Ground Water Monitoring Report
Calendar Year 2008 Event

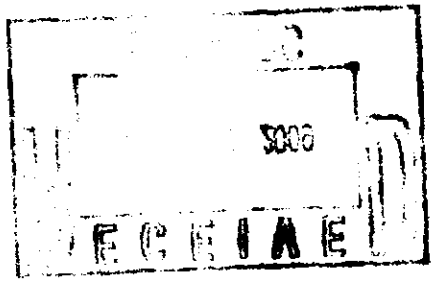
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

May 26, 2009

Project No. 21-04

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management and Engineering Services

1100 Poydras Street
1430 Energy Centre
New Orleans, Louisiana 70163
(504) 582-2468



LIFE COBA

Table of Contents

Ground Water Monitoring Report
Calendar Year 2008 Event

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

		Page
Executive Summary		1
1.0	Introduction	1
2.0	Ground Water Monitoring Program	2
2.1	Ground Water Monitoring Well Network	2
2.2	Summary of Ground Water Monitoring Activities	2
2.2.1	Sample Containers and Preservatives	2
2.2.2	Water Level Measurement and Well Purging	2
2.2.3	Sample Collection and Handling	3
2.2.4	Chain-of-Custody Control	3
2.2.5	Analytical Program	4
3.0	Ground Water Monitoring Results	5
3.1	Ground Water Flow Assessment	5
3.2	Ground Water Analytical Results	5
3.3	Natural Attenuation Evaluation	6
4.0	Future Ground Water Monitoring Activities	8
4.1	Monitoring Frequency	8
4.2	Monitoring Well Network	8
5.0	Summary and Conclusions	9

Table of Contents

Ground Water Monitoring Report
Calendar Year 2008 Event

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Figures

1-1 Existing Monitoring Well Network
3-1 February 2, 2009 Potentiometric Surface Map – Process Area and Offsite
3-2 February 2, 2009 Potentiometric Surface Map – Fill Area
3-3 Approximate Extent of Affected Ground Water – February 2009

Tables

2-1 Summary of Monitoring Well Completion Information
2-2 Analytical Parameters
3-1 Summary of Ground Water Elevation Data
3-2 Summary of Ground Water Monitoring Data
3-3 Natural Attenuation Parameters – Comparison of Affected Wells to Background Wells

Appendices

A Site Background Information
B February 2009 Laboratory Reports
C Charts Depicting Naphthalene vs. Time

Ground Water Monitoring Report
Calendar Year 2008 Event

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Executive Summary

From 1996 though 2001, Tronox LLC's predecessor, Kerr-McGee Chemical, LLC (KMC LLC), completed a Remedial Investigation (RI) at the former Gulf States Creosoting site in Hattiesburg, Mississippi. During that time, site ground water quality and conditions were 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 were identified during the RI: the former Process Area/northeast drainage ditch area and the Gordon's Creek 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 establishing rules and regulations for the development and use of ground water resources within the City limits.

From 2003 through 2007, Tronox implemented remedial measures that included the removal and offsite disposal of materials representing 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 February 2009. 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

During the RI, a network of 24 monitoring wells was installed to monitor ground water quality and conditions beneath the site. In 2005, Tronox, with the approval of MDEQ, plugged and abandoned (P&A'd) five wells that were outside of affected areas and did not function as plume-defining wells. In July 2007, MDEQ requested that Tronox P&A two addition wells, MW-07 and MW-13, and P&A and replace well MW-09, which was damaged during road construction in 2005. MP&A completed the requested activities in September 2007.

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

2.2 Summary of Ground Water Monitoring Activities

The February 2009 monitoring event was conducted during the week of February 2, 2009. 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 February 2009 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 February 2009 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 0.003 (i.e., 3 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. The approximate extent of affected ground water is shown on Figure 3-3.

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). Although naphthalene concentrations exceed the MDEQ TRGs, it is important to note that shallow ground water in the Hattiesburg area is unused and that a 2002 City ordinance established rules and regulations for the development and use of ground water resources within the City limits.

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.

Since 2003, naphthalene concentrations in all wells show overall decreasing trends, indicating that the source removal activities conducted in 2003 are achieving their desired goals. Naphthalene concentrations in wells MW-17 and MW-19, located immediately adjacent to the northeast drainage ditch, have exhibited decreases of two orders of magnitude. None of the wells showed increasing concentration trends, nor have any target constituents been 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 in the Fill Area 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 MNA 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. Although samples from MW-2R do not necessarily exhibit evidence that conditions are favorable for natural attenuation, naphthalene concentrations show a steady-state to declining trend. 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. The 2008 event was the fifth annual event following the initial two years of quarterly ground water monitoring. For the following reasons, Tronox believes that a decrease in monitoring frequency to every other year is warranted:

- All sources of ongoing contamination have been addressed through either source removal or engineering controls;
- The low ground water gradient results in little potential for lateral migration of contaminants; and
- The two contaminant plumes exhibit trends indicating that ground water conditions are improving over time as a result of remedial activities conducted from 2003 through 2007.

Tronox looks forward to MDEQ's response to our request for decreased monitoring frequency.

4.2 Monitoring Well Network

As of September 2007, all superfluous monitoring wells (i.e., wells that were outside of affected areas and did not function as plume-defining wells) have been plugged and abandoned, in accordance with MDEQ policy. The 17 remaining wells will comprise the monitoring well network until other modifications are approved by MDEQ.

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 establishing rules and regulations for 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.

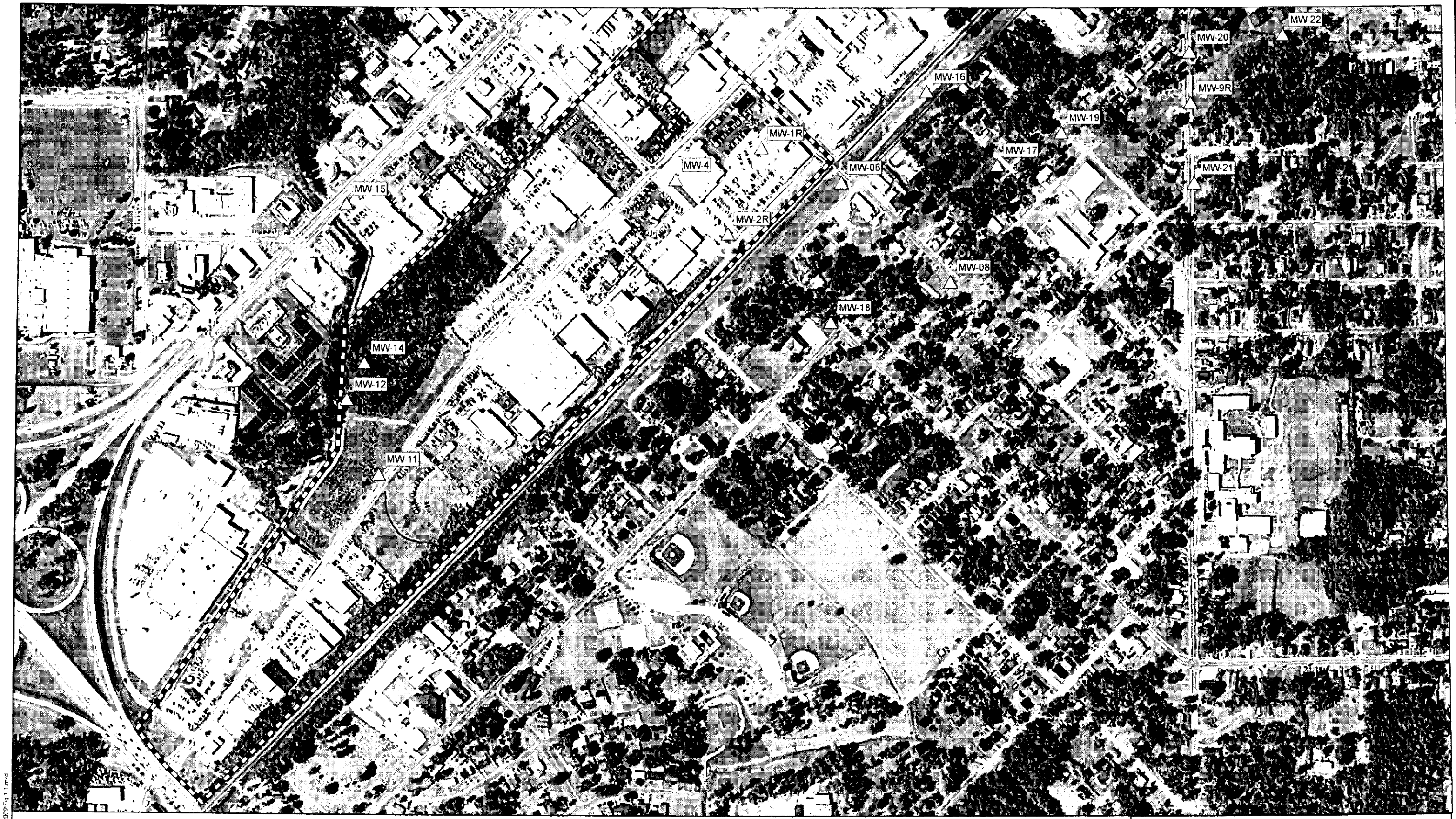
4. Constituent concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, sampling results indicate that conditions are favorable for continued natural attenuation of ground water constituents.

5. Tronox is requesting a decrease in ground water monitoring frequency to every other year for the following reasons:
   - All sources of ongoing contamination have been addressed through either source removal or engineering controls;
   - The low ground water gradient results in little potential for lateral migration of contaminants; and
   - The two contaminant plumes exhibit trends indicating that ground water conditions are improving over time as a result of remedial activities conducted from 2003 through 2007.

Figures

Ground Water Monitoring Report
Calendar Year 2008 Event

Former Gulf States Creosoting Site
Hattiesburg, Mississippi



2007 digital orthophoto from USDA (http://datagateway.nrcs.usda.gov).

Legend

Approximate Site Boundary △ Wells

0 200 400 800 Feet

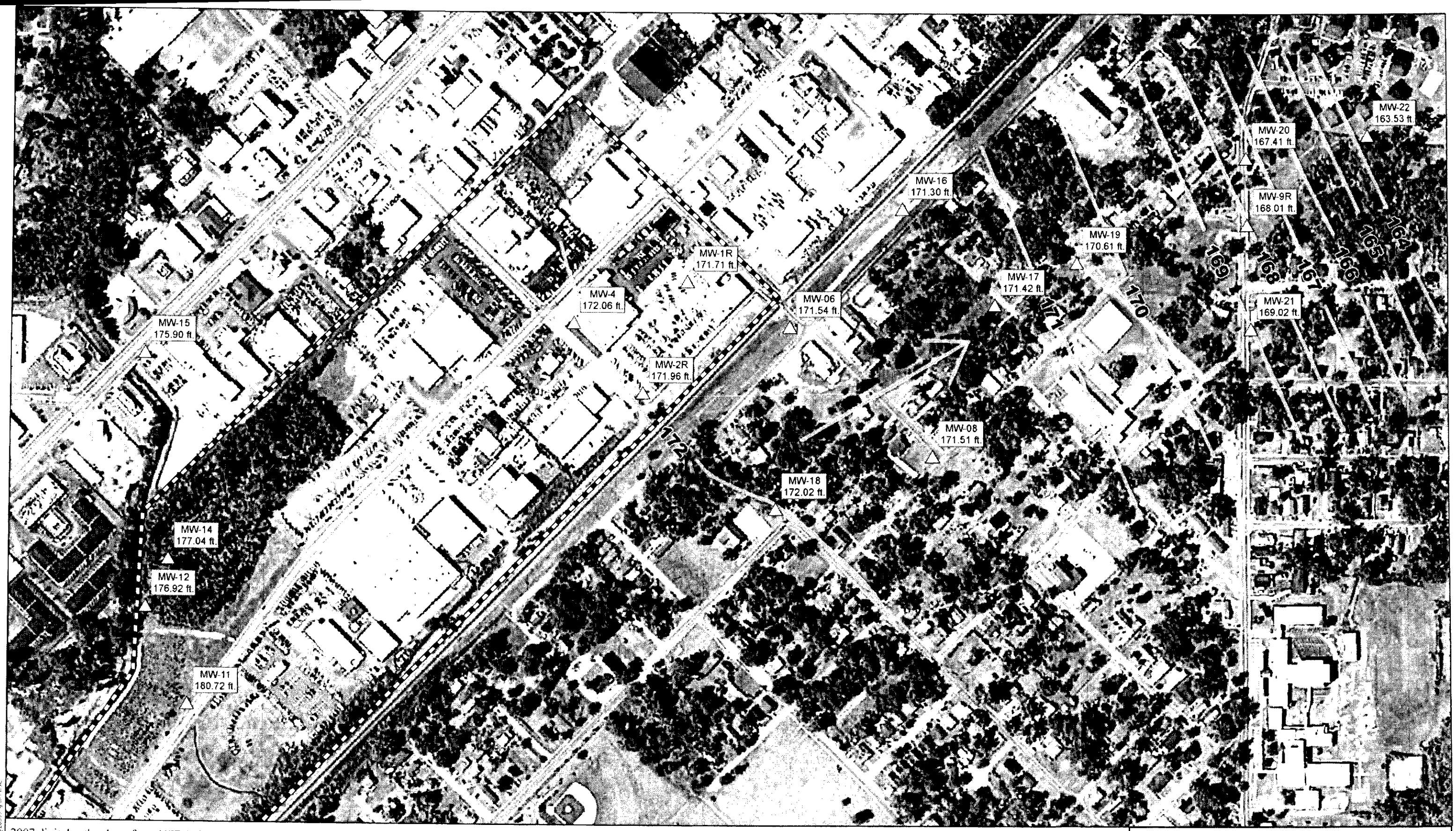
N

Figure 1-1
Existing Monitoring Well Network
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management & Engineering Services
Houston, Texas New Orleans, Louisiana Baton Rouge, Louisiana

Designed: JRB	Drawn: JRB	Checked: DCU	Date: 5/27/2009	Project: 21-04

D:\01_M-Gulf States Creosote\Maps\01_May2009\Fig 1-1.mxd



2007 digital orthophoto from USDA (http://datagateway.nrcs.usda.gov)

Legend

Approximate Site Boundary △ Wells

Potentiometric Surface Contours in feet abpve mean sea level (Feb 2, 2009)

General direction of ground water flow

0 150 300 600 Feet

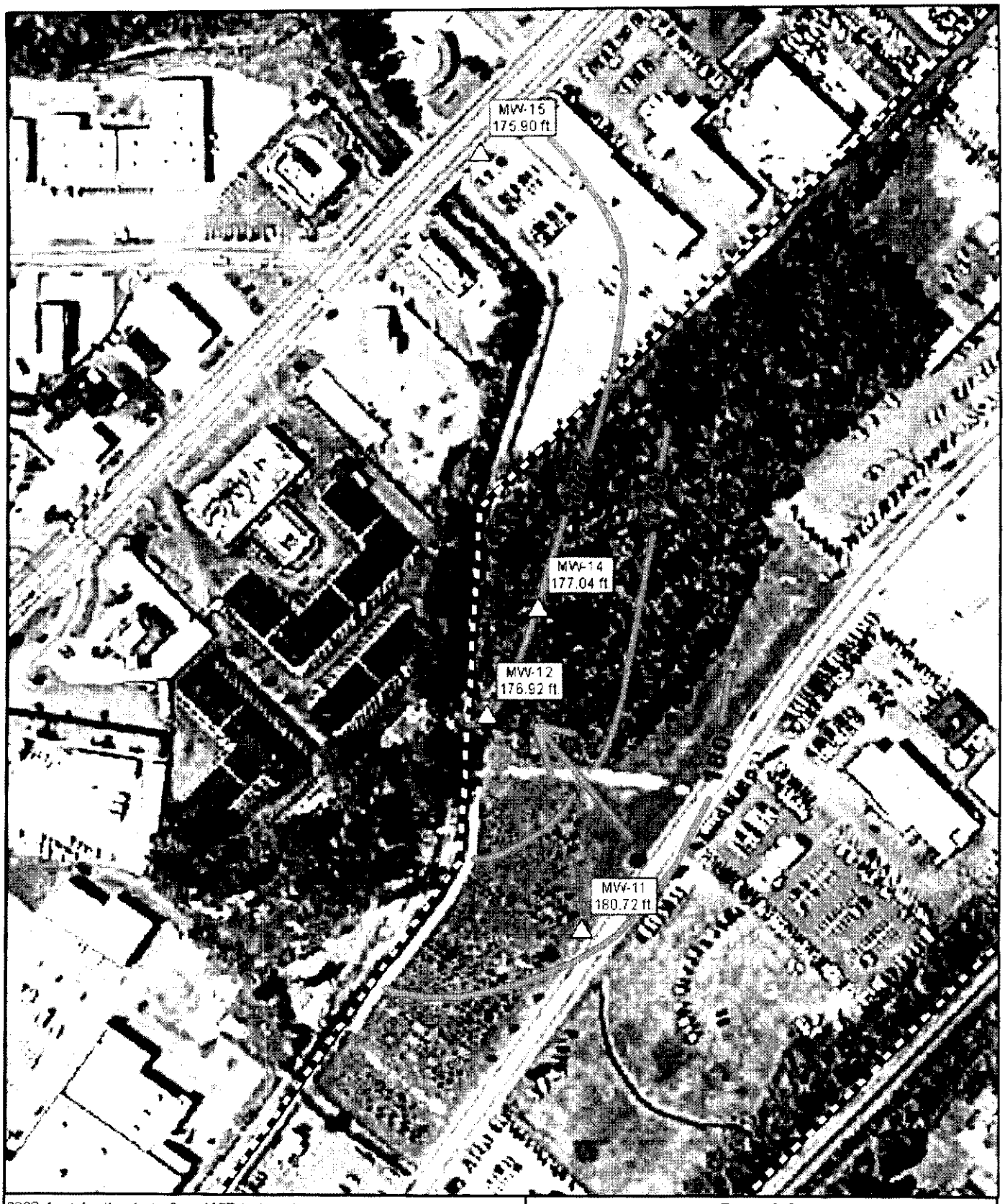
N

Figure 3-1
February 2, 2009 Potentiometric Surface Map
(Process Area & Offsite)
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management & Engineering Services
Houston, Texas New Orleans, Louisiana Baton Rouge, Louisiana

Designed: JRB	Drawn: JRB	Checked: DCU	Date: 5/27/2009	Project: 21-04

D:\21-04 Gulf States Creosote\Maps\402_May2009Fig 3-1.mxd



2007 digital orthophoto from USDA (http://datagateway.nrcs.usda.gov)

Legend

- Wells
- Approximate Site Boundary
- Potentiometric Surface Contours in feet above mean level
- General Direction of Ground Water Flow

