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Fort Stewart, Georgia

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SWMU 26
Corrective Action Plan Addendum

Former 724th Tanker Purging Station

Fort Stewart, Georgia
EPA ID # GA9 210 020 872

May 5, 2009
Revised January 4, 2010

ARCADIS
Infrastructure, environment, buildings

ARCADIS

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Corrective Action Plan
Addendum

Former 724th Tanker Purging Station

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Revised January 4, 2010

GEORGIA REGISTERED PROFESSIONAL ENGINEERING CERTIFICATION

I certify that I am a qualified professional engineer who has received a baccalaureate or post-graduate degree in engineering and have sufficient training and experience in environmental engineering and related fields, as demonstrated by state registration and completion of accredited university courses, to enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.

Name: Charles A. Bertz, P.E.

License Number: 029498

Expiration Date: December 31, 2010

Charles A. Bertz, P.E.

01 · 04 · 2010

Date

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List of Acronyms

ARCADIS	ARCADIS U.S., Inc.
AST	Above Ground Storage Tank
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAP	Corrective Action Plan
COCs	Constituents of Concern
CSSP	Comprehensive Site Safety Plan
DOT	Department of Transportation
DPT	Direct Push Technology
ft	feet
ft bls	feet below land surface
GAEPD	Georgia Environmental Protection Division
JP-4	#4 Jet Propulsion Fuel
MCLs	USEPA Maximum Contaminant Levels
µg/kg	Micrograms per kilogram
µg/L	Micrograms per Liter
MOGAS	Motor Gasoline
NELAP	National Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
OVM	Organic Vapor Monitor
PBC	Performance Based Contract
PID	Photoionization Detector
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation

SWMU	Solid Waste Management Unit
TOC	Total Organic Carbon
TPS	Former 724th Tanker Purging Station
USAEC	United States Army Environmental Command
USCS	United Soil Classification System
USEPA	United States Environmental Protection Agency

1. Introduction

ARCADIS U.S. Inc. (ARCADIS) has been retained by the United States Army Environmental Command (USAEC) to perform investigation and remediation activities at Fort Stewart in accordance with the requirements of the Performance Based Contract (PBC) number W91ZLK-05-D-0015. Fort Stewart, originally known as Camp Stewart, was established in June 1940 as an anti-aircraft artillery training center. The current primary mission for Fort Stewart is a training and maneuver area, providing tank, field artillery, helicopter gunnery, and small arms training for regular Army and National Guard units. The 24th Infantry Division, which was reflagged as the 3rd Infantry Division in May 1996, was permanently stationed at Fort Stewart in 1975.

Fort Stewart is located in portions of Liberty, Bryan, Long, Tattnall, and Evans Counties, Georgia, approximately 40 miles west-southwest of Savannah, Georgia (Figure 1-1). The cantonment, or garrison area, is located within the Liberty County portion on the southern boundary of the reservation. Hinesville, Georgia, is the nearest city to the garrison area and is located immediately outside of the reservation boundary.

This Corrective Action Plan (CAP) Addendum has been generated to provide a progress summary and to propose amendments to the current approved CAP for the Former 724th Tanker Purging Station (TPS), Solid Waste Management Unit (SWMU) 26 (SAIC 2000). The remediation activities at SWMU 26 are performed in accordance with the Fort Stewart Hazardous Waste Facility Permit issued by the Georgia Environmental Protection Division (GAEPD) [Georgia Environmental Division Permit No. HW-045 (S), August 2007].

1.1 Site Location and History

The Former 724th TPS was an area where tanker trailers that carried diesel, jet propulsion (JP-4) fuel, and motor gasoline (MOGAS) were routinely cleaned. The Former 724th TPS is located in the western cantonment area in the 1800 block of McFarland Avenue, at the western end of the fuel truck parking area. The Former 724th TPS occupied an area approximately 30 feet by 50 feet (Rust 1996) located between the chain-link fence at the parking area (western end) and a shallow ditch approximately 25 feet to the west (Figure 1-2). The former site facilities included an underground waste oil tank and oil/water separator, an aboveground storage tank (AST) that received water after oil/water phase separation, and an underground pump with surface access and pumping controls for pumping water into the AST.

The Former 724th TPS was constructed in 1982 and taken out of service in March 1996. During August 1996 the purging station was dismantled, the underground facilities were removed, and approximately 525 cubic yards (yd^3) of contaminated soil were excavated and replaced with clean backfill. Soil was excavated to the water table at the former facility (approximate depth of 3 to 10 feet) and to a depth of 6 inches in the adjacent ditch. All associated equipment, above ground and below ground, was removed from the site during removal activities.

1.2 Site Geology

The site geology at SWMU 26 is characterized by an interbedded series of sands and clay, with the sandy units ranging from clayey sand to sand with a low percentage (<10 percent) of silt and clay. The clay units, in general, are comprised of medium to high plasticity clay with a low percentage of sand sized grains. The lithologies described at SWMU 26 are consistent with those anticipated for this region of the Coastal Plain. A cross section was completed, which originates along the north eastern edge of the excavation and trends to the southwest near monitor well MW-49/50. The location of cross section A-A' is illustrated on Figure 1-3. The cross section is illustrated in Figure 1-4.

The cross section was constructed using available boring logs presented in the historical CAP Progress Reports. Boring logs were present for monitor wells, soil borings, temporary piezometers, and injection wells that have been installed across the site. In general, lithologies were used from the boring logs where the lithologies were described from soil cores collected during drilling. In a few instances, boring logs completed from describing hollow stem auger cuttings had to be used for lithologies, as was the case along the western portion of the section at monitor wells MW-49, MW-50 and MW-54 below the base of MW-19. The areas where auger cuttings were used were correlated at a lower confidence then lithologies collected by soil cores. These lithologies and contacts between the lithologies may need to be verified if deemed necessary.

1.3 Report Organization

This report contains five sections, including the introduction:

- Section 1: Introduction – summarizes the site location, provides a brief history and the site geology.

- Section 2: Previous Investigations and Corrective Actions – provides a brief summary of the previous investigations and corrective actions conducted at the site.
- Section 3: Semi-Annual Monitoring Activities – summarizes the December 2008 monitoring results.
- Section 4: Additional Corrective Action Activities – summarizes the proposed additions to the approved correct action for SWMU 26.
- Section 5: References – lists the references utilized to prepare this Report.

2. Previous Investigations and Corrective Actions

A detailed summary of previous investigations and corrective actions are provided in the Phase II Resource Conservation Recovery Act (RCRA) Facility Investigation (RFI) (Science Application International Corporation [SAIC] 1998), the CAP (SAIC 2000), and the Thirteenth CAP Progress Report (SAIC 2009). A brief summary is provided below.

2.1 RCRA Facility Assessment

A RCRA Facility Assessment (RFA) was submitted to the GAEPD in June 1990 that listed 24 SWMUs, including the then active 724th TPS, as requiring further investigation (Geraghty and Miller 1992). The TPS was located in the western cantonment area, which is in the southern portion of Fort Stewart.

2.2 Phase I RFI

A Phase I RFI was initiated in 1993 in response to the RFA submittal. The objective of the Phase I RFI was to determine if releases to the environment had occurred from any of the 24 identified SWMUs, including potential contamination due to fuel leakage at the Former 724th TPS site.

During a site reconnaissance performed on November 8, 1993, as part of the Phase I RFI, on-site workers stated that a hydrocarbon layer approximately 2.5 feet thick was present in a temporary monitor well located at the site. Black-stained soils and vegetation were present near the shallow ditch located on the west side of the site. A yellow-to-orange floating layer (apparent oil/water emulsion layer) was observed within both the shallow ditch and the pump control manhole. A petroleum hydrocarbon odor was also noted and appeared to be originating on site (Rust 1996).

A tank tightness test was completed on the underground waste oil tank at the Former 724th TPS. This tank, identified as tank 4A at facility number 1840 (facility identification number 9-089065), failed the tightness test (Tracer Research Corporation 1994). The Phase I RFI was completed in April 1996. Analytical results from soil sampling conducted during the Phase I RFI at the Former 724th TPS indicated fuel product and solvent contamination in the soil (SAIC 1998). During August 1996, the TPS was dismantled, the underground facilities were removed, and approximately 525 yds^3 of contaminated soil were excavated and replaced with clean backfill (Figure 2-1). The site was then reseeded (SAIC 1998).

2.3 Phase II RFI

Between 1997 and 1998, a Phase II RFI was conducted to delineate the horizontal and vertical extent of contamination and to determine if corrective action was necessary. During the investigation, free petroleum product was discovered at well MW-2 in the center of the former facility. Free product recovery was initiated to remove the product. Benzene, ethylbenzene, toluene, and xylene (BTEX) compounds were detected above the United States Environmental Protection Agency (USEPA) maximum contaminant levels (MCLs) in the shallow aquifer near the source. Elevated methane, alkalinity, and sulfate concentrations detected in downgradient wells suggested natural attenuation was occurring (SAIC 1998).

2.4 PHOSter® II Enhanced Bioremediation and Source Area Excavation

Due to the presence of free product and BTEX detections in groundwater above MCLs, a CAP was developed for a PHOSter® II enhanced bioremediation system. During the Phase II RFI (SAIC 1998), remedial levels were established for BTEX in groundwater and soil. The remedial levels for groundwater are based on MCLs. The groundwater remedial level for benzene is 5 ug/L, toluene is 1,000 ug/L, ethylbenzene is 700 ug/L, and xylenes are 10,000 ug/L. The soil remedial levels are based on leaching from soil to groundwater at levels exceeding MCLs. The soil remedial level for benzene is 20 ug/kg, toluene is 4,200 ug/kg, ethylbenzene is 3,100 ug/kg, and xylenes are 31,700 ug/kg. The PHOSter® II enhanced bioremediation system began operation in February 2000, with six injection wells and 3 soil gas injection wells. Six main injector lines ran from the PHOSter® II trailer to the injector locations. The initial setup consisted of one line running to each of the three soil gas injectors and the three other lines being split so that each of the remaining three lines supplied two groundwater injectors. Periodic groundwater monitoring was conducted to monitor the performance of the PHOSter® II enhanced bioremediation system. The PHOSter® II enhanced bioremediation system was expanded in March 2000 with six additional injection wells. Injections were cycled at each location for 2 hours on and 6 hours off (SAIC 2009).

Despite the PHOSter® injections, the lateral area of the groundwater plume continued to increase. Based on groundwater sample results, it was determined that a potential source area still existed inside the motor pool, where the CAP indicated the highest benzene concentration in soil existed. This area was not addressed in 1996 when the TPS was dismantled and the observed impacted soil excavated. Consequently, a second soil excavation was conducted in January 2001 to remove the impacted soil inside the motor pool area (Figure 2-1). During the excavation, a pipe that contained

product was discovered near MW-02. This product had been seeping into the soil, which revealed an area of product-saturated soil approximately 4 feet by 8 feet. Closure records for the Former 724th facilities did not indicate that the pipe was left in the ground and the sampling conducted during the RFI did not encounter this small source area. The excavation area was approximately 90 ft by 70 ft to a depth of approximately 7 to 9 ft bls. The pipe and approximately 2,700 yd^3 of impacted soil were removed from the site. Post-excavation confirmatory sampling indicated contamination present above remedial levels remained at the bottom of the excavation and along the northwest wall of the excavation (SAIC 2009).

One injection well and 3 soil gas injection wells along with the soil gas injection lines were destroyed during excavation activities. Four additional injection wells were installed in March 2001, to replace the destroyed injectors and to treat the contaminated area. Groundwater samples collected during the installation of the new wells indicated the PHOSter® system needed to be expanded to treat the contamination southwest of the original source area. Five additional injection wells were installed in April 2001. Injections continued until January 2002 when the PHOSter® II trailer was taken out of service (SAIC 2009). Periodic performance monitoring events are conducted to monitor BTEX concentrations in groundwater. Thirty six monitoring events have been conducted since the initiation of the PHOSter® II enhanced bioremediation system in February 2000. Currently, performance monitoring events are conducted on a semi-annual basis. Sample results from the latest sampling event conducted in December 2008 are summarized in Section 3. Historical performance monitoring events are summarized in the Thirteenth CAP Progress Report (SAIC 2009).

The PHOSter® injections were discontinued in January 2002. Although the groundwater concentrations were decreasing, there was concern that the impacts remaining in the clay layer at the bottom of the 2001 excavation may potentially be a continuing source to groundwater contamination. Additional soil investigations were conducted to evaluate the impacts remaining within the clay at the source area (the bottom of the excavation).

2.5 Soil Investigation

Temporary piezometers TP-36 through TP-40 were installed in February 2002 just above the clay (approximately 7 to 10 ft bls) in an attempt to determine if the clay is a continuing source of contamination to the groundwater (Figure 2-2). A soil sample was collected from just above the clay layer in each of the temporary piezometers. The

sample results are summarized in Table 2-1. Benzene was detected in all five of the temporary piezometers at concentrations ranging from 58.8 to 9,400 micrograms per kilogram (µg/kg). The concentrations in all five of the temporary piezometers exceeded the benzene remedial level of 20 µg/kg. Toluene was detected in all five of the temporary piezometers, but none of the concentrations exceeded the toluene remedial level of 4,200 µg/kg. Ethylbenzene was detected in all five of the temporary piezometers at concentrations ranging from 50.0 to 39,200 µg/kg. Concentrations in TP-36, TP-38, and TP-40 exceeded the ethylbenzene remedial level of 3,100 µg/kg. Total xylenes were detected in all five of the temporary piezometers at concentrations ranging from 22.4 to 66,300 µg/kg. Concentrations in TP-36 exceeded the total xylenes remedial level of 31,700 µg/kg.

After removal of the PHOSter® II injection system, the groundwater concentrations in the source area continued to increase along with the concentrations in the groundwater along the leading edge of the downgradient plume. Additional soil investigation was conducted to define the remaining impacts in the clay layer.

In November 2003, sixty-five soil samples were collected from 30 soil borings (SB-01 through SB-30). The sample locations are shown on Figure 2-2. The soil borings were installed to further delineate this area of contamination. The soil sample results indicated exceedances of the benzene, ethylbenzene and xylenes remedial levels of 20 µg/L, 3,100, and 31,700 ug/L respectively (Table 2-1). All of the samples were below the toluene remedial action level of 4,200 µg/L (SAIC 2009).

In November 2004, two soil borings were installed to analyze the total organic carbon (TOC) content in the soil (SB-31 and SB-32). This information was used to gain a better understanding of the site conditions. Additional information on these borings is included in the Thirteenth CAP Progress Report (SAIC 2009).

In September 2005, 15 additional soil borings were installed to the south and southwest of the previous excavation limits to further delineate this area of contamination. Thirty soil samples were collected from the 15 soil borings (SB-33 through SB-47) installed at the TPS site (Figure 2-2). Benzene was detected at concentrations exceeding its remedial level of 20 µg/kg. Toluene, ethylbenzene, and total xylenes concentrations detected in the samples collected at the site did not exceed their remedial levels of 4,200, 3,100, and 31,700 µg/kg, respectively (SAIC 2009). The sample results are summarized in Table 2-1.

Groundwater analytical results from MW-27 showed a significant increase in the benzene concentration between September 2005 (11 µg/L) and October 2006 (654 µg/L). The area to the east of the former 724th TPS was investigated to identify the source of the increase in the benzene concentration. A total of 20 surface and subsurface soil samples from 10 locations were collected in May 2007, at the former 724th TPS. All of the sample results were below the established soil remedial levels for the site (SAIC 2009).

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	TP-36	TP-37	TP-38	TP-39	TP-40	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03
	Depth (ft bgs)	6.5 - 7.0	7.0 - 7.5	10.0 - 10.5	7.5 - 8.0	6.5 - 7.0	7.0 - 9.0	8.0 - 10.0	9.0 - 11.0	5.0 - 7.0	6.0 - 8.0	7.0 - 9.0	9.5
	Sample Date	2/19/2002	2/19/2002	2/19/2002	2/19/2002	2/18/2002	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/7/2003
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	9400	58.8	1020	239	1720	3930	1670	589	194	522 J	243	160
Toluene	4200	µg/kg	1840	1.2	215	2.7	96.8	488	41.9 J	2.1	37.7	83.6 J	33.6 J	1.2
Ethylbenzene	3100	µg/kg	39200	194	3930	50	4250	9360	3910	91.7 J	113	3060 J	599	45.9
Xylenes (total)	31700	µg/kg	66300	262	15100	22.4	3780	32600	5740	144	195	3510 J	625	24.5

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-03	SB-03	SB-04	SB-04	SB-04	SB-05	SB-05	SB-05	SB-06	SB-06	SB-07	SB-07
	Depth (ft bgs)	10.5	11.5	9.5	10.5	11.5	8.5	9.5	10.5	6.0 - 8.0	12.0 - 14.0	10.0 - 12.0	16.0 - 18.0
	Sample Date	11/7/2003	11/7/2003	11/5/2003	11/5/2003	11/5/2003	11/9/2003	11/9/2003	11/9/2003	11/5/2003	11/5/2003	11/5/2003	11/5/2003
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	12.4	< 1.1	< 0.97	< 0.96	< 1	35	< 0.89 R	< 0.98	< 0.99	< 1.1	< 0.98	< 1.1
Toluene	4200	µg/kg	0.96	< 1.1	< 0.97	< 0.96	< 1	< 0.94	1 J	< 0.98	< 0.99	< 1.1	< 0.98	< 1.1
Ethylbenzene	3100	µg/kg	4.6	< 1.1	< 0.97	< 0.96	< 1	24.2	0.74 J	< 0.98	< 0.99	< 1.1	< 0.98	< 1.1
Xylenes (total)	31700	µg/kg	0.78 J	< 1.1	< 0.97	< 0.96	< 1	13	1 J	< 0.98	< 0.99	< 1.1	< 0.98	< 1.1

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-08	SB-08	SB-09	SB-09	SB-10	SB-10	SB-11	SB-11	SB-12	SB-12	SB-13	SB-13
	Depth (ft bgs)	4.0 - 6.0	10.0 - 12.0	6.0 - 8.0	14.0 - 16.0	6.0 - 8.0	10.0 - 12.0	4.0 - 6.0	14.0 - 16.0	12.0 - 14.0	16.0 - 18.0	4.0 - 6.0	16.0 - 18.0
	Sample Date	11/5/2003	11/5/2003	11/5/2003	11/5/2003	11/6/2003	11/6/2003	11/6/2003	11/6/2003	11/6/2003	11/6/2003	11/6/2003	11/6/2003
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	680	< 1.1	< 1	< 1	< 1	< 1	< 1.1	< 1.1	35.1	9.4	< 1.1	97.6
Toluene	4200	µg/kg	102	< 1.1	< 1	< 1	< 1	< 1	< 1.1	< 1.1	< 1.1	< 1.2	12.7	2
Ethylbenzene	3100	µg/kg	3400	< 1.1	< 1	< 1	< 1	< 1	< 1.1	< 1.1	3.3	1 J	< 1.1	24
Xylenes (total)	31700	µg/kg	13000	< 1.1	< 1	< 1	< 1	< 1	< 1.1	< 1.1	6.3	0.9 J	< 1.1	17.6

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-14	SB-14	SB-15	SB-15	SB-16	SB-16	SB-17	SB-17	SB-18	SB-18	SB-19	SB-19
	Depth (ft bgs)	4.0 - 6.0	12.0 - 14.0	4.0 - 6.0	12.0 - 14.0	2.0 - 4.0	10.0 - 12.0	4.0 - 6.0	12.0 - 14.0	6.0 - 8.0	16.0 - 18.0	6.0 - 8.0	12.0 - 14.0
	Sample Date	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/7/2003	11/9/2003	11/9/2003
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	< 0.93	1 J	< 0.98	9.2	< 1	< 0.98	< 1.1	5.4	< 0.94	22.1	1480	177
Toluene	4200	µg/kg	< 0.93	< 1.1	< 0.98	< 1.1	< 1	< 0.98	< 1.1	< 1	< 0.94	0.89 J	41.1 J	63.2 J
Ethylbenzene	3100	µg/kg	< 0.93	< 1.1	< 0.98	3.2	< 1	< 0.98	< 1.1	1.4	< 0.94	27.6	3700	919
Xylenes (total)	31700	µg/kg	< 0.93	< 1.1	< 0.98	10.8	< 1	< 0.98	< 1.1	0.97 J	< 0.94	20.2	6120	3140

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-20	SB-20	SB-21	SB-21	SB-22	SB-22	SB-23	SB-23	SB-24	SB-24	SB-25	SB-25
	Depth (ft bgs)	6.0 - 8.0	12.0 - 14.0	8.0 - 10.0	12.0 - 14.0	4.0 - 6.0	6.0 - 8.0	4.0 - 6.0	10.0 - 12.0	4.0 - 6.0	10.0 - 12.0	10.0 - 12.0	14.0 - 16.0
	Sample Date	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/9/2003	11/10/2003	11/10/2003	11/10/2003	11/10/2003	11/10/2003	11/10/2003
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	< 1.2	< 0.98	913	0.64 J	3.7	< 1	< 1	< 1.1	< 1	< 1.1	89.8	19.4
Toluene	4200	µg/kg	< 1.2	< 0.98	< 92.8	< 1.1	1.2	< 1	< 1	< 1.1	< 1	< 1.1	20.3	3.3
Ethylbenzene	3100	µg/kg	< 1.2	< 0.98	3410	1.3	1.1	< 1	< 1	< 1.1	< 1	< 1.1	26.9	5.1
Xylenes (total)	31700	µg/kg	< 1.2	< 0.98	2940	2.6	73.2	1.4	< 1	< 1.1	< 1	< 1.1	82.6	16.3

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

		Location ID	SB-26	SB-26	SB-27	SB-27	SB-28	SB-28	SB-29	SB-29	SB-30	SB-30	SB-33	SB-33
		Depth (ft bgs)	4.0 - 6.0	18.0 - 20.0	6.0 - 8.0	16.0 - 18.0	2.0 - 4.0	20.0 - 22.0	4.0 - 6.0	16.0 - 18.0	8.0 - 10.0	16.0 - 18.0	19.0 - 20.0	20
		Sample Date	11/10/2003	11/10/2003	11/10/2003	11/10/2003	11/4/2003	11/4/2003	11/11/2003	11/11/2003	11/11/2003	11/11/2003	9/14/2005	9/14/2005
Chemical Name	Remedial Level[1]	Unit												
Benzene	20	µg/kg	< 1	8.3	< 0.92	394	< 1.1	< 1.2	< 1	2.2	< 0.91	< 1.1	229 J	83.1 J
Toluene	4200	µg/kg	< 1	< 1	< 0.92	4.7 J	< 1.1	< 1.2	< 1	< 1	< 0.91	< 1.1	2.6	2.2
Ethylbenzene	3100	µg/kg	< 1	0.76 J	< 0.92	35.6 J	< 1.1	< 1.2	< 1	0.59 J	< 0.91	< 1.1	10.2	18.5
Xylenes (total)	31700	µg/kg	< 1	0.96 J	< 0.92	70.5 J	< 1.1	< 1.2	< 1	< 1	< 0.91	< 1.1	23.4	39.4

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-34	SB-34	SB-35	SB-35	SB-36	SB-36	SB-37	SB-37	SB-38	SB-38	SB-39	SB-39
	Depth (ft bgs)	16.0 - 17.0	17	14.0 - 15.0	16	19.0 - 20.0	20	19	20	19	20	18.0 - 19.0	20
	Sample Date	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/15/2005	9/15/2005	9/15/2005	9/15/2005	9/15/2005	9/15/2005	9/15/2005	9/15/2005
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	< 1	4.7	< 1	< 1	< 1	12.1	< 1	17.8	< 1	< 1	< 1	< 1
Toluene	4200	µg/kg	0.41 J	0.8 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	3100	µg/kg	< 1	0.63 J	< 1	< 1	< 1	0.6 J	< 1	0.43 J	< 1	< 1	< 1	< 1
Xylenes (total)	31700	µg/kg	< 1	1.2	< 1	< 1	< 1	< 1	< 1	1 J	< 1	< 1	< 1	< 1

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-40	SB-40	SB-41	SB-41	SB-42	SB-42	SB-43	SB-43	SB-44	SB-44	SB-45	SB-45
	Depth (ft bgs)	15	20	15	20	12.0 - 13.0	16	19	20	15.0 - 16.0	16	4.0 - 6.0	10.0 - 12.0
	Sample Date	9/15/2005	9/15/2005	9/15/2005	9/15/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/19/2005	9/19/2005
Chemical Name	Remedial Level[1]	Unit											
Benzene	20	µg/kg	< 1	< 1	< 1	< 1	40.2	< 1	< 1	< 1	2	< 1.1	< 1	< 1
Toluene	4200	µg/kg	< 1	< 1	< 1	< 1	< 1.0	< 1	< 1	< 1	0.43 J	< 1.1	< 1	< 1
Ethylbenzene	3100	µg/kg	< 1	< 1	< 1	< 1	36.6	< 1	< 1	< 1	< 1	< 1.1	< 1	< 1
Xylenes (total)	31700	µg/kg	< 1	< 1	< 1	< 1	32.8	< 1	< 1	< 1	< 1	< 1.1	< 1	< 1

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

Table 2-1
Soil Investigation Sample Results
SWMU 26
Fort Stewart, Georgia

	Location ID	SB-46	SB-46	SB-47	SB-47
	Depth (ft bgs)	4.0 - 6.0	8.0 - 10.0	6.0 - 8.0	14.0 - 16.0
	Sample Date	9/19/2005	9/19/2005	9/19/2005	9/19/2005
Chemical Name	Remedial Level[1]	Unit			
Benzene	20	µg/kg	< 1	< 1	< 1	< 1
Toluene	4200	µg/kg	< 1	< 1	< 1	< 1
Ethylbenzene	3100	µg/kg	< 1	< 1	< 1	< 1
Xylenes (total)	31700	µg/kg	< 1	< 1	< 1	< 1

Notes:

[1] Remedial levels for soil were developed during the Phase II RFI and are presented in Table 3-1 of the Corrective Action Plan (SAIC 2000).

- Indicates the sample result exceeds the established remedial level for soil.

ft bgs - feet below ground surface

µg/kg - micrograms per kilogram

J - The sample result is estimated.

R - The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the parameter can not be verified.

3. Semi-Annual Monitoring Activities

In accordance with the approved CAP (SAIC 2000), a semi-annual monitoring event was conducted in December 2008. Semi-annual monitoring activities included collection of groundwater level measurements and groundwater samples for laboratory analysis. A summary of the monitoring results for December 2008 are provided below. Results of historical monitoring events are provided in the Thirteenth CAP Progress Report (SAIC 2009).

3.1 Groundwater Level Monitoring

Prior to initiating the groundwater sampling event, site-wide groundwater level measurements were collected from existing monitor wells. The hydrology at SWMU 26 has been characterized by groundwater monitor wells installed across the site at two different intervals. The shallow monitor wells range from a total depth of 12 to 16 feet below ground surface, while the deep monitor wells have total depths ranging from 21 to 41 feet below ground surface. Groundwater levels were gauged from site monitor wells on December 12, 2008. Table 3-1 presents a summary of the groundwater level measurements. Data collected from this gauging event was used to construct potentiometric maps for both the shallow and deeper intervals of the surficial aquifer. The potentiometric map for the shallow wells is included as Figure 3-1 and the potentiometric map for the deep wells is included as Figure 3-2.

The potentiometric map for the shallow wells is, in general, consistent with the previously reported groundwater flow conditions. Groundwater flow in the shallow portion of the surficial aquifer is to the southwest with an average gradient across the site of 0.0054 ft/ft. The potentiometric map indicates a groundwater recharge area within the former excavation area. The low groundwater level at MW-8 is consistent with previous groundwater gauging events, but is not understood at this time. During the construction of the potentiometric map, the groundwater elevation at MW-24 was omitted from contouring. The measurement was not consistent with previously reported data and what is known about that portion of the site.

The potentiometric map for the deeper wells in the surficial aquifer indicates a groundwater recharge area to the west of the site near monitor well MW-55 and a groundwater low at MW-38. Based on the heterogeneous nature of the sand and semi-confining units at the site, these features are likely caused because the wells are screened in different lithologies within the surficial aquifer. The characteristics noted on the potentiometric map for the deeper interval are consistent with previously

reported groundwater elevations. During the construction of the potentiometric map for the deeper interval of the surficial aquifer, one inconsistency was noted from the previously reported tables. The top of casing elevation previously reported for MW-53 was actually the ground surface elevation. The correct elevation was used and the data closely matches the groundwater elevations from the surrounding wells.

