feet
AERIAL SOURCE: U.S. ARMY (2011).

NOTES:

1) Monitor wells (H9-MW-1 through H9-MW-6) were surveyed by Bateman Civil Survey (February 2010).
2) H9-MW-1 and H9-MW-6 not sampled as part of semiannual monitoring activities.
3) All concentrations reported in micrograms per liter (µg/L).
4) Highlight indicates the Alternative Concentration Limit (ACL) was exceeded.

HUNTER ARMY AIRFIELD, GEORGIA
FORMER ASTS 7001 AND 7003
BULK FUEL FACILITY (HAA-09 – RELEASE #3)
CORRECTIVE ACTION PLAN PROGRESS REPORT #9

BTEX Detected in Groundwater Monitor Wells (April-June 2013)

ARCADIS

FIGURE
3b

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) LD:(B.ALTOM) PIC:(T.TAHALE) PM:(S.GIBBONS) APM:(S.BOSTIAN)
PROJECT: GP08HAFS.2012.N09RP PATH: G:\GIS\HAAF\MAPDOCS\H09\2013\CAP PROGRESS 9\F3B H09_CAP9 201304 GW BTEX.MXD SAVED: 7/1/2013 BY: BALTOM

ARCADIS

Appendices

Appendix I

Laboratory Analytical Reports

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

ARCADIS U.S., Inc.
30 Patewood Drive
Suite 155
Greenville, SC 29615
Attention: Rachelle Borne

Project Name: **HAA-09**

Project Number: **GP08HAFS.HA09.NALTM**

Lot Number: **OD20007**

Date Completed: **04/29/2013**

Nisreen Saikaly
Project Manager

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

OD20007

Case Narrative
ARCADIS U.S., Inc.
Lot Number: OD20007

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Sample Summary
ARCADIS U.S., Inc.
Lot Number: OD20007

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	H9-MW-4(041513	Aqueous	04/15/2013 1747	04/20/2013
002	H9-MW-2(041513)	Aqueous	04/15/2013 1836	04/20/2013
003	H9-MW-3(041913)	Aqueous	04/19/2013 1145	04/20/2013
004	TRIP BLANK	Aqueous	04/19/2013	04/20/2013
005	H9-DUP-1(041513)	Aqueous	04/15/2013	04/20/2013

(5 samples)

Executive Summary
ARCADIS U.S., Inc.
Lot Number: OD20007

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	H9-MW-4(041513	Aqueous	Benzene	8260B	11		ug/L	5
001	H9-MW-4(041513	Aqueous	Ethylbenzene	8260B	25		ug/L	5
001	H9-MW-4(041513	Aqueous	Toluene	8260B	0.23	J	ug/L	5
001	H9-MW-4(041513	Aqueous	Xylenes (total)	8260B	5.1		ug/L	5
002	H9-MW-2(041513)	Aqueous	Benzene	8260B	62		ug/L	6
002	H9-MW-2(041513)	Aqueous	Ethylbenzene	8260B	320		ug/L	6
002	H9-MW-2(041513)	Aqueous	Toluene	8260B	4.1		ug/L	6
002	H9-MW-2(041513)	Aqueous	Xylenes (total)	8260B	710		ug/L	6
005	H9-DUP-1(041513)	Aqueous	Benzene	8260B	14		ug/L	9
005	H9-DUP-1(041513)	Aqueous	Ethylbenzene	8260B	30		ug/L	9
005	H9-DUP-1(041513)	Aqueous	Toluene	8260B	0.27	J	ug/L	9
005	H9-DUP-1(041513)	Aqueous	Xylenes (total)	8260B	6.6		ug/L	9

(12 detections)

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **OD20007-001**
Description: **H9-MW-4(041513**
Matrix: **Aqueous**
Date Sampled: **04/15/2013 1747**
Date Received: **04/20/2013**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	04/25/2013 1449	JAC		19132

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**11**		**0.50**	**0.027**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**25**		**0.50**	**0.17**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**0.23**	**J**	**0.50**	**0.17**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**5.1**		**0.50**	**0.17**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		108	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **OD20007-002**
Description: **H9-MW-2(041513)**
Matrix: **Aqueous**
Date Sampled: **04/15/2013 1836**
Date Received: **04/20/2013**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	04/25/2013 1733	JAC		19132