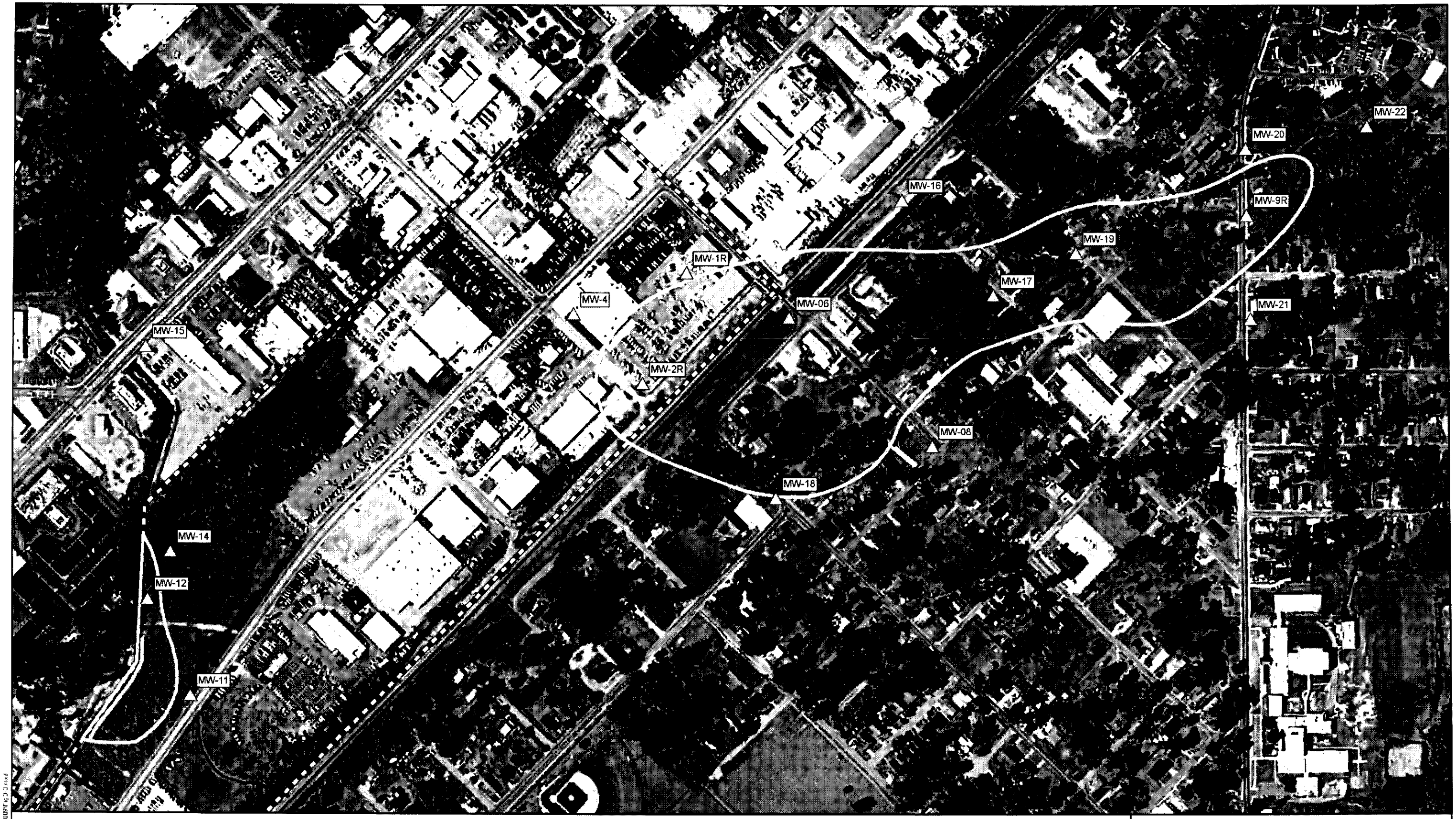
0 100 200 400 Feet

N

Figure 3-2
February 2, 2009 Potentiometric Surface Map
(Fill Area)
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management & Engineering Services
Houston, Texas New Orleans, Louisiana Baton Rouge, Louisiana

Designed: JRB	Drawn: JRB	Checked: DCU	Date: 5/27/2009	Project: 21-04



2007 digital orthophoto from USDA (http://datagateway.nrcs.usda.gov).

Legend

Approximate Site Boundary △ Wells Extent of Affected Ground Water

0 150 300 600 Feet

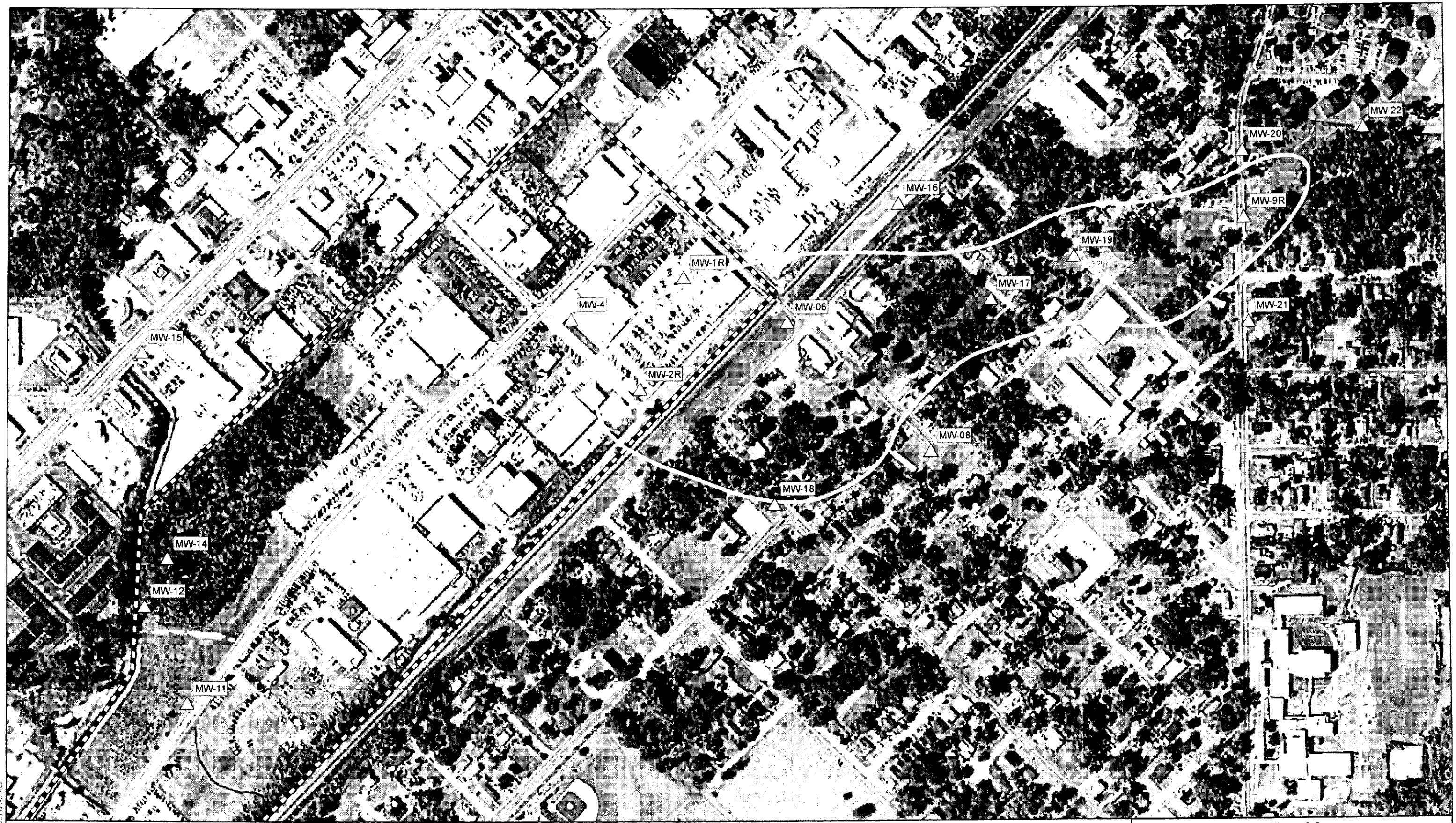
N

Figure 3-3
Approximate Extent of Affected Ground Water
(February 2009)
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management & Engineering Services
Houston, Texas New Orleans, Louisiana Baton Rouge, Louisiana

Designed: JRB	Drawn: JRB	Checked: DCU	Date:7/27/2009	Project: 21-04

0 Q1-4 Gulf States CreosoteMaps\02_May2009\Fig 3-3.mxd



2007 digital orthophoto from USDA (http://datagateway.nrcs.usda.gov)

Legend

Approximate Site Boundary △ Wells Extent of Affected Ground Water

0 150 300 600 Feet

N

Figure 3-3
Approximate Extent of Affected Ground Water
(February 2009)
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

MICHAEL PISANI & ASSOCIATES, INC.
Environmental Management & Engineering Services
Houston, Texas New Orleans, Louisiana Baton Rouge, Louisiana

Designed: JRB	Drawn: JRB	Checked: DCU	Date: 5/27/2009	Project: 21-04

D:\21-04 Gulf States Creosote\Maps\02_May2009\Fig 3-3.mxd

Tables

Ground Water Monitoring Report
Calendar Year 2008 Event

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-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
MW-4	May 1994	10.25	4	PVC	34	191.42	24-34	157.42-167.42
MW-06	September 1998	8.25	2	PVC	38	185.44	18-38	147.44-167.44
MW-08	September 1998	8.25	2	PVC	40	188.73	20-40	148.73-168.73
MW-09R	September 2007	8.25	2	PVC	28	175.73	13-28	147.73-162.73
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-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

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

Naphthalene
Acenaphthylene
Acenaphthene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene
Benzo(a)anthracene
Chrysene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene
Indeno(1,2,3-c,d)pyrene

Biogeochemical Parameters

Nitrate
Sulfate
Methane
Alkalinity
Chloride
Iron (total and dissolved)

Field Parameters

pH
Temperature
Specific conductance
Dissolved oxygen
Ferrous iron
Oxidation-reduction potential (Eh)

Table 3-1
Summary of Ground Water Elevation Data

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Surveyed TOC Elev.	12/18/01	3/18/02	6/6/02	9/16/02	12/16/02	3/24/03	6/23/03	10/6/03	12/13/04	12/12/05	1/8/07	12/3/07	2/2/09
MW-1R	189.06	170.65	173.31	170.46	169.11	173.29	174.75	171.55	169.78	170.06	168.29	169.25	168.84	171.71
MW-2R	190.45	170.70	173.59	170.70	169.55	173.50	175.16	172.10	170.22	170.06	168.63	169.32	169.20	171.96
MW-4	191.42	171.07	173.71	170.92	169.62	173.71	175.54	171.89	170.27	170.33	168.82	169.46	169.42	172.06
MW-06	186.44	170.59	173.13	170.24	168.86	173.14	174.53	171.38	169.49	169.90	168.11	169.29	168.62	171.54
MW-08	188.73	170.63	171.14	169.98	168.63	173.25	174.51	171.18	169.23	169.78	167.92	169.39	168.22	171.51
MW-09R	175.73	168.78	170.03	167.84	166.89	170.24	170.88	168.78	166.56	167.23	NM	NM	166.05	168.01
MW-11	187.76	181.26	181.30	180.14	178.96	181.44	181.87	180.47	180.75	181.53	180.58	181.76	181.09	180.72
MW-12	183.84	176.52	177.11	175.94	174.04	176.54	178.21	176.44	175.71	175.74	175.39	176.52	177.52	176.92
MW-13	183.98	177.53	178.77	176.68	175.73	178.58	179.98	176.86	NM	NM	NM	NM	NM	NM
MW-14	185.48	176.68	177.66	176.23	174.03	177.18	179.16	176.42	175.66	174.63	175.01	175.88	174.38	177.04
MW-15	187.17	175.52	175.79	175.27	175.03	176.05	176.46	175.87	175.43	175.57	175.04	175.79	175.09	175.90
MW-16	188.42	170.57	172.90	170.20	168.87	172.87	174.21	171.32	169.42	169.87	168.14	169.11	168.60	171.30
MW-17	179.94	170.69	172.82	169.92	168.49	172.89	174.15	171.13	169.22	169.64	168.00	169.14	168.46	171.42
MW-18	191.30	170.85	173.64	170.45	169.10	173.92	175.08	171.52	169.80	170.15	168.32	169.64	168.89	172.02
MW-19	178.50	170.23	172.24	169.55	168.28	172.25	173.40	170.85	168.74	169.25	167.56	168.72	167.99	170.61
MW-20	179.56	168.65	169.88	167.96	167.21	170.05	170.80	168.80	166.74	167.16	165.36	166.18	165.57	167.41
MW-21	186.15	169.12	170.64	168.20	167.15	170.92	171.67	169.13	167.21	167.85	166.55	167.49	166.63	169.02
MW-22	167.92	165.51	165.85	165.10	164.75	165.92	166.09	165.44	162.76	163.39	162.54	163.24	162.69	163.53

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	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
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
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
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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	4700	110	250	0.9	110	1	36	1	22	1	2.2j	1	65	1.1
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
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
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
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
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
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
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
Methane	µg/l	2400	50	350	10	71	2	43	2	48	2	ND(5)	2	35	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.54		0.34		0.76		0.27		0.32		0.29		2.14	
Ferrous Iron	mg/l	8		5.1		5		4		2.6		0		1.4	
Oxidation-reduction Pot.	volts	14		-20		90		116		138		327		165	
pH	std. units	6.71		6.17		4.62		4.93		5.47		4.91		4.96	
Specific Conductance	µS/cm	399		214		101		84		81		68		66	
Temperature	°C	23.1		24.26		24.8		24.74		24.23		23.92		24.75	

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-1R

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6	ND(18)	1	0.85 j	0.56	ND(2)	0.51
Acenaphthylene	µg/l	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6	ND(18)	1.6	ND(2.2)	0.56	ND(2)	1
Anthracene	µg/l	ND(0.11)	0.022	0.074j	0.039	0.12j	0.039	0.29	0.045	0.088 j	0.044	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(0.11)	0.022	0.023j	0.019	0.051j	0.02	0.044j	0.023	0.054 j	0.022	ND(0.04)	0.01
Benzo(a)pyrene	µg/l	ND(0.22)	0.043	0.021j	0.019	0.025j	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.65)	0.11	ND(0.19)	0.039	0.052j	0.039	ND(0.23)	0.045	ND(0.22)	0.044	0.015j	0.0081
Benzo(g,h,i)perylene	µg/l	ND(0.11)	0.022	ND(0.58)	0.096	ND(0.59)	0.098	ND(0.68)	0.11	ND(0.67)	0.11	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.096)	0.019	0.025j	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.03)	0.0081
Chrysene	µg/l	ND(0.43)	0.087	ND(0.38)	0.077	0.079j	0.079	ND(0.45)	0.09	ND(0.44)	0.089	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.22)	0.043	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.1)	0.02
Fluoranthene	µg/l	0.15j	0.043	0.12j	0.039	0.58	0.039	1.6	0.045	ND(0.22)	0.044	ND(0.1)	0.02
Fluorene	µg/l	0.93	0.19	0.36j	0.17	ND(0.79)	0.49	ND(0.90)	0.56	ND(0.89)	0.56	ND(0.4)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.43)	0.087	ND(0.38)	0.077	ND(0.39)	0.079	ND(0.45)	0.09	ND(0.44)	0.089	ND(0.2)	0.04
Naphthalene	µg/l	46	1.3	21	1.5	ND(12)	1.6	ND(14)	1.5	0.59 j	0.56	ND(2)	1
Phenanthrene	µg/l	1.2	0.087	0.63	0.077	0.48	0.079	1	0.09	0.10j	0.089	ND(0.2)	0.04
Pyrene	µg/l	ND(0.87)	0.19	ND(0.77)	0.17	0.42j	0.18	1.1	0.2	1.1	0.20	ND(0.4)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	9.6	0.41	ND(2)	0.41	18.4	0.46	44.7	0.46	33.6	0.46	29.4	0.46
Alkalinity to pH 8.3	mg/l	0.14j	0.043	15.3	0.41	4.3	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	7.6	1.5	7	1.5	ND(2)	1.5	7.2	1	7.0	1	6.1	1
Iron (Total)	mg/l	0.171j	0.0453	ND(0.2)	0.0495	0.153j	0.0378	ND (0.2)	0.0522	ND (0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	0.124j	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND (0.2)	0.0522	ND (0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	3.7j	2	2.2j	2	ND(5)	2	10	2	ND(5)	2	ND(15)	5
Nitrate Nitrogen	mg/l	1.4	0.4	1.5	0.4	ND(0.5)	0.4	1.6	0.05	1.6	0.25	1.4	0.25
Sulfate	mg/l	1.5j	1.5	ND(5)	1.5	2.7j	1.5	1.9j	0.3	4.7j	1.5	4.8j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.22		0.98		7.02*		4.32*		0.82		1.47	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	122		147.5		6		293		87		144.5	
pH	std. units	5.24		5.16		9.6*		5.8		5.77		5.63	
Specific Conductance	µS/cm	68		75		*		79		121		122	
Temperature	°C	32.46*		28.84		22.9		21.3		25.12		24.74	

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
Acenaphthene	µg/l	44	1	60	0.8	61	0.9	85	0.8	73	2	52	2	66	1.5
Acenaphthylene	µg/l	8j	1	120	0.8	150	0.9	150	0.8	130	2	150	2	120	1.5
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
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
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
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
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
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
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
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
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
Fluorene	µg/l	35	1	10	0.2	50	1	56	2	60	3	66	3	63	8.6
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
Naphthalene	µg/l	12000	200	8700	50	9000	50	9300	96	8900	120	11000	110	9700	58
Phenanthrene	µg/l	140	1	110	4	140	4	150	0.8	160	2	160	2	150	3.8
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
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
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
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
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
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
Methane	µg/l	2.8j	2	2.2j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.42		0.41		0.48		0.26		0.33		0.25		2.04	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	409		200		421		307		237		350		268	
pH	std. units	5.56		5.36		4.58		4.43		5.4		5		5.08	
Specific Conductance	µS/cm	102		108		107		113		113		113		116	
Temperature	°C	21.8		21.53		22.6		22.68		22.23		22.04		22.18	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	58	1.6	81	1.7	62	1.6	47	1	47	0.57	49	0.51
Acenaphthylene	µg/l	100	1.6	130	1.7	100	1.6	ND(110)	110	130	0.57	ND(110)	110
Anthracene	µg/l	0.25	0.02	ND(10)	10	ND(1)	1	ND(0.50)	0.5	0.67	0.045	ND(0.7)	0.7
Benz(a)anthracene	µg/l	ND(0.1)	0.02	0.21	0.021	0.15	0.019	0.15	0.023	0.14	0.023	0.11	0.01
Benzo(a)pyrene	µg/l	0.049j	0.041	ND(0.1)	0.021	ND(0.097)	0.019	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.61)	0.1	0.045j	0.042	0.054j	0.039	0.064j	0.046	0.060j	0.045	0.048	0.0081
Benzo(g,h,i)perylene	µg/l	0.032j	0.02	ND(0.62)	0.1	ND(0.58)	0.097	ND(0.69)	0.11	ND(0.68)	0.11	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	0.031j	0.021	0.031j	0.019	0.043j	0.023	0.040j	0.023	0.029j	0.0081
Chrysene	µg/l	0.23j	0.061	0.32j	0.083	0.18j	0.078	0.20j	0.091	0.23j	0.091	0.18j	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.041	ND(0.21)	0.042	ND(0.19)	0.039	ND(0.23)	0.046	ND(0.23)	0.045	ND(0.1)	0.02
Fluoranthene	µg/l	7.2	0.041	8.2	0.042	6.8	0.039	5.7	0.046	6.3	0.045	5.5	0.02
Fluorene	µg/l	51	9.1	64	9.4	52	9.7	54	11	63	11.	55	2
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.41)	0.081	ND(0.42)	0.083	ND(0.39)	0.078	ND(0.46)	0.091	ND(0.45)	0.091	ND(0.2)	0.04
Naphthalene	µg/l	8100	61	7300	83	6000	31	5800	30	7500	11.	6,900	20
Phenanthrene	µg/l	120	4.1	120	4.2	110	1.6	94	1.8	130	1.8	130	0.81
Pyrene	µg/l	1.1	0.18	1.3	0.19	0.73j	0.17	0.70j	0.21	0.79j	0.20	0.75	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	21.1	0.41	ND(2)	0.41	16.5	0.46	21.9	0.46	14.4	0.46	20.3	0.46
Alkalinity to pH 8.3	mg/l	0.42	0.041	22.4	0.41		0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	5.8	1.5	5.7	1.5	4.8	1.5	5.5	1	5.2	1	5.7	1
Iron (Total)	mg/l	0.0578j	0.0453	ND(0.2)	0.0495	0.0813j	0.0378	0.120j	0.0522	0.100j	0.0522	0.0647j	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0689j	0.0378	0.100j	0.0522	0.0635j	0.0522	0.0584j	0.0522
Methane	µg/l	ND(5)	2	2.1j	2	ND(5)	2	2.3j	2	ND(5)	2	ND(15)	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	19.9	1.5	17.9	1.5	18.8	1.5	19	1.5	16.6	1.5	14.7	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.5		1.3		0.36		4.49*		0.8		1.06	
Ferrous Iron	mg/l	0		0		0		0.6		0		0	
Oxidation-reduction Pot.	volts	166		129		115		107		31		190.3	
pH	std. units	5.31		5.31		5.11		5.33		5.39		4.87	
Specific Conductance	µS/cm	113		106		*		115		98.17		119	
Temperature	°C	25.41*		23.99		22.39		22.5		23.28		22.73	