3.2 Groundwater Sampling and Analysis

In December 2008, groundwater samples were collected from select monitor wells at SWMU 26. Groundwater sampling was performed using low-flow, or micropurge, procedures in accordance with Groundwater Sampling Operating Procedure, Number SESDPROC-301-R1 (USEPA 2007). Following the sampling event, the samples were transported via courier in properly cooled and sealed containers to Shealy Laboratory in West Columbia, South Carolina (National Environmental Laboratory Accreditation Conference [NELAC] No. E87653) and analyzed for BTEX by USEPA Method 8260B. Laboratory analytical data packages are included in Appendix A for reference. A summary of the analytical data is included as Table 3-2.

Remedial action levels for BTEX in groundwater were established in the Phase II RFI (SAIC 1998). The remedial level for benzene is 5 micrograms per liter (ug/L), toluene is 1,000 ug/L, ethylbenzene is 700 ug/L, and xylene is 10,000 ug/L. As shown in Table 3-2, the sample results in select monitor wells indicate concentrations above the site remedial levels for benzene. Sample results for toluene, ethylbenzene, and xylene were below the remedial levels. Figure 3-3 shows the benzene concentrations in shallow and deep groundwater. Appendix B includes trend plots for benzene. The trend plots indicate the benzene concentrations are continuing to decrease following the PHOSter® II injections. Shallow monitor wells MW-6, MW-25, and MW-27 and deep monitor wells MW-41, MW-42, MW-50, MW-54, and MW-55 exceeded the remedial level for benzene. With the exception of MW-25 and MW-50, the concentrations in each of these wells decreased from the September 2008 monitoring event. The concentration increased slightly from 59.5 µg/L in September 2008 to 67 µg/L in December 2008 in monitor well MW-25 and from 32.5 µg/L in September 2008 to 62 µg/L in December 2008 in monitor well MW-50.

3.3 Data Validation

The analytical data for groundwater samples collected at the Site were validated in accordance with the National Functional Guidelines. The complete results of the data quality evaluation are provided in Appendix C. The purpose of the data quality

evaluation was to determine the reliability of the chemical analyses and the accuracy and precision of information acquired from the laboratory. Data quality was assessed through the review and evaluation of field sampling activities, quality control samples, and data associated with the chemical analytical results. Overall, the analytical data associated with the Site are considered quantitative and usable for the intended purpose.

3.4 Investigation Derived Waste

The waste generated from activities related to groundwater monitoring consisted of decontamination fluids, purge water, personal protective equipment (PPE), and general refuse (i.e. paper, plastic, etc.). Decontamination fluids and purge water were segregated in 55-gallon drums. The drums were characterized and transported off-site for disposal. Waste manifests are included in Appendix D. All spent PPE was screened with an Organic Vapor Monitor (OVM), decontaminated if necessary, and placed with the general refuse in dumpsters at Fort Stewart.

Table 3-1
December 2008 Groundwater Level Measurements
SWMU 26
Fort Stewart, Georgia

Well Number	Date Measured	Top of Casing Elevation (ft amsl)	Depth of Screened Interval (ft bgs)	Water Depth (ft btoc)	Water Elevation (ft amsl)
MW-01	12/18/08	67.39	4.0 - 14.0	3.91	63.48
MW-03	12/18/08	67.86	4.0 - 14.0	4.50	63.36
MW-05	12/18/08	63.10	5.0 - 15.0	NM	NA
MW-06	12/18/08	67.96	5.5 - 15.5	4.61	63.35
MW-07	12/18/08	67.43	5.25 - 15.25	4.03	63.40
MW-08	12/18/08	67.89	6.0 - 16.0	5.34	62.55
MW-09	12/18/08	67.67	6.0 - 16.0	4.51	63.16
MW-10	12/18/08	67.71	31.0 - 41.0	5.33	62.38
MW-11	12/18/08	68.62	4.13 - 16.95	5.56	63.06
MW-12	12/18/08	67.60	2.92 - 12.64	4.35	63.25
MW-13	12/18/08	67.36	3.43 - 12.88	4.24	63.12
MW-14	12/18/08	67.73	3.48 - 12.91	4.52	63.21
MW-15	12/18/08	65.90	5.0 - 15.0	2.45	63.45
MW-16	12/18/08	67.91	6.0 - 16.0	5.14	62.77
MW-17	12/18/08	67.34	6.0 - 16.0	4.65	62.69
MW-18	12/18/08	67.84	4.9 - 14.9	5.38	62.46
MW-19	12/18/08	67.57	6.3 - 16.3	5.04	62.53
MW-20	12/18/08	67.63	6.0 - 16.0	4.61	63.02
MW-21	12/18/08	67.84	5.1 - 15.1	4.78	63.06
MW-22	12/18/08	67.11	4.0 - 14.0	3.64	63.47
MW-23	12/18/08	67.65	13.0 - 23.0	5.12	62.53
MW-24	12/18/08	68.43	4.0 - 14.0	6.04	62.39
MW-25	12/18/08	68.27	3.4 - 13.4	4.83	63.44
MW-26	12/18/08	67.81	3.6 - 13.6	4.44	63.37
MW-27	12/18/08	70.05	3.55 - 13.55	6.48	63.57
MW-28	12/18/08	71.09	5.0 - 15.0	7.56	63.53
MW-29	12/18/08	67.82	3.3 - 13.3	4.20	63.62
MW-30	12/18/08	68.17	7.0 - 17.0	4.92	63.25
MW-31	12/18/08	67.66	4.0 - 14.0	5.05	62.61
MW-32	12/18/08	67.57	3.6 - 13.6	5.32	62.25
MW-33	12/18/08	66.00	3.6 - 13.6	3.58	62.42
MW-34	12/18/08	68.41	3.6 - 13.6	5.59	62.82
MW-35	12/18/08	67.78	23.0 - 28.0	5.71	62.07
MW-36	12/18/08	69.38	20.6 - 25.6	7.70	61.68
MW-37	12/18/08	66.88	19.0 - 24.0	4.41	62.47
MW-38	12/18/08	66.17	24.1 - 29.1	4.60	61.57
MW-39	12/18/08	65.23	20.1 - 25.1	3.79	61.44
MW-40	12/18/08	65.21	2.3 - 12.3	3.63	61.58
MW-41	12/18/08	67.40	2.0 - 12.0	4.74	62.66
MW-42	12/18/08	67.30	17.0 - 22.0	5.00	62.30
MW-43	12/18/08	66.49	17.7 - 22.7	4.05	62.44
MW-44	12/18/08	67.96	16.7 - 21.7	5.26	62.70
MW-45	12/18/08	68.79	18.0 - 23.0	6.18	62.61
MW-46	12/18/08	68.09	19.9 - 24.5	5.78	62.31
MW-47	12/18/08	65.30	3.9 - 13.5	2.89	62.41
MW-48	12/18/08	65.20	23.4 - 27.9	2.86	62.34
MW-49	12/18/08	67.60	3.9 - 13.5	5.19	62.41
MW-50	12/18/08	67.52	29.6 - 31.4	5.27	62.25
MW-51	12/18/08	66.34	3.9 - 13.5	3.96	62.38
MW-52	12/18/08	66.44	25.9 - 30.4	4.14	62.30
MW-53	12/18/08	67.84	26.7 - 31.1	5.55	62.29
MW-54	12/18/08	67.79	26.9 - 31.4	5.27	62.52
MW-55	12/18/08	67.68	26.9 - 31.4	5.08	62.60
MW-56	12/18/08	68.08	26.9 - 31.4	5.57	62.51
MW-57	12/18/08	67.75	26.9 - 31.4	5.12	62.63

Notes:
ft amsl - feet above mean sea level
ft bgs - feet below ground surface
ft btoc - feet below top of casing
NA - Not applicable
NM - Not measured

Table 3-2
December 2008 Groundwater Sample Results
SWMU 26
Fort Stewart, Georgia

		Location ID	MW-06	MW-06 (DUP)	MW-07	MW-15	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24	MW-25	MW-26
		Sample Date	12/19/08	12/19/08	12/19/08	12/19/08	12/18/08	12/19/08	12/19/08	12/18/08	12/18/08	12/19/08	12/19/08	12/19/08
Chemical Name	MCL	Unit												
Benzene	5	ug/l	67	64	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	67	< 0.5
Toluene	1,000	ug/l	3.1 J	2.2 J	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2	< 0.5	< 0.5	2.2	< 0.5
Ethylbenzene	700	ug/l	36	26	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	64	< 0.5
Xylenes (total)	10,000	ug/l	17	10 J	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	17 J	< 0.5

Notes:
- Indicates the sample result exceeds the MCL.
µg/L - micrograms per liter
J - The sample result is estimated.
DUP - Duplicate sample
MCL - USEPA Maximum Contaminant Level

Table 3-2
December 2008 Groundwater Sample Results
SWMU 26
Fort Stewart, Georgia

		Location ID	MW-27	MW-28	MW-31	MW-32	MW-33	MW-36	MW-38	MW-38 (DUP)	MW-41	MW-42	MW-43	MW-49
		Sample Date	12/19/08	12/19/08	12/18/08	12/18/08	12/18/08	12/19/08	12/19/08	12/19/08	12/18/08	12/18/08	12/18/08	12/18/08
Chemical Name	MCL	Unit												
Benzene	5	ug/l	12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	210	240	< 0.5	1.5	< 0.5	< 0.5
Toluene	1,000	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.7	1.8	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	700	ug/l	2.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	33	35	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	10,000	ug/l	0.91	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	58	60	< 0.5	< 0.5	< 0.5	< 0.5

Notes:
- Indicates the sample result exceeds the MCL.
µg/L - micrograms per liter
J - The sample result is estimated.
DUP - Duplicate sample
MCL - USEPA Maximum Contaminant Level

Table 3-2
December 2008 Groundwater Sample Results
SWMU 26
Fort Stewart, Georgia

		Location ID	MW-50	MW-51	MW-52	MW-53	MW-54	MW-55	MW-56	MW-57
		Sample Date	12/18/08	12/18/08	12/18/08	12/18/08	12/19/07	12/19/08	12/19/08	12/18/08
Chemical Name	MCL	Unit								
Benzene	5	ug/l	62	0.78	1	2.8	260	14	0.57	< 0.5
Toluene	1,000	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5
Ethylbenzene	700	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	10,000	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Notes:
- Indicates the sample result exceeds the MCL.
µg/L - micrograms per liter
J - The sample result is estimated.
DUP - Duplicate sample
MCL - USEPA Maximum Contaminant Level

4. Additional Corrective Action Activities

Additional remedial actions are recommended to meet the established remedial levels for soil and groundwater at SWMU 26. As discussed in Section 2.5, soil impacts remain in the clay layer in the source area. Consequently, an excavation is recommended to remove residual impacts in the source area.

Benzene is the only constituent remaining in groundwater above the remedial levels. The highest detections are in deep groundwater downgradient of the source area. To expedite the attenuation of benzene in deep groundwater, a biosparge system is recommended. The following sections outline the proposed excavation activities and biosparge system.

4.1 Source Removal

Soil remedial levels were developed in the Phase II RFI based on leaching from soil to groundwater at levels exceeding MCLs or USEPA Region III risk-based values (SAIC 1998). The historical soil sample results indicated exceedances of the BTEX soil remedial levels (20 ug/kg for benzene, 4,200 ug/kg for toluene, 3,100 ug/kg for ethylbenzene, and 31,700 ug/kg for total xylenes). Table 2-1 summarizes the soil sample results. Figure 4-1 summarizes the exceedances of benzene in soil.

Fort Stewart proposes an addendum to the CAP (SAIC 2000) to remove the remaining impacted soil in the source area. The proposed corrective action will include six temporary borings followed by soil excavation to remove the impacted soil remaining in the clay layer. The temporary borings will be used to confirm the historical sample results and characterize the soil prior to removal.

4.1.1 Confirmation Soil Borings

The temporary borings will be installed using direct push technology (DPT). DPT uses a combination of hydraulic pressure and percussion to drive steel rods into subsurface soil for sample collection. The investigation will be focused in the source area to confirm the historical soil sample results and to characterize the soil prior to removal. Figure 4-2 shows the proposed temporary soil boring locations. The soil borings will be installed to approximately 14 feet below land surface (ft bls). The borings will be installed deeper if field screening indicates impacts at greater than 14 ft bls. Additional borings may be added if field conditions warrant further lateral investigation. At this

time, Fort Stewart requests approval for the installation of approximately 6 DPT borings at SWMU 26.

At each boring location, a continuous soil core sample will be collected using a macro-core sampler from ground surface to the target depth. The lithology will be logged at each location using the Unified Soil Classification System (USCS) and the core will be field screened with a photoionization detector (PID) to determine if volatile organic vapors are present. Three soil samples will be collected from each boring. Two soil samples will be collected at the location of highest PID detection and one sample will be collected from the bottom of each boring. If no indications of impacted soil are present in the core samples, then soil samples will be collected from 8 to 10 ft bls and 10 to 12 ft bls.

Soil samples will be placed in laboratory supplied sample containers and sent via courier to Shealy Laboratory in West Columbia, South Carolina (NELAC No. E87653) under appropriate preservation and chain-of-custody procedures. The samples will be analyzed for BTEX using USEPA Method 8260B. The boring sample results will be used to confirm the historical soil sample results and to better define the limits of the excavation prior to implementation.

Upon completion of the DPT borings, the boring locations will be abandoned by allowing the saturated portion of the formation (i.e., unconsolidated sands and clay) to collapse back into the 2-inch diameter borehole as the Geoprobe® rods are retracted. The upper 10 ft of the borehole will be plugged with granular bentonite and hydrated with potable water to make an impermeable seal.

Between each boring all drilling equipment (all downhole equipment and any tools used at the surface) will be properly decontaminated in accordance with the procedures outlined in ARCADIS' Sampling and Analysis Plan (ARCADIS 2008).

The investigation derived waste that is generated during this investigation, which includes soil cores and decontamination water will be containerized using Department of Transportation (DOT) specification packaging and properly characterized prior to disposal.

4.1.2 Soil Removal Methodology

Portions of the existing fence may be removed and preliminary clearing and brush or trees may be conducted as necessary to the proposed excavation area. Monitor wells

MW-24, MW-27, and MW-36 are located within the proposed excavation and monitor wells MW-6, MW-15, and MW-28 are located close to the proposed excavation. Monitor wells MW-24 and MW-27 will be removed during the excavation. MW-36 will be properly abandoned prior to excavation activities due to its total depth of 26 feet bls. If it is determined that the integrity of monitor wells MW-6, MW-15, and/or MW-28 may be compromised during the performance of the excavation, these wells will also be properly abandoned. Well materials present in the excavation will be removed during excavation activities. Monitor wells that are required for on-going plume monitoring that are destroyed or abandoned during the excavation will be replaced once the excavation is backfilled and restoration activities have been completed. Excavation of the soils will be coordinated and conducted in a systematic manner to prevent releases of constituents of concern (COCs) to the environment. Soil excavation will be performed using standard construction equipment (i.e. backhoe). Based on the historical soil investigations (SAIC 2009), soils will be excavated from the western side of the parking lot as shown in Figure 4-2. Soils will be excavated to the water table (approximately 7 to 8 ft bls). The estimated volume of soil to be removed from the excavation area is approximately 1,970yd3 based on a 70 ft x 95 ft x 8 ft deep area. Since the objective of the excavation is to remove residual impacts to soils in the source area, the side walls will be field screened to verify all the impacted soils are removed. Previous investigations indicate residual soil impacts extend below the water table. An oxidant and/or persulfate will be mixed with soils in the bottom of the excavation to help attenuate the residual impacts below the water table.

During the excavation, the soil will be visually inspected. Any soil indicating staining will be removed. Since the top 7 to 9 ft of soil in this area has already been excavated, it is not anticipated that contaminated soil will be detected in the top 0 to 6 ft bls. Assuming no staining is observed, overburden material from approximately 0 to 6 ft bls will be stockpiled on site. Three composite samples will be collected from the soil removed from 0 to 6 ft bls and analyzed for BTEX by USEPA Method 8260B. If the results indicate the soil is below USEPA Regional Screening Levels (RSLs) for industrial soil (USEPA 2008b), then the soil will be used as backfill. If the results indicate the soil exceeds industrial soil RSLs, then the soil will be characterized and transported to an offsite treatment or disposal facility. Subsequently, the target soils (6 to 8 ft bls) will be excavated and placed in clean dump trucks and/or roll-offs and transported to an offsite permitted treatment or disposal facility. The soil from the target depth will be characterized prior to disposal using the confirmation soil boring results. Disposal manifests for soil removed from the site will be included in the next CAP progress report.

A minimum of eight confirmation samples will be collected from the sidewalls of the excavation near the water table. One confirmation sample will be collected every 40 ft along the excavation sidewall. The samples will be transported in properly cooled and sealed containers to Shealy Laboratory in West Columbia, South Carolina (NELAC No. E87653) under appropriate preservation and chain-of-custody procedures. Each sample will be analyzed for BTEX using USEPA method 8260B. Soil below the established remedial levels will be considered clean.

4.1.3 Stormwater and Liquids Control

Liquid wastes, if any, from excavation dewatering activities will be containerized on site in portable tanks and analyzed to determine disposal options. Following characterization, the liquids will be transported to a treatment and/or disposal facility. The handling and transport of the liquid-filled containers will be conducted in a controlled and safe manner. In the event of a spill or release, the liquid released will immediately be contained.

4.1.4 Material Transport and Disposal

Material handling, packaging, and transport will be in accordance with applicable DOT requirements. The Generator/Owner, Contractor, and Transporter will control the documentation (manifesting and labeling of containers/shipments) and transportation of non-hazardous materials. The assignment of responsibilities of each party will be designated prior to implementation. The minimum requirements for health and training of the transporter's personnel will be specified and will reference the DOT's Transporter Regulations for Hazardous Materials (CFR 49, Part 100 to 177).

The soil will be characterized prior to the excavation using the confirmation soil boring results. The excavated soil will be placed in clean dump trucks and/or roll-offs and transported to an offsite permitted treatment or disposal facility.

4.1.5 Site Restoration

Following soil removal, the resulting excavation will be backfilled and regraded. Imported sand materials will be placed in the bottom of the excavation to reduce potential problems associated with compacting soils in saturated conditions. The excavation will then be backfilled and compacted to grade using clean fill. If portions of the fence are removed during the excavation, the fence will be repaired to existing conditions.

4.1.6 Monitor Well Replacement

Monitor wells that are required for on-going plume monitoring activities that were destroyed or abandoned, will be replaced following the completion of the excavation activities. Monitor wells that are not required for on-going monitoring of the plume, will not be replaced. Following backfill of the excavation, the wells that are replaced will be installed at locations in close proximity to the abandoned wells. Monitor wells will be installed so that the screened portion is set to bracket the groundwater table. The proposed well construction is included as Figure 4-3. All well installation and well development activities will be performed in accordance with the Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), (ARCADIS 2008).

The wells will be finished at the land surface with an above ground completion and protective casing and will be installed by a Georgia certified well driller under the supervision of an ARCADIS representative. The replacement monitor wells will be used to monitor groundwater quality in accordance with the approved CAP (SAIC 2000).

4.1.7 Health and Safety

All activities will be conducted in general accordance with the ARCADIS Health and Safety Plan (ARCADIS 2009). In addition, the soil removal contractor will prepare a Comprehensive Site Safety Plan (CSSP). The CSSP will comply with the basic provisions of Occupational Safety and Health Administration (OSHA) Safety and Health Standards (29 CFR 1910), General Construction Standards (29 CFR 1926) and OSHA Hazardous Material Operations and Emergency Response (29 CFR 1910.120).

Site specific training consisting of an initial site safety briefing and daily "tailgate" safety briefings will be performed to inform site workers of the specific hazards identified during site activities and any changes from the initial safety briefing. The initial safety meeting will consist, at a minimum, of the following topics:

- Worker responsibilities
- Physical hazards
- Biological hazards
- Chemical hazards
- Protective clothing/equipment to be used
- Air monitoring and action levels

- Hazard communication
- Emergency procedures, including emergency phone numbers
- Location of emergency equipment (first aid kits, eyewashes, and fire extinguishers)
- Name and location of the nearest hospital or urgent treatment facility
- Any client-mandated procedures

Mechanized equipment like skid steers, trackhoes, bulldozers and backhoes represent serious hazards to site workers. Care shall be taken by all personnel to exercise caution when working with mechanized equipment to prevent clothing from being caught in moving parts, placing body parts in close vicinity to pinch points on the equipment or using the equipment on slopes or unstable surfaces in excess of the manufacturer's recommendations. Site personnel, visitors, or other persons who are not performing necessary work shall remain at a distance of at least 15 ft from any moving part of the mechanized equipment. All workers within 15 ft of the equipment are required to wear, at a minimum, hard hats, safety glasses, steel-toed boots, and hearing protection, if applicable. Open excavations will be barricaded overnight and the site will be secured using the existing locked security fencing.

4.1.8 Schedule

Upon approval of the CAP Addendum for SWMU 26, ARCADIS will schedule and implement the temporary soil boring and soil removal activities. The temporary borings are anticipated to take one to two days and the soil removal and site restoration are anticipated to take a couple of weeks each. Installation of replacement wells MW-24 and MW-36 will be performed immediately following site restoration.

4.2 Biosparge System

Based on the December 2008 sample results, benzene is the only constituent remaining in groundwater above the established remedial goals. The established remedial goal for benzene is 5 µg/L. In December 2008, benzene was detected in the shallow groundwater at a maximum of 67 µg/L and in deep groundwater at a maximum of 260 µg/L. The proposed excavation is expected to have a rapid effect on the shallow groundwater impacts within the source area. To enhance the attenuation of benzene concentrations in the deep groundwater, a biosparge system will be installed.

Biosparging is an in-situ technology and a variation of air sparging, differing distinctly based on design and operation. The design intent of the biosparge system is to provide

low to moderate flows of air containing oxygen to wells with small screen zones located below the plume interval. This will allow the air to move up through the aquifer supplying oxygen for aerobic biological degradation. The primary objective will be to maximize the bioremediation component of remediation rather than the volatilization of contaminants into the injected airstream.

This technology will be implemented through the use of injection points installed throughout the target area. Ambient air will be injected into the aquifer at a rate of approximately 2-3 standard cubic feet per minute (SCFM) per well. The introduction of air will stimulate the indigenous microorganisms and enhance the biological degradation of the petroleum impacts. As with all in-situ technologies, the potential limitation of the Biosparge system is the local geology. If the soil is not permeable enough, the system will not be able to transmit the injected air throughout the impacted area. To evaluate the injection flow rates, pressures and overall effectiveness of biosparging at SWMU 26, a pilot study will be conducted to aid in the final design of the system. Subsequent to the performance of the proposed excavation, the pilot scale test will be completed to determine if biosparge is a viable technology to remediate the deep groundwater impacts and to determine the site specific design parameters. Following the performance of the pilot test, deep groundwater impacts will continue to be monitored to evaluate if full scale implementation is warranted.

4.2.1 Pilot Scale Test

The biosparge Pilot Scale Test will be conducted for approximately 6 hours. For the test, one biosparge injection well will be installed approximately 10 feet north of MW-54. The injection well will be installed using DPT to a depth of 35 ft bls. Approximate injection well construction details are included as Figure 4-5. An air compressor will be used to force air into the deep aquifer at a rate of 1 cubic feet per meter (cfm). The depth-to-water, dissolved oxygen and wellhead pressure will be measured at monitor wells MW-54 (located 10 feet north of the proposed injection well) and MW-38 (located 20 feet south of the proposed injection well). Two additional temporary monitor wells will be installed approximately 15 feet west and 5 feet east of the proposed injection well (Figure 4-4). The monitor wells will be used to determine the radius of influence for the final biosparge injection system.

The temporary wells will be installed using DPT and will consist of 1-inch Sch. 40 PVC with a 10-foot, 10-slot screen, which will be screened from approximately 23 ft bls to 33 ft bls and completed with a 1-inch Sch. 40 PVC riser to ground surface. The temporary wells will be installed in accordance with the "no filter pack method" as outlined in the

Design and Installation of Monitoring Wells (USEPA 2008a). At each location, a continuous soil core will be collected using a macro-core sampler from ground surface to the target depth and the lithology will be logged using the USCS.

Vapors will be monitored in monitor wells and temporary wells with a PID to ensure there is not a significant increase in vapor volatilization. If significant volatilization is observed, the injection rates will be adjusted accordingly. The air flow conditions at the injection well will also be documented. The system will be operated at varying air flows and air pressures to determine the optimum flow rate and to provide information for the full scale biosparge system design. During the maximum recovery operation, one air sample will be collected from MW-54 for laboratory analysis via EPA method 18.

4.2.2 Full Scale Biosparge System

The data derived from the pilot scale test will be used to finalize the design of the full-scale biosparge system for the site.

4.2.3 Well Construction

The injection depth for the proposed biosparge wells will be 34 ft bls. Figure 4-6 presents the proposed target location for the biosparge system. Based on the results of the pilot test, the injection well layout will be established. The injection flow rate and injection pressure will be determined during the pilot test. The permanent biosparge wells will also be installed to a depth of 35 feet bls.

Each biosparge point will be constructed of 1-inch-diameter, Schedule 40 polyvinyl chloride (PVC) pipe with the lower 2.5 feet comprised of 0.010-inch slotted screen. The biosparge wells will be installed using DPT drilling methods. The top of each wellhead assembly will be equipped with a threaded cap to provide access to the interior of the biosparge point.

4.2.3.1 Biosparge Piping and System Components

Each biosparge well will be independently piped to the equipment compound using dedicated 1-inch- diameter Schedule 40 PVC piping or pressure rated hose. The biosparge wells will be joined within the equipment compound at a manifold comprising a pressure regulator, pressure gauge, air flow meter, and ball valve for each well.

For cost-effective sizing of the equipment, the biosparge wells will be split into zones. Only one zone of wells will operate at a time to allow a smaller air compressor to be used. The equipment specifications will include using electronic solenoid valves operating on a timer. This will allow air flow to switch from one set of wells to the next set of wells. This operation will also help prevent the formation of preferential air flow paths. The zone layout will be determined following the pilot scale test.

The biosparge system will include an air compressor, a series of vapor and particulate filters, a flow meter, and a pressure regulator. A programmable timer will be installed to allow for continuous or intermittent system operation. The system equipment will be enclosed within a small shed.

4.2.3.2 Construction Schedule

Construction of the biosparge system will require an estimated ten working days. System start-up activities will be conducted during the first three days of operation, and on the last day of the first week of system operation. During the first day of system start-up, the system will be monitored and any necessary changes or repairs will be completed.

4.2.3.3 System Start-Up and Operation and Maintenance

The biosparge system will be monitored weekly for the first month and monthly thereafter. The following will be conducted during this routine monitoring:

- The air compressor will be inspected and adjusted for proper operation. System adjustments will be made when necessary to optimize system performance;
- The fail-safe mechanisms will be inspected for proper operation;
- The air injection flow rates and pressures will be recorded using the proposed meters and gauges. Adjustments will be made when necessary to optimize system performance.

A logbook will be maintained to record the air flow rates and injection pressures as well as the inspection results.

4.3 Process Monitoring and Reporting

Routine semi-annual groundwater monitoring will continue during the operation of the biosparge system. Monitor wells MW-6, MW-7, MW-9, MW-16, MW-19, MW-20, MW-21, MW-25, MW-27, MW-28, MW-31, MW-32, MW-35, MW-36, MW-38, MW-41, MW-42, MW-49, MW-50, MW-51, MW-52, MW-53, MW-54, MW-55, MW-56, MW-57 will be monitored on a semi-annual basis. Two additional monitor wells will be installed as part of the monitoring network. One shallow monitor well will be installed southeast of MW-25 and one deep well will be installed southwest of well MW-50. The location of the two proposed monitor wells is shown on Figure 4-6. The monitor wells will be monitored for BTEX by USEPA Method 8260B. The results from the groundwater monitoring will be used to evaluate the effectiveness of the excavation and the biosparge system. Semi-annual CAP Progress Reports will be prepared to summarize the sample results and evaluate the effectiveness of the CAP.

4.4 Corrective Action Completion Criteria

Following the excavation and installation of the biosparge system, the deep groundwater impacts will be monitored for up to three years. The biosparge system will be operated for one year or until the benzene concentration in deep groundwater decrease below the MCL of 5 µg/L. If the benzene concentrations in deep groundwater have not decreased to below the MCL after 1 year, an evaluation of whether to continue operating the biosparge system will be conducted.

5. References

ARCADIS 2009. Environmental Health and Safety Plan, Fort Stewart Military Reservation and Hunter Army Airfield, Georgia, March 2009.

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GAEPD 2007. Fort Stewart Resource Conservation and Recovery Act Hazardous Waste Facility Permit, Department of Natural Resources, Environmental Protection Division, Facility ID Number GA9 210 020 872, Hazardous Waste Permit Number HW-045(S) (Current Permit Dated August 14, 2007 through August 14, 2017), August 2007.