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**62**		**2.5**	**0.14**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**320**		**2.5**	**0.85**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**4.1**		**2.5**	**0.85**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**710**		**2.5**	**0.85**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **OD20007-003**
Description: **H9-MW-3(041913)**
Matrix: **Aqueous**
Date Sampled: **04/19/2013 1145**
Date Received: **04/20/2013**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	04/27/2013 1634	RGB		19241

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		110	70-130
Bromofluorobenzene		109	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **OD20007-004**
Description: **TRIP BLANK**
Matrix: **Aqueous**
Date Sampled: **04/19/2013**
Date Received: **04/20/2013**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	04/25/2013 1426	JAC		19132

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **OD20007-005**
Description: **H9-DUP-1(041513)**
Matrix: **Aqueous**
Date Sampled: **04/15/2013**
Date Received: **04/20/2013**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	04/26/2013 0856	JAC		19151

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**14**		**0.50**	**0.027**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**30**		**0.50**	**0.17**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**0.27**	**J**	**0.50**	**0.17**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**6.6**		**0.50**	**0.17**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		109	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ19132-001
Batch: 19132
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	0.50	0.027	ug/L	04/25/2013 1334
Ethylbenzene	ND		1	0.50	0.17	ug/L	04/25/2013 1334
Toluene	ND		1	0.50	0.17	ug/L	04/25/2013 1334
Xylenes (total)	ND		1	0.50	0.17	ug/L	04/25/2013 1334

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		109	70-130
1,2-Dichloroethane-d4		111	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ19132-002
Batch: 19132
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	46		1	92	70-130	04/25/2013 1200
Ethylbenzene	50	49		1	98	70-130	04/25/2013 1200
Toluene	50	49		1	97	70-130	04/25/2013 1200
Xylenes (total)	100	100		1	105	70-130	04/25/2013 1200

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		116	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ19132-003
Batch: 19132
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	44		1	89	3.9	70-130	20	04/25/2013 1223
Ethylbenzene	50	49		1	98	0.39	70-130	20	04/25/2013 1223
Toluene	50	47		1	95	2.8	70-130	20	04/25/2013 1223
Xylenes (total)	100	100		1	102	2.2	70-130	20	04/25/2013 1223

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		112	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ19151-001
Batch: 19151
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	0.50	0.027	ug/L	04/26/2013 0133
Ethylbenzene	ND		1	0.50	0.17	ug/L	04/26/2013 0133
Toluene	ND		1	0.50	0.17	ug/L	04/26/2013 0133
Xylenes (total)	ND		1	0.50	0.17	ug/L	04/26/2013 0133

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ19151-002
Batch: 19151
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	40		1	79	70-130	04/25/2013 2359
Ethylbenzene	50	45		1	90	70-130	04/25/2013 2359
Toluene	50	41		1	82	70-130	04/25/2013 2359
Xylenes (total)	100	94		1	94	70-130	04/25/2013 2359

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		118	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ19151-003
Batch: 19151
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	43		1	87	8.7	70-130	20	04/26/2013 0022
Ethylbenzene	50	46		1	92	1.5	70-130	20	04/26/2013 0022
Toluene	50	46		1	92	12	70-130	20	04/26/2013 0022
Xylenes (total)	100	95		1	95	1.2	70-130	20	04/26/2013 0022

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		112	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ19241-001
Batch: 19241
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	0.50	0.027	ug/L	04/27/2013 1501
Ethylbenzene	ND		1	0.50	0.17	ug/L	04/27/2013 1501
Toluene	ND		1	0.50	0.17	ug/L	04/27/2013 1501
Xylenes (total)	ND		1	0.50	0.17	ug/L	04/27/2013 1501

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		107	70-130
1,2-Dichloroethane-d4		114	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ19241-002
Batch: 19241
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	46		1	91	70-130	04/27/2013 1327
Ethylbenzene	50	48		1	96	70-130	04/27/2013 1327
Toluene	50	49		1	97	70-130	04/27/2013 1327
Xylenes (total)	100	100		1	101	70-130	04/27/2013 1327