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 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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	3.1j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.57		0.63		3.62		6.09		3.5		0.33		2.86	
Ferrous Iron	mg/l	0		0		1		0		0		0		0	
Oxidation-reduction Pot.	volts	403		268		639		221		308		402		276	
pH	std. units	5.67		5.44		3.94		5.43		5.54		5.05		5.11	
Specific Conductance	µS/cm	62		61		63		67		66		65		68	
Temperature	°C	24.2		23.24		24.7		24.94		24		24.08		24.38	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1	ND(2.3)	0.57	ND(2)	0.51
Acenaphthylene	µg/l	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1.6	ND(2.3)	0.57	ND(2)	1
Anthracene	µg/l	ND(0.1)	0.021	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.23)	0.046	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(0.1)	0.021	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.046j	0.023	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.21)	0.042	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.073j	0.023	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.63)	0.1	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.069j	0.046	0.0090j	0.0082
Benzo(g,h,i)perylene	µg/l	ND(0.1)	0.021	ND(0.59)	0.099	ND(0.59)	0.098	ND(0.67)	0.11	0.13j	0.11	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.034j	0.023	ND(0.031)	0.0082
Chrysene	µg/l	ND(0.42)	0.084	ND(0.4)	0.079	ND(0.39)	0.078	ND(0.44)	0.089	ND(0.46)	0.092	ND(0.2)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.23)	0.046	ND(0.1)	0.02
Fluoranthene	µg/l	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.062j	0.046	ND(0.1)	0.02
Fluorene	µg/l	0.26j	0.19	0.18j	0.18	ND(0.78)	0.49	ND(0.89)	0.55	ND(0.92)	0.57	ND(0.041)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.42)	0.084	ND(0.4)	0.079	ND(0.39)	0.078	ND(0.44)	0.089	ND(0.46)	0.092	ND(0.2)	0.041
Naphthalene	µg/l	35	1.3	34	1.6	ND(12)	1.6	38	1.4	13	0.57	ND(2)	1
Phenanthrene	µg/l	0.35j	0.084	0.22j	0.079	ND(0.39)	0.078	0.16j	0.089	0.10j	0.092	ND(0.2)	0.041
Pyrene	µg/l	ND(0.84)	0.19	ND(0.79)	0.18	ND(0.78)	0.18	ND(0.89)	0.2	ND(0.92)	0.21	ND(0.041)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	15.6	0.41	ND(2)	0.41	15.2	0.46	16.4	0.46	12.3	0.46	20.5	0.46
Alkalinity to pH 8.3	mg/l	ND(0.21)	0.042	15.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	7.2	1.5	7.4	1.5	6.8	1.5	7.1	1	2.5	1	5.6	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(15)	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	0.55	0.25	0.35j	0.25
Sulfate	mg/l	1.9j	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.9j	1.5	1.9j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.44		0.54		3.86		5.16		0.91		4.04	
Ferrous Iron	mg/l	0.1		0		0		0		0		0	
Oxidation-reduction Pot.	volts	141		144		171		283		150		166.7	
pH	std. units	5.38		5.28		5.33		5.17		5.38		5.48	
Specific Conductance	µS/cm	64		69		*		65		62.59		78	
Temperature	°C	32.85*		24.34		22.51		21.1		26.2		24.96	

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
Acenaphthene	µg/l	170	10	160	0.8	140	0.8	150	0.8	160	2	100	2	140	1.5
Acenaphthylene	µg/l	ND(100)	10	150	0.8	150	0.8	130	0.8	170	2	130	2	160	1.5
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
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
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
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
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
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
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
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
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
Fluorene	µg/l	120	10	2	0.04	92	1	92	0.2	120	2	94	3	110	3.5
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
Naphthalene	µg/l	9100	200	7300	50	6800	50	8200	1	8600	120	7600	57	8500	58
Phenanthrene	µg/l	79j	10	65	0.4	67	0.4	69	0.08	83	0.8	68	2	78	1.5
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
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
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
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
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
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
Methane	µg/l	1200	50	1400	40	1400	40	1900	2	1900	50	1200	50	1900	100
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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.35		0.26		0.41		0.17		0.33		0.11		2.68	
Ferrous Iron	mg/l	7		5		3		4.5		5		4.2		6.6	
Oxidation-reduction Pot.	volts	58		-177		-116		-87		-58		-111		-32	
pH	std. units	6.19		6.18		4.92		5.46		6.03		5.81		5.37	
Specific Conductance	µS/cm	215		246		239		236		225		206		246	
Temperature	°C	22.1		21.58		22.5		22.74		22.67		21.2		22.74	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	120	1.5	130	1.5	96	1.6	120	1	80	0.57	59	0.53
Acenaphthylene	µg/l	120	1.5	ND(770)	770	91	1.6	ND(160)	160	120	0.57	ND(36)	36
Anthracene	µg/l	ND(0.095)	0.019	6.9	0.039	4.5	0.039	7.1	0.045	5.0	0.046	3.7	0.021
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.099)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.042)	0.011
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.099)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.042)	0.011
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.23)	0.046	ND(0.032)	0.0085
Benzo(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.099	ND(0.68)	0.11	ND(0.69)	0.11	ND(0.21)	0.063
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.096)	0.019	ND(0.099)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.032)	0.0085
Chrysene	µg/l	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.39)	0.079	ND(0.45)	0.09	ND(0.46)	0.092	ND(0.21)	0.042
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.23)	0.046	ND(0.11)	0.021
Fluoranthene	µg/l	1.9	0.038	2.4	0.039	1.5	0.039	2.5	0.045	1.7	0.046	1.3	0.021
Fluorene	µg/l	86	8.6	91	8.7	59	9.9	94	11	68	11.	41	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.39)	0.079	ND(0.45)	0.09	ND(0.46)	0.092	ND(0.21)	0.042
Naphthalene	µg/l	6400	57	7100	77	4100	32	6500	29	5200	11.	2,200	11
Phenanthrene	µg/l	65	3.8	64	3.9	45	1.6	76	1.8	55	1.8	ND(2.1)	0.42
Pyrene	µg/l	0.67j	0.17	0.78	0.17	45	0.18	0.82j	0.2	0.52j	0.21	0.47	0.11
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	108	0.41	ND(2)	0.41	104	0.46	98.2	0.46	104	0.46	98.6	0.46
Alkalinity to pH 8.3	mg/l	6.1	0.038	97.5	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	8.4	1.5	8	1.5	7.3	1.5	7.6	1	7.8	1.0	6.2	1
Iron (Total)	mg/l	18.8	0.0453	22	0.0495	26.9	0.0378	26.1	0.0522	26.3	0.0522	23.5	0.0522
Iron (Dissolved)	mg/l	18.9	0.0453	22	0.0495	26	0.0378	25.8	0.0522	28.0	0.0522	24.3	0.0522
Methane	µg/l	1400	50	2500	50	1400	40	2300	500	1400	20.	780	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	5.2	1.5	3.4j	1.5	3.6j	1.5	1.9j	1.5	2.8j	1.5	4.9j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.3		0.18		0.37		5.67*		0.74		1.18	
Ferrous Iron	mg/l	5.2		4		4		0		2.4		2.6	
Oxidation-reduction Pot.	volts	-98		-60.3		-154		-88		-163		22.4	
pH	std. units	6.08		5.82		5.78		5.77		6.01		5.93	
Specific Conductance	µS/cm	206		213		*		210		220		252	
Temperature	°C	32.19*		24.09		21.14		22		22.77		21.16	

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		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		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(16)	2	ND(15)	2	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	3.6j	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
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
Field Parameters															
Dissolved Oxygen	mg/l	3.33		4.31		2.92		2.82		3.45		2.92		3.28	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	428		528		300		334		367		320		395	
pH	std. units	5.25		4.46		4.49		4.43		4.96		4.3		4.68	
Specific Conductance	µS/cm	88		114		105		100		95		150		126	
Temperature	°C	21.4		21.95		21.6		22.24		22.15		21.29		21.83	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2)	0.50	ND(2.1)	0.52
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2)	0.50	ND(2.1)	1
Anthracene	µg/l	ND(0.098)	0.02	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.098)	0.02	ND(0.097)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.2)	0.039	ND(0.097)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.59)	0.098	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	ND(0.098)	0.02	ND(0.58)	0.096	ND(0.58)	0.097	ND(0.65)	0.11	ND(0.59)	0.099	ND(0.21)	0.062
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.097)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.031)	0.0083
Chrysene	µg/l	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078	ND(0.43)	0.087	ND(0.40)	0.079	ND(0.21)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.039	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021
Fluoranthene	µg/l	ND(0.2)	0.039	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021
Fluorene	µg/l	ND(0.78)	0.18	ND(0.77)	0.17	ND(0.78)	0.49	ND(0.87)	0.54	ND(0.79)	0.50	ND(0.041)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078	ND(0.43)	0.087	ND(0.40)	0.079	ND(0.21)	0.041
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2)	0.50	ND(2.1)	1
Phenanthrene	µg/l	ND(0.39)	0.078	ND(0.39)	0.076	ND(0.39)	0.078	ND(0.43)	0.087	ND(0.40)	0.079	ND(0.21)	0.041
Pyrene	µg/l	ND(0.78)	0.18	ND(0.77)	0.17	ND(0.78)	0.17	ND(0.87)	0.2	ND(0.79)	0.18	ND(0.041)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	3	0.41	ND(2)	0.41	2.5	0.46	2.7	0.46	1.6j	0.46	2.4	0.46
Alkalinity to pH 8.3	mg/l	ND(0.2)	0.039	3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	35	3	26.1	1.5	33.8	3	12.2	1	25.3	1.0	18.7	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2.0	ND(15)	5
Nitrate Nitrogen	mg/l	1.5	0.4	1.5	0.4	2.1	0.4	1.9	0.25	2.6	0.25	2.2	0.25
Sulfate	mg/l	3.4j	1.5	3.1j	1.5	3.9j	1.5	4.2j	1.5	3.3j	1.5	6.8	1.5
Field Parameters													
Dissolved Oxygen	mg/l	1.15		1.16		2.15		7.96*		3.04		3.38	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	196		188		290		294		200		246.8	
pH	std. units	4.94		4.7		4.56		4.79		4.86		4.63	
Specific Conductance	µS/cm	390		112		*		137		116.4		123	
Temperature	°C	32.61*		23.87		19.06		21.2		19.46		20.4	

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		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	240j	27	230	0.8	310	0.9	260	0.8	230	2	190	2	330	1.6
Acenaphthylene	µg/l	12	1	ND(8)	0.8	120	0.9	120	0.8	80	2	ND(55)	55	130	1.6
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
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
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
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
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
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
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
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
Fluoranthene	µg/l	14	1	110	2	12	0.4	10	0.8	10	0.8	9	0.4	11	0.79
Fluorene	µg/l	160j	27	10	0.4	160	2	150	3	130	3	110	2	190	3.6
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
Naphthalene	µg/l	2600	27	1000	9	1600	10	2400	19	1000	23	1100	11	1700	24
Phenanthrene	µg/l	110	1	97	0.8	130	0.9	120	2	130	2	100	0.8	150	1.6
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
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
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
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
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
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
Methane	µg/l	590	40	380	10	480	10	340	10	230	10	750	20	580	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.46		0.34		0.4		0.22		0.17		0.16		4.07	
Ferrous Iron	mg/l	6		3		7		5		5.5		3		4	
Oxidation-reduction Pot.	volts	62		-179		28		-105		-72		-34		-70.5	
pH	std. units	6.25		6.23		4.73		5.09		6.2		4.77		5.68	
Specific Conductance	µS/cm	189		185		180		181		171		220		203	
Temperature	°C	21.6		19.18		21.5		24.27		22.17		18.95		22.03	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	220	1.6	200	1.6	Damaged		Damaged		84	0.56	98	0.52
Acenaphthylene	µg/l	100	1.6	ND(160)	160	Damaged		Damaged		37	0.56	ND(47)	47
Anthracene	µg/l	0.066j	0.02	8.9	0.39	Damaged		Damaged		3.9	0.044	5.6	0.021
Benz(a)anthracene	µg/l	ND(0.1)	0.02	0.058j	0.019	Damaged		Damaged		ND(0.1)	0.022	0.029j	0.01
Benzo(a)pyrene	µg/l	ND(0.2)	0.04	ND(0.097)	0.019	Damaged		Damaged		ND(0.2)	0.022	ND(0.042)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.61)	0.1	ND(0.19)	0.039	Damaged		Damaged		ND(0.61)	0.044	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	ND(0.1)	0.02	ND(0.058)	0.097	Damaged		Damaged		ND(0.1)	0.11	ND(0.21)	0.062
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.097)	0.019	Damaged		Damaged		ND(2)	0.022	ND(0.031)	0.0083
Chrysene	µg/l	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		Damaged		ND(0.4)	0.089	ND(0.21)	0.042
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.19)	0.039	Damaged		Damaged		ND(0.2)	0.044	ND(0.1)	0.021
Fluoranthene	µg/l	10	0.4	9.1	0.39	Damaged		Damaged		3.6	0.044	4.5	0.021
Fluorene	µg/l	140	1.8	130	1.7	Damaged		Damaged		47	2.8	69	1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		Damaged		ND(0.4)	0.089	ND(0.21)	0.042
Naphthalene	µg/l	1400	12	1300	16	Damaged		Damaged		760	2.8	1,300	10
Phenanthrene	µg/l	130	0.81	110	0.78	Damaged		Damaged		30	0.44	49	0.42
Pyrene	µg/l	4.2	0.18	5.7	0.17	Damaged		Damaged		1.9	0.20	2.6	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	84.9	0.41	ND(2)	0.41	Damaged		Damaged		114	0.46	115	0.46
Alkalinity to pH 8.3	mg/l	7	0.04	118	0.41	Damaged		Damaged		ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	6.8	1.5	8.4	1.5	Damaged		Damaged		10.2	1	12.9	1
Iron (Total)	mg/l	18	0.0453	26.8	0.0495	Damaged		Damaged		24.9	0.0522	27.6	0.0522
Iron (Dissolved)	mg/l	17.6	0.0453	25.9	0.0495	Damaged		Damaged		25.0	0.0522	26.6	0.0522
Methane	µg/l	450	20	1500	40	Damaged		Damaged		2000	40	1,500	25
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	Damaged		Damaged		ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	13.8	1.5	ND(5)	1.5	Damaged		Damaged		ND(5)	1.5	ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.42		1.69		Damaged		Damaged		0.74		1.14	
Ferrous Iron	mg/l	4.6		5		Damaged		Damaged		4		2.8	
Oxidation-reduction Pot.	volts	-166		-73		Damaged		Damaged		-103		21	
pH	std. units	5.96		6.34		Damaged		Damaged		6.23		6.04	
Specific Conductance	µS/cm	238		259		Damaged		Damaged		253.5		334	
Temperature	°C	23.73		28.55		Damaged		Damaged		21.88		20.46	

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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	10	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	3.95		1.32		1.59		0.56		0.61		1.17		2	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	336		365		520		326		390		515		369	
pH	std. units	5.52		4.18		3.7		4.4		4.74		3.16		4.57	
Specific Conductance	µS/cm	81		86		85		97		94		98		109	
Temperature	°C	22.3		18.92		24.9		27.74		20.44		18.97		25.12	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.1	ND(2.2)	0.56	ND(2)	0.51
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.7	ND(2.2)	0.56	ND(2)	1
Anthracene	µg/l	ND(0.095)	0.019	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.04)	0.01
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.03)	0.0081
Benzo(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.57)	0.095	ND(0.58)	0.096	ND(0.71)	0.12	ND(0.67)	0.11	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.03)	0.0081
Chrysene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02
Fluorene	µg/l	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.48	ND(0.95)	0.59	ND(0.89)	0.56	ND(0.4)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04
Naphthalene	µg/l	ND(11)	1.1	ND(11)	1.5	ND(12)	1.5	ND(14)	1.5	ND(2.2)	0.56	ND(2)	1
Phenanthrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04
Pyrene	µg/l	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.17	ND(0.95)	0.21	ND(0.89)	0.20	ND(0.4)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.46	1.0j	0.46	ND(2)	0.46	ND(2)	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	ND(2)	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	11	1.5	11.1	1.5	7.7	1.5	7.2	1	7.1	1.0	8	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0774j	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	0.0788j	0.0495	0.0412j	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	24	2	130	2	ND(5)	2	ND(5)	2.0	67	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	0.30j	0.25	ND(0.5)	0.25
Sulfate	mg/l	23.1	1.5	28.6	1.5	24.9	1.5	24.4	1.5	19.9	1.5	25.5	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.63		0.63		0.15		5.56*		0.77		1.18	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	304		166.6		278		353		340		241.2	
pH	std. units	4.41		4.55		3.99		4.44		4.58		4.47	
Specific Conductance	µS/cm	112		117		*		107		90.17		114	
Temperature	°C	26.23		21.65		22.08		20.7		22.55		18.53	

