Final
Baseline Monitoring
Data Summary Report

AOC 9
Former Griffiss Air Force Base
Rome, New York

Contract No. W912DQ-09-D-3013

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List of Abbreviations and Acronyms

AFCEE	Air Force Center for Engineering and the Environment
AOC	area of concern
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DCB	dichlorobenzene
DCE	dichloroethylene
DO	dissolved oxygen
DUSR	Data Usability Summary Report
EEEPC	Ecology and Environment Engineering, P.C.
EPA	(United States) Environmental Protection Agency
ERPIMS	Environmental Restoration Program Information Management System
ESI	Expanded Site Investigation
FID	flame ionization detector
Griffiss AFB	former Griffiss Air Force Base
IDW	investigation-derived waste
MCL	maximum contaminant level
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MW	monitoring well
NTU	nephelometric turbidity unit
NYSDEC	New York State Department of Environmental Conservation

List of Abbreviations and Acronyms (cont.)

ORP	oxidation reduction potential
Parsons	Parsons Infrastructure & Technology Group, Inc.
PCE	tetrachloroethylene
PDI	Predesign Investigation
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAO	Remedial Action Objective
SI	Supplemental Investigation
SW	surface water
TCE	trichloroethylene
TCL	Target Compound List
USACE	United States Army Corps of Engineers
VOC	volatile organic compound
WSA	Weapons Storage Area

1 Introduction

Ecology and Environment Engineering, P.C., under contract to Parsons Infrastructure & Technology Group, Inc. (Parsons), which is under contract to the U.S. Army Corps of Engineers (USACE) Kansas City District (Contract No. W912DQ-09-D-3013), performed baseline groundwater and surface water monitoring at Area of Concern 9 (AOC 9) of the former Griffiss Air Force Base (Griffiss AFB) in Rome, New York on July 27 to 29, 2010 (see Figure 1-1).

1.1 Purpose of Investigation

The three-phased groundwater monitoring program consists of baseline, performance, and long-term monitoring of volatile organic compound (VOC) levels in the groundwater and in Six Mile Creek. A phased approach is consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) response action process. Monitoring data are screened against the most stringent of either the New York State Department of Environmental Conservation (NYSDEC) Class GA groundwater criteria or the U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) (NYSDEC 1998; EPA 2006), which also represent the remedial action objectives (RAOs) established in the *Final Record of Decision* for this project (see Table 1-1; EEEPC 2010b).

Table 1-1 AOC 9 Groundwater Cleanup Goals/Remedial Action Objectives

Contaminants of Concern[a]	Groundwater Cleanup Goal[b] (µg/L)
1,2-Dichlorobenzene	3
1,2-Dichloroethane	0.6
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
Acetone	50
Benzene	1
Chlorobenzene	5
cis-1,2-Dichloroethylene	5
Ethylbenzene	5
Isopropylbenzene	5
Methylene Chloride	5
Naphthalene	10

Table 1-1 AOC 9 Groundwater Cleanup Goals/Remedial Action Objectives

Contaminants of Concern[a]	Groundwater Cleanup Goal[b] (µg/L)
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene	5
sec-Butylbenzene	5
Trichloroethylene	5
tert-Butylbenzene	5
Tetrachloroethylene	5
Vinyl Chloride	2
Xylene (Total)	5

Notes:
[a] From the *Final Feasibility Study Report Addendum for AOC 9* (EEEPC 2010a).
[b] New York State Department of Environmental Conservation (NYSDEC 2009) Class GA groundwater standard.

The baseline sampling, as presented here, consists of groundwater and surface water sampling and analysis to establish baseline VOC concentrations in the groundwater plume and Six Mile Creek before remediation begins.

The performance monitoring will evaluate the short-term effectiveness of the remediation efforts with a total of four sampling events over two years. The long-term effectiveness of the remediation efforts will be monitored during the long-term monitoring for three more years with annual sampling events.

Following the first three years of annual long-term monitoring, it is anticipated that monitoring will continue on an every-other-year basis until concentrations of hazardous substances in groundwater are below RAOs. Once the RAOs have been reached, the monitoring will again be performed annually until three consecutive rounds of sampling indicate that the concentrations of groundwater contaminants remain below RAOs. At that point, unrestricted use of the site can be allowed. Modeling performed during evaluation of the remedial alternatives for AOC 9 indicated that the total duration of the remedial action would likely span 11 years (EEEPC 2010c).

1.2 AOC 9 Site Description

AOC 9 is a grass-covered area approximately 1,500 feet long and 650 feet wide located in the southwest portion of the inactive Weapons Storage Area (WSA) (see Figure 1-1). The site is part of a strip of land that lies between an airplane runway to the southwest and extends into the WSA to the northeast. Perimeter Road runs through the site and Six Mile Creek borders the southwestern edge of the site.

The area comprising AOC 9 was originally farmland in the 1930s before base construction. In the 1940s and 1950s, the first landfill for the base (currently known as AOC 9) was established beneath the northern portion of the WSA extending south between Perimeter Road and Six Mile Creek. Aerial photographs

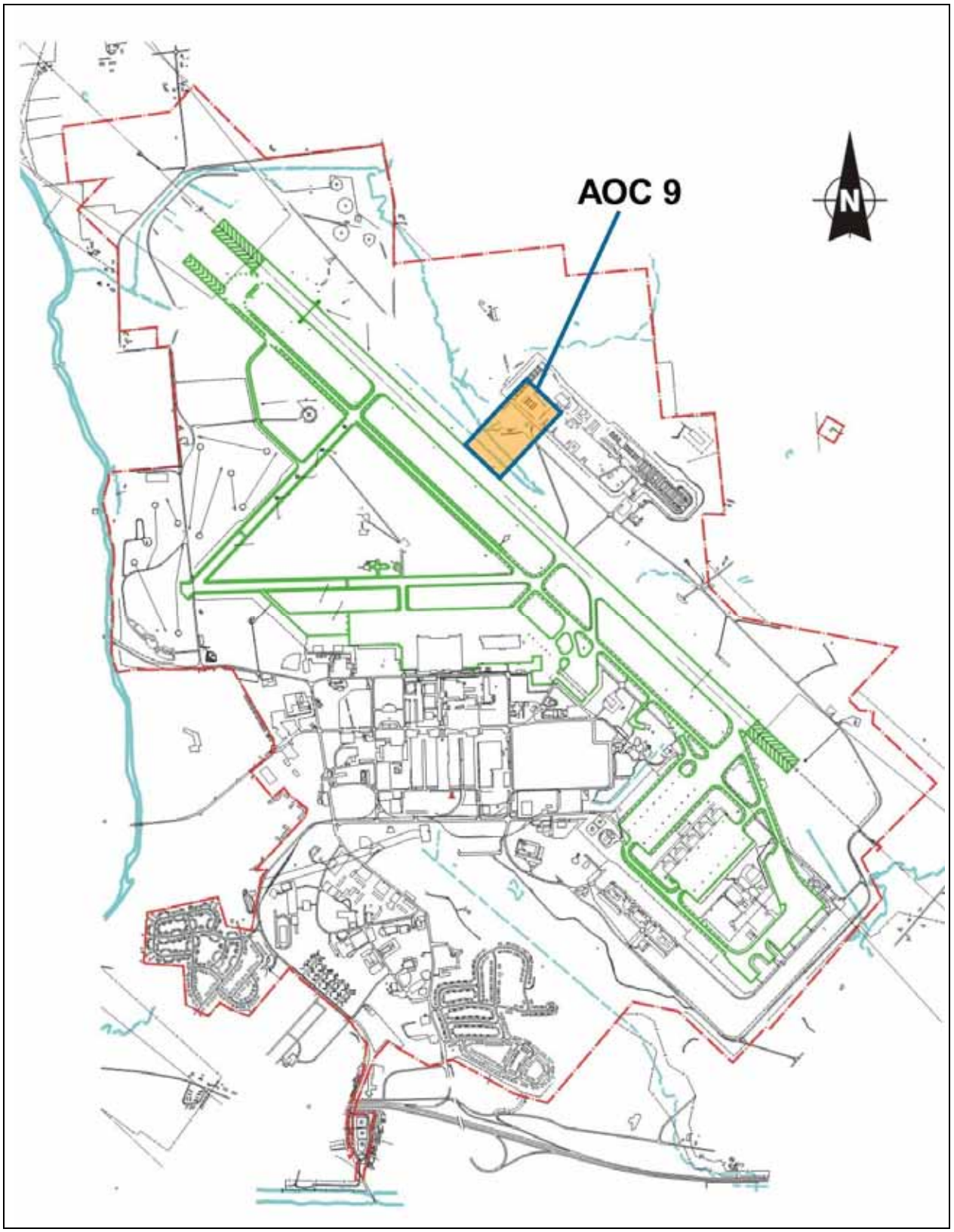


Figure 1-1 AOC 9, Former Griffiss Air Force Base, Rome, New York

show that the landfill was active between 1943 and 1957 but no later than 1960. The type of material buried at this site is unknown; however, it is reported that large quantities of the landfill material were removed during construction of the WSA.

Two munitions storage bunkers were erected between Perimeter Road and Six Mile Creek in the early 1950s. One of the bunkers (also referred to as igloos) was removed in the late 1970s or early 1980s (before 1981), and the other bunker was removed in 1992. Although the bunkers were initially used for munitions storage, they were later used to store hazardous materials.

The site's status was changed from "Area of Interest" to "Area of Concern" in 1998 when groundwater samples collected during the Expanded Site Investigation (ESI) were found to contain chlorinated solvents at concentrations exceeding NYSDEC Class GA standards and EPA MCLs (EPA 2006; NYSDEC 2009).

AOC 9 is currently inactive and access is somewhat restricted by Perimeter Road Gates 4 and 11. The southern portion of this area is expected to remain vacant in the future, acting as a buffer zone between the runway and future development in adjacent areas. The northern portion of the site extends into the former WSA boundary and is expected to be zoned as a nonresidential, industrial area.

The ground surface at AOC 9 slopes gently downward toward Six Mile Creek. Groundwater flows southwest toward the creek. Depth to groundwater is approximately 10 to 12 feet but is closer to the ground surface between Perimeter Road and Six Mile Creek. There are several locations in this area where shallow groundwater discharges to the surface. Three intermittent drainage ways that discharge to Six Mile Creek exist on the southern portion of the site.

Debris (including glass, slag, bricks, ceramics, cinderblocks, asphalt, concrete, wire, and metal) encountered during test pit excavations in the southern portion of the former landfill (south of the WSA) accounted for less than 1% by volume of excavated material. The lack of waste materials observed from the test pit excavations support reports that the former WSA landfill had been removed before the WSA was built.

A contaminated groundwater plume (chlorobenzene, trichloroethylene [TCE], dichloroethylene [DCE]) extends downgradient from AOC 9 for approximately 1,500 feet and covers approximately 8 acres. The lateral extent of the plume is approximately 400 feet and the vertical extent range is from ground surface to approximately 20 feet below ground surface (bgs). The leading edge of the plume has reached Six Mile Creek.

The contaminated aquifer is composed of silty-fine to medium grained sands with little coarse sand with discontinuous gravel seams. North of Perimeter Road, the aquifer is found in an interval from approximately 3 to 28 feet bgs. South of Perimeter Road there is less overburden and the aquifer extends from 1 to 18 feet

bgs. A thin till layer above the Utica Shale bedrock underlies the aquifer, but contamination has not been detected in the bedrock.

1.3 AOC 9 Previous Investigation Background

In 1997, an ESI was performed (E & E 1998). The main objective of the ESI was to investigate the nature and extent of environmental contamination from historical releases at the site in order to determine whether any remedial action was necessary to prevent potential threats to human health and the environment arising from exposure to site conditions.

The ESI included the installation and sampling of four permanent monitoring wells. Analytical results indicated the presence of benzene, chlorobenzene, cis-1,2-DCE, 1,2-dichlorobenzene (DCB), 1,3-DCB, 1,4-DCB, tetrachloroethylene (PCE), and TCE in one or more wells in concentrations that exceeded screening criteria. Several metals, including aluminum, iron, manganese, and potassium, were also detected in concentrations that exceeded screening criteria in one or more wells.

In 2000, a Supplemental Investigation (SI) was performed. A total of 88 Geoprobe and six Hydropunch groundwater screening samples were collected from 45 locations. Twenty-six of the 45 locations were vertically profiled (i.e., up to three samples were collected from different depths at the same location). In addition, four new monitoring wells were installed and sampled, and four existing monitoring wells were resampled. Analytical results for the Geoprobe/Hydropunch samples indicated the presence of 16 VOCs at levels exceeding the most stringent criteria. Analytical results for the monitoring wells indicated the presence of 14 VOCs and five metals at concentrations exceeding the most stringent screening criteria.

In 2002, a second SI was performed to collect additional data to further delineate the chlorinated hydrocarbon plume and determine if petroleum hydrocarbons were present within the groundwater. A total of 56 Geoprobe groundwater screening samples were collected from 14 locations. Eleven of the 14 locations were vertically profiled (i.e., up to five samples were collected from different depths at the same location). Analytical results for the Geoprobe samples indicated the presence of 15 VOCs at levels exceeding the most stringent screening criteria.

Based on these results, the overall shape of the contaminant plume at that time appeared to be linear and oriented northeast/southwest (approximately 850 feet long) with a relatively narrow center. The downgradient portion appeared to be the widest due to natural dispersion and the change in direction of groundwater flow in proximity to the creeks. Subsequent investigations provided additional data to better define the entire plume.

During the SI, five test pits were excavated to the water table and groundwater samples were collected to determine if petroleum hydrocarbons were present

within the groundwater. Analytical results indicated that there was no significant petroleum hydrocarbon contamination in the test pit samples.

During a predesign investigation (PDI) conducted in September through November 2006 by Ecology and Environment Engineering, P.C. (EEEPC), four additional groundwater monitoring wells (MW) (AOC9-MW14 through MW17) were installed at the site. Twenty-three different VOCs were detected in at least one of the groundwater samples collected during this investigation. The highest concentrations of total VOCs (1, 2-DCB, 1, 4-DCB, chlorobenzene, and benzene) were detected in presumed upgradient wells MW14 and MW15 at 2,082 micrograms per liter (µg/L) and 1,989 µg/L, respectively. These concentrations at presumed upgradient wells prompted further investigation and a potential source of groundwater contamination was found in the soil upgradient of Six Mile Creek and Perimeter Road. Two additional PDIs were conducted to determine the extent and nature of this source.

The second predesign investigation (PDI 2) was performed in February through April 2007. This study included the installation of 25 temporary monitoring wells and identified areas containing significantly higher levels of chlorobenzene and related compounds east of Building 913. Monitoring wells TW39 and TW32 had chlorobenzene concentrations of 14,400 µg/L and 8,580 µg/L, respectively. These concentrations were five to 10 times higher than the highest concentrations historically detected at AOC 9.

An additional PDI was performed in June through October 2007 to better define the plume and further identify the potential soil contaminant source area. During this investigation, a total of 56 new temporary monitoring wells were installed around the site. Twenty-two different VOCs were detected in the groundwater samples collected from the temporary monitoring wells at concentrations exceeding the groundwater standards. The highest total VOC concentrations were detected in groundwater samples collected from temporary wells TW45 (3,100 µg/L), TW71 (3,300 µg/L), and TW100 (3,400 µg/L). In addition, 42 boreholes were installed in the soil and soil cores were screened continuously with a photoionization detector and flame ionization detector (PID/FID) from ground surface to refusal (in the glacial till layer, approximately between 20 and 30 feet bgs. Samples were taken at depth intervals where the highest PID/FID readings were measured. Twelve VOCs (1, 2, 4-trimethylbenzene, 1, 3, 5-trimethylbenzene, 1, 2-DCB, 1, 3-DCB, 1, 4-DCB, chlorobenzene, ethylbenzene, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and toluene) were detected at concentrations exceeding screening criteria in the soil samples collected from the 42 soil borings. The highest total VOC concentrations were detected in soil samples collected from boreholes SB01 (1,100 milligrams/kilogram [mg/kg]) and SB12 (1,600 mg/kg) with chlorobenzenes representing the largest fraction of VOCs. The sample results and field observations indicated that there was a 6-foot-thick gray to black smear zone of contamination at the top of the saturated zone, which is located at depths ranging from 8 to 17 feet bgs.

Based on the PDIs, the soil east of Building 913 was identified as the source of the AOC 9 groundwater contamination.

1.4 AOC 9 Remedial Design and Monitoring Summary

The remedial design includes removal of the source area through excavation of contaminated soil, treatment of contaminated groundwater using chemical oxidation, and land use controls (EEEPC 2010c). Additionally, three groundwater and surface water monitoring phases, baseline sampling, performance monitoring, and long-term monitoring, will be performed in conjunction with the remedial action as described in the *Final Work Plan Baseline, Performance, and Long-Term Monitoring at AOC 9* (EEEPC 2010d) (the Work Plan). Baseline sampling, as presented here, will be conducted to provide a snapshot of the current groundwater contaminant levels prior to implementation of the remedial action for comparison to the groundwater monitoring, which will be performed after the remedial action. The performance monitoring will be performed to evaluate the short-term effectiveness of the remediation efforts, and the long-term monitoring will be performed to monitor the long-term effectiveness of the remedial efforts.

A total of eight sampling events are currently planned: one baseline sampling, four biannual performance monitoring, and three annual long-term monitoring. However, following the first three years of annual long-term monitoring, it is anticipated that monitoring will continue on an every-other-year basis until concentrations of hazardous substances in groundwater are below RAOs. After reaching the RAOs, the monitoring will again be performed annually until three consecutive rounds of sampling indicate that the concentrations of groundwater contaminants remain below the RAOs, allowing for unrestricted use of the site.

Activities at this site will include installation and development of two new permanent monitoring wells (AOC9-MW18 and MW19). Monitoring well MW18 was installed by Parsons, prior to the baseline sampling, east of the treatment area and serves as an upgradient well (see Figure 2-1 for well locations and Appendix A for Parsons well installation documentation). The remedial action at AOC 9 is being conducted following the installation of MW18. Well MW19 will be installed in the spring 2011, following the remedial excavation in the eastern portion of the groundwater contaminant source area at the current location of temporary well TW39 (see Figure 2-1 for well locations). The screened interval in MW19 will target the interval currently screened by temporary well TW39 (9.3 to 19.3 feet bgs), which contained a total VOC concentration of 21,610 µg/L. MW19 will be constructed with a 10-foot (0.01-inch slot) PVC screen in accordance with USACE protocols.

2 AOC 9 Baseline Monitoring Activities

This section presents the field activities performed during the AOC 9 Baseline Monitoring (see Appendix B, Daily Activity forms). The work performed at AOC 9 described in this report was performed in accordance with the Work Plan (EEEPC 2010d), with minor deviations from the Work Plan described in section 2.6.

2.1 Scope of Work

Baseline sampling was conducted at AOC 9 before the remedial action began to establish baseline VOC concentrations in the groundwater plume and Six Mile Creek. Baseline sampling consisted of sampling eight monitoring wells (G009-MW01, G009-MW02, AOC9-MW05, MW06, MW14, MW15, MW17, and MW18) and three surface water (SW) locations (AOC9-SW01, SW02, and SW03) (see Figure 2-1):

- Wells MW01 and MW02 were sampled to establish baseline contaminant concentrations in the lateral portions of the plume and confirm the current width of the contaminant plume.
- Wells MW05 and MW06 function as sentinel wells and were sampled to establish baseline contaminant concentrations of the leading edge of the contaminant plume down gradient of the remedial action treatment area.
- Wells MW14, MW15 and MW17 were sampled to establish baseline contaminant concentrations within the center of the plume in the area being treated during the remedial action (MW14) and downgradient of the treatment area (MW15 and MW17).
- Upgradient well MW18 was installed by Parsons prior to the baseline sampling and was sampled to establish baseline contaminant concentrations upgradient of the groundwater plume.
- Surface water sample locations SW01 through SW03 were sampled to establish baseline contaminant concentrations within Six Mile Creek.

Baseline sampling results will be used to establish a baseline for comparison and evaluation of the remaining performance and long-term monitoring sampling

events. Sampling was conducted from July 27 to 29, 2010, which is approximately one month before the remedial action activities began at AOC 9.

2.1.1 Monitoring Well Installation and Development

One additional groundwater monitoring well (MW18) was installed in July 2010, east of the groundwater contamination source area, to function as an upgradient well (see Figure 2-1). Monitoring well MW18 was installed 19 feet deep and constructed with a 10-foot (0.01-inch slot) PVC screen. Well drilling and construction documentation are provided in Appendix A. Since information on the subsurface at this site was available from previous drilling activities, there were no split spoon soil samples collected during well installation to alleviate the risk of heaving sand into the augers.