Geraghty and Miller 1992. RCRA Facility Investigation Final Work Plan, Fort Stewart. Georgia, June 1992.

Rust 1996. Phase I RCRA Facility Investigation Report for 24 Solid Waste Management Units at Fort Stewart. Georgia, Vols. I-III, May 1996.

Science Applications International Corporation (SAIC) 1998. Revised Final Phase II RCRA Facility Investigation Report for the Former 724th Tanker Purging Station (SWMU 26), Fort Stewart, Georgia, Revised Final, November 1998.

SAIC 2000. Corrective Action Plan for the Former 724th Tanker Purging Station (SWMU 26), Fort Stewart, Georgia, Revised Final, January 2000.

SAIC 2001. Fourth Corrective Action Plan Progress Report for the Enhanced Bioremediation (PHOSter® II) at the Former 724th Tanker Purging Station (SWMU 26), Fort Stewart, Georgia, June 2001.

SAIC 2009. Thirteenth Corrective Action Plan Progress Report for the Enhanced Bioremediation (PHOSter® II) at the Former 724th Tanker Purging Station (SWMU 26), Fort Stewart, Georgia, January 2009.

Tracer Research Corporation 1994. Fort Stewart. Savannah. Georgia. 1993 Annual Sampling: Event of 135 Underground Storage Tanks, January 1994.

USEPA 2007. Groundwater Sampling Operating Procedure, Number SESDPROC-301-R1. Region IV, Athens, Georgia. U.S. Environmental Protection Agency, November 2007.

USEPA 2008a. Design and Installation of Monitoring Wells, Number SESDGUID-101-R0. Region IV, Athens, Georgia. U.S. Environmental Protection Agency,

February 2008.

USEPA 2008b. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, U.S. Environmental Protection Agency, Oak Ridge National Laboratories. September 2008.

ARCADIS

Appendix A

Laboratory Analytical Data

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

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

Project Name: **Hunter Stewart - HAAF**

Project Number: **GP08HAFS.H13A.NA1R1**

Lot Number: **JL19059**

Date Completed: **12/31/2008**

Michael Casalena
Project Manager

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

Case Narrative
ARCADIS U.S., Inc.
Lot Number: JL19059

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

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

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

Sample Summary
ARCADIS U.S., Inc.
Lot Number: JL19059

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	D-MW41 (121708)	Aqueous	12/17/2008 1002	12/19/2008
002	D-MW42 (121708)	Aqueous	12/17/2008 1135	12/19/2008
003	P1-MW42 (121708)	Aqueous	12/17/2008 1821	12/19/2008
004	DUP-HAAI3RI-1 (121608)	Aqueous	12/16/2008 1200	12/19/2008
005	DUP-HAAI3R1-2 (121708)	Aqueous	12/17/2008 1200	12/19/2008
006	D-MW43 (121808)	Aqueous	12/18/2008 0915	12/19/2008
007	TB-1 (121608)	Aqueous	12/19/2008 0940	12/19/2008
008	26-MW-19(121808)	Aqueous	12/18/2008 1650	12/23/2008
009	26-MW-32(121808)	Aqueous	12/18/2008 1150	12/23/2008
010	26-MW-42(121808)	Aqueous	12/18/2008 1250	12/23/2008
011	26-MW-49(121808)	Aqueous	12/18/2008 1435	12/23/2008
012	26-MW-50(121808)	Aqueous	12/18/2008 1530	12/23/2008
013	26-MW-57(121808)	Aqueous	12/18/2008 1545	12/23/2008
014	26-MW-31(121808)	Aqueous	12/18/2008 1753	12/23/2008
015	26-MW-23(121808)	Aqueous	12/18/2008 1648	12/23/2008
016	26-MW-22(121808)	Aqueous	12/18/2008 1606	12/23/2008
017	26-MW-52(121808)	Aqueous	12/18/2008 1438	12/23/2008
018	26-MW-51(121808)	Aqueous	12/18/2008 1337	12/23/2008
019	26-MW-43(121808)	Aqueous	12/18/2008 1243	12/23/2008
020	26-MW-33(121808)	Aqueous	12/18/2008 1147	12/23/2008

(20 samples)

Executive Summary
ARCADIS U.S., Inc.
Lot Number: JL19059

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	D-MW42 (121708)	Aqueous	Ethylbenzene	8260B	1.4		ug/L	7
002	D-MW42 (121708)	Aqueous	Xylenes (total)	8260B	1.9		ug/L	7
004	DUP-HAAI3RI-1 (121608)	Aqueous	Benzene	8260B	240		ug/L	11
004	DUP-HAAI3RI-1 (121608)	Aqueous	Ethylbenzene	8260B	220		ug/L	11
004	DUP-HAAI3RI-1 (121608)	Aqueous	Toluene	8260B	2400		ug/L	11
004	DUP-HAAI3RI-1 (121608)	Aqueous	Xylenes (total)	8260B	1300		ug/L	11
004	DUP-HAAI3RI-1 (121608)	Aqueous	Lead	6010B	0.13		mg/L	12
005	DUP-HAAI3R1-2 (121708)	Aqueous	Benzene	8260B	140		ug/L	13
005	DUP-HAAI3R1-2 (121708)	Aqueous	Ethylbenzene	8260B	98		ug/L	13
005	DUP-HAAI3R1-2 (121708)	Aqueous	Toluene	8260B	1000		ug/L	13
005	DUP-HAAI3R1-2 (121708)	Aqueous	Xylenes (total)	8260B	740		ug/L	13
005	DUP-HAAI3R1-2 (121708)	Aqueous	Lead	6010B	0.11		mg/L	14
006	D-MW43 (121808)	Aqueous	Benzene	8260B	22		ug/L	15
006	D-MW43 (121808)	Aqueous	Ethylbenzene	8260B	180		ug/L	15
006	D-MW43 (121808)	Aqueous	Toluene	8260B	57		ug/L	15
006	D-MW43 (121808)	Aqueous	Xylenes (total)	8260B	620		ug/L	15
010	26-MW-42(121808)	Aqueous	Benzene	8260B	1.5		ug/L	20
012	26-MW-50(121808)	Aqueous	Benzene	8260B	62		ug/L	22
016	26-MW-22(121808)	Aqueous	Toluene	8260B	2.0		ug/L	26
017	26-MW-52(121808)	Aqueous	Benzene	8260B	1.0		ug/L	27
018	26-MW-51(121808)	Aqueous	Benzene	8260B	0.78		ug/L	28

(21 detections)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: D-MW41 (121708)
Date Sampled: 12/17/2008 1002
Date Received: 12/19/2008

Laboratory ID: JL19059-001
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/29/2008 1339	DLB		92557

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	52-138
Bromofluorobenzene		102	70-147
Toluene-d8		92	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

ICP-AES

Client: **ARCADIS U.S., Inc.**
Description: **D-MW41 (121708)**
Date Sampled: **12/17/2008 1002**
Date Received: **12/19/2008**

Laboratory ID: **JL19059-001**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1217	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	7439-92-1	6010B	ND		0.010	mg/L	1

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-002**
Description: **D-MW42 (121708)**
Matrix: **Aqueous**
Date Sampled: **12/17/2008 1135**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/31/2008 0939	DLB		92674

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	ND		0.50	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**1.4**		**0.50**	**ug/L**	**1**
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**1.9**		**0.50**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		80	52-138
Bromofluorobenzene		103	70-147
Toluene-d8		106	76-125

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

ICP-AES

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-002**
Description: **D-MW42 (121708)**
Matrix: **Aqueous**
Date Sampled: **12/17/2008 1135**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1220	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	7439-92-1	6010B	ND		0.010	mg/L	1

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-003**
Description: **P1-MW42 (121708)**
Matrix: **Aqueous**
Date Sampled: **12/17/2008 1821**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 1440	DLB		92631

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	52-138
Bromofluorobenzene		85	70-147
Toluene-d8		93	76-125

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

ICP-AES

Client: **ARCADIS U.S., Inc.**
Description: **P1-MW42 (121708)**
Date Sampled: **12/17/2008 1821**
Date Received: **12/19/2008**

Laboratory ID: **JL19059-003**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1224	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	7439-92-1	6010B	ND		0.010	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-004**
Description: **DUP-HAAI3RI-1 (121608)**
Matrix: **Aqueous**
Date Sampled: **12/16/2008 1200**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	12/30/2008 1333	DLB		92607

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**240**		**25**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**220**		**25**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**2400**		**25**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1300**		**25**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		109	52-138
Bromofluorobenzene		86	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

ICP-AES

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-004**
Description: **DUP-HAAI3RI-1 (121608)**
Matrix: **Aqueous**
Date Sampled: **12/16/2008 1200**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1236	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	**7439-92-1**	**6010B**	**0.13**		**0.010**	**mg/L**	**1**

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-005**
Description: **DUP-HAAI3R1-2 (121708)**
Matrix: **Aqueous**
Date Sampled: **12/17/2008 1200**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	12/30/2008 1653	DLB		92631

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**140**		**2.5**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**98**		**2.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**1000**		**2.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**740**		**2.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	52-138
Bromofluorobenzene		88	70-147
Toluene-d8		94	76-125

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

ICP-AES

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-005**
Description: **DUP-HAAI3R1-2 (121708)**
Matrix: **Aqueous**
Date Sampled: **12/17/2008 1200**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1240	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	7439-92-1	6010B	0.11		0.010	mg/L	1

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **D-MW43 (121808)**
Date Sampled: **12/18/2008 0915**
Date Received: **12/19/2008**

Laboratory ID: **JL19059-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	12/30/2008 1715	DLB		92631

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**22**		**2.5**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**180**		**2.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**57**		**2.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**620**		**2.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	52-138
Bromofluorobenzene		88	70-147
Toluene-d8		94	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

ICP-AES

Client: **ARCADIS U.S., Inc.**
Description: **D-MW43 (121808)**
Date Sampled: **12/18/2008 0915**
Date Received: **12/19/2008**

Laboratory ID: **JL19059-006**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010B	1	12/29/2008 1243	MNM	12/22/2008 1100	92143

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Lead	7439-92-1	6010B	ND		0.010	mg/L	1

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-007**
Description: **TB-1 (121608)**
Matrix: **Aqueous**
Date Sampled: **12/19/2008 0940**
Date Received: **12/19/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0037	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		89	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-19(121808)**
Date Sampled: **12/18/2008 1650**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-008**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0059	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		90	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-009**
Description: **26-MW-32(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1150**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0121	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		91	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-010**
Description: **26-MW-42(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1250**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0142	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**1.5**		**0.50**	**ug/L**	**1**
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		89	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-49(121808)**
Date Sampled: **12/18/2008 1435**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-011**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0204	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		91	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-012**
Description: **26-MW-50(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1530**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0226	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**62**		**0.50**	**ug/L**	**1**
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		88	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-57(121808)**
Date Sampled: **12/18/2008 1545**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-013**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0248	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		93	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-014**
Description: **26-MW-31(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1753**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0310	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		87	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-23(121808)**
Date Sampled: **12/18/2008 1648**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-015**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0332	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-016**
Description: **26-MW-22(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1606**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0353	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	ND		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	**108-88-3**	**8260B**	**2.0**		**0.50**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	52-138
Bromofluorobenzene		85	70-147
Toluene-d8		92	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-52(121808)**
Date Sampled: **12/18/2008 1438**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-017**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0415	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**1.0**		**0.50**	**ug/L**	**1**
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	52-138
Bromofluorobenzene		86	70-147
Toluene-d8		90	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-51(121808)**
Date Sampled: **12/18/2008 1337**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-018**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0437	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	**71-43-2**	**8260B**	**0.78**		**0.50**	**ug/L**	**1**
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		103	52-138
Bromofluorobenzene		85	70-147
Toluene-d8		89	76-125

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

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Description: **26-MW-43(121808)**
Date Sampled: **12/18/2008 1243**
Date Received: **12/23/2008**

Laboratory ID: **JL19059-019**
Matrix: **Aqueous**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0459	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	52-138
Bromofluorobenzene		86	70-147
Toluene-d8		89	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method.blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: **ARCADIS U.S., Inc.**
Laboratory ID: **JL19059-020**
Description: **26-MW-33(121808)**
Matrix: **Aqueous**
Date Sampled: **12/18/2008 1147**
Date Received: **12/23/2008**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0521	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	52-138
Bromofluorobenzene		85	70-147
Toluene-d8		89	76-125

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

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92557-001
Batch: 92557
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/29/2008 1216
Ethylbenzene	ND		1	0.50	ug/L	12/29/2008 1216
Toluene	ND		1	0.50	ug/L	12/29/2008 1216
Xylenes (total)	ND		1	0.50	ug/L	12/29/2008 1216

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-147
1,2-Dichloroethane-d4		84	52-138
Toluene-d8		92	76-125

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92557-002
Batch: 92557
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	54		1	109	70-130	12/29/2008 1103
Ethylbenzene	50	58		1	115	70-130	12/29/2008 1103
Toluene	50	54		1	108	70-130	12/29/2008 1103
Xylenes (total)	100	110		1	111	70-130	12/29/2008 1103

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	70-147
1,2-Dichloroethane-d4		83	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92557-003
Batch: 92557
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	56		1	112	2.8	70-130	20	12/29/2008 1127
Ethylbenzene	50	59		1	119	3.2	70-130	20	12/29/2008 1127
Toluene	50	56		1	111	3.3	70-130	20	12/29/2008 1127
Xylenes (total)	100	110		1	114	2.8	70-130	20	12/29/2008 1127

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-147
1,2-Dichloroethane-d4		85	52-138
Toluene-d8		92	76-125

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

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92575-001
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0015
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0015
Toluene	ND		1	0.50	ug/L	12/30/2008 0015
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0015

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		84	70-147
1,2-Dichloroethane-d4		85	52-138
Toluene-d8		90	76-125

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92575-002
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	45		1	90	70-130	12/29/2008 2309
Ethylbenzene	50	49		1	98	70-130	12/29/2008 2309
Toluene	50	46		1	93	70-130	12/29/2008 2309
Xylenes (total)	100	98		1	98	70-130	12/29/2008 2309

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		87	70-147
1,2-Dichloroethane-d4		86	52-138
Toluene-d8		89	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92575-003
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	95	5.5	70-130	20	12/29/2008 2331
Ethylbenzene	50	52		1	104	5.6	70-130	20	12/29/2008 2331
Toluene	50	50		1	100	8.0	70-130	20	12/29/2008 2331
Xylenes (total)	100	100		1	103	5.4	70-130	20	12/29/2008 2331

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		86	70-147
1,2-Dichloroethane-d4		78	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92607-001
Batch: 92607
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0912
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0912
Toluene	ND		1	0.50	ug/L	12/30/2008 0912
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0912

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		86	70-147
1,2-Dichloroethane-d4		98	52-138
Toluene-d8		91	76-125

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92607-002
Batch: 92607
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	47		1	95	70-130	12/30/2008 0745
Ethylbenzene	50	50		1	100	70-130	12/30/2008 0745
Toluene	50	50		1	99	70-130	12/30/2008 0745
Xylenes (total)	100	100		1	102	70-130	12/30/2008 0745

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		90	70-147
1,2-Dichloroethane-d4		94	52-138
Toluene-d8		93	76-125

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92607-003
Batch: 92607
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	97	2.4	70-130	20	12/30/2008 0807
Ethylbenzene	50	53		1	105	5.1	70-130	20	12/30/2008 0807
Toluene	50	52		1	104	4.3	70-130	20	12/30/2008 0807
Xylenes (total)	100	100		1	106	3.1	70-130	20	12/30/2008 0807

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		88	70-147
1,2-Dichloroethane-d4		84	52-138
Toluene-d8		92	76-125

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92631-001
Batch: 92631
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0912
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0912
Toluene	ND		1	0.50	ug/L	12/30/2008 0912
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0912

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		86	70-147
1,2-Dichloroethane-d4		98	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92631-002
Batch: 92631
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	47		1	95	70-130	12/30/2008 0745
Ethylbenzene	50	50		1	100	70-130	12/30/2008 0745
Toluene	50	50		1	99	70-130	12/30/2008 0745
Xylenes (total)	100	100		1	102	70-130	12/30/2008 0745

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		90	70-147
1,2-Dichloroethane-d4		94	52-138
Toluene-d8		93	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92631-003 **Matrix:** Aqueous
Batch: 92631 **Prep Method:** 5030B
Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	97	2.4	70-130	20	12/30/2008 0807
Ethylbenzene	50	53		1	105	5.1	70-130	20	12/30/2008 0807
Toluene	50	52		1	104	4.3	70-130	20	12/30/2008 0807
Xylenes (total)	100	100		1	106	3.1	70-130	20	12/30/2008 0807

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		88	70-147
1,2-Dichloroethane-d4		84	52-138
Toluene-d8		92	76-125

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92674-001
Batch: 92674
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/31/2008 0800
Ethylbenzene	ND		1	0.50	ug/L	12/31/2008 0800
Toluene	ND		1	0.50	ug/L	12/31/2008 0800
Xylenes (total)	ND		1	0.50	ug/L	12/31/2008 0800

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-147
1,2-Dichloroethane-d4		85	52-138
Toluene-d8		107	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92674-002
Batch: 92674
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	51		1	103	70-130	12/31/2008 0633
Ethylbenzene	50	52		1	104	70-130	12/31/2008 0633
Toluene	50	54		1	108	70-130	12/31/2008 0633
Xylenes (total)	100	100		1	104	70-130	12/31/2008 0633

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-147
1,2-Dichloroethane-d4		95	52-138
Toluene-d8		111	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92674-003
Batch: 92674
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	52		1	103	0.72	70-130	20	12/31/2008 0655
Ethylbenzene	50	53		1	106	2.1	70-130	20	12/31/2008 0655
Toluene	50	53		1	105	2.3	70-130	20	12/31/2008 0655
Xylenes (total)	100	100		1	105	0.89	70-130	20	12/31/2008 0655

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-147
1,2-Dichloroethane-d4		90	52-138
Toluene-d8		108	76-125

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

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

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

ICP-AES - MB

Sample ID: JQ92143-001
Batch: 92143
Analytical Method: 6010B

Matrix: Aqueous
Prep Method: 3005A
Prep Date: 12/22/2008 1100

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Lead	ND		1	0.010	mg/L	12/29/2008 1103

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

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

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

ICP-AES - LCS

Sample ID: JQ92143-002 **Matrix:** Aqueous
Batch: 92143 **Prep Method:** 3005A
Analytical Method: 6010B **Prep Date:** 12/22/2008 1100

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	0.40	0.39		1	98	80-120	12/29/2008 1107

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

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

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

ICP-AES - LCSD

Sample ID: JQ92143-003 **Matrix:** Aqueous
Batch: 92143 **Prep Method:** 3005A
Analytical Method: 6010B **Prep Date:** 12/22/2008 1100

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Lead	0.40	0.40		1	99	0.21	80-120	20	12/29/2008 1111

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

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

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

SHEALY **Chain of Custody Record**

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
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Number 86487

ARCADIS

Client: 801 Corporate Center Drive.	Report to Contact: Chuck Bertz	Telephone No. / Fax No. / E-mail: 919-854-9812	Quote No.
Address: Suite 300	Sampler's Signature: x [signature] Maddox	Waybill No.	Page 3 of 3
City: Raleigh / State: NC / Zip Code: 27607	Printed Name: Erica Maddox	Analysis (Attach list if more space is needed.)	
Project Name: Fort Stewart / HAAF			
Project No.: GP08HAFS.H13A.NA1R1	P.O. No.		Lot No. JL19059

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Sample Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No. of Containers by Preservation Type: Unpres.	Unpres.	HNO3	HCl	NaOH	NaOH	BTX (SW8260B)	Lead (SW6010B)	Remarks / Cooler I.D.
D-HW40 (121708)	12/17/08	1518	G	X					1	3			X	X	
D-HW41 (121708)	↓	1002	G	X					1	3			X	X	
D-HW42 (121708)	↓	1135	G	X					1	3			X	X	
PI-HW42 (121708)	↓	1821	G	X					1	3			X	X	
DUP-HAA13R1-1 (121608)	12/16/08	1200	G	X					1	3			X	X	
DUP-HAA13R1-2 (121708)	12/17/08	1200	G	X					1	3			X	X	
D-MW43 (121808)	12/18/08	0915	G	X					1	3			X	X	
TB-1 (121608)	12/16/08	0700	G	X						2			X		

[signature] Maddox

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison [ ] Unknown

Sample Disposal: [ ] Return to Client [X] Disposal by Lab

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

Turn Around Time Required (Prior lab approval required for expedited TAT): [X] Standard [ ] Rush (Specify)

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished by: [signature] Maddox	12/18/08	1200	1. Received by:		
2. Relinquished by:			2. Received by:		
3. Relinquished by: FEDEX	12/19/08	0941	3. Laboratory received by: [signature]	12/19/08	0941

Comments:

LAB USE ONLY: Received on ice (Circle) Yes No Ice Pack — Receipt Temp 3.2 °C

DISTRIBUTION: WHITE & YELLOW Return to laboratory with Sample(s). PINK Field/Client Copy

Document Number: F-AD-012 Effective Date: 08-01-08

SHEALY ENVIRONMENTAL SERVICES, INC.

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

Page 1 of 1
Replaces Date: 09/22/06
Effective Date: 05/29/07

Sample Receipt Checklist (SRC)

JL19058 JL19059

Client: ARCADIS Cooler Inspected by/date: SAM 12/19/08 Lot #: JL19016

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other

Yes ☐	No ☑	NA ☐	1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 3.2 / °C / °C / °C / °C / °C / °C / °C / °C

Method: ☑ Temperature Blank ☐ Against Bottles

Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☐	No ☑	NA ☐	5. Were proper custody procedures (relinquished/received) followed?
Yes ☑	No ☐	NA ☐	6. Were sample IDs listed?
Yes ☑	No ☐	NA ☐	7. Was collection date & time listed?
Yes ☑	No ☐	NA ☐	8. Were tests to be performed listed on the COC or was quote # provided?
Yes ☑	No ☐	NA ☐	9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐	NA ☐	10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐	NA ☐	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐	NA ☐	12. Was adequate sample volume available?
Yes ☐	No ☑	NA ☐	13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑	NA ☐	14. Were any samples containers missing?
Yes ☐	No ☑	NA ☐	15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?

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

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

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

Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.

Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐

SESI employee: _____

Comments: _____

Date 12/19/08 FedEx Tracking Number 865594007468

Sender's Name _____ Phone [illegible]

Company _____

Address [illegible]

City _____ State _____ ZIP [illegible]

Your Internal Billing Reference GP08 HAF1 H13A. NA1 R1

SHEALY **Chain of Custody Record**

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 86485

ARCADIS

Client: 801 Corporate Center Drive	Report to Contact: Chuck Bertz	Telephone No. / Fax No. / E-mail: 919-854-9812	Quote No.
Address: Suite 300	Sampler's Signature: X D. Dorminy	Waybill No.	Page 1 of 4
City: Raleigh State: NC Zip Code: 27607	Printed Name: D. Dorminy	Analysis (Attach list if more space is needed.)	
Project Name: Fort Stewart/HAAF			
Project No.: GPD8HAFS.F26A			Lot No. 8 SAM 12/23 JL19059

Sample ID / Description (Containers for each sample may be combined on one line.)	PO No. Date	Time	Comp. Grab	Matrix: Liquid	Matrix: Solid	Matrix: Non-Liquid	No. of Containers by Preservative Type: Unpres.	Unpres.	HNO3	H2O	NaOH	NaOH	BTEX (SW8260B)	Remarks / Cooler I.D.
26-MW-19 (121808)	12/18/08	1650	G	✓						3			✓	
26-MW-32 (121808)		1150	G	✓						3			✓	
26-MW-42 (121808)		1250	G	✓						3			✓	
26-MW-49 (121808)		1435	G	✓						3			✓	
26-MW-50 (121808)		1530	G	✓						3			✓	
26-MW-57 (121808)		1545	G	✓						3			✓	
26-MW-31 (121808)		1753	G	✓						3			✓	
26-MW-23 (121808)		1648	G	✓						3			✓	
26-MW-22 (121808)		1606	G	✓						3			✓	
26-MW-52 (121808)		1438	G	✓						3			✓	

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

Sample Disposal: ✓ Return to Client X Disposed by Lab

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

Turn Around Time Required (Prior lab approval required for expedited TAT): X Standard ☐ Push (Specify)

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished by: D. Dorminy	122208	1500	1. Received by: FedEx 8655 9400 7413	122208	1500
2. Relinquished by:			2. Received by:		
3. Relinquished by: FedEx	12-23-08	1000	3. Laboratory received by: [signature]	12-23-08	1000

Comments:

LAB USE ONLY: Received on Ice (Circle) Yes No Ice Pack — Receipt Temp 18 °C

DISTRIBUTION: WHITE & YELLOW Return to laboratory with Sample(s); PINK Field/Client Copy

Document Number: F-AD-012 Effective Date: 08-04-02

SHEALY **Chain of Custody Record**

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 86486

ARCADIS

Client: 801 Corporate Center Drive	Report to Contact: Chuck Bertz	Telephone No. / Fax No. / E-mail: 919-854-9812	Quote No.
Address: Suite 300	Sampler's Signature: X [signature]	Waybill No.	Page 2 of 4
City: Raleigh State: NC Zip Code: 27607	Printed Name: D. Dorning	Analysis (Attach list if more space is needed.)	
Project Name: Fort Stewart/HAAF			
Project No.: GP08HAFS/F26A			Lot No.: JL23017 JL19059

Sample ID / Description (Containers for each sample may be combined on one line.)	P.O. No. Date	Time	Sample Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No. of Containers by Preservative Type: Unpres.	HCl	MeOH	Sulfuric	BTEX (SW 8260B)	Remarks / Cooler I.D.
26-MW-51 (121808)	12/18/08	1337	G	✓				3			✓	
26-MW-43 (121808)		1243	G	✓				3			✓	
26-MW-33 (121808)		1147	G	✓				3			✓	
26-MW-53 (121808)		1548	G	✓				3			✓	
26-MW-41 (121808)		1803	G	✓				3			✓	
26-MW-56 (121908)	12/19/08	1206	G	✓				3			✓	
26-MW-21 (121908)		1046	G	✓				3			✓	
26-MW-15 (121908)		0850	G	✓				3			✓	
26-MW-27 (121908)		1000	G	✓				3			✓	
26-MW-36 (121908)		1130	G	✓				3			✓	

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

Sample Disposal: ☐ Return to Client X Disposal by Lab

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

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Push (Specify)

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: [signature]	122208	1500	1. Received by: FedEx 8655 9400 7413	122208	1500
2. Relinquished by:			2. Received by:		
3. Relinquished by: FEDEX 12	23 08	1000	3. Laboratory received by: [signature]	12-23-08	1000

Comments

LAB USE ONLY: Received on Ice (Circle) Yes No Ice Pack — Receipt Temp. 1-8 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-012 Effective Date: 08-04-02

Shealy Environmental Services, Inc.
Document Number: EA0-016
Revision Number: 6

Replaces Date: 09/22/06
Effective Date: 05/29/07

FL23017

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: CC 10 22 05 Lot #: JL19059

SAM

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other

Yes ☑	No ☐	NA ☐	1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 1 / 4 °C / °C / °C / °C
/ °C / °C / °C / °C

Method: ☐ Temperature Blank ☑ Against Bottles
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☐	No ☑	NA ☐	5. Were proper custody procedures (relinquished/received) followed?
Yes ☑	No ☐	NA ☐	6. Were sample IDs listed?
Yes ☑	No ☐	NA ☐	7. Was collection date & time listed?
Yes ☑	No ☐	NA ☐	8. Were tests to be performed listed on the COC or was quote # provided?
Yes ☑	No ☐	NA ☐	9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐	NA ☐	10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐	NA ☐	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐	NA ☐	12. Was adequate sample volume available?
Yes ☐	No ☑	NA ☐	13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑	NA ☐	14. Were any samples containers missing?
Yes ☐	No ☑	NA ☐	15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/TOM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?

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

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

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

Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.

Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.