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	
		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
Acenaphthylene	µg/l	16	1	81	0.8	63	0.9	97	0.8	17	2	14j	2	2.5j	1.6
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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	5600	100	2900	20	2600	20	4800	19	360	6	210	1	2.2j	1.2
Phenanthrene	µg/l	41	1	28	2	25	2	34	2	7.4	0.08	3.9	0.08	0.15j	0.08
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
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
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
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
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
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
Methane	µg/l	400	10	360	10	370	10	400	10	240	10	210	10	170	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.65		0.4		1.25		0.18		0.22		0.27		2.17	
Ferrous Iron	mg/l	1.4		2.2		3.8		3		3.5		1.8		1.9	
Oxidation-reduction Pot.	volts	269		-2.2		132		20.8		49.5		97.4		145	
pH	std. units	6.43		5.86		3.81		6.02		6.28		5.7		5.47	
Specific Conductance	µS/cm	97		110		107		110		108		111		107	
Temperature	°C	20.1		18.19		19		20.86		20.34		18.36		20.18	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	2.6j	1.7	ND(15)	1.5	ND(15)	1.5	ND(17)	0.95	2.0j	0.55	6.9	0.5
Acenaphthylene	µg/l	2.3j	1.7	ND(15)	1.5	ND(15)	1.5	2.1j	1.5	5.5	0.55	13	1
Anthracene	µg/l	ND(0.11)	0.022	0.067j	0.038	ND(0.19)	0.2	ND(0.21)	0.042	ND(0.22)	0.20	ND(0.6)	0.6
Benz(a)anthracene	µg/l	ND(0.11)	0.022	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.04)	0.01
Benzo(a)pyrene	µg/l	ND(0.22)	0.043	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.65)	0.11	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.03)	0.0081
Benzo(g,h,i)perylene	µg/l	ND(0.11)	0.022	ND(0.57)	0.095	ND(0.57)	0.095	ND(0.63)	0.11	ND(0.67)	0.11	ND(0.2)	0.06
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.03)	0.0081
Chrysene	µg/l	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.44)	0.089	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.22)	0.043	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.1)	0.02
Fluoranthene	µg/l	0.053j	0.043	0.19j	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.1)	0.02
Fluorene	µg/l	2.1	0.19	ND(0.76)	0.17	ND(0.76)	0.48	ND(0.84)	0.53	2.3	0.55	8.8	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.44)	0.089	ND(0.2)	0.04
Naphthalene	µg/l	12j	1.3	ND(11)	1.5	7.8j	1.5	3.7j	1.4	79	0.55	160	1
Phenanthrene	µg/l	0.63	0.087	0.20j	0.076	0.12j	0.076	0.097j	0.084	0.21j	0.089	1.3	0.04
Pyrene	µg/l	ND(0.87)	0.19	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.84)	0.19	ND(0.89)	0.20	0.35j	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	50.9	0.41	ND(2)	0.41	53.5	0.46	54.6	0.46	57.7	0.46	59.9	0.46
Alkalinity to pH 8.3	mg/l	0.47	0.043	49.1	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	3	1.5	3.1	1.5	2.5	1.5	2.8	1	3.0	1.0	2.6	1
Iron (Total)	mg/l	1.3	0.0453	1.08	0.0495	1.32	0.0378	0.869	0.0522	0.854	0.0522	0.76	0.0522
Iron (Dissolved)	mg/l	1.18	0.0453	1.03	0.0495	0.985	0.0378	0.582	0.0522	0.805	0.0522	0.703	0.0522
Methane	µg/l	140	2	64	2	50	2	50	2	140	2.0	230	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	2.1j	1.5	ND(5)	1.5	2.2j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.29		0.5		0.81		5.83*		1.1		1.21	
Ferrous Iron	mg/l	NM		1		0.8		0.6		1.2		0.9	
Oxidation-reduction Pot.	volts	-20.6		33		-12		44		-86		118.7	
pH	std. units	6.19		6.2		5.53		5.8		6.07		5.84	
Specific Conductance	µS/cm	109		103		*		108		103.2		152	
Temperature	°C	26.75*		24		20.22		20.3		18.51		18.85	

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	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
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
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
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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	3j	1	23	0.9	10	1	42	1	6.2j	1	ND(11)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	100	2	100	2	210	10	1100	40	120	2	63	2	150	10
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
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
Field Parameters															
Dissolved Oxygen	mg/l	1.91		0.29		0.81		0.29		0.2		0.32		3.2	
Ferrous Iron	mg/l	0.8		1.5		3		3.5		2.5		1.2		2	
Oxidation-reduction Pot.	volts	345		-90		33		-72		49.1		18.4		-29.7	
pH	std. units	6.6		5.6		4.72		5.65		5.8		5.08		5.34	
Specific Conductance	µS/cm	78		64		68		75		68		83		80	
Temperature	°C	19.6		18.16		18.7		20.32		19.86		18.09		18.83	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(15)	1.5	4.8j	1.5	ND(16)	1.6	2.4j	1	ND(2)	0.51	ND(2)	0.51
Acenaphthylene	µg/l	ND(15)	1.5	3.6j	1.5	ND(16)	1.6	ND(18)	1.6	ND(2)	0.51	ND(2)	1
Anthracene	µg/l	ND(0.096)	0.019	0.06j	0.038	ND(0.2)	0.04	0.049j	0.046	0.060j	0.041	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.04)	0.01
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.58)	0.096	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.03)	0.0081
Benzo(g,h,i)perylene	µg/l	ND(0.096)	0.019	ND(0.57)	0.095	ND(0.59)	0.099	ND(0.69)	0.12	ND(0.61)	0.10	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.03)	0.0081
Chrysene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079	ND(0.46)	0.092	ND(0.41)	0.082	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.1)	0.02
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.1)	0.02
Fluorene	µg/l	ND(0.77)	0.17	1.7	0.17	ND(0.79)	0.5	0.99	0.58	ND(0.82)	0.51	ND(0.4)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079	ND(0.46)	0.092	ND(0.41)	0.082	ND(0.2)	0.04
Naphthalene	µg/l	ND(12)	1.2	120	1.5	ND(12)	1.6	1.9j	1.5	ND(2)	0.51	ND(2)	1
Phenanthrene	µg/l	0.14j	0.077	0.64	0.076	ND(0.4)	0.079	0.35j	0.092	0.098j	0.082	ND(0.2)	0.04
Pyrene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.18	ND(0.92)	0.21	ND(0.82)	0.18	ND(0.4)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	13.8	0.41	ND(2)	0.41	14	0.46	15.8	0.46	14.8	0.46	8.7	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	15.9	0.41		0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.4	1.5	4.5	1.5	4.6	1.5	4.9	1	4.5	1.0	4.1	1
Iron (Total)	mg/l	0.796	0.0453	1.58	0.0495	1.24	0.0378	2.62	0.0522	6.91	0.0522	2.21	0.0522
Iron (Dissolved)	mg/l	0.896	0.0453	1.04	0.0495	1.21	0.0378	1.45	0.0522	1.04	0.0522	0.849	0.0522
Methane	µg/l	47	2	400	10	100	2	180	4	210	4.0	46	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4		0.4	ND(0.5)	0.25	0.28j	0.25	ND(0.5)	0.25
Sulfate	mg/l	15.7	1.5	14.1	1.5	19.2	1.5	17.5	1.5	17.5	1.5	25.7	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.23		0.69		3.95		6.19*		0.98		1.2	
Ferrous Iron	mg/l	0.4		2		1.6		0		1.6		1.2	
Oxidation-reduction Pot.	volts	17.8		21.5		-21		12		42		120.7	
pH	std. units	5.8		5.81		5.31		5.9		5.59		5.33	
Specific Conductance	µS/cm	69		82		*		79		84.18		129	
Temperature	°C	34.39*		19.7		19.72		19.1		20.83		18.41	

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-15

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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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*
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
Methane	µg/l	1400	100	1500	40	1800	50	2200	50	1900	100	2500	200	1900	200
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
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
Field Parameters															
Dissolved Oxygen	mg/l	1.06		0.6		0.5		0.36		0.35		0.23		3.95	
Ferrous Iron	mg/l	5.8		4.5		5.8		7		7		5.1		7.1	
Oxidation-reduction Pot.	volts	89		-46		-24		-59		-39		-34.9		-52.6	
pH	std. units	6.44		6.15		5.95		6.39		6.3		6.26		5.82	
Specific Conductance	*µS/cm*	*304*		*403*		*320*		294		392		401		369	
Temperature	°C	24.6		21.2		25.3		28.77		24.63		20.68		26.3	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	2.3j	1.5	2.3j	1.5	2.6j	1.6	ND(18)	1	1.5j	0.55	0.93j	0.51
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(18)	1.6	ND(2.2)	0.55	ND(2)	1
Anthracene	µg/l	0.028j	0.019	0.10j	0.038	0.13j	0.039	0.080j	0.045	0.16j	0.044	0.12	0.02
Benz(a)anthracene	µg/l	ND(0.095)	0.019	0.022j	0.019	0.026j	0.02	ND(0.11)	0.023	0.029j	0.022	0.022j	0.01
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.031)	0.0082
Benzo(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.098	ND(0.68)	0.11	ND(0.66)	0.11	ND(0.2)	0.061
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.031)	0.0082
Chrysene	µg/l	ND(0.7)	0.7	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.45)	0.091	ND(0.44)	0.088	ND(0.2)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.1)	0.02
Fluoranthene	µg/l	1.2	0.038	0.98	0.038	0.93	0.039	0.69	0.045	0.94	0.044	0.66	0.02
Fluorene	µg/l	0.5j	0.17	0.47j	0.17	ND(0.78)	0.49	ND(0.91)	0.57	ND(0.88)	0.55	0.37j	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.45)	0.091	ND(0.44)	0.088	ND(0.2)	0.041
Naphthalene	µg/l	ND(11)	1.1	ND(12)	1.5	ND(12)	1.6	ND(14)	1.5	ND(2.2)	0.55	ND(2.0)	1
Phenanthrene	µg/l	0.29j	0.076	0.18j	0.077	0.20j	0.078	0.10j	0.091	0.21j	0.088	0.12j	0.041
Pyrene	µg/l	0.83	0.17	0.73j	0.17	0.67j	0.18	0.49j	0.2	0.65j	0.2	0.52	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	124	0.41	ND(2)	0.41	147	0.46	171	0.46	145	0.46	166	0.46
Alkalinity to pH 8.3	mg/l	0.14j	0.038	153	0.41		0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.7	1.5	4.2	1.5	3.6	1.5	3.7	1	4.8	1	2.8	1
Iron (Total)	mg/l	31.2	0.0453	30.2	0.0495	34.3	0.0378	35.9	0.0522	33.2	0.0522	37.6	0.0522
Iron (Dissolved)	mg/l	31.1	0.0453	29.8	0.0495	32.7	0.0378	36.8	0.0522	33	0.0522	37.7	0.0522
Methane	µg/l	1800	100	1800	40	1800	50	1300	200	1700	40	1,000	25
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4		0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	1.9j	1.5	ND(5)	1.5	6.7	1.5	2.2j	1.5	ND(5)	1.5	2.2j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.53		0.98		0.36		5.05*		0.74		1.1	
Ferrous Iron	mg/l	5.8		5		4.5		3		2		4.6	
Oxidation-reduction Pot.	volts	-40.4		-47.7		-91		-84		-134		7.4	
pH	std. units	6.16		6.11		5.93		6		6.13		6.13	
Specific Conductance	µS/cm	355		365		*		384		317		417	
Temperature	°C	28.45		25.5		22.7		22.9		23.51		21.02	

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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	17	2	ND(5)	2	3.3j	2	3.3j	2	ND(5)	2	ND(5)	2	ND(5)	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	1.99		5.33		4.64		3.03		4.93		4.83		5.61	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	484		492		613		323		405		390		603	
pH	std. units	5.42		4.69		4.21		4.52		5.08		5.19		4.42	
Specific Conductance	µS/cm	49		45		47		73		53		63		70	
Temperature	°C	20.9		21.28		21.5		21.34		21.39		20.13		21.61	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2.1)	0.53	ND(2)	0.5
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2.1)	0.53	ND(2)	1
Anthracene	µg/l	ND(0.095)	0.019	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.04)	0.01
Benzo(a)pyrene	µg/l	0.065j	0.038	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.04)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.03)	0.008
Benzo(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.57)	0.095	ND(0.59)	0.098	ND(0.66)	0.11	ND(0.64)	0.11	ND(0.2)	0.06
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.03)	0.008
Chrysene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02
Fluorene	µg/l	ND(2)	2	ND(0.76)	0.17	ND(0.78)	0.49	ND(0.87)	0.55	ND(0.85)	0.53	ND(0.4)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04
Naphthalene	µg/l	ND(11)	1.1	ND(11)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2.1)	0.53	ND(2)	1
Phenanthrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04
Pyrene	µg/l	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.78)	0.18	ND(0.87)	0.2	ND(0.85)	0.19	ND(0.4)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	5.3	0.41	ND(2)	0.41	5.8	0.46	6.1	0.46	6.0	0.46	4.1	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	4.8	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.2	1.5	4.1	1.5	5.2	1.5	4.3	1	4.1	1.0	5.8	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	0.98	0.0522	0.139 J	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	0.342	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	2.1j	2	ND(5)	2	ND(5)	2	ND(5)	2.0	ND(15)	5
Nitrate Nitrogen	mg/l	1.6	0.4	1.3	0.4	1.2	0.4	1.1	0.25	1.1	0.25	1.5	0.25
Sulfate	mg/l	26.6	1.5	9.1	1.5	18.8	1.5	6.2	1.5	6.5	1.5	13.4	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.49		2.15		5.3		7.31		3.74		5.49	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	382		154		272		340		209		244.7	
pH	std. units	5.07		5.05		4.5		4.85		5.04		4.74	
Specific Conductance	µS/cm	80		63		*		74		55.93		68	
Temperature	°C	27.19*		23.26		21.01		20		20.98		20.68	

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	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
Acenaphthene	µg/l	38	1	51	0.8	35	0.8	33	0.8	30	2	18	2	6.8j	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
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
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
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
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
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
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
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
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
Fluoranthene	µg/l	ND(11)	1	28	0.2	0.9	0.04	0.96	0.04	0.69	0.04	0.49	0.04	0.28	0.04
Fluorene	µg/l	27	1	1	0.04	23	0.2	22	0.2	21	0.2	14	0.2	8.1	0.17
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
Naphthalene	µg/l	720	11	750	5	560	5	590	5	480	6	140	1	ND(12)	1.2
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
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
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	42.3	0.41	48	0.41	43.8	0.41	ND(2)	0.41	39.2	0.41	30.5	0.41	17.3	0.41
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
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
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
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
Methane	µg/l	850	40	1400	40	910	20	930	40	640	20	470	10	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.79		0.3		0.62		0.33		0.31		0.49		2.6	
Ferrous Iron	mg/l	1.2		5		5.5		5.5		4.5		2.2		1.4	
Oxidation-reduction Pot.	volts	339		13.1		340		60.3		113		208		278	
pH	std. units	5.7		5.89		3.86		3.71		5.57		2.15*		4.5	
Specific Conductance	µS/cm	111		147		121		126		116		107		112	
Temperature	°C	20.1		18.6		20.4		20.99		20.53		18.92		20.02	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	13j	1.5	22	1.6	8.6j	1.6	2.1j	1	3.8	0.55	10	0.52
Acenaphthylene	µg/l	4.4j	1.5	ND(16)	16	3.3j	1.6	ND(18)	1.6	1.7j	0.55	ND(8)	8
Anthracene	µg/l	0.046j	0.019	0.83	0.04	0.55	0.04	0.058j	0.045	0.14j	0.044	0.28	0.021
Benz(a)anthracene	µg/l	0.035j	0.019	ND(0.1)	0.02	0.025j	0.02	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.042)	0.01
Benzo(a)pyrene	µg/l	0.04j	0.038	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.042)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.045	ND(0.22)	0.044	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	0.022j	0.019	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.67)	0.11	ND(0.66)	0.11	ND(0.21)	0.063
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.031)	0.0083
Chrysene	µg/l	0.083j	0.076	ND(0.4)	0.081	ND(0.4)	0.08	ND(0.45)	0.089	ND(0.44)	0.088	ND(0.21)	0.042
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.045	ND(0.22)	0.044	ND(0.1)	0.021
Fluoranthene	µg/l	0.76	0.038	0.44	0.04	0.29	0.04	ND(0.22)	0.045	0.066j	0.044	0.14	0.021
Fluorene	µg/l	6.2	0.17	12	0.18	5.2	0.5	1.4	0.56	2.8	0.55	11	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.4)	0.081	ND(0.4)	0.08	ND(0.45)	0.089	ND(0.44)	0.088	ND(0.21)	0.042
Naphthalene	µg/l	13	1.1	330	1.6	94	1.6	9.6j	1.4	14	0.55	110	1
Phenanthrene	µg/l	0.094j	0.076	9	0.081	5	0.08	0.56	0.089	1.1	0.088	2.7	0.042
Pyrene	µg/l	0.54j	0.17	0.22j	0.18	ND(0.8)	0.18	ND(0.89)	0.2	ND(0.88)	0.20	ND(0.042)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	27.5	0.41	ND(2)	0.41	34	0.46	13	0.46	13.9	0.46	46.2	0.46
Alkalinity to pH 8.3	mg/l	0.27	0.038	32.4	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	17.1	1.5	11.6	1.5	13.5	1.5	14.9	1	11.0	1.0	8.1	1
Iron (Total)	mg/l	4.6	0.0453	7.85	0.0495	8.5	0.0378	3.45	0.0522	3.27	0.0522	2.42	0.0522
Iron (Dissolved)	mg/l	3.56	0.0453	7.03	0.0495	4.67	0.0378	2.19	0.0522	2.21	0.0522	1.54	0.0522
Methane	µg/l	390	20	550	20	300	20	140	2	230	4.0	310	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	5.6	1.5	6.3	1.5	9.8	1.5	6.7	1.5	11.1	1.5	17.5	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.5		0.33		0.4		5.98*		1.06		1.65	
Ferrous Iron	mg/l	2.5		5		4		1		2		1.6	
Oxidation-reduction Pot.	volts	162		-13		-75		122		-34		95.1	
pH	std. units	5.15		5.86		5.36		5.12		5.44		5.75	
Specific Conductance	µS/cm	129		130		*		123		1.05.6		194	
Temperature	°C	20.9		21.4		21.09		20.6		21.5		19.64	

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		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	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
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
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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	470	6	830	5	170	1	27	1	310	1	22	1	ND(12)	1.2
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
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
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
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
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
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
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
Methane	µg/l	4.4j	2	4.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.67		0.37		0.63		0.37		0.35		0.38		2.39	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	377		348		423		338		358		410		557	
pH	std. units	5.63		4.93		4.55		3.71		5.28		4.42		4.69	
Specific Conductance	µS/cm	104		102		109		136		135		136		132	
Temperature	°C	22.2		22.55		22.3		23.27		22.78		22.35		22.97	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(15)	1.5	23	1.7	9.1j	1.6	12j	0.97	1.6j	0.55	0.55j	0.51
Acenaphthylene	µg/l	ND(15)	1.5	ND(17)	17	ND(16)	1.6	9.0j	1.5	1.6j	0.55	ND(2.1)	1
Anthracene	µg/l	ND(0.095)	0.019	ND(0.21)	0.2	0.056j	0.039	0.078j	0.043	ND(0.21)	0.044	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.21)	0.042	ND(0.2)	0.039	ND(0.21)	0.043	ND(0.21)	0.044	ND(0.031)	0.0082
Benzo(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.63)	0.1	ND(0.59)	0.098	ND(0.64)	0.11	ND(0.64)	0.11	ND(0.21)	0.062
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.031)	0.0082
Chrysene	µg/l	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.39)	0.078	ND(0.43)	0.086	ND(0.43)	0.088	ND(0.21)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.039	ND(0.21)	0.043	ND(0.21)	0.044	ND(0.1)	0.021
Fluoranthene	µg/l	ND(0.19)	0.038	0.46	0.042	0.33	0.039	0.61	0.043	0.24	0.044	0.11	0.021
Fluorene	µg/l	0.96	0.17	25	0.19	13	0.49	20	0.54	5.7	0.55	2.8	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.39)	0.078	ND(0.43)	0.086	ND(0.43)	0.088	ND(0.21)	0.041
Naphthalene	µg/l	10j	1.1	500	8.4	180	1.6	290	1.4	25	0.55	1.9j	1
Phenanthrene	µg/l	0.39	0.076	16	0.084	11	0.078	17	0.086	5.4	0.088	2.8	0.041
Pyrene	µg/l	ND(0.76)	0.17	ND(0.84)	0.19	ND(0.78)	0.18	ND(0.86)	0.19	ND(0.86)	0.20	ND(0.041)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	9.5	0.41	ND(2)	0.41	10.4	0.46	14.2	0.46	8.7	0.46	9.5	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	9.4	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	23.3	1.5	17.9	1.5	22.1	1.5	17.9	1	19.1	1.0	20.2	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	3.9j	2	ND(5)	2	ND(5)	2	ND(5)	2.0	ND(15)	5
Nitrate Nitrogen	mg/l	2.2	0.4	1.1	0.4	1.5	0.4	1.1	0.25	1.8	0.25	1.6	0.25
Sulfate	mg/l	6.9	1.5	9.7	1.5	9.8	1.5	9.7	1.5	5.5	1.5	7.1	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.37		0.58		0.82		5.49*		1.07		1.55	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	352		111		252		293		145		199.3	
pH	std. units	5.23		5.17		4.66		5.18		5.32		5.12	
Specific Conductance	µS/cm	112		116		*		122		119.8		147	
Temperature	°C	36.81*		23.5		22.41		21.3		22.65		22.15	

