2005 Ground Water Monitoring Report

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

December 14, 2006

Project No. 21-04

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Executive Summary

Tronox LLC and its predecessor, Kerr-McGee Chemical, LLC (KMC LLC), have conducted investigations and remediation at the former Gulf States Creosoting site in Hattiesburg, Mississippi since 1996. During that time, site ground water quality and conditions have been characterized through multiple phases of investigation, which included the installation and sampling of 24 monitoring wells and over 30 temporary well points. The lateral extent of affected ground water was delineated and was also confirmed through eight initial quarterly monitoring events conducted from late 2001 through 2003. In 2004, KMC LLC requested and the Mississippi Department of Environmental Quality (MDEQ) approved a decrease to annual ground water monitoring frequency for the Gulf States Creosoting site.

Two separate and distinct areas of ground water contamination have been identified: the former Process Area/northeast drainage ditch area and the Fill Area. The shallow geology beneath these areas is significantly different and the shallow water-bearing zones beneath the two areas are not hydraulically connected. The two affected ground water zones are unused for any purpose in the Hattiesburg area. Furthermore, in 2002 the Hattiesburg City Council adopted an ordinance prohibiting the development and use of ground water resources within the City limits.

In 2003, KMC implemented remedial measures that included the removal and offsite disposal of materials constituting potential sources of ground water contamination (i.e., materials containing free product and creosote-saturated soils). In addition, remedial measures included containment and control elements designed to either reduce the potential for migration of constituents via the ground water pathway or to preclude the potential for infiltration/percolation of water through affected soils left in place.

The results of the initial eight quarterly ground water monitoring events and subsequent annual monitoring indicate that constituent concentrations in both affected areas have reached either steady-state or declining conditions. An evaluation of the ground water data also indicates that since source materials have been removed, conditions are generally favorable for natural attenuation of ground water constituents.

1.0 Introduction

This *Ground Water Monitoring Report* documents the results of ground water monitoring activities conducted at the former Gulf States Creosoting site in December 2005. Ground water monitoring was performed in accordance with the Mississippi Department of Environmental Quality (MDEQ)-approved *Ground Water Monitoring Plan* (Michael Pisani & Associates, June 25, 2001). Detailed site background, including information on previous ground water investigations and source area remediation, was provided in Section 1.0 of the *Ground Water Monitoring Report, Initial Eight Quarterly Events* (Michael Pisani & Associates, March 16, 2005). This background information is provided as Appendix A to this report.

2.0 Ground Water Monitoring Program

This section describes the ground water monitoring program for the site. Ground water sampling procedures are discussed in greater detail in Sections 3 and 4 of the *Ground Water Monitoring Plan (GWMP)*.

2.1 Ground Water Monitoring Well Network

A network of 24 monitoring wells was installed to monitor ground water quality and conditions beneath the site. In a letter dated May 13, 2005, MDEQ approved KMC LLC's request to plug and abandon six wells that were upgradient of affected areas (MW-01, MW-03, MW-04, MW-05, MW-10 and MW-13). All but MW-13 were plugged and abandoned prior to the December 2005 monitoring event. MW-13 will be plugged and abandoned once access to the property can be obtained from the surface leaseholder.

Existing monitoring well locations are depicted on Figure 1-3. Well completion information is summarized in Table 2-1.

2.2 Summary of Ground Water Monitoring Activities

The 2005 monitoring event was conducted during the week of December 12, 2005. Activities undertaken during the event included:

- Recorded static water levels in all existing monitoring wells;
- Purged wells to facilitate the collection of representative ground water samples;
- Collected samples for laboratory analyses; and
- Analyzed samples for site constituents and biogeochemical parameters.

Ground water monitoring activities are described in further detail in the following subsections.

2.2.1 Sample Containers and Preservatives

For each sampling event, clean, dedicated sample containers are provided by Tronox's contract laboratory, Lancaster Laboratories of Lancaster, Pennsylvania. The laboratory added the appropriate type and volume of chemical preservative to each sample container prior to shipping. The appropriate container type, preservative, and prescribed holding time for each analysis are summarized in Table 3-1 of the GWMP.

2.2.2 Water Level Measurement and Well Purging

Prior to purging, the water level in each well was measured to the nearest 0.01 foot with an electronic water level indicator. Water level data were used in conjunction with surveyed top-of-casing data to determine ground water elevations, flow direction, and hydraulic gradient. A discussion regarding ground water flow beneath the site is presented in Section 3.1 of this report.

Prior to sampling, wells were purged with an adjustable-rate, low-flow submersible pump and disposable polyethylene tubing. When necessary, the pumping rate was adjusted so that the purge rate was equal to the recharge rate (i.e., little or no drawdown was induced in the well). During purging, a multiprobe meter with a flow-through cell was used to monitor field parameters (i.e., pH, Eh, specific conductance, temperature, and dissolved oxygen). The approximate volume of water removed during purging was measured and recorded. Well purging was considered complete when field indicator parameters had stabilized to within 10 percent of the mean for three consecutive readings and less than 0.1 meter of drawdown was induced.

2.2.3 Sample Collection and Handling

Once well purging was complete, ground water samples were collected with the low-flow pump and dedicated tubing. In accordance with US EPA-prescribed procedures, the intake for the tubing was placed at the approximate midpoint of the screened interval. Ground water was discharged directly from the tubing into clean, laboratory-supplied sample containers. Samples for analyses of biogeochemical analysis were collected first, followed by samples for PAH analysis. Samples were placed immediately on ice in insulated coolers. Strict chain-of-custody documentation was maintained during sample collection, transport, and laboratory analysis.

Samples were packaged in a manner that minimized the potential for leakage or breakage. Sample coolers were delivered to the analytical laboratory via overnight courier. The temperature of the samples was recorded upon receipt at the laboratory.

2.2.4 Chain-of-Custody Control

Chain-of-custody forms were utilized to document sample custody from collection through analysis. Custody forms contain the following information:

- *Sample identification number*;
- Sampler's printed name and signature;
- Date and time of sample collection;
- Sample matrix;
- Analyses requested;
- Chemical preservatives; and
- Signatures of individuals in possession of the samples at any time.

The sampler retained one copy of each chain-of-custody form. Two copies of each form were shipped to the laboratory inside the sample coolers. Chain-of-custody seals were placed on each cooler to prevent tampering with the samples. Samples remained in the physical possession of the sample custodian, in direct view of the sample custodian, or stored in a secured area at all times.

2.2.5 Analytical Program

Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by SW-846 Method 8310 and for biogeochemical parameters by appropriate methods to determine if conditions continue to be favorable for monitored natural attenuation (MNA) to occur. Data obtained from these analyses are used to document intrinsic remediation of ground water constituents and may, in the future, be utilized in the evaluation of solute fate and transport. Specific parameters for the analytical program are listed in Table 2-2.

3.0 Ground Water Monitoring Results

This section summarizes the results from the December 2005 ground water monitoring event. Information on ground water flow, a summary of laboratory analytical results, and an evaluation of monitored natural attenuation are provided in the following subsections.

3.1 Ground Water Flow Assessment

Prior to sampling, water level measurements were recorded in all wells in the monitoring well network. Water level data were used in conjunction with surveyed top-of-casing data to determine ground water elevations. A summary of ground water elevation data is presented in Table 3-1.

Ground water elevation data were then contoured to determine ground water flow direction and gradient beneath the site. Figure 3-1 shows the potentiometric surface beneath the former Process Area and offsite areas; the Fill Area potentiometric surface is shown on Figure 3-2.

The 2005 ground water elevation data are consistent with the data from previous ground water investigations at the site. The data indicate that the shallow water-bearing zones beneath the former Process Area and the Fill Area are not hydraulically connected. Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River, generally at an extremely flat gradient. Ground water flow continues in an easterly direction beneath the adjacent residential area. The average hydraulic gradient between MW-4 and MW-22 is approximately 0.002 (i.e., 2 feet per thousand feet).

Ground water within the Fill Area sands flows westward toward Gordon's Creek and downstream along the creek. The average hydraulic gradient between MW-11 and MW-15 is approximately 0.005 (i.e., 5 feet per thousand feet).

3.2 Ground Water Analytical Results

Ground water analytical results from the initial eight quarterly sampling events and subsequent annual events are summarized in Table 3-2; laboratory reports are provided in Appendix B. Consistent with previous ground water monitoring results, the number and concentrations of PAH compounds are highest in wells within areas where creosote and creosote residuals were handled and/or deposited (i.e., the former Process Area, the Fill Area, and the northeast drainage ditch). The number and concentrations of PAHs decrease dramatically with distance from these areas.

Naphthalene continues to be the most prevalent PAH compound detected in site ground water and is the only constituent reported at levels exceeding MDEQ Tier 1 Target Remediation Goals (TRGs) in wells located outside of historical source areas. This is to be expected, as naphthalene: 1) is the most abundant single constituent of coal tar (*The*

Merck Index, 12th Edition, 1996); and 2) has the highest water solubility of any of the PAHs (31 milligrams per liter, or mg/L).

Charts showing naphthalene concentrations over time are provided in Appendix C. Initially, concentrations were plotted on a linear scale. Where necessary due to highly variable concentrations, concentrations were also plotted on a logarithmic scale. For comparative purposes, the MDEQ Tier 1 TRG for naphthalene (6.2 micrograms per liter, or µg/L) is shown on the graphs. However, as previously stated, shallow ground water in the Hattiesburg area is unused, and a City ordinance prohibits the development and use of ground water resources within the City limits.

In most wells, naphthalene concentrations were relatively consistent over the initial eight quarterly events and two subsequent annual events (i.e., concentrations remained within the same order of magnitude). Naphthalene concentrations wells MW-1R, MW-2R, MW-06, and MW-19 continue to show decreasing trends. None of the wells showed significant increasing trends, nor were target constituents reported for the first time in any plume defining or "sentinel" wells.

Well MW-12 is located immediately downgradient (and downstream on Gordon's Creek) from the containment area defined by the Waterloo Barrier System installed at the Fill Area in April and May 2003. Almost immediately upon installation of the sheet pile barrier, the naphthalene concentration in MW-12 decreased from several hundred mg/L to nearly non-detectable concentrations. Results from MW-12 demonstrate that in addition to cutting off the potential release of DNAPL to Gordon's Creek, the Waterloo Barrier is serving to prevent affected ground water from spreading laterally.

3.3 Natural Attenuation Evaluation

Ground water samples were analyzed for biogeochemical parameters in order to help determine if conditions continue to be favorable for monitored natural attenuation. As discussed in previous submittals, Tronox does not view MNA as a stand-alone ground water remedy. Tronox has performed site remediation that includes source removal/ containment and control measures that address potential sources of affected ground water in the former Process Area, the Fill Area, and along the northeast drainage ditch. Tronox does not view MNA to be a "no action" remedy, but rather an alternative that augments source removal/control measures in helping to achieve remedial objectives that are protective of human health and the environment.

The biogeochemical results are presented with the PAH data in Tables 3-2. The first step in the natural attenuation evaluation process is to determine if conditions in the affected aquifers are favorable for natural attenuation to occur. A "line of evidence" for this demonstration is developed by evaluating and comparing values for biogeochemical indicator parameters in samples collected from wells within the plume to those in samples from wells outside the plume. Table 3-3 presents the results of such a comparison for the initial eight quarterly monitoring events and two subsequent annual events.

According to the US EPA, trends that support occurrence of natural attenuation include the following:

- Dissolved oxygen concentrations below background;
- Nitrate concentrations below background;
- Iron (+2) concentrations above background;
- Sulfate concentrations below background; and
- Methane concentrations above background.

The results summarized in Table 3-3 indicate that, with the exception of MW-2R, most wells within the former Process Area/northeast drainage ditch plume showed strong evidence or positive trend analysis indicating natural attenuation. The evaluation was less meaningful for the Fill Area because ever since installation of the Waterloo Barrier in 2003, well MW-12 is no longer really located within the Fill Area plume. Overall, however, the data demonstrate that conditions are favorable for natural attenuation to occur, and the overall decreasing naphthalene concentrations are an indication of such attenuation.

4.0 Future Ground Water Monitoring Activities

This section presents details regarding proposed modifications to the ground water monitoring program.

4.1 Monitoring Frequency

The analytical results from the first eight quarterly monitoring events did not indicate seasonal fluctuations in constituent concentrations or flow direction during the initial two-year monitoring period. Tronox will continue to sample site ground water on an annual basis. At the end of five years of annual monitoring (i.e., after the 2008 sampling event, Tronox will evaluate the data to determine if a change in monitoring frequency is warranted.

4.2 Monitoring Well Network

Well MW-09, which is located adjacent to Martin Luther King Avenue, was damaged during road construction in 2005. The well was not sampled during the 2005 event, as soil and other surface debris had apparently entered the well. MW-09 is located within the northeast drainage ditch plume and is surrounded by sentinel wells to the north (MW-20), south (MW-21) and east (MW-22). Wells MW-17 and MW-19, located upstream and immediately adjacent to the northeast drainage ditch, are within the northeast drainage ditch plume. Because ground water samples continue to be collected from two wells within the northeast drainage ditch plume and also from plume-defining wells, Tronox does not believe that future sampling of MW-09 is critical in the ongoing evaluation of site ground water quality. Therefore, Tronox requests approval from MDEQ to plug and abandon, but not to replace, well MW-09.

5.0 Summary and Conclusions

The following summary and conclusions are based on the results of ground water monitoring activities at the site to date:

1. Tronox has conducted ground water investigations at the site since 1996. Affected ground water is present in two separate and distinct areas. The extent of affected ground water in both areas has been delineated.

2. The affected shallow water-bearing zones are not used for any purpose in the Hattiesburg area. Furthermore, a 2002 City ordinance prohibits the development and use of ground water within the City limits.

3. Tronox has completed remedial measures that included the removal of potential sources of ground water contamination. In addition, containment measures (i.e., vertical and horizontal barriers) reduce the potential for migration of affected ground water and preclude infiltration/percolation of water through affected soils left in place.

4. Constituent concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, sampling results indicate that conditions are favorable for continued natural attenuation of ground water constituents.

5. Tronox plans to continue annual ground water monitoring. In addition, Tronox is requesting MDEQ approval to plug and abandon well MW-09 and also plans to plug and abandon well MW-13 when access can be obtained from the surface leaseholder.

Figures

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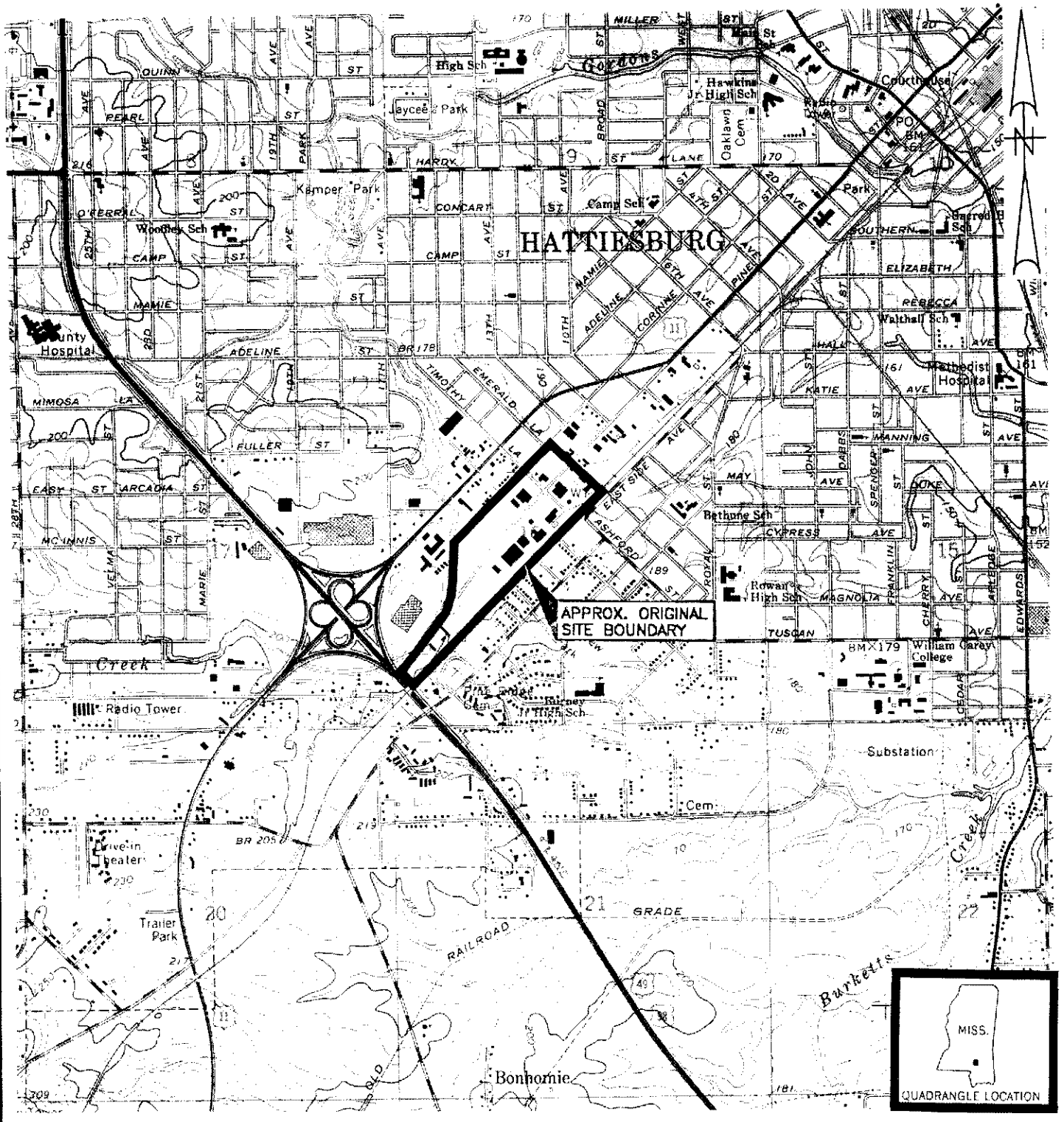
Former Gulf States Creosoting Site
Hattiesburg, Mississippi



SCALE 1 24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

SOURCE: USGS MAP OF HATTIESBURG, MISSISSIPPI, 7.5' QUADRANGLE, 1964 PHOTOREVISED 1982

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

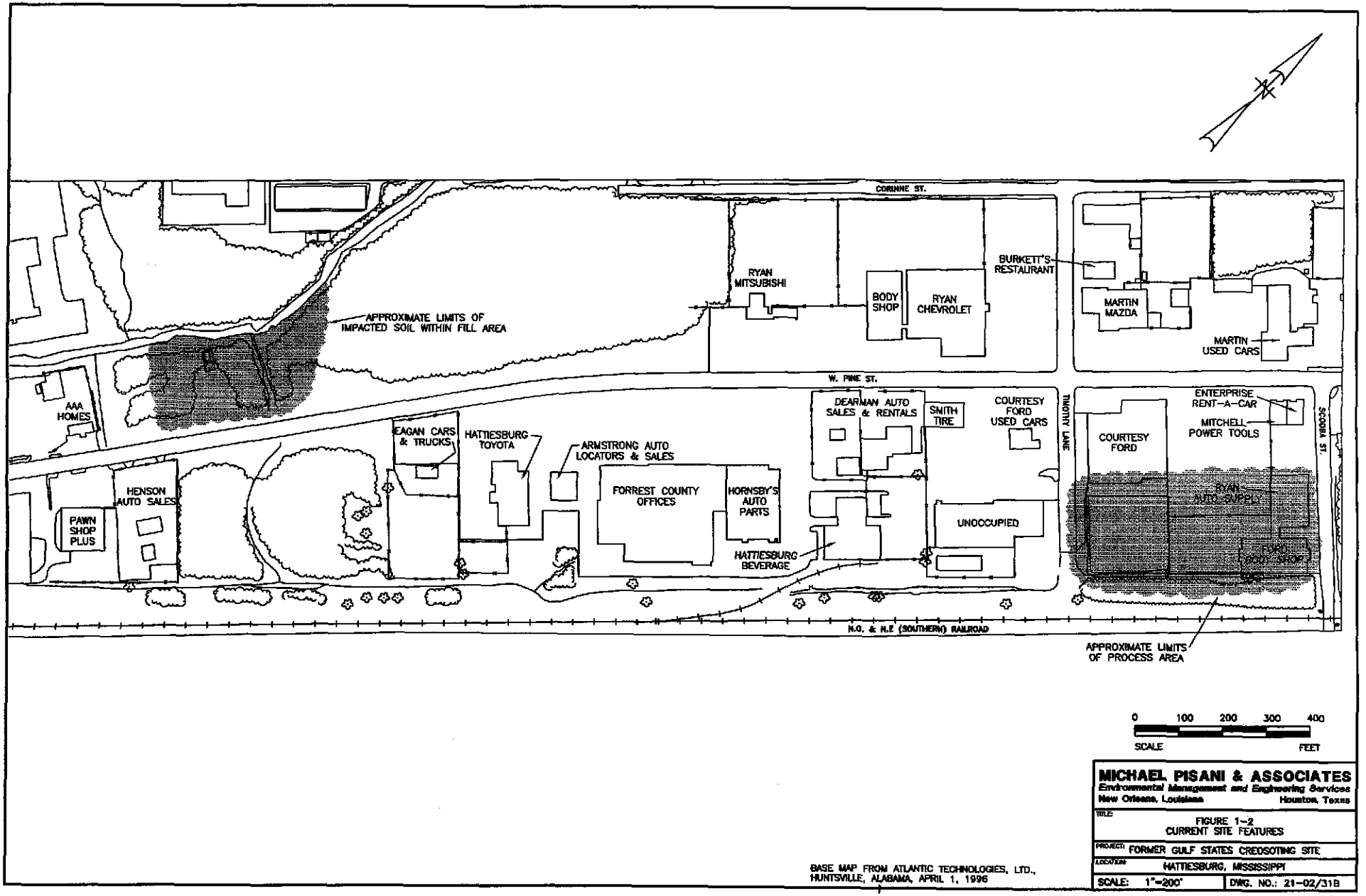
SCALE:

DWG. NO.: 21-01/07A

FIGURE 1-1
SITE LOCATION

FORMER GULF STATES CREOSOTING SITE

HATTIESBURG, MISSISSIPPI



BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

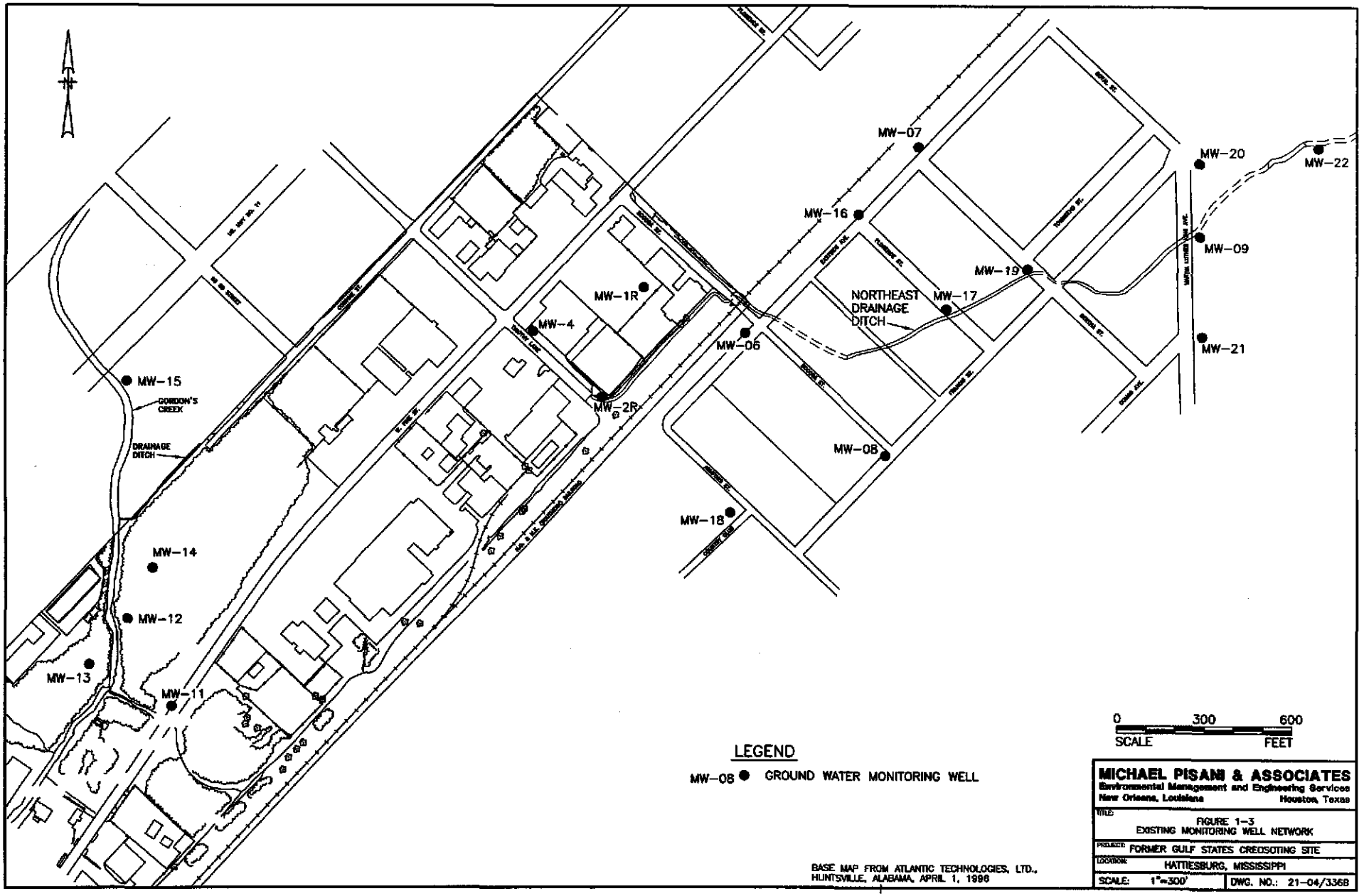
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