Corrective Action Taken, if necessary:

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

SESI employee: _____ Date of response: _____

Comments: _____

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

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

Project Name: Hunter Stewart - HAAF

Project Number: GP08HAFS.F23A

Lot Number: JL23017

Date Completed: 12/31/2008

Michael Casalena
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac

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

Case Narrative
ARCADIS U.S., Inc.
Lot Number: JL23017

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

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

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

Sample Summary
ARCADIS U.S., Inc.
Lot Number: JL23017

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	26-MW-53(121808)	Aqueous	12/18/2008 1548	12/23/2008
002	26-MW-41(121808)	Aqueous	12/18/2008 1803	12/23/2008
003	26-MW-56(121908)	Aqueous	12/19/2008 1206	12/23/2008
004	26-MW-21(121908)	Aqueous	12/19/2008 1046	12/23/2008
005	26-MW-15(121908)	Aqueous	12/19/2008 0850	12/23/2008
006	26-MW-27(121908)	Aqueous	12/19/2008 1000	12/23/2008
007	26-MW-36(121908)	Aqueous	12/19/2008 1130	12/23/2008
008	26-MW-26(121908)	Aqueous	12/19/2008 1322	12/23/2008
009	26-MW-25(121908)	Aqueous	12/19/2008 1142	12/23/2008
010	26-MW-24(121908)	Aqueous	12/19/2008 1042	12/23/2008
011	26-MW-7(121908)	Aqueous	12/19/2008 0932	12/23/2008
012	26-MW-28(121908)	Aqueous	12/19/2008 0857	12/23/2008
013	26-MW-54(121908)	Aqueous	12/19/2008 1340	12/23/2008
014	26-MW-38(121908)	Aqueous	12/19/2008 0952	12/23/2008
015	DUP-FST-26-2(121908)	Aqueous	12/19/2008 1200	12/23/2008
016	26-MW-55(121908)	Aqueous	12/19/2008 1308	12/23/2008
017	26-MW-20(121908)	Aqueous	12/19/2008 1201	12/23/2008
018	26-MW-6(121908)	Aqueous	12/19/2008 1504	12/23/2008
019	DUP-FST26-1(121908)	Aqueous	12/19/2008 1200	12/23/2008
020	TB-2 (121808)	Aqueous	12/23/2008 1000	12/23/2008

(20 samples)

Executive Summary
ARCADIS U.S., Inc.
Lot Number: JL23017

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	26-MW-53(121808)	Aqueous	Benzene	8260B	2.8		ug/L	5
003	26-MW-56(121908)	Aqueous	Benzene	8260B	0.57		ug/L	7
006	26-MW-27(121908)	Aqueous	Benzene	8260B	12		ug/L	10
006	26-MW-27(121908)	Aqueous	Ethylbenzene	8260B	2.6		ug/L	10
006	26-MW-27(121908)	Aqueous	Xylenes (total)	8260B	0.91		ug/L	10
009	26-MW-25(121908)	Aqueous	Benzene	8260B	67		ug/L	13
009	26-MW-25(121908)	Aqueous	Ethylbenzene	8260B	64		ug/L	13
009	26-MW-25(121908)	Aqueous	Toluene	8260B	2.2		ug/L	13
009	26-MW-25(121908)	Aqueous	Xylenes (total)	8260B	17		ug/L	13
013	26-MW-54(121908)	Aqueous	Benzene	8260B	260		ug/L	17
013	26-MW-54(121908)	Aqueous	Toluene	8260B	1.6		ug/L	17
014	26-MW-38(121908)	Aqueous	Benzene	8260B	210		ug/L	18
014	26-MW-38(121908)	Aqueous	Ethylbenzene	8260B	33		ug/L	18
014	26-MW-38(121908)	Aqueous	Toluene	8260B	1.7		ug/L	18
014	26-MW-38(121908)	Aqueous	Xylenes (total)	8260B	58		ug/L	18
015	DUP-FST-26-2(121908)	Aqueous	Benzene	8260B	240		ug/L	19
015	DUP-FST-26-2(121908)	Aqueous	Ethylbenzene	8260B	35		ug/L	19
015	DUP-FST-26-2(121908)	Aqueous	Toluene	8260B	1.8		ug/L	19
015	DUP-FST-26-2(121908)	Aqueous	Xylenes (total)	8260B	60		ug/L	19
016	26-MW-55(121908)	Aqueous	Benzene	8260B	14		ug/L	20
018	26-MW-6(121908)	Aqueous	Benzene	8260B	67		ug/L	22
018	26-MW-6(121908)	Aqueous	Ethylbenzene	8260B	36		ug/L	22
018	26-MW-6(121908)	Aqueous	Toluene	8260B	3.1		ug/L	22
018	26-MW-6(121908)	Aqueous	Xylenes (total)	8260B	17		ug/L	22
019	DUP-FST26-1(121908)	Aqueous	Benzene	8260B	64		ug/L	23
019	DUP-FST26-1(121908)	Aqueous	Ethylbenzene	8260B	26		ug/L	23
019	DUP-FST26-1(121908)	Aqueous	Toluene	8260B	2.2		ug/L	23
019	DUP-FST26-1(121908)	Aqueous	Xylenes (total)	8260B	10		ug/L	23

(28 detections)

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-53(121808)
Date Sampled: 12/18/2008 1548
Date Received: 12/23/2008

Laboratory ID: JL23017-001
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0542	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	2.8		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	52-138
Bromofluorobenzene		84	70-147
Toluene-d8		93	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-41(121808)
Date Sampled: 12/18/2008 1803
Date Received: 12/23/2008

Laboratory ID: JL23017-002
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0604	DLB		92575

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	52-138
Bromofluorobenzene		86	70-147
Toluene-d8		95	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-56(121908)
Date Sampled: 12/19/2008 1206
Date Received: 12/23/2008

Laboratory ID: JL23017-003
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0626	DLB		92575

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	0.57		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	52-138
Bromofluorobenzene		86	70-147
Toluene-d8		92	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-21(121908)
Date Sampled: 12/19/2008 1046
Date Received: 12/23/2008

Laboratory ID: JL23017-004
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0645	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-15(121908)
Date Sampled: 12/19/2008 0850
Date Received: 12/23/2008

Laboratory ID: JL23017-005
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0707	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-27(121908)
Date Sampled: 12/19/2008 1000
Date Received: 12/23/2008

Laboratory ID: JL23017-006
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0730	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	12		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	2.6		0.50	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	0.91		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		103	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-36(121908)
Date Sampled: 12/19/2008 1130
Date Received: 12/23/2008

Laboratory ID: JL23017-007
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0105	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	52-138
Bromofluorobenzene		101	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-26(121908)
Date Sampled: 12/19/2008 1322
Date Received: 12/23/2008

Laboratory ID: JL23017-008
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 1524	DLB		92631

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	52-138
Bromofluorobenzene		85	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-25(121908)
Date Sampled: 12/19/2008 1142
Date Received: 12/23/2008

Laboratory ID: JL23017-009
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0150	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	67		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	64		0.50	ug/L	1
Toluene	108-88-3	8260B	2.2		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	17		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	52-138
Bromofluorobenzene		103	70-147
Toluene-d8		92	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-24(121908)
Date Sampled: 12/19/2008 1042
Date Received: 12/23/2008

Laboratory ID: JL23017-010
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0212	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	52-138
Bromofluorobenzene		102	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-7(121908)
Date Sampled: 12/19/2008 0932
Date Received: 12/23/2008

Laboratory ID: JL23017-011
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0235	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	52-138
Bromofluorobenzene		102	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-28(121908)
Date Sampled: 12/19/2008 0857
Date Received: 12/23/2008

Laboratory ID: JL23017-012
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0257	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-54(121908)
Date Sampled: 12/19/2008 1340
Date Received: 12/23/2008

Laboratory ID: JL23017-013
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0320	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	260		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	ug/L	1
Toluene	108-88-3	8260B	1.6		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	52-138
Bromofluorobenzene		101	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-38(121908)
Date Sampled: 12/19/2008 0952
Date Received: 12/23/2008

Laboratory ID: JL23017-014
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0342	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	210		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	33		0.50	ug/L	1
Toluene	108-88-3	8260B	1.7		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	58		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	52-138
Bromofluorobenzene		102	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: DUP-FST-26-2(121908)
Date Sampled: 12/19/2008 1200
Date Received: 12/23/2008

Laboratory ID: JL23017-015
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0405	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	240		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	35		0.50	ug/L	1
Toluene	108-88-3	8260B	1.8		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	60		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	52-138
Bromofluorobenzene		101	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-55(121908)
Date Sampled: 12/19/2008 1308
Date Received: 12/23/2008

Laboratory ID: JL23017-016
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0427	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-20(121908)
Date Sampled: 12/19/2008 1201
Date Received: 12/23/2008

Laboratory ID: JL23017-017
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0450	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: 26-MW-6(121908)
Date Sampled: 12/19/2008 1504
Date Received: 12/23/2008

Laboratory ID: JL23017-018
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0512	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	67		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	36		0.50	ug/L	1
Toluene	108-88-3	8260B	3.1		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	17		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: DUP-FST26-1(121908)
Date Sampled: 12/19/2008 1200
Date Received: 12/23/2008

Laboratory ID: JL23017-019
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0535	DLB		92558

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Benzene	71-43-2	8260B	64		0.50	ug/L	1
Ethylbenzene	100-41-4	8260B	26		0.50	ug/L	1
Toluene	108-88-3	8260B	2.2		0.50	ug/L	1
Xylenes (total)	1330-20-7	8260B	10		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		90	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

Volatile Organic Compounds by GC/MS

Client: ARCADIS U.S., Inc.
Description: TB-2 (121808)
Date Sampled: 12/23/2008 1000
Date Received: 12/23/2008

Laboratory ID: JL23017-020
Matrix: Aqueous

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/30/2008 0557	DLB		92558

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

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	52-138
Bromofluorobenzene		100	70-147
Toluene-d8		91	76-125

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92558-001
Batch: 92558
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0042
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0042
Toluene	ND		1	0.50	ug/L	12/30/2008 0042
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0042

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-147
1,2-Dichloroethane-d4		90	52-138
Toluene-d8		90	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92558-002
Batch: 92558
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	54		1	108	70-130	12/29/2008 2312
Ethylbenzene	50	57		1	113	70-130	12/29/2008 2312
Toluene	50	53		1	106	70-130	12/29/2008 2312
Xylenes (total)	100	110		1	109	70-130	12/29/2008 2312

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-147
1,2-Dichloroethane-d4		87	52-138
Toluene-d8		92	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92558-003
Batch: 92558
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	52		1	104	3.0	70-130	20	12/29/2008 2334
Ethylbenzene	50	54		1	109	4.2	70-130	20	12/29/2008 2334
Toluene	50	52		1	103	3.0	70-130	20	12/29/2008 2334
Xylenes (total)	100	100		1	105	3.1	70-130	20	12/29/2008 2334

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	70-147
1,2-Dichloroethane-d4		88	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92575-001
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0015
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0015
Toluene	ND		1	0.50	ug/L	12/30/2008 0015
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0015

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		84	70-147
1,2-Dichloroethane-d4		85	52-138
Toluene-d8		90	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92575-002
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	45		1	90	70-130	12/29/2008 2309
Ethylbenzene	50	49		1	98	70-130	12/29/2008 2309
Toluene	50	46		1	93	70-130	12/29/2008 2309
Xylenes (total)	100	98		1	98	70-130	12/29/2008 2309

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		87	70-147
1,2-Dichloroethane-d4		86	52-138
Toluene-d8		89	76-125

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92575-003
Batch: 92575
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	95	5.5	70-130	20	12/29/2008 2331
Ethylbenzene	50	52		1	104	5.6	70-130	20	12/29/2008 2331
Toluene	50	50		1	100	8.0	70-130	20	12/29/2008 2331
Xylenes (total)	100	100		1	103	5.4	70-130	20	12/29/2008 2331

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		86	70-147
1,2-Dichloroethane-d4		78	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: JQ92631-001
Batch: 92631
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/30/2008 0912
Ethylbenzene	ND		1	0.50	ug/L	12/30/2008 0912
Toluene	ND		1	0.50	ug/L	12/30/2008 0912
Xylenes (total)	ND		1	0.50	ug/L	12/30/2008 0912

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		86	70-147
1,2-Dichloroethane-d4		98	52-138
Toluene-d8		91	76-125

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: JQ92631-002
Batch: 92631
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	47		1	95	70-130	12/30/2008 0745
Ethylbenzene	50	50		1	100	70-130	12/30/2008 0745
Toluene	50	50		1	99	70-130	12/30/2008 0745
Xylenes (total)	100	100		1	102	70-130	12/30/2008 0745

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		90	70-147
1,2-Dichloroethane-d4		94	52-138
Toluene-d8		93	76-125

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

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: JQ92631-003
Batch: 92631
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	97	2.4	70-130	20	12/30/2008 0807
Ethylbenzene	50	53		1	105	5.1	70-130	20	12/30/2008 0807
Toluene	50	52		1	104	4.3	70-130	20	12/30/2008 0807
Xylenes (total)	100	100		1	106	3.1	70-130	20	12/30/2008 0807

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		88	70-147
1,2-Dichloroethane-d4		84	52-138
Toluene-d8		92	76-125

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

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

SHEALY **Chain of Custody Record**

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 86486

ARCADIS

Client: 801 Corporate Center Drive	Report to Contact: Chuck Bertz	Telephone No. / Fax No. / E-mail: 919-854-9812	Quote No.
Address: Suite 300	Sampler's Signature: X [signature]	Waybill No.	Page 2 of 4
City: Raleigh State: NC Zip Code: 27607	Printed Name: D. Dorming	Analysis (Attach list if more space is needed.)	
Project Name: Fort Stewart/HAAF			
Project No.: GP08HAFS/F26A	P.O. No.		Tot No. JL23017 JL19059

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No. of Containers by Preservative Type: Organic	HNO3	HNO3	HCl	NaOH	NaOH	BTEX (SW 8260B)	Remarks / Cooler I.D.
26-MW-51 (121808)	12/18/08	1337	G	✓						3			✓	
26-MW-43 (121808)	↓	1243	G	✓						3			✓	
26-MW-33 (121808)	↓	1147	G	✓						3			✓	
26-MW-53 (121808)	↓	1548	G	✓						3			✓	
26-MW-41 (121808)	↓	1803	G	✓						3			✓	
26-MW-56 (121908)	12/19/08	1206	G	✓						3			✓	
26-MW-21 (121908)	↓	1046	G	✓						3			✓	
26-MW-15 (121908)	↓	0850	G	✓						3			✓	
26-MW-27 (121908)	↓	1000	G	✓						3			✓	
26-MW-36 (121908)	↓	1130	G	✓						3			✓	

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

Sample Disposal: ☐ Return to Client X Disposal by Lab

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

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

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: [signature]	122208	1500	1. Received by: FedEx 8655 9400 7413	122208	1500
2. Relinquished by			2. Received by		
3. Relinquished by: FEDEX 12	23 08	1000	3. Laboratory received by: [signature]	12-23-08	1000

Comments

LAB USE ONLY: Received on Ice (Circle) Yes No Ice Pack — Receipt Temp. 1-8 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-012 Effective Date: 08-04-02

SHEALY Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 83048

Client: ARCADIS
Address: 801 Corporate Center Drive, Suite 300
City: Raleigh | State: NC | Zip Code: 27607
Project Name: FT Stewart / HAAF
Project No.: GP08HAFS, F26A
P.O. No.:
Report to Contact: Chuck Berte
Sampler's Signature: X D. Dorning
Printed Name: D. Dorning
Telephone No. / Fax No. / E-mail: 919-854-7812
Waybill No.:
Cooler No.:
Page 3 of 4
Analysis (Attach list if more space is needed)

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	Grab	Composite	Matrix: Aqueous	Matrix: Soil	Matrix: Non-Aqueous	No. of Containers by Preservation Type: Unpres.	HCl/4°	HNO3	ICE	H2SO4	NaOH	Other (Specify)	BTEX 8260B	Lot No. / Remarks / Cooler I.D.
26-MW-26 (121908)	12/9/08	1322	G		✓						3				✓	JL23017
26-MW-25 (121908)		1142	G		✓						3				✓	
26-MW-24 (121908)		1042	G		✓						3				✓	
26-MW-7 (121908)		0932	G		✓						3				✓	
26-MW-28 (121902)		0857	G		✓						3				✓	
26-MW-54 (121908)		1340	G		✓						3				✓	
26-MW-38 (121908)		0952	G		✓						3				✓	
DUP-FST-26-2 (121908)		1200	G		✓						3				✓	
26-MW-55 (121908)		1208	G		✓						3				✓	
26-MW-20 (121908)		1201	G		✓						3				✓	

Possible Hazard Identification: ☑ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown
Sample Disposal: ☐ Return to Client ☒ Disposed by Lab
Note: All samples are retained for six weeks from receipt unless other arrangements are made.
Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Specify)
QC Requirements (Specify):

	Date	Time
1. Relinquished by: D. Dorning	122208	1500
2. Relinquished by:	Date	Time
3. Relinquished by: Fedex	12-23-08	1000

	Date	Time
1. Received by: FedEx 8855 9400 748	122208	1500
2. Received by:	Date	Time
3. Laboratory received by: [signature]	12-23-08	1000

Comments:
FOR USE ONLY: Received on Ice (Circle): (Yes) No Ice Pack
Receipt Temp: 1.8 °C

DISTRIBUTION: WHITE & YELLOW: Return to laboratory with Sample(s), PINK: Field Chain Copy

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

Level 1 Report v2.1

12/15/2008 14:51 8037919111 SHEALY ENV PAGE 03/03
SHEALY ENVIRONMENTAL SERVICES, INC.

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

SHEALY Chain of Custody Record

Number 83048

Client: ARCADIS
Address: 901 Corporate Center Drive, Suite 300
City: Raleigh | State: NC | Zip Code: 27607
Project Name: Ft Stewart / HAAF
Project No.: GP08HAFS, F26A.
Report to Contact: Chuck Berte
Sampler's Signature: D. Downing
Printed Name: D. Downing
Telephone No. / Fax No. / E-mail: 919 854 6712
Work Order No.:
Page 4 of 4
Analysis (Attach list if more space is needed): BTEX 8260B
Lot No.: JL23017

Sample ID / Description (Containers for each sample may be combined on one line)	P.O. No. Date	Time	Matrix	No. of Containers by Preservation Type: HCl	Remarks / Cooler I.D.
26-MW-6 (121908)	121908	1504	GW	3	✓
DUP-FST26-1 (121908)	1	1200	GW	3	✓
TB-2 (121808)	121808	0800	W	3	✓

Possible Hazard Identification: [X] Non Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison [ ] Unknown
Turn Around Time Required (Prior lab approval required for expedited TAT): [X] Standard [ ] Rush (Specify)
Sample Disposal: [ ] Return to Client [X] Disposal by Lab
Note: All samples are retained for six weeks from receipt unless other arrangements are made.
QC Requirements (Specify):

	Date	Time
1. Relinquished by: D. Downing	121208	1500
2. Relinquished by:	Date	Time
3. Relinquished by: FedEx	12-23-08	1000

	Date	Time
1. Received by: FedEx 8655 9400 7413	122208	1500
2. Received by:	Date	Time
3. Laboratory received by:	12-23-08	10 00

Comments:
LAB USE ONLY: Receipt on Ice (Circle): (Yes) No Ice Pack | Receipt Temp. 1.8 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field Client Copy

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

Level 1 Report v2.1

SHEALY ENVIRONMENTAL SERVICES, INC.
12/19/2008 14:51 8237919111 SHEALY ENV PAGE 02/02

Shealy Environmental Services, Inc.
Document Number: F-AC-016
Revision Number: 6

Page 1 of 1
Replaces Date: 09/22/06
Effective Date: 05/29/07

Sample Receipt Checklist (SRC)

JL23017

Client: Arcadis Cooler Inspected by/date: CC 12-22-06 Lot #: JL19059
SAM

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other

Yes ☑	No ☐	NA ☐	1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☐	2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 1.8 / ___ °C ___ / ___ °C ___ / ___ °C ___ / ___ °C
___ / ___ °C ___ / ___ °C ___ / ___ °C ___ / ___ °C

Method: ☐ Temperature Blank ☑ Against Bottles
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☐	No ☑	NA ☐	5. Were proper custody procedures (relinquished/received) followed?
Yes ☑	No ☐	NA ☐	6. Were sample IDs listed?
Yes ☑	No ☐	NA ☐	7. Was collection date & time listed?
Yes ☑	No ☐	NA ☐	8. Were tests to be performed listed on the COC or was quote # provided?
Yes ☑	No ☐	NA ☐	9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐	NA ☐	10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐	NA ☐	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐	NA ☐	12. Was adequate sample volume available?
Yes ☐	No ☑	NA ☐	13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑	NA ☐	14. Were any samples containers missing?
Yes ☐	No ☑	NA ☐	15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?

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

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

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

Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.

Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.

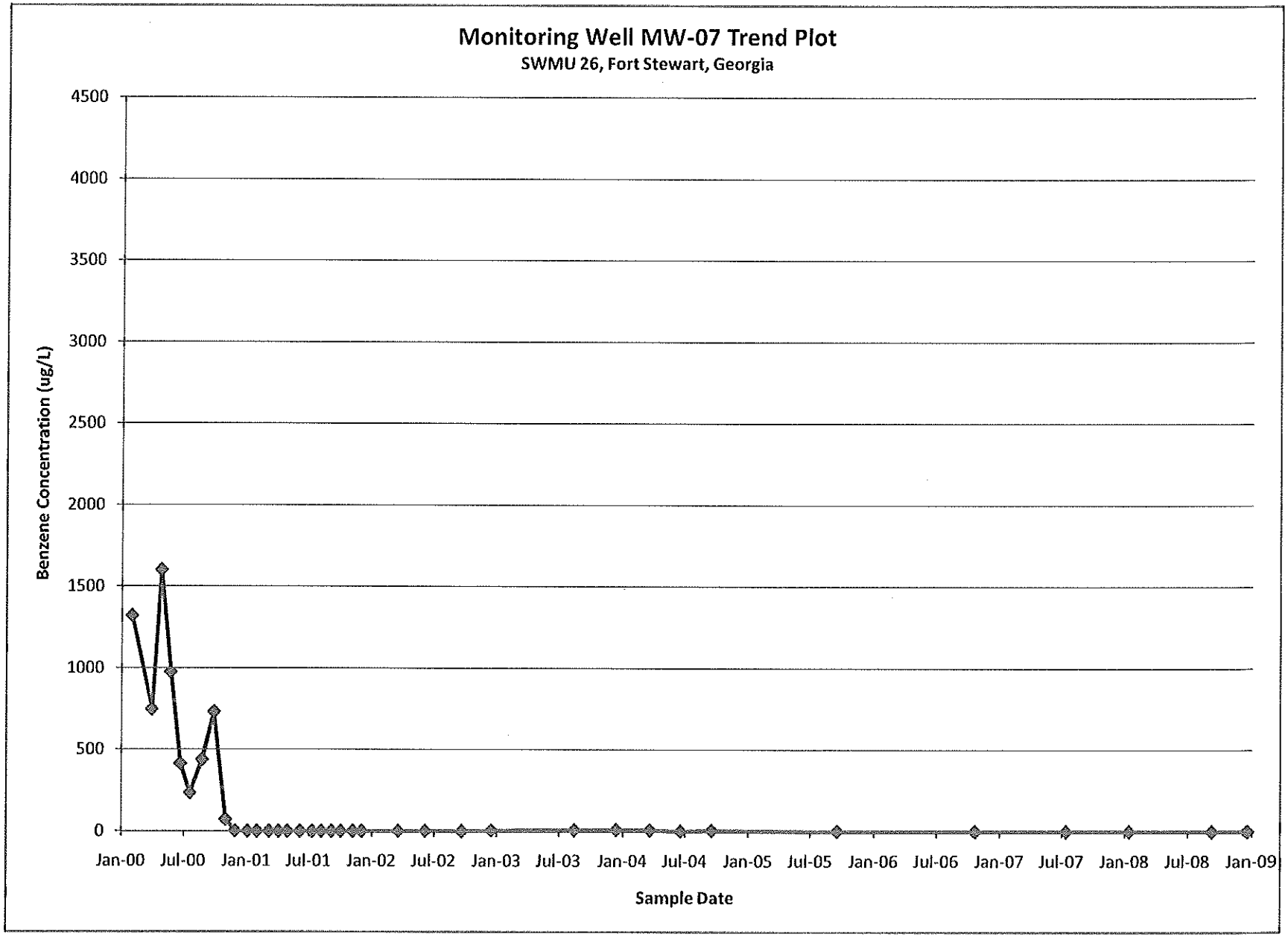
Corrective Action taken, if necessary:

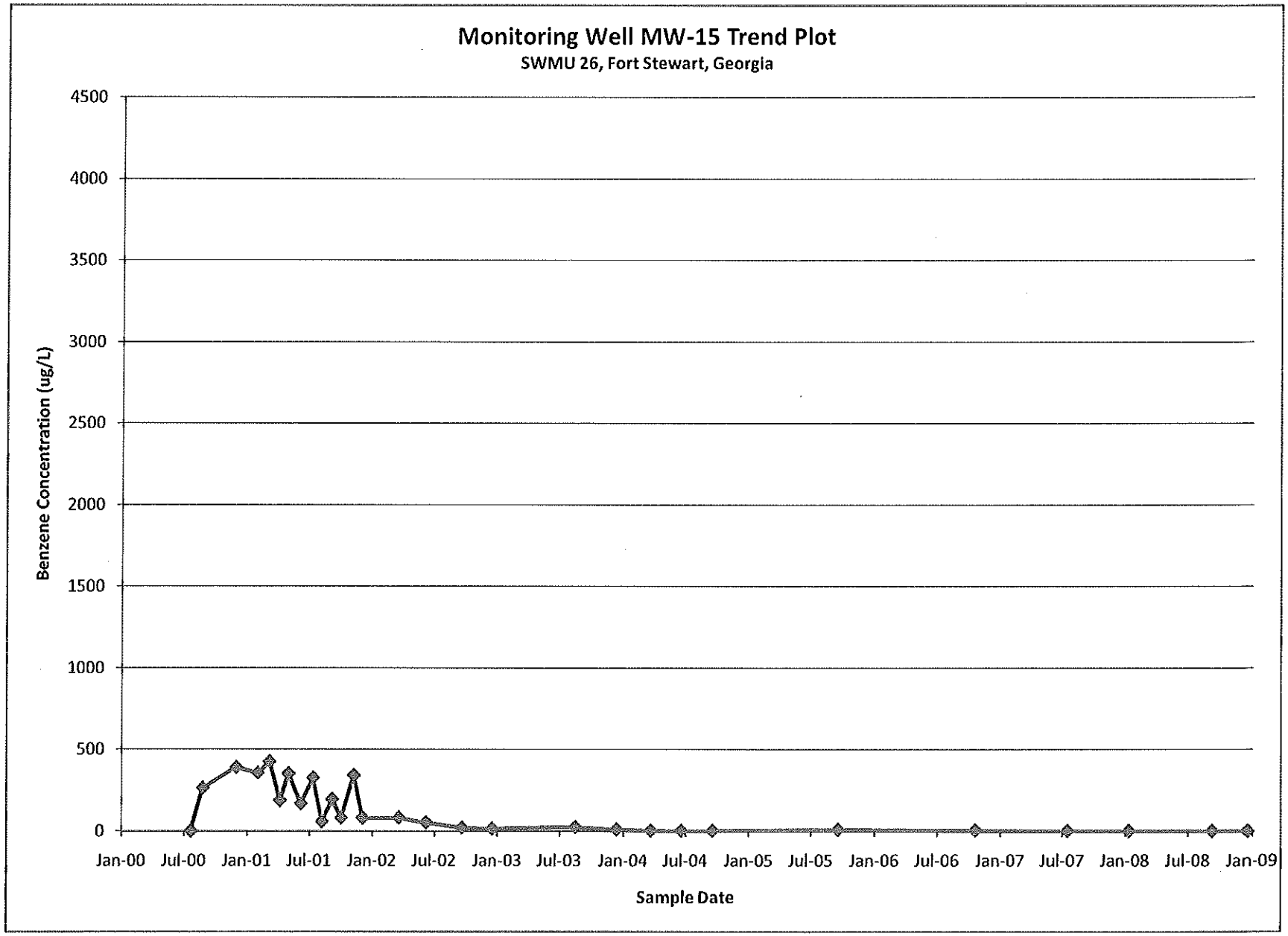
Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐
SESI employee: _____ Date of response: _____
Comments: _____