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	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
Acenaphthene	µg/l	49	1	93	0.8	83	0.8	71	0.8	91	2	88	2	83	1.6
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	36	0.8	11	0.8	39	2	26	2	37	1.6
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
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
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
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
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
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
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
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
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
Fluorene	µg/l	22	1	2	0.04	33	0.2	26	0.2	38	2	39	2	35	0.18
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
Naphthalene	µg/l	290	5	980	9	890	9	500	5	1100	11	1000	11	970	12
Phenanthrene	µg/l	17	1	36	0.8	31	0.8	24	0.4	37	0.8	39	0.8	32	0.78
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
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
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
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
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
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
Methane	µg/l	590	40	1400	20	1200	40	1000	40	1400	40	1400	40	1200	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
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
Field Parameters															
Dissolved Oxygen	mg/l	0.81		1.3		0.51		0.19		0.24		0.23		2.13	
Ferrous Iron	mg/l	4.6		6		7		5.5		5		4.8		4.8	
Oxidation-reduction Pot.	volts	177		-90		178		-49		-5.7		25.4		100	
pH	std. units	5.88		6.07		5.15		5.07		6.04		4.12		5.35	
Specific Conductance	µS/cm	176		193		179		192		204		198		203	
Temperature	°C	22.3		19.9		21.1		23.42		22.11		19.98		22.02	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	80	1.7	73	1.5	61	1.6	46	1.1	30	0.56	30	0.52
Acenaphthylene	µg/l	36	1.7	33	1.5	ND(26)	26	ND(26)	26	ND(11)	11	ND(13)	13
Anthracene	µg/l	ND(0.1)	0.021	2.5	0.038	2.2	0.039	2	0.047	1.5	0.045	1.4	0.021
Benz(a)anthracene	µg/l	ND(0.1)	0.021	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.21)	0.042	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.63)	0.1	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.047	ND(0.22)	0.045	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	ND(0.1)	0.021	ND(0.57)	0.095	ND(0.59)	0.098	ND(0.70)	0.12	ND(0.67)	0.11	ND(0.21)	0.062
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.031)	0.0083
Chrysene	µg/l	ND(0.42)	0.084	ND(0.38)	0.076	0.10j	0.079	0.12j	0.094	ND(0.45)	0.089	ND(0.21)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.21)	0.042	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.047	ND(0.22)	0.045	ND(0.1)	0.021
Fluoranthene	µg/l	1.7	0.042	1.8	0.038	1.5	0.039	1.8	0.047	1.3	0.045	1.2	0.021
Fluorene	µg/l	34	0.19	27	0.17	22	0.49	22	0.59	15	0.56	15	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.42)	0.084	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.47)	0.094	ND(0.45)	0.089	ND(0.21)	0.041
Naphthalene	µg/l	1000	13	830	7.6	640	7.9	270	1.5	37	0.56	38	1
Phenanthrene	µg/l	37	0.84	26	0.38	22	0.39	19	0.47	13	0.089	11	0.041
Pyrene	µg/l	0.77j	0.19	0.85	0.17	0.58j	0.18	0.84j	0.21	0.59j	0.20	0.68	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	88.6	0.41	ND(2)	0.41	112	0.46	109	0.46	105	0.46	104	0.46
Alkalinity to pH 8.3	mg/l	3.1	0.042	95.6	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	10.2	1.5	11.5	1.5	10.4	1.5	10.3	1	10.6	1.0	11.1	1
Iron (Total)	mg/l	5.61	0.0453	6.07	0.0495	7.25	0.0378	8	0.0522	6.62	0.0522	7.77	0.0522
Iron (Dissolved)	mg/l	5.49	0.0453	6.05	0.0495	6.86	0.0378	7.54	0.0522	6.07	0.0522	6.87	0.0522
Methane	µg/l	1300	50	1300	40	780	40	700	10	450	10.	580	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	2.8j	1.5	2.1j	1.5	2.3j	1.5	2.1j	1.5	2.9j	1.5	2.8j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.39		0.82		0.38		5.56*		0.65		1.21	
Ferrous Iron	mg/l	NM		4		5		5		2.5		2.6	
Oxidation-reduction Pot.	volts	-127		-26		-114		-66		-129		50.8	
pH	std. units	5.95		6.06		5.73		5.55		6.09		5.98	
Specific Conductance	µS/cm	234		208		*		201		217.7		282	
Temperature	°C	22.41		27.24		22.07		20.9		22.39		20.37	

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 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
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
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
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
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
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
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
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
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
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*
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	3.5j	2	2.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	2.7j	2	ND(5)	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	1.27		0.89		1.84		0.64		0.6		0.58		2.93	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	478		543		591		272		417		495		286	
pH	std. units	5.36		4.78		3.57		4.97		5.21		4.62		4.62	
Specific Conductance	µS/cm	67		66		61		64		72		70		64	
Temperature	°C	22.7		21.08		22.8		24.25		23.2		20.22		23.11	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2.3)	0.56	ND(2.1)	0.52
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2.3)	0.56	ND(2.1)	1
Anthracene	µg/l	ND(0.096)	0.019	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.19)	0.039	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.58)	0.096	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	ND(0.096)	0.019	ND(0.57)	0.095	ND(0.59)	0.099	ND(0.65)	0.11	ND(0.68)	0.11	ND(0.21)	0.062
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.031)	0.0083
Chrysene	µg/l	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.1)	0.021
Fluoranthene	µg/l	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.1)	0.021
Fluorene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.49	ND(0.87)	0.54	ND(0.90)	0.56	ND(0.041)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2.3)	0.56	ND(2.1)	1
Phenanthrene	µg/l	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041
Pyrene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.18	ND(0.87)	0.2	ND(0.90)	0.20	ND(0.041)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	9.2	0.41	ND(2)	0.41	10.6	0.46	11.7	0.46	7.0	0.46	8.2	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.039	7.3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	9.1	1.5	11.3	1.5	10.7	1.5	9.8	1	9.6	1.0	10.9	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.164j	0.0378	0.136j	0.0522	0.0590j	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	9.6	2	ND(5)	2	3.3j	2	ND(5)	2.0	ND(15)	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	0.45j	0.4	0.47j	0.4	0.32j	0.25	0.55	0.25	0.75	0.25
Sulfate	mg/l	5.8	1.5	ND(5)	1.5	1.6j	1.5	5.5	1.5	1.7j	1.5	ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.45		0.88		0.41		5.73*		0.81		1.42	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	327		185.2		266		321		221		268.6	
pH	std. units	5.14		5.01		4.41		4.89		4.98		4.7	
Specific Conductance	µS/cm	61		74		*		68		66.39		89	
Temperature	°C	34.16*		28.74		22.54		22.1		23.54		21.29	

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 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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	2.8j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	4.4		4.52		4.54		4.06		4.22		4.34		6.06	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	507		520		516		274		405		423		571	
pH	std. units	5.53		4.54		4.73		5.02		5.14		3.84		4.5	
Specific Conductance	µS/cm	67		69		68		72		73		68		61	
Temperature	°C	22		22.08		21.6		22.8		22.71		21.33		22.2	

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	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(17)	0.95	ND(2.2)	0.56	ND(2.1)	0.52
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(17)	1.5	ND(2.2)	0.56	ND(2.1)	1
Anthracene	µg/l	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.1)	0.02	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.042)	0.01
Benzo(a)pyrene	µg/l	ND(0.2)	0.04	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.042)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.6)	0.1	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.031)	0.0084
Benzo(g,h,i)perylene	µg/l	ND(0.1)	0.02	ND(0.57)	0.095	ND(0.58)	0.097	ND(0.63)	0.11	ND(0.67)	0.11	ND(0.21)	0.063
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.031)	0.0084
Chrysene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.1)	0.021
Fluoranthene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.1)	0.021
Fluorene	µg/l	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.48	ND(0.84)	0.53	ND(0.89)	0.56	ND(0.042)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.5	ND(12)	1.5	ND(13)	1.4	ND(2.2)	0.56	ND(2.1)	1
Phenanthrene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042
Pyrene	µg/l	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.17	ND(0.84)	0.19	ND(0.89)	0.20	ND(0.042)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	4.6	0.41	ND(2)	0.41	3.7	0.46	3.5	0.46	2.8	0.46	3.8	0.46
Alkalinity to pH 8.3	mg/l	ND(0.2)	0.04	3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	10.6	1.5	11.8	1.5	12	1.5	13.3	1	10.5	1.0	12.8	1
Iron (Total)	mg/l	0.054j	0.0453	ND(0.2)	0.0495	0.0417 J	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	0.0575j	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	4.1 J	2	ND(5)	2	ND(5)	2.0	ND(15)	5
Nitrate Nitrogen	mg/l	1.2	0.4	2	0.4	1.5	0.4	1.7	0.25	1.2	0.25	ND(0.5)	0.25
Sulfate	mg/l	2.1j	1.5	2.4j	1.5	4.6 J	1.5	3.4j	1.5	2.3j	1.5	ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.78		1.44		3.51		6.57		2.88		3.79	
Ferrous Iron	mg/l	0		0		0		0		0		0.2	
Oxidation-reduction Pot.	volts	369		164		264		326		203		261.1	
pH	std. units	5.18		4.96		4.51		4.79		5.01		4.88	
Specific Conductance	µS/cm	91		78		*		74		68.36		85	
Temperature	°C	22.14		22.7		22.58		22.4		22.23		21.58	

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	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Methane	µg/l	100	2	71	2	41	2	19	2	33	2	46	2	55	2
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
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
Field Parameters															
Dissolved Oxygen	mg/l	1.63		0.3		0.16		0.43		0.4		0.21		1.74	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	420		278		420		207		182		240		274	
pH	std. units	5.97		5.61		5.06		5.3		5.96		5.15		5.59	
Specific Conductance	µS/cm	131		143		134		127		149		158		161	
Temperature	°C	21		20.13		21.3		21.91		21.42		20.09		21.08	

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-22

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	October 2003 Result	October 2003 MDL	December 2004 Result	December 2004 MDL	December 2005 Result	December 2005 MDL	January 2007 Result	January 2007 MDL	December 2007 Result	December 2007 MDL	February 2009 Result	February 2009 MDL
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(20)	1.1	ND(2.2)	0.55	ND(2.1)	0.52
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(20)	1.7	ND(2.2)	0.55	ND(2.1)	1
Anthracene	µg/l	ND(0.099)	0.02	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.099)	0.02	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.12)	0.025	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(a)pyrene	µg/l	ND(0.2)	0.04	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.12)	0.025	ND(0.11)	0.022	ND(0.041)	0.01
Benzo(b)fluoranthene	µg/l	ND(0.59)	0.099	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.031)	0.0083
Benzo(g,h,i)perylene	µg/l	ND(0.099)	0.02	ND(0.58)	0.096	ND(0.59)	0.098	ND(0.75)	0.12	ND(0.66)	0.11	ND(0.21)	0.062
Benzo(k)fluoranthene	*µg/l*	*ND(2)*	*0.41*	*ND(0.096)*	*0.019*	*ND(0.098)*	*0.02*	*ND(0.12)*	*0.025*	*ND(0.11)*	*0.022*	*ND(0.031)*	*0.0083*
Chrysene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021
Fluoranthene	µg/l	0.19j	0.04	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021
Fluorene	µg/l	ND(0.79)	0.18	ND(0.77)	0.17	ND(0.78)	0.49	ND(1.0)	0.62	ND(0.89)	0.55	ND(0.041)	0.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6	ND(15)	1.6	ND(2.2)	0.55	ND(2.1)	1
Phenanthrene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041
Pyrene	µg/l	0.61j	0.18	ND(0.77)	0.17	ND(0.78)	0.18	ND(1.0)	0.22	ND(0.89)	0.20	ND(0.041)	0.1
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	50.6	0.41	ND(2)	0.41	25.5	0.46	32.8	0.46	25.3	0.46	27.2	0.46
Alkalinity to pH 8.3	mg/l	ND(0.2)	0.04	34.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	9.8	1.5	11.7	1.5	10.3	1.5	10.8	1	11.0	1.0	11.5	1
Iron (Total)	mg/l	0.071j	0.0453	0.859	0.0495	1.18	0.0378	14.2	0.0522	6.60	0.0522	12.8	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	0.339	0.0495	0.256	0.0378	0.185j	0.0522	0.712	0.0522	0.453	0.0522
Methane	µg/l	38	2	16	2	11	2	9.7	2	19	2.0	18	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	0.42j	0.4	0.54	0.4	0.37j	0.25	0.61	0.25	0.54	0.25
Sulfate	mg/l	4.1j	1.5	4.6j	1.5	5.2	1.5	5.2	1.5	4.8j	1.5	4.1j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.3		0.6		0.58		5.51*		1.01		1.42	
Ferrous Iron	*mg/l*	*0.4*		*0*		1		0		1.2		0.6	
Oxidation-reduction Pot.	volts	369		111		127		153		138		223	
pH	std. units	5.18		5.63		4.92		5.46		5.46		5.12	
Specific Conductance	µS/cm	91		114		*		121		94.79		127	
Temperature	°C	22.14		26		20.71		20.3		20.6		19.16	

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	Jan-07	Dec-07	Feb-09
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]	4.32[2]	0.82	1.47
	Plume	MW-2R	0.42	0.41	0.48	0.26	0.33	0.25	2.04	0.5	1.3	0.36	4.49[2]	0.8	1.06
	Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3	0.18	0.37	5.67[2]	0.74	1.18
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3	7.31	3.74	5.49
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82	5.49[2]	1.07	1.55
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	5.67[2]	0.74	1.18
	Plume	MW-09	0.46	0.34	0.4	0.22	0.17	0.16	4.07	0.42	1.69	Damaged	Damaged	0.74	1.14
	Plume	MW-17	0.79	0.3	0.62	0.33	0.31	0.49	2.6	0.5	0.33	0.4	5.98[2]	1.06	1.65
	Plume	MW-19	0.81	1.3	0.51	0.19	0.24	0.23	2.13	0.39	0.82	0.38	5.56[2]	0.65	1.21
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3	7.31	3.74	5.49
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82	5.49[2]	1.07	1.55
	Background*	MW-20	1.27	0.89	1.84	0.64	0.6	0.58	2.93	0.45	0.88	0.41	5.73[2]	0.81	1.42
	Background*	MW-21	4.4	4.52	4.54	4.06	4.22	4.34	5.06	3.78	1.44	3.51	6.57[2]	2.88	3.79
	Background*	MW-22	1.63	0.3	0.16	0.43	0.4	0.21	1.74	0.3	0.6	0.58	5.51[2]	1.1	1.42
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	5.83[2]	1.1	1.21
	Background*	MW-13	0.83	0.22	0.28	0.21	0.26	0.46	2.19	NM	NM	NM	NM	P&A'd	P&A'd
	Background*	MW-15	1.06	0.6	0.5	0.36	0.35	0.23	3.95	0.53	0.98	0.36	5.05[2]	0.74	1.1

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	Jan-07	Dec-07	Feb-09
Process Area	Plume	MW-1R	8	5.1	5	4	2.6	0	1.4	0	0	0	0	0	0
	Plume	MW-2R	0	0	0	0	0	0	0	0	0	0	0.6	0	0
	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4	0	2.4	2.6
	Background*	MW-16	0	0	0	0	0	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	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	0	2.4	2.6
	Plume	MW-09	6	3	7	5	5.5	3	4	4.6	5	Damaged	Damaged	4	2.8
	Plume	MW-17	1.2	5	5.5	5.5	4.5	2.2	1.4	2.5	5	4	1	2	1.6
	Plume	MW-19	4.6	6	7	5.5	5	4.8	4.8	NM	4	5	5	2.5	2.6
	Background*	MW-16	0	0	0	0	0	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	0	0	0	0	0	0	0	0	0	0
	Background*	MW-20	0	0	0	0	0	0	0	0	0	0	0	0	0
	Background*	MW-21	0	0	0	0	0	0	0	0	0	0	0	0	0.2
	Background*	MW-22	0	0	0	0	0	0	0	0.4	0	1	0	1.2	0.6
Fill Area	Plume	MW-12	1.4	2.2	3.8	3	3.5	1.8	1.9	NM	1	0.8	0.6	1.2	0.9
	Background*	MW-13	4.8	5.1	8	4	5.5	1.2	4	NM	NM	NM	NM	P&A'd	P&A'd
	Background*	MW-15	5.8	4.5	5.8	7	7	5.1	7.1	5.8	5	4.5	3	2	4.6

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	Jan-07	Dec-07	Feb-09
Process Area	Plume	MW-1R	2400	350	71	43	48	ND(5)	35	3.7j	2.2j	ND(5)	10	ND(5)	ND(15)
	Plume	MW-2R	2.8j	2.2j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	2.3j	ND(5)	ND(15)
	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400	2300	1400	780
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	ND(5)	ND(5)	ND(15)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)	ND(5)	ND(5)	ND(15)
Northeast Drainage Ditch Area	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400	2300	1400	780
	Plume	MW-09	590	380	480	340	230	750	580	450	1500	Damaged	Damaged	2000	1500
	Plume	MW-17	850	1400	910	930	640	470	300	390	550	300	140	230	310
	Plume	MW-19	590	1400	1200	1000	1400	1400	1200	1300	1300	780	700	450	580
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	ND(5)	ND(5)	ND(15)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)	ND(5)	ND(5)	ND(15)
	Background*	MW-20	3.5j	2.6j	ND(5)	ND(5)	ND(5)	2.7j	ND(5)	ND(5)	9.6	ND(5)	3.3j	ND(5)	ND(15)
	Background*	MW-21	2.8j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	4.1j	ND(5)	ND(5)	ND(15)
	Background*	MW-22	100	71	41	19	33	46	55	38	16	11	9.7	19	15
Fill Area	Plume	MW-12	400	360	370	400	240	210	170	140	64	50	50	140	230
	Background*	MW-13	42	130	57	43	42	290	47	NA	NA	NA	NA	P&A'd	P&A'd
	Background*	MW-15	1400	1500	1800	2200	1900	2500	1900	1800	1800	1800	1300	1700	1000

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	Jan-07	Dec-07	Feb-09
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	1.9j	4.7j	4.8j
	Plume	MW-2R	19.9	18.8	20.9	21.2	19.3	20.9	21.8	19.9	17.9	18.8	19	16.8	14.7
	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2	3.4j	3.6j	1.9j	2.8j	4.9j
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8	6.2	6.5	13.4
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8	9.7	5.5	7.1
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	1.9j	2.8j	4.9j
	Plume	MW-09	3.4j	6.6	4j	ND(5)	5.3	9.6	6.4	13.8	ND(5)	Damaged	Damaged	ND(5)	ND(5)
	Plume	MW-17	2.9j	2.1j	2.7j	3.8j	3.4j	3.1j	4.4j	5.6	6.3	9.8	6.7	11.1	17.5
	Plume	MW-19	6.7	4.3j	4.3j	ND(5)	3.3j	4.1j	4.7j	2.8j	2.1j	2.3j	2.1j	2.9j	2.8j
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8	6.2	6.5	13.4
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8	9.7	5.5	7.1
	Background*	MW-20	3j	3.2j	2.2j	2.8j	3.9j	3.4j	3j	5.8	ND(5)	1.6j	5.5	1.7j	ND(5)
	Background*	MW-21	3.1j	2.9j	2.7j	3j	3j	2.1j	2j	2.1j	2.4j	4.6j	3.4j	2.3j	ND(5)
	Background*	MW-22	6.3	5j	4.9j	4.3j	5.4	5j	4.8j	4.1j	4.6j	5.2	5.2	4.8j	4.1j
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)	2.1j	ND(5)	2.2j
	Background*	MW-13	3.7j	8.7	3.1j	2.7j	3.8j	22.9	4.1j	NA	NA	NA	NA	P&A'd	P&A'd
	Background*	MW-15	1.6j	3j	ND(5)	ND(5)	3.3j	2j	2j	1.9j	ND(5)	7	2.2j	ND(5)	2.2j

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	Jan-07	Dec-07	Feb-09
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)	1.6	1.6	1.4
	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)	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)	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	1.1	1.1	1.5
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.5	1.1	1.8	1.6
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)	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	Damaged	ND(0.5)	ND(0.5)
	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)	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)	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	1.1	1.1	1.5
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.5	1.1	1.8	1.6
	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	0.32j	0.55	0.75
	Background*	MW-21	1.22	1.2	1.23	1.4	1.15	1	0.8	1.2	2	1.5	1.7	1.2	ND(0.5)
	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	0.37j	0.61	.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)	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	NA	P&A'd	P&A'd
	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)	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
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.