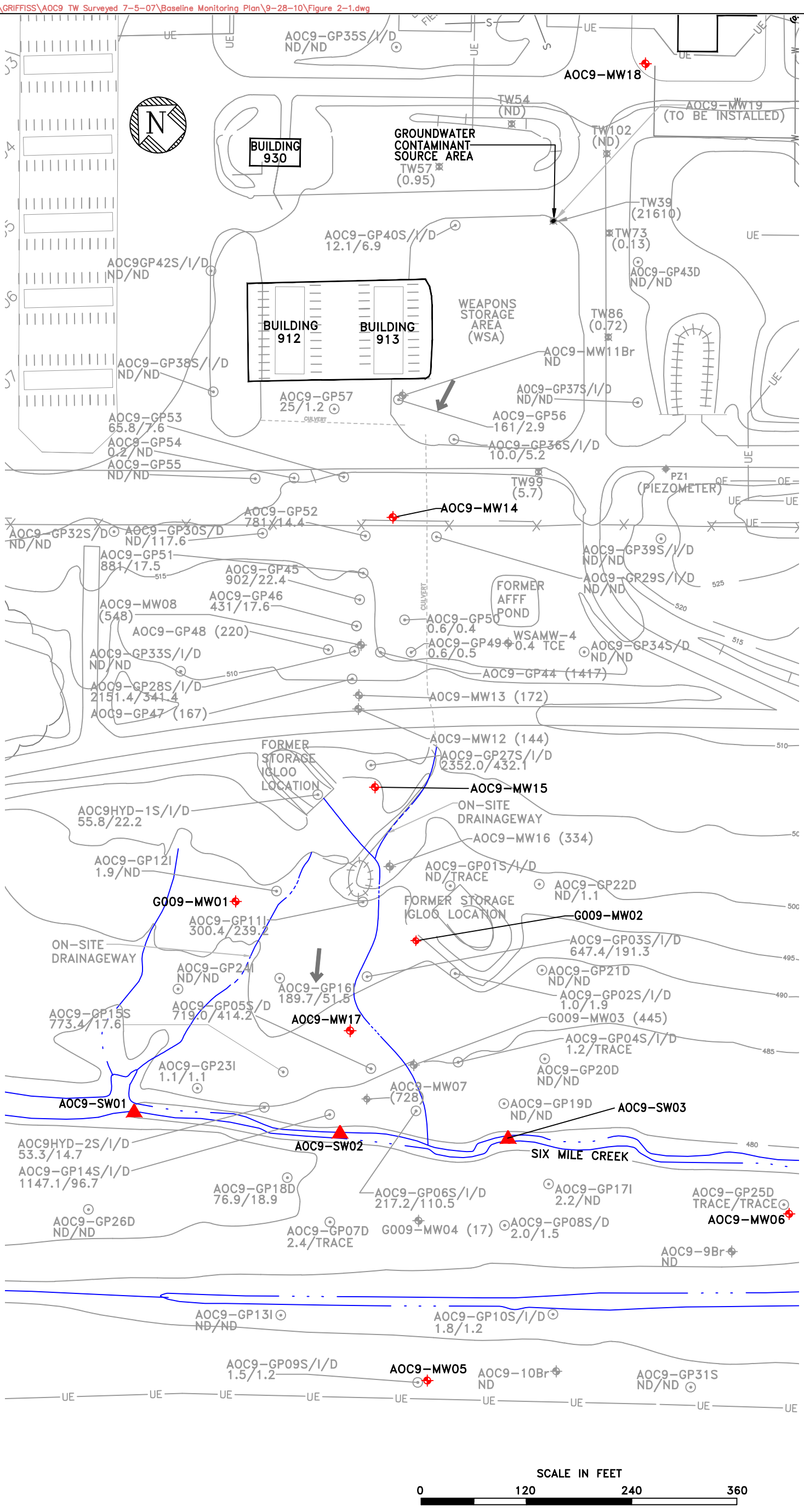
Monitoring well MW18 was developed on July 16, 2010. The development was performed by using a dedicated bailer and peristaltic pump with dedicated tubing. The pump intake was moved to different depth intervals within the screen to draw fine sediments out of the sand pack and into the well for removal and the bailer was used to surge the well. Temperature, pH, conductivity, and turbidity measurements were recorded to monitor the progress of the development process. Development was performed until pH, specific conductance, and temperature stabilized over three consecutive readings and turbidity of the discharge was less than 50 nephelometric turbidity units (NTUs). The well development log for MW18 is included in Appendix A.

It was also noted during the USACE field inspection that the bollards surrounding MW18 were too far apart to be effective. Therefore, an additional bollard will be installed around the well, in the spring of 2011, to meet the USACE specifications.

2.1.2 Groundwater sampling

Groundwater samples were collected from MW01, MW02, MW05, MW06, MW14, MW15, MW17, and MW18 and analyzed by Katahdin Analytical Services, located in Scarborough, Maine. Groundwater samples were analyzed for VOCs (EPA Method SW8260B), in accordance with the *Final Work Plan, Baseline, Performance, and Long-Term Monitoring at AOC 9* (EEEPC 2010d). Prior to collection of the groundwater samples, a minimum of three well volumes of groundwater was purged from each well using EPA low-flow procedures. The wells were purged and sampled with a pump/controller and dedicated bladder pumps and associated tubing. Field parameters (turbidity, pH, temperature, conductivity, oxidation reduction potential [ORP], and dissolved oxygen) were collected and recorded on groundwater sampling forms during purging. The completed groundwater sampling forms are provided in Appendix C and a complete list of all samples collected is provided in Table 2-1. Static water levels were also measured and recoded for each monitoring well listed on Table 2-2. A photograph of each groundwater sample collected is provided in Appendix D in accordance with USACE protocols.

F:\GRIFFISS\AOC9 TW Surveyed 7-5-07\Baseline Monitoring Plan\9-28-10\Figure 2-1.dwg



LEGEND

- TOPOGRAPHIC CONTOUR LINE (CONTOUR INTERVAL = 5 FT) — 525
- ND — NOT DETECTED
- AOC9-MW14 — BASELINE MONITORING WELL SAMPLE LOCATION
- YEAR 2000 AND 2002 GEOPROBE GROUNDWATER SAMPLING LOCATIONS
- EXISTING WELL
- GROUNDWATER FLOW DIRECTION
- SURFACE WATER SAMPLING LOCATIONS
- TW73 — TEMPORARY MONITORING WELL

NOTES:

1. MONITORING WELL AOC9-MW18 IS A NEW UPGRADIENT WELL INSTALLED PRIOR TO BASELINE MONITORING.
2. MONITORING WELL AOC9-MW19 IS A NEW WELL TO BE INSTALLED IN THE PLUME SOURCE AREA AFTER THE AOC9 GROUNDWATER REMEDY IS COMPLETED, AND PRIOR TO PERFORMANCE MONITORING. AOC9-MW19 WILL BE INSTALLED AT THE LOCATION OF TEMPORARY WELL TW-39, WHICH CONTAINED 21,610 ug/L OF TOTAL VOC's IN GROUNDWATER.

SCALE IN FEET
0 120 240 360

FORMER GRIFFISS AFB
AOC 9 SITE
ROME, NEW YORK

Prepared by:
ecology and environment engineering p.c.
In association with:
parsons

DRAWING TITLE:
AOC 9
BASELINE MONITORING
SAMPLE LOCATION MAP

FIGURE 2-1

Table 2-1 AOC 9 Baseline Monitoring, Groundwater and Surface Water Sample Summary, Former Griffiss Air Force Base, Rome, New York

Monitoring Well			Analyses
Sample Number	Screen Interval (ft BGS)	Comment	TCL VOCs – SW8260B
G009-MW01BM072810	4.0-9.0		X
G009-MW02BM072810	4.0-9.0		X
G009-MW02/DBM072810	4.0-9.0	Duplicate	X
AOC9-MW05BM072910	4.0-14.0		X
AOC9-MW06BM072810	4.2-14.2		X
AOC9-MW14BM072910	14.0-24.0	MS/MSD	X
AOC9-MW15BM072810	9.0-14.0		X
AOC9-MW17BM072810	9.0-14.0		X
AOC9-MW17/DBM072810	9.0-14.0	Duplicate	X
AOC9-MW18BM072910	9.0-19.0		X
AOC9-SW01BM072710	-		X
AOC9-SW02BM072710	-		X
AOC9-SW03BM072710	-		X
AOC9-TB01072710	-	Trip Blank	X

Key:
AOC = Area of Concern.
BGS = Below ground surface.
/D = Duplicate.
ft = Feet.
MS/MSD = Matrix spike/matrix spike duplicate.
TB = Trip blank.
TCL = Target compound list.
VOCs = Volatile organic compounds.

Table 2-2 AOC 9 Baseline Monitoring Groundwater Elevation Data, Former Griffiss Air Force Base, Rome, New York

Monitoring Well ID	Date	Ground Surface Elevation (ft AMSL)	Water Level (ft bgs)	Water Level Elevation (ft AMSL)	Comments
G009-MW01	7/28/2010	492.67	-0.03	492.70	Negative value indicates water was above ground surface.
G009-MW02	7/28/2010	494.54	3.70	490.84	
G009-MW03	7/28/2010	485.10	1.21	483.89	
G009-MW04	7/28/2010	483.97	7.71	476.26	
AOC9-MW05	7/28/2010	482.72	3.75	478.97	
AOC9-MW06	7/28/2010	482.57	5.37	477.20	
AOC9-MW07	7/28/2010	483.25	3.16	480.09	
AOC9-MW08	7/28/2010	514.28	9.44	504.84	
AOC9-MW12	7/28/2010	509.09	5.03	504.06	
AOC9-MW13	7/28/2010	508.53	4.26	504.27	
AOC9-MW14	7/28/2010	519.05	13.11	505.94	
AOC9-MW15	7/28/2010	500.04	1.19	498.85	
AOC9-MW16	7/28/2010	497.31	1.62	495.69	
AOC9-MW17	7/28/2010	487.51	2.10	485.41	
AOC9-MW18	7/28/2010	527.84	13.45	514.39	
Temporary Monitoring Wells					
TW27	7/28/2010	524.04	16.29	507.75	Substitute for missing temporary wells.
TW39	7/28/2010	523.04	10.54	512.50	
TW52	7/28/2010	516.67	6.30	510.37	Substitute for missing temporary wells.
TW54	7/28/2010	519.06	8.91	510.15	
TW57	7/28/2010	524.49	13.77	510.72	
TW73	7/28/2010	522.88	NA	NA	Temporary well is there, but has been damaged.
TW86	7/28/2010	522.18	13.67	508.51	
TW98	7/28/2010	521.03	14.15	506.88	Substitute for missing temporary wells.
TW99	7/28/2010	521.16	NA	NA	No longer exists, due to damage.
TW100	7/28/2010	523.65	10.50	513.15	Substitute for missing temporary wells.
TW102	7/28/2010	524.02	13.52	510.50	
Piezometers					
PZ1	7/28/2010	521.52	NA	NA	No longer exists, due to damage.

Key:
AMSL = Above mean sea level.
AOC = Area of Concern.
BGS = Below Ground Surface.
ft = Feet.
MW = Monitoring Well.
NA = Not Available.
TW = Temporary Monitoring Well.

2.1.3 Surface Water Sampling

Surface water samples were collected from SW01 through SW03, and analyzed by Katahdin Analytical Services. Surface water samples were analyzed for VOCs (EPA Method SW8260B), in accordance with the Work Plan (EEEPC 2010d). The samples were collected by filling a dedicated sample jar with water directly from Six Mile Creek, then transferring the creek water to pre-preserved approved sample containers, leaving no head space. Field parameters (turbidity, pH, temperature, conductivity, ORP, and dissolved oxygen) were collected and recorded during sampling. The completed surface water sampling forms are provided in Appendix C and a complete list of all samples collected is provided in Table 2-1.

2.1.4 Groundwater Elevation Measurements

Groundwater elevations were collected in accordance with the Work Plan (EEEPC 2010d) by measuring the depth to water at 22 locations (see Table 2-2) using a water level indicator to measure the static water levels from the top of the casing at each location. These measurements were used to create a current groundwater contour map (see Figure 2-2).

2.2 Equipment Decontamination

Equipment decontamination was performed in accordance with the Work Plan (EEEPC 2010d).

Groundwater and surface water field testing instruments were decontaminated by rinsing the water level indicator, flow-through cell and pH, temperature, conductivity, dissolved oxygen (DO), and oxygen reduction potential (ORP) probes with deionized water between each use.

The drill rig and all appurtenances were decontaminated by the drilling subcontractor with high-pressure steam prior to arrival on the site. All equipment was decontaminated again upon arrival to the site to remove road dirt only, and prior to leaving the site, all equipment was decontaminated with high-pressure steam.

The drilling subcontractor constructed a decontamination pad of wood and plastic sheeting that was bermed on all sides and included a high-pressure steam cleaner and a sump for water collection and pumping. Pallets were used to keep equipment to be decontaminated off the floor of the pad.

2.3 Investigation Derived Waste (IDW)

Investigation-derived water was handled in accordance with the Work Plan (EEEPC 2010d). Purge water generated during groundwater sampling was collected in five gallon buckets and field screened with a PID to determine if it was contaminated. PID readings were taken directly from the surface of the collected purge water. No PID readings above zero parts per million (ppm) were detected from the field screening of the purge water; therefore, all water was discharged to ground adjacent to the well being sampled.

Investigation-derived soils and water generated during installation of MW18 were screened in the field using a PID to determine whether these wastes were contaminated. PID readings were less than 5 ppm from all the soil cuttings, decontamination water, and development water generated. However, the soil and water generated was temporarily containerized in 55-gallon drums on site and was later disposed of with the water and soil generated during the excavation of the AOC9 contaminant source area.

2.4 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) samples were collected for each site in accordance with the Work Plan (EEEPC 2010d). Analytical data have been validated for samples collected as part of this investigation. Raw data and the Data Usability Summary Report (DUSR) are presented in Appendices E and F, respectively.

Field QC samples included two groundwater duplicates and one trip blank. Duplicate samples provide insight as to the homogeneity of the sample matrix and establish a degree of confidence that the sample represents site conditions. Field duplicates were collected at the rate of one duplicate per 10 original samples (10%); therefore, two duplicates were collected for the eight ground and three surface water samples collected. The field duplicates showed good precision, except for low level detections of tetrachloroethylene in one sample, which can be attributed to levels near the reporting limit.

A trip blank was collected to establish that the transport of sample containers to and from the field did not result in the contamination of the sample from external sources. No compounds were detected in the trip blank.

A few sample results were qualified "J" as estimated because of minor calibration deviations. The results were well below the site clean-up goals with no impact on data usability.

Methylcyclohexane and cyclohexane were reported by the laboratory based on the current EPA Target Compound List (TCL). These compounds were not present in the historical datasets reported. The total VOCs results may have a slightly high bias compared to historical results because of the presence of these additional compounds. In addition, several compounds included in the historical data were not initially reported by the laboratory. The laboratory re-processed the results and reported the missing compounds. There is no impact on data usability. The Quality Assurance Project Plan (QAPP) will be amended to include the complete list of compounds for future sampling rounds.

2.5 Site Survey

A ground survey was performed by subcontractor, LaFave White & McGivern in August 2010 to prepare a topographic map of the AOC 9 excavation area and obtain horizontal locations and vertical elevations of monitoring well MW18. The ground survey utilized the existing benchmarks located on the Former Griffiss

AFB and is in the New York Central NAD 83 State Plane coordinate system. Horizontal measurements and vertical measurements were obtained to accuracy of 0.001 foot and 0.01 foot, respectively. The survey data are provided in Appendix A.

2.6 Work Plan Deviations

Deviations from the Work Plan (EEEPC 2010d) are documented on the Field Adjustment Forms (see Appendix G) and presented below:

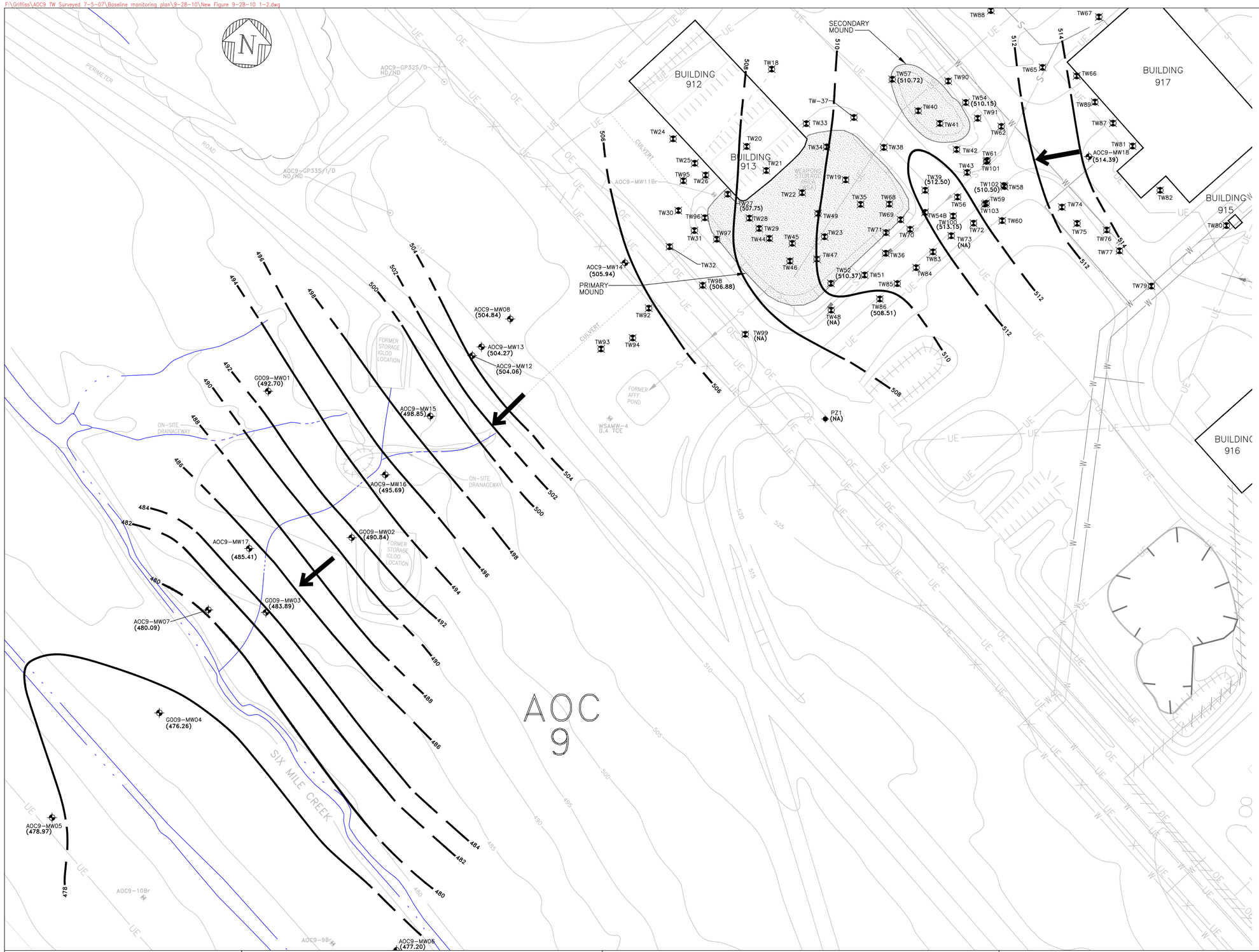
- Instead of spreading the soil on the ground around the well and discharging the water to the ground surface as detailed in the Work Plan, the IDW generated during the drilling, installation, and development of monitoring well MW18 (soil and water) was temporarily containerized in 55-gallon drums on site and disposed of with the water and soil generated during the excavation of the AOC9 contaminant source area.

- Monitoring well MW18 was developed using a peristaltic pump with dedicated tubing and a dedicated bailer as described in section 2.1.1 instead of using a submersible pump as described in the Work Plan.

- On Wednesday, July 28, 2010, groundwater samples from MW01, MW02, MW06, MW15, and MW17 were collected by first filling a clean dedicated sample jar, as performed during the surface water sampling, and then transferring the water into the approved pre-preserved sample containers (40 milliliter vials) to prevent surging of the water into the narrow 40 milliliter vials and possibly losing some of the preservative. A flow control valve was purchased for sampling on Thursday, July 29, 2010, and the remaining sampling was conducted in accordance with the Work Plan (EEEPC 2010d).

- The DO calibration was not performed with a zero DO solution as stated in the Work Plan, but completed by the equipment rental company prior to shipment. Field DO calibration was conducted in ambient air in accordance with the manufacturer's specifications.

F:\Griffiss\AOC9 TW Surveyed 7-5-07\Baseline monitoring plan\9-28-10\New Figure 9-28-10 1-2.dwg



LEGEND

FENCE	
525	TOPOGRAPHIC CONTOUR LINE (CONTOUR INTERVAL = 5 FT)
UE	UNDERGROUND ELECTRIC
W	WATER LINE
S	SANITARY SEWER
OE	OVERHEAD ELECTRIC
	ABANDONED UNDERGROUND ELECTRIC
AMSL	ABOVE MEAN SEA LEVEL
CB	CHLOROBENZENE
NA	NOT AVAILABLE
ND	NOT DETECTED
476	GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
	DIRECTION OF GROUNDWATER FLOW
G009-MW01	PERMANENT MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION
TW44	TEMPORARY MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION
PZ-1	PIEZOMETER LOCATION
(517.35)	JULY 28, 2010 GROUNDWATER ELEVATION (FEET AMSL)

60 0 60 120

SCALE: 1"=60'

GRIFFISS AFB
AOC 9 SITE
ROME, NEW YORK

Prepared by: ecology and environment engineering p.c.

In Association with: parsons

DRAWING TITLE:

AOC 9: GROUNDWATER CONTOUR MAP

FIGURE 2-2

3 AOC 9 Baseline Monitoring Findings

This section presents the results from the baseline monitoring conducted at AOC 9 at the former Griffiss AFB in Rome, New York as described in Section 2.

The AOC 9 baseline monitoring was intended to establish baseline VOC concentrations in the groundwater and Six Mile Creek prior to remediation. The AOC 9 baseline monitoring groundwater and surface water data are screened against the most stringent of either the NYSDEC Class GA groundwater criteria or the EPA MCLs. Data collected during the AOC 9 baseline monitoring has been provided by the laboratory in Environmental Restoration Program Information Management System (ERPIMS)-compatible format, and will be added to the Air Force database.

3.1 Groundwater Sampling Results

Ten groundwater samples were collected from the eight monitoring wells, including two duplicate samples, and analyzed for VOCs (EPA Method SW8260B) by Katahdin Analytical Services. The purpose of the water sampling was to establish baseline VOC concentrations within the contaminant plume prior to remedial activities. The water samples were collected between July 28 and 29, 2010.

Groundwater samples were collected from monitoring wells screened predominately in very fine to medium grained sand at depths ranging from 4 to 24 feet bgs and constructed with either a 5-foot or a 10-foot (2-inch diameter, 0.01-inch slot) PVC screen. Each sample was analyzed for VOCs (EPA Method SW8260B) as described in Section 2. A summary of the positive analytical results for the baseline groundwater samples is presented in Table 3-1. Figure 2-1 shows the locations of the monitoring wells and Figure 3-1 shows the total VOC contaminants in groundwater based on the analytical data obtained during this monitoring event.

