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Final Addendum 1 to Compliance Status Report Revision 1 HAA-15 (MCA Barracks Site)

Hunter Army Airfield
Savannah, Georgia
HSI Site #10521

Hunter Army Airfield, Georgia

May 2012

DOCUMENT 14

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***Final* Addendum 1 to**

Compliance Status Report

Revision 1

HAA-15 (MCA Barracks Site)

Prepared for:
U.S. Army Environmental Command

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Our Ref.:
GP08HAFS.H15C.DPSCR

F Monitoring Well Survey Report

G Building Construction Summary

1. Qualified Groundwater Scientist Certification

I certify that I am a qualified groundwater scientist who has received a baccalaureate or postgraduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields as demonstrated by state registration, professional certifications, or completion of accredited university courses that enable that individual to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport.

Name: Charles A. Bertz

License Number PE29498

Expiration Date: December 31, 2012

GEORGIA REGISTERED No. 29498 PROFESSIONAL ENGINEER CHARLES A. BERTZ

Charles A. Bertz

5.7.2012

Date

2. Compliance Status Certification

I certify under penalty of law that this report and all attachments were prepared under my direction in accordance with a system designed to ensure 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 fine and imprisonment for knowing violations.

Based on the findings of this report, with respect to the risk reduction standards of the Rules for Hazardous Site Response, Rule 391-3-19-.07, the installation acknowledges the identified constituents that exceed the Type 1 - 4 standards.

_____
Robert R. Baumgardt
Director, Public Works

_____
Date

3. Introduction

The U.S. Army Environmental Command (USAEC) has retained ARCADIS on behalf of Hunter Army Airfield (HAAF) to investigate and remediate impacted soil and groundwater at the MCA Barracks Site, also known as site HAA-15. As previous investigations triggered notification to the Georgia Environmental Protection Division (GAEPD), the HAA-15 site has been assigned HSI Site # 10521. The GAEPD has required HAAF to pursue delineation and clean up of impacted soil and groundwater at HAA-15 in accordance with the Hazardous Site Response Act (HSRA).

This Addendum 1 to Compliance Status Report (CSR) Revision 1 incorporates data obtained from investigations completed by ARCADIS from November 2011 through January 2011. These investigation activities were conducted by ARCADIS to complete action items from a meeting with GAEPD held on November 10, 2011.

4. Groundwater Investigations (November 2011 through December 2011)

Groundwater investigation activities conducted at HAA-15 from November 2011 through December 2011 included:

- Confirmation sampling of one groundwater monitoring well.
- Installation of one shallow groundwater monitoring well and one deep monitoring well followed by development and sampling.

Procedures and techniques utilized for this investigation conformed to United States Environmental Protection Agency (USEPA) Region 4 Science and Ecosystem Support Division (SESD) guidance (USEPA 2008) and the Sampling and Analysis Plan (ARCADIS 2009) for this site.

4.1 Confirmation Sampling (November 2011)

Monitoring well H15-MW-14C was sampled in November 2011 to confirm analytical results from a groundwater sample collected in August 2011. Low-flow techniques were used to collect the groundwater sample. During well purging activities, field measurements that were collected included pH, specific conductance, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO) and turbidity. The sample was submitted to Shealy Environmental Services, Inc. (Shealy), in West Columbia, South Carolina, for volatile organic compound (VOC) analysis by USEPA Method 8260B. Purge water from the sampling event was containerized and characterized for off-site disposal. Copies of the field sampling data sheets are included in Appendix A.

4.2 Monitoring Well Installations (December 2011)

Two new groundwater monitoring wells (H15-MW-09A and H15-MW-21C) were installed in December 2011. Locations of the new monitoring wells are shown on Figure 1.

One shallow monitoring well, H15-MW-09A, was installed adjacent to existing monitoring well H15-MW-09C. H15-MW-09A was installed on a narrow peninsula in Pond #29 to assess potential impacts of the shallow zone VOC plume on surface water in the pond. Pond #29 is located west of and cross-gradient from the VOC plume. The H15-MW-09A screened interval (5-15 feet below ground surface [bgs]) was selected to

encompass the historical range of elevations in the surficial aquifer and in the surface water in Pond #29.

One deep monitoring well, H15-MW-21C, was installed southwest of Hangar 850 to delineate VOCs upgradient of the former Waste Water Treatment Plant (WWTP) area. H15-MW-21C was constructed with a screened interval of 35-45 feet bgs to monitor the same zone as H15-MW-14C and other "C" zone wells in the existing monitoring well network.

Both wells were installed by Parratt Wolff, Inc., an environmental drilling firm, under the supervision of an ARCADIS field geologist. Wells were constructed of two-inch-diameter Schedule 40 PVC with a 10-foot screen. Well screens consist of flush threaded, 0.010-in. slotted Schedule 40 PVC and pre-packed clean, inert, siliceous No. 1 sand material. Additional No. 1 sand material was used to construct a uniform and continuous filter pack up to two feet above the top of the screen. A two foot thick layer of bentonite pellets was placed above the sand pack and hydrated to provide a proper seal. A Portland cement seal was then pumped into the annular space between the well and the outside of the borehole using a PVC tremie pipe up to a depth of approximately one foot bgs. Monitor wells were completed at ground surface with flush mount protective vaults, concrete pads, and locking well seals. Wells were developed with a decontaminated electric submersible pump. Investigation-Derived Waste (IDW), including soil cuttings and development water, were containerized and characterized for off-site disposal. Well construction logs are included in Appendix B. Well development logs are included in Appendix C. The monitor wells were surveyed for location and elevation by EMC Engineering Services, Inc., a land surveyor registered in the state of Georgia. Construction details of site monitor wells are summarized in Table 1. The survey data are included in Appendix F.

4.3 Groundwater Sampling (December 2011)

New monitoring wells H15-MW-09A and H15-MW-21C were sampled in December 2011. Low-flow techniques were used to collect groundwater samples. During well purging activities, field measurements collected included pH, specific conductance, temperature, ORP, DO and turbidity. Samples were submitted to Shealy for VOC analysis by USEPA Method 8260B. Purge water from the sampling event was containerized and characterized for off-site disposal. Copies of the field sampling data sheets are included in Appendix A.

5. Groundwater Investigation Results

The following sections summarize analytical results from groundwater samples collected at the HAA-15 site from November 2011 to December 2011. The analytical data for the shallow and deep intervals of the upper aquifer were added to Tables 2 and 3, respectively, and are presented on Figures 2 and 3, respectively.

Laboratory analytical reports are included in Appendix D. Analytical validation reports are included in Appendix E.

5.1 Confirmation Sampling (November 2011)

The following VOCs were detected in the confirmation groundwater sample collected from monitoring well H15-MW-14C in November 2011:

- Cis-1,2-dichloroethene (DCE) was detected at a concentration of 41 micrograms per Liter (µg/L).
- Trans-1,2-DCE was detected at a concentration of 9.4 µg/L.
- Trichloroethene (TCE) was detected at a concentration of 39 µg/L. This detection exceeded the Type 1 Risk Reduction Standard (RRS).

These results are consistent with analytical results from the groundwater sample collected from the same well in August 2011.

5.2 Groundwater Sampling (December 2011)

VOCs were not detected above the Practical Quantitation Limit (PQL) in the groundwater sample collected from H15-MW-21C in December 2011.

The following VOCs were detected in the groundwater sample collected from monitoring well H15-MW-09A in December 2011:

- Benzene was detected at a concentration of 1.4 µg/L.
- cis-1,2-DCE was detected at a concentration of 18 µg/L.
- 1,2-Dichlorobenzene was detected at a concentration of 1.6 µg/L.
- TCE was detected at a concentration of 2.8 µg/L.

None of these detections exceeded the Type 1 RRS.

6. Review of Building Construction Drawings Relative to Vapor Intrusion

As presented in the CSR Revision 1 (ARCADIS 2011), VOC groundwater impacts associated with HAA-15 extend beneath multiple currently or potentially inhabited buildings. A survey was conducted to assess potential preferential vapor transport pathways for these buildings. Identification numbers for buildings within the impacted area were confirmed on-site during December 2011. Subsequently, building construction drawings were reviewed on site on January 3, 2012. Copies were obtained at that time for further review.

As noted in the CSR Revision 1 (ARCADIS 2011), the TCE mass is located predominantly in the deeper zone of the upper aquifer from 35 to 50 feet bgs. Significantly lower concentrations (1 to 2 orders of magnitude) were detected in the shallow zone of the upper aquifer.

Geology within the impacted zone consists of unconsolidated sedimentary deposits. Lithologic borings performed at the site indicate that the sedimentary beds are characterized by horizontal to sub-horizontal layers of fine sands and silty fine sands. These deposits are not expected to contain preferential pathways such as fractures, coarse-grained channels, or solution channels.

Anthropogenic pathways that could facilitate lateral migration of VOC vapors primarily consist of trenches created as utility conduits. Utility conduits are also the most likely potential means for VOC vapors to vertically infiltrate buildings from below. Review of structural drawings confirmed that the buildings in the area are constructed with concrete slab floors and most were constructed with sub-slab vapor barriers. Structural drawings indicate that slab utility penetrations, such as those created for plumbing and heating, ventilation, and cooling (HVAC) were typically installed with joint fillers, sealants, or grout in conduit openings. The concrete slab floors combined with sealed utility penetration points likely prevent the occurrence of preferential pathways with high gas permeability and sufficient volume to permit significant vapor intrusion in buildings at the site. A summary of building construction details for buildings expected to be at risk of vapor intrusion based on current knowledge of the extent of VOC impacts is included in Table G-1, Appendix G. Buildings that are not intended for long-term human occupancy (e.g., buildings that contain mechanical equipment and would be briefly occupied for maintenance purposes) were not evaluated for vapor intrusion. Locations of buildings and building numbers site-wide are shown on Figure G-1, Appendix G.

7. Conclusions and Recommendations

The following conclusions are based on analytical data from groundwater samples collected in November and December 2011 and the building study related to the potential for vapor intrusion performed in December 2011 and January 2012:

- VOCs were not detected above the PQL in the groundwater sample collected from monitor well H15-MW-21C. Therefore, upgradient delineation in the WWTP area is complete.
- VOC concentrations detected in the groundwater sample collected from monitor well H15-MW-09A were minimal and did not exceed the Type 1 RRS. Therefore, the potential for significant VOC impacts to surface water in Pond #29 from the surficial aquifer plume is negligible.
- Based on the survey of construction drawings for buildings in the area, preferential pathways are not expected to exist with sufficient gas permeability and volume to facilitate VOC vapor intrusion into site buildings.

Based on the data provided herein and in the previously submitted CSR Revision 1, the following recommendations are submitted for consideration by the GAEPD:

- If construction is proposed in the area of known TCE impacts at HAA-15, consideration of a vapor intrusion barrier is highly recommended to mitigate the potential for vapor intrusion. The recommendation is that a spray-on barrier or flexible membrane liner should be utilized. If a flexible membrane liner is used, it should be at a minimum thirty (30) mil or higher and sealed properly at the footings and/or all pipes and other protruding objects. Cracks or holes in the concrete slab should be sealed with an impermeable, but flexible material.

- The CSR investigation has been completed, and the potential impacts to the environment by past activities at HAA-15 have been adequately characterized and delineated in surface soils, subsurface soils, sediment, surface water and groundwater to proceed with development and implementation of a Corrective Action Plan (CAP).
- The CAP will be developed to address chlorinated VOC impacts in groundwater and lead impacts in surface soil. A remedy for the chlorinated VOC impacts will be developed that focuses on mitigating the mass in the deep zone that is a continuing source.

8. References

ARCADIS. 2009. Sampling and Analysis Plan and Quality Assurance Project Plan. Fort Stewart Military Reservation and Hunter Army Airfield, Georgia. February.

ARCADIS. 2011. Final Compliance Status Report Revision 1, MCA Barracks Site, Hunter Army Airfield, Savannah, Georgia. November.

United States Environmental Protection Agency (USEPA), 2008. Field Branches Quality Systems and Technical Procedures, http://www.epa.gov/region4/sesd/fbqstp/. November.

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Tables

Table 1
Groundwater Elevation Data Table
Addendum 1 to CSR Revision 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

Welll Identification	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Top of Casing Elevation (ft AMSL)	Date of Water Level Measurement	February 2010 Depth to Water (ft BTOC)	February 2010 Water Elevation (ft AMSL)	September 8, 2011 Depth to Water (ft BTOC)	September 2011 Water Elevation (ft AMSL)
Shallow Wells								
HGL-1B	25	15-25	21.50	2/1/10	3.47	18.03	9.33	12.17
HGL-2B	25	15-25	12.71	2/1/10	Could Not Locate		Destroyed	
HGL-3B	25	15-25	14.01	2/1/10	Did Not Measure		Did Not Measure	
HGL-4B	25	15-25	21.50	2/1/10	4.62	16.88	6.48	15.02
HGL-5B	24	14-24	28.69	2/1/10	1.59	27.10	3.82	24.87
HGL-6B	25	15-25	35.74	2/1/10	7.13	28.61	11.27	24.47
HGL-7B	25	15-25	33.64	2/1/10	8.72	24.92	12.34	21.30
HGL-8B	23.5	13.5-23.5	25.91	2/1/10	3.97	21.94	9.22	16.69
HGL-9B	24	14-24	33.97	2/1/10	6.61	27.36	10.59	23.38
HGL-10B	25	15-25	23.39	2/1/10	3.13	20.26	4.36	19.03
HGL-11B	25	15-25	36.37	2/1/10	8.38	27.99	10.31	26.06
XX-04	12	1.9-11.9	17.01	2/1/10	Could Not Locate		Could Not Locate	
XX-05	12	1.8-11.8	18.21	2/1/10	Could Not Locate		Could Not Locate	
XX-06	12	1.9-11.9	20.67	2/1/10	Could Not Locate		Could Not Locate	
XX-07	12	1.8-11.8	20.06	2/1/10	Could Not Locate		Could Not Locate	
XX-08	13	3.0-13.0	30.42	2/1/10	8	22.42	Did Not Measure	
XX-09	12	2.0-12.0	24.63	2/1/10	Could Not Locate		Could Not Locate	
XX-10	12	2.0-12.0	20.55	2/1/10	2.16	18.39	Did Not Measure	
XX-11	12	2.0-12.0	24.84	2/1/10	Could Not Locate		Destroyed	
XX-12	12	2.0-12.0	30.43	2/1/10	7.29	23.14	Did Not Measure	
XX-13	12	1.8-11.8	22.49	2/1/10	2.8	19.69	Did Not Measure	
XX-14	12	1.8-11.8	27.62	2/1/10	4.37	23.25	Did Not Measure	
XX-15	12	1.9-11.9	26.49	2/1/10	4.35	22.14	Did Not Measure	
XX-22	31	26.0-31.0	25.17	2/1/10	Could Not Locate		Destroyed	
XX-25	34	29.0-34.0	33.51	2/1/10	5.81	27.70	9.19	24.32
XX-26 (1-S)	--	23.7-28.7	26.16	2/1/10	6.2	19.96	9.90	16.26
H15-MW-01B	25	15-25	37.19	2/1/10	7.83	29.36	11.47	25.72
H15-MW-02B	25	15-25	37.73	2/1/10	9.03	28.70	12.15	25.58
H15-MW-03B	25	15-25	36.20	Not Measured - Installed 3/31/10			10.73	25.47
H15-MW-05B	25	15-25	18.72	Not Measured - Installed 4/1/10			9.16	9.56
H15-MW-07B	25	15-25	37.73	Not Measured - Installed 5/4/10			10.34	27.39
H15-MW-09A	15	15-25	28.45	Not Measured - Installed 12/8/11			Not Measured - Installed 12/8/11	
H15-MW-14B	25	15-25	37.37	Not Measured - Installed 8/3/11			10.51	26.86
H15-MW-15B	25	15-25	36.19	Not Measured - Installed 8/8/11			7.84	28.35
H15-MW-16B	25	15-25	33.89	Not Measured - Installed 7/25/11			10.38	23.51
H15-MW-17B	25	15-25	35.66	Not Measured - Installed 7/24/11			12.46	23.2
H15-MW-18B	25	15-25	20.27	Not Measured - Installed 7/24/11			10.49	9.78
H15-MW-19B	25	15-25	24.33	Not Measured - Installed 7/25/11			7.80	16.53
Deep Wells								
HGL-1C	40	30-40	21.48	2/1/10	9.55	11.93	11.6	9.88
HGL-2C	44	34-44	12.75	2/1/10	Could Not Locate		Destroyed	
HGL-3C	40	30-40	13.93	2/1/10	Did Not Measure		Did Not Measure	
HGL-4C	40	30-40	21.47	2/1/10	4.58	16.89	6.46	15.01
HGL-5C	39	29-39	28.71	2/1/10	1.54	27.17	3.93	24.78
HGL-6C	40	30-40	35.55	2/1/10	7.51	28.04	11.69	23.86
HGL-7C	44	34-44	33.64	2/1/10	11	22.64	13.89	19.75
HGL-8C	44	34-44	25.93	2/1/10	9.65	16.28	12.87	13.06
HGL-9C	39	29-39	33.89	2/1/10	7.8	26.09	10.75	23.14
HGL-10C	40	30-40	23.39	2/1/10	3.14	20.25	4.38	19.01
HGL-11C	40	30-40	36.39	2/1/10	8.43	27.96	10.36	26.03
XX-16	46	40-45	N/A	2/1/10	Could Not Locate		Destroyed	
XX-17	46	40-45	21.28	2/1/10	6	15.28	8.02	13.26
XX-18	45	40-45	29.57	2/1/10	11.91	17.66	14.51	15.06
XX-19	43	37-42	35.8	2/1/10	9.38	26.42	12.32	23.48
XX-20	43	37-42	33.26	2/1/10	Could Not Locate		Destroyed	
XX-21	47	42.9-47.9	37.31	2/1/10	9.72	27.59	12.87	24.44
XX-23	45	41.4-46.4	34.59	2/1/10	Could Not Locate		Destroyed	
XX-24	46	36.8-41.8	35.77	2/1/10	Could Not Locate		Destroyed	
XX-26 (2-M)	--	29.9-34.8	26.21	2/1/10	7.97	18.24	11.36	14.85
XX-26 (3-D)	--	37.4-42.3	26.15	2/1/10	9.14	17.01	11.83	14.32
H15-MW-01C	45	35-45	37.22	2/1/10	8.4	28.82	11.57	25.65
H15-MW-02C	45	35-45	37.34	Not Measured - Installed 3/30/10			12.41	24.93
H15-MW-02D	73	68-73	37.44	Not Measured - Installed 8/20/11			20.31	17.13
H15-MW-02E	125	120-125	37.78	Not Measured - Installed 8/24/11			25.10	12.68
H15-MW-03C	45	35-45	36.20	Not Measured - Installed 3/31/10			11.24	24.96
H15-MW-04C	45	35-45	33.09	Not Measured - Installed 3/31/10			12.71	20.38
H15-MW-05C	45	35-45	18.62	Not Measured - Installed 5/3/10			9.35	9.27
H15-MW-06C	45	35-45	22.29	Not Measured - Installed 5/3/10			9.58	12.71
H15-MW-07C	45	35-45	37.56	Not Measured - Installed 5/5/10			10.22	27.34
H15-MW-08C	45	35-45	20.64	Not Measured - Installed 8/4/11			9.95	10.69
H15-MW-09C	45	35-45	28.32	Not Measured - Installed 8/2/11			13.38	14.94
H15-MW-10C	45	35-45	36.07	Not Measured - Installed 8/2/11			11.72	24.35
H15-MW-11C	45	35-45	22.93	Not Measured - Installed 8/2/11			8.43	14.5
H15-MW-12C	44.5	34.5-44.5	24.33	Not Measured - Installed 8/3/11			7.01	17.32
H15-MW-13C	45	35-45	28.24	Not Measured - Installed 8/4/11			7.47	20.77
H15-MW-14C	45	35-45	37.49	Not Measured - Installed 8/3/11			11.42	26.07
H15-MW-15C	45	35-45	36.13	Not Measured - Installed 8/8/11			7.80	28.33
H15-MW-20E	125	120-125	33.65	Not Measured - Installed 8/29/11			29.10	4.55
H15-MW-21C	45	35-45	37.72	Not Measured - Installed 12/8/2011			Not Measured - Installed 12/8/2011	