Appendix A

Site Background Information

Ground Water Monitoring Report
Calendar Year 2008 Event

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

February 2009 Laboratory Reports

Ground Water Monitoring Report
Calendar Year 2008 Event

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

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1130685. Samples arrived at the laboratory on Wednesday, February 04, 2009. The PO# for this group is ZAKWICEOK0A50149.

Client Description	Lancaster Labs Number
MW-15 Grab Water	5591729
MW-15 Grab Filtered Water	5591730
MW-11 Grab Water	5591731
MW-11 Grab Filtered Water	5591732
MW-12 Grab Water	5591733
MW-12 Grab Filtered Water	5591734
MW-14 Grab Water	5591735
MW-14 Grab Filtered Water	5591736
MW-4 Grab Water	5591737
MW-4 Grab Filtered Water	5591738
MW-1R Grab Water	5591739
MW-1R Grab Filtered Water	5591740
MW-2R Grab Water	5591741
MW-2R Grab Filtered Water	5591742

METHODOLOGY

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

ELECTRONIC COPY TO Michael Pisani & Associates Attn: David Upthegrove

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ELECTRONIC COPY TO	Tronox LLC	Attn: Sherron Hendricks
ELECTRONIC COPY TO	Tronox LLC	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Martha L. Seidel

Martha L. Seidel
Senior Chemist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591729 WW Group No. 1130685

MW-15 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 07:40 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-15 SDG#: HMS65-01

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	37.6		0.200	0.0522	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.	166		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	2.8		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.2	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.25	mg/l	5
	This sample was originally analyzed 19 minutes outside of the 48 hour holding time for nitrate nitrogen. The continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was also ND.							
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	1,000		75	25	ug/l	5
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	0.93	J	2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	0.37	J	0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	0.12	J	0.20	0.041	ug/l	1
00789	Anthracene	120-12-7	0.12		0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	0.66		0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	0.52		0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.022	J	0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.031	0.0082	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.20	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.20	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.031	0.0082	ug/l	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591729 WW Group No. 1130685

MW-15 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 07:40 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-15 SDG#: HMS65-01

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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:00	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 10:51	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/09/2009 14:02	Nicole M Kepley	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 08:59	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 12:46	Dustin A Underkoffler	5
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 11:20	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591730 WW Group No. 1130685

MW-15 Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected: 02/03/2009 07:40 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW15F SDG#: HMS65-02

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	37.7	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:04	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591731 WW Group No. 1130685

MW-11 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 08:45 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-11 SDG#: HMS65-03

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	0.0522	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	8.0	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	25.5	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
	This sample was originally analyzed 1 hour and 15 minutes outside of the 48 hour holding time for nitrate nitrogen. The continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was also ND.						
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	67	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.030	0.0081	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.030	0.0081	ug/l	1

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

Lancaster Laboratories Sample No. 5591731 WW Group No. 1130685

MW-11 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 08:45 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-11 SDG#: HMS65-03

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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:16	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 13:15	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/09/2009 14:50	Nicole M Kepley	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 10:50	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 08:31	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 11:59	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591732 WW Group No. 1130685

MW-11 Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 08:45 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW11F SDG#: HMS65-04

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	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:20	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591733 WW Group No. 1130685

MW-12 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected: 02/03/2009 09:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-12 SDG#: HMS65-05

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	0.760		0.200	0.0522	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.	59.9		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	2.6		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.2	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.25	mg/l	5
	This sample was originally analyzed 11 minutes outside of the 48 hour holding time for nitrate nitrogen. The continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was also ND.							
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	230		15	5.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	160		2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	13		2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	6.9		2.0	0.50	ug/l	1
00784	Fluorene	86-73-7	8.8		0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	1.3		0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.60	0.60	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	0.35	J	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.030	0.0081	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.20	0.060	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.030	0.0081	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							

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

Lancaster Laboratories Sample No. 5591733 WW Group No. 1130685

MW-12 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 09:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-12 SDG#: HMS65-05

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

limit for this compound was raised accordingly.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:24	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 14:03	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/07/2009 14:03	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 11:06	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 08:44	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 12:38	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591734 WW Group No. 1130685

MW-12 Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 09:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW12F SDG#: HMS65-06

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	0.703	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:28	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591735 WW Group No. 1130685

MW-14 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 10:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-14 SDG#: HMS65-07

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	2.21	0.200	0.0522	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.	8.7	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.1	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	25.7	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
	This sample was originally analyzed within the 48 hour holding time for nitrate nitrogen, however the continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was also ND.						
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	46	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.030	0.0081	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.030	0.0081	ug/l	1

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

Lancaster Laboratories Sample No. 5591735 WW Group No. 1130685

MW-14 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 10:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-14 SDG#: HMS65-07

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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:32	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 14:19	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/07/2009 14:19	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 11:22	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 08:56	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 13:17	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591736 WW Group No. 1130685

MW-14 Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 10:55 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW14F SDG#: HMS65-08

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	0.849	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:36	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591737 WW Group No. 1130685

MW-4 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 12:00 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-04 SDG#: HMS65-09

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	N.D.	0.200	0.0522	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.	20.5	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.6	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	1.9 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.35 J	0.50	0.25	mg/l	5
	This sample was originally analyzed within the 48 hour holding time for nitrate nitrogen, however the continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was 0.29 mg/l.						
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.20	0.041	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.0090 J	0.031	0.0082	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.20	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.20	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0082	ug/l	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591737 WW Group No. 1130685

MW-4 Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 12:00 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-04 SDG#: HMS65-09

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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:40	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 14:35	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/07/2009 14:35	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 12:10	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 09:08	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 13:55	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591738 WW Group No. 1130685

MW-4 Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 12:00 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW04F SDG#: HMS65-10

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	N.D.	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:44	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591739 WW Group No. 1130685

MW-1R Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 13:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-1R SDG#: HMS65-11

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	N.D.		0.200	0.0522	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.	29.4		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	6.1		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	4.8	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.4		0.50	0.25	mg/l	5
	This sample was originally analyzed within the 48 hour holding time for nitrate nitrogen, however the continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was 1.2 mg/l.							
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		15	5.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.015	J	0.030	0.0081	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.030	0.0081	ug/l	1

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

Lancaster Laboratories Sample No. 5591739 WW Group No. 1130685

MW-1R Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 13:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-1R SDG#: HMS65-11

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

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:48	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 14:51	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/07/2009 14:51	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 12:26	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 09:21	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 14:34	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591740 WW Group No. 1130685

MW-1R Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 13:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW1RF SDG#: HMS65-12

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	N.D.	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 11:53	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591741 WW Group No. 1130685

MW-2R Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 14:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-2R SDG#: HMS65-13

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	0.0647 J	0.200	0.0522	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.	20.3	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.7	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	14.7	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
	This sample was originally analyzed within the 48 hour holding time for nitrate nitrogen, however the continuing calibration standard bracketing the sample was outside of the 90% to 110% acceptance window with a recovery of 20%. The analysis was repeated on 02/07/2009. The result of the repeat trial was also ND.						
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	6,900	40	20	ug/l	20
00782	Acenaphthylene	208-96-8	N.D.	110	110	ug/l	1
00783	Acenaphthene	83-32-9	49	2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	55	8.1	2.0	ug/l	20
00785	Phenanthrene	85-01-8	130	4.0	0.81	ug/l	20
00789	Anthracene	120-12-7	N.D.	0.70	0.70	ug/l	1
00807	Fluoranthene	206-44-0	5.5	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	0.75	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.11	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.048	0.030	0.0081	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.20	0.061	ug/l	1
07409	Chrysene	218-01-9	0.18 J	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.029 J	0.030	0.0081	ug/l	1
	Due to the presence of interferents near their retention times, normal reporting limits were not attained for several target compounds. The						

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

Lancaster Laboratories Sample No. 5591741 WW Group No. 1130685

MW-2R Grab Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 14:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW-2R SDG#: HMS65-13

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

reporting limits for these compounds were raised accordingly.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 12:05	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/04/2009 16:52	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/07/2009 15:07	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/07/2009 15:07	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/05/2009 12:42	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 09:34	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/07/2009 15:13	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/11/2009 16:07	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1
03337	PAH Water Extraction	SW-846 3510C	1	02/06/2009 10:40	Olivia I Santiago	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5591742 WW Group No. 1130685

MW-2R Grab Filtered Water
202043
Gulf States Creosoting/Hattiesburg, MS

Collected:02/03/2009 14:15 by SL

Account Number: 11947

Submitted: 02/04/2009 09:30
Reported: 02/17/2009 at 12:51
Discard: 04/19/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

MW2RF SDG#: HMS65-14*

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	0.0584 J	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 12:09	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 09:50	Denise K Conners	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/17/09 at 12:51 PM

Group Number: 1130685

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: 09035020201A	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	100		98-103		
Batch number: 09035196602B	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741								
Chloride	N.D.	0.40	0.20	mg/l	104		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	107		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	106		90-110		
Batch number: 090360000A	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741								
Methane	N.D.	15.	5.0	ug/l	103		80-120		
Batch number: 09036WAI026	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741								
Naphthalene	N.D.	2.0	1.0	ug/l	79	71	57-95	10	30
Acenaphthylene	N.D.	2.0	1.0	ug/l	84	78	61-99	7	30
Acenaphthene	N.D.	2.0	0.50	ug/l	86	82	61-102	5	30
Fluorene	N.D.	0.40	0.10	ug/l	92	88	67-107	5	30
Phenanthrene	N.D.	0.20	0.040	ug/l	94	90	71-108	4	30
Anthracene	N.D.	0.10	0.020	ug/l	87	85	69-103	3	30
Fluoranthene	N.D.	0.10	0.020	ug/l	87	85	68-103	2	30
Pyrene	N.D.	0.40	0.10	ug/l	94	93	70-108	1	30
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	89	90	74-109	1	30
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	92	95	76-110	3	30
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	92	94	67-107	2	30
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	93	95	75-109	2	30
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	99	102	72-109	3	30
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	95	96	62-117	2	30
Chrysene	N.D.	0.20	0.040	ug/l	91	92	74-111	1	30
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	95	97	77-109	2	30
Batch number: 090421848002	Sample number(s): 5591729-5591742								
Iron	N.D.	0.200	0.0522	mg/l	101		90-112		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 09035020201A	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741 UNSPK: P591759 BKG: P591759								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4

*- 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 unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/17/09 at 12:51 PM

Group Number: 1130685

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Alkalinity to pH 4.5	99	98	64-130	0	2	306	307	1	4
Batch number: 09035196602B	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741 UNSPK: 5591729 BKG: 5591729								
Chloride	100		90-110			2.8	2.8	0 (1)	20
Sulfate	119*		90-110			2.2 J	2.2 J	1 (1)	20
Nitrate Nitrogen	100		90-110			N.D.	N.D.	0 (1)	20
Batch number: 090360000A	Sample number(s): 5591729,5591731,5591733,5591735,5591737,5591739,5591741 UNSPK: P591759								
Methane	87	92	35-157	6	20				
Batch number: 090421848002	Sample number(s): 5591729-5591742 UNSPK: P591763 BKG: P591763								
Iron	99	99	75-125	0	20	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 090360000A

	Propene
5591729	96
5591731	76
5591733	77
5591735	83
5591737	85
5591739	78
5591741	75
Blank	112
LCS	120
MS	69
MSD	73
Limits:	42-131

Analysis Name: PAH's in Water by HPLC
Batch number: 09036WAI026

	Nitrobenzene	Triphenylene
5591729	76	98
5591731	85	90
5591733	97	102
5591735	89	95
5591737	85	94
5591739	90	90
5591741	80	90
Blank	96	102

*- 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 unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/17/09 at 12:51 PM

Group Number: 1130685

Surrogate Quality Control

LCS	99	104
LCSD	90	104
Limits:	67-111	59-127

*- 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 unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1130685 Sample # 5591729-42

COC # 202043

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

For Lab Use Only
FSC:
SCR#: 10610

(1)
Client: MICHAEL PISANI & ASSOC. Acct. #:
Project Name/#: 21-04 PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#:
Sampler: STEVEN LUTON Quote #:
Name of state where samples were collected: MISSISSIPPI

(5) Analyses Requested

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water	Other	(4) Total # of Containers	CHLORIDE/SULFATE (X)	IRON (N)	IRON (FILTERED) (N)	PAHs (X)	NITRATE/NITROGEN (X)	METHANE (H)	ALKALINITY (X)	Remarks
MW-15	2/3/09	0740	X			X		10	X	X	X	X	X	X	X	
MW-11	↓	0845	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-12	↓	0955	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-14	↓	1055	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-4	↓	1200	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-1R	↓	1315	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-2R	↓	1415	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	

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

(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)

Type I (validation/NJ Reg)	TX TRRP-13	SDG Complete? Yes No
Type II (Tier II)	MA MCP CT RCP	
Type III (Reduced NJ)	Site-specific QC (MS/MSD/Dup)? Yes No	
Type IV (CLP SOW)	(If yes, indicate QC sample and submit triplicate volume.)	
Type VI (Raw Data Only)	Internal COC Required? Yes / No	

(9)

Relinquished by	Date	Time	Received by	Date	Time
[signature]	2/3/09	1430	[signature]	2/3/09	1100
[signature]	2/3/09	1500			
			[signature]	2/4/09	930

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102.03

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

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

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1130891. Samples arrived at the laboratory on Thursday, February 05, 2009. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-06 Grab Water	5592795
MW-06 Filtered Grab Water	5592796
MW-18 Grab Water	5592797
MW-18 Filtered Grab Water	5592798
MW-08 Grab Water	5592799
MW-08 Filtered Grab Water	5592800
MW-16 Grab Water	5592801
MW-16 Filtered Grab Water	5592802
MW-16MS Matrix Spike Grab Water	5592803
MW-16MS Matrix Spike Filtered Grab Water	5592804
MW-16MSD Matrix Spike Dup Grab Water	5592805
MW-16MSD MatrixSpikeDup Filt Grab Water	5592806
MW-16 Duplicate Grab Water	5592807
MW-16 Duplicate Filtered Grab Water	5592808
MW-17 Grab Water	5592809
MW-17 Filtered Grab Water	5592810
MW-19 Grab Water	5592811
MW-19 Filtered Grab Water	5592812
DUP Grab Water	5592813
DUP Filtered Grab Water	5592814
Trip Blank Water	5592815

METHODOLOGY

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

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

ELECTRONIC COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
ELECTRONIC COPY TO	Tronox LLC	Attn: Sherron Hendricks
ELECTRONIC COPY TO	Tronox LLC	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Max E. Snavely
Senior Specialist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592795 WW Group No. 1130891

MW-06 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 08:00 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT06 SDG#: HMS66-01

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	23.5		0.200	0.0522	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.	98.6		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	6.2		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	4.9	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	780		30	10	ug/l	2
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	2,200		21	11	ug/l	10
00782	Acenaphthylene	208-96-8	N.D.		36	36	ug/l	1
00783	Acenaphthene	83-32-9	59		2.1	0.53	ug/l	1
00784	Fluorene	86-73-7	41		0.42	0.11	ug/l	1
00785	Phenanthrene	85-01-8	39		2.1	0.42	ug/l	10
00789	Anthracene	120-12-7	3.7		0.11	0.021	ug/l	1
00807	Fluoranthene	206-44-0	1.3		0.11	0.021	ug/l	1
00811	Pyrene	129-00-0	0.47		0.42	0.11	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.042	0.011	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.032	0.0085	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.042	0.011	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.11	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.21	0.042	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.21	0.063	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.21	0.042	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.032	0.0085	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.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592795 WW Group No. 1130891

MW-06 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 08:00 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT06 SDG#: HMS66-01

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	02/13/2009 13:48	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 01:43	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 01:43	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 01:43	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 07:56	Dustin A Underkoffler	2
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 09:51	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/15/2009 15:51	Mark A Clark	10
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592796 WW Group No. 1130891

MW-06 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 08:00 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT6F SDG#: HMS66-02

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	24.3	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:34	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592797 WW Group No. 1130891

MW-18 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected: 02/04/2009 09:00 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009.

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT18 SDG#: HMS66-03

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	0.0522	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.	9.5		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	20.2		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	7.1		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.6		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		15	5.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	1.9	J	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.1	1.0	ug/l	1
00783	Acenaphthene	83-32-9	0.55	J	2.1	0.51	ug/l	1
00784	Fluorene	86-73-7	2.8		0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	2.8		0.21	0.041	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	0.11		0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.031	0.0082	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.21	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.21	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.031	0.0082	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592797 WW Group No. 1130891

MW-18 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 09:00 by SL

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HAT18 SDG#: HMS66-03

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 13:53	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 01:59	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 01:59	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 01:59	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 13:37	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 10:29	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592798 WW Group No. 1130891

MW-18 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 09:00 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA18F SDG#: HMS66-04

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	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:38	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592799 WW Group No. 1130891

MW-08 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 10:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT08 SDG#: HMS66-05

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	0.0522	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.	2.4	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	18.7	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	6.8	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	2.2	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.1	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.21	0.041	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0083	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592799 WW Group No. 1130891

MW-08 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 10:15 by SL

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HAT08 SDG#: HMS66-05

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 13:58	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 02:15	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 02:15	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 02:15	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 13:50	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 11:08	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592800 WW Group No. 1130891

MW-08 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 10:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT8F SDG#: HMS66-06

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	N.D.	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:48	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592801 WW Group No. 1130891

MW-16 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07BKG

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	0.0522	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.	4.1	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.8	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	13.4	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.5	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.0	0.50	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.030	0.0080	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.20	0.060	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.030	0.0080	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories Sample No. 5592801 WW Group No. 1130891

MW-16 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07BKG

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 12:06	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 03:51	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 03:51	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 03:51	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 14:03	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 07:54	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592802 WW Group No. 1130891

MW-16 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA16F SDG#: HMS66-08BKG

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	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:13	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592803 WW Group No. 1130891

MW-16MS Matrix Spike Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07MS

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	0.991	0.200	0.0522	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.	194	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	28.0	4.0	2.0	mg/l	10
00228	Sulfate	14808-79-8	69.2	10.0	3.0	mg/l	10
00368	Nitrate Nitrogen	14797-55-8	13.1	1.0	0.50	mg/l	10
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	57	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	130	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	140	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	75	2.0	0.50	ug/l	1
00784	Fluorene	86-73-7	15	0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	5.0	0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	2.4	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	2.3	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	17	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.2	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.96	0.030	0.0080	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.1	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	2.3	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	5.0	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	9.0	0.20	0.060	ug/l	1
07409	Chrysene	218-01-9	4.8	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.97	0.030	0.0080	ug/l	1

The temperature of the temperature blank bottle(s) upon receipt at the lab was 6.7 & 7.1C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 4.6-7.6 C.