Twenty one VOCs, including chlorobenzene; 1, 2- DCB; 1, 4-DCB; TCE: tetrachloroethylene (PCE); and several compounds containing benzene, toluene, ethylbenzene, and xylene (BTEX) were detected in the groundwater samples collected (see Table 3-1). Eleven of the contaminants were detected in at least one sample at concentrations exceeding NYSDEC Class GA Groundwater standards. The highest total VOC concentrations were detected during this investigation in monitoring wells MW14 (2,100 µg/L), MW15 (1,700 µg/L), and MW17 (850 µg/L with duplicate results of 890 µg/L). Monitoring wells MW14, MW15, and MW17 are located in the center of the plume downgradient of the contaminant

Table 3-1 AOC 9 Baseline Monitoring, Summary of Positive Results for Groundwater Screening Samples, Former Griffiss Air Force Base, Rome, New York

Analyte	Screening Criteria[1]	Sample ID: G009-MW01BM Date: 072810 07/28/10	G009-MW02BM 072810 07/28/10	G009-MW02/DBM 072810 07/28/10	AOC9-MW05BM 072910 07/29/10	AOC9-MW06BM 072810 07/28/10	AOC9-MW14BM 072910 07/29/10	AOC9-MW15BM 072810 07/28/10	AOC9-MW17BM 072810 07/28/10	AOC9-MW17/DBM 072810 07/28/10	AOC9-MW18BM 072910 07/29/10	AOC9-TB1 072710 07/27/10
VOCs by Method SW8260B (µg/L)												
1,1-DICHLOROETHENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.70 J**	**0.40 J**	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROBENZENE	3	**0.80 J**	1.0 U	1.0 U	1.0 U	1.0 U	**130**	**55**	**52**	**50**	**0.20 J**	1.0 U
1,2-DICHLOROETHANE	0.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.40 J**	1.0 U	1.0 U
1,2,4-TRIMETHYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**180**	**35**	1.0 U	1.0 U	1.0 U	1.0 U
1,3-DICHLOROBENZENE	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**6.0**	**6.0**	**3.0**	**3.0**	1.0 U	1.0 U
1,3,5-TRIMETHYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**64**	**18**	1.0 U	1.0 U	1.0 U	1.0 U
1,4-DICHLOROBENZENE	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**87**	**64**	**41**	**38**	1.0 U	1.0 U
BENZENE	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**19**	**26**	**4.0**	**4.0**	1.0 U	1.0 U
CHLOROBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1400**	**1300**	**720**	**760**	**3.0**	1.0 U
CIS-1,2-DICHLOROETHYLENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23**	**10**	**5.0**	**5.0**	1.0 U	1.0 U
CYCLOHEXANE	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**22**	**50**	**2.0**	**2.0**	1.0 U	1.0 U
ETHYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**10**	**12**	**0.80 J**	**0.80 J**	1.0 U	1.0 U
ISOPROPYLBENZENE (CUMENE)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**14**	**22**	**2.0**	**2.0**	1.0 U	1.0 U
METHYLCYCLOHEXANE	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**46 J**	**40 J**	**0.60 J**	**0.60 J**	1.0 UJ	1.0 U
M-P-XYLENE	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**50**	**11**	2.0 U	2.0 U	2.0 U	2.0 U
NAPHTHALENE	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
N-BUTYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.0**	**3.0**	1.0 U	1.0 U	1.0 U	1.0 U
N-PROPYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**14**	**8.0**	1.0 U	1.0 U	1.0 U	1.0 U
O-XYLENE (1,2-DIMETHYLBENZENE)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.0**	**2.0**	1.0 U	1.0 U	1.0 U	1.0 U
P-ISOPROPYLTOLUENE	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.0**	**0.70 J**	1.0 U	1.0 U	1.0 U	1.0 U
SEC-BUTYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.0**	**7.0**	**1.0**	**1.0 J**	1.0 U	1.0 U
STYRENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.0**	1.0 U	1.0 U	1.0 U	1.0 U
TERT-BUTYLBENZENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.0**	**3.0**	**0.70 J**	**0.60 J**	1.0 U	1.0 U
TETRACHLOROETHYLENE(PCE)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	**1.0 J**	**2.0 J**	1.0 UJ	1.0 U
TOLUENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.0**	**2.0**	1.0 U	1.0 U	1.0 U	1.0 U
TRANS-1,2-DICHLOROETHENE	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.0**	**0.30 J**	**0.80 J**	**0.90 J**	1.0 U	1.0 U
TRICHLOROETHYLENE (TCE)	5	**0.60 J**	**0.70 J**	**0.70 J**	1.0 U	**1.0**	**28**	**2.0**	**13**	**14**	1.0 U	1.0 U
VINYL CHLORIDE	2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**17**	**14**	**4.0**	**4.0**	2.0 U	2.0 U
TOTAL VOCs	NA	**1.4 J**	**0.70 J**	**0.70 J**	ND	**1.0**	**2100 J**	**1700 J**	**850 J**	**890 J**	**3.2 J**	ND

Notes:

Shaded cells exceed the screening value.

Bold values denote positive hits.

[1] New York State Department of Environmental Conservation, Class GA Groundwater Standards and Guidance Values.

Key:

(g) = Guidance value (no applicable standard).

J = Estimated value.

µg/L = Micrograms per liter.

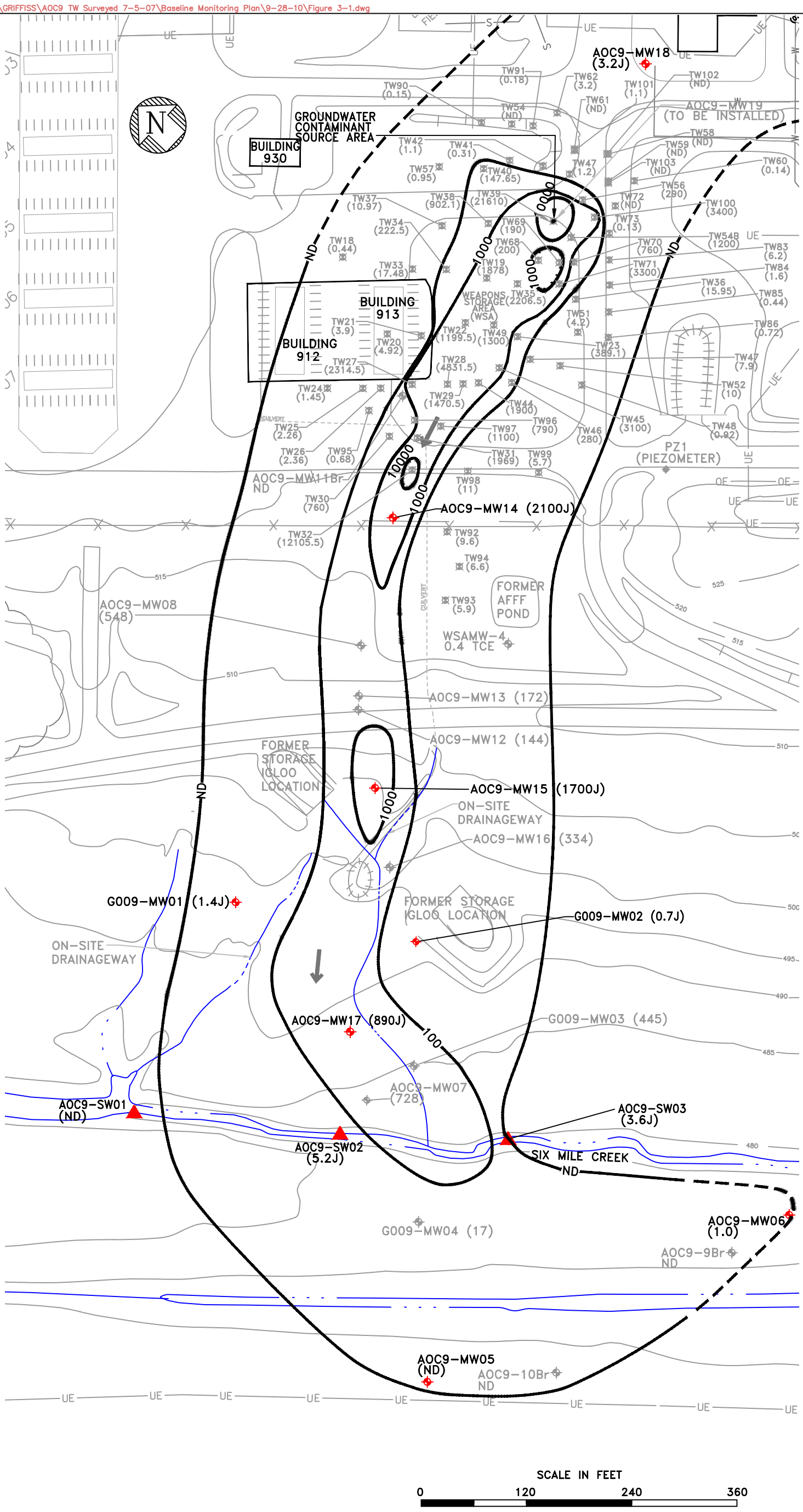
U = Not detected (lab reporting limit shown).

VOCs = Volatile organic compounds.

ND = Not Detected.

/D = Designates field duplicate sample.

F:\GRIFFISS\AOC9 TW Surveyed 7-5-07\Baseline Monitoring Plan\9-28-10\Figure 3-1.dwg



LEGEND

525	TOPOGRAPHIC CONTOUR LINE (CONTOUR INTERVAL = 5 FT)
ND	NOT DETECTED
10000	TOTAL VOC CONTOUR IN ug/L (DASHED WHERE INFERRED)
AOC9-MW14	BASELINE MONITORING WELL SAMPLE LOCATION
	EXISTING WELL
(140)	2010 BASELINE SAMPLING TOTAL VOC CONCENTRATION IN GROUNDWATER AND SURFACE WATER (ug/L)
	GROUNDWATER FLOW DIRECTION
	SURFACE WATER SAMPLING LOCATIONS
TW99 (5.7)	2007 PREDESIGN TEMPORARY MONITORING WELL TOTAL VOC CONCENTRATION IN GROUNDWATER (ug/L)

NOTES:

1. MONITORING WELL AOC9-MW18 IS A NEW UPGRADIENT WELL INSTALLED PRIOR TO BASELINE MONITORING.
2. MONITORING WELL AOC9-MW19 IS A NEW WELL TO BE INSTALLED IN THE PLUME SOURCE AREA AFTER THE AOC9 GROUNDWATER REMEDY IS COMPLETED, AND PRIOR TO PERFORMANCE MONITORING. AOC9-MW19 WILL BE INSTALLED AT THE LOCATION OF TEMPORARY WELL TW-39, WHICH CONTAINED 21,610 ug/L OF TOTAL VOC's IN GROUNDWATER.
3. TOTAL VOC CONCENTRATION AT AOC9-SW02 CONTAINS 2 ug/L OF ACETONE, WHICH IS LIKELY LABORATORY ARTIFACT (SEE SECTION 3.2).
4. WHEN DUPLICATE SAMPLES ARE COLLECTED, THE HIGHEST VALUE OBTAINED IS USED ON THIS FIGURE.

SCALE IN FEET

0 120 240 360

FORMER GRIFFISS AFB
AOC 9 SITE
ROME, NEW YORK

Prepared by:
ecology and environment engineering p.c.
In association with:
parsons

DRAWING TITLE: AOC 9
BASELINE MONITORING TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN GROUNDWATER AND SURFACE WATER

FIGURE 3-1

source area. MW14 is located in the area that will be injected with sodium persulfate during the remediation of the site, and MW15 and MW17 are located downgradient of the treatment area.

The baseline analytical results indicate that the AOC 9 groundwater plume has in general remained relatively stable since the 2006 sampling performed by EEEPC and FPM Group during the Predesign Investigation (EEEPC 2007 and FPM 2007). Based on the analytical results obtained from monitoring wells MW01 and MW02, the plume does not appear to have widened south of Perimeter Road, nor does the leading edge of the plume appear to have continued to advance based on the analytical results obtained from monitoring wells MW05 and MW06. Additional historical data are tabulated and trend graphs are provided below in Section 3.3.

A summary of the positive analytical results for the baseline groundwater samples is presented in Table 3-1. The completed groundwater sampling forms are provided in Appendix C; a complete list of all samples collected is provided in Table 2-1; and Figure 3-1 shows the locations of the monitoring wells with total VOC contaminant concentrations.

Groundwater Elevation Measurements

Groundwater elevations were collected in accordance with the Work Plan by measuring the depth to water at 22 locations (see Table 2-2) using a water level indicator to measure the static water levels from the top of the casing at each location. These measurements were used to create a current groundwater contour map (see Figure 2-2).

Based on these data, the groundwater on site flows generally to the southwest from the vicinity of Building 917, through the contaminant source area within AOC 9, and ultimately towards Six Mile Creek. Slight mounding of the groundwater was observed in the vicinity of the contaminant source area in TW-39 and TW-100, which is likely due to the seasonal fluctuation of the water table and infiltration of precipitation at the drainage ditches surrounding this location.

3.2 Surface Water Sampling Results

Three surface water samples were collected from Six Mile Creek: SW01, SW02, SW03, and analyzed for VOCs (EPA Method SW8260B) by Katahdin Analytical Services. The purpose of the surface water samples collected was to establish baseline VOC concentrations within Six Mile Creek prior to remedial activities. The surface water samples were collected on July 27, 2010.

Figure 2-1 shows the location of the surface water sampling locations and Figure 3-1 shows the total VOC contaminants in surface water based on analytical data obtained from this monitoring event.

Four different VOCs (1, 2-DCB, 1, 4-DCB, acetone, and chlorobenzene) were detected in at least one surface water sample collected during this investigation (see Table 3-2). None of the contaminants were detected at concentrations exceeding the NYSDEC Class GA groundwater standards. The highest total VOC concentrations were detected during this investigation in surface water sample SW02 (5.2 µg/L), which was collected at the location where the center of the groundwater contaminant plume intersects Six Mile Creek. However, acetone was detected in surface water sample SW02 at 2 µg/L, but was not detected in any other surface water sample or any of the groundwater samples, and appears to be a laboratory artifact.

The completed surface water sampling forms are provided in Appendix C, a complete list of all samples collected is provided in Table 2-1, a summary of the positive analytical results for the surface water samples is presented in Table 3-2, and Figure 3-1 shows the locations of Six Mile Creek surface water sample location with total VOC contaminant concentrations.

3.3 Historical Data Summary and Trend Analysis

Available historic data collected from monitoring wells MW01, MW02, MW05, MW06, MW014, MW15, MW17, and MW18, and surface water sample locations SW01, SW02, and SW03 are provided in Tables 3-3 and 3-4, respectively. Data collected in 2003 during the groundwater treatability study, during which fentons reagent was injected into the groundwater in the vicinity of monitoring well MW08, have not been included in the historical data summary tables as the analytical results are impacted by the treatability study. Statistical trend analyses using the Air Force Center for Engineering and the Environment (AFCEE's) Monitoring and Remediation Optimization System Software (MAROS Version 2.2) program were not performed on the available data as the remedial actions being evaluated have not been completed (i.e., this is the baseline sampling event), and several of the monitoring locations do not yet have the required four sets of data to use the MAROS program. It is anticipated that the MAROS program will be used to perform the statistical analysis following the second round of performance monitoring, at which time sufficient data will be available for all sampling locations except monitoring well MW18 (first sampled during this baseline sampling event) and MW19, which will not be installed until the remedial action has been completed.

However, available data for sample locations for which three or more datasets are available have been plotted on trend graphs and are provided in Figures 3-2 through 3-5.

Table 3-2 AOC 9 Baseline Monitoring, Summary of Positive Results for Surface Water Screening Samples, Former Griffiss Air Force Base Rome, New York

Analyte	Sample ID: / Date: / Screening Criteria[1]	AOC9-SW01BM 072710 07/27/10	AOC9-SW02BM 072710 07/27/10	AOC9-SW03BM 072710 07/27/10
VOCs by Method SW8260B (µg/L)				
1,2-DICHLOROBENZENE	3	1.0 U	**0.20 J**	**0.30 J**
1,4-DICHLOROBENZENE	3	1.0 U	1.0 U	**0.30 J**
ACETONE	50	5.0 U	**2.0 J**	5.0 U
CHLOROBENZENE	5	1.0 U	**3.0**	**3.0**
TOTAL VOCs	NA	ND	**5.2 J**	**3.6 J**

Notes:

Shaded cells exceed the screening value.

Bold values denote positive hits.

[1] New York State Department of Environmental Conservation, Technical and Operational Guidance Series Memorandum #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* 1998 (with updates), Class GA Groundwater Standards and Guidance Values.

Key:

(g) = Guidance value (no applicable standard).

J = Estimated value.

µg/L = Micrograms per liter.

U = Not detected (lab reporting limit shown).

VOCs = Volatile organic compounds.

ND = Not Detected.

/D = Designates field duplicate sample.

Table 3-3 AOC 9 Historic Groundwater Sample Results

Well Number	Screening Criteria [1]	Parameter	Analytical Results by Sample Date(s) (µg/L)				
			12/18/1997 to 12/19/97	5/8/2000 to 5/25/00	9/7/2004 to 9/9/04	10/23/2006 to 11/13/06	7/27/2010 to 7/29/10
			Ref 1	Ref 2	Ref 3	Ref 4	E & E 2010 AOC 9 Baseline Sampling
G009-MW01	5	1,1-Dichloroethene	U	U	U	-	U
	3	1,2-Dichlorobenzene	U	**0.363**	**0.597**	-	**0.8 J**
	0.6	1,2-Dichloroethane	U	U	U	-	U
	5	1,2,4-Trimethylbenzene	NA	U	U	-	U
	5	1,3,5-Trimethylbenzene	NA	U	U	-	U
	3	1,3-Dichlorobenzene	NA	U	U	-	U
	3	1,4-Dichlorobenzene	U	U	U	-	U
	5	4-Chlorotoluene	NA	U	U	-	NA
	1	Benzene	U	U	U	-	U
	5	Chlorobenzene	U	U	U	-	U
	5	cis-1,2-Dichloroethylene	U	U	**0.123**	-	U
	NA	Cyclohexane	NA	NA	NA	-	U
	5	Ethylbenzene	U	U	U	-	U
	5	Isopropylbenzene (Cumene)	NA	U	U	-	U
	NA	Methylcyclohexane	NA	NA	NA	-	U
	5	Methylene Chloride	U	U	U	-	U
	NA	m-p-Xylene	NA	U	U	-	U
	10	Naphthalene	NA	U	U	-	U
	5	n-Butylbenzene	NA	U	U	-	U
	5	n-Propylbenzene	NA	U	U	-	U
	5	o-Xylene (1,2-Dimethylbenzene)	NA	U	U	-	U
	5	p-Isopropyltoluene	NA	NA	NA	-	U
	5	sec-Butylbenzene	NA	U	U	-	U
	5	Styrene	U	U	U	-	U
	5	t-Butylbenzene	NA	U	U	-	U
	5	Tetrachloroethylene (PCE)	U	U	U	-	U
	5	Toluene	U	U	U	-	U
	5	Trans-1,2-Dichloroethene	NA	U	U	-	U
	5	Trichloroethylene (TCE)	U	**0.869**	**0.882**	-	**0.6 J**
	2	Vinyl Chloride	U	U	U	-	U
	NA	Total VOCs [2]	0	**1.232**	**1.602**	-	**1.4**
G009-MW02	5	1,1-Dichloroethene	U	U	U	U	U
	3	1,2-Dichlorobenzene	U	U	U	U	U
	0.6	1,2-Dichloroethane	U	U	U	U	U
	5	1,2,4-Trimethylbenzene	NA	U	U	U	U
	5	1,3,5-Trimethylbenzene	NA	U	U	U	U
	3	1,3-Dichlorobenzene	NA	U	U	U	U
	3	1,4-Dichlorobenzene	U	U	U	U	U
	5	4-Chlorotoluene	NA	U	U	U	NA
	1	Benzene	U	U	U	U	U
	5	Chlorobenzene	U	U	U	U	U
	5	cis-1,2-Dichloroethylene	U	U	U	U	U
	NA	Cyclohexane	NA	NA	NA	NA	U
	5	Ethylbenzene	U	U	U	U	U
	5	Isopropylbenzene (Cumene)	NA	U	U	U	U
	NA	Methylcyclohexane	NA	NA	NA	NA	U
	5	Methylene Chloride	U	U	U	U	U
	NA	m-p-Xylene	NA	U	U	U	U
	10	Naphthalene	NA	U	U	U	U
	5	n-Butylbenzene	NA	U	U	U	U
	5	n-Propylbenzene	NA	U	U	U	U
	5	o-Xylene (1,2-Dimethylbenzene)	NA	U	U	U	U
	5	p-Isopropyltoluene	NA	NA	NA	U	U
	5	sec-Butylbenzene	NA	U	U	U	U
	5	Styrene	U	U	U	U	U

Table 3-3 AOC 9 Historic Groundwater Sample Results

Well Number	Screening Criteria [1]	Parameter	Analytical Results by Sample Date(s) (µg/L)				
			12/18/1997 to 12/19/97	5/8/2000 to 5/25/00	9/7/2004 to 9/9/04	10/23/2006 to 11/13/06	7/27/2010 to 7/29/10
			Ref 1	Ref 2	Ref 3	Ref 4	E & E 2010 AOC 9 Baseline Sampling
	5	t-Butylbenzene	NA	U	U	U	U
	5	Tetrachloroethylene (PCE)	U	U	U	U	U
	5	Toluene	U	U	U	U	U
	5	Trans-1,2-Dichloroethene	NA	U	U	U	U
	5	Trichloroethylene (TCE)	U	**0.888**	**1.78**	**0.61 J**	**0.7 J**
	2	Vinyl Chloride	U	U	U	U	U
	NA	Total VOCs [2]	0	**0.888**	**1.78**	**0.61**	**0.7**
AOC9-MW05	5	1,1-Dichloroethene	-	U	U	U	U
	3	1,2-Dichlorobenzene	-	U	U	U	U
	0.6	1,2-Dichloroethane	-	U	U	U	U
	5	1,2,4-Trimethylbenzene	-	U	U	U	U
	5	1,3,5-Trimethylbenzene	-	U	U	U	U
	3	1,3-Dichlorobenzene	-	U	U	U	U
	3	1,4-Dichlorobenzene	-	U	U	U	U
	5	4-Chlorotoluene	-	U	U	U	NA
	1	Benzene	-	U	U	U	U
	5	Chlorobenzene	-	U	U	U	U
	5	cis-1,2-Dichloroethylene	-	U	U	U	U
	NA	Cyclohexane	-	NA	NA	NA	U
	5	Ethylbenzene	-	U	U	U	U
	5	Isopropylbenzene (Cumene)	-	U	U	U	U
	NA	Methylcyclohexane	-	NA	NA	NA	U
	5	Methylene Chloride	-	U	U	U	U
	NA	m-p-Xylene	-	U	U	U	U
	10	Naphthalene	-	U	U	U	U
	5	n-Butylbenzene	-	U	U	U	U
	5	n-Propylbenzene	-	U	U	U	U
	5	o-Xylene (1,2-Dimethylbenzene)	-	U	U	U	U
	5	p-Isopropyltoluene	-	NA	NA	U	U
	5	sec-Butylbenzene	-	U	U	U	U
	5	Styrene	-	U	U	U	U
	5	t-Butylbenzene	-	U	U	U	U
	5	Tetrachloroethylene (PCE)	-	U	U	U	U
	5	Toluene	-	U	U	U	U
	5	Trans-1,2-Dichloroethene	-	U	U	U	U
	5	Trichloroethylene (TCE)	-	U	U	U	U
	2	Vinyl Chloride	-	U	U	U	U
	NA	Total VOCs [2]	-	0	0	0	0
AOC9-MW06	5	1,1-Dichloroethene	-	U	U	-	U
	3	1,2-Dichlorobenzene	-	U	U	-	U
	0.6	1,2-Dichloroethane	-	U	U	-	U
	5	1,2,4-Trimethylbenzene		U	U	-	U
	5	1,3,5-Trimethylbenzene	-	U	U	-	U
	3	1,3-Dichlorobenzene	-	U	U	-	U
	3	1,4-Dichlorobenzene	-	U	U	-	U
	5	4-Chlorotoluene	-	U	U	-	NA
	1	Benzene	-	U	U	-	U
	5	Chlorobenzene	-	U	U	-	U
	5	cis-1,2-Dichloroethylene	-	U	U	-	U
	NA	Cyclohexane	-	NA	NA	-	U
	5	Ethylbenzene	-	U	U	-	U
	5	Isopropylbenzene (Cumene)	-	U	U	-	U
	NA	Methylcyclohexane	-	NA	NA	-	U
	5	Methylene Chloride	-	U	U	-	U
	NA	m-p-Xylene	-	U	U	-	U