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		110	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ19241-003
Batch: 19241
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	44		1	89	2.9	70-130	20	04/27/2013 1350
Ethylbenzene	50	49		1	98	2.0	70-130	20	04/27/2013 1350
Toluene	50	48		1	96	0.89	70-130	20	04/27/2013 1350
Xylenes (total)	100	100		1	103	1.7	70-130	20	04/27/2013 1350

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		110	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
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Chain of Custody Record

Number 21093

Client: ARCADIS	Report to Contact: Scott Bostian	Sampler (Printed Name): Jory Fix	Quote No.
Address: 801 Corporate Center Dr #300	Telephone No. / Fax No. / Email: 919.854.1282 scott.bostian@arcadis-us.com	Waybill No.	Page 1 of 1
City: Raleigh State: NC Zip Code: 27607	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers: 3
Project Name: HAA-09			Bottle (See Instructions on back): 4
			Preservative: 5
Project Number: HAA09 ANALYTS GPOPLAFS	P.O Number		Lot No. 0020007

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	GW	DW	WW	S	Other	Analysis: BTEX	Remarks / Cooler ID
H9-MW-4(041513)	4/15/13	1747	G	X					X	
H9-MW-2(041513)	4/15/13	1836	G	X					X	
H9-MW-3(041913)	4/19/13	1145	G	X					X	
Trip Blank	4/19/13	—	—	-					X	
H9-Dup-1(041513)	4/15/13	0000	G	X					X	

JMF 4/19/13

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	4/19/13	1500	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: [signature]	4/20/13	0905	4. Laboratory Received by: [signature]	4/20/13	0905

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☒ Yes ☐ No ☐ Ice Pack | Receipt Temp. 1.2 °C | Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 11

Replaces Date: 01/28/13
Effective Date: 04/18/13

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: [illegible] 4/20/13 Lot #: 602007

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other			
Yes ☑	No ☐		1. Were custody seals present on the cooler?
Yes ☑	No ☐		2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt 1.0 °C / °C / °C / °C Method: ☐ Temperature Blank ☑ Against Bottles Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☐	No ☑		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☑	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☐	No ☑		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☑	NA ☐	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number)

Sample(s) _____ were received with bubbles >6 mm in diameter.

Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/phenol

Sample labels verified by: AAC Date: 4/20/13

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐

SESI employee: _____ Date of response: _____

Comments: _____

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: OD20007
HAA-09

Analytical data were evaluated in accordance with applicable USEPA SW-846 method requirements, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (July 2002), analytical method control criteria, the analytical laboratory Quality Assurance Control Limits, the Fort Stewart Military Reservation and Hunter Army Airfield Quality Assurance Project Plan (ARCADIS-2008), and professional judgment.

The data review summarized in this report includes a review of all sample collection documentation and the electronic data validation of the analytical data housed in the project database. Sample collection documentation included sample collection logs and chains of custody. The electronic data validation was performed utilizing the EQuIS Data Qualification Module (DQM). DQM checks for the following parameters:

- Holding times and preservation;
- Blank contamination;
    1. Method blanks,
    2. Trip blanks,
    3. Equipment blanks;
- Matrix spike and Duplicate sample recovery;
- Matrix Spike and Matrix Spike Duplicate relative percent differences;
- Laboratory Control Sample and Duplicate recovery;
- Laboratory Control Sample and Duplicate relative percent differences;
- Surrogate recovery (organic analyses only); and
- Field duplicate relative percent difference.

Manual review was performed for the following items:

- Sample dilutions and reporting limits;
- Case Narratives; and
- Laboratory Duplicates

Data was generated by Shealy Environmental Services, Inc. – West Columbia, South Carolina and Test America – Savannah Laboratories. Data qualifiers were applied electronically to the database with any additional qualifiers added manually. A summary of the data as amended by data qualifiers is included with the original hard copy reports.

The attached table summarizes the data that were qualified due to QC deficiencies. The table indicates compounds/analytes qualified based on electronic and manual validation. Refer to the associated method section of the validation checklist for a detailed explanation of qualification. All other data in these SDGs are considered usable as reported.

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: OD20007
HAA-09

The following list of data qualifiers and definitions were applied in accordance with qualification criteria defined in the greater than guidance documents:

UB Compound/analyte detected in blank or associated blank, qualified as a non-detect at listed value.