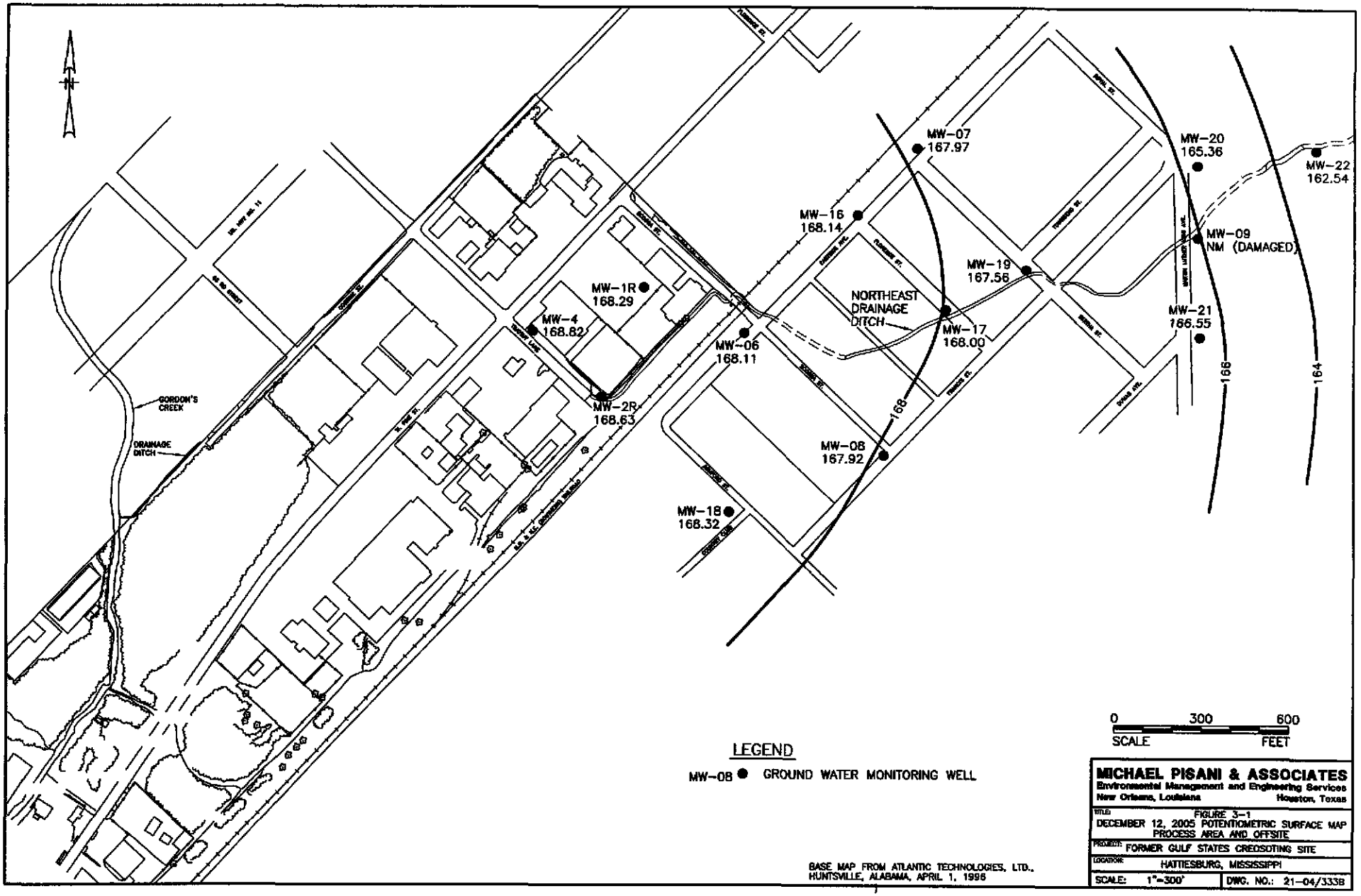
TITLE: FIGURE 1-2
CURRENT SITE FEATURES

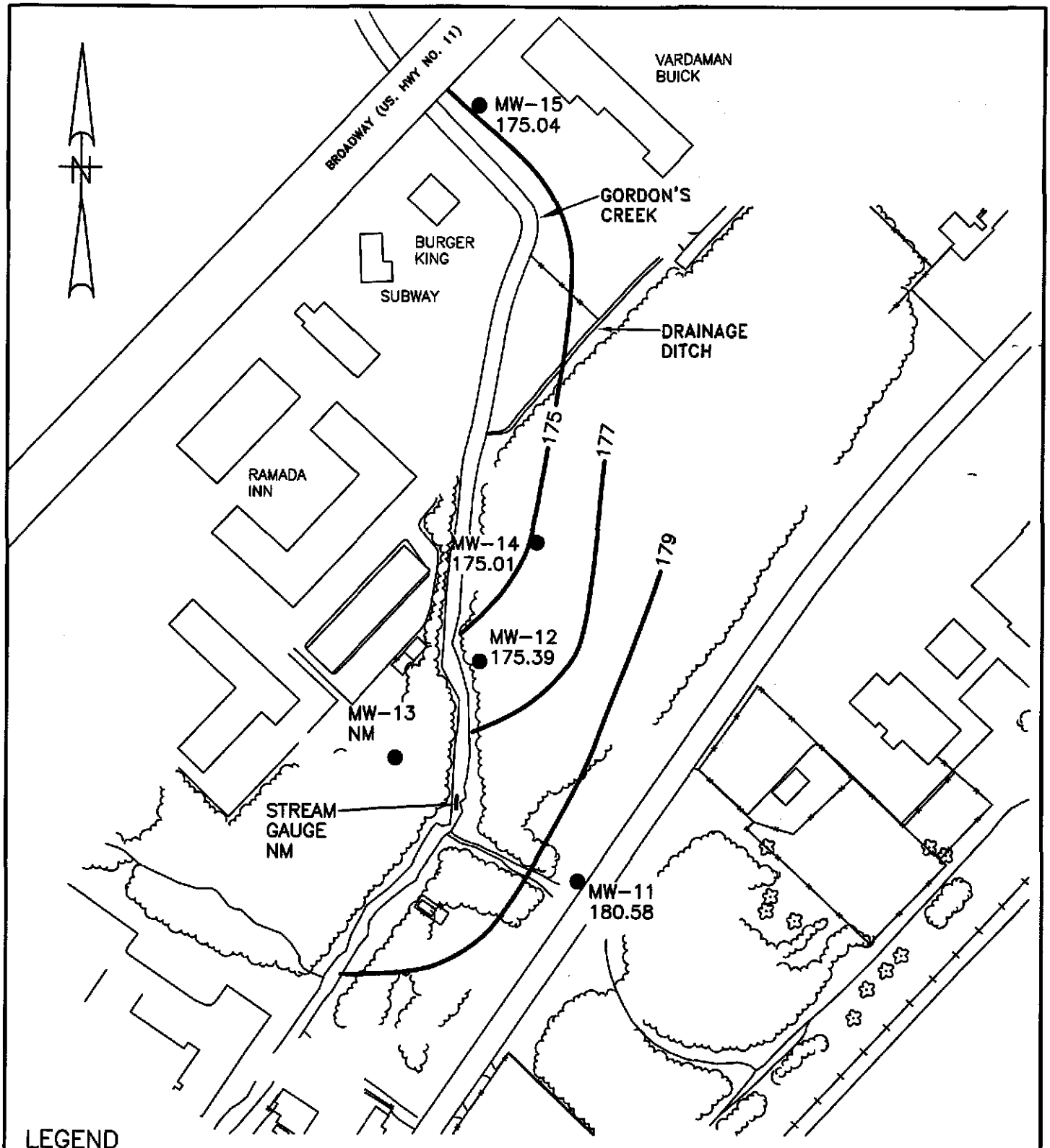
PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=200' DWG. NO.: 21-02/31B


MW-07
MW-20
MW-22
MW-16
MW-09
MW-19
NORTHEAST DRAINAGE DITCH
MW-17
MW-1R
MW-4
MW-06
MW-21
MW-15
GORDON'S CREEK
MW-2R
DRAINAGE DITCH
MW-08
MW-18
MW-14
MW-12
MW-13
MW-11
0
300
600
SCALE
FEET
LEGEND
MW-08 GROUND WATER MONITORING WELL
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana
Houston, Texas
TITLE: FIGURE 1-3
EXISTING MONITORING WELL NETWORK
PROJECT: FORMER GULF STATES CREOSOTING SITE
LOCATION: HATTIESBURG, MISSISSIPPI
SCALE: 1"=300'
DWG. NO.: 21-04/3368


MW-07
167.97
MW-20
165.36
MW-22
162.54
MW-16
168.14
MW-09
NM (DAMAGED)
MW-19
167.56
MW-1R
168.29
NORTHEAST
DRAINAGE
DITCH
MW-21
166.55
MW-4
168.82
MW-17
168.00
MW-06
168.11
MW-2R
168.63
GORDON'S
CREEK
DRAINAGE
DITCH
MW-08
167.92
MW-18
168.32
166
164
168
0
300
600
SCALE
FEET
LEGEND
MW-08 GROUND WATER MONITORING WELL
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana
Houston, Texas
TITLE: FIGURE 3-1
DECEMBER 12, 2005 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE
PROJECT: FORMER GULF STATES CREOSOTING SITE
LOCATION: HATTIESBURG, MISSISSIPPI
SCALE: 1"=300'
DWG. NO.: 21-04/333B



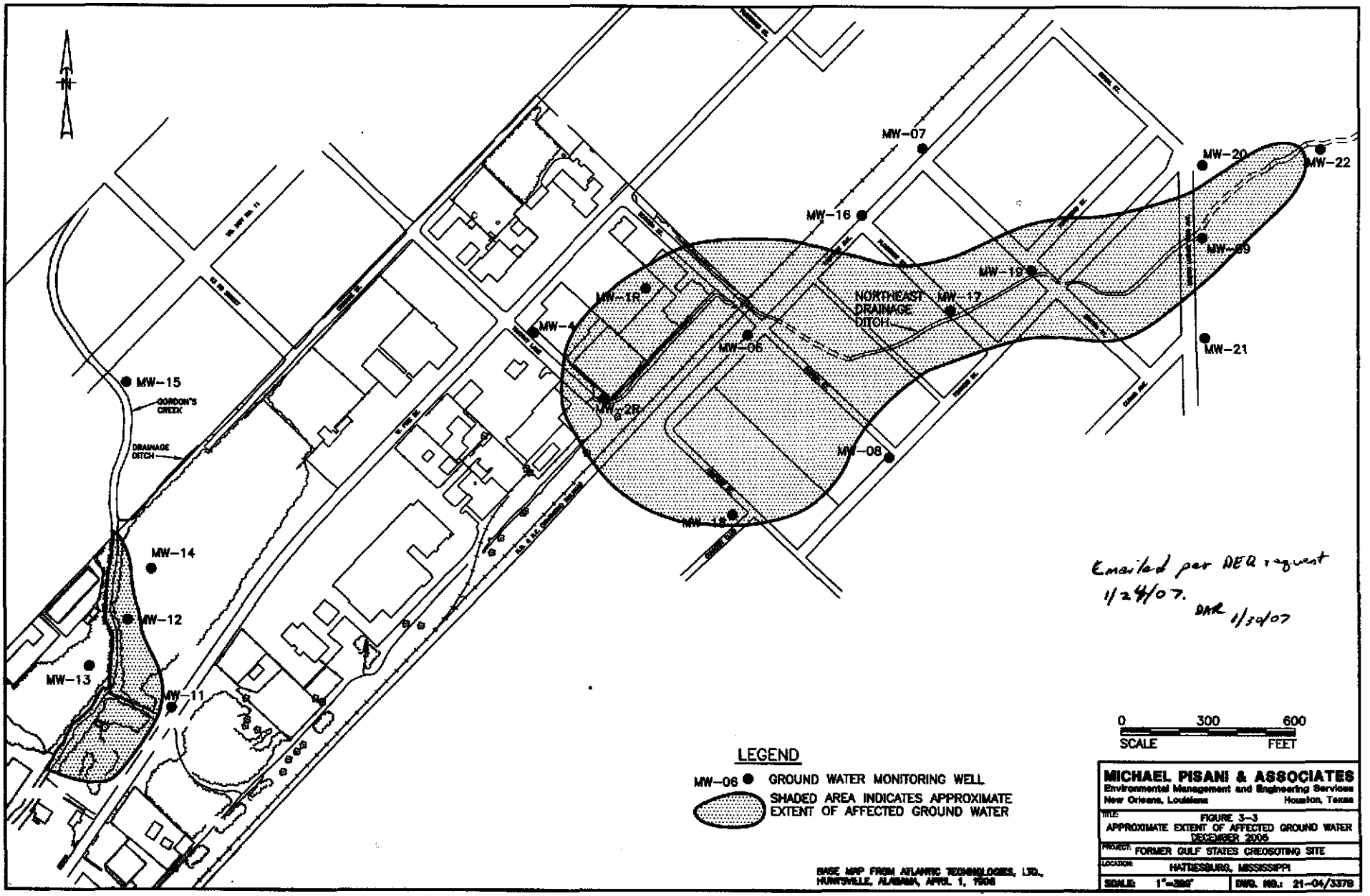
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/335A

FIGURE 3-2
DECEMBER 12, 2005 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI


N
MW-07
MW-20
MW-22
MW-16
MW-09
MW-19
MW-1R
NORTHEAST DRAINAGE DITCH
MW-17
MW-4
MW-06
MW-21
MW-15
GORDON'S CREEK
DRAINAGE DITCH
MW-2R
MW-08
MW-18
MW-14
MW-12
MW-13
MW-11
Emailed per DEQ request 1/24/07. DAR 1/30/07
0 300 600
SCALE FEET
LEGEND
MW-06 GROUND WATER MONITORING WELL
SHADED AREA INDICATES APPROXIMATE EXTENT OF AFFECTED GROUND WATER
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1998
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas
TITLE: FIGURE 3-3
APPROXIMATE EXTENT OF AFFECTED GROUND WATER
DECEMBER 2005
PROJECT: FORMER GULF STATES CREOSOTING SITE
LOCATION: HATTIESBURG, MISSISSIPPI
SCALE: 1"=300' DWG. NO.: 21-04/337B

Tables

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Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Table 2-1
Summary of Monitoring Well Completion Information

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Date Installed	Borehole Diameter (inches)	Well Diameter (inches)	Construction Material	Well Depth (ft. bls)	Top of Casing Elevation (ft. msl)	Screened Interval (ft. bls)	Screened Interval Elevation (ft. msl)
MW-4	May 1994	10.25	4	PVC	34	191.42	24-34	157.42-167.42
MW-01	February 1997	8.25	2	PVC	35	186.14	17-32	154.14-169.14
MW-03	February 1997	8.25	2	PVC	37	189.24	29-34	155.24-160.24
MW-04	February 1997	8.25	2	PVC	40	191.28	27-37	154.28-164.28
MW-05	February 1997	8.25	2	PVC	42	191.59	19-39	152.59-172.59
MW-06	September 1998	8.25	2	PVC	38	185.44	18-38	147.44-167.44
MW-07	September 1998	8.25	2	PVC	38	186.45	18-38	148.45-168.45
MW-08	September 1998	8.25	2	PVC	40	188.73	20-40	148.73-168.73
MW-09	September 1998	8.25	2	PVC	28	174.99	13-28	146.99-161.99
MW-10	September 1998	8.25	2	PVC	13	186.73	8-13	173.73-178.73
MW-11	September 1998	8.25	2	PVC	14	187.76	9-14	173.76-178.76
MW-12	September 1998	8.25	2	PVC	22	183.84	17-22	161.84-166.84
MW-13	September 1998	8.25	2	PVC	19	183.98	9-19	164.98-174.98
MW-14	November 2001	8.25	2	PVC	22	185.48	17-22	163.48-168.48
MW-15	November 2001	8.25	2	PVC	16	187.17	11-16	171.17-176.17
MW-16	November 2001	8.25	2	PVC	42	188.42	20-40	148.42-168.42
MW-17	November 2001	8.25	2	PVC	34	179.94	12-32	147.94-167.94
MW-18	November 2001	8.25	2	PVC	44	191.30	27-42	149.30-164.30
MW-19	November 2001	8.25	2	PVC	34	178.50	12-32	146.50-166.50
MW-20	November 2001	8.25	2	PVC	35	179.56	13-33	146.56-166.56
MW-21	November 2001	8.25	2	PVC	38	186.15	21-36	150.15-165.15
MW-22	November 2001	8.25	2	PVC	28	167.92	6-26	141.92-161.92
MW-1R	August 2000	12/8.25	2	Stainless Steel	42	189.06	37-42	147.06-152.06
MW-2R	August 2000	12/8.25	2	Stainless Steel	44	190.45	39-44	146.45-151.45

Note:
All elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88) and are reported with respect to mean sea level (msl).
bls - below land surface

Table 2-2
Analytical Parameters

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons	Biogeochemical Parameters
Naphthalene	Nitrate
Acenaphthylene	Sulfate
Acenaphthene	Methane
Fluorene	Alkalinity
Phenanthrene	Chloride
Anthracene	Iron (total and dissolved)
Fluoranthene	
Pyrene	
Benzo(a)anthracene	Field Parameters
Chrysene	pH
Benzo(b)fluoranthene	Temperature
Benzo(k)fluoranthene	Specific conductance
Benzo(a)pyrene	Dissolved oxygen
Dibenzo(a,h)anthracene	Ferrous iron
Benzo(g,h,i)perylene	Oxidation-reduction potential (Eh)
Indeno(1,2,3-c,d)pyrene	

Table 3-1
Summary of Ground Water Elevation Data

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Surveyed TOC Elev.	12/18/01 GW Elev.	3/18/02 GW Elev.	6/6/02 GW Elev.	9/16/2002 GW Elev.	12/16/2002 GW Elev.	3/24/2003 GW Elev.	6/23/2003 GW Elev.	10/6/2003 GW Elev.	12/13/2004 GW Elev.	12/12/2005 GW Elev.
MW-1R	189.06	170.65	173.31	170.46	169.11	173.29	174.75	171.55	169.78	170.06	168.29
MW-2R	190.45	170.70	173.59	170.70	169.55	173.50	175.16	172.10	170.22	170.08	168.63
MW-4	191.42	171.07	173.71	170.92	169.62	173.71	175.54	171.89	170.27	170.33	168.82
MW-01	186.14	171.95	174.72	172.39	171.04	174.84	NM	173.50	172.09	172.21	NM
MW-03	189.24	173.09	175.85	175.76	173.16	176.49	178.72	176.41	176.13	175.81	NM
MW-04	191.28	178.88	178.90	177.88	177.95	179.72	179.71	178.80	179.18	179.86	NM
MW-05	191.59	170.61	174.02	171.34	169.89	173.67	175.69	172.06	170.76	170.09	NM
MW-06	185.44	170.59	173.13	170.24	168.86	173.14	174.53	171.38	169.49	169.90	168.11
MW-07	186.45	170.25	172.48	169.95	168.68	172.54	173.80	171.09	169.20	169.60	167.97
MW-08	188.73	170.63	171.14	169.98	168.63	173.25	174.51	171.18	169.23	169.78	167.92
MW-09	174.99	168.78	170.03	167.84	166.89	170.24	170.88	168.78	166.56	167.23	NM
MW-10	186.73	179.82	179.69	179.31	178.83	179.87	179.89	179.47	179.17	180.91	NM
MW-11	187.76	181.26	181.30	180.14	178.96	181.44	181.87	180.47	180.75	181.53	180.58
MW-12	183.84	176.52	177.11	175.94	174.04	176.54	178.21	176.44	175.71	175.74	175.39
MW-13	183.98	177.53	178.77	176.68	175.73	178.58	179.98	176.86	NM	NM	NM
MW-14	185.48	176.68	177.66	176.23	174.03	177.18	179.16	176.42	175.66	174.83	175.01
MW-15	187.17	175.52	175.79	175.27	175.03	176.05	176.46	175.87	175.43	175.57	175.04
MW-16	188.42	170.57	172.90	170.20	168.87	172.87	174.21	171.32	169.42	169.87	168.14
MW-17	179.94	170.69	172.82	169.92	168.49	172.89	174.15	171.13	169.22	169.64	168.00
MW-18	191.30	170.85	173.64	170.45	169.10	173.92	175.08	171.52	169.80	170.15	168.32
MW-19	178.50	170.23	172.24	169.55	168.28	172.26	173.40	170.85	168.74	169.25	167.56
MW-20	179.56	168.65	169.88	167.96	167.21	170.05	170.80	168.80	166.74	167.16	165.36
MW-21	186.15	169.12	170.64	168.20	167.15	170.92	171.67	169.13	167.21	167.85	166.55
MW-22	167.92	165.51	165.85	165.10	164.75	165.92	166.09	165.44	162.76	163.39	162.54
Stream Gauge	178.39	175.94	175.91	174.64	175.44	175.72	NM	NM	NM	NM	NM

Notes:
Elevations referenced to the North American Vertical Datum of 1988 and are reported with respect to mean sea level.
NM - Water level not measured.

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-1R

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	110j	11	10	0.8	4j	0.9	1.5j	0.8	ND(15)	2	ND(15)	2	4.2j	1.5	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(110)	11	8	0.8	4j	0.9	0.86j	0.8	ND(15)	2	ND(15)	2	2.6j	1.5	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(110)	11	0.9	0.04	0.3	0.04	0.19j	0.04	0.17j	0.04	0.066j	0.04	0.3	0.038	ND(0.11)	0.022	0.074j	0.039	0.12j	0.039
Benz(a)anthracene	µg/l	ND(110)	11	0.06j	0.02	0.04j	0.02	0.028j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(0.11)	0.022	0.023j	0.019	0.051j	0.02
Benzo(a)pyrene	µg/l	ND(110)	11	ND(0.09)	0.02	0.03j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(0.22)	0.043	0.021j	0.019	0.025j	0.02
Benzo(b)fluoranthene	µg/l	ND(110)	11	ND(0.2)	0.04	0.05j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.65)	0.11	ND(0.19)	0.039	0.052j	0.039
Benzo(g,h,i)perylene	µg/l	ND(110)	11	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.57)	0.095	ND(0.11)	0.022	ND(0.58)	0.096	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(110)	11	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(2)	0.41	ND(0.096)	0.019	0.025j	0.02
Chrysene	µg/l	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.43)	0.087	ND(0.38)	0.077	0.079j	0.079
Dibenz(a,h)anthracene	µg/l	ND(110)	11	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.22)	0.043	ND(0.19)	0.039	ND(0.2)	0.039
Fluoranthene	µg/l	ND(110)	11	5	0.2	0.3	0.04	0.27	0.04	0.21	0.04	0.12j	0.04	0.25	0.038	0.15j	0.043	0.12j	0.039	0.58	0.039
Fluorene	µg/l	59j	11	0.7	0.04	2	0.2	0.93	0.4	0.68j	0.2	0.21j	0.2	2.6	0.17	0.93	0.19	0.36j	0.17	ND(0.79)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.43)	0.087	ND(0.38)	0.077	ND(0.39)	0.079
Naphthalene	µg/l	4700	110	250	0.9	110	1	36	1	22	1	2.2j	1	65	1.1	46	1.3	21	1.5	ND(12)	1.6
Phenanthrene	µg/l	46j	11	6	0.08	2	0.09	1.5	0.08	1.3	0.08	0.54	0.08	2.6	0.076	1.2	0.087	0.63	0.077	0.46	0.079
Pyrene	µg/l	ND(110)	11	0.4j	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.76)	0.17	ND(0.87)	0.19	ND(0.77)	0.17	0.42j	0.16
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	181	0.41	98.8	0.41	38.7	0.41	27.9	0.41	26.2	0.41	12.7	0.41	12.5	0.41	9.6	0.41	ND(2)	0.41	18.4	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.14j	0.043	15.3	0.41	4.3	0.46
Chloride	mg/l	8.1	1.5	7.8	1.5	7.6	1.5	8.3	1.5	7.7	1.5	7.8	1.5	7.3	1.5	7.6	1.5	7	1.5	ND(2)	1.5
Iron (Total)	mg/l	18.1	0.038	8.89	0.038	4.06	0.0349	2	0.0349	1.4	0.0349	0.082j	0.035	1.39	0.0453	0.171j	0.0453	ND(0.2)	0.0495	0.153j	0.0378
Iron (Dissolved)	mg/l	17.1	0.038	9.12	0.038	3.72	0.0349	2	0.0349	1.42	0.0349	ND(0.1)	0.035	1.28	0.0453	0.124j	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	2400	50	350	10	71	2	43	2	48	2	ND(5)	2	35	2	3.7j	2	2.2j	2	ND(5)	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.61	0.4	0.7	0.4	1.1	0.4	0.81	0.4	1.4	0.4	1.5	0.4	ND(0.5)	0.40
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.8j	1.5	1.5j	1.5	ND(5)	1.5	2.7j	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.54		0.34		0.76		0.27		0.32		0.29		2.14		0.22		0.98		7.02*	
Ferrous Iron	mg/l	8		5.1		5		4		2.6		0		1.4		0		0		0	
Oxidation-reduction Pot.	volts	14		-20		90		116		138		327		165		122		147.5		6	
pH	std. units	6.71		6.17		4.62		4.93		5.47		4.91		4.96		5.24		5.16		9.6*	
Specific Conductance	µS/cm	399		214		101		84		81		68		66		68		75		*	
Temperature	°C	23.1		24.26		24.8		24.74		24.23		23.92		24.75		32.46*		28.84		22.9	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
J - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-2R