Notes:
ft bgs - feet below ground surface
ft AMSL - feet above mean sea level
ft BTOC - feet below top of casing
N/A - XX-16 well destroyed before survey complete
'--' - indicates total well depth not measured

Table 2
Groundwater Analyses from the Shallow Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revision 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	HGL-1B	HGL-4B	HGL-5B	HGL-6B	HGL-7B	HGL-8B	HGL-9B	HGL-10B	HGL-11B	XX-12	XX-13	XX-15
		Sample Date	2/2/2010	2/2/2010	2/3/2010	2/4/2010	2/4/2010	2/2/2010	2/3/2010	2/2/2010	2/2/2010	2/3/2010	4/12/2010	2/2/2010
Chemical Name	MCL	Type I RRS												
VOCs - USEPA Method 8260B (µg/L)														
1,1,1-Trichloroethane	200	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	--	0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	--	4,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	7	7	< 0.5	< 0.5	< 0.5	**0.18 J**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	70	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane (DBCP)	.2	0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane (EDB)	.05	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	600	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	75	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	--	2,000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
2-Hexanone	--	--	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
4-Methyl-2-pentanone	--	--	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Acetone	--	4,000	< 10.0	< 10.0	< 10.0	**18**	**19**	< 10.0	**1.7 J**	< 10.0	< 10.0	**1.1 J**	**4.1 J**	< 10.0
Benzene	5	5	< 0.5	**0.12 JB**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.12 JB**	< 0.5	< 0.5	< 0.5
Benzene, 1-methylethyl	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	--	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	--	4,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CFC-11	--	2,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CFC-12	--	1,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorodibromomethane	--	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	--	100	< 0.5	< 0.5	< 0.5	**0.25 J**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	--	3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	70	--	< 0.5	< 0.5	**0.29 J**	**2.6**	**1.0**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.79**
cis-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cyclohexane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	700	700	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylbenzene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m-Dichlorobenzene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl acetate	--	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether	--	--	**7.4**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methylcyclohexane	--	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Table 2
Groundwater Analyses from the Shallow Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revision 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	HGL-1B	HGL-4B	HGL-5B	HGL-6B	HGL-7B	HGL-8B	HGL-9B	HGL-10B	HGL-11B	XX-12	XX-13	XX-15
		Sample Date	2/2/2010	2/2/2010	2/3/2010	2/4/2010	2/4/2010	2/2/2010	2/3/2010	2/2/2010	2/2/2010	2/3/2010	4/12/2010	2/2/2010
Chemical Name	MCL	Type I RRS												
VOCs Continued - USEPA Method 8260B (µg/L)														
Methylene Chloride	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**1.4**	< 0.5	< 0.5	< 0.5
Toluene	1,000	1,000	< 0.5	**0.27 JB**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.39 JB**	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 U	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 U	< 0.5	< 0.5	< 0.5
Tribromomethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 U	< 0.5	< 0.5	< 0.5
Trichloroethene	5	5	< 0.5	< 0.5	< 0.5	**17**	**40**	**0.12 J**	< 0.5	< 0.5	**0.47 J**	< 0.5	< 0.5	**5.0**
Vinyl Chloride	2	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 U	< 0.5	< 0.5	< 0.5
Xylenes (total)	10,000	10,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.18 JB**	< 0.5	< 0.5	< 0.5

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Table 2
Groundwater Analyses from the Shallow Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revision 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	XX-25	XX-26 (1-S)	H15-MW-01B	H15-MW-02B	H15-MW-03B	H15-MW-05B	H15-MW-07B	H15-MW-07B*	H15-MW-09A	H15-MW-14B	H15-MW-15B	H15-MW-16B	H15-MW-17B	H15-MW-18B	H15-MW-19B
		Sample Date	2/3/2010	2/3/2010	2/3/2010	2/4/2010	4/12/2010	6/15/2010	5/13/2010	5/13/2010	12/15/2011	8/11/2011	8/19/2011	8/10/2011	8/17/2011	8/18/2011	8/18/2011
Chemical Name	MCL	Type I RRS															
VOCs - USEPA Method 8260B (µg/L)																	
1,1,1-Trichloroethane	200	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	--	0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	--	4,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	7	7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**0.33 J**	< 1.0	< 1.0
1,2,4-Trichlorobenzene	70	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane (DBCP)	.2	0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	.05	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	--	< 0.5	< 0.5	< 0.5	< 0.5	**0.37 J**	< 0.5	< 0.5	< 0.5	**1.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**0.41 J**	< 1.0	< 1.0
1,4-Dichlorobenzene	75	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**0.42 J**	< 1.0	< 1.0
2-Butanone (MEK)	--	2,000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10
2-Hexanone	--	--	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	**0.27 J**	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	--	--	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Acetone	--	4,000	< 10.0	< 10.0	< 10.0	**18**	**9.2 J**	< 10.0	**2.2 J**	**7.2 J**	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Benzene	5	5	< 0.5	< 0.5	< 0.5	< 0.5	**0.22 J**	< 0.5	< 0.5	< 0.5	**1.4**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**0.26 J**
Benzene, 1-methylethyl	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	--	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 UJ	< 2.0
Carbon disulfide	--	4,000	< 0.5	< 0.5	< 0.5	< 0.5	**0.27 J**	< 0.5	**0.31 J**	**3.3**	< 1.0	< 1.0	**0.10 J**	< 1.0	< 1.0	< 1.0	< 1.0
Carbon Tetrachloride	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
CFC-11	--	2,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
CFC-12	--	1,000	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chlorodibromomethane	--	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Chloroethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	--	100	< 0.5	< 0.5	< 0.5	**1.1**	**0.99**	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	--	3	< 0.5	< 0.5	< 0.5	< 0.5	**0.26 J**	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	70	--	< 0.5	< 0.5	**0.21 J**	**11**	**120**	**0.51**	**0.65**	**0.40 J**	**18**	< 1.0	**0.50 J**	< 1.0	**9.0**	< 1.0	**1.5**
cis-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	700	< 0.5	< 0.5	< 0.5	< 0.5	**1.6**	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	**1.4**	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
m-Dichlorobenzene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	--	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylcyclohexane	--	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	NA	NA	NA	NA	NA	NA	NA

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Table 2
Groundwater Analyses from the Shallow Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revision 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	XX-25	XX-26 (1-S)	H15-MW-01B	H15-MW-02B	H15-MW-03B	H15-MW-05B	H15-MW-07B	H15-MW-07B*	H15-MW-09A	H15-MW-14B	H15-MW-15B	H15-MW-16B	H15-MW-17B	H15-MW-18B	H15-MW-19B
		Sample Date	2/3/2010	2/3/2010	2/3/2010	2/4/2010	4/12/2010	6/15/2010	5/13/2010	5/13/2010	12/15/2011	8/11/2011	8/19/2011	8/10/2011	8/17/2011	8/18/2011	8/18/2011
Chemical Name	MCL	Type I RRS															
VOCs Continued - USEPA Method 8260B (µg/L)																	
Methylene Chloride	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**2.4**	< 1.0	< 1.0
Toluene	1,000	1,000	< 0.5	< 0.5	< 0.5	< 0.5	**0.54**	< 0.5	< 0.5	**0.39 J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	100	100	< 0.5	< 0.5	< 0.5	< 0.5	**0.55**	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**0.42 J**	< 1.0	< 1.0
trans-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	--	--	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	5	< 0.5	**2.9**	< 0.5	**68**	**5.0**	**2.2**	< 0.5	< 0.5	**2.8**	< 1.0	**6.3**	< 1.0	**61**	**0.34 J**	**4.5**
Vinyl Chloride	2	2	< 0.5	< 0.5	< 0.5	< 0.5	**1**	< 0.5	< 0.5	< 0.5	**0.30 J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes (total)	10,000	10,000	< 0.5	< 0.5	< 0.5	< 0.5	**0.82**	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	**0.73 J**	**1.1**	**0.85 J**

Notes:
* - Duplicate sample
[ ] - Indicate the analyte was detected above one or more applicable screening criteria
BOLD - indicate the analyte was detected
B - Analyte was detected in an associated blank as well as in the sample.
J - The analyte was positively identified, but the associated numerical value is the approximate concentration of the analyte in the sample.
MCL - USEPA Maximum Contaminant Level - National Primary Drinking Water Regulations (5/2009).
µg/L - Micrograms per Liter
RRS - GAEPD Rule 391-3-19-.07 Risk Reduction Standard (July 23, 2003).
RSL - USEPA Regional Screening Level for Tap Water (12/10/2009).
VOCs - Volatile Organic Compounds
NA - Not Analyzed

Table 3
Groundwater Analyses from the Deep Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revsion 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	HGL-1C	HGL-4C	HGL-5C	HGL-6C	HGL-7C	HGL-8C	HGL-9C	HGL-10C	HGL-11C	XX-17	XX-18
		Sample Date	2/2/2010	2/2/2010	2/3/2010	2/4/2010	2/4/2010	2/2/2010	2/3/2010	2/2/2010	2/2/2010	2/4/2010	2/3/2010
Chemical Name	MCL	Type I RRS											
VOCs - US EPA Method 8260B (µg/L)													
1,1,1-Trichloroethane	200	200	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	--	0.2	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	--	4,000	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	7	7	< 0.5	< 0.5	< 0.5	**2.5**	**35**	< 0.5	< 0.5	< 0.5	< 0.5	**0.63**	< 0.5
1,2,4-Trichlorobenzene	70	70	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane (EDB)	0.05	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	600	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	75	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	--	2,000	< 10.0	< 10.0	< 10.0	< 50	**180 J**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
2-Hexanone	--	--	< 10.0	< 10.0	< 10.0	< 50	< 200	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
4-Methyl-2-pentanone	--	--	< 10.0	< 10.0	< 10.0	< 50	< 200	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Acetone	--	4,000	< 10.0	**1.9 J**	**2.9 J**	**85**	**330**	< 10.0	**1.4 J**	< 10.0	< 10.0	**18**	**0.98 J**
Benzene	5	5	< 0.5	< 0.5	< 0.5	< 2.5	**5.7 J**	< 0.5	< 0.5	< 0.5	**0.12 JB**	**0.35 J**	< 0.5
Benzene, 1-methylethyl	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	--	10	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	--	4,000	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CFC-11	--	2,000	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CFC-12	--	1,000	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	100	100	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorodibromomethane	--	100	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	--	100	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	--	3	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	70	--	< 0.5	< 0.5	< 0.5	**180**	**2,500**	**0.70**	< 0.5	< 0.5	< 0.5	**3.8**	**74**
cis-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cyclohexane	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	700	700	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylbenzene		--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m-Dichlorobenzene	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl acetate	--	--	< 1.0	< 1.0	< 1.0	< 5.0	< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methylcyclohexane	--	--	< 5.0	< 5.0	< 5.0	< 25	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methylene Chloride	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

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VOCs Continued - US EPA Method 8260B (µg/L)													
Styrene	100	100	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	5	5	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	1,000	1,000	< 0.5	< 0.5	< 0.5	< 2.5	**3.4 J**	< 0.5	< 0.5	< 0.5	**0.34 JB**	< 0.5	< 0.5
trans-1,2-Dichloroethene	100	100	< 0.5	< 0.5	< 0.5	**7.2**	**26**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tribromomethane	--	--	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	5	5	< 0.5	< 0.5	< 0.5	**850**	**16,000**	**0.40 J**	**0.26 J**	< 0.5	< 0.5	**49**	< 0.5
Vinyl Chloride	2	2	< 0.5	< 0.5	< 0.5	**0.50 J**	**6.3 J**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	10,000	10,000	< 0.5	< 0.5	< 0.5	< 2.5	< 10.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

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Table 3
Groundwater Analyses from the Deep Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revsion 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	XX-19	XX-21	XX-26	H15-MW-01C	H15-MW-02C	H15-MW-03C		H15-MW-04C	H15-MW-05C	H15-MW-06C	H15-MW-07C
		Sample Date	2/4/2010	2/4/2010	2/3/2010	2/3/2010	4/12/2010	4/12/2010	4/12/2010*	4/12/2010	5/13/2010	5/13/2010	5/13/2010
Chemical Name	MCL	Type I RRS											
VOCs - US EPA Method 8260B (µg/L)													
1,1,1-Trichloroethane	200	200	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	--	0.2	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	5	5	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	--	4,000	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	7	7	**0.37 J**	**9.8**	< 0.5	< 10.0	**37 J**	**0.32 J**	**0.28 J**	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	70	70	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane (EDB)	0.05	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	600	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	5	5	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	5	5	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	75	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	--	2,000	< 10.0	< 100	< 10.0	< 200	< 1000	< 20	< 20	< 10	< 10	< 10	< 10
2-Hexanone	--	--	< 10.0	< 100	< 10.0	< 200	< 1000	< 20	< 20	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	--	--	< 10.0	< 100	< 10.0	< 200	< 1000	< 20	< 20	< 10	< 10	< 10	**0.46 J**
Acetone	--	4,000	**18**	**170**	< 10.0	< 200	< 1000	**6.9 J**	**6.1 J**	**4.1 J**	**1.2 J**	**2.2 J**	**6.5 J**
Benzene	5	5	< 0.5	**2.1 J**	< 0.5	**4.4 J**	< 50	**0.77 J**	**0.75 J**	**0.20 J**	< 0.5	< 0.5	< 0.5
Benzene, 1-methylethyl	--	--	< 0.5	< 5.0	< 0.5	**4.7 J**	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	--	10	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Carbon disulfide	--	4,000	< 0.5	< 5.0	< 0.5	< 10.0	< 50	**0.70 J**	**0.70 J**	< 0.5	**0.31 J**	**0.33 J**	**0.14 J**
Carbon Tetrachloride	5	5	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
CFC-11	--	2,000	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
CFC-12	--	1,000	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	100	100	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Chlorodibromomethane	--	100	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	**0.34 J**	< 0.5	< 0.5	< 0.5
Chloroform	--	100	< 0.5	< 5.0	< 0.5	< 10.0	< 50	**0.41 J**	**0.38 J**	< 0.5	< 0.5	< 0.5	**1.3**
Chloromethane	--	3	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	70	--	**28**	**2,000**	**2.9**	**2,200**	**2,700**	**400**	**410**	**9.8**	**0.29 J**	< 0.5	< 0.5
cis-1,3-Dichloropropene	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Cyclohexane	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	700	700	< 0.5	< 5.0	< 0.5	**6.8 J**	< 50	**1.1**	**0.96 J**	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylbenzene		--	< 0.5	< 5.0	< 0.5	**4.7 J**	< 50	**0.71 J**	**0.71 J**	< 0.5	< 0.5	< 0.5	< 0.5
m-Dichlorobenzene	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Methyl acetate	--	--	< 1.0	< 10.0	< 1.0	< 20	< 100	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Methylcyclohexane	--	--	< 5.0	< 50	< 5.0	< 100	< 500	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0
Methylene Chloride	5	5	< 0.5	< 5.0	< 0.5	< 10.0	**24 JB**	**0.52 JB**	**0.48 JB**	< 0.5	< 0.5	< 0.5	< 0.5