J The analyte was positively identified, but the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected greater than the reporting limit; however, the reported quantitation limit is approximate and may, or may not represent the actual limit of quantitation necessary to accurately and precisely measure analyte in the sample.

R The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria; and the presence or absence of the analyte cannot be verified.

U Not detected at the quantitative reporting limit

DQM RUN BY:	Rachelle Borne	June 10, 2013
REVIEW PERFORMED BY:	Rachelle Borne	June 10, 2013
SIGNATURE:		June 10, 2013

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: OD20007
HAA-09

The following samples were included in this SDG:

SDG	Sample ID	Sample Date	Parent Sample
OD20007	H9-MW-2(041513)	4/15/2013	
OD20007	H9-MW-3(041913)	4/19/2013	
OD20007	H9-MW-4(041513)	4/15/2013	
OD20007	TRIP BLANK_20130419	4/19/2013	
OD20007	H9-DUP-1(041513)	4/15/2013	H9-MW-4(041513)

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: OD20007
HAA-09

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample results		X		X	
2. Parameters analyzed		X		X	
3. Methods of analysis		X		X	
4. Reporting limits of analysis		X		X	
5. Master tracking list		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preparation/extraction date		X		X	
9. Sample analysis date		X		X	
10. Copy of chain-of-custody form signed by lab sample custodian		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Laboratory Signature		X		X	
13. South Carolina Certification Number		X		X	

QA - quality assurance

The analytical report was complete with the following exceptions or notations.

Note: The laboratory reported values between the quantitative reporting limit and the method detection limit as estimated concentrations. The "J" qualifier was retained in this validation. Non-detect values are reported at the quantitative reporting limit.

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: OD20007
HAA-09

VOLATILE ORGANIC COMPOUNDS

Items Reviewed	DQM Deficiency		Qualification Applied	
	No	Yes	No	Yes
1. Holding times/Preservation	DQM		DQM	
2. Reporting limits	M		M	
3. Blanks				
A. Method blanks	DQM		DQM	
B. Equipment blanks	NA		NA	
C. Trip blanks	DQM		DQM	
4. Surrogate spike recoveries	DQM		DQM	
5. Laboratory control sample (LCS) A. LCS %R	DQM		DQM	
B. LCS duplicate (LCSD) %R	DQM		DQM	
C. LCS/LCSD RPD	DQM		DQM	
6. Matrix spike (MS)				
A. MS %R	NA		NA	
B. MS duplicate (MSD) %R	NA		NA	
C. MS/MSD precision (RPD)	NA		NA	
7. Field/Lab Duplicate precision (RPD)	DQM		DQM	

M – Manual Review %R - percent recovery RPD - relative percent difference
DQM – Data Qualification Module

Comments:
This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method 8260B.

7. Sample H9-DUP-1(041513) was collected as a field duplicate of H9-MW-4(041513). The RPDs were acceptable at less than 40%.

Report of Analysis

ARCADIS U.S., Inc.
30 Patewood Drive
Suite 155
Greenville, SC 29615
Attention: Rachelle Borne

Project Name: Hunter Stewart HAA-09

Project Number: GP08HAFS.2012.NO9GM

Lot Number: OF18008

Date Completed: 06/24/2013

Nisreen Saikaly
Project Manager

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

OF18008

Case Narrative
ARCADIS U.S., Inc.
Lot Number: OF18008

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Sample Summary
ARCADIS U.S., Inc.
Lot Number: OF18008

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	H9-MW-5	Aqueous	06/17/2013 1230	06/18/2013
002	Trip Blank	Aqueous	06/17/2013	06/18/2013

(2 samples)

Executive Summary

ARCADIS U.S., Inc.

Lot Number: OF18008

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	H9-MW-5	Aqueous	Benzene	8260B	3.2		ug/L	5
001	H9-MW-5	Aqueous	Ethylbenzene	8260B	1.2		ug/L	5
001	H9-MW-5	Aqueous	Toluene	8260B	5.4		ug/L	5
001	H9-MW-5	Aqueous	Xylenes (total)	8260B	4.2		ug/L	5

(4 detections)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: OF18008-001
Description: H9-MW-5
Matrix: Aqueous
Date Sampled: 06/17/2013 1230
Date Received: 06/18/2013