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	44	1	60	0.8	61	0.9	85	0.8	73	2	52	2	66	1.5	58	1.6	81	1.7	62	1.6
Acenaphthylene	µg/l	8j	1	120	0.8	150	0.9	150	0.8	130	2	150	2	120	1.5	100	1.6	130	1.7	100	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(2)	2	0.8	0.04	0.74	0.04	0.72	0.038	0.25	0.02	ND(10)	10	ND(1)	1.0
Benz(a)anthracene	µg/l	ND(10)	1	0.4	0.02	0.5	0.02	0.44	0.02	0.39	0.02	0.33	0.02	0.43	0.019	ND(0.1)	0.02	0.21	0.021	0.15	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	0.02j	0.02	0.05j	0.02	0.025j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.027j	0.019	0.049j	0.041	ND(0.1)	0.021	ND(0.097)	0.019
Benzo(b)fluoranthene	µg/l	ND(10)	1	0.05j	0.04	0.1j	0.04	0.067j	0.04	0.064j	0.04	0.057j	0.04	0.09j	0.038	ND(0.61)	0.1	0.045j	0.042	0.054j	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	0.032j	0.02	ND(0.62)	0.1	ND(0.58)	0.097
Benzo(k)fluoranthene	µg/l	ND(10)	1	0.04j	0.02	0.07j	0.02	0.045j	0.02	0.043j	0.02	0.036j	0.02	0.064j	0.019	ND(2)	0.41	0.031j	0.021	0.031j	0.019
Chrysene	µg/l	ND(10)	1	0.3j	0.08	0.4j	0.09	0.33j	0.08	0.35j	0.08	0.35j	0.08	0.38j	0.077	0.23j	0.081	0.32j	0.083	0.18j	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.2)	0.041	ND(0.21)	0.042	ND(0.19)	0.039
Fluoranthene	µg/l	11	1	39	0.8	10	0.2	9.5	0.4	8.8	0.8	9.3	0.8	10	1.9	7.2	0.041	8.2	0.042	6.8	0.039
Fluorene	µg/l	35	1	10	0.2	50	1	56	2	60	3	66	3	63	8.8	51	9.1	64	9.4	52	9.7
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.41)	0.081	ND(0.42)	0.083	ND(0.39)	0.078
Naphthalene	µg/l	12000	200	8700	50	9000	50	9300	96	8900	120	11000	110	9700	58	8100	61	7300	83	6,000	31
Phenanthrene	µg/l	140	1	110	4	140	4	150	0.8	160	2	160	2	150	3.8	120	4.1	120	4.2	110	1.6
Pyrene	µg/l	2j	1	2	0.2	2	0.2	0.87	0.2	1.4	0.2	1.1	0.2	1.6	0.17	1.1	0.18	1.3	0.19	0.73j	0.17
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	22.4	0.41	22.1	0.41	22	0.41	ND(2)	0.41	22.4	0.41	21.7	0.41	21.8	0.41	21.1	0.41	ND(2)	0.41	16.5	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	22.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.42	0.041	22.4	0.41	ND(2)	0.46
Chloride	mg/l	6.5	1.5	7	1.5	6	1.5	6.3	1.5	5.8	1.5	5.7	1.5	6.1	1.5	5.8	1.5	5.7	1.5	4.8	1.5
Iron (Total)	mg/l	0.0718j	0.038	0.0398j	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0679j	0.0453	0.0578j	0.0453	ND(0.2)	0.0495	0.0813j	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	0.0481j	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0689j	0.0378
Methane	µg/l	2.8j	2	2.2j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	2.1j	2	ND(5)	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	19.9	1.5	18.8	1.5	20.9	1.5	21.2	1.5	19.3	1.5	20.9	1.5	21.8	1.5	19.9	1.5	17.9	1.5	18.8	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.42		0.41		0.48		0.26		0.33		0.25		2.04		0.5		1.3		0.36	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	409		200		421		307		237		350		268		166		129		115	
pH	std. units	5.56		5.36		4.58		4.43		5.4		5		5.08		5.31		5.31		5.11	
Specific Conductance	µS/cm	102		108		107		113		113		113		116		113		106		*	
Temperature	°C	21.8		21.53		22.6		22.68		22.23		22.04		22.18		25.41*		23.99		22.39	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-4

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003		December 2004		December 2005	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	0.08j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.1)	0.021	ND(0.2)	0.04	ND(0.2)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.1)	0.021	ND(0.099)	0.02	ND(0.098)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.21)	0.042	ND(0.099)	0.02	ND(0.098)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.63)	0.1	ND(0.2)	0.04	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.1)	0.021	ND(0.59)	0.099	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41	ND(0.099)	0.02	ND(0.098)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.42)	0.084	ND(0.4)	0.079	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	0.24j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	0.26j	0.19	0.18j	0.18	ND(0.78)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.42)	0.084	ND(0.4)	0.079	ND(0.39)	0.078
Naphthalene	µg/l	110	1	ND(8)	0.9	ND(8)	0.9	59	1	4.5j	1	ND(12)	1	ND(12)	1.2	35	1.3	34	1.6	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	0.39j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	0.35j	0.084	0.22j	0.079	ND(0.39)	0.078
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.84)	0.19	ND(0.79)	0.18	ND(0.78)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	14.6	0.41	15.3	0.41	16	0.41	ND(2)	0.41	16.6	0.41	16	0.41	15.8	0.41	15.6	0.41	ND(2)	0.41	15.2	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	15.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.21)	0.042	15.2	0.41	ND(2)	0.46
Chloride	mg/l	7.7	1.5	8.4	1.5	7.5	1.5	7.9	1.5	7.4	1.5	7.4	1.5	7.6	1.5	7.2	1.5	7.4	1.5	6.8	1.5
Iron (Total)	mg/l	0.0529j	0.038	ND(0.1)	0.035	0.333	0.0349	0.51	0.0349	0.826	0.0349	0.038j	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	3.1j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.5j	1.5	ND(5)	1.5	ND(5)	1.5	1.9j	1.5	ND(5)	1.5	ND(5)	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.57		0.63		3.62		6.09		3.5		0.33		2.86		0.44		0.54		3.86	
Ferrous Iron	mg/l	0		0		1		0		0		0		0		0.1		0		0	
Oxidation-reduction Pot.	volts	403		268		639		221		308		402		276		141		144		171	
pH	std. units	5.67		5.44		3.94		5.43		5.54		5.05		5.11		5.38		5.28		5.33	
Specific Conductance	µS/cm	62		61		63		67		66		65		68		64		0.069		*	
Temperature	°C	24.2		23.24		24.7		24.94		24		24.08		24.38		32.85*		24.34		22.51	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-06

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	170	10	160	0.8	140	0.8	150	0.8	160	2	100	2	140	1.5	120	1.5	130	1.5	96	1.6
Acenaphthylene	µg/l	ND(100)	10	150	0.8	150	0.8	130	0.8	170	2	130	2	160	1.5	120	1.5	ND(770)	770	91	1.6
Anthracene	µg/l	ND(100)	10	7	0.2	6	0.04	6.6	0.04	8.6	0.4	5.7	0.04	8	0.77	ND(0.095)	0.019	6.9	0.039	4.5	0.039
Benz(a)anthracene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.099)	0.020
Benzo(a)pyrene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.099)	0.020
Benzo(b)fluoranthene	µg/l	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.57)	0.095	ND(0.19)	0.039	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(100)	10	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.099
Benzo(k)fluoranthene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41	ND(0.096)	0.019	ND(0.099)	0.020
Chrysene	µg/l	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.39)	0.079
Dibenz(a,h)anthracene	µg/l	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.2)	0.039
Fluoranthene	µg/l	ND(100)	10	89	0.8	2	0.04	2.6	0.04	2.3	0.04	1.8	0.04	2.1	0.038	1.9	0.038	2.4	0.039	1.5	0.039
Fluorene	µg/l	120	10	2	0.04	92	1	92	0.2	120	2	94	3	110	3.5	86	8.6	91	8.7	59	9.9
Indeno(1,2,3-cd)pyrene	µg/l	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.39)	0.079
Naphthalene	µg/l	9100	200	7300	50	6800	50	8200	1	8600	120	7600	57	8500	58	6400	57	7100	77	4,100	32
Phenanthrene	µg/l	79j	10	65	0.4	67	0.4	69	0.08	83	0.8	68	2	78	1.5	65	3.8	64	3.9	45	1.6
Pyrene	µg/l	ND(100)	10	0.6j	0.2	0.7j	0.2	1.7	0.2	0.77j	0.2	0.43j	0.2	0.74j	0.17	0.67j	0.17	0.78	0.17	45.	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	97.6	0.41	111	0.41	110	0.41	ND(2)	0.41	98.9	0.41	87.2	0.41	110	0.41	108	0.41	ND(2)	0.41	104	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	98.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	6.1	0.038	97.5	0.41	ND(2)	0.46
Chloride	mg/l	9.7	1.5	9.6	1.5	10.5	1.5	10.9	1.5	9.1	1.5	7.4	1.5	8.6	1.5	8.4	1.5	8	1.5	7.3	1.5
Iron (Total)	mg/l	20.6	0.038	23	0.038	21.7	0.0349	19.8	0.0349	21.4	0.0349	15.3	0.035	16.8	0.0453	18.8	0.0453	22	0.0495	26.9	0.0378
Iron (Dissolved)	mg/l	20.8	0.038	23	0.038	20.2	0.0349	18.7	0.0349	20.1	0.0349	16.2	0.035	17.9	0.0453	18.9	0.0453	22	0.0495	26	0.0378
Methane	µg/l	1200	50	1400	40	1400	40	1900	2	1900	50	1200	50	1900	100	1400	50	2500	50	1,400	40
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	3j	1.5	4.9j	1.5	3.7j	1.5	4.1j	1.5	6	1.5	4.8j	1.5	2.7j	1.5	5.2	1.5	3.4j	1.5	3.6j	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.35		0.26		0.41		0.17		0.33		0.11		2.68		0.3		0.18		0.37	
Ferrous Iron	mg/l	7		5		3		4.5		5		4.2		6.6		5.2		4		4	
Oxidation-reduction Pot.	volts	58		-177		-116		-87		-58		-111		-32		-98		-60.3		-154	
pH	std. units	6.19		6.18		4.92		5.46		6.03		5.81		5.37		6.08		5.82		5.78	
Specific Conductance	µS/cm	215		246		239		236		225		206		246		206		213		*	
Temperature	°C	22.1		21.58		22.5		22.74		22.67		21.2		22.74		32.19*		24.09		21.14	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-08

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.098)	0.02	ND(0.19)	0.038	NDD(0.19)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.098)	0.02	ND(0.097)	0.019	ND(0.097)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.039	ND(0.097)	0.019	ND(0.097)	0.019
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.59)	0.098	ND(0.19)	0.038	ND(0.19)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.098)	0.02	ND(0.58)	0.096	ND(0.58)	0.097
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.097)	0.019	ND(0.097)	0.019
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.19)	0.038	ND(0.19)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.19)	0.038	ND(0.19)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.18	ND(0.78)	0.18	ND(0.77)	0.17	ND(0.78)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.18	ND(0.78)	0.18	ND(0.77)	0.17	ND(0.78)	0.17
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	4.1	0.41	3	0.41	3.2	0.41	ND(2)	0.41	3.6	0.41	3.3	0.41	3.1	0.41	3	0.41	ND(2)	0.41	2.5	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	3.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.039	3	0.41	ND(2	0.46
Chloride	mg/l	15.5	1.5	22.5	1.5	24.2	1.5	21.9	1.5	18.6	1.5	25.5	1.5	28.6	1.5	35	3	26.1	1.5	33.8	3
Iron (Total)	mg/l	0.259	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	20.2	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	3.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	1.19	0.4	1.47	0.4	1.75	0.4	1.77	0.4	1.19	0.4	1.2	0.4	1.2	0.4	1.5	0.4	1.5	0.4	2.1	0.40
Sulfate	mg/l	6.6	1.5	6.4	1.5	3.3j	1.5	3.9j	1.5	6.4	1.5	4j	1.5	3.4j	1.5	3.4j	1.5	3.1j	1.5	3.9j	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	3.33		4.31		2.92		2.82		3.45		2.92		3.28		1.15		1.16		2.15	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	428		528		300		334		367		320		395		196		188		290	
pH	std. units	5.25		4.46		4.49		4.43		4.96		4.3		4.68		4.94		4.7		4.56	
Specific Conductance	µS/cm	88		114		105		100		95		150		126		390		112		*	
Temperature	°C	21.4		21.95		21.6		22.24		22.15		21.29		21.83		32.61*		23.87		19.06	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-09

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	240j	27	230	0.8	310	0.9	280	0.8	230	2	190	2	330	1.6	220	1.6	200	1.6	Damaged	
Acenaphthylene	µg/l	12	1	ND(8)	0.8	120	0.9	120	0.8	80	2	ND(55)	55	130	1.6	100	1.6	ND(160)	160	Damaged	
Anthracene	µg/l	12	1	9	0.4	9	0.4	9.2	0.8	9.8	0.8	7.6	0.4	9.3	0.79	0.066j	0.02	8.9	0.39	Damaged	
Benz(a)anthracene	µg/l	ND(11)	1	0.1	0.02	0.1	0.02	0.085j	0.02	0.078j	0.02	0.06j	0.02	0.082j	0.02	ND(0.1)	0.02	0.058j	0.019	Damaged	
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04	ND(0.097)	0.019	Damaged	
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.61)	0.1	ND(0.19)	0.039	Damaged	
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.1)	0.02	ND(0.058)	0.097	Damaged	
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.097)	0.019	Damaged	
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.081	ND(0.39)	0.078	Damaged	
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.039	Damaged	
Fluoranthene	µg/l	14	1	110	2	12	0.4	10	0.8	10	0.8	9	0.4	11	0.79	10	0.4	9.1	0.39	Damaged	
Fluorene	µg/l	160j	27	10	0.4	160	2	150	3	130	3	110	2	190	3.6	140	1.8	130	1.7	Damaged	
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.081	ND(0.39)	0.078	Damaged	
Naphthalene	µg/l	2600	27	1000	9	1600	10	2400	19	1000	23	1100	11	1700	24	1400	12	1300	16	Damaged	
Phenanthrene	µg/l	110	1	97	0.8	130	0.9	120	2	130	2	100	0.8	150	1.6	130	0.81	110	0.78	Damaged	
Pyrene	µg/l	9j	1	6	0.2	6	0.2	7.6	0.2	5.2	0.2	3.3	0.2	5.1	0.18	4.2	0.18	5.7	0.17	Damaged	
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	85.5	0.41	80	0.41	80.9	0.41	ND(2)	0.41	73	0.41	96.6	0.41	90.1	0.41	84.9	0.41	ND(2)	0.41	Damaged	
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	80	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7	0.04	118	0.41	Damaged	
Chloride	mg/l	5.7	1.5	6.5	1.5	7	1.5	7.6	1.5	5.8	1.5	7	1.5	6.9	1.5	6.8	1.5	8.4	1.5	Damaged	
Iron (Total)	mg/l	15.8	0.038	15.3	0.038	15.2	0.0349	16	0.0349	14.8	0.0349	17.3	0.035	15.8	0.0453	18.	0.0453	26.8	0.0495	Damaged	
Iron (Dissolved)	mg/l	15.5	0.038	15.5	0.038	14.8	0.0349	16.2	0.0349	15.2	0.0349	17.3	0.035	16.7	0.0453	17.6	0.0453	25.9	0.0495	Damaged	
Methane	µg/l	590	40	380	10	480	10	340	10	230	10	750	20	580	20	450	20	1500	40	Damaged	
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	Damaged	
Sulfate	mg/l	3.4j	1.5	6.6	1.5	4j	1.5	ND(5)	1.5	5.3	1.5	9.6	1.5	6.4	1.5	13.8	1.5	ND(5)	1.5	Damaged	
Field Parameters																					
Dissolved Oxygen	mg/l	0.46		0.34		0.4		0.22		0.17		0.16		4.07		0.42		1.69		Damaged	
Ferrous Iron	mg/l	6		3		7		5		5.5		3		4		4.6		5		Damaged	
Oxidation-reduction Pot.	volts	62		-179		28		-105		-72		-34		-70.5		-166		-73		Damaged	
pH	std. units	6.25		6.23		4.73		5.09		6.2		4.77		5.68		5.96		6.34		Damaged	
Specific Conductance	µS/cm	189		185		180		181		171		220		203		238		259		Damaged	
Temperature	°C	21.6		19.18		21.5		24.27		22.17		18.95		22.03		23.73		28.55		Damaged	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-11

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.095)	0.019	ND(0.19)	0.038	ND(0.19)	0.038
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.096)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.095)	0.019	ND(0.096)	0.019
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.19)	0.038
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.095)	0.019	ND(0.57)	0.095	ND(0.58)	0.096
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.096)	0.019
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.46
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1	ND(11)	1.5	ND(12)	1.5
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.17
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	0.68j	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.7j	0.41	0.56j	0.41	2.2	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038	ND(2)	0.41	ND(2)	0.46
Chloride	mg/l	5.8	1.5	6.2	1.5	6.9	1.5	9.7	1.5	7.6	1.5	10.1	1.5	11.6	1.5	11	1.5	11.1	1.5	7.7	1.5
Iron (Total)	mg/l	0.676	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.149	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0774j	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	0.0788j	0.0495	0.0412j	0.0378
Methane	µg/l	10	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	24	2	130	2.0
Nitrate Nitrogen	mg/l	0.56	0.4	0.44j	0.4	0.52	0.4	0.41j	0.4	0.41j	0.4	0.4j	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	22.2	1.5	20.8	1.5	20.1	1.5	21.4	1.5	20.3	1.5	22.3	1.5	17.8	1.5	23.1	1.5	28.6	1.5	24.9	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	3.95		1.32		1.59		0.56		0.61		1.17		2		0.63		0.63		0.15	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	336		365		520		326		390		515		369		304		166.6		278	
pH	std. units	5.52		4.18		3.7		4.4		4.74		3.16		4.57		4.41		4.55		3.99	
Specific Conductance	µS/cm	81		86		85		97		94		98		109		112		117		*	
Temperature	°C	22.3		18.92		24.9		27.74		20.44		18.97		25.12		26.23		21.65		22.08	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - Indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-12

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003		December 2004		December 2005	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	130	1	100	0.8	85	0.9	100	0.8	29	2	16	2	4.5j	1.6	2.6j	1.7	ND(15)	1.5	ND(15)	1.5
Acenaphthylene	µg/l	16	1	81	0.8	83	0.9	97	0.8	17	2	14j	2	2.5j	1.6	2.3j	1.7	ND(15)	1.5	ND(15)	1.5
Anthracene	µg/l	5j	1	5	0.04	4	0.04	4.4	0.04	1.7	0.04	1.4	0.04	0.08j	0.04	ND(0.11)	0.022	0.067j	0.038	ND(0.19)	0.20
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.095)	0.019	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.22)	0.043	ND(0.095)	0.019	ND(0.095)	0.019
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.65)	0.11	ND(0.19)	0.038	ND(0.19)	0.038
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.11)	0.022	ND(0.57)	0.095	ND(0.57)	0.095
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.095)	0.019
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.043	ND(0.19)	0.038	ND(0.19)	0.038
Fluoranthene	µg/l	1j	1	38	0.2	0.5	0.04	1.5	0.04	0.27	0.04	ND(0.2)	0.04	0.062j	0.04	0.053j	0.043	0.19j	0.038	ND(0.19)	0.038
Fluorene	µg/l	64	1	0.7	0.04	29	0.2	52	3	12	0.2	6.9	0.2	ND(0.78)	0.18	2.1	0.19	ND(0.76)	0.17	ND(0.76)	0.48
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076
Naphthalene	µg/l	5600	100	2900	20	2600	20	4800	19	360	6	210	1	2.2j	1.2	12j	1.3	ND(11)	1.5	7.8j	1.5
Phenanthrene	µg/l	41	1	28	2	25	2	34	2	7.4	0.08	3.9	0.08	0.15j	0.08	0.63	0.087	0.20j	0.076	0.12j	0.076
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	1.3	0.2	ND(0.8)	0.2	ND(0.8)	0.2	0.19j	0.18	ND(0.87)	0.19	ND(0.76)	0.17	ND(0.76)	0.17
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	50.8	0.41	53.5	0.41	52.8	0.41	ND(2)	0.41	49.5	0.41	51.7	0.41	50	0.41	50.9	0.41	ND(2)	0.41	53.5	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	49.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.47	0.043	49.1	0.41	ND(2)	0.46
Chloride	mg/l	3.3	1.5	3.3	1.5	3.3	1.5	3.3	1.5	3	1.5	3.4	1.5	3.1	1.5	3	1.5	3.1	1.5	2.5	1.5
Iron (Total)	mg/l	1.83	0.038	1.89	0.038	1.72	0.0349	1.78	0.0349	1.58	0.0349	1.7	0.035	1.4	0.0453	1.3	0.0453	1.08	0.0495	1.32	0.0378
Iron (Dissolved)	mg/l	1.62	0.038	1.85	0.038	1.66	0.0349	1.69	0.0349	1.45	0.0349	1.5	0.035	1.35	0.0453	1.18	0.0453	1.03	0.0495	0.985	0.0378
Methane	µg/l	400	10	360	10	370	10	400	10	240	10	210	10	170	20	140	2	64	2	50	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.65		0.4		1.25		0.18		0.22		0.27		2.17		0.29		0.5		0.81	
Ferrous Iron	mg/l	1.4		2.2		3.8		3		3.5		1.8		1.9		NM		1		0.8	
Oxidation-reduction Pot.	volts	269		-2.2		132		20.8		49.5		97.4		145		-20.6		33		-12	
pH	std. units	6.43		5.86		3.81		6.02		6.28		5.7		5.47		6.19		6.2		5.53	
Specific Conductance	µS/cm	97		110		107		110		108		111		107		109		103		*	
Temperature	°C	20.1		18.19		19		20.86		20.34		18.36		20.18		26.75*		24		20.22	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-13

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA	NA	NA	NA	NA
Acenaphthylene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA	NA	NA	NA	NA
Anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.59)	0.1	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA	NA	NA	NA	NA
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA	NA	NA	NA	NA
Fluoranthene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA	NA	NA	NA	NA
Fluorene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.79)	0.18	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA	NA	NA	NA	NA
Naphthalene	µg/l	ND(11)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	NA	NA	NA	NA	NA	NA
Phenanthrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA	NA	NA	NA	NA
Pyrene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.79)	0.18	NA	NA	NA	NA	NA	NA
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	46.9	0.41	37	0.41	45.5	0.41	ND(2)	0.41	44	0.41	8.5	0.41	44.5	0.41	NA	NA	NA	NA	NA	NA
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	46.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	NA	NA	NA	NA	NA	NA
Chloride	mg/l	5	1.5	8.8	1.5	4.9	1.5	4.8	1.5	4.9	1.5	22.6	1.5	5.8	1.5	NA	NA	NA	NA	NA	NA
Iron (Total)	mg/l	5.48	0.038	6.07	0.038	5.53	0.0349	6.16	0.0349	5.04	0.0349	1.1	0.035	4.71	0.0453	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/l	5.28	0.038	5.91	0.038	5.34	0.0349	5.78	0.0349	4.76	0.0349	0.98	0.035	4.59	0.0453	NA	NA	NA	NA	NA	NA
Methane	µg/l	42	2	130	4	57	2	43	2	42	2	290	10	47	2	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	NA	NA	NA	NA	NA	NA
Sulfate	mg/l	3.7j	1.5	8.7	1.5	3.1j	1.5	2.7j	1.5	3.8j	1.5	22.9	1.5	4.1j	1.5	NA	NA	NA	NA	NA	NA
Field Parameters																					
Dissolved Oxygen	mg/l	0.83		0.22		0.28		0.21		0.26		0.46		2.19		NM		NM		NM	
Ferrous Iron	mg/l	4.8		5.1		8		4		5.5		1.2		4		NM		NM		NM	
Oxidation-reduction Pot.	volts	202		60.8		41.8		-76		56		228		58.8		NM		NM		NM	
pH	std. units	6.43		5.56		5.33		5.9		6.03		4.78		5.57		NM		NM		NM	
Specific Conductance	µS/cm	102		132		105		112		115		154		115		NM		NM		NM	
Temperature	°C	18.9		16.38		19.2		21.3		18.35		15.82		19.66		NM		NM		NM	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-14

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	8j	1	ND(8)	0.8	ND(8)	0.8	0.96j	0.8	ND(15)	2	ND(15)	2	ND(15)	2	ND(15)	1.5	4.8j	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	0.83j	0.8	ND(15)	2	ND(15)	2	ND(15)	2	ND(15)	1.5	3.6j	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.096)	0.019	0.06j	0.038	ND(0.2)	0.040
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.099)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.19)	0.038	ND(0.095)	0.019	ND(0.099)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.58)	0.096	ND(0.19)	0.038	ND(0.2)	0.040
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.096)	0.019	ND(0.57)	0.095	ND(0.59)	0.099
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.040
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.040
Fluorene	µg/l	3j	1	ND(0.2)	0.04	0.2j	0.2	0.43j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	1.7	0.17	ND(0.79)	0.50
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079
Naphthalene	µg/l	3j	1	23	0.9	10	1	42	1	6.2j	1	ND(11)	1	ND(11)	1	ND(12)	1.2	120	1.5	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	0.1j	0.08	0.19j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.14j	0.077	0.64	0.076	ND(0.4)	0.079
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	28.7	0.41	13.7	0.41	18.6	0.41	ND(2)	0.41	12.7	0.41	10.8	0.41	13.7	0.41	13.8	0.41	ND(2)	0.41	14	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	23.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038	15.9	0.41	ND(2)	0.46
Chloride	mg/l	4.4	1.5	4.4	1.5	4.3	1.5	4.6	1.5	4.1	1.5	4.5	1.5	5.1	1.5	4.4	1.5	4.5	1.5	4.6	1.5
Iron (Total)	mg/l	1.56	0.038	1.36	0.038	1.42	0.0349	1.43	0.0349	1.09	0.0349	1.4	0.035	1.26	0.0453	0.796	0.0453	1.58	0.0495	1.24	0.0378
Iron (Dissolved)	mg/l	0.353	0.038	0.872	0.038	1.07	0.0349	1.59	0.0349	0.968	0.0349	1.1	0.035	1.23	0.0453	0.896	0.0453	1.04	0.0495	1.21	0.0378
Methane	µg/l	100	2	100	2	210	10	1100	40	120	2	63	2	150	10	47	2	400	10	100	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	4.1j	1.5	7.5	1.5	9.5	1.5	6	1.5	9.6	1.5	17.1	1.5	14.2	1.5	15.7	1.5	14.1	1.5	19.2	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	1.91		0.29		0.81		0.29		0.2		0.32		3.2		0.23		0.69		3.95	
Ferrous Iron	mg/l	0.8		1.5		3		3.5		2.5		1.2		2		0.4		2		1.6	
Oxidation-reduction Pot.	volts	345		-90		33		-72		49.1		18.4		-29.7		17.8		21.5		-21	
pH	std. units	6.6		5.6		4.72		5.65		5.8		5.08		5.34		5.8		5.81		5.31	
Specific Conductance	µS/cm	78		64		68		75		68		83		80		69		82		*	
Temperature	°C	19.6		18.16		18.7		20.32		19.86		18.09		18.83		34.39*		19.7		19.72	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-15