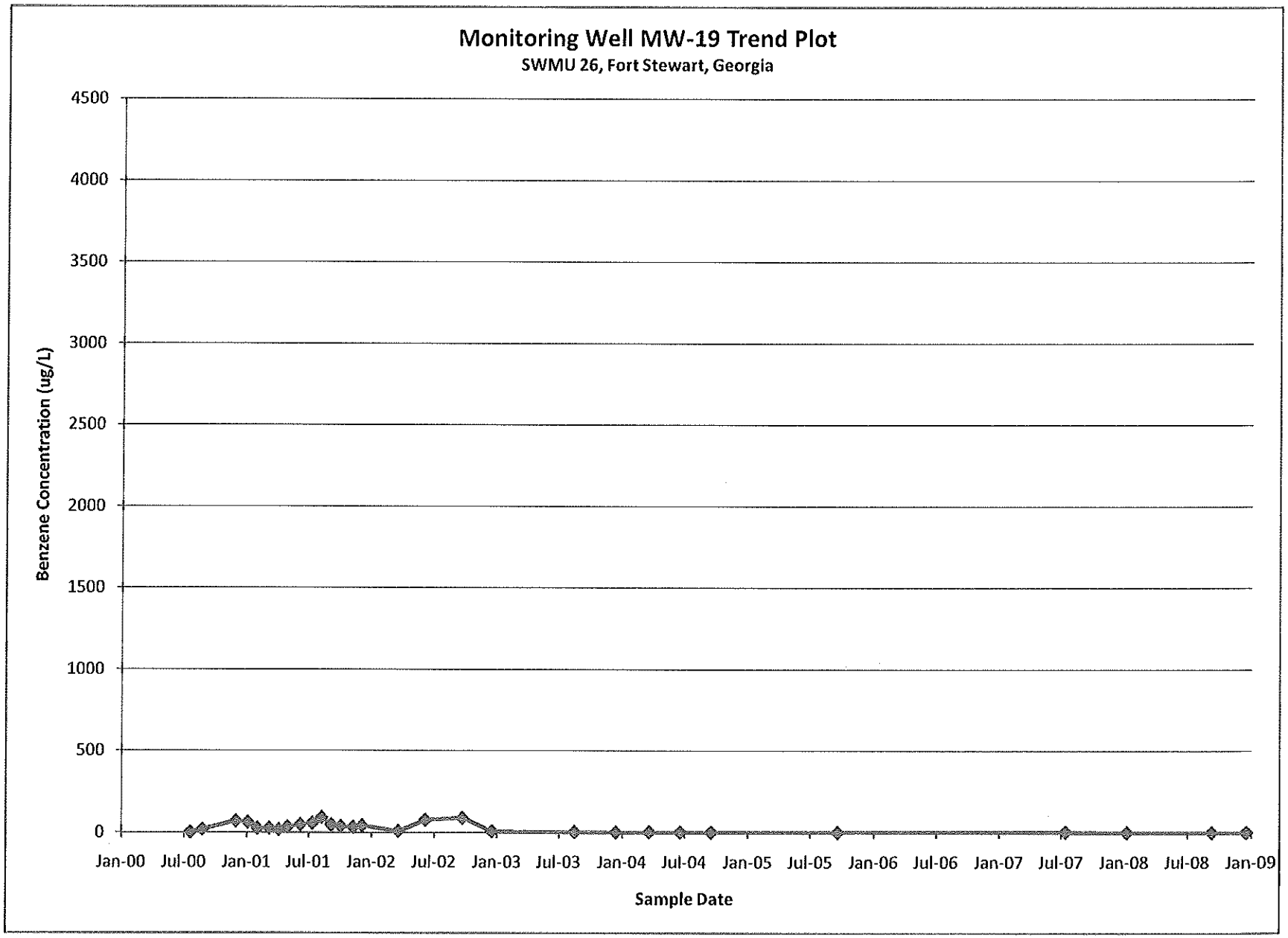
ARCADIS

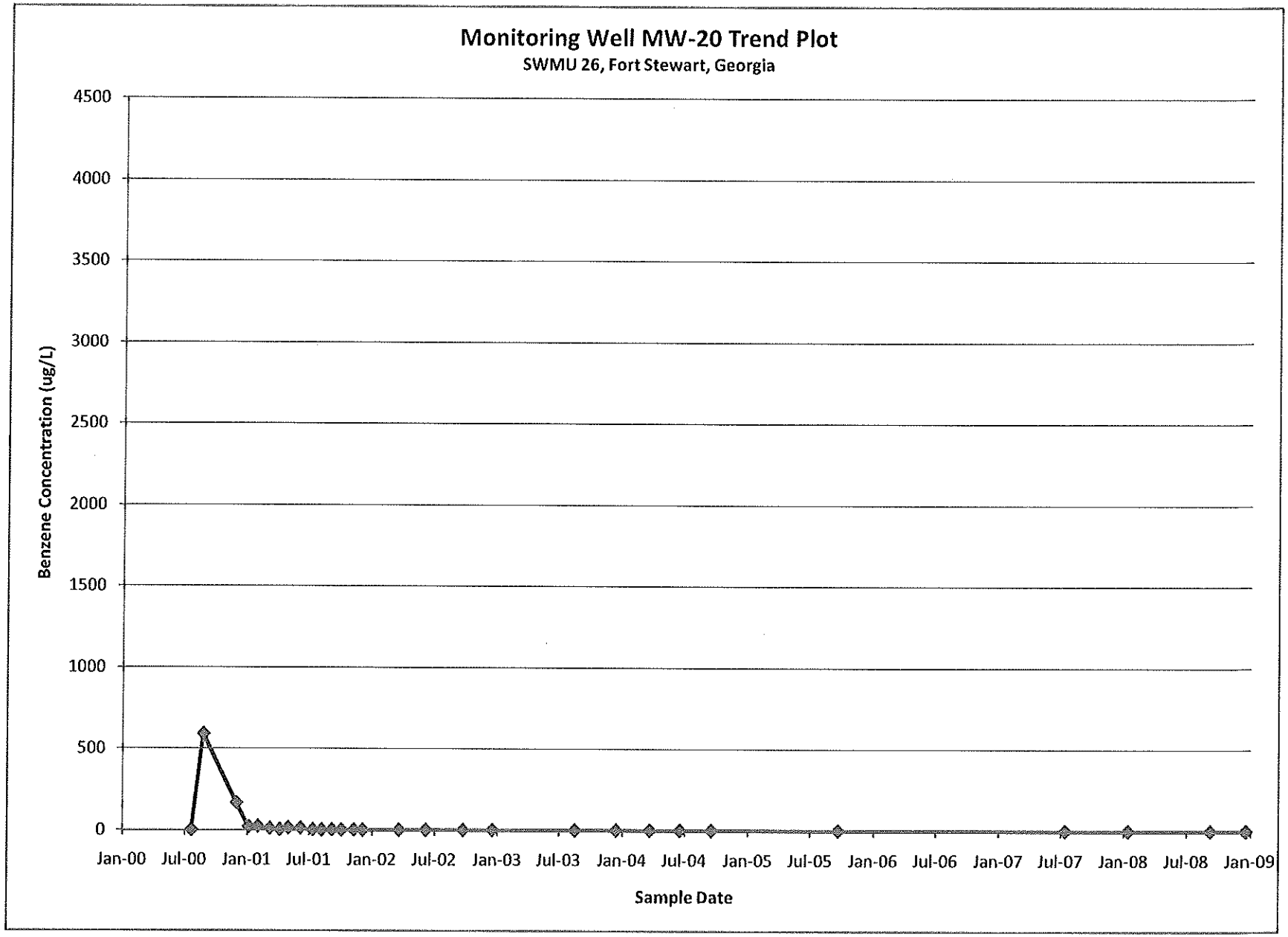
Appendix B

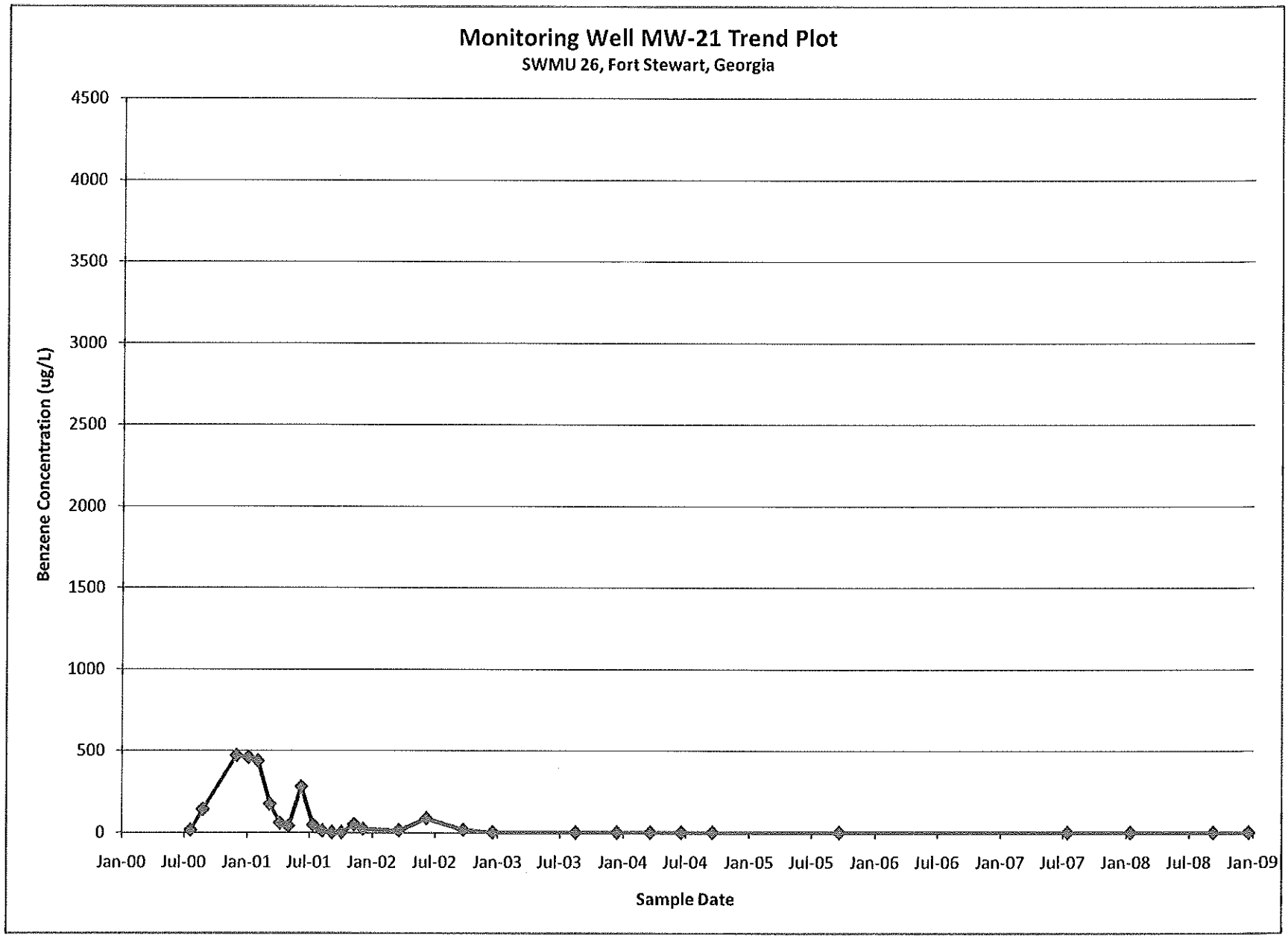
Trend Plots

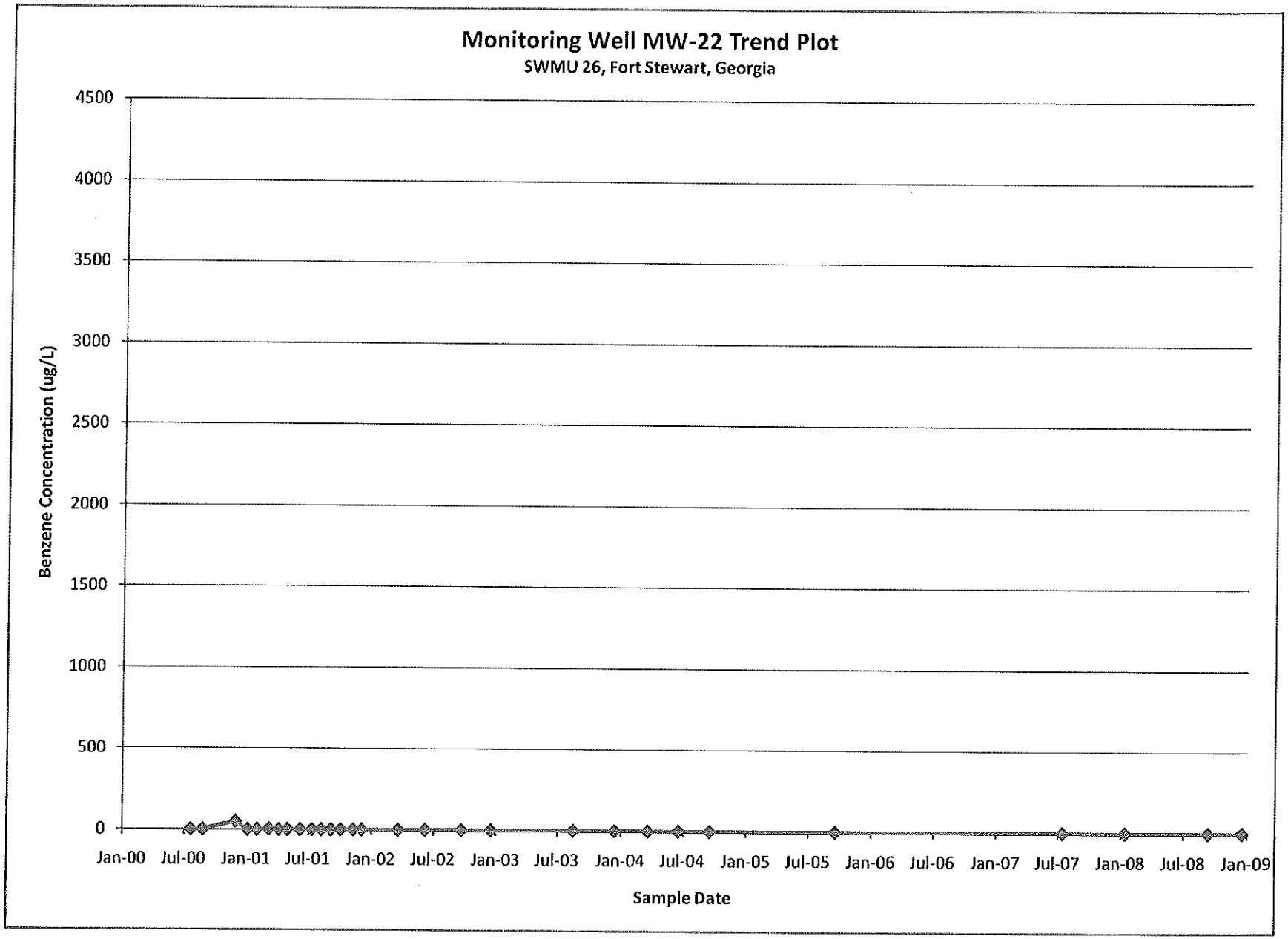

Monitoring Well MW-07 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-15 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-19 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-20 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-21 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-22 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
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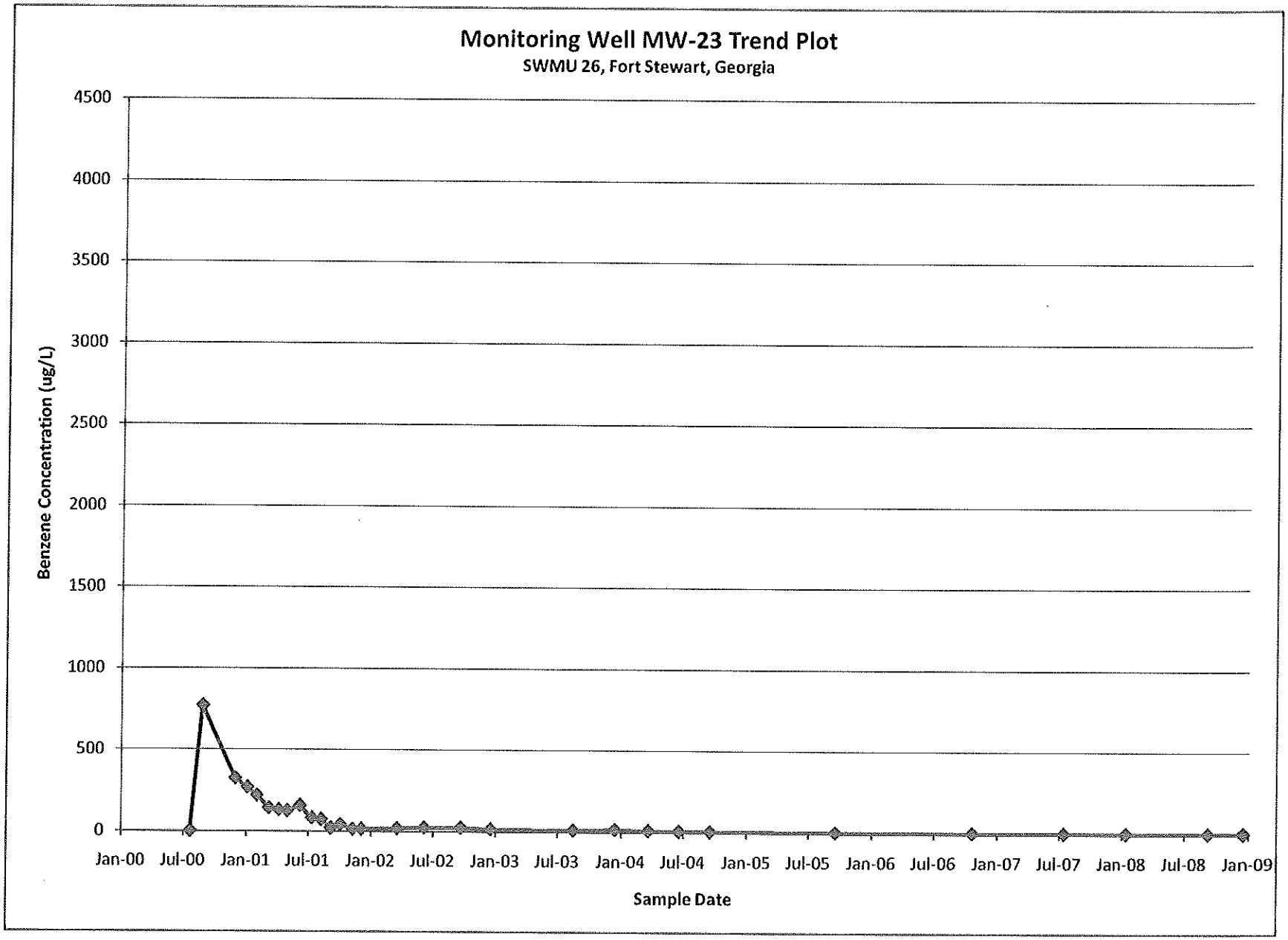
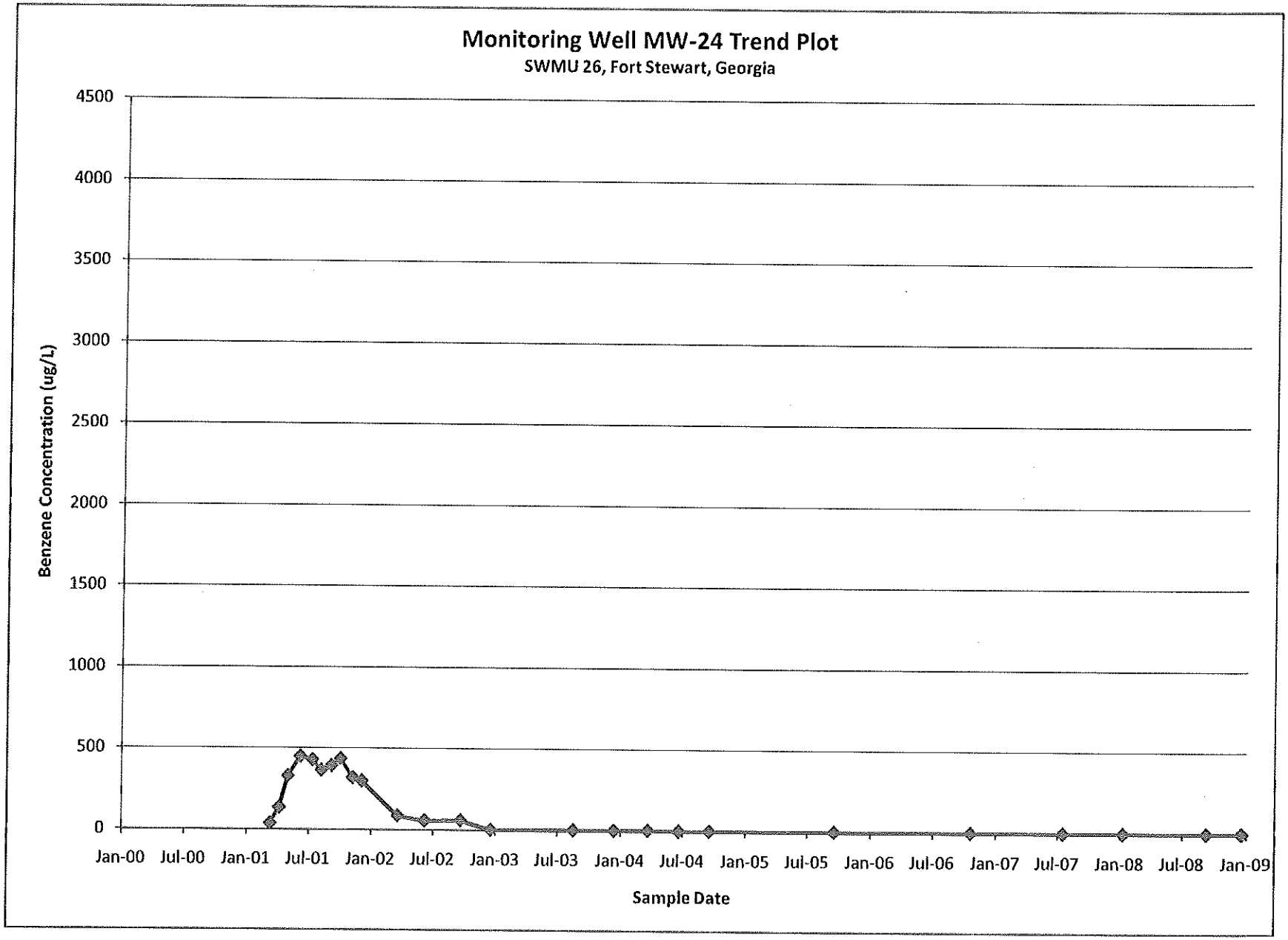
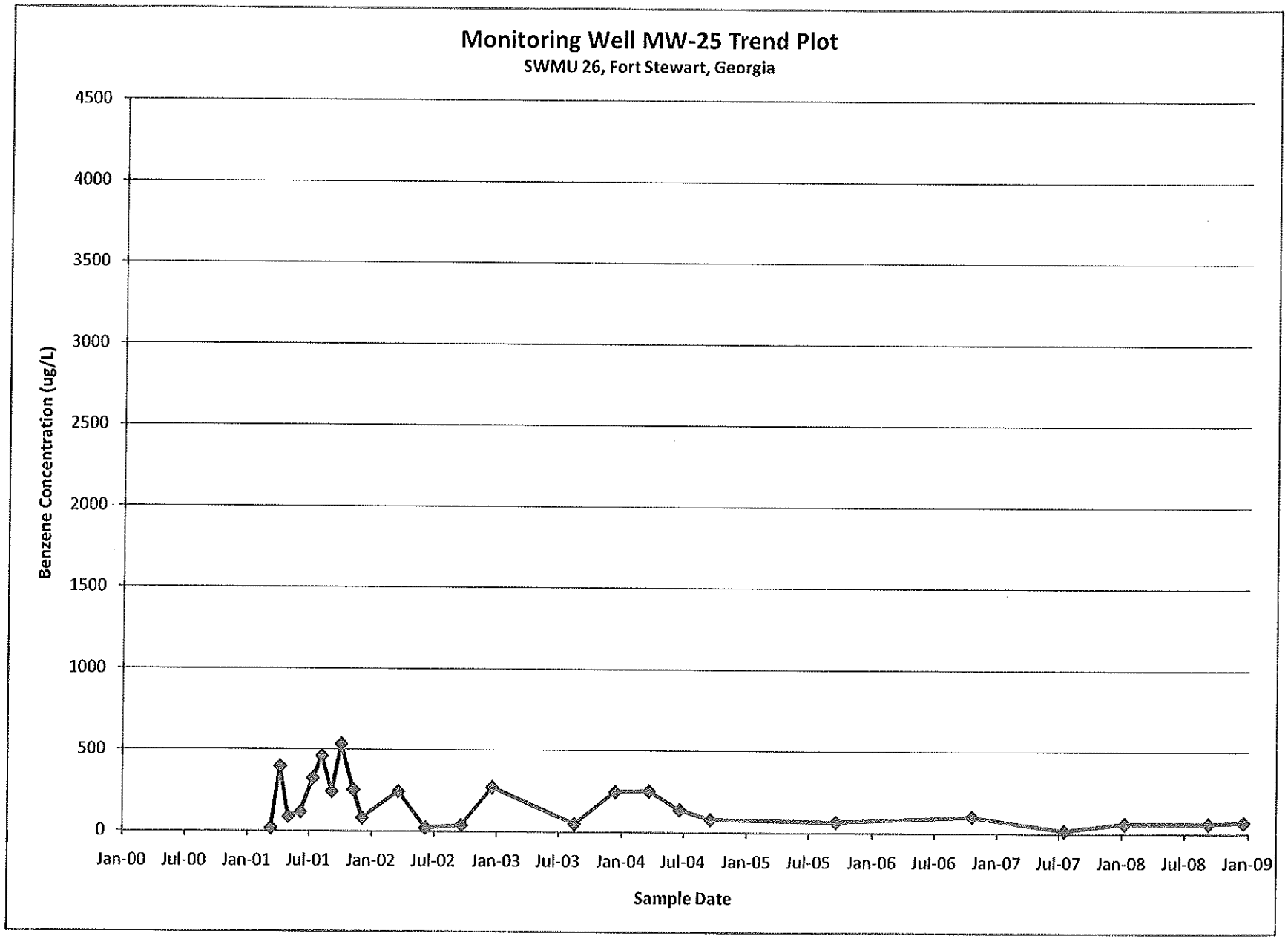
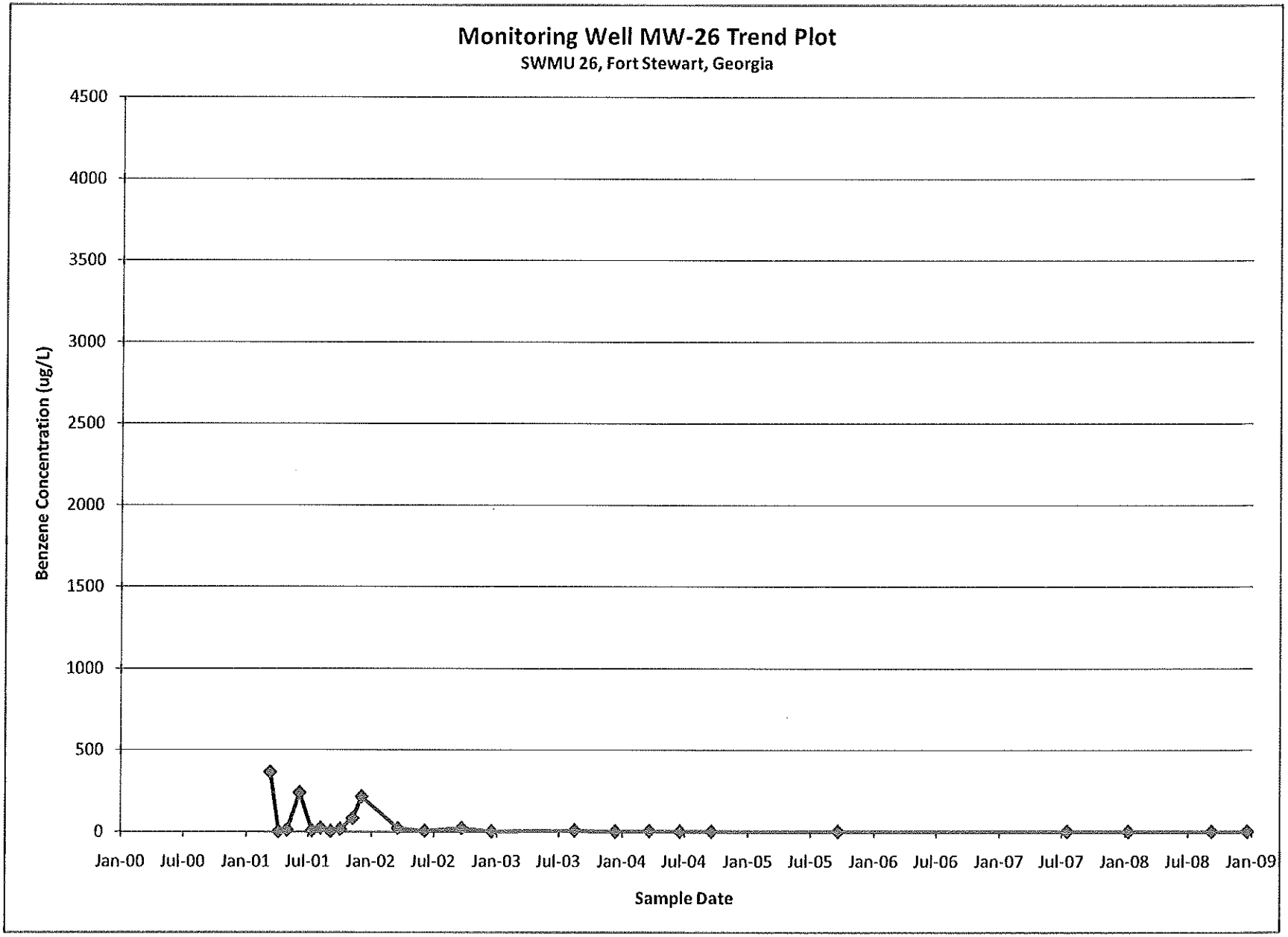
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-23 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-24 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-25 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-26 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