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VOCs Continued - US EPA Method 8260B (µg/L)													
Styrene	100	100	< 0.5	< 5.0	< 0.5	< 10.0	< 50	**4.7**	**4.7**	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	5	5	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	1,000	1,000	< 0.5	**1.9 J**	< 0.5	< 10.0	< 50	**0.70 J**	**0.43 J**	< 0.5	< 0.5	**0.22 J**	**0.51**
trans-1,2-Dichloroethene	100	100	< 0.5	**10**	< 0.5	**18**	**49 J**	**1.6**	**1.5**	**0.34 J**	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Tribromomethane	--	--	< 0.5	< 5.0	< 0.5	< 10.0	< 50	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	5	5	**5.3**	**230**	**16**	**2,800**	**32,000**	**79**	**78**	**2.2**	**1.6**	< 0.5	< 0.5
Vinyl Chloride	2	2	**0.094 J**	**5.7**	< 0.5	< 10.0	< 50	**2.4**	**2.2**	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	10,000	10,000	< 0.5	< 5.0	< 0.5	< 10.0	< 50	**0.35 J**	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5

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Table 3
Groundwater Analyses from the Deep Portion of the Upper Aquifer - 2010-2011
Addendum 1 to CSR Revsion 1
HAA-15 (MCA Barracks Site)
Hunter Army Airfield - Savannah, Georgia

		Location ID	H15-MW-08C	H15-MW-09C	H15-MW-10C	H15-MW-11C	H15-MW-12C	H15-MW-13C	H15-MW-14C	H15-MW-14C	H15-MW-15C	H15-MW-02D	H15-MW-02E	H15-MW-20E	H15-MW-21C
		Sample Date	8/24/2011	8/18/2011	8/11/2011	8/18/2011	8/23/2011	8/12/2011	8/11/2011	11/18/2011	8/19/2011	8/25/2011	9/8/2011	9/9/2011	12/15/2011
Chemical Name	MCL	Type I RRS													
VOCs - US EPA Method 8260B (µg/L)															
1,1,1-Trichloroethane	200	200	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	--	0.2	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0 UJ	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	--	4,000	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	7	7	< 5.0	**0.31 J**	**21 J**	< 1.0	< 1.0	< 1.0	< 1.0	**0.23J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	70	70	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	0.05	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	75	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	--	2,000	< 50	**7.6 J**	< 500	< 10	< 10 UJ	< 10	< 10	< 10	**8.0 J**	< 10	< 10	< 10	< 10
2-Hexanone	--	--	< 50	< 10	< 500	< 10	< 10 UJ	< 10	< 10	< 10	< 10	< 10		< 10	< 10
4-Methyl-2-pentanone	--	--	< 50	< 10	< 500	< 10	< 10 UJ	< 10	< 10	< 10	< 10	**1.3 J**	< 10	< 10	< 10
Acetone	--	4,000	< 100	< 20	< 1000	< 20	< 20	< 20	< 20	<20	**13 J**	**8.1 J**	**8.3 J**	< 20	< 20
Benzene	5	5	< 5.0	**1.1**	< 50	< 1.0	< 1.0	**0.13 J**	< 1.0	< 1.0	**0.43 J**	< 1.0	< 1.0	< 1.0	< 1.0
Benzene, 1-methylethyl	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**0.45 J**	< 1.0	< 1.0	< 1.0
Bromomethane	--	10	< 10	< 2.0 UJ	< 100	< 2.0 UJ	< 2.0 UJ	< 2.0	< 2.0	<2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon disulfide	--	4,000	< 5.0	< 1.0	< 50	< 1.0	< 1.0	**1.6**	**0.23 J**	< 1.0	**0.22 J**	**0.39 J**	**0.67 J**	**1.0**	<1.0
Carbon Tetrachloride	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
CFC-11	--	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	--	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	100	< 10	< 2.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chlorodibromomethane	--	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	--	--	< 10	< 2.0	< 100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	--	100	< 5.0	< 1.0	< 50	< 1.0	< 1.0	**1.8**	< 1.0	< 1.0	< 1.0	**1.2**	**0.77 J**	< 1.0	< 1.0
Chloromethane	--	3	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	70	--	< 5.0	**140**	**9,700**	< 1.0	**0.49 J**	**12**	**52**	**41**	**21**	**0.24 J**	**0.17 J**	< 1.0	< 1.0
cis-1,3-Dichloropropene	--	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	700	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Dichlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	--	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Footnotes appear on last page.

VOCs Continued - US EPA Method 8260B (µg/L)															
Styrene	100	100	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	5	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	1,000	1,000	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0		< 1.0	< 1.0
trans-1,2-Dichloroethene	100	100	< 5.0	**1.0**	< 50	< 1.0	< 1.0	< 1.0	**13**	**9.4**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	--	--	< 5.0	< 1.0	< 50	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	5	< 5.0	**3.1**	**3,300**	**0.35 J**	**0.49 J**	**0.72 J**	**48**	**39**	**1.1**	**1.7**	**1.1**	< 1.0	< 1.0
Vinyl Chloride	2	2	< 5.0	**0.071 J**	< 50	< 1,0	< 1.0	< 1.0	**0.35 J**	**0.36J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes (total)	10,000	10,000	< 5.0	**0.85 J**	< 50	**1.1**	< 1.0	< 1.0	< 1.0	< 1.0	**0.68 J**	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

* - Duplicate sample

- Indicate the analyte was detected above one or more applicable screening criteria

BOLD - indicate the analyte was detected

B - Analyte was detected in an associated blank as well as in the sample.

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

MCL - USEPA Maximum Contaminant Level - National Primary Drinking Water Regulations (5/2009).

µg/L - Micrograms per Liter

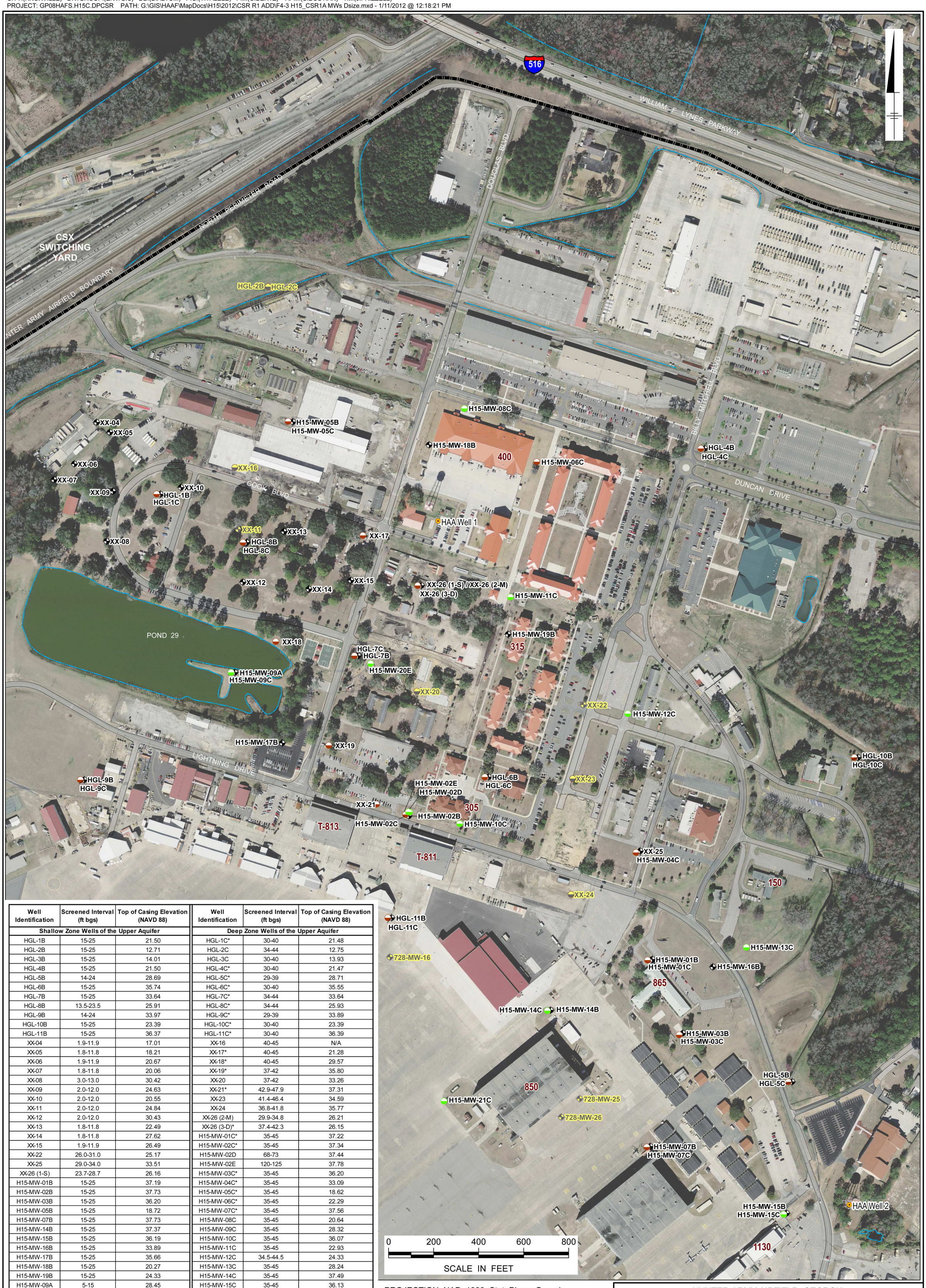
RRS - GAEPD Rule 391-3-19-.07 Risk Reduction Standard (July 23, 2003).

RSL - USEPA Regional Screening Level for Tap Water (12/10/2009).

VOCs - Volatile Organic Compounds

ARCADIS MALCOLM PIRNIE

Figures



Well Identification	Screened Interval (ft bgs)	Top of Casing Elevation (NAVD 88)	Well Identification	Screened Interval (ft bgs)	Top of Casing Elevation (NAVD 88)
Shallow Zone Wells of the Upper Aquifer			Deep Zone Wells of the Upper Aquifer		
HGL-1B	15-25	21.50	HGL-1C*	30-40	21.48
HGL-2B	15-25	12.71	HGL-2C	34-44	12.75
HGL-3B	15-25	14.01	HGL-3C	30-40	13.93
HGL-4B	15-25	21.50	HGL-4C*	30-40	21.47
HGL-5B	14-24	28.69	HGL-5C*	29-39	28.71
HGL-6B	15-25	35.74	HGL-6C*	30-40	35.55
HGL-7B	15-25	33.64	HGL-7C*	34-44	33.64
HGL-8B	13.5-23.5	25.91	HGL-8C*	34-44	25.93
HGL-9B	14-24	33.97	HGL-9C*	29-39	33.89
HGL-10B	15-25	23.39	HGL-10C*	30-40	23.39
HGL-11B	15-25	36.37	HGL-11C*	30-40	36.39
XX-04	1.9-11.9	17.01	XX-16	40-45	N/A
XX-05	1.8-11.8	18.21	XX-17*	40-45	21.28
XX-06	1.9-11.9	20.67	XX-18*	40-45	29.57
XX-07	1.8-11.8	20.06	XX-19*	37-42	35.80
XX-08	3.0-13.0	30.42	XX-20	37-42	33.26
XX-09	2.0-12.0	24.63	XX-21*	42.9-47.9	37.31
XX-10	2.0-12.0	20.55	XX-23	41.4-46.4	34.59
XX-11	2.0-12.0	24.84	XX-24	36.8-41.8	35.77
XX-12	2.0-12.0	30.43	XX-26 (2-M)	29.9-34.8	26.21
XX-13	1.8-11.8	22.49	XX-26 (3-D)*	37.4-42.3	26.15
XX-14	1.8-11.8	27.62	H15-MW-01C*	35-45	37.22
XX-15	1.9-11.9	26.49	H15-MW-02C*	35-45	37.34
XX-22	26.0-31.0	25.17	H15-MW-02D	68-73	37.44
XX-25	29.0-34.0	33.51	H15-MW-02E	120-125	37.78
XX-26 (1-S)	23.7-28.7	26.16	H15-MW-03C*	35-45	36.20
H15-MW-01B	15-25	37.19	H15-MW-04C*	35-45	33.09
H15-MW-02B	15-25	37.73	H15-MW-05C*	35-45	18.62
H15-MW-03B	15-25	36.20	H15-MW-06C*	35-45	22.29
H15-MW-05B	15-25	18.72	H15-MW-07C*	35-45	37.56
H15-MW-07B	15-25	37.73	H15-MW-08C	35-45	20.64
H15-MW-14B	15-25	37.37	H15-MW-09C	35-45	28.32
H15-MW-15B	15-25	36.19	H15-MW-10C	35-45	36.07
H15-MW-16B	15-25	33.89	H15-MW-11C	35-45	22.93
H15-MW-17B	15-25	35.66	H15-MW-12C	34.5-44.5	24.33
H15-MW-18B	15-25	20.27	H15-MW-13C	35-45	28.24
H15-MW-19B	15-25	24.33	H15-MW-14C	35-45	37.49
H15-MW-09A	5-15	28.45	H15-MW-15C	35-45	36.13
			H15-MW-20E	120-125	33.65
			H15-MW-21C	35-45	37.72

ft bgs - feet below ground surface
ft BTOC - feet below top of casing
N/A - XX-16 well destroyed before survey complete
NAVD - North American Vertical Datum

* Location of these deep wells have been offset for clarity.

PROJECTION: NAD_1983_StatePlane_Georgia East_FIPS_1001_Feet
REFERENCES:
1) SAGIS (2008).
2) EMC Surveys (September 7, 2011 and January 6, 2012).

LEGEND

- Monitor Well (shallow)
- Monitor Well (deep)
- Monitor Well (shallow) Destroyed
- Monitor Well (deep) Destroyed
- Monitor Well (shallow) Installed 2011
- Monitor Well (deep) Installed 2011
- HAA Directorate of Public Works (DPW) Designated Public Water Supply Well
- T-811 Building Number

HUNTER ARMY AIRFIELD, GEORGIA
MCA BARRACKS SITE (HAA-15)
COMPLIANCE STATUS REPORT, REVISION 1, ADDENDUM 1

Site Layout with Monitor Well Locations

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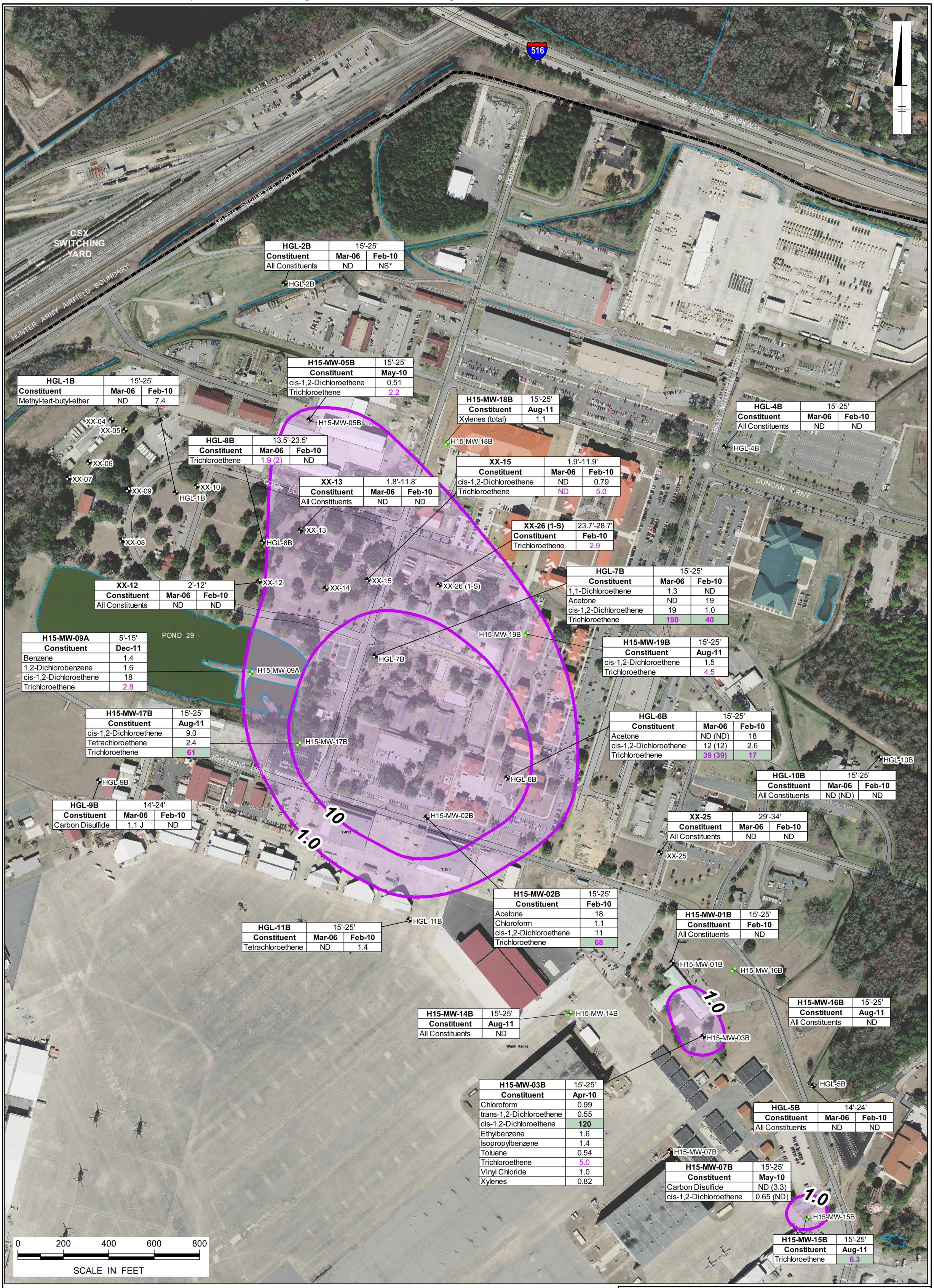
FIGURE
1



HGL-2B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	NS*

HGL-1B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
Methyl-tert-butyl-ether	ND	7.4