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003		December 2004		December 2005	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	3j	1	3j	0.8	2j	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	2.1j	1.6	2.3j	1.5	2.3j	1.5	2.6j	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	0.2	0.04	0.19j	0.04	0.13j	0.04	0.095j	0.04	0.13j	0.04	0.028j	0.019	0.10j	0.038	0.13j	0.039
Benz(a)anthracene	µg/l	ND(10)	1	0.03j	0.02	0.03j	0.02	0.037j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	0.021j	0.02	ND(0.095)	0.019	0.022j	0.019	0.026j	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.098)	0.02
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.59)	0.1	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	1.1	0.08	0.63	0.08	0.45	0.08	ND(0.7)	0.7	ND(0.38)	0.077	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039
Fluoranthene	µg/l	2j	1	0.7j	0.2	1	0.04	1.5	0.04	0.9	0.04	0.72	0.04	1	0.04	1.2	0.038	0.98	0.038	0.93	0.039
Fluorene	µg/l	2j	1	1	0.04	0.8	0.2	0.79j	0.2	0.56j	0.2	0.38j	0.2	0.7j	0.18	0.5j	0.17	0.47j	0.17	ND(0.78)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.39)	0.078
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1	ND(12)	1.5	ND(12)	1.6
Phenanthrene	µg/l	2j	1	0.5	0.08	0.5	0.08	0.47	0.08	0.24j	0.08	0.17j	0.08	0.24j	0.08	0.29j	0.076	0.18j	0.077	0.20j	0.078
Pyrene	µg/l	1j	1	0.7j	0.2	0.9	0.2	1.1	0.2	0.65j	0.2	0.48j	0.2	0.68j	0.18	0.83	0.17	0.73j	0.17	0.67j	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	128	0.41	192	0.41	129	0.41	ND(2)	0.41	157	0.41	171	0.41	137	0.41	124	0.41	ND(2)	0.41	147	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	131	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.14j	0.038	153	0.41	ND(2)	0.46
Chloride	mg/l	4.7	1.5	4.5	1.5	4.7	1.5	4.6	1.5	4.4	1.5	3.7	1.5	4.2	1.5	4.7	1.5	4.2	1.5	3.8	1.5
Iron (Total)	mg/l	27.2	0.038	38.7	0.038	30.7	0.0349	26.2	0.0349	34.9	0.0349	38.3	0.035	30.7	0.0453	31.2	0.0453	30.2	0.0495	34.3	0.0378
Iron (Dissolved)	mg/l	26.2	0.038	37.8	0.038	29.8	0.0349	26.4	0.0349	33.6	0.0349	38.8	0.035	31.7	0.0453	31.1	0.0453	29.8	0.0495	32.7	0.0378
Methane	µg/l	1400	100	1500	40	1800	50	2200	50	1900	100	2500	200	1900	200	1800	100	1800	40	1,800	50
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	1.6j	1.5	3j	1.5	ND(5)	1.5	ND(5)	1.5	3.3j	1.5	2j	1.5	2j	1.5	1.9j	1.5	ND(5)	1.5	6.7	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	1.06		0.6		0.5		0.36		0.35		0.23		3.95		0.53		0.98		0.36	
Ferrous Iron	mg/l	5.8		4.5		5.8		7		7		5.1		7.1		5.8		5		4.5	
Oxidation-reduction Pot.	volts	89		-46		-24		-59		-39		-34.9		-52.6		-40.4		-47.7		-91	
pH	std. units	6.44		6.15		5.95		6.39		6.3		6.26		5.82		6.16		6.11		5.93	
Specific Conductance	µS/cm	304		403		320		294		392		401		369		355		365		*	
Temperature	°C	24.6		21.2		25.3		28.77		24.63		20.68		26.3		28.45		25.5		22.7	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - Indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-16

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.095)	0.019	ND(0.19)	0.038	ND(0.2)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.098)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.065j	0.038	ND(0.095)	0.019	ND(0.098)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.095)	0.019	ND(0.57)	0.095	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	2.7	0.2	ND(0.77)	0.17	ND(2)	2	ND(0.76)	0.17	ND(0.78)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1	ND(11)	1.5	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.78)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	12.9	0.41	7.4	0.41	8.2	0.41	ND(2)	0.41	6.8	0.41	4.9	0.41	5.3	0.41	5.3	0.41	ND(2)	0.41	5.8	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038	4.8	0.41	ND(2)	0.46
Chloride	mg/l	4.5	1.5	4.8	1.5	4.6	1.5	5.6	1.5	4.4	1.5	4.7	1.5	4.6	1.5	4.2	1.5	4.1	1.5	5.2	1.5
Iron (Total)	mg/l	1.3	0.038	0.0658j	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.0505j	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	17	2	ND(5)	2	3.3j	2	3.3j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	2.1j	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	0.42j	0.4	0.68	0.4	0.75	0.4	1.09	0.4	1.05	0.4	1.4	0.4	1.3	0.4	1.6	0.4	1.3	0.4	1.2	0.40
Sulfate	mg/l	3.1j	1.5	2.7j	1.5	3.1j	1.5	15.3	1.5	5.9	1.5	8.1	1.5	12.6	1.5	26.6	1.5	9.1	1.5	18.8	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	1.99		5.33		4.64		3.03		4.93		4.83		5.61		3.49		2.15		5.3	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	484		492		613		323		405		390		603		382		154		272	
pH	std. units	5.42		4.69		4.21		4.52		5.08		5.19		4.42		5.07		5.05		4.5	
Specific Conductance	µS/cm	49		45		47		73		53		63		70		80		63		*	
Temperature	°C	20.9		21.28		21.5		21.34		21.39		20.13		21.61		27.19*		23.26		21.01	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-17

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	38	1	51	0.8	35	0.8	33	0.8	30	2	18	2	6.8j	1.6	13j	1.5	22	1.6	8.8j	1.6
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	14	0.8	7.7j	0.8	14j	2	6.9j	2	3j	1.6	4.4j	1.5	ND(16)	16	3.3j	1.6
Anthracene	µg/l	2j	1	2	0.04	2	0.04	1.5	0.04	1.5	0.04	0.68	0.04	0.26	0.04	0.046j	0.019	0.83	0.04	0.55	0.040
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.035j	0.019	ND(0.1)	0.02	0.025j	0.020
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.087j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.04j	0.038	ND(0.1)	0.02	ND(0.1)	0.020
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.57)	0.095	ND(0.2)	0.04	ND(0.2)	0.040
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.58)	0.1	0.022j	0.019	ND(0.6)	0.1	ND(0.6)	0.10
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.1)	0.02	ND(0.1)	0.020
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.36j	0.08	0.17j	0.08	ND(0.39)	0.08	0.083j	0.076	ND(0.4)	0.081	ND(0.4)	0.080
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.044j	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.2)	0.040
Fluoranthene	µg/l	ND(11)	1	28	0.2	0.9	0.04	0.96	0.04	0.89	0.04	0.49	0.04	0.28	0.04	0.76	0.038	0.44	0.04	0.29	0.040
Fluorene	µg/l	27	1	1	0.04	23	0.2	22	0.2	21	0.2	14	0.2	8.1	0.17	6.2	0.17	12	0.18	5.2	0.50
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076	ND(0.4)	0.081	ND(0.4)	0.080
Naphthalene	µg/l	720	11	750	5	560	5	590	5	480	6	140	1	ND(12)	1.2	13	1.1	330	1.6	94	1.6
Phenanthrene	µg/l	14	1	16	0.4	12	0.08	14	0.08	13	0.08	3.3	0.08	1.7	0.08	0.094j	0.076	9	0.081	5	0.080
Pyrene	µg/l	ND(11)	1	0.4j	0.2	0.4j	0.2	0.62j	0.2	0.26j	0.2	ND(0.8)	0.2	ND(0.78)	0.17	0.54j	0.17	0.22j	0.18	ND(0.8)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	42.3	0.41	46	0.41	43.8	0.41	ND(2)	0.41	39.2	0.41	30.5	0.41	17.3	0.41	27.5	0.41	ND(2)	0.41	34	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	44.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.27	0.038	32.4	0.41	ND(2)	0.46
Chloride	mg/l	11.4	1.5	13.5	1.5	11.6	1.5	9.9	1.5	12.7	1.5	16.7	1.5	17.9	1.5	17.1	1.5	11.6	1.5	13.5	1.5
Iron (Total)	mg/l	4.13	0.038	4.49	0.038	4.73	0.0349	8.36	0.0349	5.07	0.0349	2.3	0.035	1.41	0.0453	4.6	0.0453	7.85	0.0495	8.5	0.0378
Iron (Dissolved)	mg/l	2.64	0.038	3.65	0.038	4.07	0.0349	4.91	0.0349	4.09	0.0349	2.3	0.035	1.04	0.0453	3.56	0.0453	7.03	0.0495	4.67	0.0378
Methane	µg/l	850	40	1400	40	910	20	930	40	640	20	470	10	300	20	390	20	550	20	300	20.
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	2.9j	1.5	2.1j	1.5	2.7j	1.5	3.8j	1.5	3.4j	1.5	3.1j	1.5	4.4j	1.5	5.6	1.5	6.3	1.5	9.8	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.79		0.3		0.62		0.33		0.31		0.49		2.8		0.5		0.33		0.4	
Ferrous Iron	mg/l	1.2		5		5.5		5.5		4.5		2.2		1.4		2.5		5		4	
Oxidation-reduction Pot.	volts	339		13.1		340		60.3		113		208		278		162		-13		-75	
pH	std. units	5.7		5.89		3.86		3.71		5.57		2.15*		4.5		5.15		5.86		5.36	
Specific Conductance	µS/cm	111		147		121		126		116		107		112		129		130		*	
Temperature	°C	20.1		18.6		20.4		20.99		20.53		18.92		20.02		20.9		21.4		21.09	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
J - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-18

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	26	1	42	0.8	9	0.8	1.6j	0.9	12j	2	2.1j	2	ND(16)	1.6	ND(15)	1.5	23	1.7	9.1j	1.6
Acenaphthylene	µg/l	2j	1	21	0.8	4j	0.8	ND(9)	0.9	5.6j	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5	ND(17)	17	ND(16)	1.6
Anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	0.07j	0.04	ND(0.2)	0.04	0.092j	0.04	ND(0.2)	0.04	0.08j	0.04	ND(0.095)	0.019	ND(0.21)	0.2	0.056j	0.039
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.082j	0.02	ND(0.095)	0.019	ND(0.1)	0.021	ND(0.098)	0.020
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.23	0.02	ND(0.19)	0.038	ND(0.1)	0.021	ND(0.098)	0.020
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.098j	0.04	ND(0.57)	0.095	ND(0.21)	0.042	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	0.11j	0.1	ND(0.095)	0.019	ND(0.63)	0.1	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.085j	0.02	ND(2)	0.41	ND(0.1)	0.021	ND(0.098)	0.020
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	0.096j	0.08	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.1j	0.04	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.039
Fluoranthene	µg/l	ND(11)	1	25	0.2	0.2	0.04	0.086j	0.04	0.28	0.04	0.087j	0.04	0.087j	0.04	ND(0.19)	0.038	0.46	0.042	0.33	0.039
Fluorene	µg/l	16	1	0.7	0.04	7	0.2	2.7	0.2	9.8	0.2	2	0.2	ND(0.78)	0.18	0.96	0.17	25	0.19	13	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	0.1j	0.08	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.39)	0.078
Naphthalene	µg/l	470	6	830	5	170	1	27	1	310	1	22	1	ND(12)	1.2	10j	1.1	500	8.4	180	1.6
Phenanthrene	µg/l	15	1	24	0.4	5	0.08	1.7	0.09	8.9	0.08	0.08j	0.08	0.3j	0.08	0.39	0.076	16	0.084	11	0.078
Pyrene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17	ND(0.84)	0.19	ND(0.78)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	23.1	0.41	11.3	0.41	9.7	0.41	ND(2)	0.41	12.4	0.41	10.5	0.41	8.5	0.41	9.5	0.41	ND(2)	0.41	10.4	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	8.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038	9.4	0.41	ND(2)	0.46
Chloride	mg/l	12.1	1.5	12.8	1.5	17.3	1.5	23.5	1.5	19.8	1.5	22.1	1.5	22.5	1.5	23.3	1.5	17.9	1.5	22.1	1.5
Iron (Total)	mg/l	0.475	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0408j	0.0349	ND(0.1)	0.0349	0.11	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	4.4j	2	4.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	3.9j	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	0.79	0.4	0.87	0.4	1.5	0.4	2.07	0.4	1.51	0.4	1.7	0.4	1.9	0.4	2.2	0.4	1.1	0.4	1.5	0.40
Sulfate	mg/l	10.3	1.5	9.2	1.5	9.1	1.5	7.9	1.5	9.8	1.5	8	1.5	5.6	1.5	6.9	1.5	9.7	1.5	9.8	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.67		0.37		0.63		0.37		0.35		0.38		2.39		0.37		0.58		0.82	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	377		348		423		338		358		410		557		352		111		252	
pH	std. units	5.63		4.93		4.55		3.71		5.28		4.42		4.69		5.23		5.17		4.66	
Specific Conductance	µS/cm	104		102		109		136		135		136		132		112		116		*	
Temperature	°C	22.2		22.55		22.3		23.27		22.78		22.35		22.97		36.81*		23.5		22.41	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-19

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	49	1	93	0.8	83	0.8	71	0.8	91	2	88	2	83	1.6	80	1.7	73	1.5	61	1.6
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	36	0.8	11	0.8	39	2	26	2	37	1.6	36	1.7	33	1.5	ND(26)	26.
Anthracene	µg/l	2j	1	4	0.04	3	0.04	2.1	0.04	3.6	0.04	3.7	0.04	3	0.04	ND(0.1)	0.021	2.5	0.038	2.2	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07j	0.02	ND(0.1)	0.021	ND(0.095)	0.019	ND(0.098)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.16	0.02	ND(0.21)	0.042	ND(0.095)	0.019	ND(0.098)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.081j	0.04	ND(0.63)	0.1	ND(0.19)	0.038	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.1)	0.021	ND(0.57)	0.095	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07j	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.08j	0.08	ND(0.4)	0.08	0.11j	0.08	ND(0.42)	0.084	ND(0.38)	0.076	0.10j	0.079
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.083j	0.04	ND(0.21)	0.042	ND(0.19)	0.038	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	39	2	1	0.04	1.4	0.04	1.6	0.04	2.2	0.04	1.8	0.04	1.7	0.042	1.8	0.038	1.5	0.039
Fluorene	µg/l	22	1	2	0.04	33	0.2	26	0.2	38	2	39	2	35	0.18	34	0.19	27	0.17	22	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.1j	0.08	ND(0.42)	0.084	ND(0.38)	0.076	ND(0.39)	0.079
Naphthalene	µg/l	290	5	980	9	890	9	500	5	1100	11	1000	11	970	12	1000	13	830	7.6	640	7.9
Phenanthrene	µg/l	17	1	36	0.8	31	0.8	24	0.4	37	0.8	39	0.8	32	0.78	37	0.84	26	0.38	22	0.39
Pyrene	µg/l	ND(10)	1	0.8	0.2	0.7j	0.2	1.3	0.2	0.69j	0.2	0.67j	0.2	0.81	0.18	0.77j	0.19	0.85	0.17	0.58j	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	68.6	0.41	82.3	0.41	78.4	0.41	ND(2)	0.41	92.2	0.41	87.5	0.41	84.9	0.41	88.6	0.41	ND(2)	0.41	112	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	78.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	3.1	0.042	95.6	0.41	ND(2)	0.46
Chloride	mg/l	10.5	1.5	10.2	1.5	10.1	1.5	1020	150	9.8	1.5	9.7	1.5	10.7	1.5	10.2	1.5	11.5	1.5	10.4	1.5
Iron (Total)	mg/l	4.69	0.038	5.71	0.038	5.75	0.0349	5.47	0.0349	6.76	0.0349	5.6	0.035	6	0.0453	5.61	0.0453	6.07	0.0495	7.25	0.0378
Iron (Dissolved)	mg/l	3.66	0.038	5.29	0.038	5.61	0.0349	5.48	0.0349	6.74	0.0349	5.8	0.035	6.02	0.0453	5.49	0.0453	6.05	0.0495	6.86	0.0378
Methane	µg/l	590	40	1400	20	1200	40	1000	40	1400	40	1400	40	1200	40	1300	50	1300	40	780	40.
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.40
Sulfate	mg/l	6.7	1.5	4.3j	1.5	4.3j	1.5	ND(5)	1.5	3.3j	1.5	4.1j	1.5	4.7j	1.5	2.8j	1.5	2.1j	1.5	2.3j	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	0.81		1.3		0.51		0.19		0.24		0.23		2.13		0.39		0.82		0.38	
Ferrous Iron	mg/l	4.6		6		7		5.5		5		4.8		4.8		NM		4		5	
Oxidation-reduction Pot.	volts	177		-90		178		-49		-5.7		25.4		100		-127		-26		-114	
pH	std. units	5.88		6.07		5.15		5.07		6.04		4.12		5.35		5.95		6.06		5.73	
Specific Conductance	µS/cm	176		193		179		192		204		198		203		234		206		*	
Temperature	°C	22.3		19.9		21.1		23.42		22.11		19.98		22.02		22.41		27.24		22.07	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-20

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003		December 2004		December 2005	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.19)	0.038	ND(0.2)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.099)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.19)	0.039	ND(0.095)	0.019	ND(0.099)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.58)	0.096	ND(0.19)	0.038	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.096)	0.019	ND(0.57)	0.095	ND(0.59)	0.099
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2	ND(11)	1.5	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	9.7	0.41	9.3	0.41	7.8	0.41	ND(2)	0.41	9.7	0.41	10.4	0.41	8	0.41	9.2	0.41	ND(2)	0.41	10.6	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.039	7.3	0.41	ND(2)	0.46
Chloride	mg/l	10.2	1.5	9.2	1.5	10.4	1.5	10.6	1.5	8.8	1.5	8.9	1.5	10	1.5	9.1	1.5	11.3	1.5	10.7	1.5
Iron (Total)	mg/l	0.331	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0473j	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.164j	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	3.5j	2	2.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	2.7j	2	ND(5)	2	ND(5)	2	9.6	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	0.58	0.4	0.41j	0.4	0.49j	0.4	0.52	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.45j	0.4	0.47j	0.40
Sulfate	mg/l	3j	1.5	3.2j	1.5	2.2j	1.5	2.8j	1.5	3.9j	1.5	3.4j	1.5	3j	1.5	5.8	1.5	ND(5)	1.5	1.6j	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	1.27		0.89		1.84		0.64		0.6		0.58		2.93		0.45		0.88		0.41	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	478		543		591		272		417		495		286		327		185.2		266	
pH	std. units	5.36		4.78		3.57		4.97		5.21		4.62		4.62		5.14		5.01		4.41	
Specific Conductance	µS/cm	67		66		61		64		72		70		64		61		74		*	
Temperature	°C	22.7		21.08		22.8		24.25		23.2		20.22		23.11		34.16*		28.74		22.54	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
J - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-21

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003		December 2004		December 2005	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.19)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.095)	0.019	ND(0.097)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04	ND(0.095)	0.019	ND(0.097)	0.019
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.6)	0.1	ND(0.19)	0.038	ND(0.19)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.1)	0.02	ND(0.57)	0.095	ND(0.58)	0.097
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.097)	0.019
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.48
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(9)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2	ND(11)	1.5	ND(12)	1.5
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.17
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	6.5	0.41	4.1	0.41	4	0.41	ND(2)	0.41	3.8	0.41	4.2	0.41	4.5	0.41	4.6	0.41	ND(2)	0.41	3.7	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	4.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.04	3	0.41	ND(2)	0.46
Chloride	mg/l	11.7	1.5	12	1.5	13	1.5	12.5	1.5	12.5	1.5	10.9	1.5	10.1	1.5	10.6	1.5	11.8	1.5	12.0	1.5
Iron (Total)	mg/l	7	0.038	0.172	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.233	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	0.054j	0.0453	ND(0.2)	0.0495	0.0417 J	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378
Methane	µg/l	2.8j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	4.1 J	2.0
Nitrate Nitrogen	mg/l	1.22	0.4	1.2	0.4	1.23	0.4	1.4	0.4	1.15	0.4	1	0.4	0.8	0.4	1.2	0.4	2	0.4	1.5	0.40
Sulfate	mg/l	3.1j	1.5	2.9j	1.5	2.7j	1.5	3j	1.5	3j	1.5	2.1j	1.5	2j	1.5	2.1j	1.5	2.4j	1.5	4.6 J	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	4.4		4.52		4.54		4.06		4.22		4.34		6.06		3.78		1.44		3.51	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	507		520		516		274		405		423		571		369		164		264	
pH	std. units	5.53		4.54		4.73		5.02		5.14		3.84		4.5		5.18		4.96		4.51	
Specific Conductance	µS/cm	67		69		68		72		73		68		61		91		78		*	
Temperature	°C	22		22.08		21.6		22.8		22.71		21.33		22.2		22.14		22.7		22.58	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - Indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-22

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL	December 2004 Result	MDL	December 2005 Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.099)	0.02	ND(0.19)	0.038	ND(0.2)	0.039
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.099)	0.02	ND(0.096)	0.019	ND(0.098)	0.020
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04	ND(0.096)	0.019	ND(0.098)	0.020
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.59)	0.099	ND(0.19)	0.038	ND(0.2)	0.039
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.099)	0.02	ND(0.58)	0.096	ND(0.59)	0.098
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	0.020
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	0.04j	0.04	ND(0.2)	0.04	0.17j	0.04	0.14j	0.04	0.14j	0.04	0.19j	0.04	ND(0.19)	0.038	ND(0.2)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	14	0.2	ND(0.77)	0.17	ND(0.79)	0.18	ND(0.77)	0.17	ND(0.78)	0.49
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078
Pyrene	µg/l	ND(10)	1	0.6j	0.2	0.6j	0.2	0.3j	0.2	0.84	0.2	0.83	0.2	0.76J	0.17	0.61j	0.18	ND(0.77)	0.17	ND(0.78)	0.18
Natural Attenuation Parameters																					
Alkalinity to pH 4.5	mg/l	48.4	0.41	52.1	0.41	50.6	0.41	ND(2)	0.41	54	0.41	59.9	0.41	62.3	0.41	50.6	0.41	ND(2)	0.41	25.5	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	39.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.04	34.2	0.41	ND(2)	0.46
Chloride	mg/l	9.7	1.5	14.9	1.5	10	1.5	11.5	1.5	10.2	1.5	9.3	1.5	9.4	1.5	9.8	1.5	11.7	1.5	10.3	1.5
Iron (Total)	mg/l	2.54	0.038	0.0906j	0.038	ND(0.1)	0.0349	0.0368j	0.0349	0.0509j	0.0349	0.054j	0.035	0.0855j	0.0453	0.071j	0.0453	0.859	0.0495	1.18	0.0378
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0371j	0.0349	ND(0.1)	0.0349	0.042j	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453	0.339	0.0495	0.256	0.0378
Methane	µg/l	100	2	71	2	41	2	19	2	33	2	46	2	55	2	38	2	16	2	11	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.57	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.42j	0.4	0.54	0.40
Sulfate	mg/l	6.3	1.5	5j	1.5	4.9j	1.5	4.3j	1.5	5.4	1.5	5j	1.5	4.8j	1.5	4.1j	1.5	4.6j	1.5	5.2	1.5
Field Parameters																					
Dissolved Oxygen	mg/l	1.63		0.3		0.16		0.43		0.4		0.21		1.74		0.3		0.6		0.58	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0.4		0		1	
Oxidation-reduction Pot.	volts	420		278		420		207		182		240		274		369		111		127	
pH	std. units	5.97		5.61		5.06		5.3		5.96		5.15		5.59		5.18		5.63		4.92	
Specific Conductance	µS/cm	131		143		134		127		149		158		161		91		114		*	
Temperature	°C	21		20.13		21.3		21.91		21.42		20.09		21.08		22.14		26		20.71	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation [1]			Dissolved Oxygen (mg/L) Plume Concentration < Background Concentration									
	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05
Process Area	Plume	MW-1R	0.54	0.34	0.76	0.27	0.32	0.29	2.14	0.22	0.98	7.02[2]
	Plume	MW-2R	0.42	0.41	0.48	0.26	0.33	0.25	2.04	0.5	1.3	0.36
	Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3	0.18	0.37
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82
Northeast Drainage Ditch Area	Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3	0.18	0.37
	Plume	MW-09	0.46	0.34	0.4	0.22	0.17	0.16	4.07	0.42	1.69	Damaged
	Plume	MW-17	0.79	0.3	0.62	0.33	0.31	0.49	2.6	0.5	0.33	0.4
	Plume	MW-19	0.81	1.3	0.51	0.19	0.24	0.23	2.13	0.39	0.82	0.38
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82
	Background*	MW-20	1.27	0.89	1.84	0.64	0.6	0.58	2.93	0.45	0.88	0.41
	Background*	MW-21	4.4	4.52	4.54	4.06	4.22	4.34	6.06	3.78	1.44	3.51
	Background*	MW-22	1.63	0.3	0.16	0.43	0.4	0.21	1.74	0.3	0.6	0.58
Fill Area	Plume	MW-12	0.65	0.4	1.25	0.18	0.22	0.27	2.17	0.29	0.5	0.81
	Background*	MW-13	0.83	0.22	0.28	0.21	0.26	0.46	2.19	NM	NM	NM
	Background*	MW-15	1.06	0.6	0.5	0.36	0.35	0.23	3.95	0.53	0.98	0.36