Table 3-3 AOC 9 Historic Groundwater Sample Results

Well Number	Screening Criteria [1]	Parameter	Analytical Results by Sample Date(s) (µg/L)				
			12/18/1997 to 12/19/97	5/8/2000 to 5/25/00	9/7/2004 to 9/9/04	10/23/2006 to 11/13/06	7/27/2010 to 7/29/10
			Ref 1	Ref 2	Ref 3	Ref 4	E & E 2010 AOC 9 Baseline Sampling
	10	Naphthalene	-	U	U	-	U
	5	n-Butylbenzene	-	U	U	-	U
	5	n-Propylbenzene	-	U	U	-	U
	5	o-Xylene (1,2-Dimethylbenzene)	-	U	U	-	U
	5	p-Isopropyltoluene	-	NA	NA	-	U
	5	sec-Butylbenzene	-	U	U	-	U
	5	Styrene	-	U	U	-	U
	5	t-Butylbenzene	-	U	U	-	U
	5	Tetrachloroethylene (PCE)	-	U	U	-	U
	5	Toluene	-	U	U	-	U
	5	Trans-1,2-Dichloroethene	-	U	U	-	U
	5	Trichloroethylene (TCE)	-	**0.854**	**1.77**	-	**1.0**
	2	Vinyl Chloride	-	U	U	-	U
	NA	Total VOCs [2]	-	**0.854**	**1.77**	-	**1.0**
AOC9-MW14	5	1,1-Dichloroethene	-	-	-	U	**0.7 J**
	3	1,2-Dichlorobenzene	-	-	-	**170**	**130**
	0.6	1,2-Dichloroethane	-	-	-	U	U
	5	1,2,4-Trimethylbenzene	-	-	-	**220**	**180**
	5	1,3,5-Trimethylbenzene	-	-	-	**79**	**64**
	3	1,3-Dichlorobenzene	-	-	-	**7.6**	**6**
	3	1,4-Dichlorobenzene	-	-	-	**110**	**87**
	5	4-Chlorotoluene	-	-	-	**0.33 J**	NA
	1	Benzene	-	-	-	**3.5**	**19**
	5	Chlorobenzene	-	-	-	**1700**	**1400**
	5	cis-1,2-Dichloroethylene	-	-	-	**2.7**	**23**
	NA	Cyclohexane	-	-	-	NA	**22**
	5	Ethylbenzene	-	-	-	**21**	**10**
	5	Isopropylbenzene (Cumene)	-	-	-	**17**	**14**
	NA	Methylcyclohexane	-	-	-	NA	**46 J**
	5	Methylene Chloride	-	-	-	U	U
	NA	m-p-Xylene	-	-	-	**68**	**50**
	10	Naphthalene	-	-	-	**51**	**27**
	5	n-Butylbenzene	-	-	-	**4.3**	**4.0**
	5	n-Propylbenzene	-	-	-	**15**	**14**
	5	o-Xylene (1,2-Dimethylbenzene)	-	-	-	**5.9**	**5.0**
	5	p-Isopropyltoluene	-	-	-	**5.5**	**5.0**
	5	sec-Butylbenzene	-	-	-	**8.3**	**7.0**
	5	Styrene	-	-	-	U	U
	5	t-Butylbenzene	-	-	-	**3.2**	**2.0**
	5	Tetrachloroethylene (PCE)	-	-	-	U	UJ
	5	Toluene	-	-	-	**0.75 J**	**3.0**
	5	Trans-1,2-Dichloroethene	-	-	-	U	**2.0**
	5	Trichloroethylene (TCE)	-	-	-	**4.8**	**28**
	2	Vinyl Chloride	-	-	-	**1.6**	**17**
	NA	Total VOCs [2]	-	-	-	**2499**	**2100**
AOC9-MW15	5	1,1-Dichloroethene	-	-	-	U	**0.4 J**
	3	1,2-Dichlorobenzene	-	-	-	**60 J**	**55**
	0.6	1,2-Dichloroethane	-	-	-	U	U
	5	1,2,4-Trimethylbenzene	-	-	-	**8.0 J**	**35**
	5	1,3,5-Trimethylbenzene	-	-	-	**10 J**	**18**
	3	1,3-Dichlorobenzene	-	-	-	**8.0 J**	**6**
	3	1,4-Dichlorobenzene	-	-	-	**110**	**64**

Table 3-3 AOC 9 Historic Groundwater Sample Results

Well Number	Screening Criteria [1]	Parameter	Analytical Results by Sample Date(s) (µg/L)				
			12/18/1997 to 12/19/97	5/8/2000 to 5/25/00	9/7/2004 to 9/9/04	10/23/2006 to 11/13/06	7/27/2010 to 7/29/10
			Ref 1	Ref 2	Ref 3	Ref 4	E & E 2010 AOC 9 Baseline Sampling
	5	4-Chlorotoluene	-	-	-	U	NA
	1	Benzene	-	-	-	**12 J**	**26**
	5	Chlorobenzene	-	-	-	**1900**	**1300**
	5	cis-1,2-Dichloroethylene	-	-	-	U	**10**
	NA	Cyclohexane	-	-	-	NA	**50**
	5	Ethylbenzene	-	-	-	U	**12**
	5	Isopropylbenzene (Cumene)	-	-	-	**12 J**	**22**
	NA	Methylcyclohexane	-	-	-	NA	**40 J**
	5	Methylene Chloride	-	-	-	**87**	U
	NA	m-p-Xylene	-	-	-	U	**11**
	10	Naphthalene	-	-	-	U	U
	5	n-Butylbenzene	-	-	-	U	**3.0**
	5	n-Propylbenzene	-	-	-	U	**8.0**
	5	o-Xylene (1,2-Dimethylbenzene)	-	-	-	U	**2.0**
	5	p-isopropyltoluene	-	-	-	U	**0.7 J**
	5	sec-Butylbenzene	-	-	-	U	**7.0**
	5	Styrene	-	-	-	U	**2.0**
	5	t-Butylbenzene	-	-	-	U	**3.0**
	5	Tetrachloroethylene (PCE)	-	-	-	U	UJ
	5	Toluene	-	-	-	U	**2.0**
	5	Trans-1,2-Dichloroethene	-	-	-	U	**0.3 J**
	5	Trichloroethylene (TCE)	-	-	-	U	**2.0**
	2	Vinyl Chloride	-	-	-	U	**14**
	NA	Total VOCs [2]	-	-	-	**2207**	**1700**
AOC9-MW17	5	1,1-Dichloroethene	-	-	-	U	U
	3	1,2-Dichlorobenzene	-	-	-	**66**	**50**
	0.6	1,2-Dichloroethane	-	-	-	**0.68**	**0.4 J**
	5	1,2,4-Trimethylbenzene	-	-	-	U	U
	5	1,3,5-Trimethylbenzene	-	-	-	U	U
	3	1,3-Dichlorobenzene	-	-	-	**1.5**	**3.0**
	3	1,4-Dichlorobenzene	-	-	-	**17**	**38**
	5	4-Chlorotoluene	-	-	-	U	NA
	1	Benzene	-	-	-	**2.6**	**4.0**
	5	Chlorobenzene	-	-	-	**250**	**760**
	5	cis-1,2-Dichloroethylene	-	-	-	**12**	**5.0**
	NA	Cyclohexane	-	-	-	NA	**2.0**
	5	Ethylbenzene	-	-	-	U	**0.8 J**
	5	Isopropylbenzene (Cumene)	-	-	-	**0.25 J**	**2.0**
	NA	Methylcyclohexane	-	-	-	NA	**0.6 J**
	5	Methylene Chloride	-	-	-	U	U
	NA	m-p-Xylene	-	-	-	U	U
	10	Naphthalene	-	-	-	U	U
	5	n-Butylbenzene	-	-	-	U	U
	5	n-Propylbenzene	-	-	-	U	U
	5	o-Xylene (1,2-Dimethylbenzene)	-	-	-	U	U
	5	p-Isopropyltoluene	-	-	-	U	U
	5	sec-Butylbenzene	-	-	-	**0.33 J**	**1.0 J**
	5	Styrene	-	-	-	U	U
	5	t-Butylbenzene	-	-	-	**0.26 J**	**0.6 J**
	5	Tetrachloroethylene (PCE)	-	-	-	**3.0**	**2.0 J**
	5	Toluene	-	-	-	**0.39 J**	U
	5	Trans-1,2-Dichloroethene	-	-	-	U	**0.9 J**
	5	Trichloroethylene (TCE)	-	-	-	**19**	**14**
	2	Vinyl Chloride	-	-	-	**0.92 J**	**4.0**
	NA	Total VOCs [2]	-	-	-	**374**	**890**

Table 3-3 AOC 9 Historic Groundwater Sample Results

Well Number	Screening Criteria [1]	Parameter	Analytical Results by Sample Date(s) (µg/L)				
			12/18/1997 to 12/19/97	5/8/2000 to 5/25/00	9/7/2004 to 9/9/04	10/23/2006 to 11/13/06	7/27/2010 to 7/29/10
			Ref 1	Ref 2	Ref 3	Ref 4	E & E 2010 AOC 9 Baseline Sampling
AOC9-MW18	5	1,1-Dichloroethene	-	-	-	-	U
	3	1,2-Dichlorobenzene	-	-	-	-	**0.2 J**
	0.6	1,2-Dichloroethane	-	-	-	-	U
	5	1,2,4-Trimethylbenzene	-	-	-	-	U
	5	1,3,5-Trimethylbenzene	-	-	-	-	U
	3	1,3-Dichlorobenzene	-	-	-	-	U
	3	1,4-Dichlorobenzene	-	-	-	-	U
	5	4-Chlorotoluene	-	-	-	-	NA
	1	Benzene	-	-	-	-	U
	5	Chlorobenzene	-	-	-	-	**3.0**
	5	cis-1,2-Dichloroethylene	-	-	-	-	U
	NA	Cyclohexane	-	-	-	-	U
	5	Ethylbenzene	-	-	-	-	U
	5	Isopropylbenzene (Cumene)	-	-	-	-	U
	NA	Methylcyclohexane	-	-	-	-	UJ
	5	Methylene Chloride	-	-	-	-	U
	NA	m-p-Xylene	-	-	-	-	U
	10	Naphthalene	-	-	-	-	U
	5	n-Butylbenzene	-	-	-	-	U
	5	n-Propylbenzene	-	-	-	-	U
	5	o-Xylene (1,2-Dimethylbenzene)	-	-	-	-	U
	5	p-Isopropyltoluene	-	-	-	-	U
	5	sec-Butylbenzene	-	-	-	-	U
	5	Styrene	-	-	-	-	U
	5	t-Butylbenzene	-	-	-	-	U
	5	Tetrachloroethylene (PCE)	-	-	-	-	UJ
	5	Toluene	-	-	-	-	U
	5	Trans-1,2-Dichloroethene	-	-	-	-	U
	5	Trichloroethylene (TCE)	-	-	-	-	U
	2	Vinyl Chloride	-	-	-	-	U
	NA	Total VOCs [2]	-	-	-	-	**3.2**

References:

(1) E & E. July 1998. Draft Report for Expanded Site Investigation and Confirmatory Sampling of Areas of Interest and Drywell/Wastewater-Related Systems

(2) E & E. August 2001. AOC 9: Weapons Storage Area (WSA) Landfill Supplemental Investigation Final Data Summary Report.

(3) FPM Group. February 2005. Groundwater Monitoring Report.

(4) FPM Group. August 2007. Baseline and PDI2 Sampling Final Monitoring Report.

Note:

[1] New York State Department of Environmental Conservation, Class GA Groundwater Standards and Guidance Values.

[2] Total VOC concentrations are estimated (J) if one compound detected is estimated.

0.411 J	Bolded values denote positive hits (detections).
14.9	Shaded values denote hits exceeding the NYSDEC standard.

Key:

J = Estimated concentration.

U = Analyte not detected.

mg/L = Micrograms per liter.

- = Well was not Sampled.

NA = Not Analyzed.

Table 3-4 AOC 9 Hisotric Surface Water Sample Results

Surface Water Sample Number	Screening Criteria[1]	Parameter	Analytical Results by Sample Date(s) (µg/L)			
			11/4/97	5/10/00	11/13/06	7/27/10
			Ref 1	Ref 2	Ref 3	E & E 2010 AOC 9 Baseline Sampling
SW01[2]	5	Chlorobenzene	U	**0.85 J**	U	U
	3	1,2-DCB	NA	U	U	U
	3	1,4-DCB	NA	U	U	U
	50	Acetone	U	NA	**1.78 J**	U
	NA	Total VOCs [5]	0	**0.85**	**1.78**	0
SW02[3]	5	Chlorobenzene	U	**0.835**	**3.99**	**3.0**
	3	1,2-DCB	NA	**0.406 J**	**0.290 J**	**0.2 J**
	3	1,4-DCB	NA	U	**0.260 J**	U
	50	Acetone	U	NA	**1.8 J**	**2.0 J**
	NA	Total VOCs [5]	0	**1.241**	**4.5**	**5.2**
SW03[4]	5	Chlorobenzene	U	**0.236 J**	**1.22**	**3.0**
	3	1,2-DCB	NA	U	**0.120 J**	**0.3 J**
	3	1,4-DCB	NA	U	U	**0.3 J**
	50	Acetone	U	NA	**1.86 J**	U
	NA	Total VOCs [5]	0	**0.236**	**1.34**	**3.6**

References:

(1) E & E. July 1998. Draft Report for Expanded Site Investigation and Confirmatory Sampling of Areas of Interest and Drywell/Wastewater-Related Systems.

(2) E & E. August 2001. AOC 9: Weapons Storage Area (WSA) Landfill Supplemental Investigation Final Data Summary Report.

(3) FPM Group. August 2007. Baseline and PDI2 Sampling Final Monitoring Report.

Notes:

[1] New York State Department of Environmental Conservation, Class GA Groundwater Standards and Guidance Values.

[2] SW01 is labeled as SW05 in Reference 1; SW01 is labeled as SW09 in Reference 2.

[3] SW02 is labeled as SW07 in Reference 1; SW02 is labeled as SW10 in Reference 2.

[4] SW03 is labeled as SW06 in Reference 1; SW03 is labeled as SW11 in Reference 2.

[5] Total VOC concentrations are estimated (J) if one compound detected is estimated.

0.411 J	Bolded values denote positive hits (detections).
14.9	Shaded values denote hits exceeding the NYSDEC standard.

Key:

J = Estimated concentration.

U = Analyte not detected.

mg/L = Micrograms per liter.

NA = Not Analyzed.