H15-MW-05B	15'-25'
Constituent	**May-10**
cis-1,2-Dichloroethene	0.51
Trichloroethene	2.2

H15-MW-18B	15'-25'
Constituent	**Aug-11**
Xylenes (total)	1.1

HGL-4B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-8B	13.5'-23.5'	
Constituent	**Mar-06**	**Feb-10**
Trichloroethene	1.9 (2)	ND

XX-15	1.9'-11.9'	
Constituent	**Mar-06**	**Feb-10**
cis-1,2-Dichloroethene	ND	0.79
Trichloroethene	ND	5.0

XX-13	1.8'-11.8'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

XX-26 (1-S)	23.7'-28.7'
Constituent	**Feb-10**
Trichloroethene	2.9

XX-12	2'-12'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-7B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
1,1-Dichloroethene	1.3	ND
Acetone	ND	19
cis-1,2-Dichloroethene	19	1.0
Trichloroethene	190	40

H15-MW-09A	5'-15'
Constituent	**Dec-11**
Benzene	1.4
1,2-Dichlorobenzene	1.6
cis-1,2-Dichloroethene	18
Trichloroethene	2.8

H15-MW-19B	15'-25'
Constituent	**Aug-11**
cis-1,2-Dichloroethene	1.5
Trichloroethene	4.5

H15-MW-17B	15'-25'
Constituent	**Aug-11**
cis-1,2-Dichloroethene	9.0
Tetrachloroethene	2.4
Trichloroethene	61

HGL-6B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
Acetone	ND (ND)	18
cis-1,2-Dichloroethene	12 (12)	2.6
Trichloroethene	39 (39)	17

HGL-10B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND (ND)	ND

HGL-9B	14'-24'	
Constituent	**Mar-06**	**Feb-10**
Carbon Disulfide	1.1 J	ND

XX-25	29'-34'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

H15-MW-02B	15'-25'
Constituent	**Feb-10**
Acetone	18
Chloroform	1.1
cis-1,2-Dichloroethene	11
Trichloroethene	68

HGL-11B	15'-25'	
Constituent	**Mar-06**	**Feb-10**
Tetrachloroethene	ND	1.4

H15-MW-01B	15'-25'
Constituent	**Feb-10**
All Constituents	ND

H15-MW-16B	15'-25'
Constituent	**Aug-11**
All Constituents	ND

H15-MW-14B	15'-25'
Constituent	**Aug-11**
All Constituents	ND

H15-MW-03B	15'-25'
Constituent	**Apr-10**
Chloroform	0.99
trans-1,2-Dichloroethene	0.55
cis-1,2-Dichloroethene	120
Ethylbenzene	1.6
Isopropylbenzene	1.4
Toluene	0.54
Trichloroethene	5.0
Vinyl Chloride	1.0
Xylenes	0.82

HGL-5B	14'-24'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

H15-MW-07B	15'-25'
Constituent	**May-10**
Carbon Disulfide	ND (3.3)
cis-1,2-Dichloroethene	0.65 (ND)

H15-MW-15B	15'-25'
Constituent	**Aug-11**
Trichloroethene	6.3

PROJECTION: NAD_1983_StatePlane_Georgia_East_FIPS_1001_Feet
REFERENCE: SAGIS (2008).

LEGEND

- Monitor Well (shallow)
- Monitor Well (shallow) Installed 2011
- TCE Isoconcentration Contour (µg/L)
- (3.3) Duplicate Data
- ND Not Detected

NOTES:
1) All concentrations expressed in micrograms per liter (µg/L).
2) **BOLD** Concentrations exceed the Type I Risk Reduction Standard.
3) Concentrations shown are those detected above the practical quantitation limit (PQL).
4) J values are estimated.
5) B values indicate the analyte was detected in the method blank sample.
6) ND – Not detected above PQL.
7) - - Not Sampled
8) NS* - Well was destroyed in late 2009.
9) The shallow zone of the upper aquifer consists of wells with screened intervals between ground surface and 30 ft bgs.

HUNTER ARMY AIRFIELD, GEORGIA
MCA BARRACKS SITE (HAA-15)
COMPLIANCE STATUS REPORT, REVISION 1, ADDENDUM 1

Shallow Zone of Upper Aquifer (0 - 30 ft bgs) Volatile Organic Compounds in Groundwater Monitor Wells

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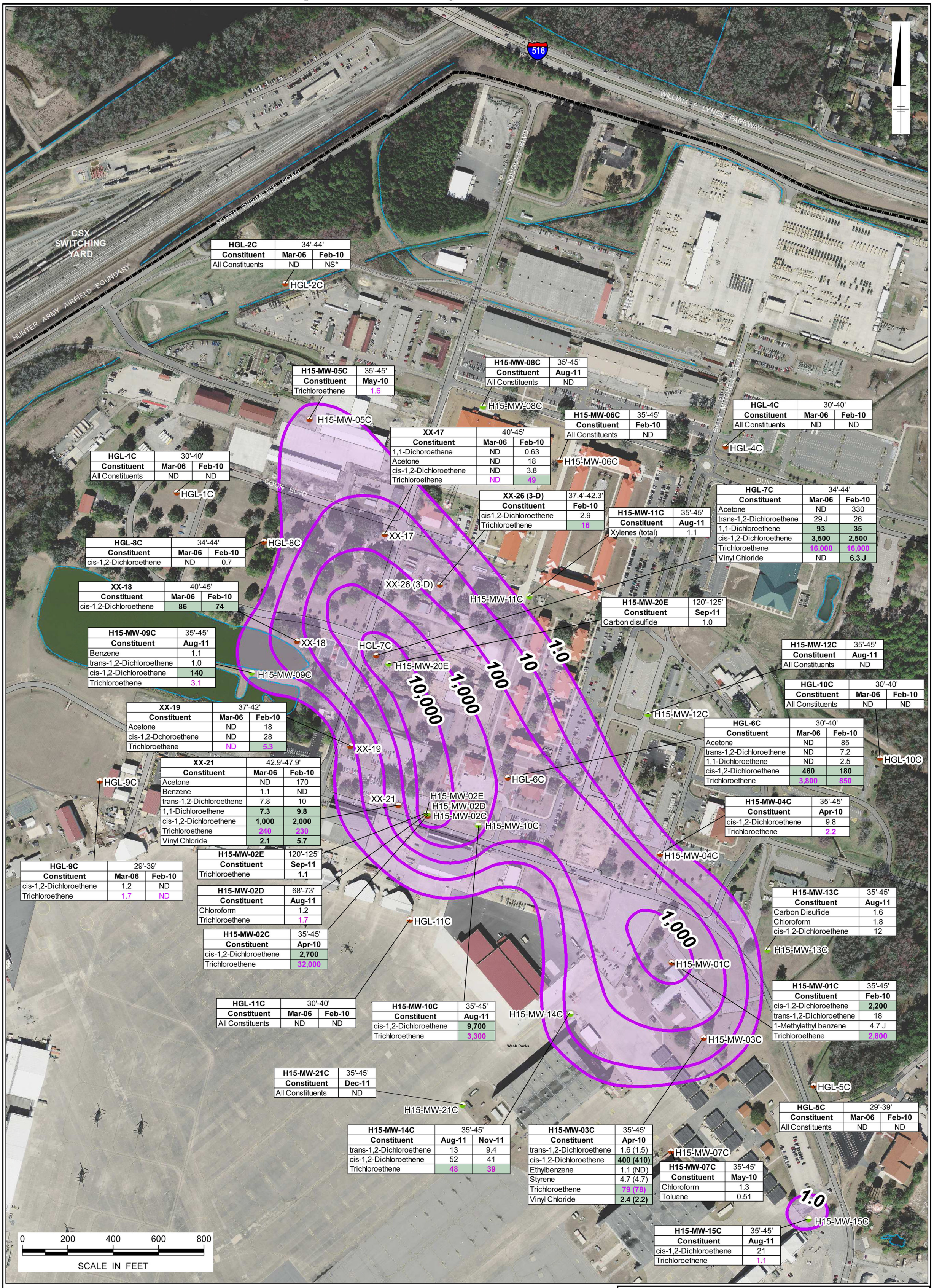
FIGURE
2



HGL-2C	34'-44'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	NS*

HGL-2C

H15-MW-05C	35'-45'
Constituent	**May-10**
Trichloroethene	1.6

H15-MW-05C

H15-MW-08C	35'-45'
Constituent	**Aug-11**
All Constituents	ND

H15-MW-08C

H15-MW-06C	35'-45'
Constituent	**Feb-10**
All Constituents	ND

H15-MW-06C

HGL-4C	30'-40'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-4C

XX-17	40'-45'	
Constituent	**Mar-06**	**Feb-10**
1,1-Dichoroethene	ND	0.63
Acetone	ND	18
cis-1,2-Dichloroethene	ND	3.8
Trichloroethene	ND	49

XX-17

HGL-1C	30'-40'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-1C

XX-26 (3-D)	37.4'-42.3'
Constituent	**Feb-10**
cis1,2-Dichloroethene	2.9
Trichloroethene	16

XX-26 (3-D)

H15-MW-11C	35'-45'
Constituent	**Aug-11**
Xylenes (total)	1.1

H15-MW-11C

HGL-7C	34'-44'	
Constituent	**Mar-06**	**Feb-10**
Acetone	ND	330
trans-1,2-Dichloroethene	29 J	26
1,1-Dichloroethene	93	35
cis-1,2-Dichloroethene	3,500	2,500
Trichloroethene	16,000	16,000
Vinyl Chloride	ND	6.3 J

HGL-7C

HGL-8C	34'-44'	
Constituent	**Mar-06**	**Feb-10**
cis-1,2-Dichloroethene	ND	0.7

HGL-8C

XX-18	40'-45'	
Constituent	**Mar-06**	**Feb-10**
cis-1,2-Dichloroethene	86	74

XX-18

H15-MW-20E	120'-125'
Constituent	**Sep-11**
Carbon disulfide	1.0

H15-MW-20E

H15-MW-09C	35'-45'
Constituent	**Aug-11**
Benzene	1.1
trans-1,2-Dichloroethene	1.0
cis-1,2-Dichloroethene	140
Trichloroethene	3.1

H15-MW-09C

H15-MW-12C	35'-45'
Constituent	**Aug-11**
All Constituents	ND

H15-MW-12C

HGL-10C	30'-40'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-10C

XX-19	37'-42'	
Constituent	**Mar-06**	**Feb-10**
Acetone	ND	18
cis-1,2-Dchoroethene	ND	28
Trichloroethene	ND	5.3

XX-19

HGL-6C	30'-40'	
Constituent	**Mar-06**	**Feb-10**
Acetone	ND	85
trans-1,2-Dichloroethene	ND	7.2
1,1-Dichloroethene	ND	2.5
cis-1,2-Dichloroethene	460	180
Trichloroethene	3,800	850

HGL-6C

XX-21	42.9'-47.9'	
Constituent	**Mar-06**	**Feb-10**
Acetone	ND	170
Benzene	1.1	ND
trans-1,2-Dichloroethene	7.8	10
1,1-Dichloroethene	7.3	9.8
cis-1,2-Dichloroethene	1,000	2,000
Trichloroethene	240	230
Vinyl Chloride	2.1	5.7

XX-21

H15-MW-04C	35'-45'
Constituent	**Apr-10**
cis-1,2-Dichloroethene	9.8
Trichloroethene	2.2

H15-MW-04C

HGL-9C	29'-39'	
Constituent	**Mar-06**	**Feb-10**
cis-1,2-Dichloroethene	1.2	ND
Trichloroethene	1.7	ND

HGL-9C

H15-MW-02E	120'-125'
Constituent	**Sep-11**
Trichloroethene	1.1

H15-MW-02E
H15-MW-02D
H15-MW-02C

H15-MW-02D	68'-73'
Constituent	**Aug-11**
Chloroform	1.2
Trichloroethene	1.7

H15-MW-02C	35'-45'
Constituent	**Apr-10**
cis-1,2-Dichloroethene	2,700
Trichloroethene	32,000

H15-MW-10C

H15-MW-13C	35'-45'
Constituent	**Aug-11**
Carbon Disulfide	1.6
Chloroform	1.8
cis-1,2-Dichloroethene	12

H15-MW-13C

H15-MW-01C

H15-MW-01C	35'-45'
Constituent	**Feb-10**
cis-1,2-Dichloroethene	2,200
trans-1,2-Dichloroethene	18
1-Methylethyl benzene	4.7 J
Trichloroethene	2,800

HGL-11C

HGL-11C	30'-40'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

H15-MW-10C	35'-45'
Constituent	**Aug-11**
cis-1,2-Dichloroethene	9,700
Trichloroethene	3,300

H15-MW-14C

H15-MW-03C

H15-MW-21C	35'-45'
Constituent	**Dec-11**
All Constituents	ND

H15-MW-21C

H15-MW-14C	35'-45'	
Constituent	**Aug-11**	**Nov-11**
trans-1,2-Dichloroethene	13	9.4
cis-1,2-Dichloroethene	52	41
Trichloroethene	48	39

H15-MW-03C	35'-45'
Constituent	**Apr-10**
trans-1,2-Dichloroethene	1.6 (1.5)
cis-1,2-Dichloroethene	400 (410)
Ethylbenzene	1.1 (ND)
Styrene	4.7 (4.7)
Trichloroethene	79 (78)
Vinyl Chloride	2.4 (2.2)

H15-MW-07C

H15-MW-07C	35'-45'
Constituent	**May-10**
Chloroform	1.3
Toluene	0.51

H15-MW-15C	35'-45'
Constituent	**Aug-11**
cis-1,2-Dichloroethene	21
Trichloroethene	1.1

H15-MW-15C

HGL-5C	29'-39'	
Constituent	**Mar-06**	**Feb-10**
All Constituents	ND	ND

HGL-5C

PROJECTION: NAD_1983_StatePlane_Georgia_East_FIPS_1001_Feet
REFERENCE: SAGIS (2008).

LEGEND

- Monitor Well (deep)
- Monitor Well (deep) Installed 2011
- TCE Isoconcentration Contour (µg/L)
- (4.7) Duplicate Data
- ND Not Detected

NOTES:
1) All concentrations expressed in micrograms per liter (µg/L).
2) **BOLD** Concentrations exceed the Type I Risk Reduction Standard.
3) H15-MW-02D, H15-MW-02E, and H15-MW-20E were not used for contouring.
4) Concentrations shown are those above the practical quantitation limit (PQL).
5) J values are estimated.
6) B values indicate the analyte was detected in the method blank sample.
7) ND – Not Detected Above PQL.
8) - - Not Sampled
9) NS* - Well was destroyed in late 2009.
10) The deep zone of the upper aquifer consists of wells with screened intervals between 30 and 50 ft bgs.

HUNTER ARMY AIRFIELD, GEORGIA
MCA BARRACKS SITE (HAA-15)
COMPLIANCE STATUS REPORT, REVISION 1, ADDENDUM 1

Deep Zone of Upper Aquifer (30 - 50 ft bgs) Volatile Organic Compounds in Groundwater Monitor Wells

ARCADIS

FIGURE
3

ARCADIS MALCOLM PIRNIE

Appendix A

Field Sampling Data Sheets

ARCADIS

WATER SAMPLING LOG

Project No. GP08HAAF8.H15 Date 12-15-11

Site Location: Savannah, GA Monitoring Well Number H15-MW-09A

Rep./Field Blank No. ____ Sample Collection Time ____

Weather Sunny, 70's Sampling Method Low Flow

Evacuation Data:

Depth to bottom of well (ft bls) 15 Casing stick-up above concrete (feet) Flush mount

Depth to water from top of casing 7.4 Screened Interval (ft bls) 5-15

Water Column ___ (ft) Gallons in well ____ Casing Diameter: 2"

Evacuation Volume (x 3) = 3.65 Casing Volume 1"=0.04 gal gal/ft, 2"=0.16 gal/ft

Field Parameters:

Time	Gallons Purged	Temp (°C)	pH (SU)	DO (mg/L)	Cond. (µmhos/cm)	Turb (NTU)	Redox (mV)	Depth to Water (ft)
1043	0.5	22.85	5.04	1.66	0.142	316	160.7	—
1048	1.0	22.65	4.09	1.63	0.152	354	183.4	—
1053	2.0	22.57	4.62	1.98	0.160	60.3	128.7	—
1058	3.0	22.58	4.88	2.05	0.165	8.10	100.1	—
1103	3.5	22.61	5.12	1.57	0.162	3.30	73.4	—
1108	4.0	22.61	5.22	1.60	0.163	6.70	60.3	—

V.P. 12-15-11

Analyses:

Analytical Parameter	Sample Bottles	Preservative

Remarks ____

Sampling Personnel Valyn Paouncic

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ARCADIS

WATER SAMPLING LOG

Project No. GMCHANS. H15

Date 12-15-11

Site Location: Savannah, GA

Monitoring Well Number H15-MW-21C

Rep./Field Blank No.