Notes
mg/L - milligram per liter
* background or as defined in this report "plume defining well"
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication
Policy on Use of Natural Attenuation for Site Remediation, 1997
(2) - Indicates suspect measurement likely due to instrument malfunction
NM - Not Measured
NA - Not Analyzed
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation (1) — Iron - Fe+2 (mg/L)

Plume Concentration > Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05
Process Area	Plume	MW-1R	8	5.1	5	4	2.6	0	1.4	0	0	0
	Plume	MW-2R	0	0	0	0	0	0	0	0	0	0
	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4
	Background*	MW-16	0	0	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	0	0	0	0	0	0	0
Northeast Drainage Ditch Area	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4
	Plume	MW-09	6	3	7	5	5.5	3	4	4.6	5	Damaged
	Plume	MW-17	1.2	5	5.5	5.5	4.5	2.2	1.4	2.5	5	4
	Plume	MW-19	4.6	6	7	5.5	5	4.8	4.8	NM	4	5
	Background*	MW-16	0	0	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	0	0	0	0	0	0	0
	Background*	MW-20	0	0	0	0	0	0	0	0	0	0
	Background*	MW-21	0	0	0	0	0	0	0	0	0	0
	Background*	MW-22	0	0	0	0	0	0	0	0.4	0	1
Fill Area	Plume	MW-12	1.4	2.2	3.8	3	3.5	1.8	1.9	NM	1	0.8
	Background*	MW-13	4.8	5.1	8	4	5.5	1.2	4	NM	NM	NM
	Background*	MW-15	5.8	4.5	5.8	7	7	5.1	7.1	5.8	5	4.5

Notes
mg/L - milligram per liter
* background or as defined in this report "plume defining well"
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication
Policy on Use of Natural Attenuation for Site Remediation, 1997
(2) - Indicates suspect measurement likely due to instrument malfunction
NM - Not Measured
NA - Not Analyzed
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation [1]

Methane (µg/L)

Plume Concentration > Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05
Process Area	Plume	MW-1R	2400	350	71	43	48	ND(5)	35	3.7j	2.2j	ND(5)
	Plume	MW-2R	2.8j	2.2j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)
	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)
Northeast Drainage Ditch Area	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400
	Plume	MW-09	590	380	480	340	230	750	580	450	1500	Damaged
	Plume	MW-17	850	1400	910	930	640	470	300	390	550	300
	Plume	MW-19	590	1400	1200	1000	1400	1400	1200	1300	1300	780
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)
	Background*	MW-20	3.5j	2.6j	ND(5)	ND(5)	ND(5)	2.7j	ND(5)	ND(5)	9.6	ND(5)
	Background*	MW-21	2.8j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	4.1j
	Background*	MW-22	100	71	41	19	33	46	55	38	16	11
Fill Area	Plume	MW-12	400	360	370	400	240	210	170	140	64	50
	Background*	MW-13	42	130	57	43	42	290	47	NA	NA	NA
	Background*	MW-15	1400	1500	1800	2200	1900	2500	1900	1800	1800	1800

Notes
µg/L - microgram per liter
* background or as defined in this report "plume defining well"
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication
Policy on Use of Natural Attenuation for Site Remediation, 1997
(2) - Indicates suspect measurement likely due to instrument malfunction
NM - Not Measured
NA - Not Analyzed
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation [1]: Sulfate (mg/L)

Plume Concentration < Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05
Process Area	Plume	MW-1R	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	1.8j	1.5j	ND(5)	2.7j
	Plume	MW-2R	19.9	18.8	20.9	21.2	19.3	20.9	21.8	19.9	17.9	18.8
	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2	3.4j	3.6j
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8
Northeast Drainage Ditch Area	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2	3.4j	3.6j
	Plume	MW-09	3.4j	6.6	4j	ND(5)	5.3	9.6	6.4	13.8	ND(5)	Damaged
	Plume	MW-17	2.9j	2.1j	2.7j	3.8j	3.4j	3.1j	4.4j	5.6	6.3	9.8
	Plume	MW-19	6.7	4.3j	4.3j	ND(5)	3.3j	4.1j	4.7j	2.8j	2.1j	2.3j
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8
	Background*	MW-20	3j	3.2j	2.2j	2.8j	3.9j	3.4j	3j	5.8	ND(5)	1.6j
	Background*	MW-21	3.1j	2.9j	2.7j	3j	3j	2.1j	2j	2.1j	2.4j	4.6j
	Background*	MW-22	6.3	5j	4.9j	4.3j	5.4	5j	4.8j	4.1j	4.6j	5.2
Fill Area	Plume	MW-12	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-13	3.7j	8.7	3.1j	2.7j	3.8j	22.9	4.1j	NA	NA	NA
	Background*	MW-15	1.6j	3j	ND(5)	ND(5)	3.3j	2j	2j	1.9j	ND(5)	7

Notes
mg/L - milligram per liter
* background or as defined in this report "plume defining well"
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication
Policy on Use of Natural Attenuation for Site Remediation, 1997
(2) - Indicates suspect measurement likely due to instrument malfunction
NM - Not Measured
NA - Not Analyzed
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation [1]: Nitrate (mg/L)

Plume Concentration < Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05
Process Area	Plume	MW-1R	ND(0.5)	ND(0.5)	ND(0.5)	0.61	0.7	1.1	0.81	1.4	1.5	ND(0.5)
	Plume	MW-2R	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6	1.3	1.2
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.5
Northeast Drainage Ditch Area	Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-09	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	Damaged
	Plume	MW-17	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-19	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6	1.3	1.2
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.5
	Background*	MW-20	0.58	0.41j	0.49j	0.52	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.45j	0.47j
	Background*	MW-21	1.22	1.2	1.23	1.4	1.15	1	0.8	1.2	2	1.5
	Background*	MW-22	ND(0.5)	ND(0.5)	ND(0.5)	0.57	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.42j	0.54
Fill Area	Plume	MW-12	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-13	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	NA	NA	NA
	Background*	MW-15	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

Notes
mg/L - milligram per liter
* background or as defined in this report "plume defining well"
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication
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Appendix A

Historical Background Information

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

1.0 Introduction

This *Ground Water Monitoring Report* documents the results of ground water monitoring activities conducted at the former Gulf States Creosoting site in Hattiesburg, Mississippi from December 2001 through October 2003. Ground water monitoring was performed in accordance with the Mississippi Department of Environmental Quality (MDEQ)-approved *Ground Water Monitoring Plan* (Michael Pisani & Associates, June 25, 2001). This report is organized as follows:

- Section 1 includes background information on the site, a summary of previous ground water investigations, and information on the current ground water monitoring well network.
- Section 2 describes procedures for the collection, handling, and analysis of ground water samples.
- Section 3 presents the results from the initial eight quarterly sampling events, including potentiometric surface maps, tables summarizing analytical results, graphical charts, and a preliminary site-specific evaluation of monitored natural attenuation parameters.
- Section 4 presents proposed changes to the program for future ground water monitoring activities.

1.1 Site Description and Background

The former Gulf States Creosoting site is located in Hattiesburg, Mississippi near the intersection of U.S. Highways 49 and 11. The site is situated entirely within Section 16 of Township 4 North, Range 13 West, in Forrest County, Mississippi (Figure 1-1). Creosoting operations were conducted at the site between the early 1900s and approximately 1960. Wood treating operations were confined to a 2.5-acre area at the northeast corner of the site; this area is referred to as the former Process Area (see Figure 1-2).

The property was developed commercially beginning in approximately 1962. During the redevelopment of the site, fill materials containing creosote residuals were apparently placed in the southwestern portion of the site adjacent to Gordon's Creek; this area is referred to as the Fill Area. The original plant area is currently occupied by automobile dealerships, auto parts retailers, and other commercial operations (Figure 1-2).

1.2 Summary of Previous Ground Water Investigations

Ground water beneath the Gulf States Creosoting site has been studied extensively beginning in 1994. In 1994, Environmental Protection Systems (EPS) conducted a limited investigation of the former Process Area only, which included the installation of four ground water monitoring wells. From early 1997 through December 2001, Kerr-McGee Chemical, LLC (KMC) conducted ground water assessment activities during five different phases of investigation.

In February through April 1997, KMC conducted a Remedial Investigation (RI). The RI included detailed site-wide stratigraphic characterization, as well as the installation of four new monitoring wells. Water level data, ground water quality data, and aquifer characterization data were obtained from the four new wells and four existing wells.

In 1998, KMC conducted a Phase II RI. The Phase II RI included additional stratigraphic characterization, the collection of ground water samples from 13 temporary well points, the installation of eight new monitoring wells, and the collection of water level data and ground water quality data from the eight new wells and six of the existing wells.

In August and September 2000, KMC conducted additional site investigation activities. The additional activities included the collection of ground water samples from 18 temporary well points, the plugging and abandonment of three of the monitoring wells installed during the 1994 EPS investigation, the installation of two new monitoring wells, and the collection of water level data and ground water quality data from the two new wells and 13 existing wells.

In February and March 2001, KMC conducted additional site investigation activities. The additional activities included the collection of ground water samples from two temporary well points.

In June 2001, KMC submitted a *Ground Water Monitoring Plan* (GWMP) for the site. The plan included the installation of nine additional monitoring wells, with proposed locations based on the results of sampling from existing wells and temporary well points. LDEQ approved the GWMP, including the proposed monitoring well locations, in a letter dated July 17, 2001. The nine new monitoring wells were installed and developed in November and December 2001. Figure 1-3 depicts the locations of all monitoring wells in the existing monitoring network.

Major conclusions from these ground water investigations were:

- The shallow geology of the former Process Area and the Fill Area are significantly different. The shallow water bearing zones beneath the two areas are not hydraulically connected.
- Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River. Ground water flow continues in an easterly direction beneath the adjacent residential area. Ground water within the Fill Area sands flows toward Gordon's Creek and downstream along the creek. This provides further evidence that the shallow water bearing zones beneath the two areas are not hydraulically connected.
- Shallow ground water (i.e., ground water at depths less than 200 feet below land surface) is unused for any purpose in the Hattiesburg area. Furthermore, in 2001, the Hattiesburg City Council adopted an ordinance resolution prohibiting the development and use of ground water resources within the City limits.
- Ground water beneath the former Process Area has been impacted by historical creosoting operations. However, no free-phase DNAPLs are present in monitoring wells within the former Process Area. Affected ground water does not extend westward, southward, or northward from the former Process Area.

- Creosote constituents have migrated offsite to the east of the former Process Area via the ground water pathway. However, the number and concentrations of constituents decrease dramatically with distance from the former Process Area. The former Process Area plume extends to a maximum distance of 500 feet offsite.
- Historically, a ditch that flowed offsite to the east from the former Process Area (the northeast drainage ditch) may have conveyed process wastewater from wood treating operations. Ground water beneath and immediately adjacent to this ditch has been impacted by the vertical migration of constituents from the ditch itself. Affected ground water is confined to a narrow band beneath and adjacent to the ditch.
- Affected ground water beneath the Fill Area is generally confined to portions of the site where historical filling with impacted materials occurred. The area containing affected ground water extends northward from the Fill Area in a narrow band along the east bank of Gordon's Creek.

1.3 Source Area Remediation

In 2003, KMC completed the vast majority (i.e., over 95 percent) of site remediation specified in the MDEQ-approved *Final Remedial Action Work Plan* (MP&A, August 3, 2001) and *Removal Action Work Plan – Northeast Drainage Ditch* (MP&A, August 21, 2002). Each of these plans included the removal and offsite disposal of materials that constituted potential sources of ground water contamination (i.e., free product or creosote-saturated soils). In addition, each plan included containment and control elements designed to either reduce the potential for migration of constituents via the ground water pathway or to preclude the potential for infiltration/percolation of water through affected soils left in place.

Specifically, cleanup activities undertaken in part to address affected ground water included the following:

- Approximately 2,400 tons of affected material and associated liquids were removed from two subsurface features within the former Process Area (the concrete sump and wooden substructure). Solids were transported and disposed offsite at a permitted Subtitle C landfill. Liquids were transported to KMC's facility in Texarkana, Texas facility for reuse/recycle.
- Affected soils remaining in place within the former Process Area were capped with an impermeable composite liner and 4 inches of asphalt.
- Approximately 13,300 tons of affected soils and debris were removed from the northeast drainage ditch. These materials were transported and disposed offsite at permitted Subtitle C and Subtitle D landfills.
- Prior to the installation of culvert pipe in the former ditch, HDPE liner was installed above potentially-affected soils remaining in place.
- Approximately 800 tons of affected sediment, soils, and associated liquids were removed from Gordon's Creek adjacent to the Fill Area. Solids were transported and disposed offsite at a permitted Subtitle C landfill. Liquids were transported to KMC's facility in Columbus, Mississippi facility for reuse/recycle.

- A Waterloo Barrier System (i.e., interlocking sheet piling) was installed around the Fill Area to eliminate the potential for seepage of free product and affected ground water to Gordon's Creek. Geosynthetic Clay Liner (GCL) was installed above the Fill Area to reduce the potential for ground water mounding behind the sheet piling barrier.
- Monitoring and recovery wells were installed within the Fill Area containment cell to allow for the recovery of free product. Approximately 800 phreatophytic trees (i.e., hybrid poplars and black willows) were planted within the containment cell to uptake affected ground water.

These source removal/containment and control activities were all completed within the last 24 months, and their effects on reducing constituent concentrations in ground water will likely take time to observe. However, once source materials are removed and/or contained, monitored natural attenuation of ground water contamination typically becomes a viable ground water remedy.

Appendix B

2005 Laboratory Reports

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971002. Samples arrived at the laboratory on Wednesday, December 14, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-12 Grab Water Sample	4669511
MW-11 Grab Water Sample	4669512
MW-18 Grab Water Sample	4669513
MW-21 Grab Water Sample	4669514
MW-16 Grab Water Sample	4669515
Trip_Blank Water Sample	4669516

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Jenifer E. Hess
Manager

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

MEMBER ACIL

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669511

MW-12 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 10:45 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT12 SDG#: HMS54-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.32		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	53.5		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	2.5		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	N.D.		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	50.		5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	7.8	J	11.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		15.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		15.	1.5	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.76	0.48	ug/l	1
00785	Phenanthrene	85-01-8	0.12	J	0.38	0.076	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.19	0.20	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.19	0.038	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.76	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.095	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.19	0.038	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.095	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.19	0.038	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.38	0.076	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.57	0.095	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.38	0.076	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.095	0.019	ug/l	1

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669511

MW-12 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 10:45 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT12 SDG#: HMS54-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:17	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/14/2005 11:34	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/14/2005 11:34	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/14/2005 11:34	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 00:38	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/18/2005 10:41	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 07:15	Danette S Cavalier	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669512

MW-11 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 11:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT11 SDG#: HMS54-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0774 J	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.7	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	24.9	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	130.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	15.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	15.	1.5	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.77	0.48	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.38	0.077	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.19	0.038	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.19	0.038	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.77	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.096	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.19	0.038	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.096	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.19	0.038	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.38	0.077	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.58	0.096	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.38	0.077	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.096	0.019	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669512

MW-11 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 11:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT11 SDG#: HMS54-02

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:21	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/14/2005 11:49	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/14/2005 11:49	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/14/2005 11:49	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 01:25	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/18/2005 11:59	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 07:15	Danette S Cavalier	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669513

MW-18 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 14:00 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT18 SDG#: HMS54-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	10.4		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	22.1		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	9.8		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.5		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	180.		12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	9.1	J	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	13.		0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	11.		0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	0.056	J	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	0.33		0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.78	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669513

MW-18 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 14:00 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

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PO Box 3048
Livonia MI 48150

HAT18 SDG#: HMS54-03

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:32	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/14/2005 12:04	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/14/2005 12:04	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/14/2005 12:04	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 01:41	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/18/2005 12:37	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 07:15	Danette S Cavalier	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669514

MW-21 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 15:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT21 SDG#: HMS54-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0417 J	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	3.7	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	12.0	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	4.6 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.5	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	4.1 J	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	15.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	15.	1.5	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.77	0.48	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.077	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.19	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.19	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.77	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.097	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.19	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.097	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.19	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.077	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.58	0.097	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.077	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.097	0.019	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669514

MW-21 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 15:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT21 SDG#: HMS54-04

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:36	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/14/2005 12:19	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/14/2005 12:19	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/14/2005 12:19	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 01:57	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/18/2005 13:16	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 07:15	Danette S Cavalier	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669515

MW-16 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT16 SDG#: HMS54-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	5.8	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.2	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	18.8	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.2	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.78	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669515

MW-16 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT16 SDG#: HMS54-05

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:40	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/15/2005 15:09	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/14/2005 12:34	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/14/2005 12:34	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/14/2005 12:34	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 02:13	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/18/2005 13:54	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 07:15	Danette S Cavalier	1

*=This limit was used in the evaluation of the final result

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Lancaster, PA 17605-2425
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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669516

Trip_Blank Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/25/2005 at 20:23
Discard: 02/24/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HATTB SDG#: HMS54-06TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 02:29	Laura A Lockard	1

*=This limit was used in the evaluation of the final result

MEMBER ACIL
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Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/25/05 at 08:23 PM

Group Number: 971002

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 05348401101A	Sample number(s): 4669511-4669515								
Chloride	N.D.	0.40	0.30	mg/l	98		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	98		90-110		
Nitrate Nitrogen	N.D.	0.10	0.080	mg/l	96		90-110		
Batch number: 05349020201A	Sample number(s): 4669511-4669515								
Alkalinity to pH 4.5					100		98-103		
Batch number: 05349WAH026	Sample number(s): 4669511-4669515								
Naphthalene	N.D.	12.	1.6	ug/l	80		57-109		
Acenaphthylene	N.D.	16.	1.6	ug/l	84		67-99		
Acenaphthene	N.D.	16.	1.6	ug/l	88		60-116		
Fluorene	N.D.	0.80	0.50	ug/l	90		61-116		
Phenanthrene	N.D.	0.40	0.080	ug/l	92		67-115		
Anthracene	N.D.	0.20	0.040	ug/l	89		68-113		
Fluoranthene	N.D.	0.20	0.040	ug/l	92		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	91		69-113		
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	95		73-114		
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	97		72-113		
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	93		68-112		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	88		19-129		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	88		67-106		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	83		7-126		
Chrysene	N.D.	0.40	0.080	ug/l	92		70-111		
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	97		72-119		
Batch number: 053500022A	Sample number(s): 4669511-4669516								
Methane	N.D.	5.0	2.0	ug/l	100		80-120		
Batch number: 053541848003	Sample number(s): 4669511-4669515								
Iron	N.D.	0.200	0.0378	mg/l	104		80-120		

Sample Matrix Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971002
Reported: 12/25/05 at 08:23 PM

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 05348401101A	Sample number(s): 4669511-4669515								
Chloride	96		90-110			5.2	3.7	33* (1)	3
Sulfate	92		90-110			18.8	12.4	41* (1)	3
Nitrate Nitrogen	98		90-110			1.2	1.1	8* (1)	2
Batch number: 05349020201A	Sample number(s): 4669511-4669515								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	98	98	64-130	0	2	53.5	53.7	0	4
Batch number: 05349WAH026	Sample number(s): 4669511-4669515								
Naphthalene	(2)	(2)	54-112	3	30				
Acenaphthylene	76	71	63-104	4	30				
Acenaphthene	89	86	59-114	2	30				
Fluorene	92	88	71-99	2	30				
Phenanthrene	(2)	(2)	66-115	2	30				
Anthracene	93	89	68-104	2	30				
Fluoranthene	92	90	67-104	2	30				
Pyrene	94	92	66-106	2	30				
Benzo(a)anthracene	99	98	63-111	1	30				
Benzo(b)fluoranthene	97	96	71-106	1	30				
Benzo(a)pyrene	96	95	69-109	1	30				
Dibenz(a,h)anthracene	88	85	35-129	3	30				
Indeno(1,2,3-cd)pyrene	83	83	56-112	0	30				
Benzo(g,h,i)perylene	85	84	35-126	1	30				
Chrysene	94	92	60-107	2	30				
Benzo(k)fluoranthene	96	94	70-109	3	30				
Batch number: 053500022A	Sample number(s): 4669511-4669516								
Methane	70	75	63-124	3	20				
Batch number: 053541848003	Sample number(s): 4669511-4669515								
Iron	102	100	75-125	2	20	N.D.	N.D.	46* (1)	20

Surrogate Quality Control

Analysis Name: PAH's in Water by HPLC
Batch number: 05349WAH026

	Nitrobenzene	Triphenylene
4669511	109	94
4669512	111	93
4669513	107	96
4669514	111	93
4669515	109	93

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971002
Reported: 12/25/05 at 08:23 PM

Surrogate Quality Control

Blank	105	100
LCS	106	98
MS	111	106
MSD	113	103
Limits:	63-154	55-130

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 053500022A

	Propene
4669511	88
4669512	82
4669513	80
4669514	74
4669515	63
4669516	80
Blank	112
LCS	114
MS	80
MSD	87
Limits:	48-132

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 7802 Group# 971002 / 971003 Sample # 4669511-16 / 4669517-21

COC # 0107887

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: MICHAEL PISANI & ASSOCIATES Acct. #:
Project Name/#: HATTIESBURG, MS PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#: 21-04
Sampler: BRAD BLALOCK Quote #:
Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR #: 22827

(6) Temperature of samples upon receipt (if requested)

(2), (3) Grab/Composite, (4) Matrix (Check if applicable: Potable / NPDES), (5) Analyses Requested

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	PAHs by 8310	Chloride, Sulfate	Total & Dissolved Iron	~~Nitrogen~~ Nitrate	Methane	Alkalinity				Remarks
MW-12	12-13-05	1045	X			X		9	2	1	2	1	2	1				
MW-11	↓	1150	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-18	↓	1400	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-21	↓	1550	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-16	↓		↓			↓		↓	↓	↓	↓	↓	↓	↓				
Trip Blank						X		31					1					

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
(QC Summary) Type VI (Raw Data)
~~Type I (Tier I)~~ GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes (No)
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12-13-05	1305	[signature]	12-13-05	1430
			[signature]	12/14/05	0925

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971003. Samples arrived at the laboratory on Wednesday, December 14, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-12 Filtered Grab Water Sample	4669517
MW-11 Filtered Grab Water Sample	4669518
MW-18 Filtered Grab Water Sample	4669519
MW-21 Filtered Grab Water Sample	4669520
MW-16 Filtered Grab Water Sample	4669521

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Max E. Snavely
Senior Specialist

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669517

MW-12 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 10:45 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/22/2005 at 10:35
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA12F SDG#: HMS55-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.985	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:27	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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PO Box 12425
Lancaster, PA 17605-2425
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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669518

MW-11 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 11:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/22/2005 at 10:35
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA11F SDG#: HMS55-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0412 J	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:40	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

MEMBER ACIL

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669519

MW-18 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 14:00 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/22/2005 at 10:35
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA18F SDG#: HMS55-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:44	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669520

MW-21 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 15:50 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/22/2005 at 10:35
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA21F SDG#: HMS55-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:48	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the calculation of the final result

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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4669521

MW-16 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/13/2005 by BB

Account Number: 07802

Submitted: 12/14/2005 09:25
Reported: 12/22/2005 at 10:35
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA16F SDG#: HMS55-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:52	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/22/05 at 10:35 AM

Group Number: 971003

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 053551848003	Sample number(s): 4669517-4669521								
Iron	N.D.	0.200	0.0378	mg/l	99		80-120		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 053551848003	Sample number(s): 4669517-4669521								
Iron	101	100	75-125	0	20	N.D.	N.D.	3 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

MEMBER ACIL
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2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
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Acct. # 7802 Group# 971002 / 971003 Sample # 4669511-16 / 4669517-21

COC # 0107887

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: MICHAEL PISAPIA & ASSOCIATES Acct. #:
Project Name/#: HATTIESBURG, MS PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#: 21-04
Sampler: BRAD BLALOCK Quote #:
Name of state where samples were collected: MS

(2) (3) Matrix (4) (5) Analyses Requested

For Lab Use Only
FSC:
SCR #: 22827

(6) Temperature of samples upon receipt (if requested)

Matrix: ☐ Potable ☐ NPDES Check if Applicable

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	PAHs by 8310	Chloride Sulfate	Total & Dissolved Iron	~~Nitrogen~~ Nitrate	Methane	Alkalinity				Remarks
MW-12	12-13-05	1045	X			X		9	2	1	2	1	2	1				
MW-11	↓	1150	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-18	↓	1400	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-21	↓	1550	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-16	↓		↓			↓		↓	↓	↓	↓	↓	↓	↓				
Trip Blank						X		1					1					

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
(QC Summary) Type VI (Raw Data)
~~Type I (Tier I)~~ Standard GLP
Type II (Tier II) Report? Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes (No)

Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12-13-05	1305	[signature]	12-13-05	1830
			[signature]	12/14/05	0925

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971199. Samples arrived at the laboratory on Thursday, December 15, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-24 Grab Water Sample	4670440
MW-22 Grab Water Sample	4670441
MW-20 Grab Water Sample	4670442
MW-19 Grab Water Sample	4670443
MW-17 Grab Water Sample	4670444
MW-14 Grab Water Sample	4670445
Trip_Blank Water Sample	4670446

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Charles J. Neslund
Manager

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670440

MW-24 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 08:30 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT24 SDG#: HMS54-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.24	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	13.9	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.0	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	20.2	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace *Hydrocarbon*						
07106	Methane	74-82-8	61.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.79	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.079	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670440

MW-24 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 08:30 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT24 SDG#: HMS54-07

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:43	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 12:23	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 12:23	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 12:23	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 03:17	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 08:41	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670441

MW-22 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 10:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT22 SDG#: HMS54-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.18	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	25.5	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.3	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	5.2	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.54	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	11.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.78	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670441

MW-22 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 10:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT22 SDG#: HMS54-08

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:47	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 12:38	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 12:38	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 12:38	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/19/2005 13:58	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 09:20	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670442

MW-20 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 11:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT20 SDG#: HMS54-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.164 J	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	10.6	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.7	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	1.6 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.47 J	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.79	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.079	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.099	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.099	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.099	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.099	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670442

MW-20 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 11:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT20 SDG#: HMS54-09

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:51	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 12:53	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 12:53	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 12:53	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/19/2005 14:14	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 09:58	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670443

MW-19 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 12:15 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
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HAT19 SDG#: HMS54-10

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	7.25		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	112.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.4		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	2.3	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	780.		100.	40.	ug/l	20
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	640.		59.	7.9	ug/l	5
00782	Acenaphthylene	208-96-8	N.D.		26.	26.	ug/l	1
00783	Acenaphthene	83-32-9	61.		16.	1.6	ug/l	1
00784	Fluorene	86-73-7	22.		0.79	0.49	ug/l	1
00785	Phenanthrene	85-01-8	22.		2.0	0.39	ug/l	5
00789	Anthracene	120-12-7	2.2		0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	1.5		0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	0.58	J	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.39	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	0.10	J	0.39	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.098	0.020	ug/l	1

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for acenaphthylene. The reporting limit for this compound was raised accordingly.