Figure 3-2
G009-MW01 Trend Analysis

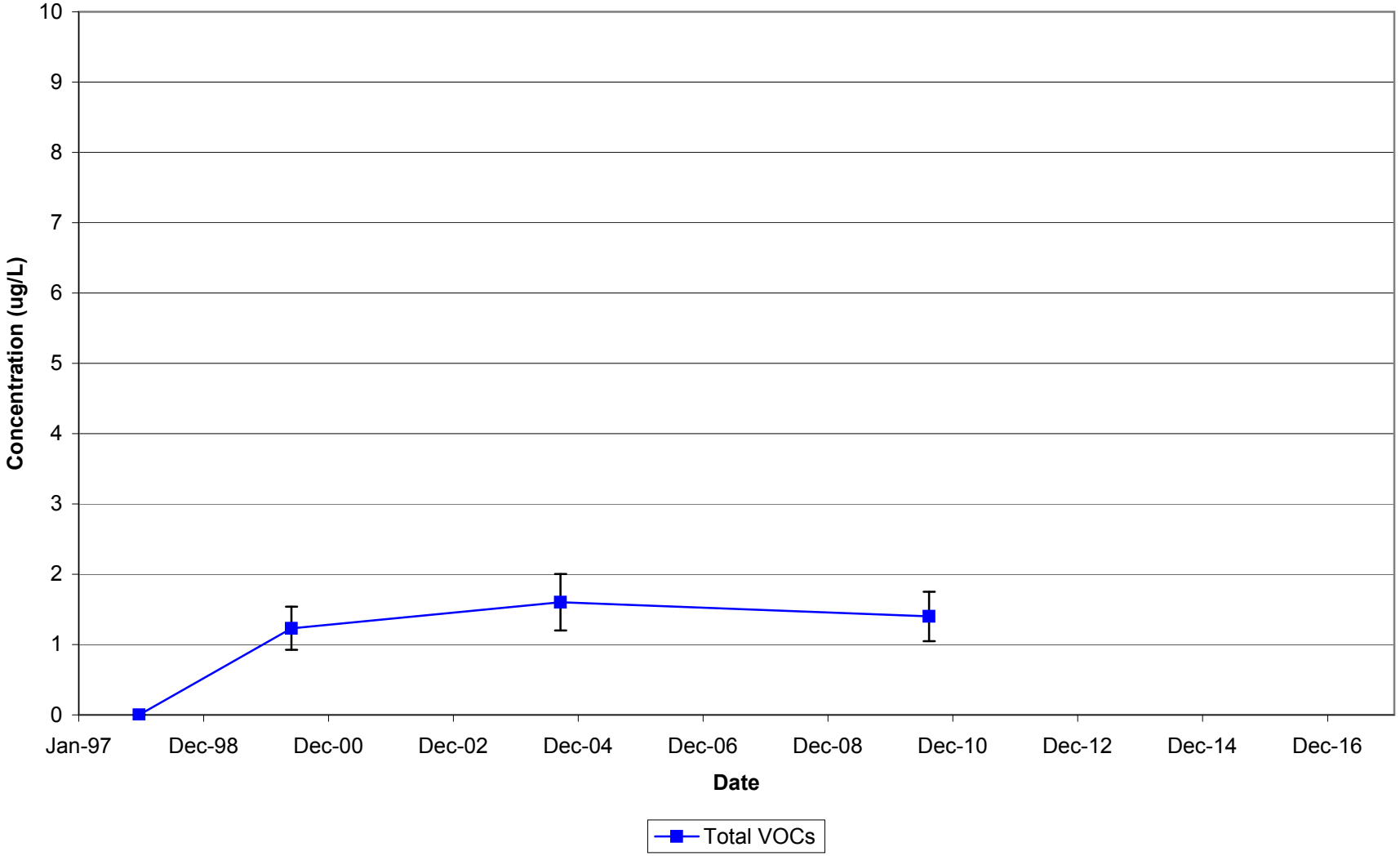


Figure 3-3
G009-MW02 Trend Analysis

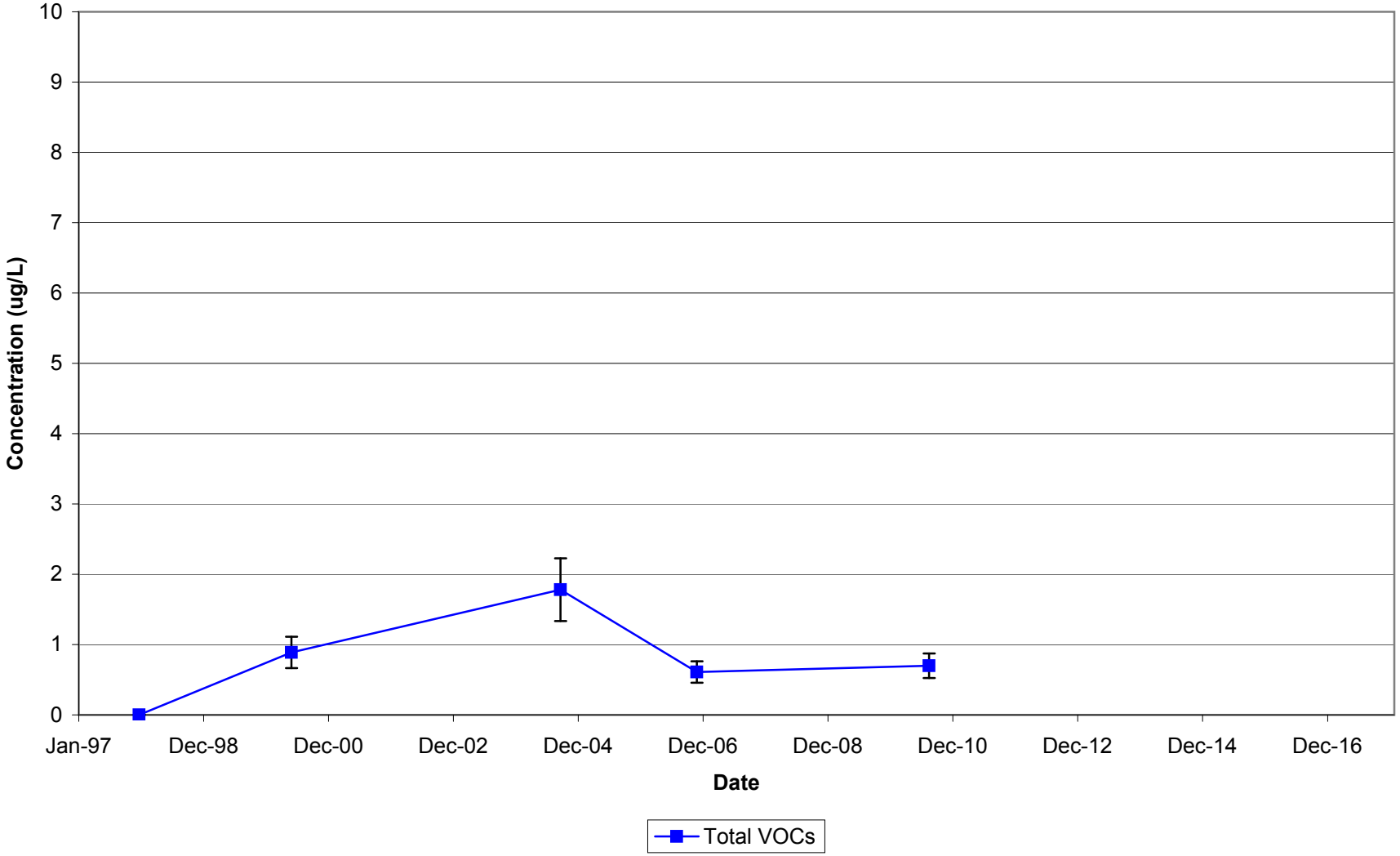


Figure 3-4
AOC9-MW05 Trend Analysis

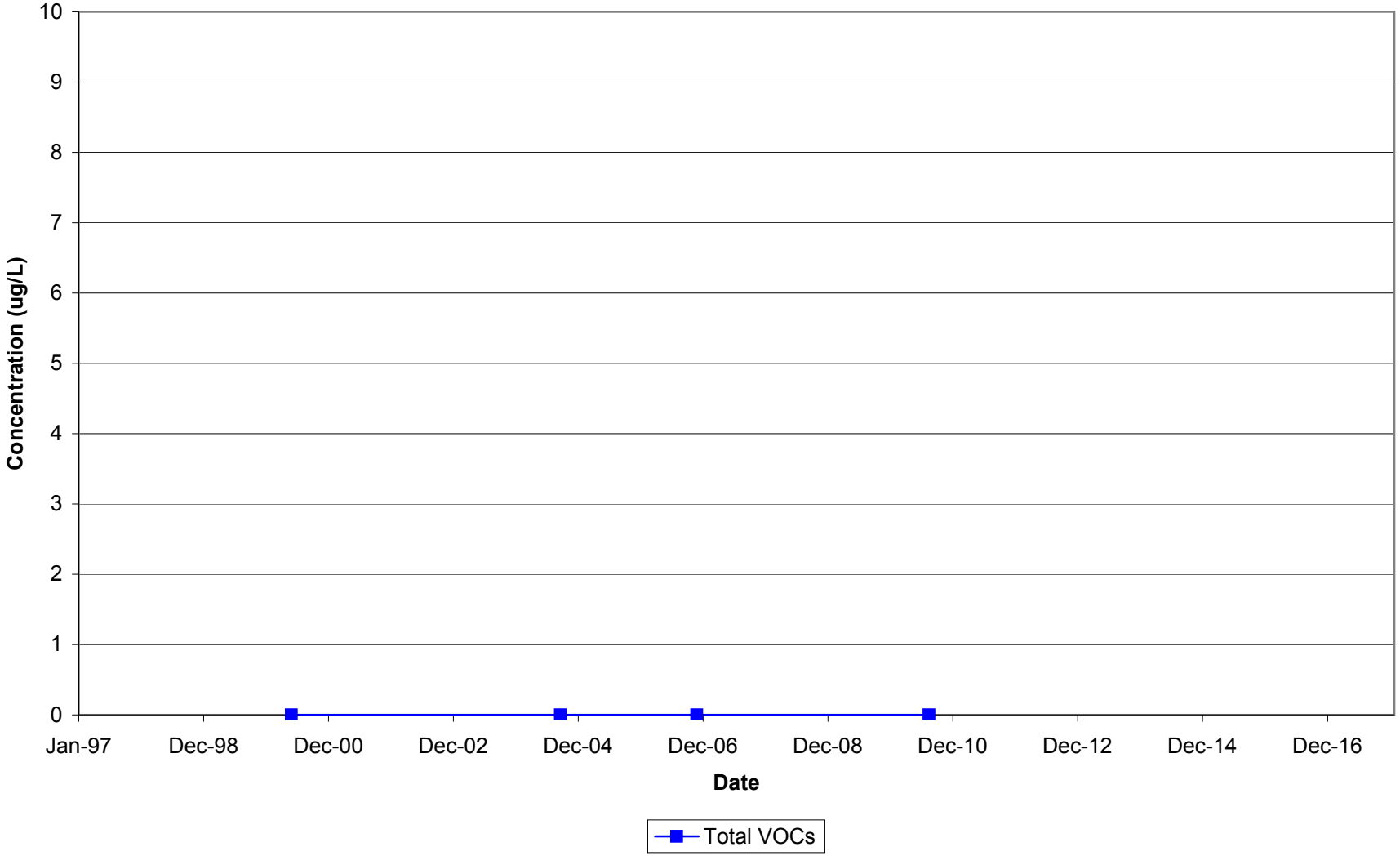
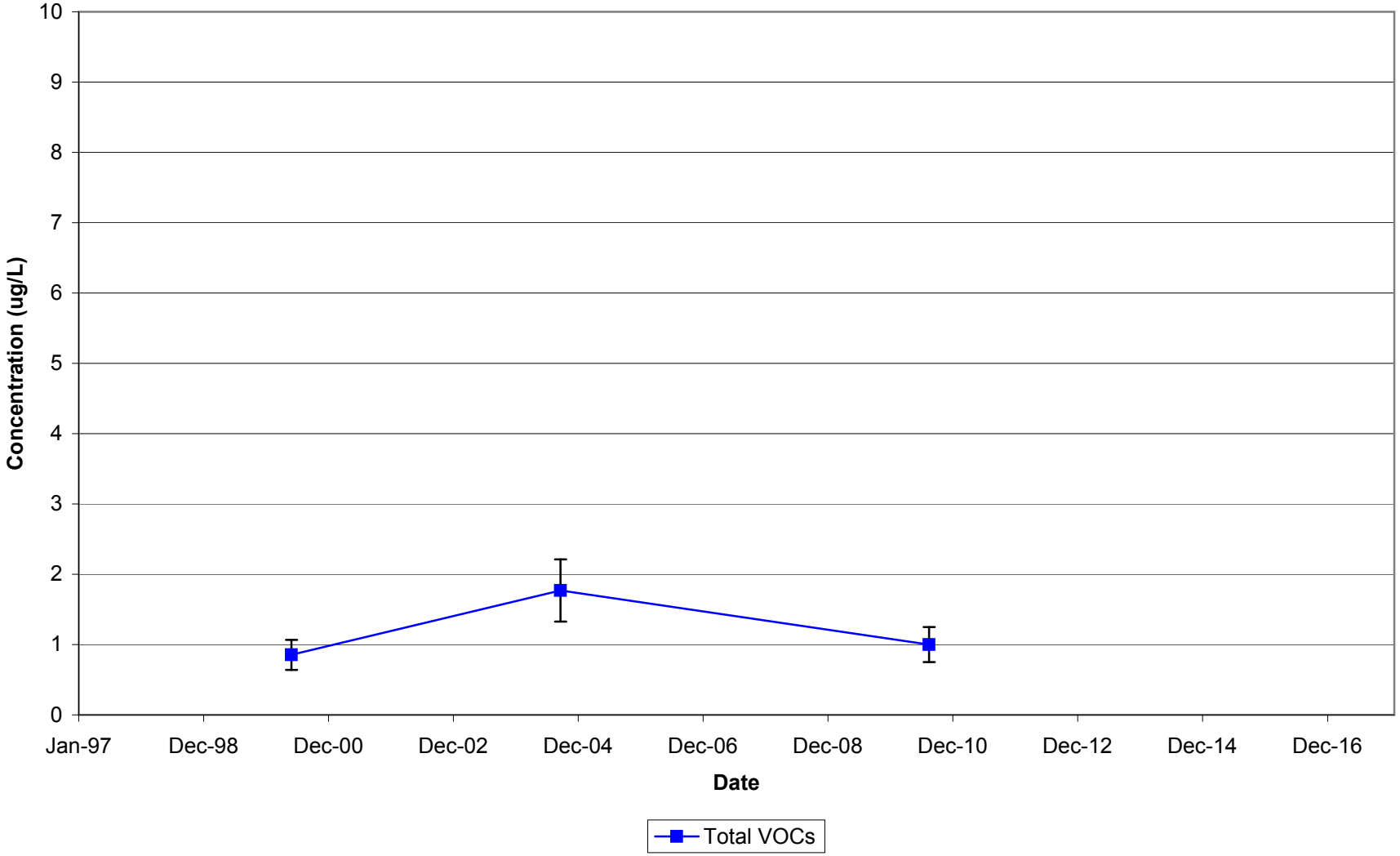


Figure 3-5
AOC9-MW06 Trend Analysis



A comparison of baseline analytical results to the historical analytical results indicates that the AOC 9 groundwater plume has in general remained relatively stable. Based on the analytical results obtained from monitoring wells MW01 and MW02, the plume does not appear to have widened south of Perimeter Road, nor does the leading edge of the plume appear to have continued to advance based on the analytical results obtained from monitoring wells MW05 and MW06. Surface water sample results obtained from sample locations SW01, SW02, and SW03 have also been relatively consistent. The upstream location (SW01) has had total VOC concentrations ranging from non-detect to 1.78 µg/L. The location where the center of the groundwater contaminant plume intersects Six Mile Creek (SW02) has had total VOC concentrations ranging from non-detect to 5 µg/L, and sample location SW03, at the downstream edge of the groundwater plume's intersection with Six Mile Creek has had total VOC concentrations ranging from non-detect to 4 µg/L.

3.4 Summary and Recommendations

The baseline sampling conducted at AOC 9 consists of groundwater and surface water sampling and analysis to establish baseline VOC concentrations in the groundwater plume and Six Mile Creek prior to the initiation of remedial activities.

Ten groundwater and three surface water samples were collected from the eight monitoring wells and Six Mile Creek, including two duplicate samples, and analyzed for VOCs (EPA Method SW8260B) by Katahdin Analytical Services. Figure 2-1 shows the sampling locations and Figure 3-1 shows the total VOC contaminant concentrations in groundwater and surface water based on the analytical data obtained during this monitoring event.

A comparison of baseline analytical results to the historical analytical results indicates that the AOC 9 groundwater plume has in general remained relatively stable (see Table 3-3). Based on the analytical results obtained from monitoring wells MW01 and MW02, the plume does not appear to have widened south of Perimeter Road, nor does the leading edge of the plume appear to have continued to advance based on the analytical results obtained from monitoring wells MW05 and MW06. Surface water sample results obtained from sample locations SW01, SW02, and SW03 have also been relatively consistent. The upstream location (SW01) has had total VOC concentrations ranging from non-detect to 1.78 µg/L. The location where the center of the groundwater contaminant plume intersects Six Mile Creek (SW02) has had total VOC concentrations ranging from non-detect to 5 µg/L, and sample location SW03, at the downstream edge of the groundwater plume's intersection with Six Mile Creek has had total VOC concentrations ranging from non-detect to 4 µg/L.

Performance monitoring will begin in the spring of 2011 to evaluate the short-term effectiveness of the remediation efforts with a total of four sampling events to be conducted over two years. No changes to the approved monitoring plan are proposed at this time.

4 References

Ecology and Environment Engineering, P.C. (EEEPC). 2010a. Final Area of Concern (AOC) 9 Feasibility Study Addendum, Former Griffiss Air Force Base, Rome, New York. March 2010.

_____. 2010b. Final Record of Decision for Area of Concern 9 (SD-62) at the Former Griffiss Air Force Base, Rome, New York. July 2010.

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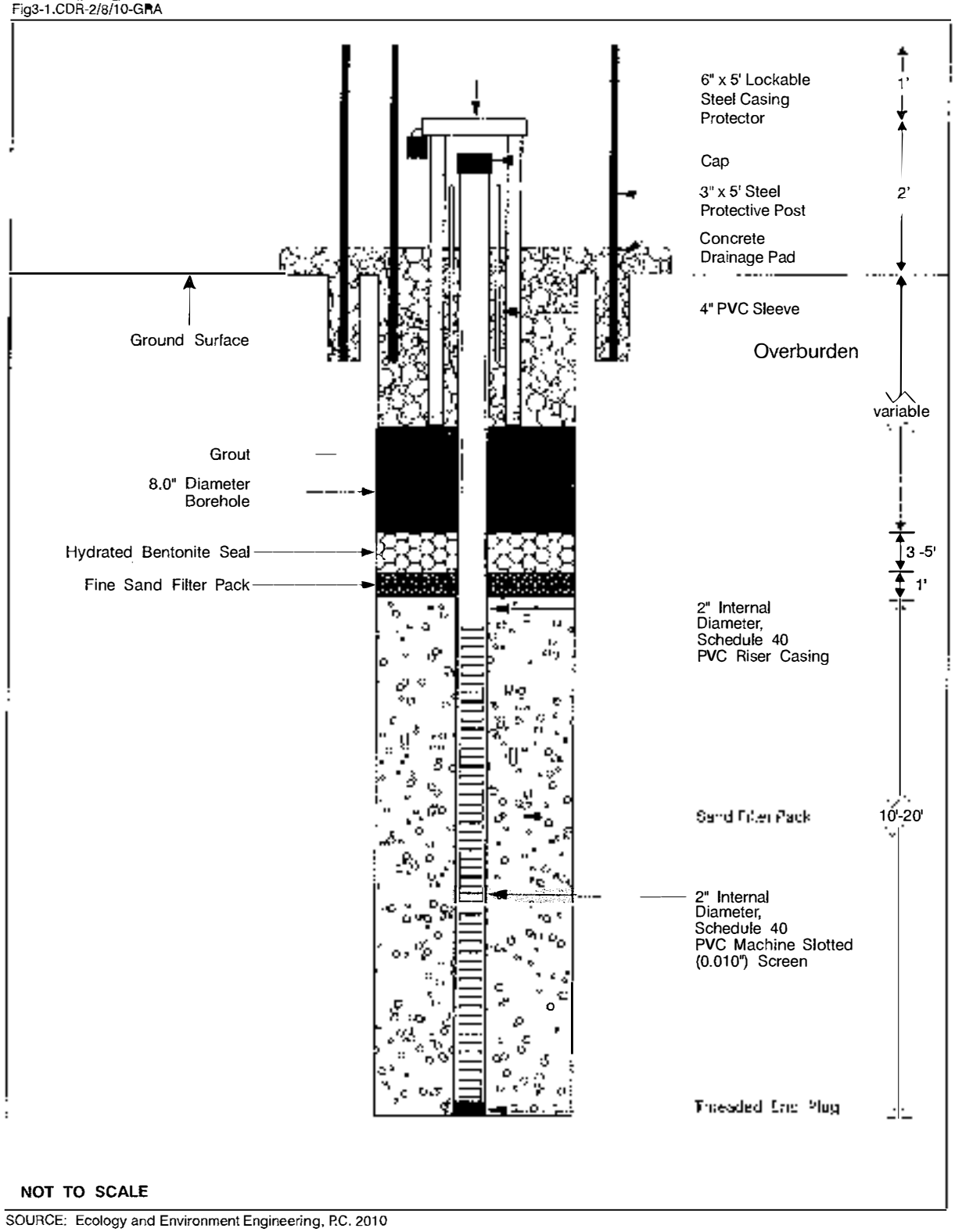
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A AOC 9 MW18 Well Log and Well Survey

02:002888_PI02_09-B2907
Fig3-1.CDR-2/8/10-GRA



SOURCE: Ecology and Environment Engineering, P.C. 2010

Figure 3-1 PROPOSED CONSTRUCTION FOR PERMANENT MONITORING WELLS

HTRW DRILLING LOG

District | Hole Number

1. Company Name: PARSONS
2. Drill Subcontractor: Atlantic Testing Laboratories
Sheet | Sheets | of
3. Project: AOC-9
4. Location: AOC-9
5. Name of Driller: Scott Fox
6. Manufacturer's Designation of Drill: CME-55
7. Sizes and Types of Drilling and Sampling Equipment: 4¼ Auger
8. Hole Location: AOC9-MW-18
9. Surface Elevation:
4¼" ID 8" OD
10. Date Started: 7/12
11. Date Completed: 7/13
12. Overburden Thickness: 21'
15. Depth Groundwater Encountered: 12'
13. Depth Drilled Into Rock: Not encountered
16. Depth to Water and Elapsed Time After Drilling Completed:
14. Total Depth of Hole: 21'
17. Other Water Level Managements (Specify):

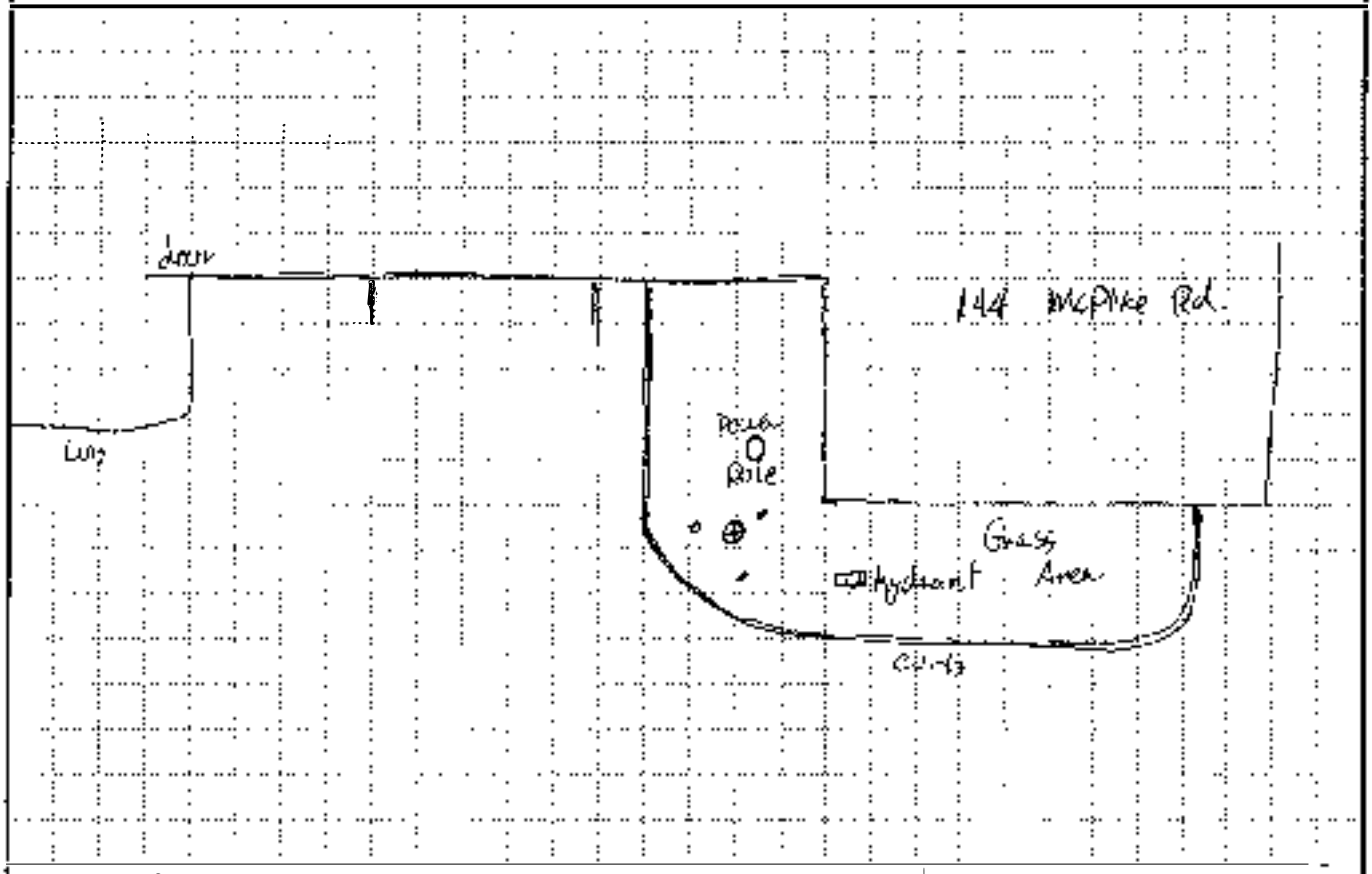
18. Geological Samples	Disturbed	Undisturbed	19. Total Number of Core Boxes
0			

20. Samples For Chemical Analysis	VOC	Metals	Other (Specify)	Other (Specify)	Other (Specify)	21. Total Core Recovery
None	0.00ppm					%

22. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector
Well Installed				Dan McAllister

LOCATION SKETCH/COMMENTS: Well inside curb

SCALE:



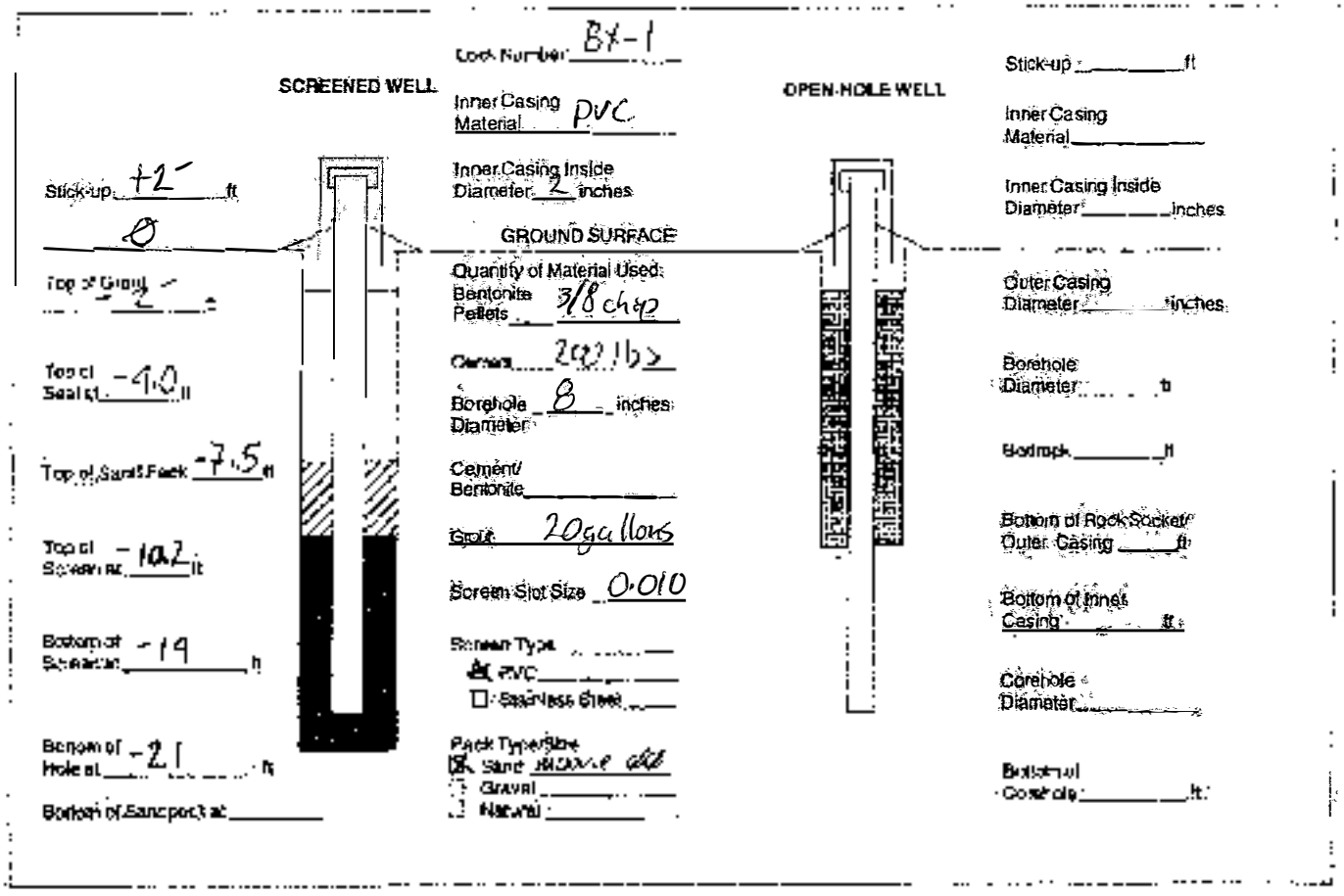
PROJECT: GAFB AOC-9

HOLE NO.: MW-18

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

Figure 3-2 Hazardous, Toxic, and Radioactive Waste Drill Log Form



Depth (Feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
0 to 12ft	Dry Grey SAND and Gravel Angular Fill compacted	⊗	○	○
12 to 21ft	Moist brown SAND fine to medium some Silt loose	○	⊗	○
	21' End of Boring.	○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○

Figure 3-2 (Cont.) Hazardous, Toxic, and Radioactive Waste Drill Log Form

HTRW DRILLING LOG (Continuation Sheet)

Hole Number

Project GAFB AOC 9 - MW-18 | Inspector McAllister | Sheet 1 of 1 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	2	Topsoil					Fill
		Grey brown Fill SAND & Gravel	0.0 ppm				Fill
	4	Grey brown SAND					
	6	Some Gravel Angular medium to fine					
	8	Dry	0.0 ppm				Fill
		Grey brown SAND					
	10	Some Gravel medium to fine Angular					Fill
	12	to Subrounded Dry	0.0 ppm				
		moist brown SAND					USCS
	14	fine to medium Sand					
		Silt loose					SM
	16		0.0 ppm				
		wet brown SAND					USCS
	18	fine to medium sand					
		Silt loose					SM
	20	trace Gravel f. Subrou	0.0 ppm				
		End of boring	21'				SM
	22						

4" macro core used to collect log samples.