Sample Collection Time 0950

Weather Sunny, 70s

Sampling Method Low Flow

Evacuation Data:

Depth to bottom of well (ft bls) 45

Casing stick-up above concrete (feet) Flush mount

Depth to water from top of casing 10.5

Screened Interval (ft bls) 35-45

Water Column 34.5 (ft) Gallons in well

Casing Diameter: 2"

Evacuation Volume (x 3) = 16.56

Casing Volume 1"=0.04 gal gal/ft, 2"=0.16 gal/ft

Field Parameters:

Time	Gallons Purged	Temp (°C)	pH (SU)	DO (mg/L)	Cond. (µmhos/cm)	Turb (NTU)	Redox (mV)	Depth to Water (ft)
0854	1	23.72	6.09	0.61	0.145mS	341	8.4	—
0859	2	23.45	6.13	0.40	0.153mS	353	-2.4	—
0904	3	23.43	6.11	0.30	0.172	214	-14.3	—
0909	4	23.43	6.15	0.21	0.182	171	-17.3	—
0914	5	23.49	6.20	0.23	0.182	140	-19.8	—
0919	6	23.51	6.21	0.22	0.179	137	-22.1	—
0924	7	23.49	6.18	0.21	0.179	118	-23.4	—
0929	8	23.50	6.18	0.20	0.178	114	-24.1	—
0934	9	23.51	6.11	0.20	0.177	98	-23.2	—
0939	10	23.49	6.14	0.18	0.175	71	-20.1	—
0944	11	23.49	6.14	0.18	0.173	70	-28.0	—

Analyses:

Analytical Parameter	Sample Bottles	Preservative

Remarks

Sampling Personnel Valyn Paouncic

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ARCADIS
Infrastructure · Water · Environment · Buildings

Groundwater Sampling Form

Site Location: HAA-15
Project No.: GP08HAFS.H15C.GHOPT
Well ID: H15-MW-14C
Date: 11.17.2011
Sampled By: John V. Hanna
Sample Time: 1020
Recorded By: John V. Hanna
Weather: SUNNY/COLD/WINDY
Duplicate/QA/QC: NA

Instrument Identification

Instrument	Water-Quality Meter: YSI 556 MPS	Turbidimeter: HACH 2100Q
Serial No.:	11K100358	11060C010258

Pumping Information

Casing Material: PVC
Casing Diameter: 2.0
Total Depth: 45.0
Depth to Water: 11.13
Water Column: 33.87
Gallons/Foot: 0.16
Gallons in Well: 5.42 X 3 = 16.26

Purge Method: (circle one) Submersible Centrifugal Bladder Bailer (Peristaltic)
Screen Interval: From: 35.0 To: 45.0
Pump Intake Setting: 40.0
Volumes to be Purged: 1.25 GAL
Total Volumes Purged: 1.25 GAL
Pump: On: 0945 Off: 1020

Field Parameter Measurement During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged	Depth to Water	Turb. (NTU)	pH (SI Units)	Cond. (µS/cm)	Temp (°C)	ORP (mV)	Diss. Oxygen (mg/L)	Comments
0950	5	0.05	0.25	11.40	4.86	5.60	112	20.38	38	0.46	
0955	10	0.05	0.50	11.40	4.57	5.59	117	19.18	32	0.37	
1000	15	0.05	0.75	11.42	4.21	5.58	116	19.38	33	0.27	
1005	20	0.05	1.00	11.43	4.07	5.58	115	19.43	32	0.26	
1010	25	0.05	1.25	11.43	3.71	5.58	115	19.45	30	0.27	

Observation During Sampling

Well Condition: GOOD
Color: CLEAR
Odor: NONE

Purge Water Disposal: To Drum Via 5-gal Bucket
Turbidity (qualitative): CLEAR / GOOD
Other (OVA, HNU, etc.): N/A

Constituents Sampled	Containter Description	Preservative
~~BTEX~~ (ONE WEEK TAT)	40mL - Clear Glass Vial	HCL
(VOCs 8260B)		

Boring Casing Volumes: 2" = 0.16 gal/ft 4" = 0.65 gal/ft

ARCADIS MALCOLM PIRNIE

Appendix B

Well Construction Logs

ARCADIS

Borehole and Well Construction Log

Project: HAA-15 | Page 1 of 2

Project No. GP08HAFS.H15C.GHOPT | Site Location Savannah, GA

Well ID	H15-MW-21C	Contractor/Driller	Parratt Wolff, Inc.	Total Depth Drilled	45
Date Begin	12/7/2011	Rig Type	Truck Mounted CME 55	Sample Method/Size	
Date End	12/8/2011	Method	Hollow Stem Auger	Cutting Disposal	Drum

Well Construction Log

Boring Dia. 8"

Construction

Intervals (ft BGS)

Riser: 0-35
Screen: 45-35
Surf. Seal: 0-31
Seal: 31-33
Filter Pack: 33-35
Backfill: None

Materials

Riser: 2" Sch. 40 PVC
Screen: 10-slot PVC
Surf. Seal: Cement/Grout
Seal: Bentonite
Filter Pack: #1 Sand
Backfill: None

Surface Completion

Protection: Flush Mount Manhole
Pad: Circular
Lock: Locking Cap
Date/Time: 12/9/2011

ARCADIS G&M Personel

Field Work: VMP
Log Draft: VMP

Symbols

Grout:
Bentonite:
Sand:
Gravel:
Backfill: X

Depth (ft)	Borehole Log Description	PID (ppm)
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

ARCADIS

Borehole and Well Construction Log

Project: HAA-15 | Page 2 of 2

Project No. GP08HAFS.H15C.GHOPT | Site Location Savannah, GA

Well ID	H15-MW-21C	Contractor/Driller	Parratt Wolff, Inc.	Total Depth Drilled	45
Date Begin	12/7/2011	Rig Type	Truck Mounted CME 55	Sample Method/Size	
Date End	12/8/2011	Method	Hollow Stem Auger	Cutting Disposal	Drum

Well Construction Log

Boring Dia. 8"

Construction

Intervals (ft BGS)

Riser:
Screen: 45-35
Surf. Seal: 0-31
Seal: 31-33
Filter Pack: 33-35
Backfill: None

Materials

Riser: 2" Sch. 40 PVC
Screen: 10-slot PVC
Surf. Seal: Cement/Grout
Seal: Bentonite
Filter Pack: #2 Sand
Backfill: None

Surface Completion

Protection: Flush Mount Manhole
Pad: Circular
Lock: Locking Cap
Date/Time: 12/8/2011

ARCADIS G&M Personel

Field Work: VMP
Log Draft: VMP

Symbols

Grout:
Bentonite:
Sand:
Gravel:
Backfill: X

Depth (ft)	Borehole Log Description	PID (ppm)
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45	END OF BORING @45 FEET	
46		
47		
48		
49		
50		

ARCADIS

Borehole and Well Construction Log

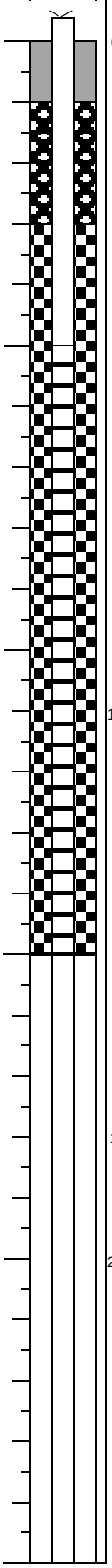
Project: HAA-15 | Page 1 of 1

Project No. GP08HAFS.H15C.GHOPT | Site Location: Savannah, GA

Well ID	H15-MW-09A	Contractor/Driller	Parratt Wolff, Inc.	Total Depth Drilled	15'
Date Begin	12/8/2011	Rig Type	Truck Mounted CME 55	Sample Method/Size	
Date End	12/8/2011	Method	Hollow Stem Auger	Cutting Disposal	Drum

Well Construction Log

Boring Dia. 8"



Construction

Intervals (ft BGS)

- Riser: 0-5
- Screen: 5-15
- Surf. Seal: 0-1
- Seal: 1-3
- Filter Pack: 3-15
- Backfill: None

Materials

- Riser: Sch. 2" 40 PVC
- Screen: 10-slot PVC
- Surf. Seal: Cement Grout
- Seal: Bentonite
- Filter Pack: #1 Sand
- Backfill: None

Surface Completion

- Protection: Flush Mount
  Manhole
- Pad: circular
- Lock: Locking Cap
- Date/Time: 12/9/2011

ARCADIS G&M Personel

- Field Work: VMP
- Log Draft: VMP

Symbols

- Grout:
- Bentonite:
- Sand:
- Gravel:
- Backfill: X

Borehole Log

Depth (ft)	Description	PID (ppm)
0	Lithology data not collected.	
15	END OF BORING @ 15 FEET	

ARCADIS MALCOLM PIRNIE

Appendix C

Well Development Logs

ARCADIS

WELL DEVELOPMENT LOG

Project No. GPOCHAFS H15 Well ID H15-MW-09A

Site Location Savannah, GA

Evacuation Data:

Depth to bottom of well (ft bls) 15' Casing stick-up above concrete (feet) Flushmount

Depth to water from top of casing 7.35 Screened Interval (ft bls) 15 - 5

Water Column _____ (ft) Gallons in well_____ Casing Diameter: 2"

Casing Volume 1"=0.04 gal gal/ft, 2"=0.16 gal/ft

Date/Time	Gallons Removed	pH	Temperature (°C)	Specific Conductance (µmhos/cm)	Appearance
12-14-11/1217	5	6.12	23.67	0.180 mS	milky/cloudy
12-14-11/1220	10	6.04	22.84	0.162 mS	cloudy
12-14-11/1223	15	5.79	22.72	0.152 mS	slightly cloudy
12-14-11/1228	20	5.81	22.79	0.145 mS	clear
12-14-11/1231	25	5.92	22.22	0.142 mS	clear
12-14-11/1233	30	5.71	22.80	0.142 mS	clear
12-14-11/1236	35	5.91	22.81	0.131 mS	clear
12-14-11/1240	40	5.87	22.72	0.142 mS	clear
			V.P.	12-14-11	

Prepared By Evelyn Paouncic Date 12-12-11

Prepared By _____ Date _____

Remarks _____

ARCADIS

WELL DEVELOPMENT LOG

Project No. GP0SWAR8. 415 Well ID 415-MW-21C

Site Location Savannah, GA

Evacuation Data:

Depth to bottom of well (ft bls) 45' Casing stick-up above concrete (feet) Flushmount

Depth to water from top of casing 10.5 Screened Interval (ft bls) 45 - 35

Water Column 34.5 (ft) Gallons in well ____ Casing Diameter: 2"

Casing Volume 1"=0.04 gal gal/ft, 2"=0.16 gal/ft

Date/Time	Gallons Removed	pH	Temperature (°C)	Specific Conductance (µmhos/cm)	Appearance
12-14-11/0810	5	6.57	24.07	0.312 mS	Cloudy
12-14-11/0914	10	6.90	23.89	0.437 mS	Cloudy
12-14-11/0917	15	6.67	23.04	0.410 mS	Cloudy
12-14-11/0925	20	6.44	22.94	0.306 mS	Cloudy
12-14-11/0928	25	6.30	22.98	0.268 mS	Cloudy
12-14-11/0932	30	5.18	23.08	0.231 mS	Slightly Cloudy
12-14-11/0936	35	6.26	23.18	0.215 mS	Slightly Cloudy
12-14-11/0939	40	6.35	23.13	0.207 mS	Slightly Cloudy
12-14-11/0943	45	6.30	22.99	0.192 mS	Slightly Cloudy
12-14-11/0947	50	6.25	22.58	0.174 mS	Slightly Cloudy
12-14-11/0951	55	6.09	23.28	0.167 mS	Slightly cloudy
12-14-11/0955	60	6.27	23.65	0.160 mS	Slightly Cloudy
12-14-11/0959	65	6.27	23.70	0.149 mS	Clear
12-14-11/1002	70	6.24	23.21	0.138 mS	Clear
12-14-11/1006	75	6.13	23.59	0.145 mS	Clear

Prepared By Valyn Paouncic Date 12-14-11

Prepared By _____ Date _____

Remarks _____

C:\Users\vpaouncic\Documents\Forms\Well development_log.doc

ARCADIS MALCOLM PIRNIE

Appendix D

Laboratory Reports

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

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

Project Name: **HAA-15**

Project Number: **GP08HAFS.H15C.GHOPT**

Lot Number: **MK19009**

Date Completed: **12/02/2011**

Nisreen Saikaly
Project Manager

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

MK19009

Case Narrative
ARCADIS U.S., Inc.
Lot Number: MK19009

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: MK19009

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	H15-MW-14C (111811)	Aqueous	11/18/2011 1020	11/19/2011
002	TRIP_BLANK (111811)	Aqueous	11/18/2011	11/19/2011

(2 samples)

Executive Summary

ARCADIS U.S., Inc.

Lot Number: MK19009

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	H15-MW-14C (111811)	Aqueous	trans-1,2-Dichloroethene	8260B	9.4		ug/L	5
001	H15-MW-14C (111811)	Aqueous	cis-1,2-Dichloroethene	8260B	41		ug/L	5
001	H15-MW-14C (111811)	Aqueous	1,1-Dichloroethene	8260B	0.23	J	ug/L	5
001	H15-MW-14C (111811)	Aqueous	Trichloroethene	8260B	39		ug/L	5
001	H15-MW-14C (111811)	Aqueous	Vinyl chloride	8260B	0.36	J	ug/L	5
002	TRIP_BLANK (111811)	Aqueous	cis-1,2-Dichloroethene	8260B	0.15	J	ug/L	7

(6 detections)

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **MK19009-001**
Description: **H15-MW-14C (111811)**
Matrix: **Aqueous**
Date Sampled: **11/18/2011 1020**
Date Received: **11/19/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	11/28/2011 2113	LBS		72633

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.33	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.66	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.14	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		2.0	0.33	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.47	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.33	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.35	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.33	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.33	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.13	ug/L	1
trans-1,2-Dichloroethene	**156-60-5**	**8260B**	**9.4**		**1.0**	**0.21**	**ug/L**	**1**
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**41**		**1.0**	**0.12**	**ug/L**	**1**
1,1-Dichloroethene	**75-35-4**	**8260B**	**0.23**	**J**	**1.0**	**0.16**	**ug/L**	**1**
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.19	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.11	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.092	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.33	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.12	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.16	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.13	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		1.0	0.51	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.21	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.074	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**39**		**1.0**	**0.18**	**ug/L**	**1**
Vinyl chloride	**75-01-4**	**8260B**	**0.36**	**J**	**1.0**	**0.054**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **MK19009-001**
Description: **H15-MW-14C (111811)**
Matrix: **Aqueous**
Date Sampled: **11/18/2011 1020**
Date Received: **11/19/2011**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		99	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
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **MK19009-002**
Description: **TRIP_BLANK (111811)**
Matrix: **Aqueous**
Date Sampled: **11/18/2011**
Date Received: **11/19/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	11/22/2011 1628	BM		72277

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.33	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.66	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.14	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		2.0	0.33	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.47	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.33	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.35	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.33	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.33	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.13	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.21	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**0.15**	**J**	**1.0**	**0.12**	**ug/L**	**1**
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.16	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.19	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.11	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.092	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.33	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.12	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.16	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.13	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		1.0	0.51	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.21	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.074	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.18	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.054	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **MK19009-002**
Description: **TRIP_BLANK (111811)**
Matrix: **Aqueous**
Date Sampled: **11/18/2011**
Date Received: **11/19/2011**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		97	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
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ72277-001
Batch: 72277
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	11/22/2011 1018
Benzene	ND		1	1.0	0.13	ug/L	11/22/2011 1018
Bromodichloromethane	ND		1	1.0	0.33	ug/L	11/22/2011 1018
Bromoform	ND		1	1.0	0.66	ug/L	11/22/2011 1018
Bromomethane (Methyl bromide)	ND		1	2.0	0.80	ug/L	11/22/2011 1018
2-Butanone (MEK)	ND		1	10	2.0	ug/L	11/22/2011 1018
Carbon disulfide	ND		1	1.0	0.097	ug/L	11/22/2011 1018
Carbon tetrachloride	ND		1	1.0	0.14	ug/L	11/22/2011 1018
Chlorobenzene	ND		1	2.0	0.33	ug/L	11/22/2011 1018
Chloroethane	ND		1	2.0	0.47	ug/L	11/22/2011 1018
Chloroform	ND		1	1.0	0.33	ug/L	11/22/2011 1018
Chloromethane (Methyl chloride)	ND		1	1.0	0.35	ug/L	11/22/2011 1018
Dibromochloromethane	ND		1	1.0	0.33	ug/L	11/22/2011 1018
1,2-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/22/2011 1018
1,3-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/22/2011 1018
1,4-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/22/2011 1018
1,2-Dichloroethane	ND		1	1.0	0.15	ug/L	11/22/2011 1018
1,1-Dichloroethane	ND		1	1.0	0.13	ug/L	11/22/2011 1018
trans-1,2-Dichloroethene	ND		1	1.0	0.21	ug/L	11/22/2011 1018
cis-1,2-Dichloroethene	ND		1	1.0	0.12	ug/L	11/22/2011 1018
1,1-Dichloroethene	ND		1	1.0	0.16	ug/L	11/22/2011 1018
1,2-Dichloropropane	ND		1	1.0	0.19	ug/L	11/22/2011 1018
trans-1,3-Dichloropropene	ND		1	1.0	0.11	ug/L	11/22/2011 1018
cis-1,3-Dichloropropene	ND		1	1.0	0.092	ug/L	11/22/2011 1018
Ethylbenzene	ND		1	1.0	0.33	ug/L	11/22/2011 1018
2-Hexanone	ND		1	10	0.27	ug/L	11/22/2011 1018
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	0.40	ug/L	11/22/2011 1018
4-Methyl-2-pentanone	ND		1	10	0.31	ug/L	11/22/2011 1018
Methylene chloride	ND		1	1.0	0.33	ug/L	11/22/2011 1018
Styrene	ND		1	1.0	0.12	ug/L	11/22/2011 1018
1,1,2,2-Tetrachloroethane	ND		1	1.0	0.16	ug/L	11/22/2011 1018
Tetrachloroethene	ND		1	1.0	0.13	ug/L	11/22/2011 1018
Toluene	ND		1	1.0	0.33	ug/L	11/22/2011 1018
1,2,4-Trichlorobenzene	ND		1	1.0	0.51	ug/L	11/22/2011 1018
1,1,2-Trichloroethane	ND		1	1.0	0.21	ug/L	11/22/2011 1018
1,1,1-Trichloroethane	ND		1	1.0	0.074	ug/L	11/22/2011 1018
Trichloroethene	ND		1	1.0	0.18	ug/L	11/22/2011 1018
Vinyl chloride	ND		1	1.0	0.054	ug/L	11/22/2011 1018
Xylenes (total)	ND		1	1.0	0.33	ug/L	11/22/2011 1018