All QC is compliant unless otherwise noted. Please refer to the Quality

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592803 WW Group No. 1130891

MW-16MS Matrix Spike Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected: 02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07MS

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

Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 12:20	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 04:23	Ashley M Heckman	10
00228	Sulfate	EPA 300.0	1	02/06/2009 04:23	Ashley M Heckman	10
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 04:23	Ashley M Heckman	10
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 14:20	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 08:33	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592804 WW Group No. 1130891

MW-16MS Matrix Spike Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA16F SDG#: HMS66-08MS

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	0.982	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.
The temperature of the temperature blank bottle(s) upon receipt at the lab was 6.7 & 7.1C using a Rg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 4.6-7.6 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:23	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592805 WW Group No. 1130891

MW-16MSD Matrix Spike Dup Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07MSD

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	0.0522	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.	193	2.0	0.46	mg/l as CaCO3	1
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	53	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	150	2.0	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	160	2.0	1.0	ug/l	1
00783	Acenaphthene	83-32-9	82	2.0	0.50	ug/l	1
00784	Fluorene	86-73-7	17	0.40	0.10	ug/l	1
00785	Phenanthrene	85-01-8	5.6	0.20	0.040	ug/l	1
00789	Anthracene	120-12-7	2.7	0.10	0.020	ug/l	1
00807	Fluoranthene	206-44-0	2.5	0.10	0.020	ug/l	1
00811	Pyrene	129-00-0	19	0.40	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.3	0.040	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.1	0.030	0.0080	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.3	0.040	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	2.5	0.10	0.020	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	5.5	0.20	0.040	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	9.5	0.20	0.060	ug/l	1
07409	Chrysene	218-01-9	5.3	0.20	0.040	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.1	0.030	0.0080	ug/l	1

The temperature of the temperature blank bottle(s) upon receipt at the lab was 6.7 & 7.1C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 4.6-7.6 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592805 WW Group No. 1130891

MW-16MSD Matrix Spike Dup Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07MSD

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	02/13/2009 12:25	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 14:32	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 09:12	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592806 WW Group No. 1130891

MW-16MSD MatrixSpikeDup Filt Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA16F SDG#: HMS66-08MSD

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	0.989	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.
The temperature of the temperature blank bottle(s) upon receipt at the lab was 6.7 & 7.1C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 4.6-7.6 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:27	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592807 WW Group No. 1130891

MW-16 Duplicate Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT16 SDG#: HMS66-07DUP

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	0.0522	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.	3.9	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.6	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	13.0	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.4	0.50	0.25	mg/l	5

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 12:15	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 04:07	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 04:07	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 04:07	Ashley M Heckman	5
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592808 WW Group No. 1130891

MW-16 Duplicate Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 11:30 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA16F SDG#: HMS66-08DUP

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	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:20	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592809 WW Group No. 1130891

MW-17 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 14:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT17 SDG#: HMS66-09

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	2.42	0.200	0.0522	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.	46.2	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	8.1	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	17.5	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	310	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	110	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	8.0	8.0	ug/l	1
00783	Acenaphthene	83-32-9	10	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	11	0.42	0.10	ug/l	1
00785	Phenanthrene	85-01-8	2.7	0.21	0.042	ug/l	1
00789	Anthracene	120-12-7	0.28	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	0.14	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.42	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.042	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.042	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.063	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.042	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0083	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.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592809 WW Group No. 1130891

MW-17 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 14:15 by SL Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT17 SDG#: HMS66-09

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	02/13/2009 14:02	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 02:31	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 02:31	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 02:31	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 14:58	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 11:47	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592810 WW Group No. 1130891

MW-17 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 14:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA17F SDG#: HMS66-10

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	1.54	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:52	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592811 WW Group No. 1130891

MW-19 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 15:15 by SL Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT19 SDG#: HMS66-11

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	7.77	0.200	0.0522	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	11.1	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.8 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	580	30	10	ug/l	2
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	38	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	13	13	ug/l	1
00783	Acenaphthene	83-32-9	30	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	15	0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	11	0.21	0.041	ug/l	1
00789	Anthracene	120-12-7	1.4	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	1.2	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	0.68	0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0083	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.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories Sample No. 5592811 WW Group No. 1130891

MW-19 Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 15:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT19 SDG#: HMS66-11

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	02/13/2009 14:07	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 02:47	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 02:47	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 02:47	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 08:09	Dustin A Underkoffler	2
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 12:26	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592812 WW Group No. 1130891

MW-19 Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 15:15 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA19F SDG#: HMS66-12

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	6.87	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:55	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592813 WW Group No. 1130891

DUP Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HATDU SDG#: HMS66-13FD

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	2.39		0.200	0.0522	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.	49.2		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	6.9		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	14.2		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	290		15	5.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	100		2.1	1.1	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		7.0	7.0	ug/l	1
00783	Acenaphthene	83-32-9	11		2.1	0.53	ug/l	1
00784	Fluorene	86-73-7	11		0.42	0.11	ug/l	1
00785	Phenanthrene	85-01-8	2.8		0.21	0.042	ug/l	1
00789	Anthracene	120-12-7	0.28		0.11	0.021	ug/l	1
00807	Fluoranthene	206-44-0	0.14		0.11	0.021	ug/l	1
00811	Pyrene	129-00-0	0.12	J	0.42	0.11	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.042	0.011	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.010	J	0.032	0.0084	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.042	0.011	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.11	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.21	0.042	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.21	0.063	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.21	0.042	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.032	0.0084	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.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories Sample No. 5592813 WW Group No. 1130891

DUP Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HATDU SDG#: HMS66-13FD

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	02/13/2009 14:12	Eric L Eby	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/05/2009 16:30	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 03:35	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 03:35	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 03:35	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 15:23	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 13:44	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/12/2009 20:05	Mirit S Shenouda	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592814 WW Group No. 1130891

DUP Filtered Grab Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009 by SL

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HATDF SDG#: HMS66-14FD

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	1.44	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 17:59	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5592815 WW Group No. 1130891

Trip Blank Water
202048
Gulf States Creosoting/Hattiesburg, MS

Collected:02/04/2009

Account Number: 11947

Submitted: 02/05/2009 09:10
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HATTB SDG#: HMS66-15TB*

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.	15	5.0	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/11/2009 15:36	Dustin A Underkoffler	1

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

Quality Control Summary

Client Name: Tronox LLC Group Number: 1130891
Reported: 02/18/09 at 12:00 PM

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: 09036020201B	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592807,5592809,5592811,5592813								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	101		98-103		
Batch number: 09036196601A	Sample number(s): 5592795,5592797,5592799,5592809,5592811,5592813								
Chloride	N.D.	0.40	0.20	mg/l	92		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	106		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	106		90-110		
Batch number: 09036196601B	Sample number(s): 5592801,5592803,5592807								
Chloride	N.D.	0.40	0.20	mg/l	92		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	106		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	106		90-110		
Batch number: 09038WAF026	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592809,5592811,5592813								
Naphthalene	N.D.	2.0	1.0	ug/l	70		57-95		
Acenaphthylene	N.D.	2.0	1.0	ug/l	75		61-99		
Acenaphthene	N.D.	2.0	0.50	ug/l	78		61-102		
Fluorene	N.D.	0.40	0.10	ug/l	80		67-107		
Phenanthrene	N.D.	0.20	0.040	ug/l	86		71-108		
Anthracene	N.D.	0.10	0.020	ug/l	82		69-103		
Fluoranthene	N.D.	0.10	0.020	ug/l	76		68-103		
Pyrene	N.D.	0.40	0.10	ug/l	84		70-108		
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	78		74-109		
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	79		76-110		
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	75		67-107		
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	80		75-109		
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	84		72-109		
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	80		62-117		
Chrysene	N.D.	0.20	0.040	ug/l	80		74-111		
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	80		77-109		
Batch number: 090420000A	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592809,5592811,5592813,5592815								
Methane	N.D.	15.	5.0	ug/l	105		80-120		
Batch number: 090431848002	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592807,5592809,5592811,5592813								
Iron	N.D.	0.200	0.0522	mg/l	98		90-112		
Batch number: 090431848005	Sample number(s): 5592796,5592798,5592800,5592802,5592804,5592806,5592808,5592810,5592812,5592814								

*- 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 unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/18/09 at 12:00 PM

Group Number: 1130891

Laboratory Compliance Quality Control

Analysis Name	Blank Result 4	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Iron	N.D.	0.200	0.0522	mg/l	99		90-112		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 09036020201B	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592807,5592809,5592811,5592813 UNSPK: 5592801 BKG: 5592801								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	101	101	64-130	0	2	4.1	3.9	6* (1)	4
Batch number: 09036196601A	Sample number(s): 5592795,5592797,5592799,5592809,5592811,5592813 UNSPK: P592715 BKG: P592715								
Chloride	163*		90-110			49.3	49.8	1	20
Sulfate	111*		90-110			72.9	72.7	0	20
Nitrate Nitrogen	123*		90-110			5.5	5.4	2	20
Batch number: 09036196601B	Sample number(s): 5592801,5592803,5592807 UNSPK: 5592801 BKG: 5592801								
Chloride	111*		90-110			5.8	5.6	4 (1)	20
Sulfate	112*		90-110			13.4	13.0	3 (1)	20
Nitrate Nitrogen	116*		90-110			1.5	1.4	3 (1)	20
Batch number: 09038WAF026	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592809,5592811,5592813 UNSPK: 5592801								
Naphthalene	67	73	61-94	9	30				
Acenaphthylene	72	79	54-117	10	30				
Acenaphthene	75	82	67-99	10	30				
Fluorene	77	86	73-103	11	30				
Phenanthrene	84	93	66-115	11	30				
Anthracene	81	90	74-101	11	30				
Fluoranthene	75	84	75-96	11	30				
Pyrene	84	93	73-105	10	30				
Benzo(a)anthracene	78	87	78-106	11	30				
Benzo(b)fluoranthene	80	89	79-108	11	30				
Benzo(a)pyrene	75*	85	77-102	12	30				
Dibenz(a,h)anthracene	78	85	75-104	9	30				
Indeno(1,2,3-cd)pyrene	83	92	78-106	11	30				
Benzo(g,h,i)perylene	75	80	68-116	6	30				
Chrysene	79	89	78-108	11	30				
Benzo(k)fluoranthene	81	91	81-105	11	30				
Batch number: 090420000A	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592809,5592811,5592813,5592815 UNSPK: 5592801								
Methane	95	88	35-157	7	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 unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1130891
Reported: 02/18/09 at 12:00 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 090431848002	Sample number(s): 5592795,5592797,5592799,5592801,5592803,5592805,5592807,5592809,5592811,5592813 UNSPK: 5592801 BKG: 5592801								
Iron	99	100	75-125	1	20	N.D.	N.D.	0 (1)	20
Batch number: 090431848005	Sample number(s): 5592796,5592798,5592800,5592802,5592804,5592806,5592808,5592810,5592812,5592814 UNSPK: 5592802 BKG: 5592802								
Iron	98	99	75-125	1	20	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAH's in Water by HPLC
Batch number: 09038WAF026

	Nitrobenzene	Triphenylene
5592795	88	101
5592797	92	101
5592799	94	101
5592801	83	89
5592803	83	89
5592805	92	100
5592809	87	95
5592811	94	103
5592813	81	97
Blank	80	90
LCS	82	90
MS	83	89
MSD	92	100
Limits:	67-111	59-127

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 090420000A

	Propene
5592795	84
5592797	96
5592799	96
5592801	80
5592803	92
5592805	87
5592809	90
5592811	83
5592813	96
5592815	108
Blank	120

*- 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 unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1130891
Reported: 02/18/09 at 12:00 PM

Surrogate Quality Control

LCS	116
MS	92
MSD	87
Limits:	42-131

*- 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 unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1130891 Sample # 5592795-815

COC # 202048

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

(1) Client: MICHAEL PISANI & ASSOC. Acct. #:

Project Name/#: 21-04 PWSID #:

Project Manager: DAVE UPTHEGROVE P.O.#:

Sampler: STEVEN LUTON Quote #:

Name of state where samples were collected: MISSISSIPPI

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water	Other	(4) Total # of Containers	(5) Analyses Requested: Preservation Codes							(6) Remarks
						Metrix			X	N	N	X	X	H	X	
									CHLORIDE/SULFATE	IRON	IRON (FILTERED)	PAHs	NITRATE/NITROGEN	METHANE	ALKALINITY	
MW-06	2/4/09	0800	X			X		10	X	X	X	X	X	X	X	
MW-18		0900														
MW-08		1015														
MW-16		1130														
MW-17		1415														
MW-19		1515														
MS		1130														
MSD		1130														
DUP		0000														
TRIP BLANKS								2								

(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)

Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

TX TRRP-13
MA MCP CT RCP

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No

Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	2/4/09	1600			
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]	2-5-09	0910

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766

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

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than -- The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million -- One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1131103. Samples arrived at the laboratory on Friday, February 06, 2009. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-21 Grab Water	5593995
MW-21 Filtered Grab Water	5593996
MW-09 Grab Water	5593997
MW-09 Filtered Grab Water	5593998
MW-20 Grab Water	5593999
MW-20 Filtered Grab Water	5594000
MW-22 Grab Water	5594001
MW-22 Filtered Grab Water	5594002
Trip Blank Water	5594003

METHODOLOGY

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

ELECTRONIC COPY TO	Michael Pisani & Associates	Attn: David Upthegrove
ELECTRONIC COPY TO	Tronox LLC	Attn: Sherron Hendricks
ELECTRONIC COPY TO	Tronox LLC	Attn: Roy Widmann
1 COPY TO	Data Package Group	

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Questions? Contact your Client Services Representative
Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,

Max E. Snavely
Senior Specialist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5593995 WW Group No. 1131103

MW-21 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 07:50 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT21 SDG#: HMS67-01

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	0.0575 J	0.200	0.0522	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.	3.8	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	12.8	2.0	1.0	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	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.1	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.42	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.21	0.042	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.42	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.042	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0084	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.042	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.063	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.042	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0084	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories Sample No. 5593995 WW Group No. 1131103

MW-21 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 07:50 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT21 SDG#: HMS67-01

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:17	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 20:54	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 20:54	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 20:54	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 11:21	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 14:22	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5593996 WW Group No. 1131103

MW-21 Filtered Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 07:50 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA21F SDG#: HMS67-02

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	N.D.	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:21	John P Book	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5593997 WW Group No. 1131103

MW-09 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 11:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT09 SDG#: HMS67-03

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	27.6	0.200	0.0522	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.	115	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	12.9	2.0	1.0	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	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	1,500	75	25	ug/l	5
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	1,300	21	10	ug/l	10
00782	Acenaphthylene	208-96-8	N.D.	47	47	ug/l	1
00783	Acenaphthene	83-32-9	98	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	69	4.2	1.0	ug/l	10
00785	Phenanthrene	85-01-8	49	2.1	0.42	ug/l	10
00789	Anthracene	120-12-7	5.6	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	4.5	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	2.6	0.42	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.029 J	0.042	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.042	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.042	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0083	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.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

Lancaster Laboratories Sample No. 5593997 WW Group No. 1131103

MW-09 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 11:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT09 SDG#: HMS67-03

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	02/13/2009 18:31	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 21:10	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 21:10	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 21:10	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 13:42	Dustin A Underkoffler	5
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 15:01	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/15/2009 16:30	Mark A Clark	10
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5593998 WW Group No. 1131103

MW-09 Filtered Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 11:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA09F SDG#: HMS67-04

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	26.6	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:35	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5593999 WW Group No. 1131103

MW-20 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 10:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT20 SDG#: HMS67-05

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	0.0522	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.	8.2	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.9	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	N.D.	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.75	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	15	5.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.1	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.21	0.041	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.21	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.031	0.0083	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

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

Analysis Report

Lancaster Laboratories Sample No. 5593999 WW Group No. 1131103

MW-20 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 10:00 by SL

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HAT20 SDG#: HMS67-05

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:38	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 21:25	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 21:25	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 21:25	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 11:49	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 15:40	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5594000 WW Group No. 1131103

MW-20 Filtered Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 10:00 by SL

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HA20F SDG#: HMS67-06

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

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	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:42	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

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

Analysis Report

Lancaster Laboratories Sample No. 5594001 WW Group No. 1131103

MW-22 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 09:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HAT22 SDG#: HMS67-07

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	12.8		0.200	0.0522	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.	27.2		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	11.5		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	4.1	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.54		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	18		15	5.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.1	1.0	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.1	1.0	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.1	0.52	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.41	0.10	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.21	0.041	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.10	0.021	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.10	0.021	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.41	0.10	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.041	0.010	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.031	0.0083	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.041	0.010	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.10	0.021	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.21	0.041	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.21	0.062	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.21	0.041	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.031	0.0083	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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

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

Analysis Report

Lancaster Laboratories Sample No. 5594001 WW Group No. 1131103

MW-22 Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 09:00 by SL

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HAT22 SDG#: HMS67-07

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:46	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	02/09/2009 15:39	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	02/06/2009 21:41	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	02/06/2009 21:41	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	02/06/2009 21:41	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 13:56	Dustin A Underkoffler	1
00774	PAH's in Water by HPLC	SW-846 8310	1	02/12/2009 16:19	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1
03337	PAH Water Extraction	SW-846 3510C	1	02/09/2009 10:55	Jessica Agosto	1

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

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5594002 WW Group No. 1131103

MW-22 Filtered Grab Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009 09:00 by SL

Account Number: 11947

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

HA22F SDG#: HMS67-08

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	0.453	0.200	0.0522	mg/l	1

This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	02/13/2009 18:49	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	02/13/2009 07:10	Deborah A Krady	1

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

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

Analysis Report

Lancaster Laboratories Sample No. 5594003 WW Group No. 1131103

Trip Blank Water
202045
Gulf States Creosoting/Hattiesburg, MS

Collected:02/05/2009

Submitted: 02/06/2009 09:00
Reported: 02/18/2009 at 12:00
Discard: 04/20/2009

HATT- SDG#: HMS67-09TB*

Account Number: 11947

Tronox LLC
P.O. Box 268859
Oklahoma City OK 73126-8859

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.	15	5.0	ug/l	1

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	02/12/2009 12:32	Dustin A Underkoffler	1

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

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

Analysis Report

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/18/09 at 12:00 PM

Group Number: 1131103

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: 09037196102A	Sample number(s): 5593995,5593997,5593999,5594001								
Chloride	N.D.	0.40	0.20	mg/l	109		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	107		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	97		90-110		
Batch number: 09038WAF026	Sample number(s): 5593995,5593997,5593999,5594001								
Naphthalene	N.D.	2.0	1.0	ug/l	70		57-95		
Acenaphthylene	N.D.	2.0	1.0	ug/l	75		61-99		
Acenaphthene	N.D.	2.0	0.50	ug/l	78		61-102		
Fluorene	N.D.	0.40	0.10	ug/l	80		67-107		
Phenanthrene	N.D.	0.20	0.040	ug/l	86		71-108		
Anthracene	N.D.	0.10	0.020	ug/l	82		69-103		
Fluoranthene	N.D.	0.10	0.020	ug/l	76		68-103		
Pyrene	N.D.	0.40	0.10	ug/l	84		70-108		
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	78		74-109		
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	79		76-110		
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	75		67-107		
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	80		75-109		
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	84		72-109		
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	80		62-117		
Chrysene	N.D.	0.20	0.040	ug/l	80		74-111		
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	80		77-109		
Batch number: 0904D020201A	Sample number(s): 5593995,5593997,5593999,5594001								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	101		98-103		
Batch number: 090420001A	Sample number(s): 5593995,5593997,5593999,5594001,5594003								
Methane	N.D.	15.	5.0	ug/l	97		80-120		
Batch number: 090431848005	Sample number(s): 5593995-5594002								
Iron	N.D.	0.200	0.0522	mg/l	99		90-112		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 09037196102A	Sample number(s): 5593995,5593997,5593999,5594001 UNSPK: P593937 BKG: P593937								
Chloride	101		90-110			N.D.	N.D.	0 (1)	20
Sulfate	98		90-110			N.D.	N.D.	0 (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 unspiked result was more than four times the spike added.