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Jan-07
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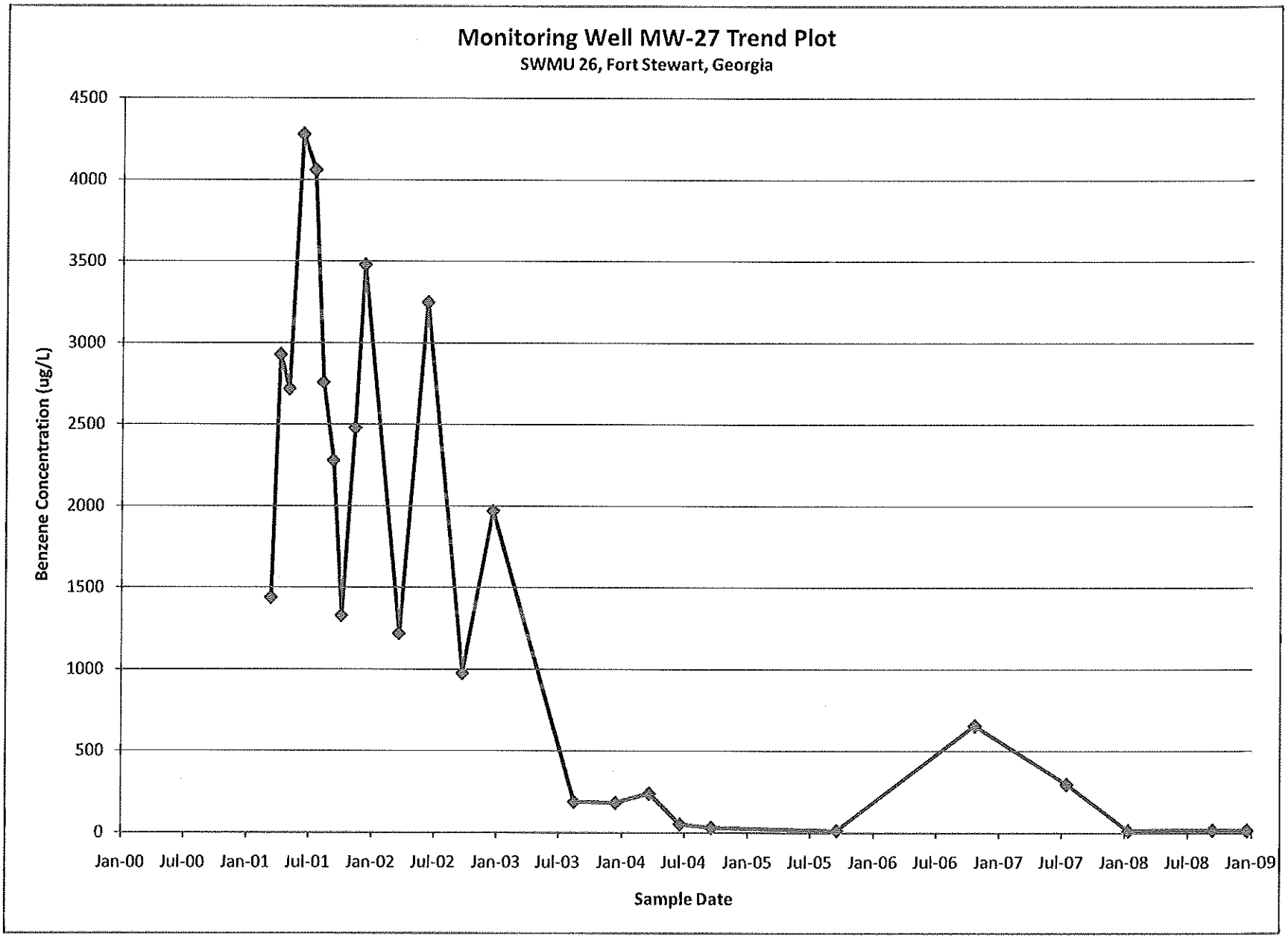
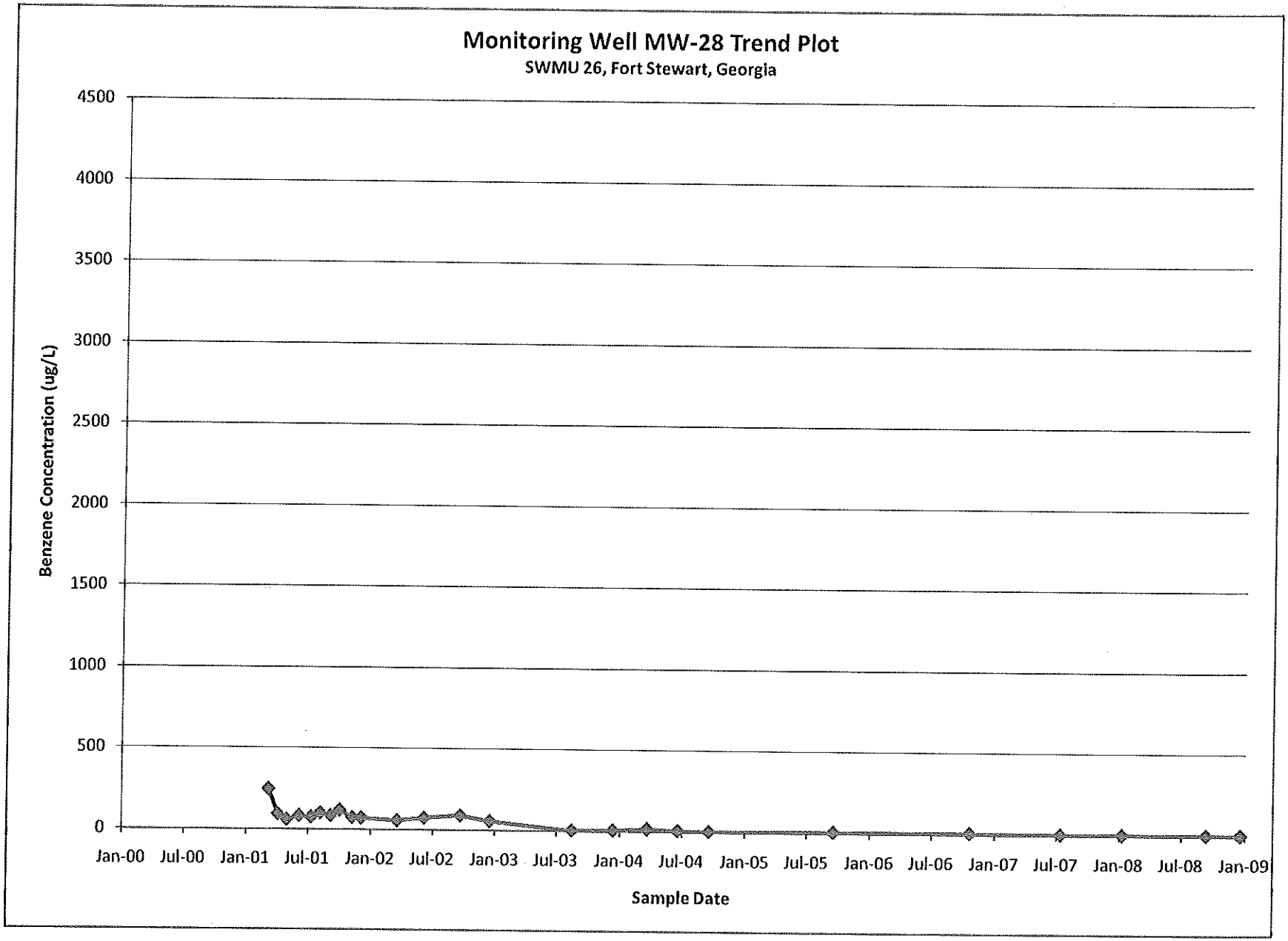
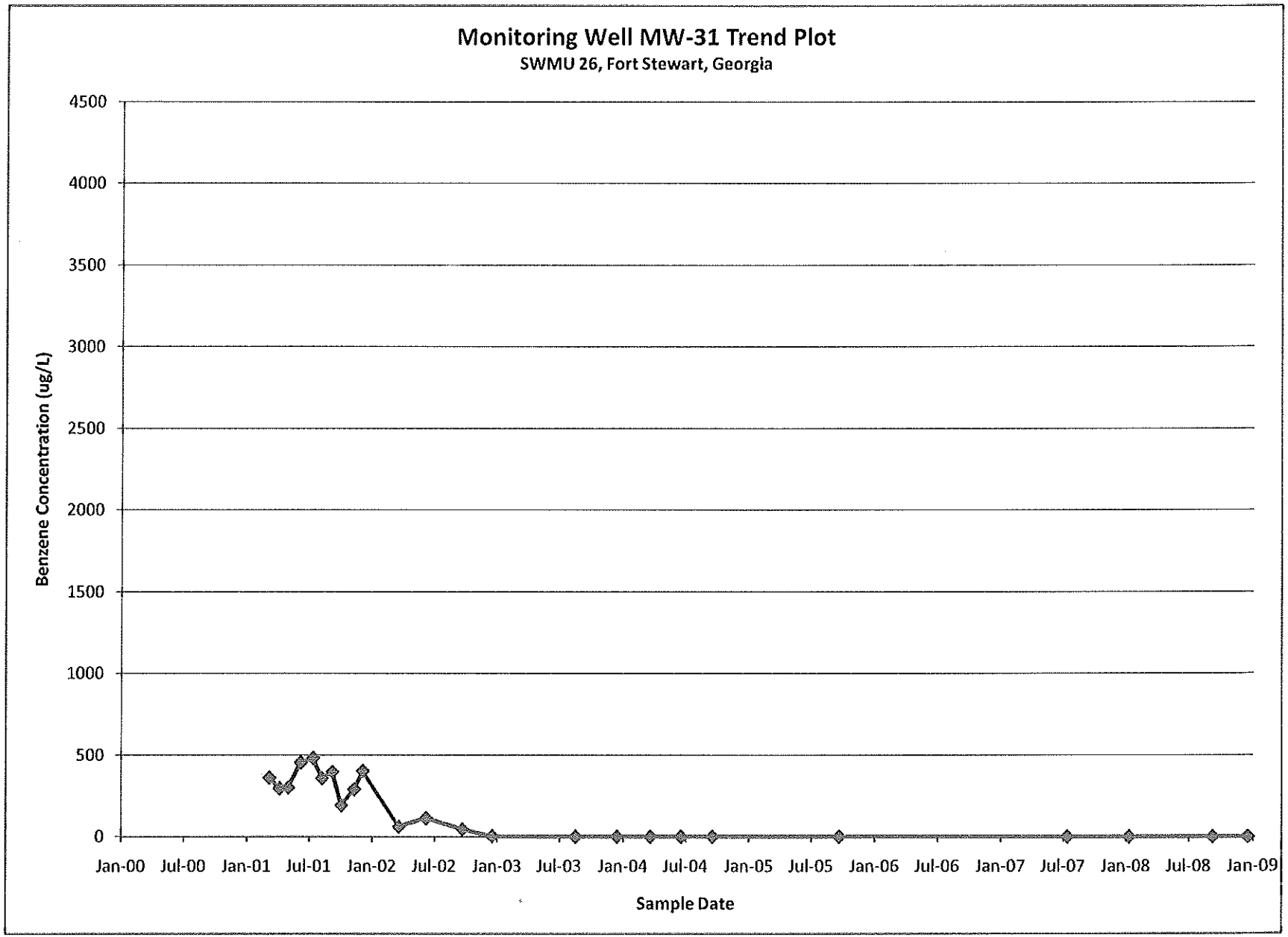
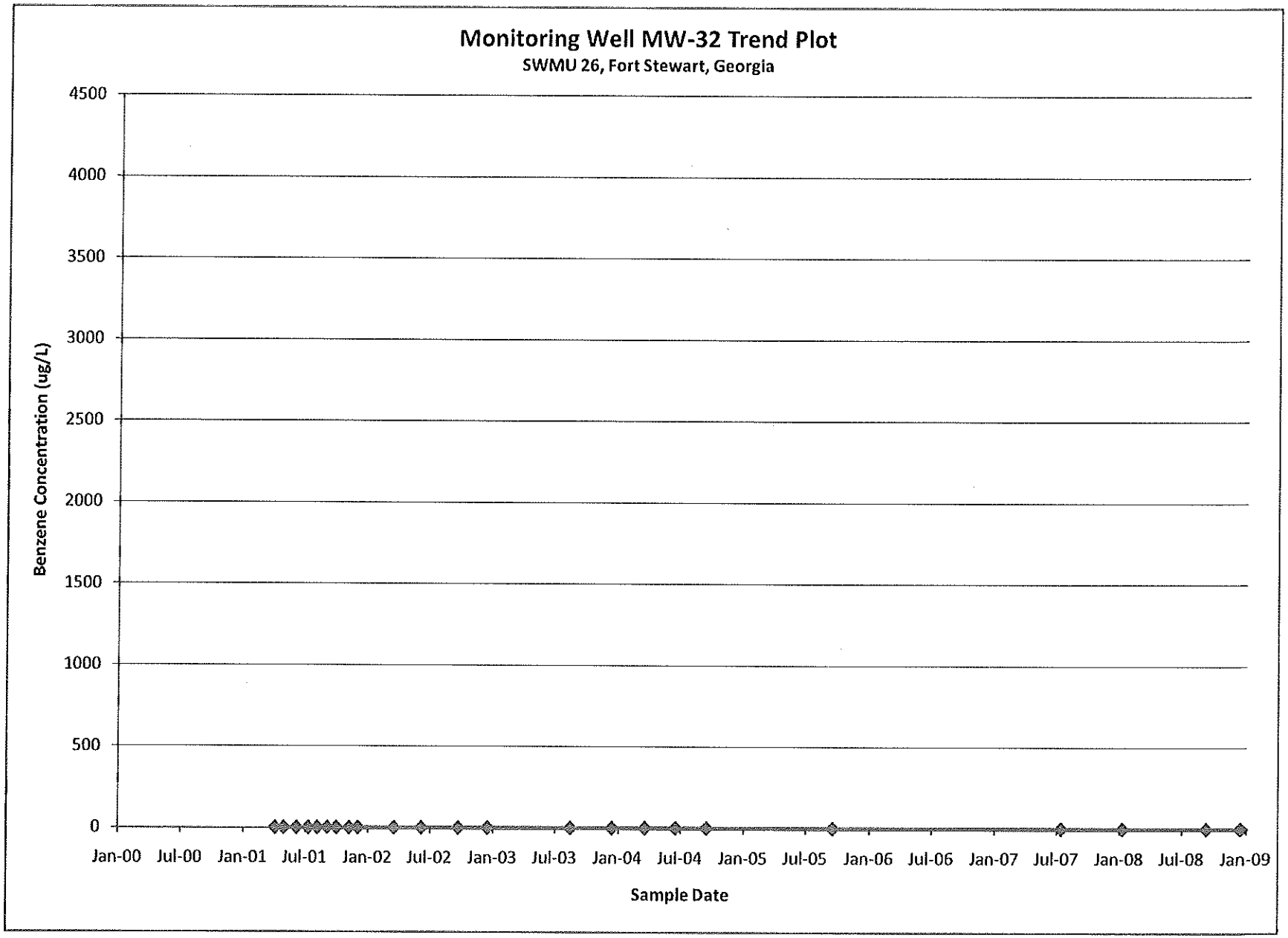
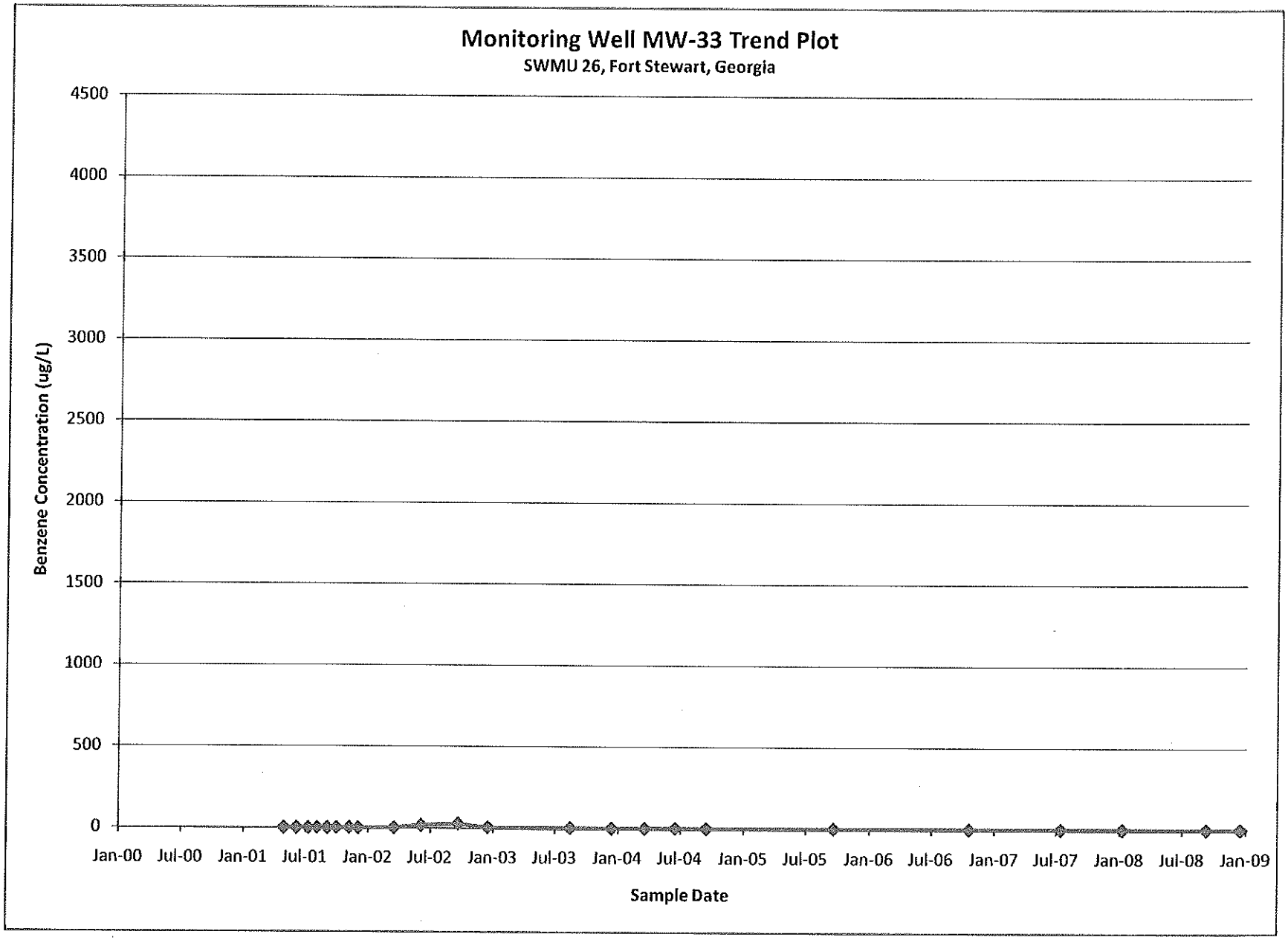
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-27 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-28 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-31 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-32 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-33 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
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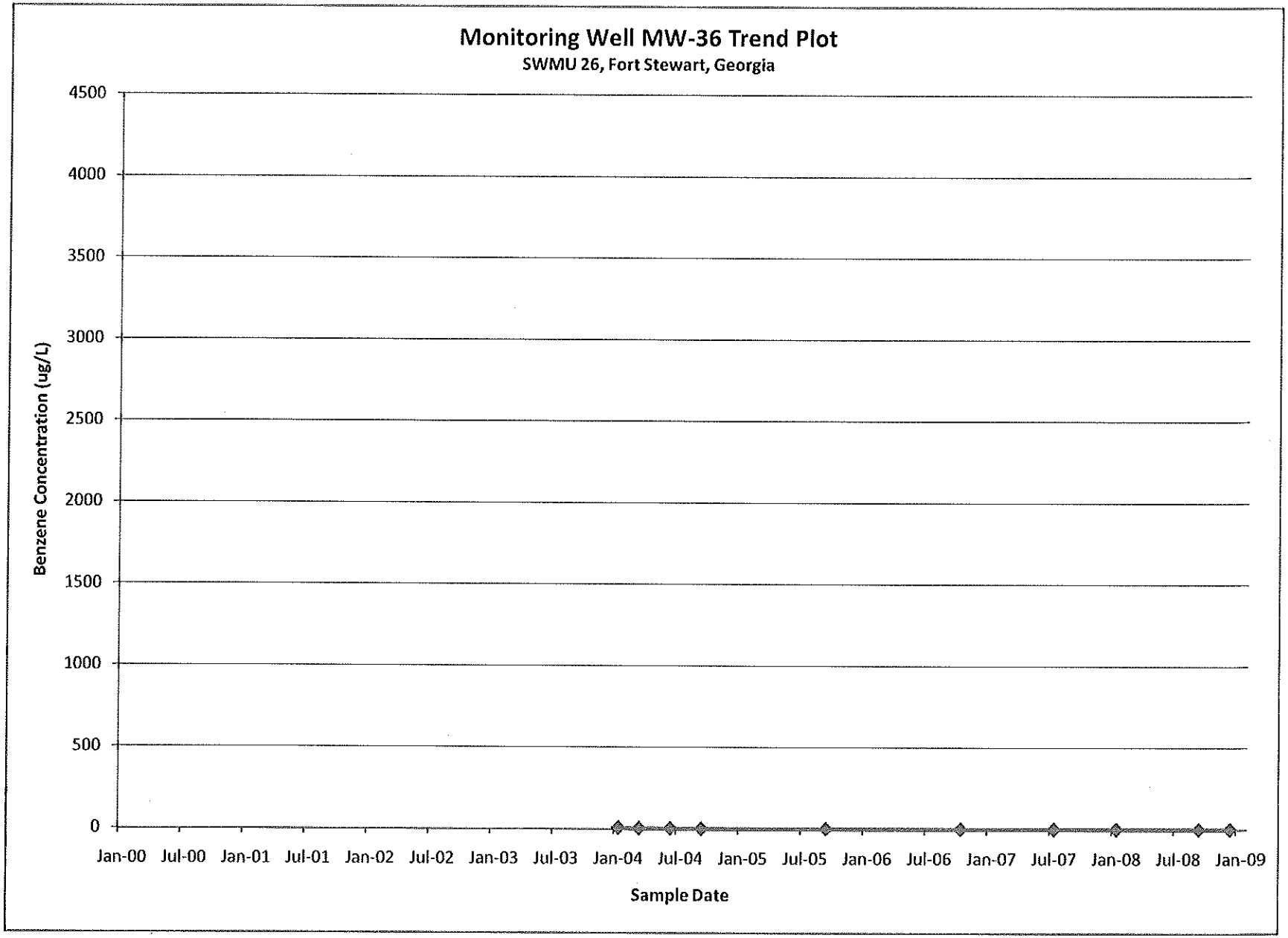
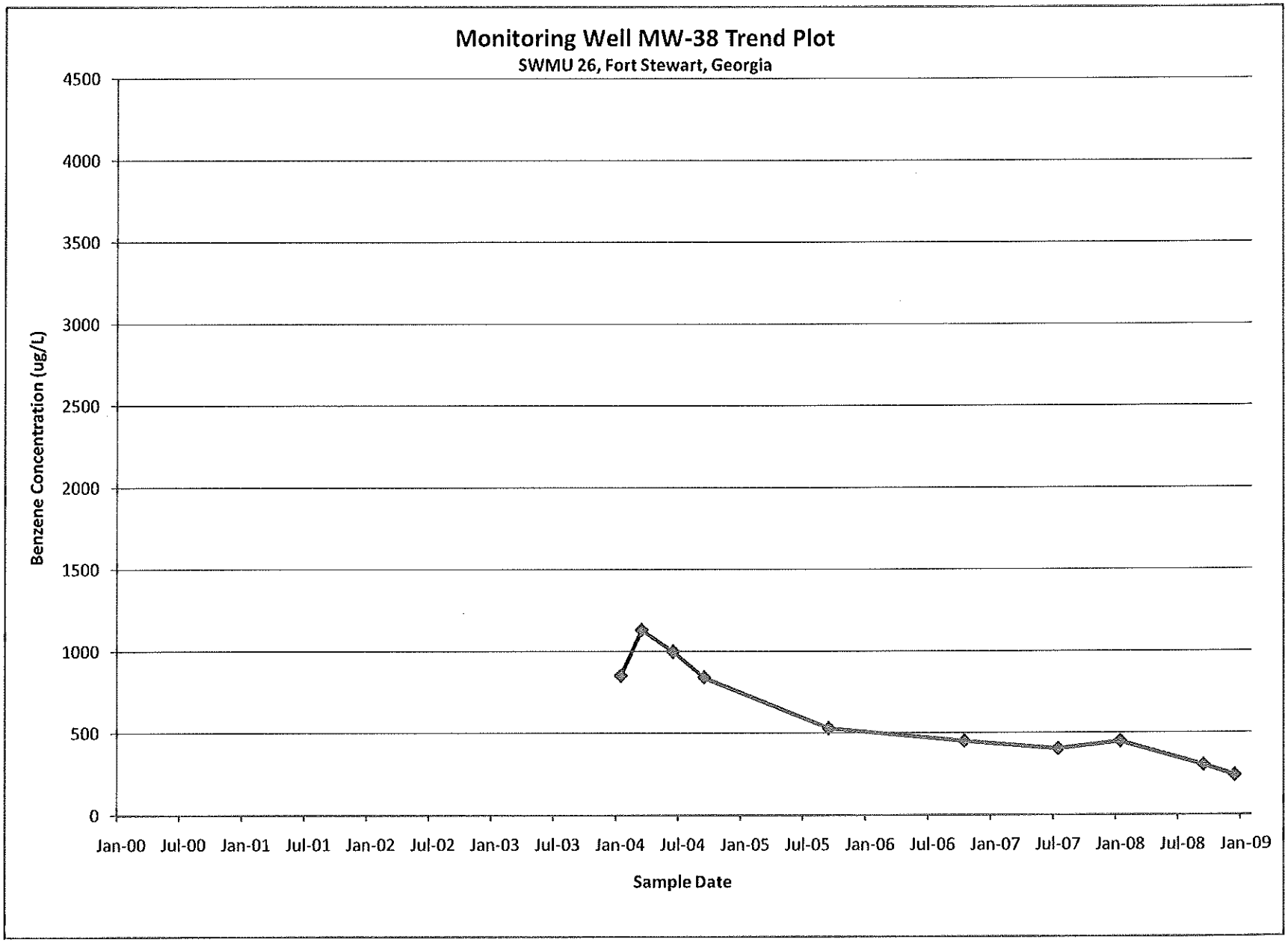
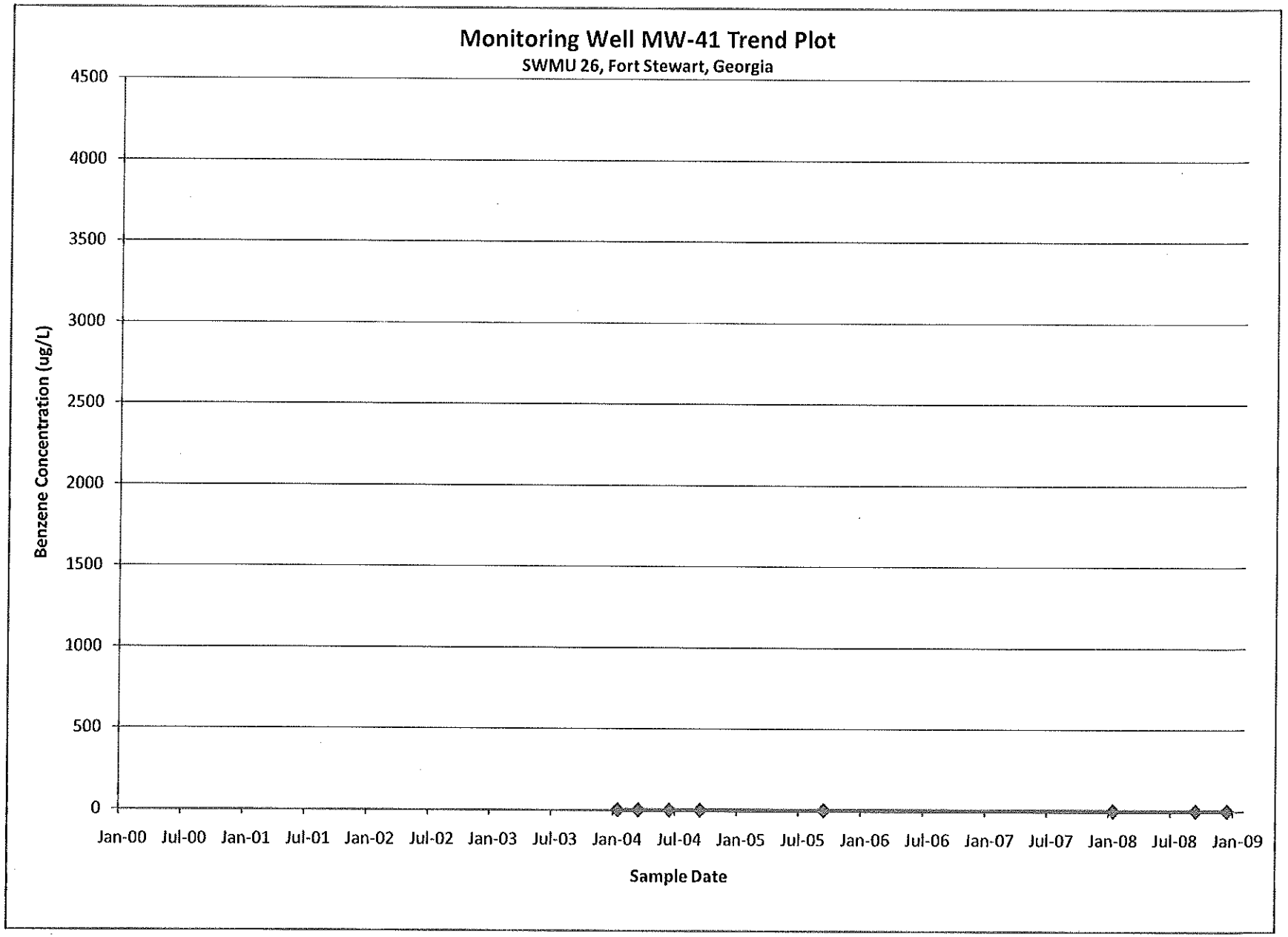
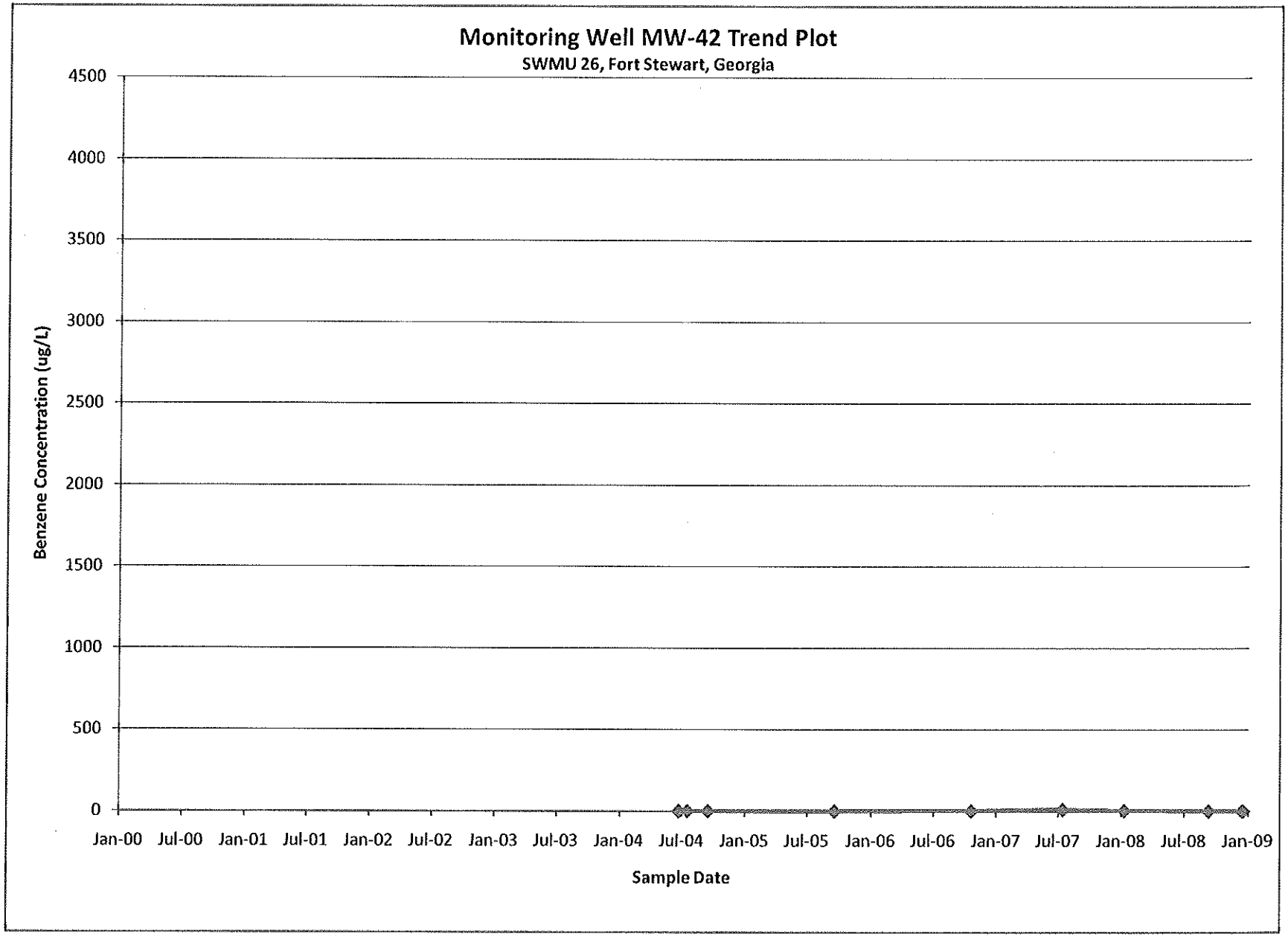
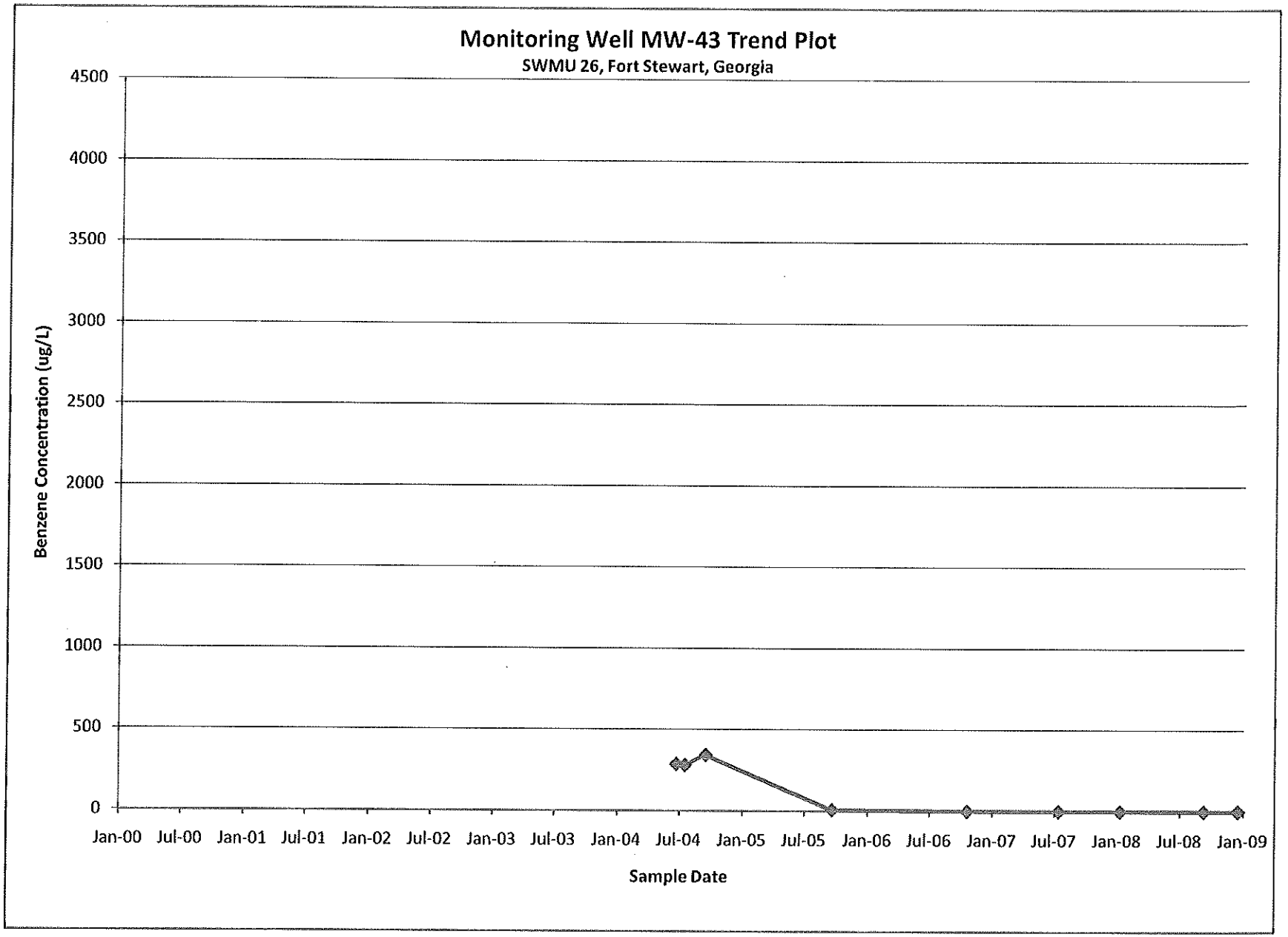
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