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		98	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 - LCS

Sample ID: MQ72277-002
Batch: 72277
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	120		1	120	70-130	11/22/2011 0846
Benzene	50	51		1	102	70-130	11/22/2011 0846
Bromodichloromethane	50	51		1	101	70-130	11/22/2011 0846
Bromoform	50	40		1	81	70-130	11/22/2011 0846
Bromomethane (Methyl bromide)	50	51		1	102	60-140	11/22/2011 0846
2-Butanone (MEK)	100	94		1	94	60-140	11/22/2011 0846
Carbon disulfide	50	49		1	98	60-140	11/22/2011 0846
Carbon tetrachloride	50	51		1	102	70-130	11/22/2011 0846
Chlorobenzene	50	49		1	98	70-130	11/22/2011 0846
Chloroethane	50	51		1	102	42-163	11/22/2011 0846
Chloroform	50	50		1	101	70-130	11/22/2011 0846
Chloromethane (Methyl chloride)	50	52		1	104	70-130	11/22/2011 0846
Dibromochloromethane	50	49		1	98	70-130	11/22/2011 0846
1,2-Dichlorobenzene	50	49		1	98	70-130	11/22/2011 0846
1,3-Dichlorobenzene	50	50		1	99	70-130	11/22/2011 0846
1,4-Dichlorobenzene	50	49		1	99	70-130	11/22/2011 0846
1,2-Dichloroethane	50	49		1	97	70-130	11/22/2011 0846
1,1-Dichloroethane	50	48		1	96	70-130	11/22/2011 0846
trans-1,2-Dichloroethene	50	49		1	97	70-130	11/22/2011 0846
cis-1,2-Dichloroethene	50	50		1	100	70-130	11/22/2011 0846
1,1-Dichloroethene	50	49		1	97	70-130	11/22/2011 0846
1,2-Dichloropropane	50	50		1	100	70-130	11/22/2011 0846
trans-1,3-Dichloropropene	50	49		1	98	70-130	11/22/2011 0846
cis-1,3-Dichloropropene	50	51		1	103	70-130	11/22/2011 0846
Ethylbenzene	50	51		1	103	70-130	11/22/2011 0846
2-Hexanone	100	93		1	93	60-140	11/22/2011 0846
Methyl tertiary butyl ether (MTBE)	50	49		1	98	70-130	11/22/2011 0846
4-Methyl-2-pentanone	100	98		1	98	60-140	11/22/2011 0846
Methylene chloride	50	47		1	93	70-130	11/22/2011 0846
Styrene	50	53		1	107	70-130	11/22/2011 0846
1,1,2,2-Tetrachloroethane	50	49		1	97	60-140	11/22/2011 0846
Tetrachloroethene	50	49		1	98	70-130	11/22/2011 0846
Toluene	50	50		1	100	70-130	11/22/2011 0846
1,2,4-Trichlorobenzene	50	52		1	103	70-130	11/22/2011 0846
1,1,2-Trichloroethane	50	48		1	95	70-130	11/22/2011 0846
1,1,1-Trichloroethane	50	50		1	101	70-130	11/22/2011 0846
Trichloroethene	50	48		1	95	70-130	11/22/2011 0846
Vinyl chloride	50	43		1	86	70-130	11/22/2011 0846
Xylenes (total)	100	100		1	105	70-130	11/22/2011 0846

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		101	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 - MB

Sample ID: MQ72633-001
Batch: 72633
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	11/28/2011 1757
Benzene	ND		1	1.0	0.13	ug/L	11/28/2011 1757
Bromodichloromethane	ND		1	1.0	0.33	ug/L	11/28/2011 1757
Bromoform	ND		1	1.0	0.66	ug/L	11/28/2011 1757
Bromomethane (Methyl bromide)	ND		1	2.0	0.80	ug/L	11/28/2011 1757
2-Butanone (MEK)	ND		1	10	2.0	ug/L	11/28/2011 1757
Carbon disulfide	ND		1	1.0	0.097	ug/L	11/28/2011 1757
Carbon tetrachloride	ND		1	1.0	0.14	ug/L	11/28/2011 1757
Chlorobenzene	ND		1	2.0	0.33	ug/L	11/28/2011 1757
Chloroethane	ND		1	2.0	0.47	ug/L	11/28/2011 1757
Chloroform	ND		1	1.0	0.33	ug/L	11/28/2011 1757
Chloromethane (Methyl chloride)	ND		1	1.0	0.35	ug/L	11/28/2011 1757
Dibromochloromethane	ND		1	1.0	0.33	ug/L	11/28/2011 1757
1,3-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/28/2011 1757
1,4-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/28/2011 1757
1,2-Dichlorobenzene	ND		1	1.0	0.33	ug/L	11/28/2011 1757
1,2-Dichloroethane	ND		1	1.0	0.15	ug/L	11/28/2011 1757
1,1-Dichloroethane	ND		1	1.0	0.13	ug/L	11/28/2011 1757
cis-1,2-Dichloroethene	ND		1	1.0	0.12	ug/L	11/28/2011 1757
trans-1,2-Dichloroethene	ND		1	1.0	0.21	ug/L	11/28/2011 1757
1,1-Dichloroethene	ND		1	1.0	0.16	ug/L	11/28/2011 1757
1,2-Dichloropropane	ND		1	1.0	0.19	ug/L	11/28/2011 1757
trans-1,3-Dichloropropene	ND		1	1.0	0.11	ug/L	11/28/2011 1757
cis-1,3-Dichloropropene	ND		1	1.0	0.092	ug/L	11/28/2011 1757
Ethylbenzene	ND		1	1.0	0.33	ug/L	11/28/2011 1757
2-Hexanone	ND		1	10	0.27	ug/L	11/28/2011 1757
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	0.40	ug/L	11/28/2011 1757
4-Methyl-2-pentanone	ND		1	10	0.31	ug/L	11/28/2011 1757
Methylene chloride	ND		1	1.0	0.33	ug/L	11/28/2011 1757
Styrene	ND		1	1.0	0.12	ug/L	11/28/2011 1757
1,1,2,2-Tetrachloroethane	ND		1	1.0	0.16	ug/L	11/28/2011 1757
Tetrachloroethene	ND		1	1.0	0.13	ug/L	11/28/2011 1757
Toluene	ND		1	1.0	0.33	ug/L	11/28/2011 1757
1,2,4-Trichlorobenzene	ND		1	1.0	0.51	ug/L	11/28/2011 1757
1,1,2-Trichloroethane	ND		1	1.0	0.21	ug/L	11/28/2011 1757
1,1,1-Trichloroethane	ND		1	1.0	0.074	ug/L	11/28/2011 1757
Trichloroethene	ND		1	1.0	0.18	ug/L	11/28/2011 1757
Vinyl chloride	ND		1	1.0	0.054	ug/L	11/28/2011 1757
Xylenes (total)	ND		1	1.0	0.33	ug/L	11/28/2011 1757

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		104	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: MQ72633-002
Batch: 72633
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	110		1	115	70-130	11/28/2011 1632
Benzene	50	49		1	97	70-130	11/28/2011 1632
Bromodichloromethane	50	51		1	103	70-130	11/28/2011 1632
Bromoform	50	54		1	109	70-130	11/28/2011 1632
Bromomethane (Methyl bromide)	50	52		1	104	60-140	11/28/2011 1632
2-Butanone (MEK)	100	94		1	94	60-140	11/28/2011 1632
Carbon disulfide	50	55		1	111	60-140	11/28/2011 1632
Carbon tetrachloride	50	48		1	96	70-130	11/28/2011 1632
Chlorobenzene	50	51		1	101	70-130	11/28/2011 1632
Chloroethane	50	50		1	100	42-163	11/28/2011 1632
Chloroform	50	48		1	97	70-130	11/28/2011 1632
Chloromethane (Methyl chloride)	50	55		1	109	70-130	11/28/2011 1632
Dibromochloromethane	50	52		1	104	70-130	11/28/2011 1632
1,3-Dichlorobenzene	50	51		1	101	70-130	11/28/2011 1632
1,4-Dichlorobenzene	50	49		1	99	70-130	11/28/2011 1632
1,2-Dichlorobenzene	50	50		1	100	70-130	11/28/2011 1632
1,2-Dichloroethane	50	50		1	100	70-130	11/28/2011 1632
1,1-Dichloroethane	50	49		1	97	70-130	11/28/2011 1632
cis-1,2-Dichloroethene	50	50		1	99	70-130	11/28/2011 1632
trans-1,2-Dichloroethene	50	49		1	98	70-130	11/28/2011 1632
1,1-Dichloroethene	50	49		1	98	70-130	11/28/2011 1632
1,2-Dichloropropane	50	50		1	100	70-130	11/28/2011 1632
trans-1,3-Dichloropropene	50	51		1	103	70-130	11/28/2011 1632
cis-1,3-Dichloropropene	50	53		1	107	70-130	11/28/2011 1632
Ethylbenzene	50	51		1	102	70-130	11/28/2011 1632
2-Hexanone	100	110		1	114	60-140	11/28/2011 1632
Methyl tertiary butyl ether (MTBE)	50	51		1	103	70-130	11/28/2011 1632
4-Methyl-2-pentanone	100	110		1	113	60-140	11/28/2011 1632
Methylene chloride	50	48		1	97	70-130	11/28/2011 1632
Styrene	50	53		1	106	70-130	11/28/2011 1632
1,1,2,2-Tetrachloroethane	50	52		1	104	60-140	11/28/2011 1632
Tetrachloroethene	50	52		1	105	70-130	11/28/2011 1632
Toluene	50	48		1	96	70-130	11/28/2011 1632
1,2,4-Trichlorobenzene	50	54		1	108	70-130	11/28/2011 1632
1,1,2-Trichloroethane	50	51		1	101	70-130	11/28/2011 1632
1,1,1-Trichloroethane	50	49		1	99	70-130	11/28/2011 1632
Trichloroethene	50	49		1	99	70-130	11/28/2011 1632
Vinyl chloride	50	47		1	95	70-130	11/28/2011 1632
Xylenes (total)	100	100		1	105	70-130	11/28/2011 1632

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		98	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: MQ72633-003
Batch: 72633
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
Acetone	100	120		1	117	1.5	70-130	20	11/28/2011 1653
Benzene	50	49		1	97	0.045	70-130	20	11/28/2011 1653
Bromodichloromethane	50	51		1	101	1.3	70-130	20	11/28/2011 1653
Bromoform	50	54		1	108	0.47	70-130	20	11/28/2011 1653
Bromomethane (Methyl bromide)	50	50		1	100	3.2	60-140	20	11/28/2011 1653
2-Butanone (MEK)	100	97		1	97	3.9	60-140	20	11/28/2011 1653
Carbon disulfide	50	54		1	108	3.0	60-140	20	11/28/2011 1653
Carbon tetrachloride	50	47		1	94	1.9	70-130	20	11/28/2011 1653
Chlorobenzene	50	51		1	102	0.51	70-130	20	11/28/2011 1653
Chloroethane	50	49		1	98	2.4	42-163	20	11/28/2011 1653
Chloroform	50	48		1	95	1.3	70-130	20	11/28/2011 1653
Chloromethane (Methyl chloride)	50	52		1	103	5.5	70-130	20	11/28/2011 1653
Dibromochloromethane	50	51		1	103	0.64	70-130	20	11/28/2011 1653
1,3-Dichlorobenzene	50	50		1	100	1.8	70-130	20	11/28/2011 1653
1,4-Dichlorobenzene	50	49		1	97	1.8	70-130	20	11/28/2011 1653
1,2-Dichlorobenzene	50	50		1	100	0.044	70-130	20	11/28/2011 1653
1,2-Dichloroethane	50	49		1	98	2.0	70-130	20	11/28/2011 1653
1,1-Dichloroethane	50	46		1	93	4.9	70-130	20	11/28/2011 1653
cis-1,2-Dichloroethene	50	48		1	96	3.6	70-130	20	11/28/2011 1653
trans-1,2-Dichloroethene	50	48		1	95	2.3	70-130	20	11/28/2011 1653
1,1-Dichloroethene	50	48		1	96	2.0	70-130	20	11/28/2011 1653
1,2-Dichloropropane	50	50		1	100	0.44	70-130	20	11/28/2011 1653
trans-1,3-Dichloropropene	50	53		1	107	3.8	70-130	20	11/28/2011 1653
cis-1,3-Dichloropropene	50	53		1	106	0.21	70-130	20	11/28/2011 1653
Ethylbenzene	50	51		1	102	0.59	70-130	20	11/28/2011 1653
2-Hexanone	100	110		1	115	0.62	60-140	20	11/28/2011 1653
Methyl tertiary butyl ether (MTBE)	50	50		1	101	2.0	70-130	20	11/28/2011 1653
4-Methyl-2-pentanone	100	110		1	114	0.91	60-140	20	11/28/2011 1653
Methylene chloride	50	47		1	94	2.6	70-130	20	11/28/2011 1653
Styrene	50	53		1	105	0.65	70-130	20	11/28/2011 1653
1,1,2,2-Tetrachloroethane	50	51		1	102	1.1	60-140	20	11/28/2011 1653
Tetrachloroethene	50	53		1	106	1.2	70-130	20	11/28/2011 1653
Toluene	50	49		1	98	1.6	70-130	20	11/28/2011 1653
1,2,4-Trichlorobenzene	50	54		1	108	0.074	70-130	20	11/28/2011 1653
1,1,2-Trichloroethane	50	52		1	103	2.3	70-130	20	11/28/2011 1653
1,1,1-Trichloroethane	50	49		1	97	1.5	70-130	20	11/28/2011 1653
Trichloroethene	50	49		1	99	0.37	70-130	20	11/28/2011 1653
Vinyl chloride	50	46		1	93	2.1	70-130	20	11/28/2011 1653
Xylenes (total)	100	100		1	102	2.2	70-130	20	11/28/2011 1653

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		99	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

MK19009

ARCADIS
Infrastructure, environment, buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:

Contact & Company Name: SCOTT BOSTIAN/ARCADIS
Telephone: 919.854.1282
Address: 801 CORPORATE CENTER DR. #300
Fax:
City: RALEIGH State: NC Zip: 27607
E-mail Address: SCOTT.BOSTIAN@ARCADIS-US.COM

Project Name/Location (City, State): HAA-15
Project #: GP08HAFS.H15C.GHOPT
Sampler's Printed Name: JOHN HANNA
Sampler's Signature: John Hanna

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	VOC's by 8260 B						
						B	—	3	1							
H15-MW-14C(111811)	11.18.11	1020		✓	W					✓						
TRIP_BLANK(111811)	11.18.11	—														
TEMP_BLANK	—															

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: G. Other: H. Other:

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: 10. Other:

Matrix Key: SO - Soil, SE - Sediment, NL - NAPL/Oil, W - Water, SL - Sludge, SW - Sample Wipe, T - Tissue, A - Air, Other:

REMARKS

PLEASE COPY RESULTS OF TRIP_BLANK (111811) TO THE HAA-17 SAMPLE REPORT

THANKS

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: SHEALY ENV.	Cooler Custody Seal (✓)	Printed Name: JOHN HANNA	Printed Name:	Printed Name:	Printed Name: WEBSTER H. LYONS
☐ Cooler packed with ice (✓)	✓ Intact ☐ Not Intact	Signature: John V. Hanna	Signature:	Signature:	Signature:
Specify Turnaround Requirements: ONE WEEK TAT *	Sample Receipt:	Firm: ARCADIS	Firm/Courier: FEDEX	Firm/Courier: FedEx	Firm: Shealy
Shipping Tracking #:	Condition/Cooler Temp: 2.2	Date/Time: 11.18.11 / 1515	Date/Time: 11-18-11 / 1515	Date/Time: 11/19/11 0955	Date/Time: 11/19/11 0955

20130826 CoC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results; YELLOW – Lab copy; PINK – Retained by ARCADIS

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: 9

Page 1 of 1
Replaces Date: 05/06/11
Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: Arcadis   Cooler Inspected by/date: [illegible] 11/19/11   Lot #: MK19009

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 2.2 °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/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☑	NA ~~☑~~	20. Were collection temperatures documented on the COC for NC samples? (initialed 11/19/11)
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/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:
Was client notified: Yes ☐ No ☐
SESI employee: ______________
Comments: ______________

This portion can be removed for Recipient's records.
FedEx Tracking Number 863926250939
Date 11/19/2011
Sender's Name JOHN HANNA Phone 770 428 9009
Company ARCADIS
Address 1000 COBB PL BLVD #500A
City KENNESAW State GA ZIP 30144
Your Internal Billing Reference

Report of Analysis

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

Project Name: Hunter Stewart

Project Number: GP08HAFS.H15C.GH0PT

Lot Number: ML16012

Date Completed: 12/22/2011

Nisreen Saikaly
Project Manager

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

ML16012

Case Narrative
ARCADIS U.S., Inc.
Lot Number: ML16012

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: ML16012

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	H15-MW-21C	Aqueous	12/15/2011 0950	12/16/2011
002	H15-MW-09A	Aqueous	12/15/2011 1110	12/16/2011

(2 samples)

Executive Summary

ARCADIS U.S., Inc.