No blow count Recorded

PROJECT AOC 9 - MW-18

HOLE NO. AOC-9-MW-18

ENG FORM 5056-AR, AUG 94 (Proponent: CECW-EG)

Figure 3-2 (Cont.) Hazardous, Toxic, and Radioactive Waste Drill Log Form

WELL DEVELOPMENT RECORD

SITE _____ DATE 7/16/10

LOCATION GAFB -AOC 9 WELL NO. MW-18

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = .997 gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1 1/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3 1/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4 1/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
5 1/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 13.28'
WELL DEPTH (TD) 19.4'
COLOR None
ODOR None
CLARITY _____

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 15.46'
WELL DEPTH (TD) 19.4'
COLOR None
ODOR _____
CLARITY _____

DESCRIPTION OF DEVELOPMENT TECHNIQUE Bailer followed by Peristaltic pump.

Figure 3-3 Well Development Record

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (umhos/cm)	TEMP (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
0945			7.33	0.386	13.28	414	
0955			7.37	0.340	15.44	44.2	400 ml/min
1000			7.37	0.341	15.46	36.1	
1005			7.38	0.341	15.48	9.8	
1010			7.38	0.341	15.46	9.6	
							25 gallons total Volume removed.

DEVELOPED BY: Dale Dolph DATE: 7/16/10

Figure 3-3 (Cont.) Well Development Record

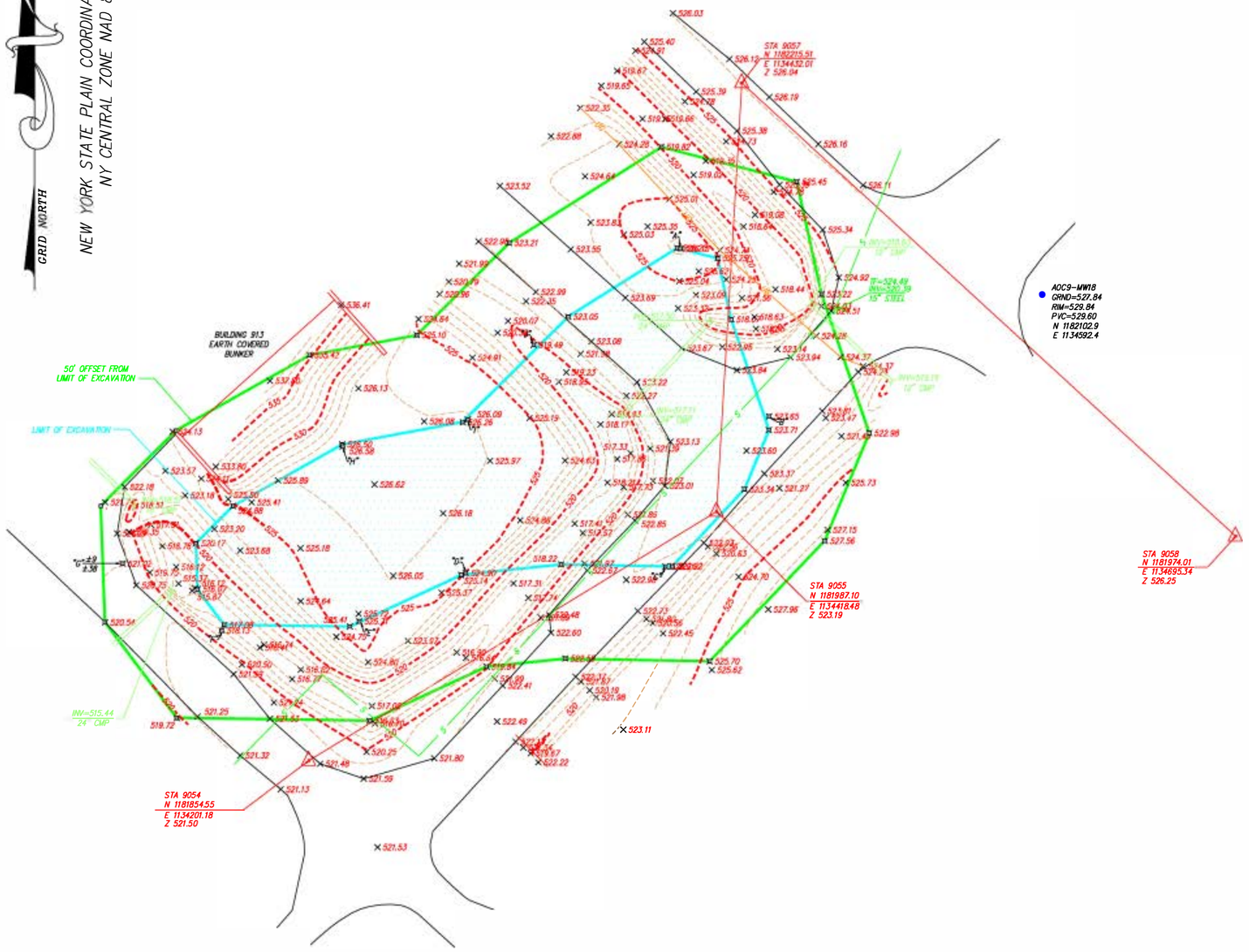
GRAPHIC SCALE

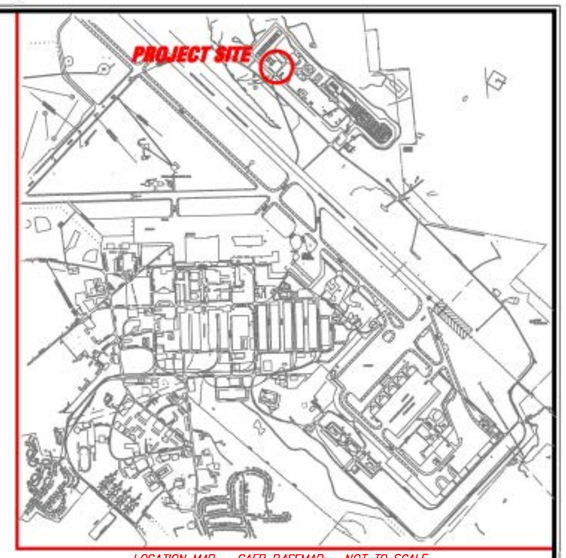
50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GRID NORTH

NEW YORK STATE PLAIN COORDINATE SYSTEM
NY CENTRAL ZONE NAD 83





LOCATION MAP – GAFB BASEMAP – NOT TO SCALE

LEGEND

- SET WOOD STAKE
- "B" FOUND WOOD STAKE WITH "LETTER"
- CB CATCH BASIN
- MH STORM MANHOLE
- CULVERT
- 469.12 SPOT ELEVATION
- SURVEY CONTROL POINT
- GUARD POST
- OE OVERHEAD ELECTRIC LINES
- UE UNDERGROUND ELECTRIC LINES
- S STORM LINES
- CONTOUR INTERVAL 1 FOOT
- CONTOUR INTERVAL 5 FOOT

IT IS HEREBY CERTIFIED TO:

1) PARSONS ENGINEERING

THAT THIS MAP WAS PREPARED FROM AN ACTUAL FIELD SURVEY PERFORMED UNDER MY DIRECT SUPERVISION.

LAFAVE WHITE & MCGIVERN, L.S. P.C. AST. SURVEY SUPERVISOR
DATE ANDREW R. BAILEY P.L.S. N.Y.S. LIC. NO. 50437

WARNING-- IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON OTHER THAN A LICENSED LAND SURVEYOR TO ALTER THIS MAP.

ONLY BOUNDARY SURVEY MAPS WITH THE SURVEYORS EMBOSED SEAL OR RED INK SEAL ARE GENUINE TRUE AND CORRECT COPIES OF THE SURVEYOR'S ORIGINAL WORK & OPINION. CERTIFICATIONS ON THIS BOUNDARY SURVEY MAP SIGNIFY THAT THE MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESIONAL LAND SURVEYORS, INC. THE CERTIFICATION IS LIMITED TO PERSONS FOR WHOM THE BOUNDARY SURVEY MAP IS PREPARED, TO THE TITLE COMPANY, TO THE GOVERNMENT AGENCY, AND THE LENDING INSTITUTION LISTED ON THIS BOUNDARY SURVEY MAP.

THE CERTIFICATIONS HEREON ARE NOT TRANSFERABLE.

THE LOCATION OF UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS ARE NOT ALWAYS KNOWN AND OFTEN MUST BE ESTIMATED. IF ANY UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS EXIST, THEY ARE NOT COVERED BY THIS CERTIFICATIONS

REV	DESCRIPTION	DATE

PRE EXCAVATION – TOPOGRAPHIC SURVEY MAP

AOC9-BLDG NO. 913-FORMER GRIFFIS AIR FORCE BASE
PARSONS PROJECT 747054-AOC-9

CITY OF ROME

ONEIDA COUNTY NEW YORK

LaFAVE, WHITE & McGIVERN, L.S., P.C.

LAND SURVEYORS PHOTOGRAMMETRISTS

THERESA BOONVILLE ROME

NEW YORK

DRAWN	CHECKED	DATE	SCALE	FILE	SHEET
T.J.B	A.R.B.	8/26/2010	1" = 50'	10-P02-RO	1 OF 1

B Daily Activity Forms

Daily Activity Summary

Date: July 21, 2010, Tuesday | Report No.: 001

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB | Weather: Sunny, few clouds, 84°F

Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
M. Horanburg	11.5	EEEPC			
L. Roedl	11.5	EEEPC			
B. Meyers	8.5	EEEPC			
D. Daloh	5.5	Parsons			

Summary of Activities

Equipment	AOC/Task	Activities Performed
Water Level Indicator PID Horiba 22	Water Levels- Surface Water Sampling.	- Measured water levels in wells and piezometers. - screened wells and piezometers before and after opening. - Measured pH, temp, turbidity, ORP and conductivity in surface water samples.

Figure 3-5 Daily Activity Summary Form

Page 1 of 2

Daily Activity Summary

Date: Tuesday, 7/27/10 | Report No.: 001

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB

Weather: Sunny, few clouds, 84°F

Field Tests Performed (Sampling, Field Screening, Chemical Testing, etc.)

Screened wells and piezometers with PID.
Sampled surface water locations (SW01, SW02, SW03).
Measured pH, temp, conductivity, turbidity, and ORP of surface water samples.

Work Delays (Due to Weather, Maintenance, Breakdowns, Waiting for Decisions)

Delay due to gate access. Had to wait for security to let personnel in. approx. 2 hrs.

Problems Encountered and Deviations From Work Plan

Some water level collection points ~~were on 7/27/10~~ from Table 2-2 were damaged or missing. New points were chosen, which followed work plan. Summarized in logbook.

Written and Verbal Instruction by the Government

None

Safety Issues

High temperatures throughout day — heat stress. Took multiple breaks to cool down and rehydrate.

Planned Activities for Next Work Day

~~Execute on 7/28/10~~. Begin sampling monitoring wells (8 total) that are part of the baseline sampling program.

Remarks: (Visitors, Completion of Field Work at an AOC, etc.)

Surface water sampling and water levels completed.

Site Manager: Megan Horanbourg Date: 7/27/10

Figure 3-5 Daily Activity Summary Form

Daily Activity Summary

Date: Wednesday, July 28, 2010 Report No.: 002

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB

Weather: Sunny, few clouds, high 88°F
Rain - late afternoon

Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
M. Horanburg	13.75	EEEPC			
J. Rozell	13.25	EEEPC			
R. Meyers	5.75	EEEPC			
D. Dalph	0.5	Parsons			
A. Dennison	4.75	USACE			

Summary of Activities

Equipment	AOC/Task	Activities Performed
Water level indicator	Purge and	- measure depth to water in wells
PID	Sample	- screen wells before and after purging
Horiba 22	Groundwater	- measure pH, cond, temp, DO, ORP of groundwater
Turbidimeter	from (8)	- measure turbidity of groundwater
Geocontrol	monitoring	- control flow rate of bladder pump
	wells.	- screen purged groundwater

Figure 3-5 Daily Activity Summary Form

Page 1 of 2

Daily Activity Summary

Date: Wednesday, 7/28/10 Report No.: 002

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB

Weather: Sunny, few clouds, high 80s Rain-late afternoon

Field Tests Performed (Sampling, Field Screening, Chemical Testing, etc.)

Screened wells with PID. Screen groundwater with PID. Sampled MW01, MW06, MW17, MW02, and MW15. Measured pH, temp, conductivity, DO, ORP, and turbidity.

Work Delays (Due to Weather, Maintenance, Breakdowns, Waiting for Decisions)

Approx 2hr. delay at MW01 due to air bubble issues in flex tubing. Tubing had to be changed.

Problems Encountered and Deviations From Work Plan

MW-01 had air bubbles in flex tubing (~2hr) delay trying to get problem solved and well set up for purging/sampling. Wells mw-01, mw-06, MW17, MW15, and MW02 were sampled by using 4oz jar to collect gw and then pour into vials.

Written and Verbal Instruction by the Government

Verbal approval by A. Darpinian on-site for collection method described above.

Safety Issues

High temperatures and heat index throughout day - heat stress. Took multiple breaks to cool down and rehydrate.

Planned Activities for Next Work Day

Purge and Sample MW05, MW14, and MW18. Ship samples to lab.

Remarks: (Visitors, Completion of Field Work at an AOC, etc.)

A. Darpinian on site to audit sampling. 5 wells completed today (purged and sampled). 3 wells was purchased to attempt to sample wells without additional jar tomorrow.

Site Manager: Megan Hrankur Date: 7/28/10

Figure 3-5 Daily Activity Summary Form

Page 2 of 2

Daily Activity Summary

Date: Thursday, July 29, 2010 | Report No.: 003

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB | Weather: Partly cloudy, 69°F expected high 75-80°F

Personnel	Hrs.	Affiliation	Personnel	Hrs.	Affiliation
M. Horanburg	12.75	EEESPC			
L. Roedl	12.75	EEESPC			

Summary of Activities

Equipment	AOC/Task	Activities Performed
Water level indicator PID Horiba 22 Turbidimeter Geocontrol	Purge and sample groundwater from (8) monitoring wells.	- measure depth to water in wells - screen wells before and after opening, screen purged water. - measure pH, cond, temp, DO, and ORP of groundwater - measure turbidity of groundwater - control flow rate of bladder pump

Figure 3-5 Daily Activity Summary Form

Page 1 of 2

Daily Activity Summary

Date: Thursday 7/29/10 Report No.: 003

Project Name: AOC 9 Baseline, Performance, and Long-Term Monitoring, Former Griffiss AFB

Weather: Partly cloudy, 69°F expected high 75-80°F

Field Tests Performed (Sampling, Field Screening, Chemical Testing, etc.)

Screen wells and purged groundwater with PID.
Sample MW05, MW14, and MW18.
Measured pH, conductivity, temp, DO, ORP, and turbidity.

Work Delays (Due to Weather, Maintenance, Breakdowns, Waiting for Decisions)

None

Problems Encountered and Deviations From Work Plan

At MW18 water level stopped working for six measurements between 1223 and 1248. Battery for controller started to die. Able to plug into car so no time lost.

Written and Verbal Instruction by the Government

None today. Able to sample all three wells without an extra clean jar. Able to collect sample directly into VOA vial.

Safety Issues

None.

Planned Activities for Next Work Day

None.

Remarks: (Visitors, Completion of Field Work at an AOC, etc.)

All sampling complete. Samples shipped via FedEx to Katahdin Laboratory.

Site Manager [signature] Date 7/29/10

Figure 3-5 Daily Activity Summary Form

Page 2 of 2

C Sampling Forms

Groundwater Sampling Form

1 Well Volume = 1.11 gal
x 3 = 3.33 gal

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9 Former Griffiss Air Force Base
Well No.: 4009-MW01
Sample Date: 7/28/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 9.0
Screen Interval (feet BGS): 4-9
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: 4009-MW01BM072810
Sample Time: 1037
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 0.05
Initial Water Level (Feet TOIC): 2.19
Final Water Level (feet TOIC): 2.83
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
0909	7.67	12.7	0.350	~~0.30~~ 0.60	5.77	124	2.19	—	Adjustment of controller to purge water
0925	7.75	13.6	0.740	0.25	2.88	103	2.79	250 mL/min	
0934	7.79	13.6	0.526	0.0	2.91	96	2.68	"	* Air bubbles in flex portion of tubing going into flow cell
0939	7.82	13.5	0.326	0.0	3.23	93	2.66	"	
0944	7.83	13.8	0.320	0.15	3.44	92	2.65	"	* Had to change tubing as more bubbles were coming
0958	8.05	13.8	0.404	0.20	2.88	75	2.55	~0.350 L/min	
1003	8.04	13.5	0.714	1.2	2.41	64	2.64	"	
1008	8.03	13.3	0.770	0.60	2.33	59	2.65	"	
1013	8.03	13.4	0.~~797~~	55	2.27	55	2.68	"	* condensation affecting Turb measurement
1018	8.05	13.4	0.740	0.0	2.22	51	2.69	"	0.10
1023	8.06	13.6	0.737	0.60	2.18	49	2.69	"	
1028	8.10	13.7	0.720	0.15	2.18	46	2.70	"	

All of water 7/28/10

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

1 Well Volume = .85

x3 = 2.55

Groundwater Sampling Form

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: GO09-MW02
Sample Date: 7/28/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 9.0
Screen Interval (feet BGS): 4.0 - 9.0
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: GO09-MW02BM072810 / GO09-MW02DBM072810
Sample Time: 1531
Sample Tubing: QED Teflon lined polyethylene
Sample Turbidity (NTUs): 16
Initial Water Level (Feet TOIC): 2.78
Final Water Level (feet TOIC): 5.55
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (us/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1440	7.23	17.2	0.417	310	5.44	91	3.78	0.35	
1445	7.18	17.5	0.413	220	4.51	88	5.60	0.20	* Adjusted flow rate to 0.20
1452	7.09	19.4	0.423	150	4.90	92	5.49	0.20	* Change tubing
1457	7.19	16.8	0.448	350	4.10	84	5.55	0.20	
1502	7.27	17.1	0.407	85	5.48	90	5.55	0.20	
1507	7.16	17.0	0.446	80	4.35	96	5.55	0.20	
1512	7.19	17.1	0.456	45	4.11	90	5.55	0.20	
1517	7.20	17.0	0.453	40	4.14	81	5.55	0.20	
1522	7.21	16.9	0.452	25	4.15	78	5.55	0.20	
1527	7.23	16.9	0.450	20	4.16	70	5.55	0.20	

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

1 Well Volume = 1.52
x3 = 4.56

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW05
Sample Date: 7/29/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 14.0
Screen Interval (feet BGS): 4.0 - 14.0
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: AOC9-MW05BM072910
Sample Time: 0927
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 11
Initial Water Level (Feet TOIC): 4.68
Final Water Level (feet TOIC): 5.39
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (us/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
0759	6.98	13.9	0.235	37	4.66	194	4.68	0.20	remeasured water level after adjusting flow rate = 5.71
0804	6.99	15.1	0.263	22	3.63	186	5.38	0.20	
0809	7.04	13.5	0.382	15	3.26	183	5.39	0.20	
0814	6.98	13.7	0.287	12	3.19	179	5.39	0.20	
0819	6.96	13.7	0.261	10	3.21	177	5.39	0.20	
0824	7.00	13.4	0.261	8.5	3.09	176	5.39	0.20	
0829	7.01	13.5	0.236	6.6	3.04	172	5.39	0.20	
0834	7.01	13.6	0.233	8.5	3.03	170	5.39	0.20	
0839	7.02	13.6	0.231	3.6	3.20	169	5.39	0.20	
0844	7.06	13.4	0.230	3.0	3.31	167	5.39	0.20	
0849	7.04	13.6	0.229	3.1	3.27	165	5.39	0.20	
0854	7.05	13.5	0.228	2.0	3.31	165	5.39	0.20	
0859	7.06	13.4	0.229	2.3	3.34	164	5.39	0.20	
0904	7.06	13.7	0.229	1.5	3.29	162	5.39	0.20	
0909	7.08	13.4	0.230	1.0	3.32	162	5.39	0.20	
0914	7.09	13.7	0.232	0.80	3.25	160	5.39	0.20	
0919	7.10	13.5	0.230	0.75	3.32	159	5.39	0.20	