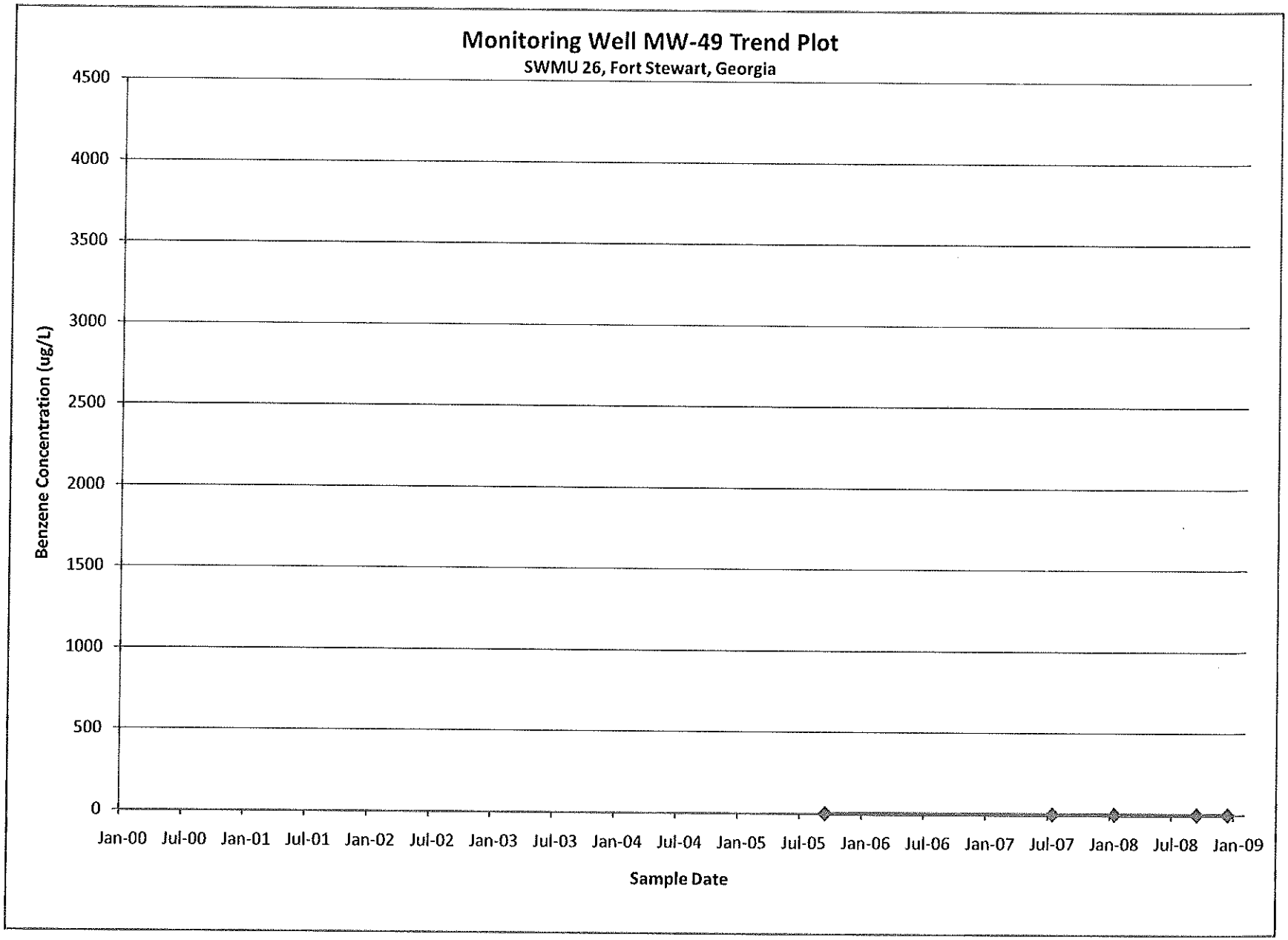

Monitoring Well MW-36 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

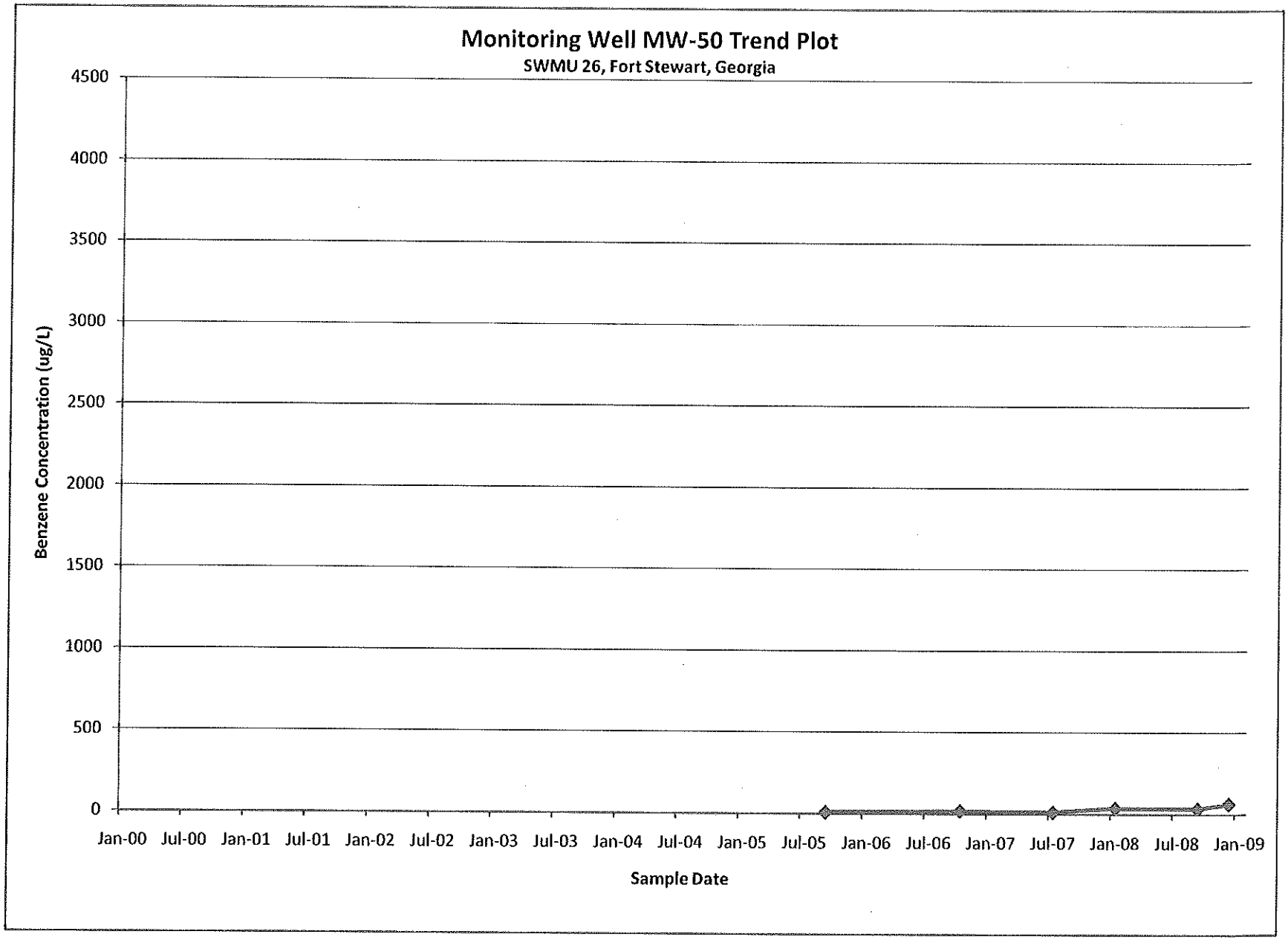

Monitoring Well MW-38 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

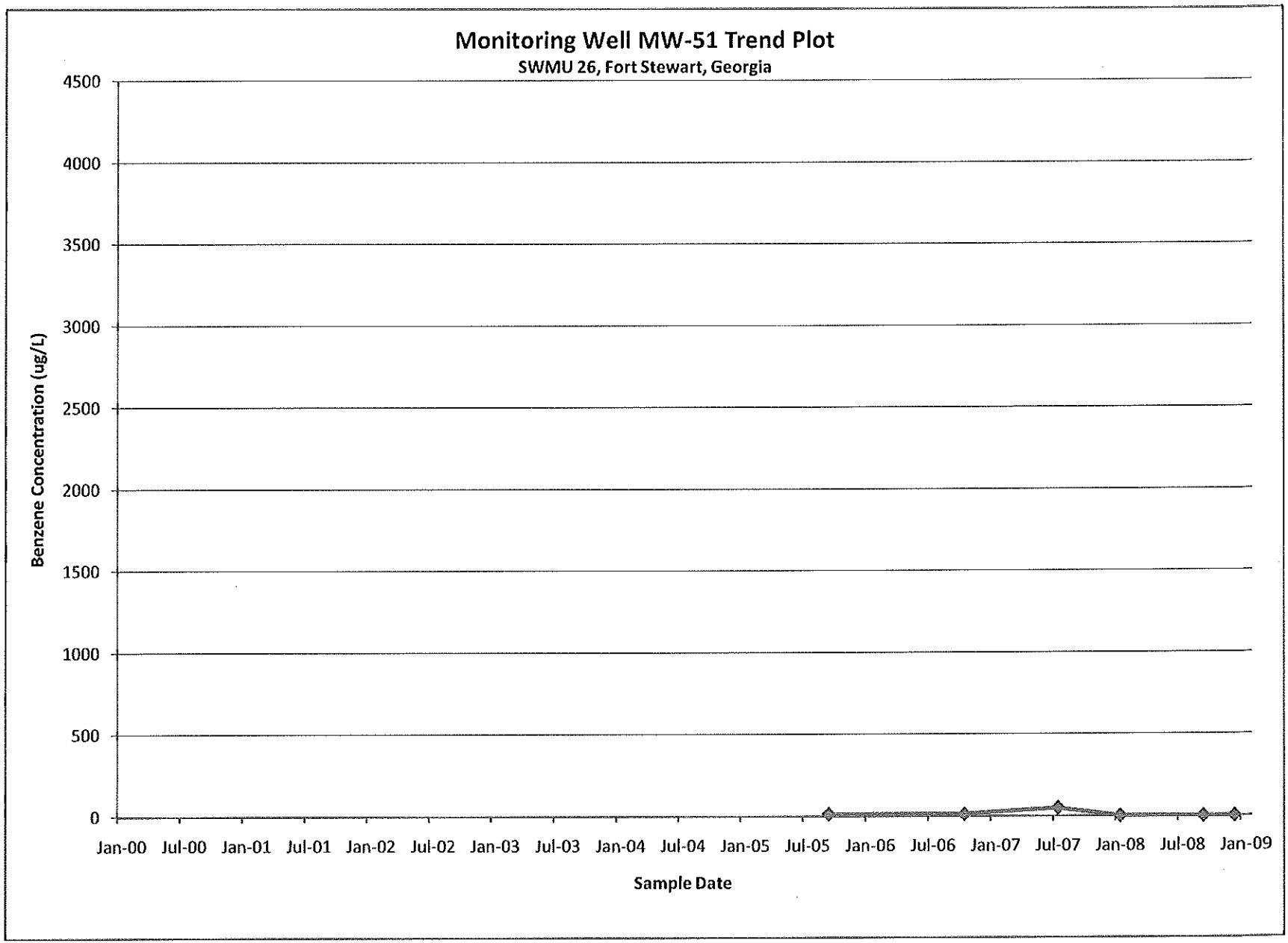

Monitoring Well MW-41 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

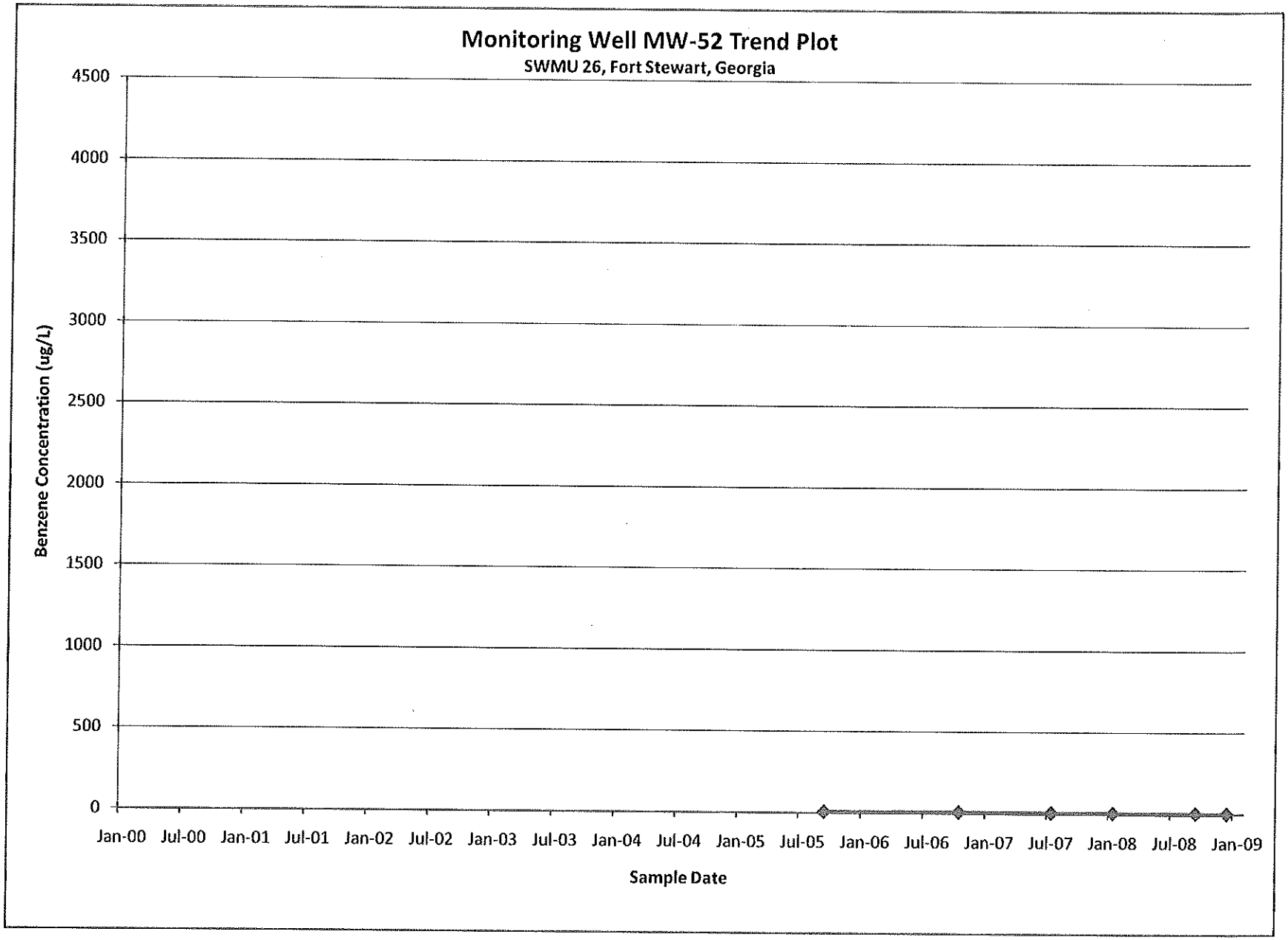

Monitoring Well MW-42 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

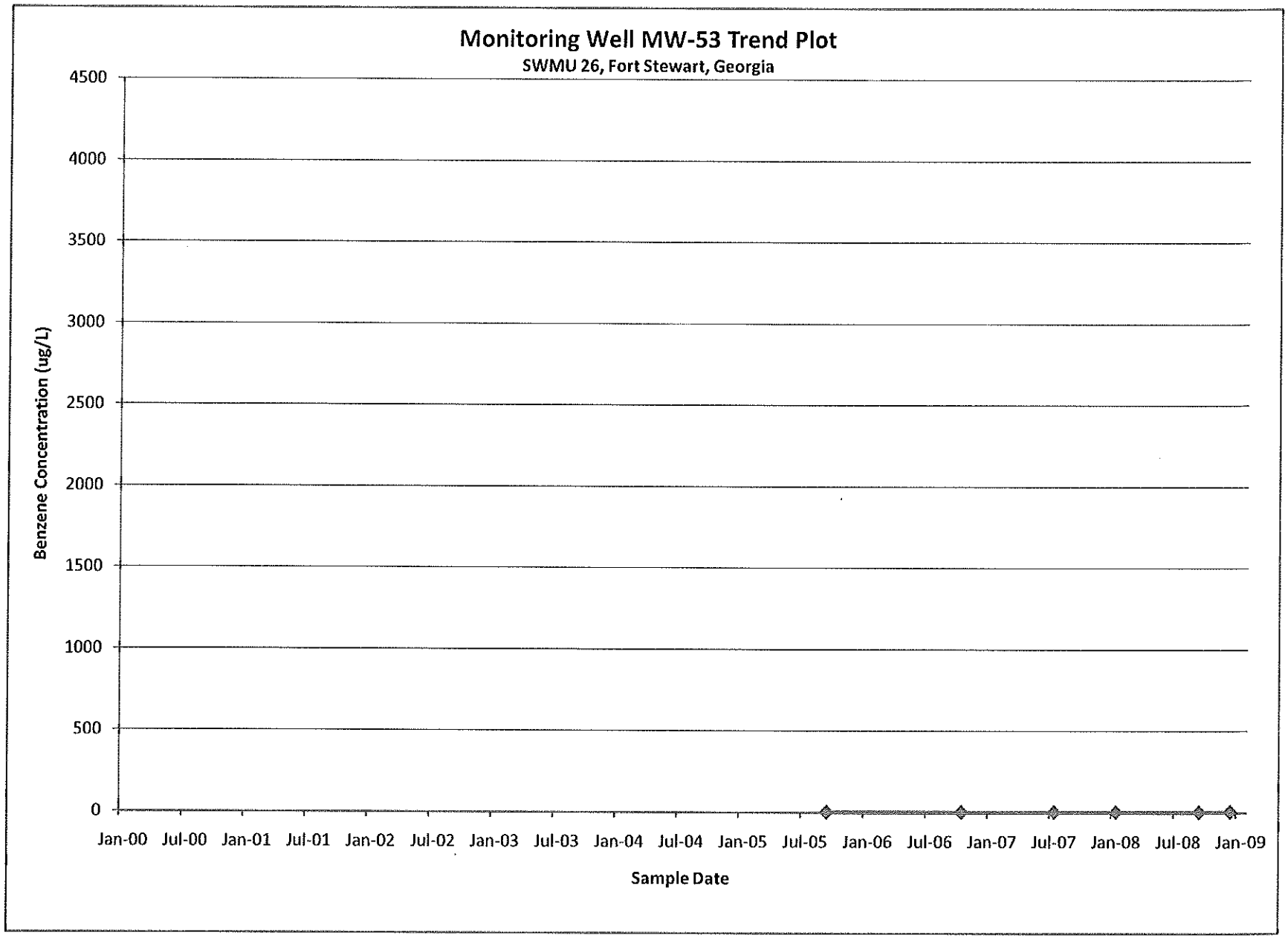

Monitoring Well MW-43 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

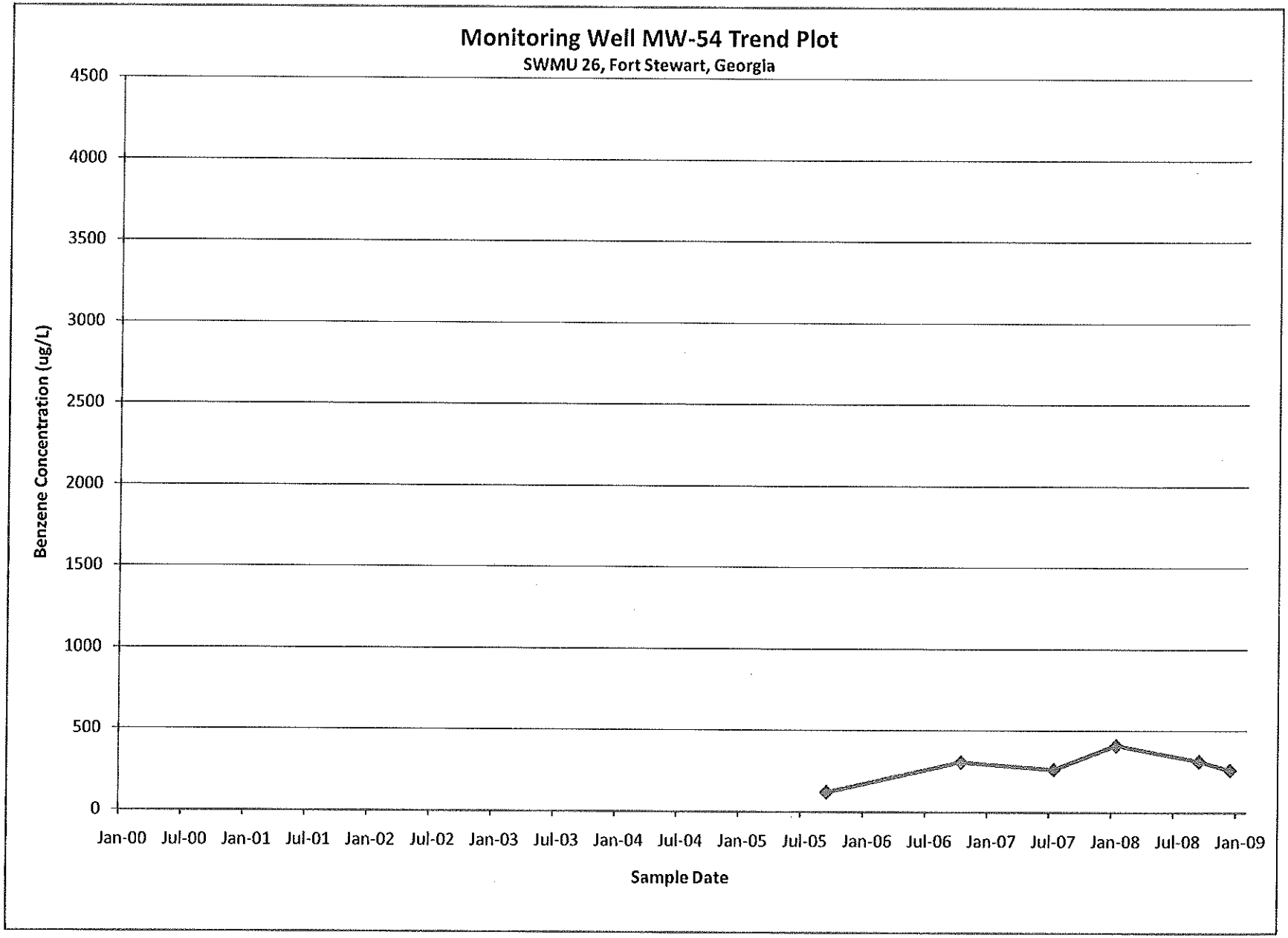

Monitoring Well MW-49 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

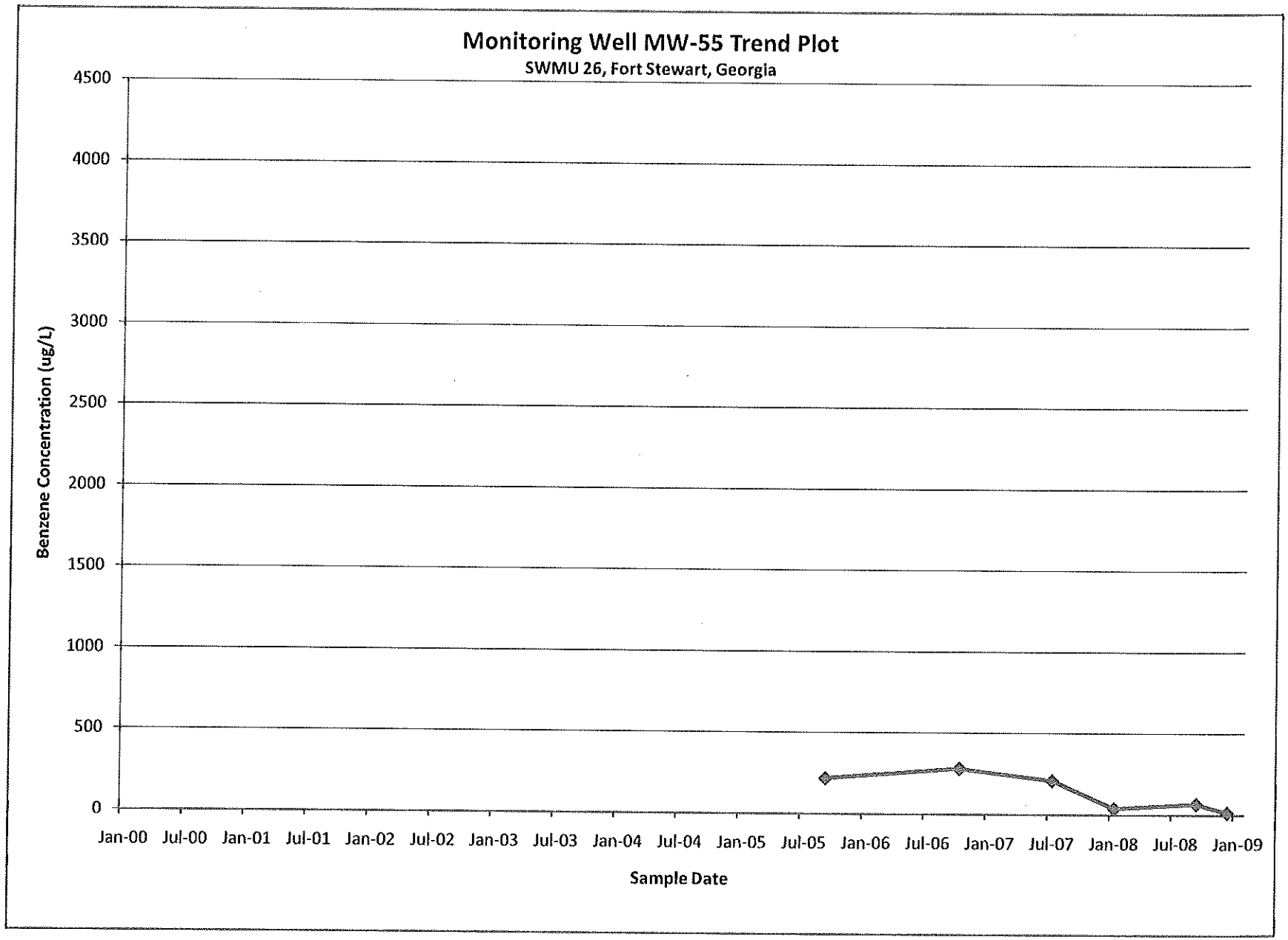

Monitoring Well MW-50 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

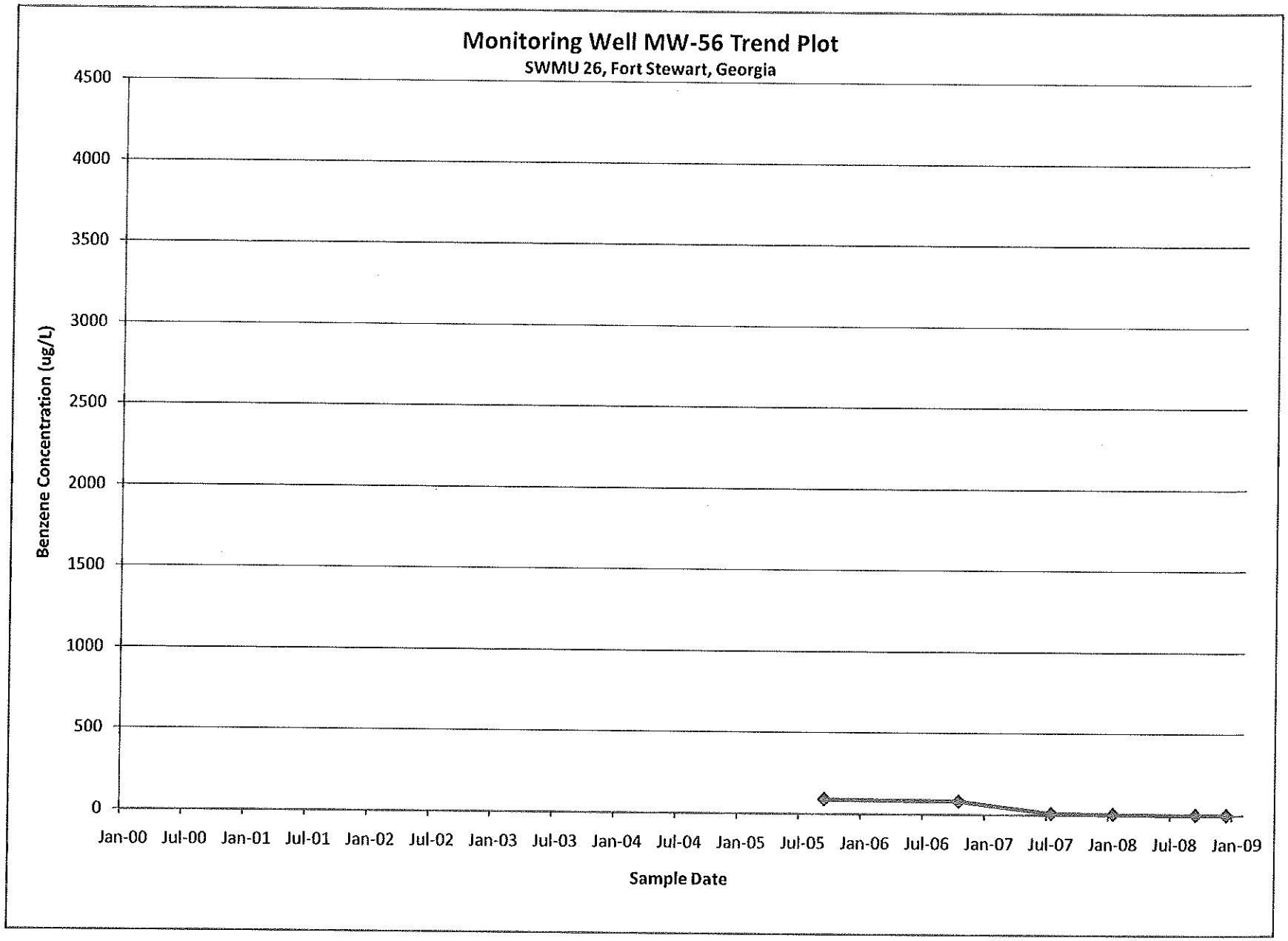

Monitoring Well MW-51 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

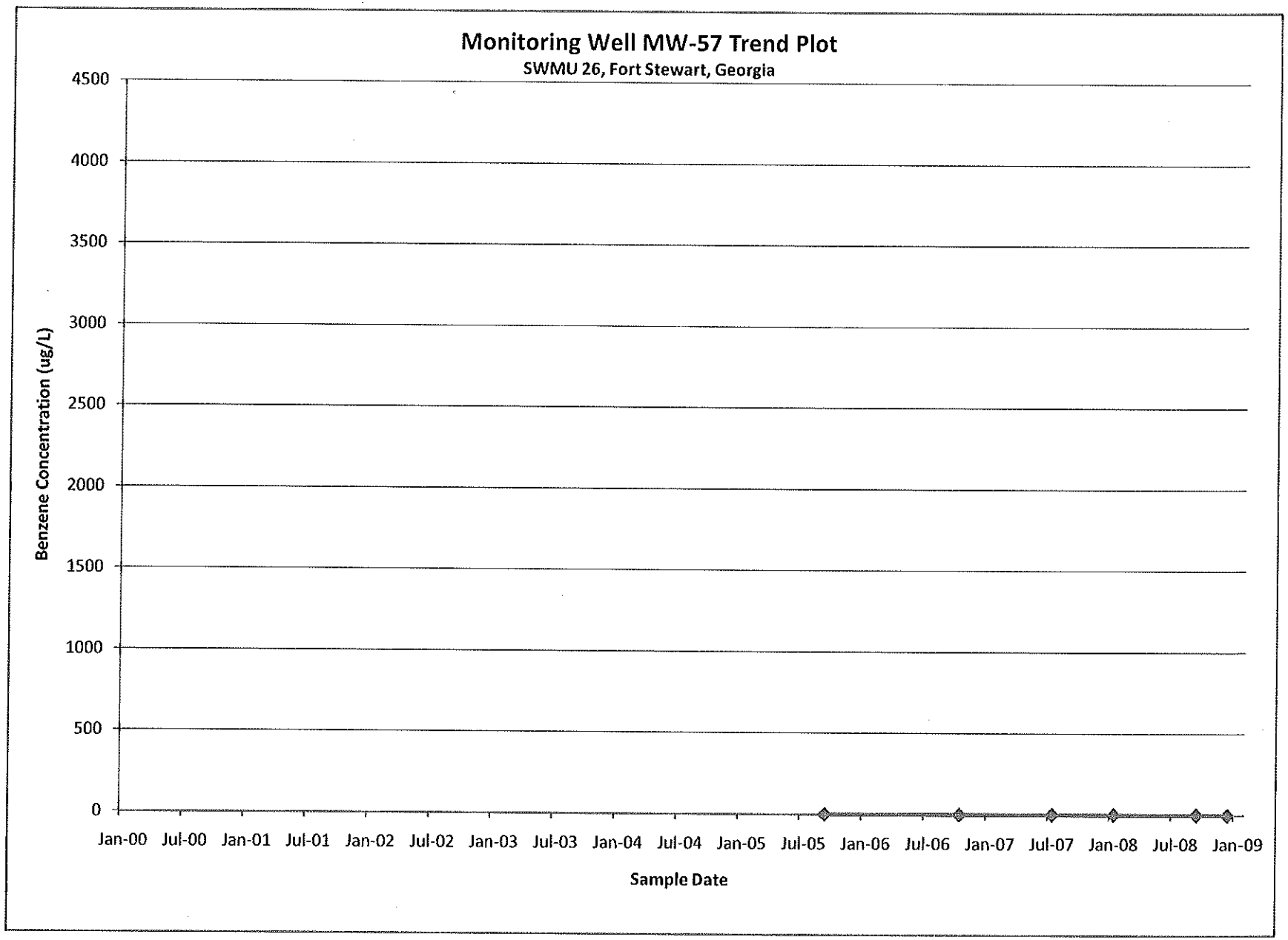

Monitoring Well MW-52 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-53 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-54 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-55 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-56 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date


Monitoring Well MW-57 Trend Plot
SWMU 26, Fort Stewart, Georgia
Benzene Concentration (ug/L)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-00
Jul-00
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Sample Date

ARCADIS

Appendix C

Data Validation Reports

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDGs: JL19016, JL19059, JL19058, and JL23017
December 2008

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

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

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

Manual review was performed for the following items:

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

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

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

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDGs: JL19016, JL19059, JL19058, and JL23017
December 2008

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

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

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

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

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

U Non detect

DQM RUN BY:	Rachelle Borne	January 15, 2009
REVIEW PERFORMED BY:	Rachelle Borne	January 17, 2009
SIGNATURE:	Rachelle Borne	January 19, 2009
PEER REVIEW:	Jane Kennedy	January 17, 2009

ARCADIS

HUNTER STEWART
ELECTRONIC VALIDATION REVIEW REPORT
SDGs: JL19016, JL19059, JL19058, and JL23017
December 2008

The following samples were included in this SDG:

sample delivery group	sys sample code	sample date	parent sample
JL19058	D-MW13 (121708)	12/17/2008	
JL19058	D-MW17 (121708)	12/17/2008	
JL19058	D-MW18 (121708)	12/17/2008	
JL19058	D-MW19 (121708)	12/17/2008	
JL19058	D-MW2 (121708)	12/17/2008	
JL19058	D-MW22 (121708)	12/17/2008	
JL19058	D-MW33 (11708)	12/17/2008	
JL19058	D-MW34 (121608)	12/16/2008	
JL19058	D-MW35 (121708)	12/17/2008	
JL19058	D-MW36 (121608)	12/16/2008	
JL19058	D-MW37 (121708)	12/17/2008	
JL19058	D-MW38 (121708)	12/17/2008	
JL19058	D-MW39 (121708)	12/17/2008	
JL19058	D-MW40 (121708)	12/17/2008	
JL19058	D-MW8 (121708)	12/17/2008	
JL19058	P1-MW11 (121608)	12/16/2008	
JL19058	P1-MW12 (121608)	12/16/2008	
JL19058	P1-MW13 (121608)	12/16/2008	
JL19059	26-MW-19(121808)	12/18/2008	
JL19059	26-MW-22(121808)	12/18/2008	
JL19059	26-MW-23(121808)	12/18/2008	
JL19059	26-MW-31(121808)	12/18/2008	
JL19059	26-MW-32(121808)	12/18/2008	
JL19059	26-MW-33(121808)	12/18/2008	
JL19059	26-MW-42(121808)	12/18/2008	
JL19059	26-MW-43(121808)	12/18/2008	
JL19059	26-MW-49(121808)	12/18/2008	
JL19059	26-MW-50(121808)	12/18/2008	
JL19059	26-MW-51(121808)	12/18/2008	
JL19059	26-MW-52(121808)	12/18/2008	
JL19059	26-MW-57(121808)	12/18/2008	
JL19059	D-MW41 (121708)	12/17/2008	
JL19059	D-MW42 (121708)	12/17/2008	
JL19059	D-MW43 (121808)	12/18/2008	
JL19059	P1-MW42 (121708)	12/17/2008	
JL19059	TB-1 (121608)	12/19/2008	
JL19059	DUP-HAA13R1-2 (121708)	12/17/2008	D-MW35 (121708)
JL19059	DUP-HAA13RI-1 (121608)	12/16/2008	D-MW34 (121608)
JL23017	26-MW-15(121908)	12/19/2008	
JL23017	26-MW-20(121908)	12/19/2008	
JL23017	26-MW-21(121908)	12/19/2008	
JL23017	26-MW-24(121908)	12/19/2008	

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sample delivery group	sys sample code	sample date	parent sample
JL23017	26-MW-25(121908)	12/19/2008	
JL23017	26-MW-26(121908)	12/19/2008	
JL23017	26-MW-27(121908)	12/19/2008	
JL23017	26-MW-28(121908)	12/19/2008	
JL23017	26-MW-36(121908)	12/19/2008	
JL23017	26-MW-38(121908)	12/19/2008	
JL23017	26-MW-41(121808)	12/18/2008	
JL23017	26-MW-53(121808)	12/18/2008	
JL23017	26-MW-54(121908)	12/19/2008	
JL23017	26-MW-55(121908)	12/19/2008	
JL23017	26-MW-56(121908)	12/19/2008	
JL23017	26-MW-6(121908)	12/19/2008	
JL23017	26-MW-7(121908)	12/19/2008	
JL23017	DUP-FST-26-1(121908)	12/19/2008	26-MW-6(121908)
JL23017	DUP-FST-26-2(121908)	12/19/2008	26-MW-38(121908)
JL23017	TB-2 (121808)	12/23/2008	
JL19016	P1-MW1(121708)	12/17/2008	
JL19016	D-MW1 (121608)	12/16/2008	
JL19016	D-MW5R(121708)	12/17/2008	
JL19016	D-MW6R(121708)	12/17/2008	
JL19016	DUP-HAA13R2-1(121708)	12/17/2008	P1-MW2(121808)
JL19016	P1-MW18(121708)	12/17/2008	
JL19016	P1-MW19(121708)	12/17/2008	
JL19016	P1-MW2(121808)	12/17/2008	
JL19016	P1-MW22(121708)	12/17/2008	
JL19016	P1-MW23(121708)	12/17/2008	
JL19016	P1-SW11(121808)	12/17/2008	
JL19016	P1-SW12(121808)	12/17/2008	
JL19016	P-HGL (121608)	12/16/2008	
JL19016	P-MW1 (121608)	12/16/2008	
JL19016	P-MW2 (121608)	12/16/2008	
JL19016	P-MW3 (121608)	12/16/2008	
JL19016	P-MW4 (121608)	12/16/2008	
JL19016	P-MW5 (121608)	12/16/2008	
JL19016	TB1 (121608)	12/19/2008	
JL19016	TB-1(121708)	12/19/2008	
JL19058	D-MW11 (121708)	12/17/2008	
JL19058	D-MW12 (121708)	12/17/2008	

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ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

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

QA - quality assurance

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

Note: The temperature of several coolers were below the recommended temperature at 1.8 degrees C upon receipt at the laboratory. No qualification is warranted since none of the samples were frozen.

(JL19059) D-HW40(121708) was listed on the COC, but were reported in SDG JL19058.

(JL23017) 26-MW-51(121808), 26-MW-43(1218080 and 26-MW-33(121808) were listed on the COC, but were reported in SDG JL19059.