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/21/2013 0431	TAF		23334

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	3.2		0.50	0.027	ug/L	1
Ethylbenzene	100-41-4	8260B	1.2		0.50	0.17	ug/L	1
Toluene	108-88-3	8260B	5.4		0.50	0.17	ug/L	1
Xylenes (total)	1330-20-7	8260B	4.2		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	70-130
Bromofluorobenzene		110	70-130
Toluene-d8		94	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: OF18008-002
Description: Trip Blank
Matrix: Aqueous
Date Sampled: 06/17/2013
Date Received: 06/18/2013

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/21/2013 0350	TAF		23334

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		94	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ23334-001
Batch: 23334
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	0.50	0.027	ug/L	06/21/2013 0258
Ethylbenzene	ND		1	0.50	0.17	ug/L	06/21/2013 0258
Toluene	ND		1	0.50	0.17	ug/L	06/21/2013 0258
Xylenes (total)	ND		1	0.50	0.17	ug/L	06/21/2013 0258

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		109	70-130
1,2-Dichloroethane-d4		88	70-130
Toluene-d8		94	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ23334-002
Batch: 23334
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	48		1	97	70-130	06/20/2013 2351
Ethylbenzene	50	54		1	109	70-130	06/20/2013 2351
Toluene	50	47		1	95	70-130	06/20/2013 2351
Xylenes (total)	100	100		1	101	70-130	06/20/2013 2351

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		85	70-130
Toluene-d8		95	70-130

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ23334-003
Batch: 23334
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	98	1.7	70-130	20	06/21/2013 0033
Ethylbenzene	50	55		1	110	1.3	70-130	20	06/21/2013 0033
Toluene	50	48		1	97	2.1	70-130	20	06/21/2013 0033
Xylenes (total)	100	100		1	103	1.6	70-130	20	06/21/2013 0033

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		85	70-130
Toluene-d8		95	70-130

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY

Chain of Custody Record

Number 35121

Client: ARCADIS	Report to Contact: Scott Bastian	Sampler (Printed Name): Jared Fino	Quote No.
Address: 801 Corporate Center Dr Ste 300	Telephone No. / Fax No. / Email: 919-854-1282 Scott.bastian@arcadis-us.com	Waybill No.	Page 1 of 1
City: Raleigh State: NC Zip Code: 27607	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: HAA-09			
Project Number: G-08HAFS.2012.N09GM	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	C=Grab G=Composite	Matrix: GW	DW	WW	S	Other	Analysis	Number of Containers	Bottle (See Instructions on back)	Preservative	Lot No.	Remarks / Cooler ID
										3	2		0F18008	
										A	A			
										5	5			
H9-MW-5	6/17/13	1230	G	X					BTEX	X				
Trip blank	6/17/13	0000	G	X					BTEX		X			

JMA 6/17/13

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by (Sampler)	6/17/13	1500	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	6-18-13	0900	4. Laboratory Received by	6-18-13	0900

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Check) ☒ Yes ☐ No ☐ Ice Pack — Receipt Temp. 1.0 °C — Temp. Blank ☒ Y ☐ N

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Level 1 Report v2.1

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 11

Page 1 of 1
Replaces Date: 01/28/13
Effective Date: 04/18/13

Sample Receipt Checklist (SRC)

Client: Area Dis Cooler Inspected by/date: GM 6/18/13 Lot #: OF18008

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other			
Yes ☑	No ☐		1. Were custody seals present on the cooler?
Yes ☑	No ☐		2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt 1239/ °C / °C / °C / °C			
Method: ☑ Temperature Blank ☐ Against Bottles			
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☑	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☑	No ☐		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number)

Sample(s) _____ were received with bubbles >6 mm in diameter.

Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/phenol

Sample labels verified by: _____ Date: 6/18/13

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐

SESI employee: _____ Date of response: _____

Comments: _____

Appendix II

Other Site Data

SITE RANKING FORM

Facility Name: **Former AST7001/7003 (HAA-09)** **Ranked by:** **S. Bostian**

Facility ID: **9-025113*3** **County:** **Chatham** **Date Ranked:** **6/26/2013**

SOIL CONTAMINATION

A. Total Regulated PAHs – Maximum concentration at the site (Assume < 0.660 mg/kg if only gasoline was stored on site)

X ≤ 0.0660 = 0
____ .066-0.99 mg/kg = 10
____ 1-10 mg/kg = 25
____ >10 mg/kg = 50
Excavation removed all soil above ATLs.