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670443

MW-19 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 12:15 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT19 SDG#: HMS54-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:55	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 13:08	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 13:08	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 13:08	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/19/2005 19:07	Laura A Lockard	20
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 10:37	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 09:16	Mark A Clark	5
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670444

MW-17 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 13:10 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT17 SDG#: HMS54-11

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	8.50		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	34.0		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	13.5		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	9.8		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	300.		50.	20.	ug/l	10
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	94.		12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	3.3	J	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	8.6	J	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	5.2		0.80	0.50	ug/l	1
00785	Phenanthrene	85-01-8	5.0		0.40	0.080	ug/l	1
00789	Anthracene	120-12-7	0.55		0.20	0.040	ug/l	1
00807	Fluoranthene	206-44-0	0.29		0.20	0.040	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.80	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.025	J	0.10	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.10	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.040	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.40	0.080	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.60	0.10	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.40	0.080	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.10	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories, Inc.
[illegible]
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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670444

MW-17 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 13:10 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT17 SDG#: HMS54-11

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:58	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 13:23	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 13:23	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 13:23	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/19/2005 19:23	Laura A Lockard	10
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 11:15	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670445

MW-14 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 15:45 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT14 SDG#: HMS54-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.24	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	14.0	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.6	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	19.2	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	100.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.79	0.50	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.40	0.079	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.040	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.040	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.099	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.099	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.040	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.40	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.099	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.40	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.099	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670445

MW-14 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 15:45 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT14 SDG#: HMS54-12

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:02	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/16/2005 16:10	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/15/2005 13:38	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/15/2005 13:38	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/15/2005 13:38	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 04:36	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/20/2005 11:54	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/16/2005 16:15	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670446

Trip_Blank Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected: n.a.

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/27/2005 at 17:47
Discard: 02/26/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HATQA SDG#: HMS54-13TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/17/2005 04:52	Laura A Lockard	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/27/05 at 05:47 PM

Group Number: 971199

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 05349401101A	Sample number(s): 4670440-4670445								
Chloride	N.D.	0.40	0.30	mg/l	95		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	98		90-110		
Nitrate Nitrogen	N.D.	0.10	0.080	mg/l	96		90-110		
Batch number: 053500022A	Sample number(s): 4670440-4670446								
Methane	N.D.	5.0	2.0	ug/l	100		80-120		
Batch number: 05350020201A	Sample number(s): 4670440-4670445								
Alkalinity to pH 4.5					100		98-103		
Batch number: 05350WAC026	Sample number(s): 4670440-4670445								
Naphthalene	N.D.	12.	1.6	ug/l	74	78	57-109	6	30
Acenaphthylene	N.D.	16.	1.6	ug/l	75	80	67-99	5	30
Acenaphthene	N.D.	16.	1.6	ug/l	81	85	60-116	5	30
Fluorene	N.D.	0.80	0.50	ug/l	81	85	61-116	5	30
Phenanthrene	N.D.	0.40	0.080	ug/l	83	87	67-115	4	30
Anthracene	N.D.	0.20	0.040	ug/l	82	85	68-113	3	30
Fluoranthene	N.D.	0.20	0.040	ug/l	85	87	70-112	3	30
Pyrene	N.D.	0.80	0.18	ug/l	84	87	69-113	4	30
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	90	91	73-114	2	30
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	90	91	72-113	1	30
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	89	91	68-112	2	30
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	89	93	19-129	5	30
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	84	88	67-106	5	30
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	86	90	7-126	5	30
Chrysene	N.D.	0.40	0.080	ug/l	85	86	70-111	1	30
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	89	91	72-119	2	30
Batch number: 053541848003	Sample number(s): 4670440-4670445								
Iron	N.D.	0.200	0.0378	mg/l	104		80-120		

Sample Matrix Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971199
Reported: 12/27/05 at 05:47 PM

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 05349401101A	Sample number(s): 4670440-4670445								
Chloride	99		90-110			5.0	5.0	1 (1)	3
Sulfate	98		90-110			20.2	18.8	8* (1)	3
Nitrate Nitrogen	99		90-110			N.D.	N.D.	2 (1)	2
Batch number: 053500022A	Sample number(s): 4670440-4670446								
Methane	70	75	63-124	3	20				
Batch number: 05350020201A	Sample number(s): 4670440-4670445								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	93	94	64-130	0	2	112.	113.	0	4
Batch number: 053541848003	Sample number(s): 4670440-4670445								
Iron	102	100	75-125	2	20	N.D.	N.D.	46* (1)	20

Surrogate Quality Control

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 053500022A

	Propene
4670440	88
4670441	92
4670442	79
4670443	107
4670444	95
4670445	88
4670446	81
Blank	112
LCS	114
MS	80
MSD	87
Limits:	48-132

Analysis Name: PAH's in Water by HPLC
Batch number: 05350WAC026

	Nitrobenzene	Triphenylene
4670440	112	95
4670441	108	91
4670442	108	93
4670443	116	93
4670444	114	92

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971199
Reported: 12/27/05 at 05:47 PM

Surrogate Quality Control

4670445	110	93
Blank	114	93
LCS	111	91
LCSD	116	94
Limits:	63-154	55-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Analysis Request / Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 07802 Group# 971199 Sample # 4670440-46 **COC #** 0107889

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Michael Pisani & Assoc Acct. #:
Project Name/#: Hattiesburg, Miss PWSID #:
Project Manager: Dave Upthegrove P.O.#: 21-04
Sampler: Brad Blalock Quote #:
Name of state where samples were collected: MS

Matrix (4) — Check if applicable: ☐ Potable ☐ NPDES

(5) Analyses Requested

For Lab Use Only
FSC:
SCR #:

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water	Other	Total # of Containers	PAH's by 8310	Chloride/Sulfate	Total + Diss Iron	Nitrate	Methane	Alkalinity				Remarks
MW-24	12.14.05	0830	X			X		9	2	1	2	1	2	1				
MW-22	↓	1000	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-20	↓	1100	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-19	↓	1015	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-17	↓	1310	↓			↓		↓	↓	↓	↓	↓	↓	↓				
MW-14	↓	1545	↓			↓		↓	↓	↓	↓	↓	↓	↓				
Trip Blank						X		1					1					

(7) **Turnaround Time Requested** (TAT) (please circle): Normal (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
QC Summary (circled) Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No (circled)
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12.14.05	1830			
			[signature]	12/5/05	0955

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971198. Samples arrived at the laboratory on Thursday, December 15, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-24_Filtered Grab Water Sample	4670434
MW-22_Filtered Grab Water Sample	4670435
MW-20_Filtered Grab Water Sample	4670436
MW-19_Filtered Grab Water Sample	4670437
MW-17_Filtered Grab Water Sample	4670438
MW-14_Filtered Grab Water Sample	4670439

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Max E. Snavely
Senior Specialist

MEMBER ACIL
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670434

MW-24_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 08:30 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

24FHA SDG#: HMS55-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.17	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:57	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670435

MW-22_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 10:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

22FHA SDG#: HMS55-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.256	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:01	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670436

MW-20_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 11:00 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

20FHA SDG#: HMS55-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:05	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670437

MW-19_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 12:15 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

19FHA SDG#: HMS55-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	6.86	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:09	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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[redacted]
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670438

MW-17_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 13:10 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

17FHA SDG#: HMS55-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	4.67	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:14	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4670439

MW-14_Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/14/2005 15:45 by BB

Account Number: 07802

Submitted: 12/15/2005 09:55
Reported: 12/22/2005 at 10:37
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

14FHA SDG#: HMS55-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.21	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:18	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/22/05 at 10:37 AM

Group Number: 971198

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 053551848003	Sample number(s): 4670434-4670439								
Iron	N.D.	0.200	0.0378	mg/l	99		80-120		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 053551848003	Sample number(s): 4670434-4670439								
Iron	101	100	75-125	0	20	N.D.	N.D.	3 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

MEMBER ACIL
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Lancaster, PA 17605-2425
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Analysis Request / Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 07802 Group# 971198 Sample # 4670434-39

COC # 0107889

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Michael Pisanic & Assoc Acct. #:
Project Name/#: HARRISBURG, MES PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#: 21-04
Sampler: BRAD BLALOCK Quote #:
Name of state where samples were collected: MS

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested: PAH's by 8310	Chloride, Sulfate, Total Diss Iron	Nitrate	Methane	Alkalinity	Remarks
MW-24	12-14-04	0830	X			X		9	2	1	2	1	2	1	
MW-22		1000													
MW-20		1100													
MW-19		1215													
MW-17		1310													
MW-14		1545													
TRIP BLANK						X		1				1			

(6) For Lab Use Only
FSC:
SCR #:
Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No
SDG Complete? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12.14.04	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	12/15/04	0955

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971422. Samples arrived at the laboratory on Friday, December 16, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-06 Grab Water Sample	4671824
MW-15 Grab Water Sample	4671825
MW-08 Unspiked Grab Water Sample	4671826
MW-08MS Matrix Spike Grab Water Sample	4671827
MW-08MSD Matrix Spike Dup Grab Water Sample	4671828
MW-08 Duplicate Grab Water Sample	4671829
MW-1R Grab Water Sample	4671830
MW-2R Grab Water Sample	4671831
MW-04 Grab Water Sample	4671832

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Jenifer E. Hess
Manager

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

MEMBER ACIL

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671824

MW-06 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 08:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT06 SDG#: HMS54-14

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	26.9		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	104.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.3		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	3.6	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	1,400.		100.	40.	ug/l	20
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	4,100.		240.	32.	ug/l	20
00782	Acenaphthylene	208-96-8	91.		16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	96.		16.	1.6	ug/l	1
00784	Fluorene	86-73-7	59.		16.	9.9	ug/l	20
00785	Phenanthrene	85-01-8	45.		7.9	1.6	ug/l	20
00789	Anthracene	120-12-7	4.5		0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	1.5		0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	0.34	J	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.099	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.099	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.39	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.59	0.099	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.39	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.099	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
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717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671824

MW-06 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 08:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT06 SDG#: HMS54-14

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:06	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/16/2005 13:52	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/16/2005 13:52	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 13:52	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/21/2005 12:11	Laura A Lockard	20
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 06:00	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/26/2005 12:36	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671825

MW-15 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 09:15 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT15 SDG#: HMS54-15

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	34.3		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	147.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	3.6		2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	6.7		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	1,800.		130.	50.	ug/l	25
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	2.6	J	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	0.20	J	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	0.13	J	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	0.93		0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	0.67	J	0.78	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.026	J	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671825

MW-15 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 09:15 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT15 SDG#: HMS54-15

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:17	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/16/2005 14:07	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/16/2005 14:07	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 14:07	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/21/2005 12:27	Laura A Lockard	25
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 06:38	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671826

MW-08 Unspiked Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	2.5		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	33.8		4.0	3.0	mg/l	10
00228	Sulfate	14808-79-8	3.9	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	2.1		0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.19	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.19	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.78	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.097	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.19	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.097	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.19	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.58	0.097	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.097	0.019	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671826

MW-08 Unspiked Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16BKG

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 07:54	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/21/2005 19:25	Shannon L Phillips	10
00228	Sulfate	EPA 300.0	1	12/16/2005 14:22	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 14:22	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 21:18	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/21/2005 07:54	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671827

MW-08MS Matrix Spike Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:10 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.02	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	192.	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	73.3	8.0	6.0	mg/l	20
00228	Sulfate	14808-79-8	54.8	10.0	3.0	mg/l	10
00368	Nitrate Nitrogen	14797-55-8	11.6	1.0	0.80	mg/l	10
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	58.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	140.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	150.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	150.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	16.	0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	4.9	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	2.4	0.19	0.039	ug/l	1
00807	Fluoranthene	206-44-0	2.4	0.19	0.039	ug/l	1
00811	Pyrene	129-00-0	16.	0.78	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.2	0.097	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.99	0.19	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.2	0.097	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	2.5	0.19	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	4.8	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	9.6	0.58	0.097	ug/l	1
07409	Chrysene	218-01-9	4.7	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.98	0.097	0.019	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671827

MW-08MS Matrix Spike Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:10 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16MS

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:06	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/21/2005 19:40	Shannon L Phillips	20
00228	Sulfate	EPA 300.0	1	12/16/2005 14:37	Shannon L Phillips	10
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 14:37	Shannon L Phillips	10
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 21:34	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/21/2005 08:33	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671828

MW-08MSD Matrix Spike Dup Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:20 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.998	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	191.	2.0	0.46	mg/l as CaCO3	1
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	52.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	160.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	160.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	170.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	16.	0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	5.0	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	2.4	0.19	0.039	ug/l	1
00807	Fluoranthene	206-44-0	2.6	0.19	0.039	ug/l	1
00811	Pyrene	129-00-0	18.	0.78	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.4	0.097	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.1	0.19	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.4	0.097	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	2.8	0.19	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	5.1	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	11.	0.58	0.097	ug/l	1
07409	Chrysene	218-01-9	5.3	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.1	0.097	0.019	ug/l	1

Laboratory Chronicle

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671828

MW-08MSD Matrix Spike Dup Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:20 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16MSD

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:09	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 21:50	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 05:21	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671829

MW-08 Duplicate Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT08 SDG#: HMS54-16DUP

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	2.9		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	33.8		4.0	3.0	mg/l	10
00228	Sulfate	14808-79-8	4.0	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	2.1		0.50	0.40	mg/l	5

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 08:02	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/21/2005 19:54	Shannon L Phillips	10
00228	Sulfate	EPA 300.0	1	12/16/2005 14:52	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 14:52	Shannon L Phillips	5
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
2425 New Holland Pike
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671830

MW-1R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 12:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT1R SDG#: HMS54-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.153 J	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	4.3	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	18.4	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	N.D.	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	2.7 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.79	0.49	ug/l	1
00785	Phenanthrene	85-01-8	0.48	0.39	0.079	ug/l	1
00789	Anthracene	120-12-7	0.12 J	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	0.58	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	0.42 J	0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.051 J	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.052 J	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.025 J	0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	0.079 J	0.39	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.025 J	0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
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PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671830

MW-1R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 12:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT1R SDG#: HMS54-17

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:21	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/16/2005 15:07	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/16/2005 15:07	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 15:07	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 22:06	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 07:17	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671831

MW-2R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 13:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT2R SDG#: HMS54-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0813 J	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	16.5	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.8	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	18.8	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	6,000.	230.	31.	ug/l	20
00782	Acenaphthylene	208-96-8	100.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	62.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	52.	16.	9.7	ug/l	20
00785	Phenanthrene	85-01-8	110.	7.8	1.6	ug/l	20
00789	Anthracene	120-12-7	N.D.	1.0	1.0	ug/l	1
00807	Fluoranthene	206-44-0	6.8	0.19	0.039	ug/l	1
00811	Pyrene	129-00-0	0.73 J	0.78	0.17	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.15	0.097	0.019	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.054 J	0.19	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.097	0.019	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.19	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.58	0.097	ug/l	1
07409	Chrysene	218-01-9	0.18 J	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.031 J	0.097	0.019	ug/l	1

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671831

MW-2R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 13:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT2R SDG#: HMS54-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:25	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/16/2005 15:22	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/16/2005 15:22	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 15:22	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 22:21	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 07:55	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/26/2005 13:19	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671832

MW-04 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 15:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT04 SDG#: HMS54-19*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	15.2	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	6.8	2.0	1.5	mg/l	5
00228	Sulfate	14808-79-8	N.D.	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.40	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	12.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	16.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	16.	1.6	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.78	0.49	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.39	0.078	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.20	0.039	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.20	0.039	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.78	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.098	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.20	0.039	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.098	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.20	0.039	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.39	0.078	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.59	0.098	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.39	0.078	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.098	0.020	ug/l	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories, Inc.
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Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671832

MW-04 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 15:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/28/2005 at 22:38
Discard: 02/27/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HAT04 SDG#: HMS54-19*

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/21/2005 09:29	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	12/19/2005 15:36	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/16/2005 16:07	Shannon L Phillips	5
00228	Sulfate	EPA 300.0	1	12/16/2005 16:07	Shannon L Phillips	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/16/2005 16:07	Shannon L Phillips	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/20/2005 22:37	Laura A Lockard	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/22/2005 08:34	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/20/2005 19:49	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	12/19/2005 16:30	Kerrie A Greenfield	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/28/05 at 10:39 PM

Group Number: 971422

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 05350401101B	Sample number(s): 4671824-4671827,4671829-4671832								
Chloride	N.D.	0.40	0.30	mg/l	104		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	96		90-110		
Nitrate Nitrogen	N.D.	0.10	0.080	mg/l	97		90-110		
Batch number: 05353020201A	Sample number(s): 4671824-4671832								
Alkalinity to pH 4.5					100		98-103		
Batch number: 05353WAE026	Sample number(s): 4671824-4671828,4671830-4671832								
Naphthalene	N.D.	12.	1.6	ug/l	76		57-109		
Acenaphthylene	N.D.	16.	1.6	ug/l	78		67-99		
Acenaphthene	N.D.	16.	1.6	ug/l	81		60-116		
Fluorene	N.D.	0.80	0.50	ug/l	82		61-116		
Phenanthrene	N.D.	0.40	0.080	ug/l	84		67-115		
Anthracene	N.D.	0.20	0.040	ug/l	83		68-113		
Fluoranthene	N.D.	0.20	0.040	ug/l	85		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	82		69-113		
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	84		73-114		
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	84		72-113		
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	84		68-112		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	83		19-129		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	80		67-106		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	79		7-126		
Chrysene	N.D.	0.40	0.080	ug/l	82		70-111		
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	84		72-119		
Batch number: 053540030A	Sample number(s): 4671824-4671828,4671830-4671832								
Methane	N.D.	5.0	2.0	ug/l	93		80-120		
Batch number: 053541848003	Sample number(s): 4671824-4671832								
Iron	N.D.	0.200	0.0378	mg/l	104		80-120		

Sample Matrix Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

MEMBER ACIL
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Lancaster, PA 17605-2425
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Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971422
Reported: 12/28/05 at 10:39 PM

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 05350401101B	Sample number(s): 4671824-4671827,4671829-4671832								
Chloride	99		90-110			33.8	33.8	0	3
Sulfate	102		90-110			3.9 J	4.0 J	0 (1)	3
Nitrate Nitrogen	95		90-110			2.1	2.1	1 (1)	2
Batch number: 05353020201A	Sample number(s): 4671824-4671832								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	101	100	64-130	0	2	2.5	2.9	12* (1)	4
Batch number: 05353WAE026	Sample number(s): 4671824-4671828,4671830-4671832								
Naphthalene	74	80	54-112	8	30				
Acenaphthylene	76	80	63-104	5	30				
Acenaphthene	80	85	59-114	7	30				
Fluorene	81	84	71-99	4	30				
Phenanthrene	83	86	66-115	3	30				
Anthracene	81	83	68-104	3	30				
Fluoranthene	83	88	67-104	6	30				
Pyrene	80	93	66-106	15	30				
Benzo(a)anthracene	85	94	63-111	10	30				
Benzo(b)fluoranthene	85	94	71-106	10	30				
Benzo(a)pyrene	85	93	69-109	9	30				
Dibenz(a,h)anthracene	86	96	35-129	11	30				
Indeno(1,2,3-cd)pyrene	82	88	56-112	7	30				
Benzo(g,h,i)perylene	83	94	35-126	13	30				
Chrysene	80	91	60-107	13	30				
Benzo(k)fluoranthene	84	93	70-109	9	30				
Batch number: 053540030A	Sample number(s): 4671824-4671828,4671830-4671832								
Methane	97	87	63-124	11	20				
Batch number: 053541848003	Sample number(s): 4671824-4671832								
Iron	102	100	75-125	2	20	N.D.	N.D.	46* (1)	20

Surrogate Quality Control

Analysis Name: PAH's in Water by HPLC
Batch number: 05353WAE026

	Nitrobenzene	Triphenylene
4671824	106	101
4671825	105	96
4671826	102	81
4671827	103	87
4671828	97	98

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation Group Number: 971422
Reported: 12/28/05 at 10:39 PM

Surrogate Quality Control

4671830	110	99
4671831	130	114
4671832	107	94
Blank	108	89
LCS	101	88
MS	103	87
MSD	97	98
Limits:	63-154	55-130

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 053540030A

	Propene
4671824	99
4671825	118
4671826	67
4671827	81
4671828	82
4671830	87
4671831	89
4671832	88
Blank	111
LCS	105
MS	81
MSD	82
Limits:	48-132

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Analysis Request / Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 07802 Group# 971422 Sample # 4671824-32

COC # 0107888

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Michael Pisani & Assoc Acct. #:
Project Name/#: Hattiesburg, MS PWSID #:
Project Manager: Dave Upthegrove P.O.#: 21-04
Sampler: Brad Blalock Quote #:
Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR #:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested: PAH's by 8310	Chloride + Sulfate	Total + Diss Iron	Nitrate	Methane	Alkalinity				Remarks	(6) Temperature of samples upon receipt (if requested)
MW-06	12/15/05	0800	X			X		9	2	1	2	1	2	1					
MW-15	↓	0915	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08	↓	1100	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08MS	↓	1110	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08MSD	↓	1120	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-1R	↓	1245	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-2R	↓	1345	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-04	↓	1500	↓			↓		↓	↓	↓	↓	↓	↓	↓					

(7) Turnaround Time Requested (TAT) (please circle): Normal (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) Data Package Options (please circle if required)
QC Summary (circled) Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No (circled)
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/15/05	1600			
			[signature]	12/16/05	0955

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2102 Rev. 10/27/02

Analysis Report

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared for:

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

734-367-7900

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 971423. Samples arrived at the laboratory on Friday, December 16, 2005. The PO# for this group is ZAKW1KEOK0A90149.