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The following field QC samples were collected and included in this SDG:

Date Collected	QC Sample ID	Associated Samples	QC Type	SDG Number
12/19/2008	DUP-FST-26-1(121908)	26-MW-6(121908)	Field Duplicate	JL23017
12/19/2008	DUP-FST-26-2(121908)	26-MW-38(121908)	Field Duplicate	JL23017
12/17/2008	DUP-HAA13R2-1(121708)	P1-MW2(121808)	Field Duplicate	JL19016
12/19/2008	TB1 (121608)	Samples shipped on 12/19/2008	Trip Blank	JL19016
12/19/2008	TB-1 (121608)	Samples shipped on 12/19/2008	Trip Blank	JL19059
12/19/2008	TB-1(121708)	Samples shipped on 12/19/2008	Trip Blank	JL19016
12/23/2008	TB-2 (121808)	Samples shipped on 12/23/2008	Trip Blank	JL23017

Comments:

All analyses were performed by Shealy Environmental Services, Inc. – West Columbia, South Carolina.

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SDGs: JL19016, JL19059, JL19058, and JL23017
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VOLATILE ORGANIC COMPOUNDS

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

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

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

2. (All SDGs) Several samples were analyzed at dilutions due to elevated concentrations of target analytes. In several cases there were elevated reporting limits for non-detect results.

5. (JL19016) The RPDs between the LCS/LCSD pair for carbon disulfide and 1,1,2,2-tetrachloroethane were above the control limit in batch 93245. The associated field samples were non-detect for these compounds. No qualification is necessary.

6. (JL19016) P1-MW23(121708) was used for the MS/MSD for batch 92569. The recovery of xylenes was below the control limit in the MS and the MSD. All samples analyzed in the analytical batch are qualified as estimated based on professional judgment. See attached qualification summary for details of the qualifications.

(JL19016) P-MW2(121608) was used as the MS/MSD for batch 93245. The recovery of acetone was above the control limit in the MS and the MSD. The associated field samples were non-detect for this compound. No qualification is necessary.

7. (JL19016) DUP-HAA13R2-1(121708) was collected as a field duplicate of P1-MW2(121808). The RPDs were acceptable at less than 40%.

(JL19059) DUP-HAA13RI-1(121608) was collected as a field duplicate of D-MW34(121608). The RPDs for benzene, ethylbenzene, toluene, and xylenes were above the control limit. The parent and the duplicate only are qualified as estimated for these compounds based on professional judgment and acceptable RPDs for other field duplicates.

(JL19059) DUP-HAA13R1-2(121708) was collected as a field duplicate of D-MW35(121708). The RPDs were acceptable at less than 40%.

(JL23017) DUP-FST-26-1(121908) was collected as a field duplicate of 26-MW-6(121908). The RPDs for toluene, and xylenes were above the control limit. The parent and the duplicate only are qualified as estimated for these compounds based on professional judgment and acceptable RPDs for other field duplicates.

METALS - Lead

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

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

Comments:

This section presents a discussion of any additions or changes to the electronic data validation for compounds analyzed by Method 6010.

5. (JL19058) D-MW37(121708) was used for the MS/MSD. The recoveries and RPD were acceptable.

   (JL19058) D-MW38(121708) was used for the MS. The recovery was acceptable.

6. (JL19059) DUP-HAA13RI-1(121608) was collected as a field duplicate of D-MW34(121608). The RPD was acceptable at less than 40%.

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Appendix D

Waste Manifests

39448

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number
			[illegible]	[illegible]

5. Generator's Name and Mailing Address
Hunter Army Airfield
c/o ARCADIS, 2849 Paces Ferry Rd.
Suite 400, Atlanta, GA 30339
Generator's Phone: 770-431-8666

Generator's Site Address (if different than mailing address)
Hunter Army Airfield
Savannah, GA

6. Transporter 1 Company Name
A&D Environmental Services (SC) LLC (fka Nutley Environmental Services, LLC)
U.S. EPA ID Number: SCD007509331

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
VLS
305 South Main Street
Mauldin, SC 29662
Facility's Phone: 864-962-9953
U.S. EPA ID Number: SCR000762489

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZARDOUS NON-REGULATED MATERIAL Purge water Profile# 9318	4	DM	800	P
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
PO# 12156 A&D(SC)
JOB# 2008-897
(88337)
Contact at ARCADIS: Erica Maddox 770-431-8666
Project #: GP08HAFS.0000
Prime Contract#: W91ZLK-05-D-0015-0002

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Ronald S. Gilcott
Signature: Ronald S. Gilcott
Month 04 Day 23 Year 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kenzie Hickman
Signature: Kenzie Hickman
Month 4 Day 23 Year 09

Transporter 2 Printed/Typed Name: John Walker
Signature: John Walker
Month 4 Day 27 Year 09

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Todd Kerr
Signature: [signature]
Month 04 Day 27 Year 09

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

169-BLC-O 6 10498 (Rev. 8/06)

TRANSPORTER #1

30448

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number
		[illegible]	[illegible]

GENERATOR

5. Generator's Name and Mailing Address: Fort Stewart c/o ARCADIS, 2839 Paces Ferry Rd. Suite 400, Atlanta, GA 30339
Generator's Phone: 770-431-8500
Generator's Site Address (if different than mailing address): Fort Stewart Ft. Stewart, GA

6. Transporter 1 Company Name: MD Environmental Services (SC), LLC (fka Phillips Environmental Services, LLC)
U.S. EPA ID Number: SCD987580231

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address: VLS, 905 South Main Street, Moncks, SC 29582
U.S. EPA ID Number: SCR000762468
Facility's Phone: 864-672-0951

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt/Vol.	
1.	NON-HAZARDOUS NON-REGULATED MATERIAL Purge water Profile# 0315	3	DM	250	P	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
PO# 121561 REQ(SC) JOB# 2006-507 (88335)
Contact at ARCADIS: Eric Nadon 770-431-8500
Project#: GP08HAFS.0000
Prime Contract#: W912LK-05-D-0015-0003

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Jeffrey Bond
Signature
Month: 04 Day: 23 Year: 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Kenzie Hickman
Signature
Month: 04 Day: 23 Year: 09
Transporter 2 Printed/Typed Name: John Walk
Signature
Month: 4 Day: 27 Year: 09

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name
Signature
Month: 05 Day: 07 Year: 09

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DESIGNATED FACILITY'S COPY