Al Strausburg 7/29/10

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

1 Well Volume = 1.19
x 3 = 3.57

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW06
Sample Date: 7/28/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 14.2
Screen Interval (feet BGS): 4.2 - 14.2
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: AOC9 - MW06BM072810
Sample Time: 1213
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 5.2
Initial Water Level (Feet TOIC): 6.89
Final Water Level (feet TOIC): 7.21
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (us/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1115	7.88	13.3	0.331	24	6.84	180	6.89	0.5	*Adjust flow rate.
1124	7.62	14.8	0.328	31	3.86	175	7.15	0.15	
1129	7.69	14.6	0.336	23	3.84	168	7.26	0.20	
1134	7.69	13.0	0.341	21	3.93	166	7.31	0.40	
1139	7.73	13.4	0.353	11	3.77	161	7.39	0.40	
1144	7.78	13.3	0.360	7.8	3.76	157	7.39	0.40	
1149	7.79	13.3	0.362	5.3	3.69	154	7.40	0.40	
1154	7.78	13.3	0.361	4.6	3.67	152	7.40	0.40	
1159	7.79	13.3	0.361	3.9	3.65	151	7.41	0.40	
1204	7.80	13.4	0.361	4.4	3.64	150	7.41	0.40	
1209	7.81	13.4	0.360	4.7	3.63	149	7.42	0.40	

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

1 Well Volume = 1.48
(MS/MSD) x3 = 4.44

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW14
Sample Date: 7/29/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 24.0
Screen Interval (feet BGS): 14.0 - 24.0
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: AOC9-MW14BM072910
Sample Time: 1100
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 3.7
Initial Water Level (Feet TOIC): 14.92
Final Water Level (feet TOIC): 14.95
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1006	7.52	14.4	0.482	9.7	7.55	85	14.92	0.25	
1011	7.31	13.3	0.441	22	3.59	-81	14.95	0.25	
1016	7.38	13.0	0.469	18	2.98	-94	14.96	0.25	
1021	7.41	12.7	0.440	11	2.84	-98	14.95	0.25	
1026	7.47	12.4	0.442	12	2.74	-103	14.95	0.25	
1031	7.5	12.3	0.441	9.2	2.67	-106	14.95	0.25	
1036	7.54	12.3	0.448	7.9	2.65	-109	14.95	0.25	
1041	7.56	12.5	0.461	6.7	2.66	-110	14.95	0.25	
1046	7.57	12.4	0.475	8.0	2.75	-111	14.95	0.25	
1051	7.59	12.3	0.478	8.5	2.78	-113	14.95	0.25	
								0.244 7/29/10	

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

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Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

1 Well Volume = 1.75
x3 = 5.26

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW15
Sample Date: 7/28/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 14.0
Screen Interval (feet BGS): 9.0 - 14.0
Casing Inner Diameter (inches): 2.0"
Initial PID Reading (ppm): 0.0

Sample ID: AOC9-MW15BM072810
Sample Time: 1809
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 1.1
Initial Water Level (Feet TOIC): 3.25
Final Water Level (feet TOIC): 3.29
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (µS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1715	8.33	17.2	0.360	25	9.25	53	3.25	0.35	Adjusted to get flowrate.
1730	7.87	15.0	0.396	11	3.17	-131	3.22	0.35	
1735	7.86	14.9	0.482	11	2.51	-140	3.29	0.35	
1740	7.86	14.9	0.420	6.7	2.38	-143	3.30	0.35	
1745	7.87	14.7	0.422	4.7	2.30	-144	3.30	0.45	
1750	7.87	14.7	0.447	4.3	2.28	-146	3.29	0.45	
1755	7.87	14.7	0.448	3.3	2.26	-147	3.30	0.45	
1800	7.88	14.7	0.454	2.8	2.25	-149	3.30	0.45	
1805	7.89	14.7	0.460	2.8	2.22	-150	3.29	0.45	

Collect sample to 1810

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

1 Well Volume = 1.59
x 3 = 4.77

Groundwater Sampling Form

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW17
Sample Date: 7/28/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 14.0
Screen Interval (feet BGS): 9.0 - 14.0
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: AOC9-MW17RM072810 / AOC9-MW17FD072810
Sample Time: 1650
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 5.1
Initial Water Level (Feet TOIC): 4.25
Final Water Level (feet TOIC): 5.47
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1555	7.86	13.4	0.331	23	4.73	-73	4.25	0.30	
1600	7.84	14.8	0.338	22	2.81	-103	5.44	0.30	
1605	7.87	13.2	0.515	12	2.52	-127	5.60	0.30	
1610	7.87	13.2	0.714	17	2.44	-129	5.45	0.30	
1615	7.87	13.0	0.583	31	2.34	-134	5.48	0.30	
1620	7.86	12.8	0.519	24	2.30	-135	5.49	0.30	
1625	7.86	12.7	0.489	25	2.31	-137	5.49	0.30	
1630	7.86	12.6	0.482	14	2.26	-138	5.47	0.30	
1635	7.85	12.7	0.487	9.8	2.26	-140	5.47	0.30	
1640	7.84	12.7	0.463	8.1	2.25	-140	5.47	0.30	
1645	7.84	12.6	0.454	9.3	2.24	-142	5.47	0.30	

7/28/10

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

1 Well Volume = 0.62
X3 = 1.85

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: AOC9-MW18
Sample Date: 7/29/10
Sampling Device: QED T1200 bladder pump
Well Depth (feet TOIC): 19.0
Screen Interval (feet BGS): 9.0-19.0
Casing Inner Diameter (inches): 2.0
Initial PID Reading (ppm): 0.0

Sample ID: AOC9-MW18BM072910
Sample Time: 1331
Sample Tubing: QED Teflon-lined polyethylene
Sample Turbidity (NTUs): 25.1
Initial Water Level (Feet TOIC): 15.21
Final Water Level (feet TOIC): 15.25
Casing Type: PVC

Time	pH	Temperature (°C)	Conductivity (us/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1128	7.77	12.0	0.305	113	7.23	114	15.21	0.20	Water level = 15.23 after adjusting
1133	7.59	11.8	0.320	224	4.33	54	15.24	0.20	flow rate.
1138	7.60	11.8	0.323	296	3.70	55	15.25	0.20	
1143	7.61	12.2	0.363	209	3.82	89	15.25	0.20	
1148	7.6	12.9	0.359	246	4.25	75	15.25	0.20	
1153	7.64	12.0	0.360	289	3.97	66	15.25	0.20	
1158	7.61	11.8	0.358	294	3.69	69	15.25	0.20	
1203	7.63	12.6	0.354	280	3.73	72	15.25	0.20	
1208	7.64	11.8	0.340	252	3.72	73	15.25	0.20	
1213	7.65	11.8	0.340	228	4.60	79	15.25	0.20	
1218	7.65	11.6	0.336	182	3.78	81	15.25	0.20	
1223	7.67	11.7	0.334	136	3.78	79	NA	0.40	sensor on water level not working
1228	7.68	12.3	0.333	179	3.66	79	NA	0.40	
1233	7.68	12.6	0.327	172	3.64	79	NA	0.40	
1238	7.72	13.2	0.326	136	3.68	79	NA	0.40	
1243	7.76	12.2	0.311	99.0	[illegible]	84	NA	0.40	
1248	7.72	11.6	0.340	76.0	3.94	83	NA	0.40	
1253	7.69	11.6	0.345	59.7	3.81	82	15.25	0.40	
1258	7.71	11.8	0.335	86.1	3.80	80	15.25	0.40	

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Groundwater Sampling Form

Well No.: 4009-MW1A Date: 07/29/10

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1308	7.70	11.4	0.343	66.3	4.07	81	15.25	0.40	
1313	7.70	11.9	0.338	48.7	3.85	85	15.25	0.20	
1318	7.69	11.8	0.334	38.6	3.79	85	15.25	0.20	
1323	7.70	11.6	0.332	28.7	3.75	85	15.25	0.20	

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved Oxygen
LPM = Liters per minute
mg/L = Milligrams per liter
mS/cm = microSiemens per centimeter
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

Figure 3-4 Groundwater Sampling Form

Surface water

~~Groundwater~~ Sampling Form

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: ~~NA~~
Sample Date: ~~7/27/10~~
Sampling Device: ~~QED T1000 bladder pump~~ clean jar by hand
Well Depth (feet TOIC): NA
Screen Interval (feet BGS): NA
Casing Inner Diameter (inches): NA
Initial PID Reading (ppm): NA

Sample ID: AOC9-SW01BM072710
Sample Time: 1654
Sample Tubing: ~~QED T1000 tubing and controller~~ NA
Sample Turbidity (NTUs): 9.6
Initial Water Level (Feet TOIC): NA
Final Water Level (feet TOIC): NA
Casing Type: ~~PVC~~, NA

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1654	7.74	25.1	0.011	9.6	NA	-69	NA	NA	—

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

~~Figure 3.4~~ ~~Groundwater~~ Sampling Form
Surface Water

Surface Water

~~Groundwater~~ Sampling Form

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9-Former Griffiss Air Force Base
Well No.: NA
Sample Date: 7/27/10
Sampling Device: ~~QED T1200 bladder pump~~ clean jar by hand
Well Depth (feet TOIC): NA
Screen Interval (feet BGS): NA
Casing Inner Diameter (inches): NA
Initial PID Reading (ppm): NA

Sample ID: AOC9-SW02BM072710
Sample Time: 1645
Sample Tubing: ~~SIZE~~ NA
Sample Turbidity (NTUs): 7.9
Initial Water Level (Feet TOIC): NA
Final Water Level (feet TOIC): NA
Casing Type: ~~PVC~~ NA

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1645	7.88	23.7	0.214	7.9	NA	-37	NA	NA	—

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

~~Figure 3-4 — Groundwater~~ Sampling Form
Surface Water

Surface Water

~~Groundwater~~ Sampling Form

Project: AOC 9 Baseline, Performance, Long-Term Monitoring
Site: AOC 9 Former Griffiss Air Force Base
Well No.: NA
Sample Date: 7/27/10
Sampling Device: ~~QED T1300 bladder pump~~ clean jar by hand
Well Depth (feet TOIC): NA
Screen Interval (feet BGS): NA
Casing Inner Diameter (inches): NA
Initial PID Reading (ppm): NA

Sample ID: AOC9-SW03BM072710
Sample Time: 1705
Sample Tubing: ~~QED Teflon-lined polyethylene~~ NA
Sample Turbidity (NTUs): 0
Initial Water Level (Feet TOIC): NA
Final Water Level (feet TOIC): NA
Casing Type: ~~PVC~~ NA

Time	pH	Temperature (°C)	Conductivity (µs/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Water Level (ft TOIC)	Flow Rate (LPM)	Comments
1705	7.89	23.8	0.216	0	NA	-14	NA	NA	—

Key:
°C = Degrees centigrade.
BGS = Below ground surface.
DO = Dissolved oxygen.
LPM = Liters per minute.
mg/L = Milligrams per liter.
mS/cm = microSiemens per centimeter.
NTU = Nephelometric turbidity unit.
NTU = Nephelometric turbidity unit.
ORP = Redox potential.
ppm = Parts per million.
PVC = Polyvinyl chloride.
TOIC = Top of inner (PVC) casing.

~~Figure 3-4~~ ~~Groundwater~~ Sampling Form
Surface Water

D Photolog

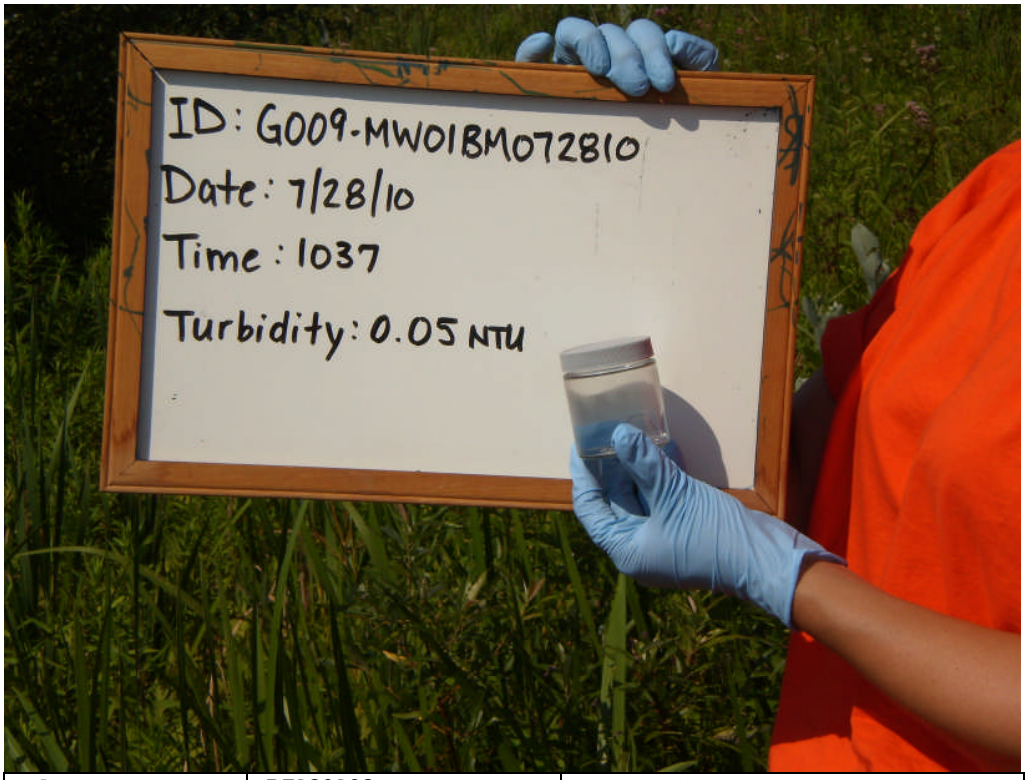


Photo No.:	P7280208	**Description:** Sample: G009-MW01BM072810
Date:	7/28/10	
Photographer:	L. Roedl	

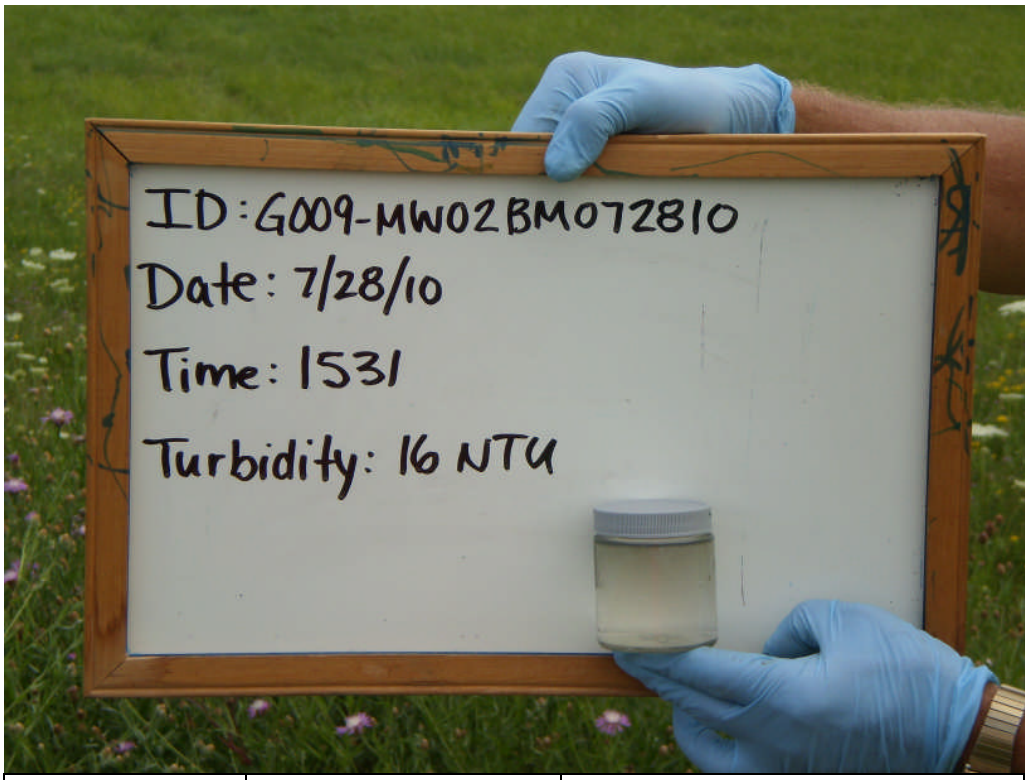


Photo No.:	P7280211	**Description:** Sample: G009-MW02BM072810
Date:	7/28/10	
Photographer:	M. Horanburg	

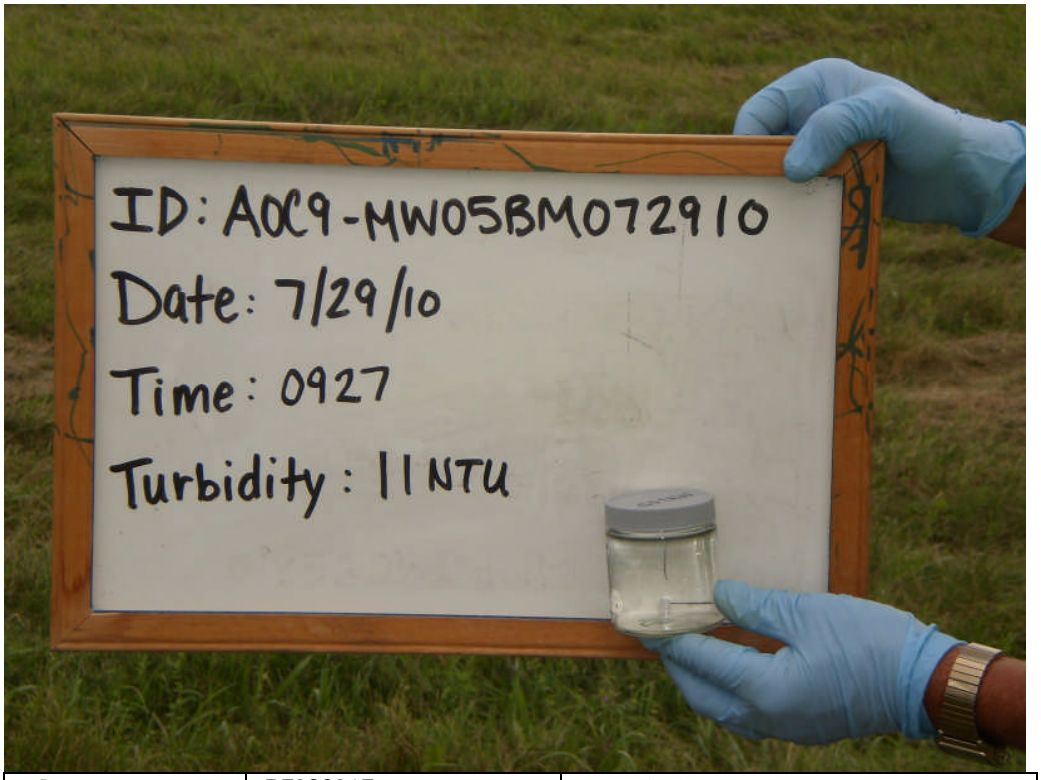


Photo No.:	P7290217	**Description:** Sample: AOC9-MW05BM072910
Date:	7/29/10	
Photographer:	M. Horanburg	

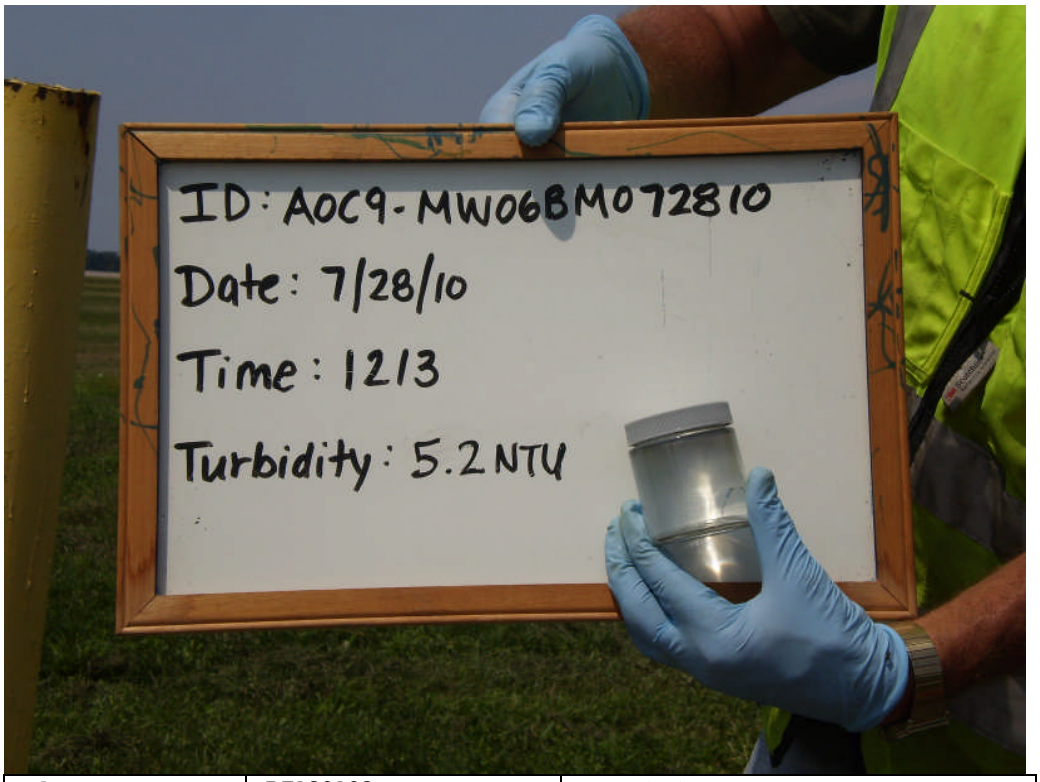


Photo No.:	P7280209	**Description:** Sample: AOC9-MW06BM072810
Date:	7/28/10	
Photographer:	M. Horanburg	