B. Total Benzene – Maximum Concentration found on the site

X ≤ 0.005 mg/kg = 0
____ >0.005 - .05 mg/kg = 1
____ .05 – .99 = 10
____ 1 – 9.9 = 25
____ 10 – 49.9 mg/kg = 40
____ ≥ 50 mg/kg = 50
Excavation removed all soil above ATLs.

C. DEPTH TO GROUNDWATER – (Shallowest)
(bls = below land surface)

____ > 50' bls = 1
____ > 25' bls = 2
____ > 10' bls = 5
X ≤ 10' bls = 10

Fill in the blanks: ((A. 0) + (B. 0)) x (C. (10) = D. (0)

GROUNDWATER CONTAMINATION

E. Free Product (Nonaqueous-phase liquid hydrocarbons:
See Guidelines for definition of "sheen").

X No free product = 0
____ Sheen – 1/8" = 250
____ > 1/8" - 6" = 500
____ > 6" – 1ft. = 1,000
____ For every additional inch above a foot, add 100 more points = 1,000+

F. Dissolved Benzene – Maximum Concentration at the site (One well must be located at the source of the release.)

____ < 5 ug/L = 0
X >5 – 100 ug/L = 5
____ >100 – 1,000 ug/L = 50
____ >1,000 – 5,000 ug/L = 250
____ >5,000 – 10,000 ug/L = 500
____ > 10,000 ug/L = 1,500

Fill in the blanks: (E. 0) + (F. 5) = G. (5)

Facility Name:	**Former AST7001/7003 (HAA-09)**	**Ranked by:**	**S. Bostian**
Facility ID:	**9-025113*3** **County:** **Chatham**	**Date Ranked:**	**6/26/2013**

POTENTIAL RECEPTORS (Must be Field Verified)

Distance from nearest contaminant plume boundary to the nearest hydraulically connected Point of Withdrawal for water supply. This distance must be field-verified. **If the point of withdrawal is not hydraulically connected, evidence as outlined in the CAP-A guidance document MUST be presented to substantiate this claim.**

H. Public

_____	Impacted = 2,000
_____	≤ 500' = 500
_____	> 500' – 1/4 mi = 25
_____	> 1/4 mi – 1 mi = 10
_____	> 1 mi – 2 mi = 2
*X	> 2 mi = 0

For lower susceptibility areas only:

_____	> 1 mi = 0

- Technical justification for no hydraulic connection included in CAP Part B Facility ID 9-025113*1 dated July 2001.

Note: If site is in lower susceptibility area do not use the shaded areas.

I. Non-Public

_____	Impacted = 1,000
_____	≤ 100' = 500
_____	> 100' - 500' = 25
_____	> 500' – 1/4 mi = 5
_____	> 1/4 mi – 1/2 mi = 2
X	> 1/2 mi = 0

For lower susceptibility areas only:

_____	> 1/4 mi = 0

J. Distance from nearest contaminant plume boundary to downgradient Surface Waters **OR UTILITY TRENCHES & VAULTS** (Must be field verified)

_____	Impacted = 500
X	≤ 500' = 50
_____	> 500'- 1,000' = 5
_____	> 1,000' = 2

K. Distance from any Free Product to basements and crawl spaces

_____	Impacted = 500
_____	≤ 500' = 50
_____	> 500'- 1,000' = 5
X	> 1,000' = 2

Fill in the blanks:

(H. 0) + (I. 0) + (J. 50) + (K. 2) = L. 52 (G. 5) x (L. 52) = M. 260 (M. 260) + (D. 0) = N. 260

P. SUSCEPTIBILITY AREA MULTIPLIER

_____	If site is located in a Low Ground – Water Pollution Susceptibility Area = 0.5
X	All other sites = 1

Q. EXPLOSION HAZARD

Have any explosive petroleum vapors, possibly originating from this release, been detected in any subsurface structure (e.g., utility trenches, basements, vaults, crawl space, etc.)

_____	Yes = 200,000
X	No = 0

(N. 260) x (P. 1) + (Q. 0) = **260**

ENVIRONMENTAL SENSITIVITY SCORE