Lot Number: ML16012

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	H15-MW-21C	Aqueous	Ignitability (Pensky-Martens Closed-	1010A	>140		° F	5
002	H15-MW-09A	Aqueous	Ignitability (Pensky-Martens Closed-	1010A	>140		° F	8
002	H15-MW-09A	Aqueous	Benzene	8260B	1.4		ug/L	9
002	H15-MW-09A	Aqueous	1,2-Dichlorobenzene	8260B	1.6		ug/L	9
002	H15-MW-09A	Aqueous	cis-1,2-Dichloroethene	8260B	18		ug/L	9
002	H15-MW-09A	Aqueous	Trichloroethene	8260B	2.8		ug/L	9
002	H15-MW-09A	Aqueous	Vinyl chloride	8260B	0.30	J	ug/L	9

(7 detections)

Inorganic non-metals

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-001
Description: H15-MW-21C
Matrix: Aqueous
Date Sampled: 12/15/2011 0950
Date Received: 12/16/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Ignitability) 1010A	1	12/22/2011 1035	ARW		74307
1		(pH) SM 4500-H B	1	12/16/2011 1640	JBS		73915

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Ignitability (Pensky-Martens Closed-Cup)		1010A	>140		140	0	° F	1
pH		SM 4500-H B	6.41	H	0.000	0.000	su	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-001
Description: H15-MW-21C
Matrix: Aqueous
Date Sampled: 12/15/2011 0950
Date Received: 12/16/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/22/2011 0138	JJG		74284

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.33	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.66	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.14	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		2.0	0.33	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.47	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.33	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.35	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.33	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.33	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.13	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.21	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		1.0	0.12	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.16	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.19	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.11	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.092	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.33	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.12	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.16	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.13	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		1.0	0.51	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.21	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.074	ug/L	1
Trichloroethene	79-01-6	8260B	ND		1.0	0.18	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		1.0	0.054	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-001
Description: H15-MW-21C
Matrix: Aqueous
Date Sampled: 12/15/2011 0950
Date Received: 12/16/2011

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		105	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		99	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
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Inorganic non-metals

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-002
Description: H15-MW-09A
Matrix: Aqueous
Date Sampled: 12/15/2011 1110
Date Received: 12/16/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Ignitability) 1010A	1	12/22/2011 1042	ARW		74307
1		(pH) SM 4500-H B	1	12/16/2011 1640	JBS		73915

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Ignitability (Pensky-Martens Closed-Cup)		1010A	>140		140	0	° F	1
pH		SM 4500-H B	6.06	H	0.000	0.000	su	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-002
Description: H15-MW-09A
Matrix: Aqueous
Date Sampled: 12/15/2011 1110
Date Received: 12/16/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/22/2011 0201	JJG		74284

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		20	6.7	ug/L	1
Benzene	71-43-2	8260B	1.4		1.0	0.13	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		1.0	0.33	ug/L	1
Bromoform	75-25-2	8260B	ND		1.0	0.66	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		2.0	0.80	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		1.0	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		1.0	0.14	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		2.0	0.33	ug/L	1
Chloroethane	75-00-3	8260B	ND		2.0	0.47	ug/L	1
Chloroform	67-66-3	8260B	ND		1.0	0.33	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		1.0	0.35	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		1.0	0.33	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		1.0	0.33	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		1.0	0.33	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	1.6		1.0	0.33	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		1.0	0.13	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		1.0	0.21	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	18		1.0	0.12	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		1.0	0.16	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		1.0	0.19	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		1.0	0.11	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		1.0	0.092	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		1.0	0.33	ug/L	1
Styrene	100-42-5	8260B	ND		1.0	0.12	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		1.0	0.16	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		1.0	0.13	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		1.0	0.51	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		1.0	0.21	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		1.0	0.074	ug/L	1
Trichloroethene	79-01-6	8260B	2.8		1.0	0.18	ug/L	1
Vinyl chloride	75-01-4	8260B	0.30	J	1.0	0.054	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Laboratory ID: ML16012-002
Description: H15-MW-09A
Matrix: Aqueous
Date Sampled: 12/15/2011 1110
Date Received: 12/16/2011

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		100	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
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
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Inorganic non-metals - MB

Sample ID: MQ73915-001
Batch: 73915
Analytical Method: SM 4500-H B

Matrix: Aqueous

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
pH	6.6		1	0.000	0.000	su	12/16/2011 1640

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: MQ74284-001
Batch: 74284
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	20	6.7	ug/L	12/21/2011 2219
Benzene	ND		1	1.0	0.13	ug/L	12/21/2011 2219
Bromodichloromethane	ND		1	1.0	0.33	ug/L	12/21/2011 2219
Bromoform	ND		1	1.0	0.66	ug/L	12/21/2011 2219
Bromomethane (Methyl bromide)	ND		1	2.0	0.80	ug/L	12/21/2011 2219
2-Butanone (MEK)	ND		1	10	2.0	ug/L	12/21/2011 2219
Carbon disulfide	ND		1	1.0	0.097	ug/L	12/21/2011 2219
Carbon tetrachloride	ND		1	1.0	0.14	ug/L	12/21/2011 2219
Chlorobenzene	ND		1	2.0	0.33	ug/L	12/21/2011 2219
Chloroethane	ND		1	2.0	0.47	ug/L	12/21/2011 2219
Chloroform	ND		1	1.0	0.33	ug/L	12/21/2011 2219
Chloromethane (Methyl chloride)	ND		1	1.0	0.35	ug/L	12/21/2011 2219
Dibromochloromethane	ND		1	1.0	0.33	ug/L	12/21/2011 2219
1,4-Dichlorobenzene	ND		1	1.0	0.33	ug/L	12/21/2011 2219
1,3-Dichlorobenzene	ND		1	1.0	0.33	ug/L	12/21/2011 2219
1,2-Dichlorobenzene	ND		1	1.0	0.33	ug/L	12/21/2011 2219
1,2-Dichloroethane	ND		1	1.0	0.15	ug/L	12/21/2011 2219
1,1-Dichloroethane	ND		1	1.0	0.13	ug/L	12/21/2011 2219
trans-1,2-Dichloroethene	ND		1	1.0	0.21	ug/L	12/21/2011 2219
cis-1,2-Dichloroethene	ND		1	1.0	0.12	ug/L	12/21/2011 2219
1,1-Dichloroethene	ND		1	1.0	0.16	ug/L	12/21/2011 2219
1,2-Dichloropropane	ND		1	1.0	0.19	ug/L	12/21/2011 2219
trans-1,3-Dichloropropene	ND		1	1.0	0.11	ug/L	12/21/2011 2219
cis-1,3-Dichloropropene	ND		1	1.0	0.092	ug/L	12/21/2011 2219
Ethylbenzene	ND		1	1.0	0.33	ug/L	12/21/2011 2219
2-Hexanone	ND		1	10	0.27	ug/L	12/21/2011 2219
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	0.40	ug/L	12/21/2011 2219
4-Methyl-2-pentanone	ND		1	10	0.31	ug/L	12/21/2011 2219
Methylene chloride	ND		1	1.0	0.33	ug/L	12/21/2011 2219
Styrene	ND		1	1.0	0.12	ug/L	12/21/2011 2219
1,1,2,2-Tetrachloroethane	ND		1	1.0	0.16	ug/L	12/21/2011 2219
Tetrachloroethene	ND		1	1.0	0.13	ug/L	12/21/2011 2219
Toluene	ND		1	1.0	0.33	ug/L	12/21/2011 2219
1,2,4-Trichlorobenzene	ND		1	1.0	0.51	ug/L	12/21/2011 2219
1,1,2-Trichloroethane	ND		1	1.0	0.21	ug/L	12/21/2011 2219
1,1,1-Trichloroethane	ND		1	1.0	0.074	ug/L	12/21/2011 2219
Trichloroethene	ND		1	1.0	0.18	ug/L	12/21/2011 2219
Vinyl chloride	ND		1	1.0	0.054	ug/L	12/21/2011 2219
Xylenes (total)	ND		1	1.0	0.33	ug/L	12/21/2011 2219

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		99	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: MQ74284-002
Batch: 74284
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	76		1	76	70-130	12/21/2011 2046
Benzene	50	50		1	99	70-130	12/21/2011 2046
Bromodichloromethane	50	57		1	115	70-130	12/21/2011 2046
Bromoform	50	48		1	95	70-130	12/21/2011 2046
Bromomethane (Methyl bromide)	50	50		1	99	60-140	12/21/2011 2046
2-Butanone (MEK)	100	92		1	92	60-140	12/21/2011 2046
Carbon disulfide	50	53		1	107	60-140	12/21/2011 2046
Carbon tetrachloride	50	56		1	112	70-130	12/21/2011 2046
Chlorobenzene	50	50		1	100	70-130	12/21/2011 2046
Chloroethane	50	50		1	99	42-163	12/21/2011 2046
Chloroform	50	54		1	108	70-130	12/21/2011 2046
Chloromethane (Methyl chloride)	50	45		1	91	70-130	12/21/2011 2046
Dibromochloromethane	50	55		1	110	70-130	12/21/2011 2046
1,4-Dichlorobenzene	50	49		1	99	70-130	12/21/2011 2046
1,3-Dichlorobenzene	50	51		1	102	70-130	12/21/2011 2046
1,2-Dichlorobenzene	50	51		1	101	70-130	12/21/2011 2046
1,2-Dichloroethane	50	54		1	108	70-130	12/21/2011 2046
1,1-Dichloroethane	50	50		1	101	70-130	12/21/2011 2046
trans-1,2-Dichloroethene	50	50		1	100	70-130	12/21/2011 2046
cis-1,2-Dichloroethene	50	50		1	101	70-130	12/21/2011 2046
1,1-Dichloroethene	50	51		1	102	70-130	12/21/2011 2046
1,2-Dichloropropane	50	51		1	101	70-130	12/21/2011 2046
trans-1,3-Dichloropropene	50	52		1	105	70-130	12/21/2011 2046
cis-1,3-Dichloropropene	50	54		1	108	70-130	12/21/2011 2046
Ethylbenzene	50	51		1	102	70-130	12/21/2011 2046
2-Hexanone	100	99		1	99	60-140	12/21/2011 2046
Methyl tertiary butyl ether (MTBE)	50	52		1	104	70-130	12/21/2011 2046
4-Methyl-2-pentanone	100	110		1	107	60-140	12/21/2011 2046
Methylene chloride	50	49		1	97	70-130	12/21/2011 2046
Styrene	50	55		1	110	70-130	12/21/2011 2046
1,1,2,2-Tetrachloroethane	50	50		1	100	60-140	12/21/2011 2046
Tetrachloroethene	50	50		1	100	70-130	12/21/2011 2046
Toluene	50	52		1	103	70-130	12/21/2011 2046
1,2,4-Trichlorobenzene	50	48		1	97	70-130	12/21/2011 2046
1,1,2-Trichloroethane	50	50		1	101	70-130	12/21/2011 2046
1,1,1-Trichloroethane	50	55		1	110	70-130	12/21/2011 2046
Trichloroethene	50	51		1	102	70-130	12/21/2011 2046
Vinyl chloride	50	48		1	96	70-130	12/21/2011 2046
Xylenes (total)	100	100		1	102	70-130	12/21/2011 2046

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		111	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: MQ74284-003
Batch: 74284
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
Acetone	100	85		1	85	11	70-130	20	12/21/2011 2109
Benzene	50	50		1	101	1.2	70-130	20	12/21/2011 2109
Bromodichloromethane	50	57		1	114	0.53	70-130	20	12/21/2011 2109
Bromoform	50	49		1	97	2.3	70-130	20	12/21/2011 2109
Bromomethane (Methyl bromide)	50	49		1	99	0.82	60-140	20	12/21/2011 2109
2-Butanone (MEK)	100	97		1	97	5.8	60-140	20	12/21/2011 2109
Carbon disulfide	50	54		1	108	1.1	60-140	20	12/21/2011 2109
Carbon tetrachloride	50	56		1	111	0.61	70-130	20	12/21/2011 2109
Chlorobenzene	50	50		1	100	0.47	70-130	20	12/21/2011 2109
Chloroethane	50	50		1	99	0.064	42-163	20	12/21/2011 2109
Chloroform	50	55		1	110	1.8	70-130	20	12/21/2011 2109
Chloromethane (Methyl chloride)	50	44		1	89	1.7	70-130	20	12/21/2011 2109
Dibromochloromethane	50	56		1	112	1.5	70-130	20	12/21/2011 2109
1,4-Dichlorobenzene	50	50		1	100	1.9	70-130	20	12/21/2011 2109
1,3-Dichlorobenzene	50	51		1	103	0.50	70-130	20	12/21/2011 2109
1,2-Dichlorobenzene	50	51		1	102	0.18	70-130	20	12/21/2011 2109
1,2-Dichloroethane	50	54		1	108	0.37	70-130	20	12/21/2011 2109
1,1-Dichloroethane	50	52		1	103	2.1	70-130	20	12/21/2011 2109
trans-1,2-Dichloroethene	50	52		1	103	2.9	70-130	20	12/21/2011 2109
cis-1,2-Dichloroethene	50	52		1	105	3.7	70-130	20	12/21/2011 2109
1,1-Dichloroethene	50	52		1	103	1.0	70-130	20	12/21/2011 2109
1,2-Dichloropropane	50	51		1	102	0.59	70-130	20	12/21/2011 2109
trans-1,3-Dichloropropene	50	53		1	107	1.7	70-130	20	12/21/2011 2109
cis-1,3-Dichloropropene	50	54		1	108	0.23	70-130	20	12/21/2011 2109
Ethylbenzene	50	51		1	103	0.58	70-130	20	12/21/2011 2109
2-Hexanone	100	100		1	103	3.8	60-140	20	12/21/2011 2109
Methyl tertiary butyl ether (MTBE)	50	53		1	107	2.8	70-130	20	12/21/2011 2109
4-Methyl-2-pentanone	100	110		1	110	2.9	60-140	20	12/21/2011 2109
Methylene chloride	50	50		1	100	2.5	70-130	20	12/21/2011 2109
Styrene	50	56		1	111	0.88	70-130	20	12/21/2011 2109
1,1,2,2-Tetrachloroethane	50	51		1	101	1.7	60-140	20	12/21/2011 2109
Tetrachloroethene	50	50		1	101	0.45	70-130	20	12/21/2011 2109
Toluene	50	52		1	103	0.083	70-130	20	12/21/2011 2109
1,2,4-Trichlorobenzene	50	50		1	99	2.5	70-130	20	12/21/2011 2109
1,1,2-Trichloroethane	50	51		1	102	1.2	70-130	20	12/21/2011 2109
1,1,1-Trichloroethane	50	55		1	111	0.79	70-130	20	12/21/2011 2109
Trichloroethene	50	52		1	104	2.0	70-130	20	12/21/2011 2109
Vinyl chloride	50	47		1	94	2.0	70-130	20	12/21/2011 2109
Xylenes (total)	100	100		1	103	0.51	70-130	20	12/21/2011 2109

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		111	70-130
Toluene-d8		103	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

ARCADIS
infrastructure, environment, buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # ML16012

Send Results to:

Contact & Company Name: Scott Bostian	Telephone: 919-854-1282
Address: 801 Corporate Center Dr	Fax: 919-854-5448
City: Raleigh State: NC Zip: 27607	E-mail Address: Scott.bostian@arcadis-us.com
Project Name/Location (City, State): HUNTER ARMY AIRFIELD HAA-15	Project #:
Sampler's Printed Name: Valyn Pavoncic	Sampler's Signature: Valyn Pavoncic

	B	E						
Preservative	B	E						
Filtered (✓)								
# of Containers	3	1						
Container Information								

PARAMETER ANALYSIS & METHOD

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	VOCs	pH, ignitability						REMARKS
H15-MW-21C	12-15-11	0950		✓	W	X	X						
H15-MW-09A	12-15-11	1110		✓	W	X	X						

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ____ G. Other: ____ H. Other: ____

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ____ 10. Other: ____

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other: ____

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓): T=2.5

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Shealy Environmental	Cooler Custody Seal (✓)	Printed Name: Valyn Pavoncic	Printed Name:	Printed Name:	Printed Name: Eleanor Cuarisne
☐ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature: Valyn Pavoncic	Signature:	Signature:	Signature: [signature]
Specify Turnaround Requirements: Standard	Sample Receipt:	Firm: ARCADIS	Firm/Courier:	Firm/Courier: FEDEX	Firm: Shealy
Shipping Tracking #:	Condition/Cooler Temp: ____	Date/Time: 12-15-11 1055	Date/Time:	Date/Time: 12-16-11 0940	Date/Time: 12-16-11 0940

20730626 CofC AR Form 01.12.2007 Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by ARCADIS

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 9

Page 1 of 1
Replaces Date: 05/06/11
Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: 6~ 12/16/11 Lot #: ML16012

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 2.5 °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? pH
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/BNA/pest/PCB/herb (<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/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:

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

SESI employee: __________ Date of response: __________

Comments:____________________

ARCADIS MALCOLM PIRNIE

Appendix E

Validation Reports

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: ML16012
HAA-15

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), 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. 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: ML16012
HAA-15

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	01/11/12
REVIEW PERFORMED BY:	Rachelle Borne	01/11/12
SIGNATURE:		01/11/12
PEER REVIEW:		

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: ML16012
HAA-15

The following samples were included in this validation:

SDG	Sample ID	Sample Date	Parent Sample
ML16012	H15-MW-21C	12/15/11	
ML16012	H15-MW-09A	12/15/11	

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: ML16012
HAA-15

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.

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: ML16012
HAA-15

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	NA		NA	
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)	NA		NA	

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.

No qualification warranted.