Client Description	Lancaster Labs Number
MW-06 Filtered Grab Water Sample	4671833
MW-15 Filtered Grab Water Sample	4671834
MW-08 Unspiked Filtered Grab Water Sample	4671835
MW-08MS Matrix Spike Filtered Grab Water	4671836
MW-08MSD Matrix Spike Dup Filtered Grab Water	4671837
MW-08 Duplicate Filtered Grab Water Sample	4671838
MW-1R Filtered Grab Water Sample	4671839
MW-2R Filtered Grab Water Sample	4671840
MW-04 Filtered Grab Water Sample	4671841

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
1 COPY TO	Kerr-McGee Corporation	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Analysis Report

Lancaster Laboratories

Questions? Contact your Client Services Representative
Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Max E. Snavely
Senior Specialist

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671833

MW-06 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 08:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA06F SDG#: HMS55-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	26.0	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:31	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671834

MW-15 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 09:15 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA15F SDG#: HMS55-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	32.7	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:35	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671835

MW-08 Unspiked Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA08F SDG#: HMS55-14BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 06:57	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671836

MW-08MS Matrix Spike Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:10 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA08F SDG#: HMS55-14MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.01	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:10	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671837

MW-08MSD Matrix Spike Dup Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:20 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA08F SDG#: HMS55-14MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.00	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:14	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671838

MW-08 Duplicate Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 11:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA08F SDG#: HMS55-14DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 07:06	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671839

MW-1R Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 12:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA1RF SDG#: HMS55-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:39	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671840

MW-2R Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 13:45 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:38
Discard: 02/21/2006

Kerr-McGee Corporation
PO Box 3048
Livonia MI 48150

HA2RF SDG#: HMS55-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0689 J	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:43	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 4671841

MW-04 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/15/2005 15:00 by BB

Account Number: 07802

Submitted: 12/16/2005 09:55
Reported: 12/22/2005 at 10:39
Discard: 02/21/2006

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HA04F SDG#: HMS55-17*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0378	mg/l	1

This sample was field filtered for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/22/2005 08:48	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/21/2005 14:14	Megersa Deyessa	1

*=This limit was used in the evaluation of the final result

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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Quality Control Summary

Client Name: Kerr-McGee Corporation
Reported: 12/22/05 at 10:39 AM

Group Number: 971423

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a *LCS/LCSD was performed*, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 053551848003	Sample number(s): 4671833-4671841								
Iron	N.D.	0.200	0.0378	mg/l	99		80-120		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 053551848003	Sample number(s): 4671833-4671841								
Iron	101	100	75-125	0	20	N.D.	N.D.	3 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Analysis Request / Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 07802 Group# 971423 Sample # 4671833-41

COC # 0107888

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Michael Pisani & Assoc Acct. #:
Project Name/#: HATTIESBURG, MS PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#: 21-04
Sampler: BRAD BLALOCK Quote #:
Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR #:

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Check if applicable: ☐ Potable ☐ NPDES)	Other	(4) Total # of Containers	(5) Analyses Requested: PAH's by 8310	Chloride	Total + Sulfate	Diss Iron	Nitrate	Methane	Alkalinity				Remarks
MW-06	12/15/05	0800	X			X		9	2	1	2	1	2	1					
MW-15	↓	0915	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08	↓	1100	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08MS	↓	1110	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-08 MSD	↓	1120	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-1R	↓	1245	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-2R	↓	1345	↓			↓		↓	↓	↓	↓	↓	↓	↓					
MW-04	↓	1500	↓			↓		↓	↓	↓	↓	↓	↓	↓					

(7) **Turnaround Time Requested (TAT)** (please circle): Normal (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
QC Summary (circled) Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No (circled)
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/15/05	1600			
			[signature]	12/16/05	0955

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Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

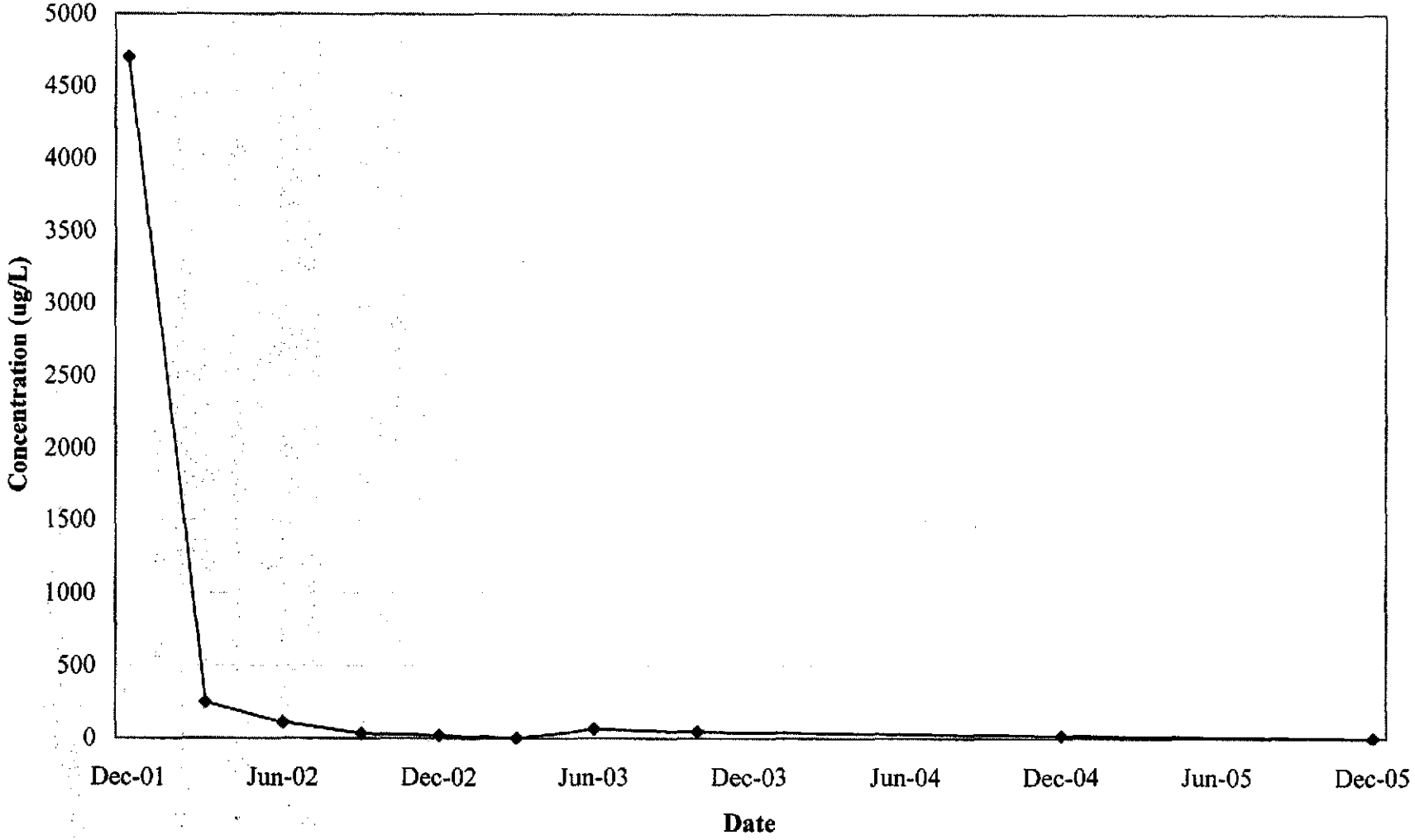
2102 Rev. 10/27/02

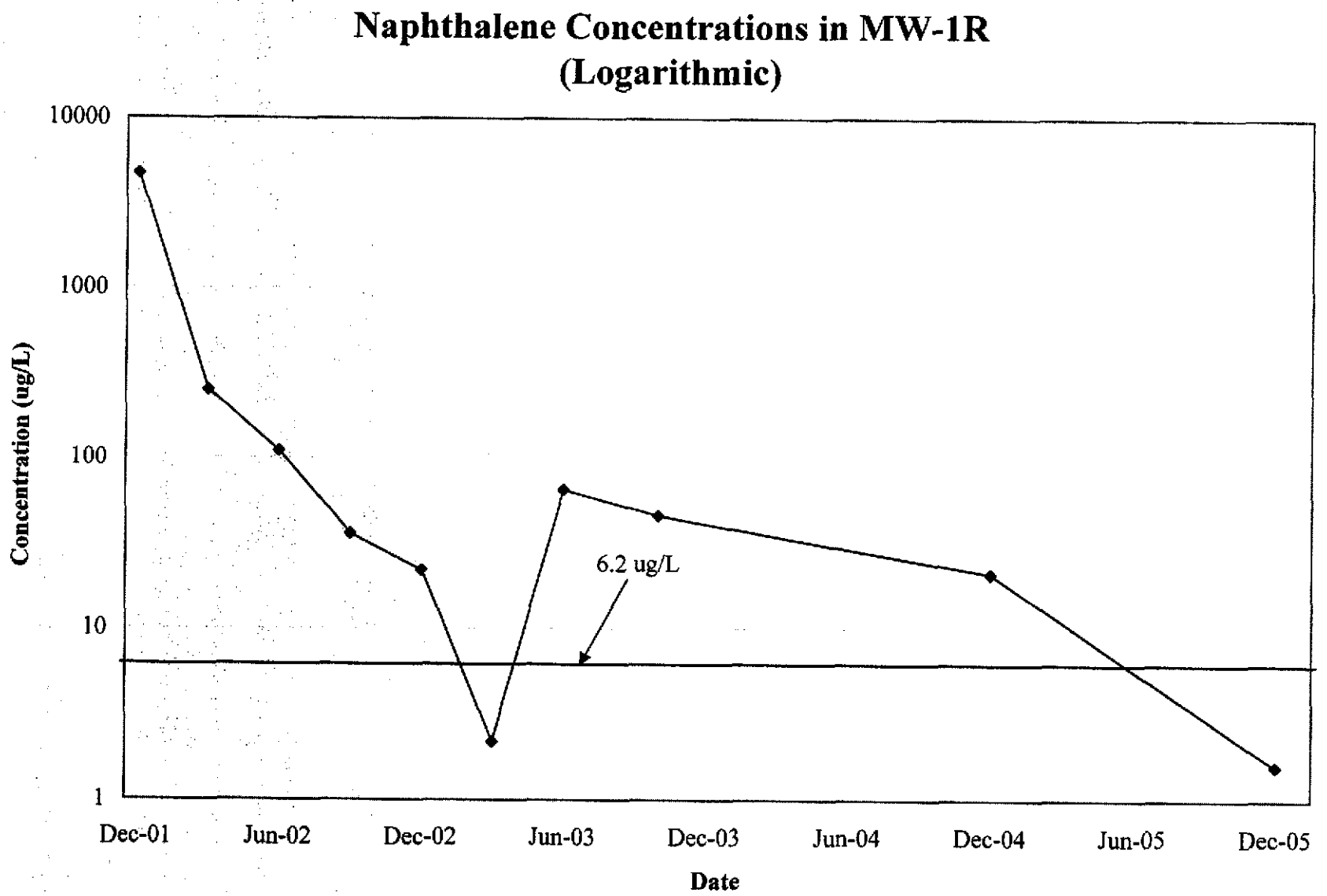
Appendix C

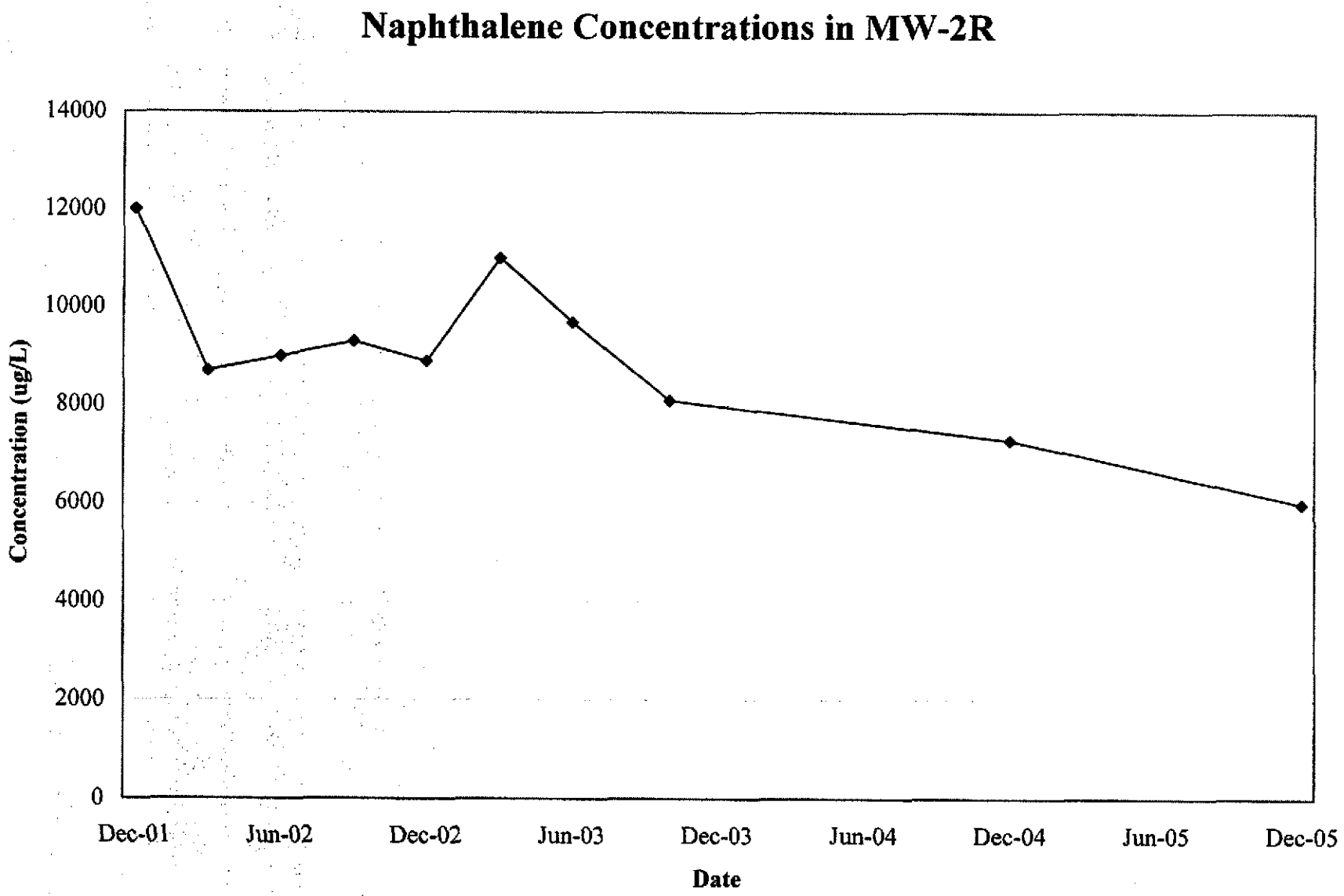
Charts Depicting Naphthalene versus Time

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

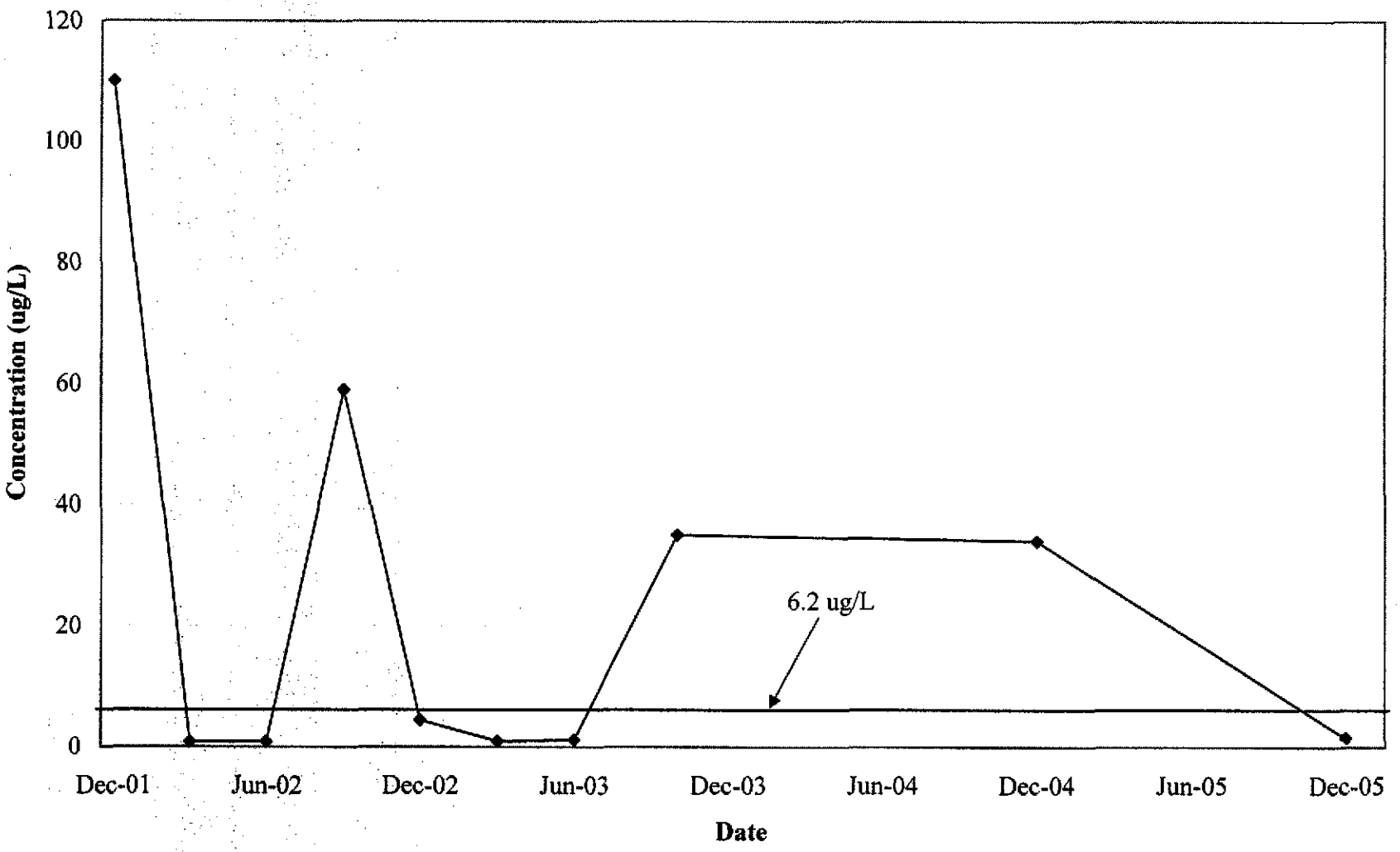
Naphthalene Concentrations in MW-1R



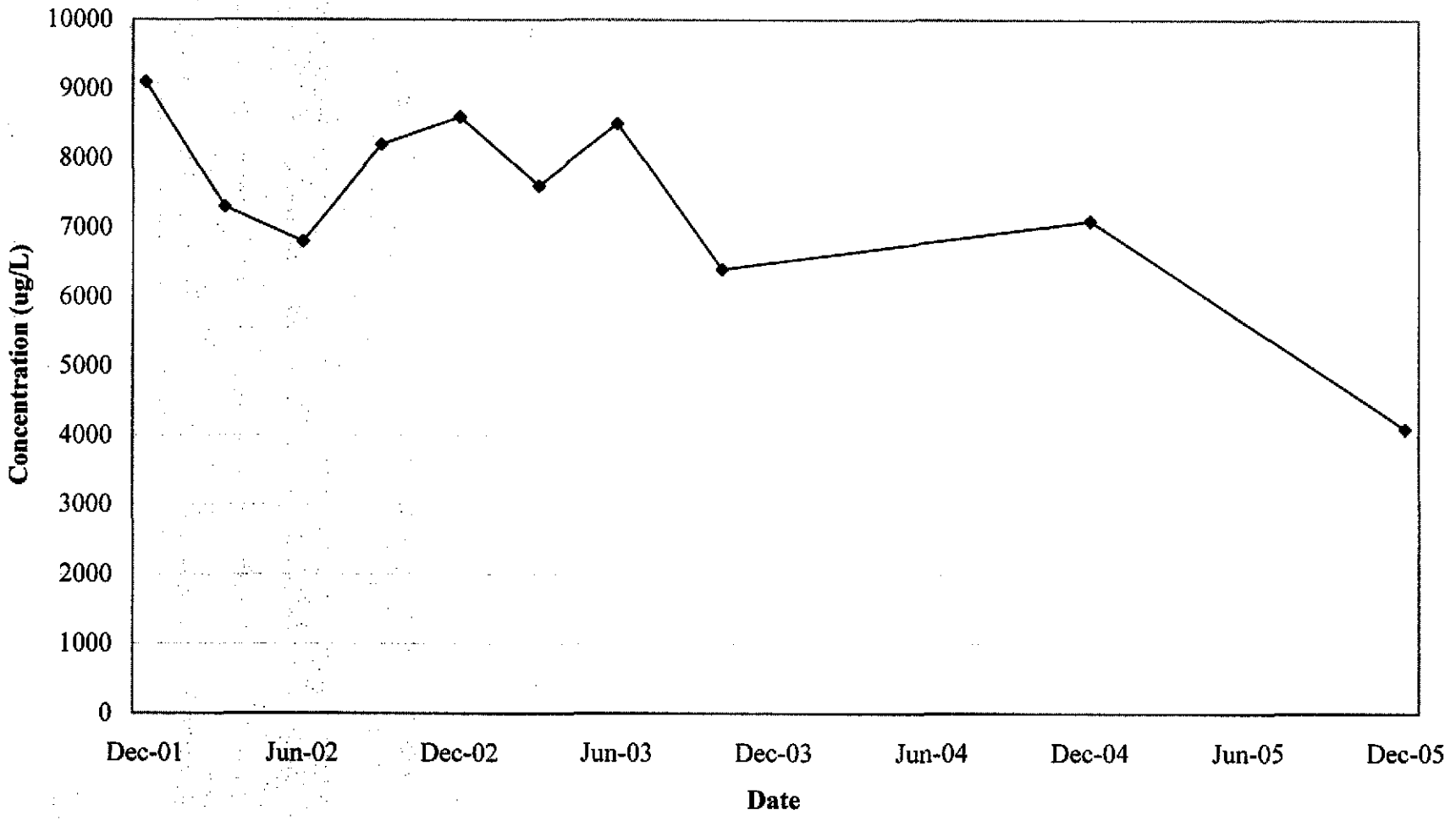

Naphthalene Concentrations in MW-1R
(Logarithmic)
10000
1000
100
10
1
Concentration (ug/L)
6.2 ug/L
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Date


Naphthalene Concentrations in MW-2R
14000
12000
10000
8000
6000
4000
2000
0
Concentration (ug/L)
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Date