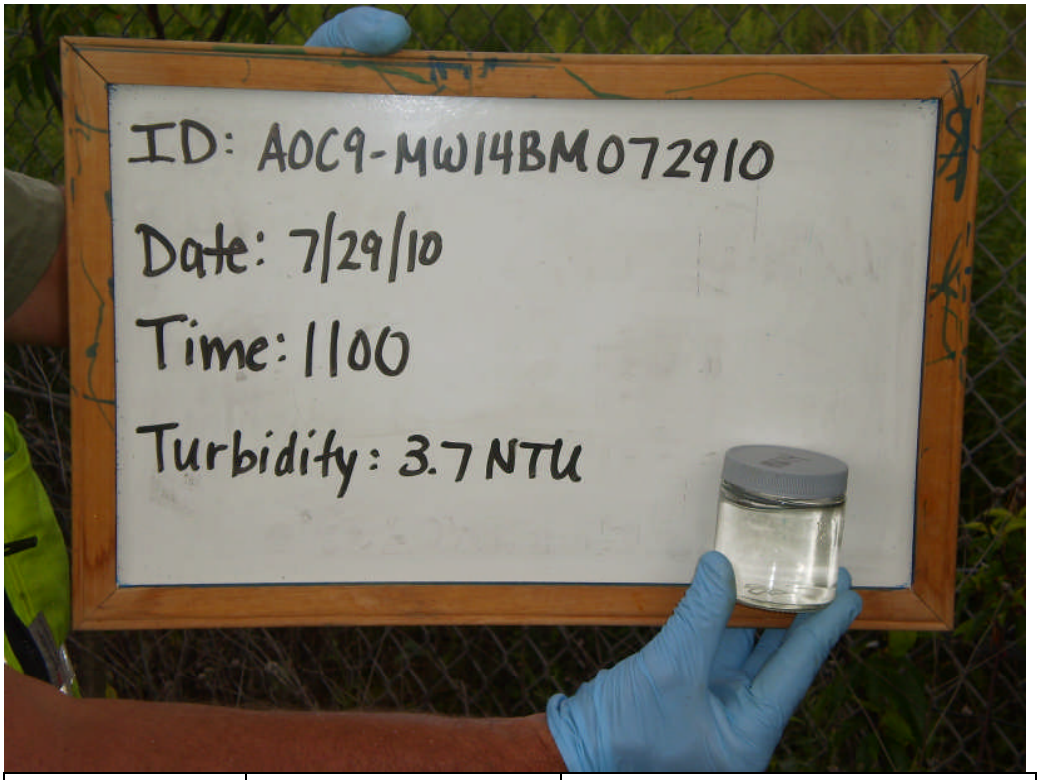


Photo No.:	P7290218	**Description:** Sample: AOC9-MW14BM072910
Date:	7/29/10	
Photographer:	M. Horanburg	

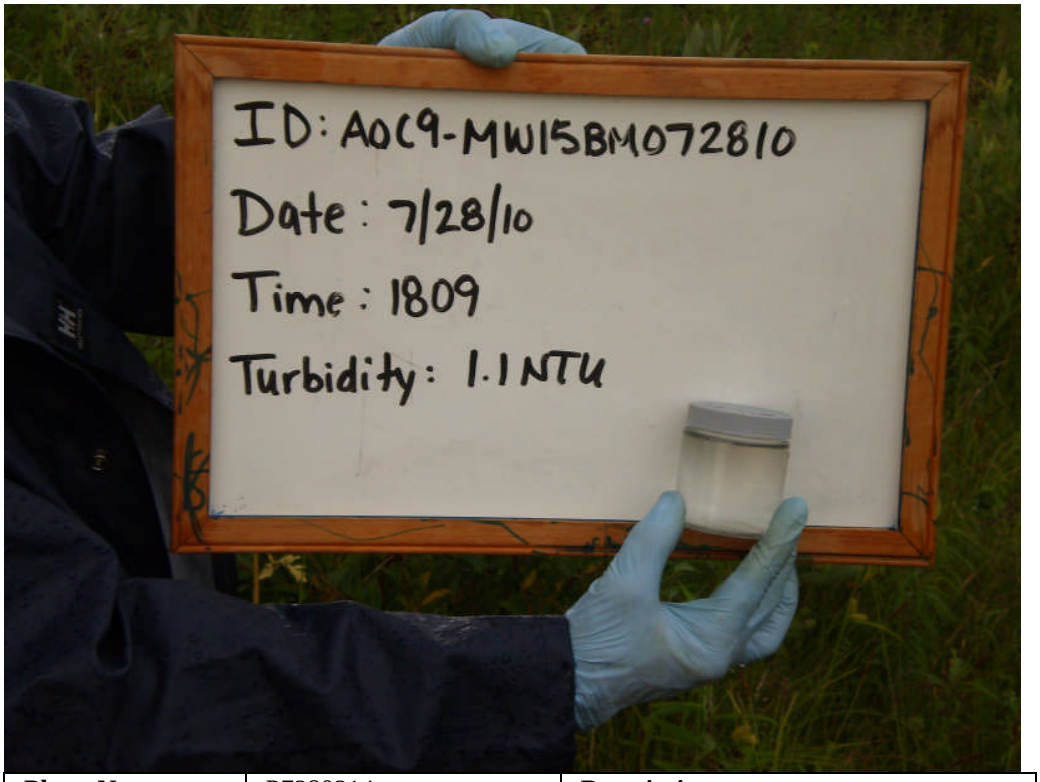


Photo No.:	P7280214	**Description:** Sample: AOC9-MW15BM072810
Date:	7/28/10	
Photographer:	M. Horanburg	

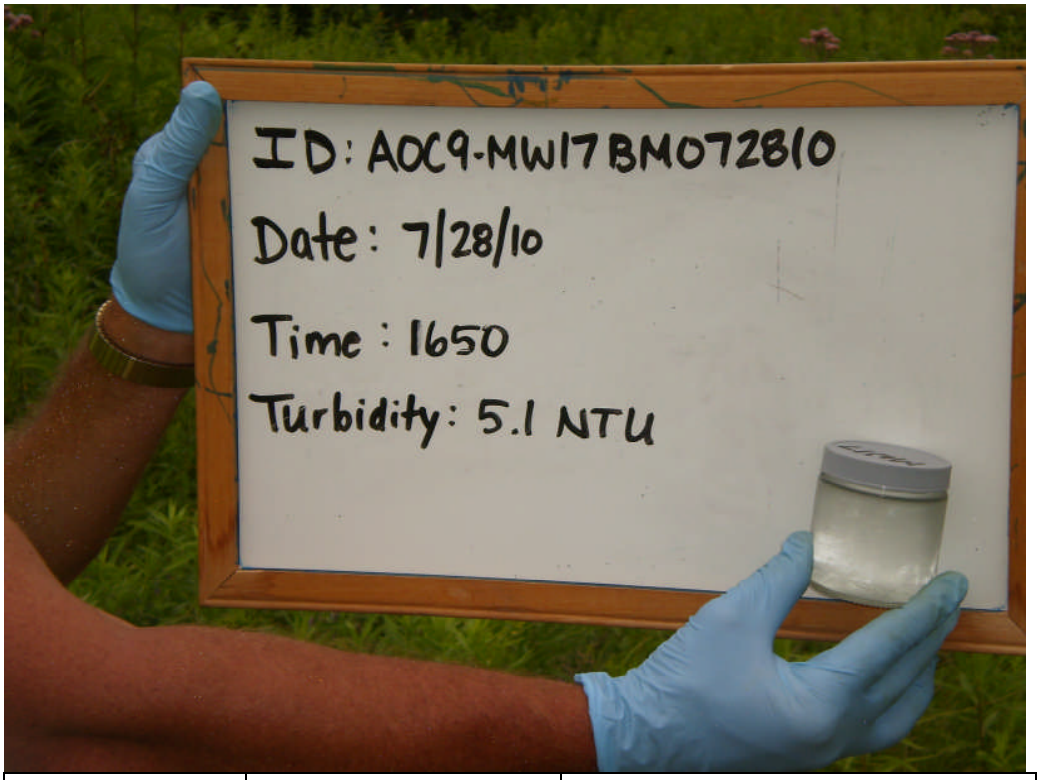


Photo No.:	P7280213	**Description:** Sample: AOC9-MW17BM072810
Date:	7/28/10	
Photographer:	M. Horanburg	

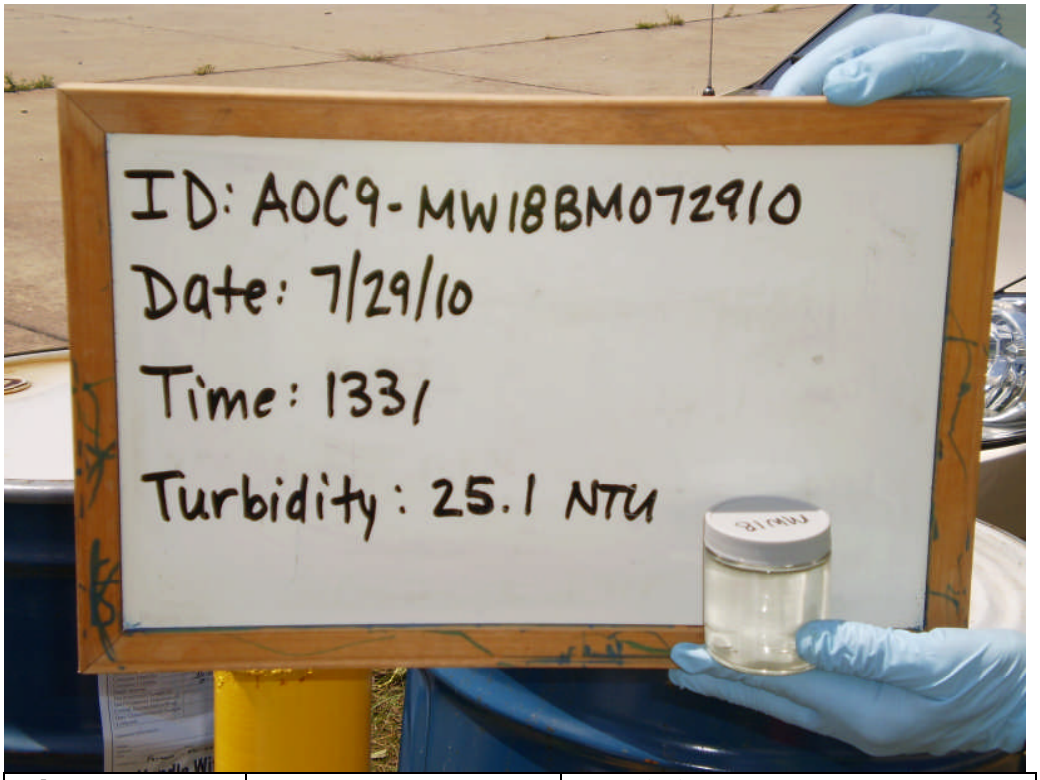


Photo No.:	P7290219	**Description:** Sample: AOC9-MW18BM072910
Date:	7/29/10	
Photographer:	L. Roedl	

E Analytical Data

The analytical data are provided in the CD version of this report.

F

Data Usability Summary Report

Data Usability Summary Report	Project: Griffiss AFB Baseline Testing
Date Completed: August 27, 2010	Completed by: B. Kroon

The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness per NYSDEC Division of Environmental Remediation Guidance for the Development of DUSRs (June 1999). Specific criteria for QC limits were obtained from the Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories Version 4.1. Compliance with the project QA program is indicated on the in the checklist and tables. Any major or minor concerns affected data usability are summarized listed below. The checklist and tables also indicate whether data qualification is required and/or the type of qualifier assigned.

Reference:

Table 1: Sample Data from Electronic Data Deliverable

Lab Sample ID	Client Sample ID	Matrix	Sample Date	MS/MSD	ID Corrections
SD4625-1	AOC9-SW01BM072710	WG	7/27/2010		
SD4625-2	AOC9-SW02BM072710	WG	7/27/2010		
SD4625-3	AOC9-SW03BM072710	WG	7/27/2010		
SD4625-4	G009-MW01BM072810	WG	7/28/2010		
SD4625-5	G009-MW02BM072810	WG	7/28/2010		
SD4625-6	G009-MW02/DBM072810	WG	7/28/2010		
SD4625-7	AOC9-MW05BM072910	WG	7/29/2010		
SD4625-8	AOC9-MW06BM072810	WG	7/28/2010		
SD4625-9	AOC9-MW14BM072910	WG	7/29/2010	MS/MSD	
SD4625-10	AOC9-MW15BM072810	WG	7/28/2010		
SD4625-11	AOC9-MW17BM072810	WG	7/28/2010		
SD4625-12	AOC9-MW17/DBM072810	WG	7/28/2010		
SD4625-13	AOC9-MW18BM072910	WG	7/29/2010		
SD4625-14	AOC9-TB1072710	WQ	7/27/2010		

Work Orders, Tests and Number of Samples included in this DUSR

Lab Work Orders	Matrix	Test Method	Test Name	Number of Samples
SD4625	Soil	SW8260B	VOCs by GCMS Method 8260BB	14

General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	No – Cooler temps at 1.4˚C upon receipt. No indication that samples were frozen.
Frequency of Field QC Samples Correct? Field Duplicate - 1/20 samples Trip Blank - Every cooler with VOCs waters only Equipment Blank - 1/ set of samples per day?	Yes – Trip blank included in this SDG. Field duplicates included in this SDG (AOC9-MW02/DBM072810 and AOC9-MW17/DBM072810).
All ASP Forms complete?	No – AFCEE reporting format.
Case narrative present and complete?	Yes
Any holding time violations (See table below)?	No - All samples were prepared and analyzed within holding times.

The following tables are presented at the end of this DUSR and provided summaries of results outside QC criteria.

- Method Blanks Results (Table 2)
- Surrogates Outside Limits (Table 3)
- MS/MSD Outside Limits (Table 4)
- LCS Outside Limits (Table 5)
- Re-analysis Results (Table 6)
- Field Duplicate Results (Table 7)

Go to Tables List

Volatile Organics Organics by GCMS	
Description	**Notes and Qualifiers**
Any compounds present in method, trip and field blanks (see Table 2)?	Yes – 1,4-Dioxane was detected in MB WG80847-2.
For samples, if results are <5 times the blank or < 10 times blank for common laboratory contaminants then "U" flag data. Qualification also applies to TICs.	The compound 1,4-Dioxane was not detected in any samples.
Surrogate for method blanks and LCS within limits?	Yes
Surrogate for samples and MS/MSD within limits? (See Table 3). All samples should be re-analyzed for VOCs? Samples should re-analyzed if >1 BN and/or > AP for BNAs is out. Matrix effects should be established.	Yes
Laboratory QC frequency one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes
MS/MSD within QC criteria (see Table 4)? If out and LCS is compliant, then J flag positive data in original sample due to matrix?	NA
LCS within QC criteria (see Table 5)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Yes
Is initial calibration for target compounds <15 %RSD or curve fit?	No – 1,4-Dioxane %RSD exceeded 15%, all positive detections of 1,4-Dioxane qualified “J”, non-detects not qualified. The only detected compound was in the method blank.

Data Usability Summary Report	Project: Griffiss AFB Baseline Testing
Date Completed: August 27, 2010	Completed by: B. Kroon

Volatile Organics Organics by GCMS	
Description	**Notes and Qualifiers**
Is continuing calibration for target compounds < 20.5%D.	No - %D criteria not met for several compounds. Tetrachloroethene and 1,4-Dioxane results for samples AOC9-MW14BM072910 (Dilution), AOC9-MW15BM072810, AOC9-MW17BM072810, AOC9-MW/DBM072810, and AOC9-MW18BM072910 qualified "J"/"UJ" Methylcyclohexane and 1,4-Dioxane results for samples AOC9-MW15BM072810 (dilution), AOC9-MW17BM072810 (dilution), AOC9-MW/DBM072810 (dilution), and AOC9-MW18BM072910 (re-analysis) qualified "J"/"UJ"
Were any samples re-analyzed or diluted (see Table 6)? For any sample re-analysis and dilutions is only one reportable result by flagged?	Yes
For TICs are there any system related compounds that should not be reported?	NA
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	No – Tetrachloroethene RPD was greater than 35% in the field duplicate pair of AOC9-MW17BM072810 and AOC9-MW17/DBM072810 results are qualified "J". The results are near the reporting limit and the overall the precision is acceptable.

Summary of Potential Impacts on Data Usability
Major Concerns
None
Minor Concerns
Results qualified "J" or "UJ" based on ICV and CCV %D, and field duplicate RPD.

Table 2 - List of Positive Results for Blank Samples

Method	Sample ID	Samp Type	Analyte	Result	Qual	Anal Type	Units	PQL
SW8260B	WG80847-2	MBLK	1,4-Dioxane	110		A	ug/L	20

Table 2A - List of Samples Qualified for Method Blank Contamination

None

Table 2B - List of Samples Qualified for Field Blank Contamination
None

Table 3 - List of Samples with Surrogates outside Control Limits

None

Table 4 - List MS/MSD Recoveries and RPDs outside Control Limits

None

Table 5 - List LCS Recoveries outside Control Limits

None

Table 6 –Samples that were Reanalyzed

Sample ID	Lab ID	Method	Sample Type	Action
AOC9-MW14BM072910	SD4625-9DL	SW8260B	DL	Report for over-range data only
AOC9-MW15BM072810	SD4625-10DL	SW8260B	DL	Report for over-range data only
AOC9-MW17BM072810	SD4625-11DL	SW8260B	DL	Report for over-range data only
AOC9-MW17/DBM072810	SD4625-12DL	SW8260B	DL	Report for over-range data only
AOC9-MW18BM072910	SD4625-13RA	SW8260B	RA	REPORT INITIAL ANALYSIS

Data Usability Summary Report	Project: Griffiss AFB Baseline Testing
Date Completed: August 27, 2010	Completed by: B. Kroon

Table 7 – Summary of Field Duplicate Results

Method	Analyte	Unit	PQL	G009-MW02BM072810	G009-MW02/DBM072810	RPD	RPD Rating	Qualifier
8260B	Tetrachloroethene	ug/L	1	0.70	0.70	0.0 %	Good	None

Method	Analyte	Unit	PQL	AOC9-MW17BM072810	AOC9-MW17/DBM072810	RPD	RPD Rating	Qualifier
8260B	1,2-DICHLOROBENZENE	ug/L	1	52	50	3.9 %	Good	None
8260B	1,3-DICHLOROBENZENE	ug/L	1	3.0	3.0	0.0 %	Good	None
8260B	1,4-DICHLOROBENZENE	ug/L	1	41	38	7.6 %	Good	None
8260B	BENZENE	ug/L	1	4.0	4.0	0.0 %	Good	None
8260B	CHLOROBENZENE	ug/L	10	720	760	5.4 %	Good	None
8260B	CIS-1,2-DICHLOROETHYLENE	ug/L	1	5.0	5.0	0.0 %	Good	None
8260B	CYCLOHEXANE	ug/L	1	2.0	2.0	0.0 %	Good	None
8260B	ETHYLBENZENE	ug/L	1	0.80	0.80	0.0 %	Good	None
8260B	ISOPROPYLBENZENE	ug/L	1	2.0	2.0	0.0 %	Good	None
8260B	METHYLCYCLOHEXANE	ug/L	1	0.60	0.60	0.0 %	Good	None
8260B	SEC-BUTYLBENZENE	ug/L	1	1.0	1.0 J	0.0 %	Good	None
8260B	TERT-BUTYLBENZENE	ug/L	1	0.70 J	0.6 J	15 %	Good	None
8260B	TETRACHLOROETHYLENE	ug/L	1	1.0	2.0	67 %	Poor	J
8260B	TRANS-1,2-DICHLOROETHENE	ug/L	1	0.80	0.90	12 %	Good	None
8260B	TRICHLOROETHYLENE	ug/L	1	13	14	7.4 %	Good	None
8260B	VINYL CHLORIDE	ug/L	2	4.0	4.0	0.0 %	Good	None
8260B	VINYL CHLORIDE	ug/L	20	4.0	4.0	0.0 %	Good	None

Key:
A = Analyte
NC = Not Calculated
ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference
T = Tentatively Identified Compound

G

Field Adjustment Forms

Field Adjustment Form No. 1
Former Griffiss AFB

To: Mr. Douglas M. Pocze USEPA - Region 2 Federal Facilities Section 290 Broadway New York, NY 10007 Fax: (212) 637-3256 Office: (212 637-4432	Ms. Heather Bishop NYSDEC Division of Environmental Remediation Remedial Bureau A 625 Broadway, 11th floor Albany, NY 12233-7015 Fax: (518) 402-9022 Office: (518) 402-9692
From: Ms. Catherine Jerrard Air Force Real Property Agency 153 Brooks Road Rome, NY 13441-4105 Fax: (315) 356-0816 Office: (315) 356-0810	**Date:** Wednesday, July 28, 2010 **Time:** 1030
Site: Former GAFB - AOC9	**Work Plan Section:** 3.3.2 **Page:** 3-15

Need for Field Adjustment

Attempt to sample G009-MW01 directly into 40ml vials, but pressure through tube is to great; would cause acid (HCl) in pre-preserved vial to be lost. Amy Darpinian in field with team and gives verbal permission to sample into clean 4oz. jar and then pour from that into vials. This method was approved for rest of sampling on 7/28/10. This included wells; G009-MW01, AOC9-MW06, G009-MW02, AOC9-MW17, and AOC9-MW15.

A flow control valve will be purchased tonight so that remaining wells can be sampled directly into 40ml vials.

Prepared by:	Organization	Date:
Megan Horanburg	Ecology and Environment Engineering, P.C.	7/28/10
Approved by:	**Org:**	**Date:**
	USACE	

Figure 3-6 Field Adjustment Form

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Field Adjustment Form No. 2
Former Griffiss AFB

To:	Mr. Douglas M. Pocze USEPA - Region 2 Federal Facilities Section 290 Broadway New York, NY 10007 Fax: (212) 637-3256 Office: (212 637-4432	Ms. Heather Bishop NYSDEC Division of Environmental Remediation Remedial Bureau A 625 Broadway, 11th floor Albany, NY 12233-7015 Fax: (518) 402-9022 Office: (518) 402-9692	
From:	Ms. Catherine Jerrard Air Force Real Property Agency 153 Brooks Road Rome, NY 13441-4105 Fax: (315) 356-0816 Office: (315) 356-0810	**Date:** Wednesday, July 28, 2010 **Time:** 1158	
Site: Former GAFB - AOC9		**Work Plan Section:** 3.3.3	**Page:** 3-16

Need for Field Adjustment

According to Section 3.3.3 in the workplan the DO probe is calibrated with water-saturated air, and calibration is checked with a zero DO solution.

Since the DO calibration was completed by the rental company prior to shipment, field calibration must be conducted in ambient air and must fall within a specific range. All DO calibrations fell within the specified range for field calibrations.

Instructions per Ashtead Technology Rentals via phone conversation with field team member Larry Roedl.

Prepared by:	Organization	Date:
MHoranburg/MHoranburg	Ecology and Environment Engineering, P.C.	7/28/10
Approved by:	**Org:**	**Date:**
	USACE	

Figure 3-6 Field Adjustment Form

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