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: MK19009
HAA-15

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), 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. 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: MK19009
HAA-15

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	12/19/11
REVIEW PERFORMED BY:	Rachelle Borne	12/19/11
SIGNATURE:		12/20/11
PEER REVIEW:	Todd Church	12/22/11

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: MK19009
HAA-15

The following samples were included in this validation:

SDG	Sample ID	Sample Date	Parent Sample
MK19009	H15-MW-14C(111811)	11/18/11	
MK19009	Trip Blank(111811)	11/18/11	

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDG: MK19009
HAA-15

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: MK19009
HAA-15

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)	NA		NA	

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

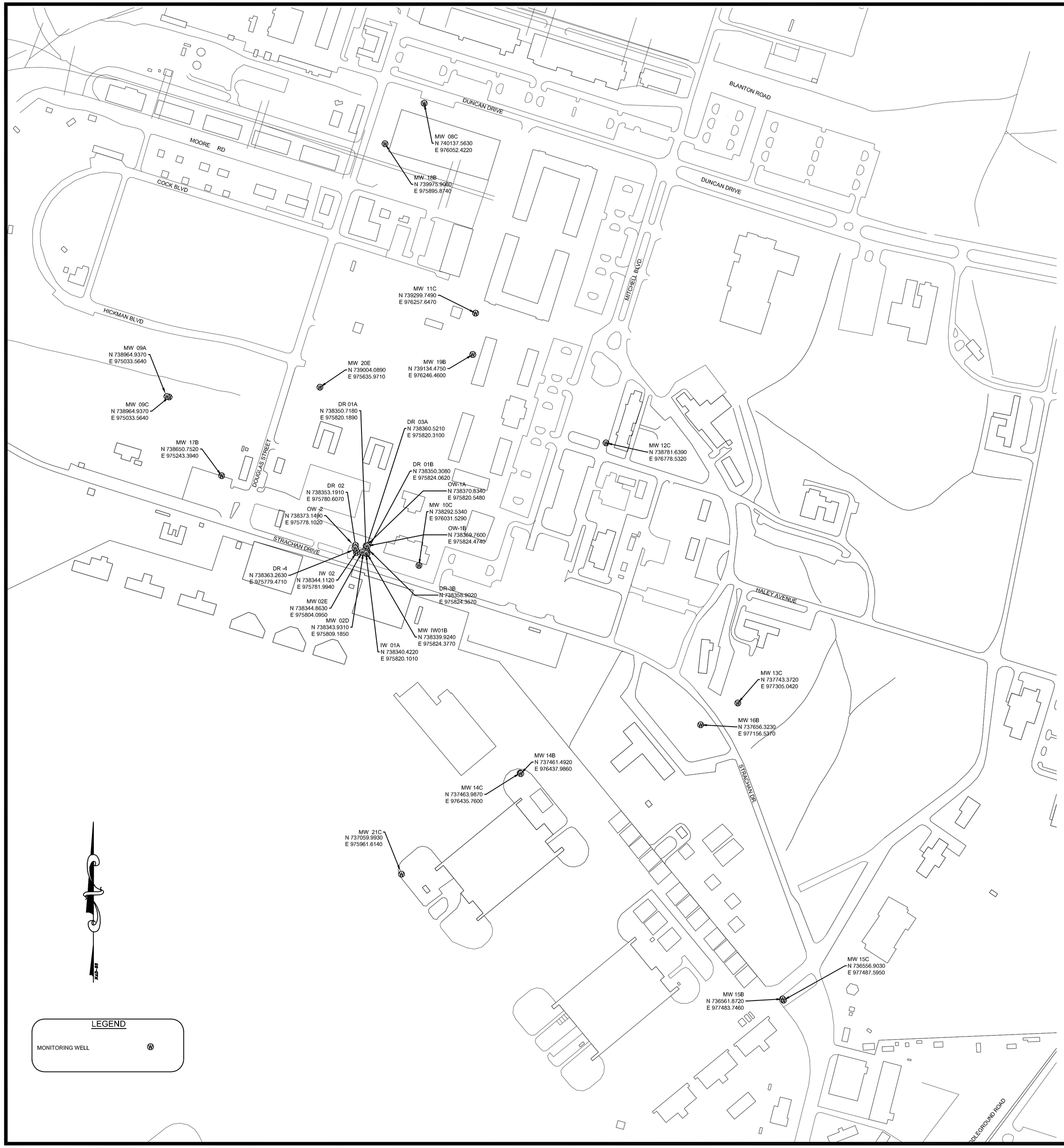
Comments:
This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method 8260B.

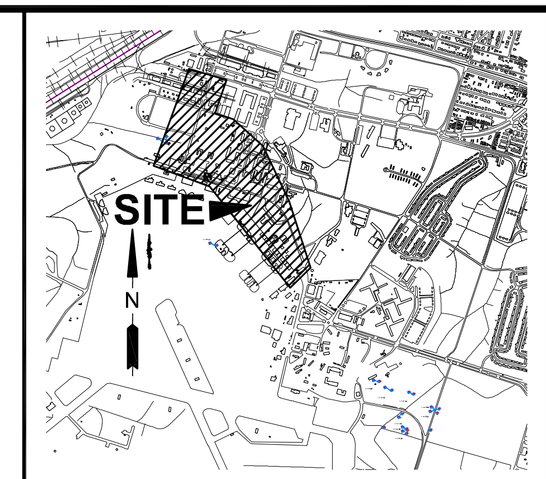
3C. The compound cis-1,2-dichloroethene was detected in the trip blank. The associated field sample was greater than five times the blank value; therefore, qualification of the data was not warranted.

ARCADIS MALCOLM PIRNIE

Appendix F

Monitoring Well Survey Report





VICINITY MAP
NOT TO SCALE

DATUM NAVD 88				
BORING OR WELL NAME	NORTHING	EASTING	TOP OF CASING	GROUND ELEVATION
MW 15B	736561.87	977483.75	36.19	36.54
MW 15C	736556.90	977487.60	36.13	36.50
MW 13C	737743.37	977305.04	28.24	28.85
MW 16B	737656.32	977156.54	33.89	34.32
MW 14B	737461.49	976437.99	37.37	37.92
MW 14C	737463.99	976435.76	37.49	37.67
MW 10C	738292.53	976031.53	36.07	36.40
DR 01B	738350.31	975824.06	37.09	37.22
DR 01A	738350.72	975820.19	37.28	37.65
IW 01B	738339.92	975824.38	37.11	37.32
MW 02D	738343.93	975809.19	37.44	37.46
MW 02E	738344.86	975804.10	37.78	37.50
MW 17B	738650.75	975243.39	35.66	35.77
MW 09C	738964.94	975033.56	28.32	28.58
MW 18B	739975.91	975895.87	20.27	20.69
MW 08C	740137.56	976052.42	20.64	20.90
MW 19B	739134.48	976246.46	24.33	24.51
MW 11C	739299.75	976257.65	22.93	23.31
MW 12C	738781.64	976778.53	24.33	24.69
IW 01A	738340.42	975820.10	36.95	37.37
DR 03A	738360.52	975820.31	37.12	37.41
DR 02	738353.19	975780.61	37.09	37.66
IW 02	738344.11	975781.99	37.31	37.75
MW 20E	739004.09	975635.97	33.65	34.07
OW-2	738373.15	975778.10	36.99	37.49
DR-4	738363.26	975779.47	37.13	37.49
OW-1A	738370.83	975820.55	36.99	37.41
OW-1B	738369.76	975824.47	37.17	37.48
DR-3B	738358.90	975824.36	37.28	37.65
MW 9A	738964.94	975033.564	28.45	28.50
MW 21C	737059.99	975961.61	37.72	38.01

NOTES:
1. THE HORIZONTAL DATUM SHOWN ON THIS PLAT IS BASED ON GEORGIA STATE COORDINATE SYSTEM - ZONE EAST (NAD-83).
2. THE VERTICAL DATUM SHOWN ON THIS PLAT IS BASED ON NAVD 88.

NO.	REVISION DESCRIPTION	BY	DATE
1	ADDITIONAL WELLS SURVEYED	SAU	08/07/11
2	ADDITIONAL WELLS SURVEYED	DET	01/06/12

GEORGIA REGISTERED No. LS002992 LAND SURVEYOR JEFFREY WAYNE MOCK

200' 100' 0' 200
GRAPHIC SCALE: 1"=200'-0"

EMC ENGINEERING SERVICES, INC.
CIVIL MARINE ENVIRONMENTAL
POST OFFICE BOX 8101
SAVANNAH, GEORGIA 31412
PHONE: (912) 644-3200
FAX: (912) 233-4580
savannah@emc-eng.com
ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH STATESBORO & VALDOSTA

MONITORING WELL EXHIBIT

MCA BARRACKS SITE (HAA-15)

4TH G.M.DISTRICT
SAVANNAH, CHATHAM COUNTY, GA
Prepared for:
ARCADIS

PROJECT NO.:	11-0090
DRAWN BY:	SAU/DET
DESIGNED BY:	
SURVEYED BY:	JT
SURVEY DATE:	01/05/12
CHECKED BY:	JWM
SCALE:	1"=200'
DATE:	08/30/2011

SHEET 1 OF 2

C:\2011\ip\110090 Hunter NW\dwg\11-0090V_401 MW HUNTER.dwg, 1/6/2012 9:32:45 AM, 1:1

ARCADIS MALCOLM PIRNIE

Appendix G

Building Construction Summary

CITY:(KNOXVILLE) DIV/GROUP:(ENV/GIS) DB:(B.ALTOM) PIC:(T.TALELE) PM:(C.BERTZ) APM:(S.BOSTIAN) TM:(J.FRIZZELL)
PROJECT: GP08HAFS.H15C.DPCSR PATH: G:\GIS\HAAF\MapDocs\H15\2012\CSR R1 ADD\G-1 H15_CSR1A Bldg ID.mxd SAVED: 1/16/2012 1:50:02 PM

PROJECTION: NAD_1983_StatePlane_Georgia_East_FIPS_1001_Feet
REFERENCE: NRCS (NAIP 2010).

LEGEND

T-811 Building Number

HUNTER ARMY AIRFIELD, GEORGIA
MCA BARRACKS SITE (HAA-15)
COMPLIANCE STATUS REPORT, REVISION 1, ADDENDUM 1

Building Location Map

ARCADIS

FIGURE
G-1

Table G-1

Vapor Intrusion Summary

Building Construction

HAA-15 (MCA Barracks Site)

Hunter Army Airfield - Savannah, Georgia

Building	Foundation Type	Construction Details		Drawing Number	Plate
100	slab	All Slabs 4" thick with 4" drainage fill. Water proof paper and 6x6x10/10 W.W.F. (welded wire fabric)		AW-HUN-28-10-02.13/23	S-1
305 (CO HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-4, S-5).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-4 Sheet 352). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-3 Sheet 330). Above vapor barrier. Conduit openings through foundation walls are grouted after conduit installation (S-4 Sheet 331). Below vapor barrier. Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 331). Above vapor barrier. Between exterior pavement and doors is expansion joint material (S-5 Sheet 332).	Sheets 327-332	S-1, S-2, S-3, S-4, S-5
306 (CO HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-4, S-5).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-4 Sheet 421). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-3 Sheet 400). Above vapor barrier. Conduit openings through foundation walls are grouted after coduit installation (S-4 Sheet 401). Below vapor barrier. Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 401). Above vapor barrier. Between exterior pavement and doors is expansion joint material (S-5 Shee402).	Sheets 397-402	S-1, S-2, S-3, S-4, S-5
307 (Bn HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-2).	HVAC System (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (M-7 Sheet 269). Above vapor barrier. HVAC exterior wall - water stops are welded to the pipe sleeves and between pipe sleeves and pipe is a wall penetration seal (M-7 Sheet 269).	Sheets 253 & 254	S-1, S-2
310, 311, 313	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-6)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-6 Sheet 125). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-1 Sheet 95). Above vapor barrier.	Sheets 95, 99,	S-1, S-5, S-6
312	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-4)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-5 Sheet 195). Above vapor barrier. Cavities and cells below bond beam of foundation are grouted (S-4 Sheet 172). Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 172). Above vapor barrier.	Sheets 169, 172	S-1, S-4
315, 316	slab	50 mm sand, vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-5, S-6)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-14 Sheet 190). Above vapor barrier.	Sheets 147, 151, 152	S-1, S-5, S-6
725	slab	4" thick concrete over vapor barrier over capillary water barrier reinforced with W.W.F. (S-101). Slab on Ground placed over a 10-mil polyethylene vapor barrier, over a 4 " minimum thick compacted granular capillary water barrier (S-001).		Sheet 48, 51, 53, 54, 55, 56	S-001, S-101, S-301, S-302, S-303, S-304,
811, 813	slab	6" concrete slab		35-60-01	S-4
328	slab	6 MIL vapor barrier and 4" capillary water barrier under all slabs-on-grade (S-1).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (P-502). Above vapor barrier.		S-001
420	slab		Felt jt. (typical) is between foundation bond beams and the slab (S-27 Sheet 195). Foundation appears to have a vapor barrier and capillary water barrier. (S-27 Sheet 195, S-28 Sheet 196, S-29 Sheet 197, S-30 Sheet 128)	Sheet 195, 196, 197, 198	S-27, S28, S-29, S-30
708, 710	slab	vapor barrier and capillary water varrier (S-301).	Fire Sprinkler piping is 3' below Footing (Typical). (Below vapor barrier). (F-201 Sheet 101) All cells below bond beams are filled with course grout (S-401 Sheet 120).	Sheet 118(MYSCAN0120), 119 (MYSCAN 0121), 120 (MYSCAN 0122)	S-301, S-302
140	slab			Sheet 3 of 82	25-11-02
865	slab			Sheet 13 of 23	S-1
727	slab	Slab on Ground placed over a 10-mil polyethylene vapor barrier, over a 4" minimum thick compacted granular capillary water barrier (S-001).	Felt jt. (typical) is between foundation bond beams and the slab (S-301 Sheet 53).	Sheets 48 (MYSCAN 046), 53 (MYSCAN 051), 54 (MYSCAN 52) , 55 (MYSCAN 53)	S-001, S-301, S-302, S-303
852	slab			Sheets 4, 5	A-1, A-2

Table G-1

Vapor Intrusion Summary

Building Construction

HAA-15 (MCA Barracks Site)

Hunter Army Airfield - Savannah, Georgia

Building	Foundation Type	Construction Details		Drawing Number	Plate
100	slab	All Slabs 4" thick with 4" drainage fill. Water proof paper and 6x6x10/10 W.W.F. (welded wire fabric)		AW-HUN-28-10-02.13/23	S-1
305 (CO HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-4, S-5).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-4 Sheet 352). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-3 Sheet 330). Above vapor barrier. Conduit openings through foundation walls are grouted after conduit installation (S-4 Sheet 331). Below vapor barrier. Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 331). Above vapor barrier. Between exterior pavement and doors is expansion joint material (S-5 Sheet 332).	Sheets 327-332	S-1, S-2, S-3, S-4, S-5
306 (CO HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-4, S-5).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-4 Sheet 421). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-3 Sheet 400). Above vapor barrier. Conduit openings through foundation walls are grouted after coduit installation (S-4 Sheet 401). Below vapor barrier. Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 401). Above vapor barrier. Between exterior pavement and doors is expansion joint material (S-5 Shee402).	Sheets 397-402	S-1, S-2, S-3, S-4, S-5
307 (Bn HQS)	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1). 50 mm sand barrier ontop of vapor barrier (S-2).	HVAC System (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (M-7 Sheet 269). Above vapor barrier. HVAC exterior wall - water stops are welded to the pipe sleeves and between pipe sleeves and pipe is a wall penetration seal (M-7 Sheet 269).	Sheets 253 & 254	S-1, S-2
310, 311, 313	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-6)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-6 Sheet 125). Above vapor barrier. Tooled Edge, in exposed areas, is filled with hot poured joint filler (S-1 Sheet 95). Above vapor barrier.	Sheets 95, 99,	S-1, S-5, S-6
312	slab	Vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-4)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-5 Sheet 195). Above vapor barrier. Cavities and cells below bond beam of foundation are grouted (S-4 Sheet 172). Felt jt. (typical) is between foundation bond beams and the slab (S-4 Sheet 172). Above vapor barrier.	Sheets 169, 172	S-1, S-4
315, 316	slab	50 mm sand, vapor barrier and 100 mm capillary water barrier under all slabs-on-grade (S-1, S-5, S-6)	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (MP-14 Sheet 190). Above vapor barrier.	Sheets 147, 151, 152	S-1, S-5, S-6
725	slab	4" thick concrete over vapor barrier over capillary water barrier reinforced with W.W.F. (S-101). Slab on Ground placed over a 10-mil polyethylene vapor barrier, over a 4 " minimum thick compacted granular capillary water barrier (S-001).		Sheet 48, 51, 53, 54, 55, 56	S-001, S-101, S-301, S-302, S-303, S-304,
811, 813	slab	6" concrete slab		35-60-01	S-4
328	slab	6 MIL vapor barrier and 4" capillary water barrier under all slabs-on-grade (S-1).	Plumbing (Pipe sleeve through the floor) - between the pipe and pipe sleeve is sealant and back up material (P-502). Above vapor barrier.		S-001
420	slab		Felt jt. (typical) is between foundation bond beams and the slab (S-27 Sheet 195). Foundation appears to have a vapor barrier and capillary water barrier. (S-27 Sheet 195, S-28 Sheet 196, S-29 Sheet 197, S-30 Sheet 128)	Sheet 195, 196, 197, 198	S-27, S28, S-29, S-30
708, 710	slab	vapor barrier and capillary water varrier (S-301).	Fire Sprinkler piping is 3' below Footing (Typical). (Below vapor barrier). (F-201 Sheet 101) All cells below bond beams are filled with course grout (S-401 Sheet 120).	Sheet 118(MYSCAN0120), 119 (MYSCAN 0121), 120 (MYSCAN 0122)	S-301, S-302
140	slab	Additional details not noted on available drawings		Sheet 3 of 82	25-11-02
865	slab	Additional details not noted on available drawings		Sheet 13 of 23	S-1
727	slab	Slab on Ground placed over a 10-mil polyethylene vapor barrier, over a 4" minimum thick compacted granular capillary water barrier (S-001).	Felt jt. (typical) is between foundation bond beams and the slab (S-301 Sheet 53).	Sheets 48 (MYSCAN 046), 53 (MYSCAN 051), 54 (MYSCAN 52) , 55 (MYSCAN 53)	S-001, S-301, S-302, S-303
852	slab	Additional details not noted on available drawings		Sheets 4, 5	A-1, A-2