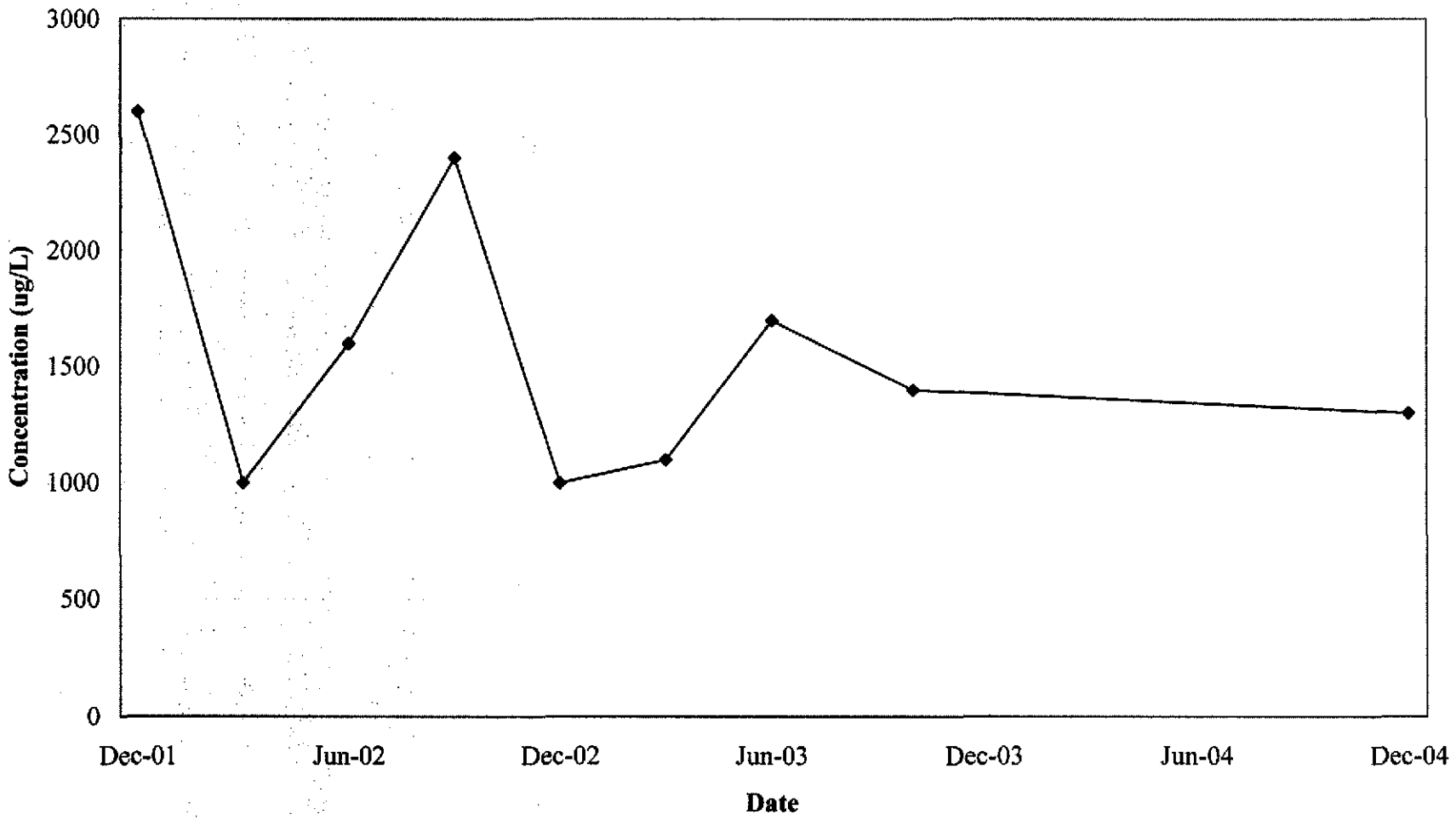
Naphthalene Concentrations in MW-4



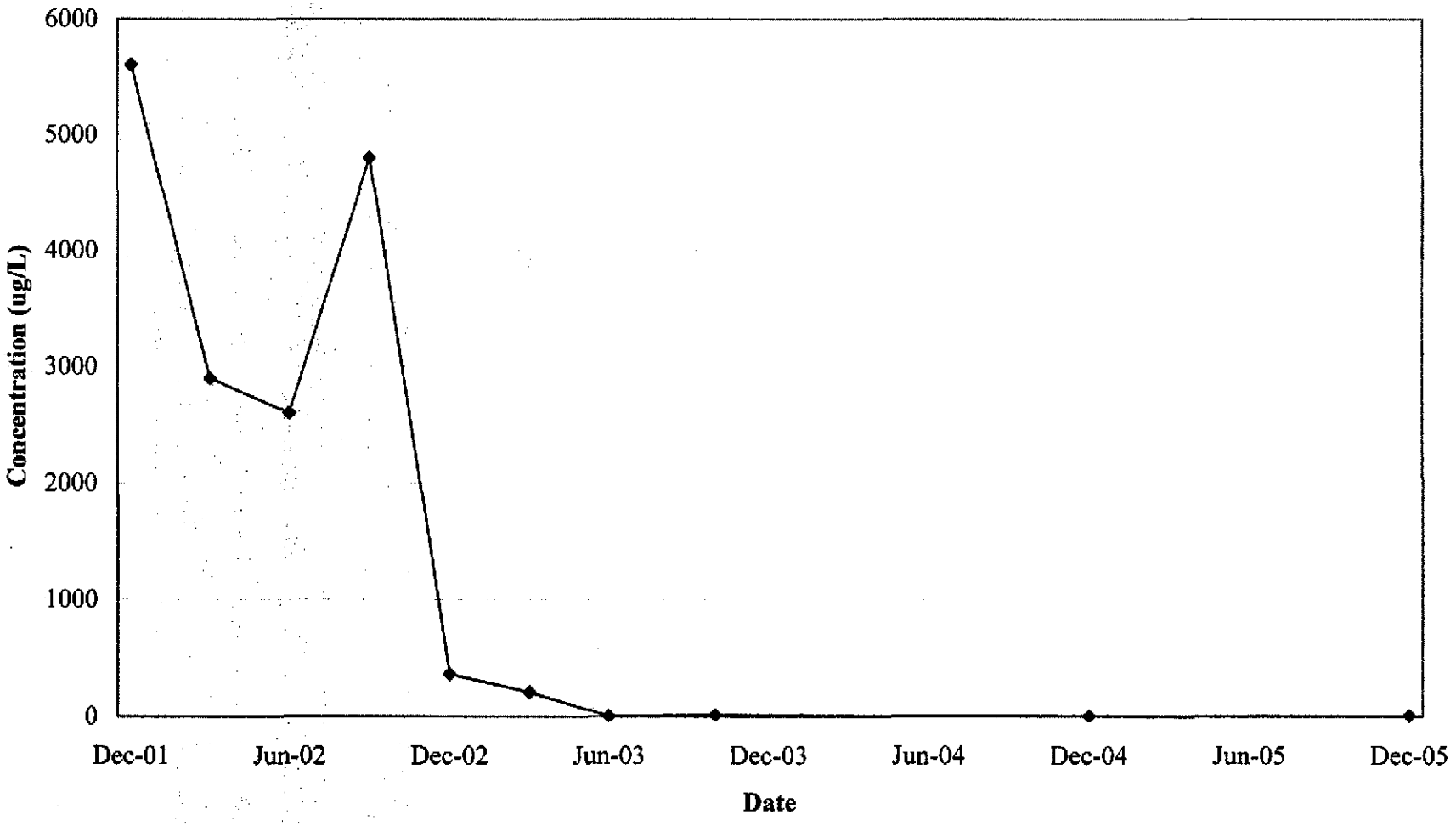
Naphthalene Concentrations in MW-06



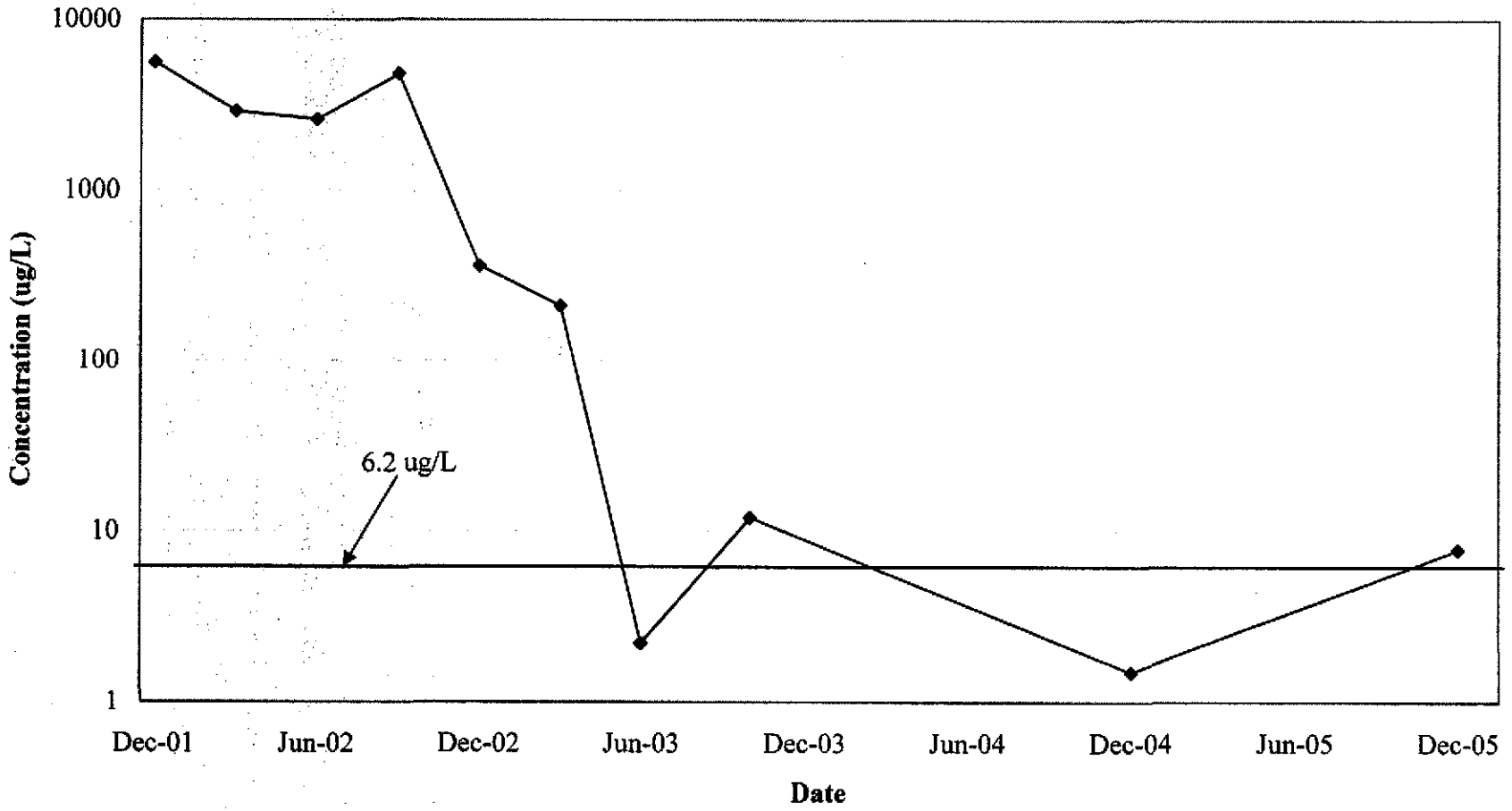
Naphthalene Concentrations in MW-09



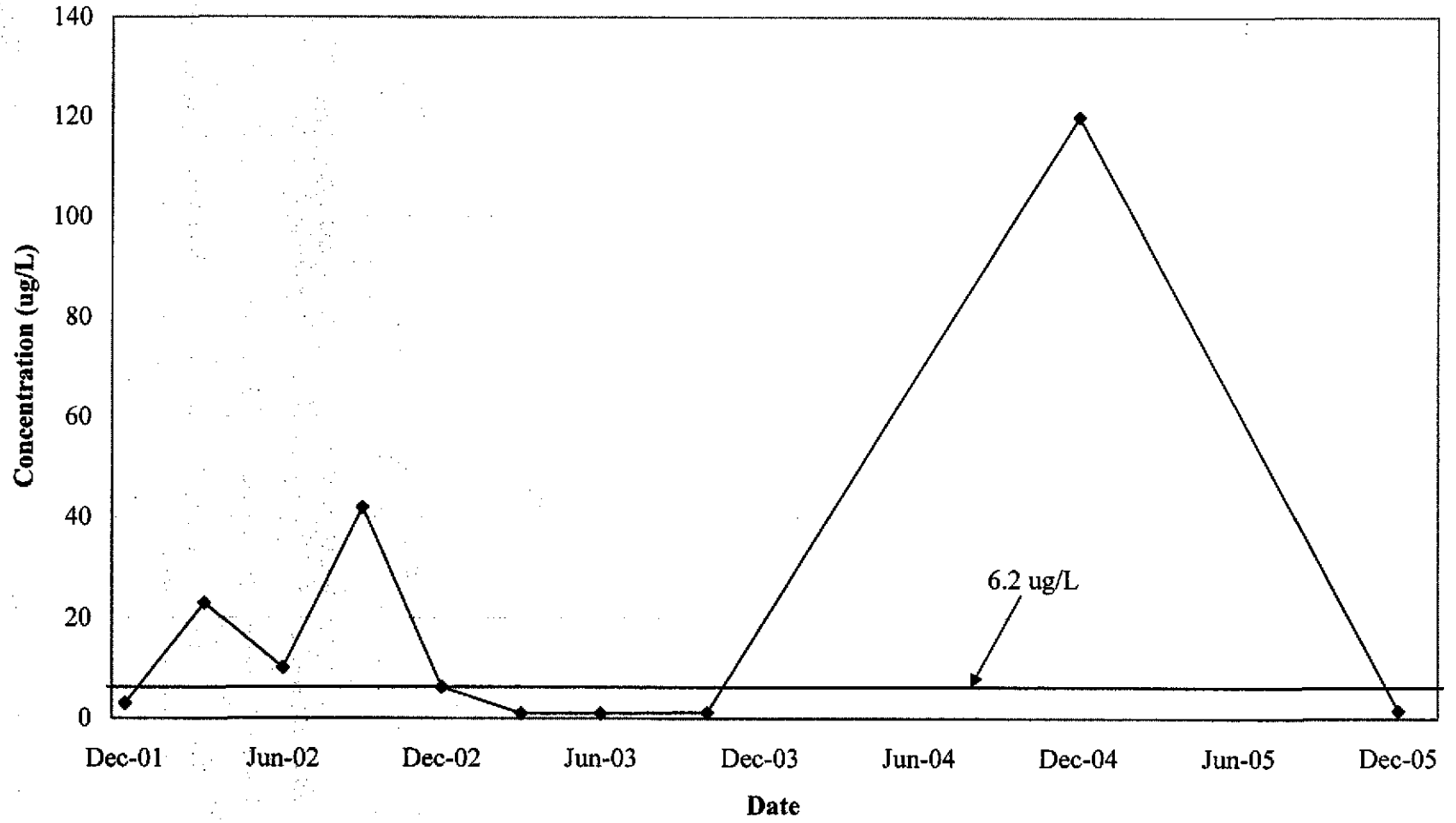
Naphthalene Concentrations in MW-12



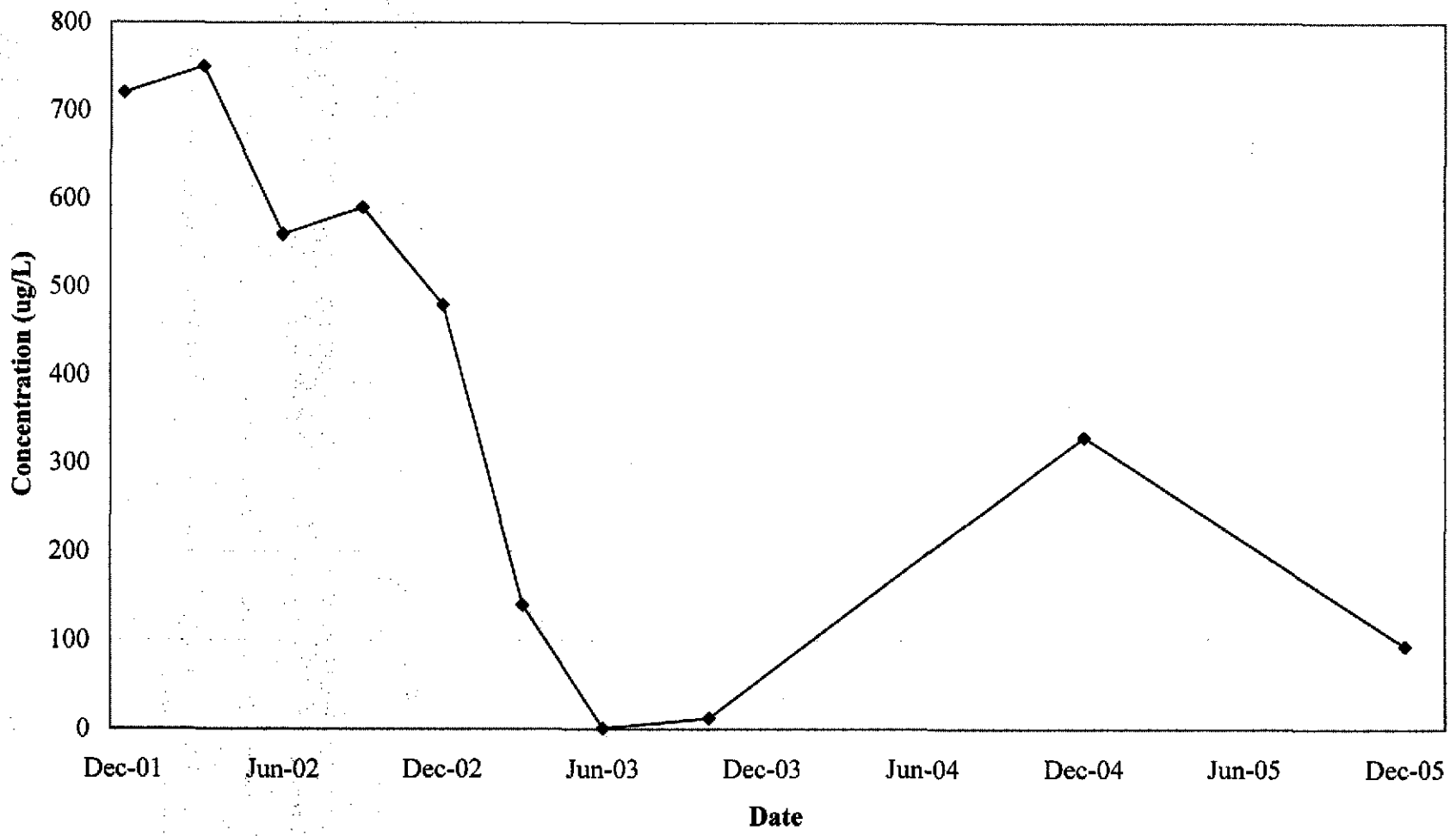
Naphthalene Concentrations in MW-12
(Logarithmic)



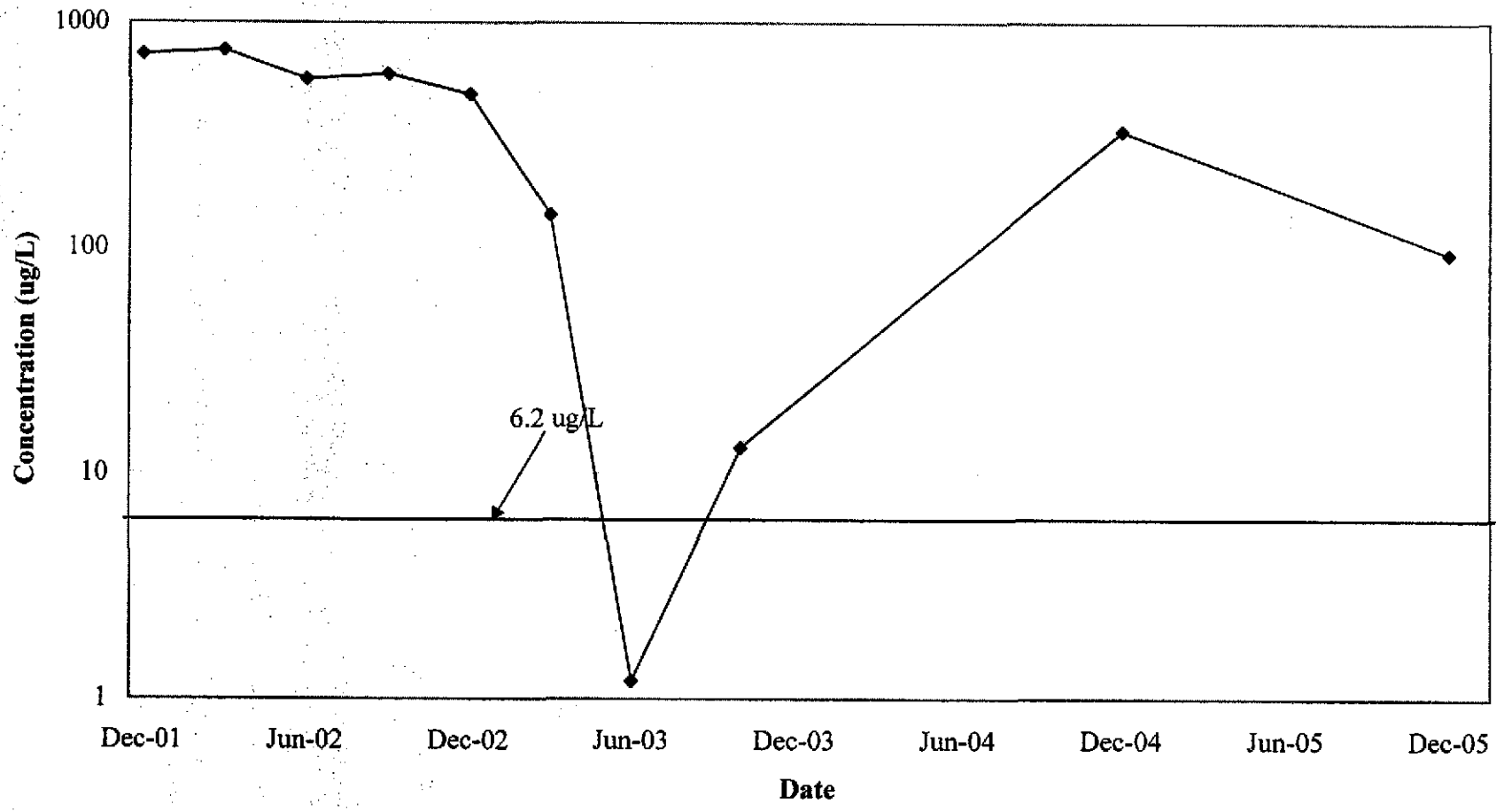
Naphthalene Concentrations in MW-14



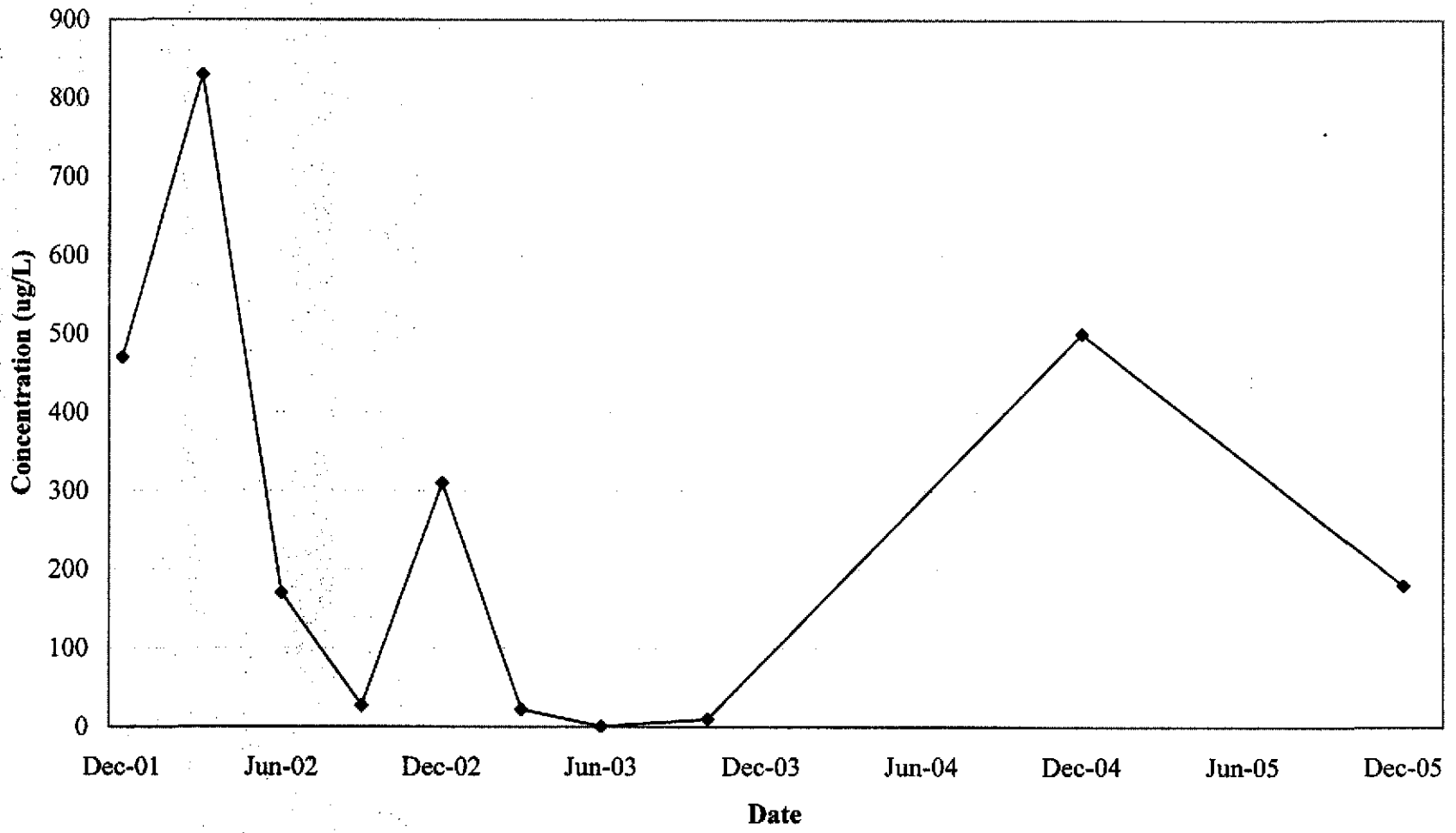
Naphthalene Concentrations in MW-17



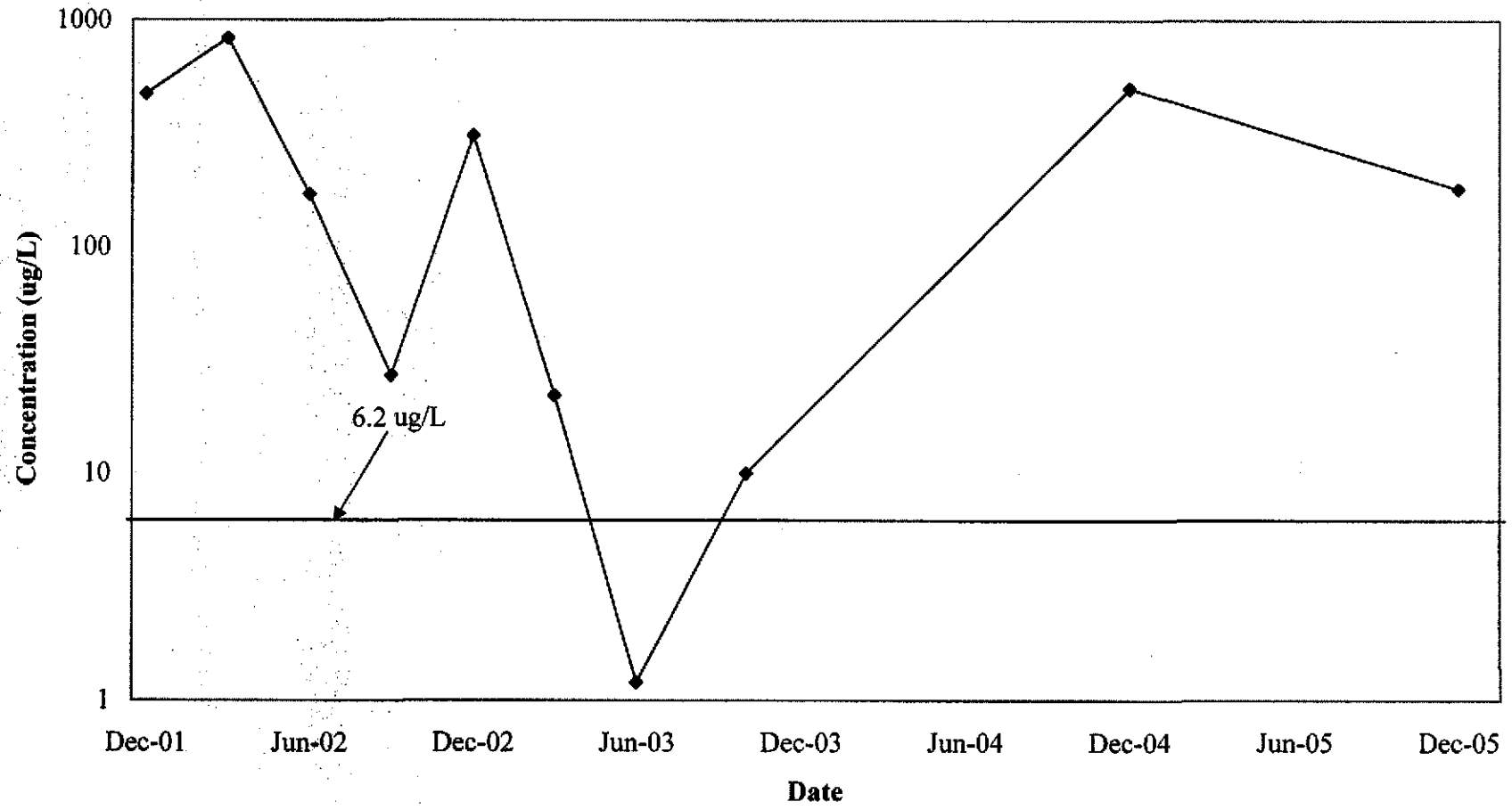
Naphthalene Concentrations in MW-17
(Logarithmic)



Naphthalene Concentrations in MW-18



Naphthalene Concentrations in MW-18
(Logarithmic)



Naphthalene Concentrations in MW-19