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

Analysis Report

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/18/09 at 12:00 PM

Group Number: 1131103

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Nitrate Nitrogen	96		90-110			N.D.	N.D.	0 (1)	20
Batch number: 09038WAP026	Sample number(s): 5593995,5593997,5593999,5594001 UNSPK: P592801								
Naphthalene	67	73	61-94	9	30				
Acenaphthylene	72	79	54-117	10	30				
Acenaphthene	75	82	67-99	10	30				
Fluorene	77	86	73-103	11	30				
Phenanthrene	84	93	66-115	11	30				
Anthracene	81	90	74-101	11	30				
Fluoranthene	75	84	75-96	11	30				
Pyrene	84	93	73-105	10	30				
Benzo(a)anthracene	78	87	78-106	11	30				
Benzo(b)fluoranthene	80	89	79-108	11	30				
Benzo(a)pyrene	75*	85	77-102	12	30				
Dibenz(a,h)anthracene	78	85	75-104	9	30				
Indeno(1,2,3-cd)pyrene	83	92	78-106	11	30				
Benzo(g,h,i)perylene	75	80	68-116	6	30				
Chrysene	79	89	78-108	11	30				
Benzo(k)fluoranthene	81	91	81-105	11	30				
Batch number: 09040020201A	Sample number(s): 5593995,5593997,5593999,5594001 UNSPK: P592715 BKG: P592715								
Alkalinity to pH 8.3	100	101	64-130	0	2	N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5						313	313	0	4
Batch number: 090420001A	Sample number(s): 5593995,5593997,5593999,5594001,5594003 UNSPK: P592977								
Methane	93	97	35-157	4	20				
Batch number: 090431848005	Sample number(s): 5593995-5594002 UNSPK: P592802 BKG: P592802								
Iron	98	99	75-125	1	20	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAH's in Water by HPLC
Batch number: 09038WAP026

	Nitrobenzene	Triphenylene
5593995	95	104
5593997	95	103
5593999	96	103
5594001	87	100
Blank	80	90
LCS	82	90
MS	83	89
MSD	92	100
Limits:	67-111	59-127

*- 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 unspiked result was more than four times the spike added.

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Tronox LLC
Reported: 02/18/09 at 12:00 PM

Group Number: 1131103

Surrogate Quality Control

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 090420001A

	Propene
5593995	89
5593997	81
5593999	57
5594001	66
5594003	73
Blank	109
LCS	105
MS	81
MSD	81
Limits:	42-131

*- 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 unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. # 11947 Group# 1131103 Sample # 5593995-003 **COC #** 202045

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

(1) Client: MICHAEL PISANI + ASSOC. Acct. #:
Project Name/#: 21-04 PWSID #:
Project Manager: DAVE UPTHEGROVE P.O.#:
Sampler: STEVEN LUTON Quote #:
Name of state where samples were collected: MISSISSIPPI

For Lab Use Only
FSC:
SCR#:

(5) Analyses Requested

(2) Sample Identification	Date Collected	Time Collected	(3) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	(4) [illegible]	CHLORIDE/SULFATE	IRON	IRON (FILTERED)	PAHs	NITRATE/NITROGEN	METHANE	ALKALINITY			Remarks
Preservation Codes									X	N	N	X	X	H	X			
MW-21	2/5/09	0750	X			X		10	X	X	X	X	X	X	X			
MW-09	↓	1100	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓			
MW-20	↓	1000	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓			
MW-22	↓	0900	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓			
TRIP BLANK	—	—						1						X				

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6)

(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)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	2/5/09	1130			
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]	2-6-09	0900

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102.03

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

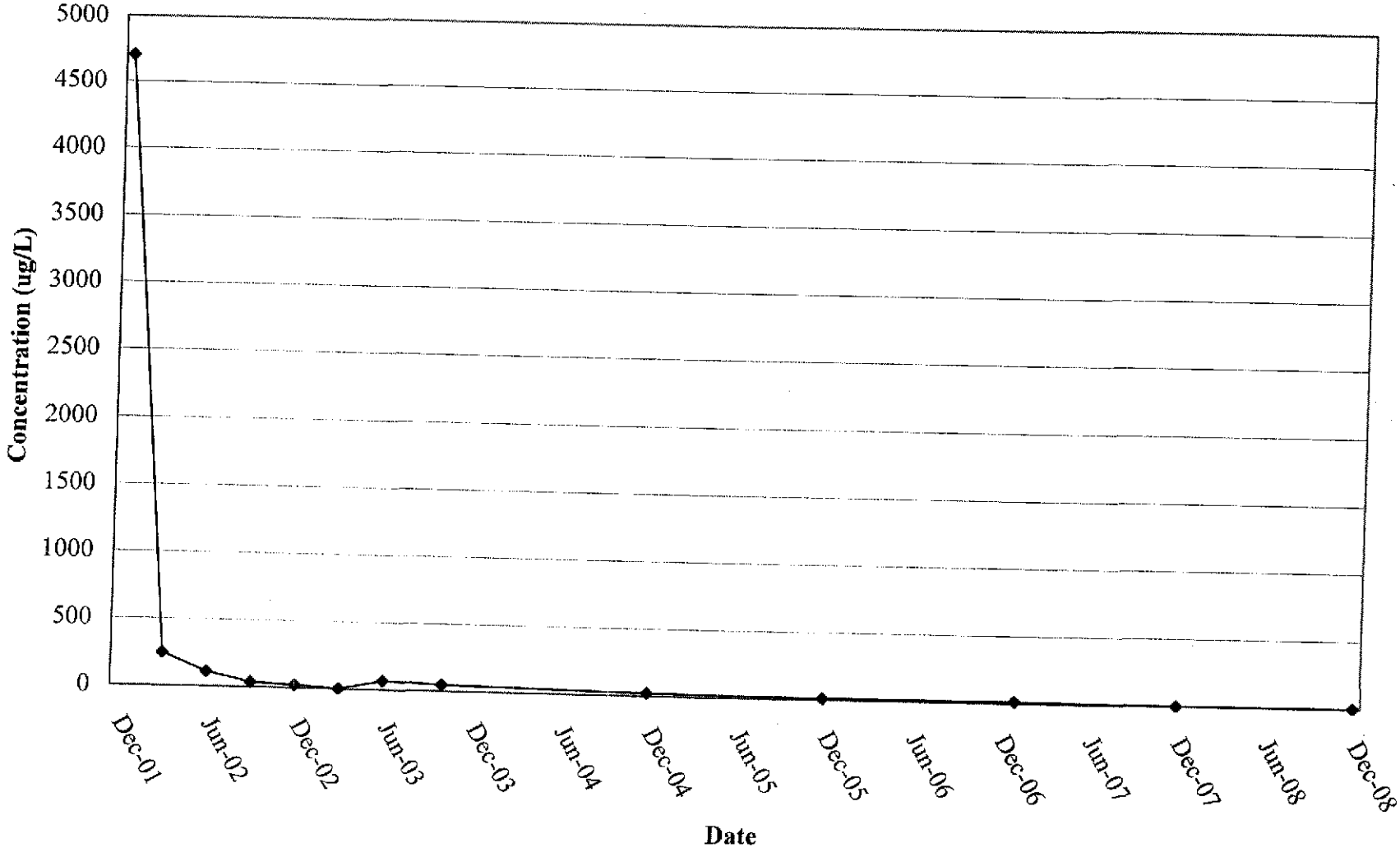
Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

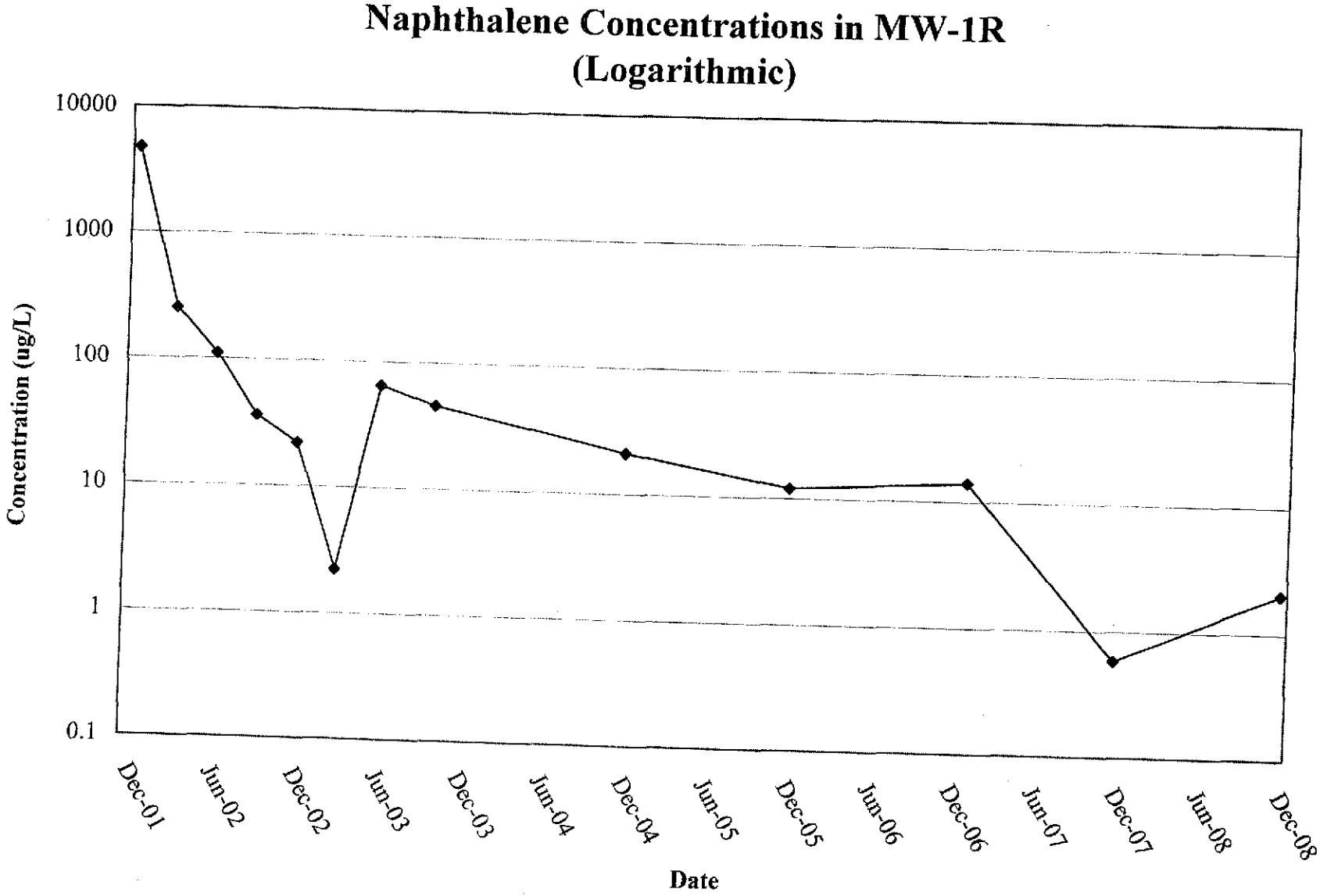
Appendix C

Charts Depicting Naphthalene Concentrations vs. Time

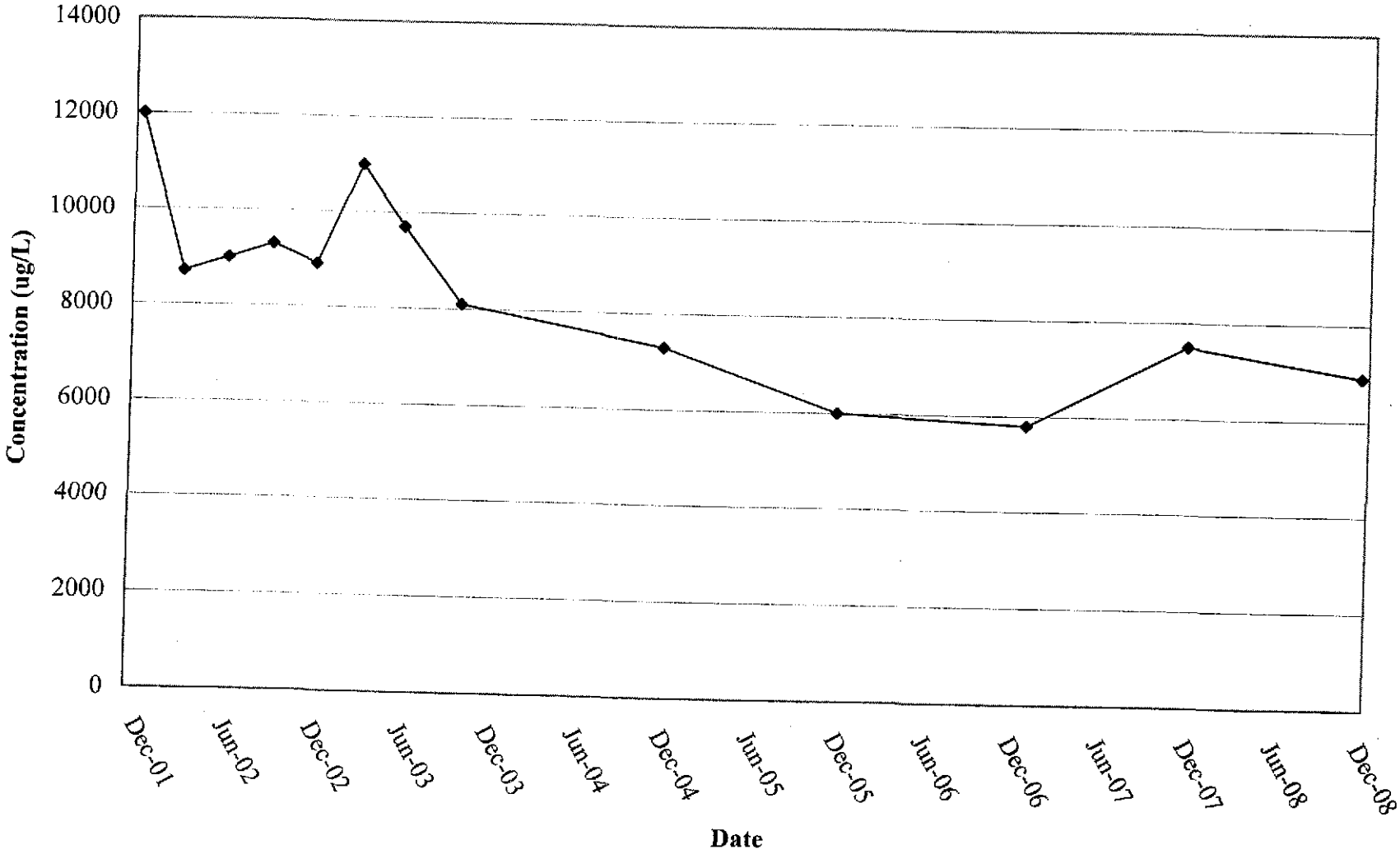
Ground Water Monitoring Report
Calendar Year 2008 Event

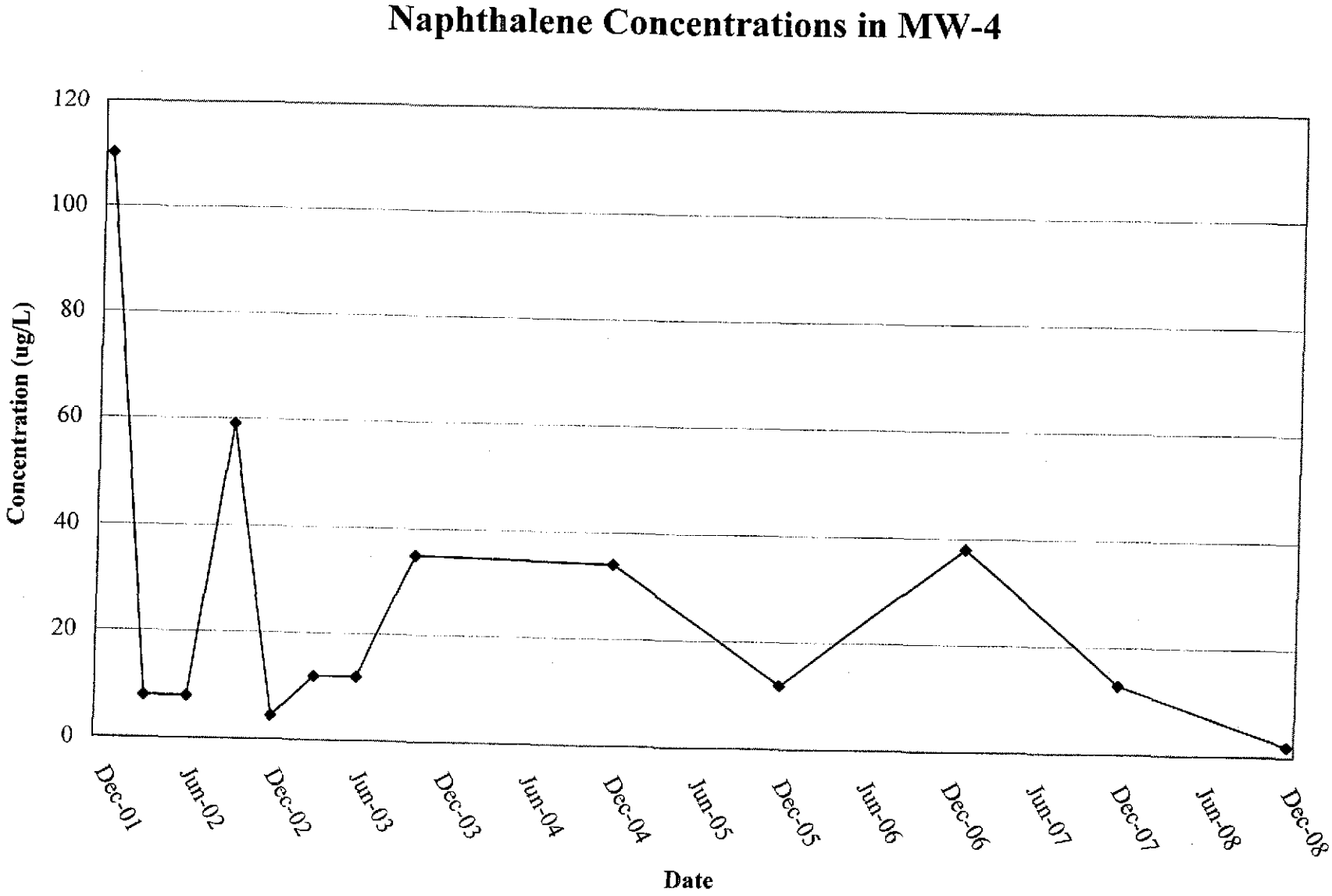
Naphthalene Concentrations in MW-1R



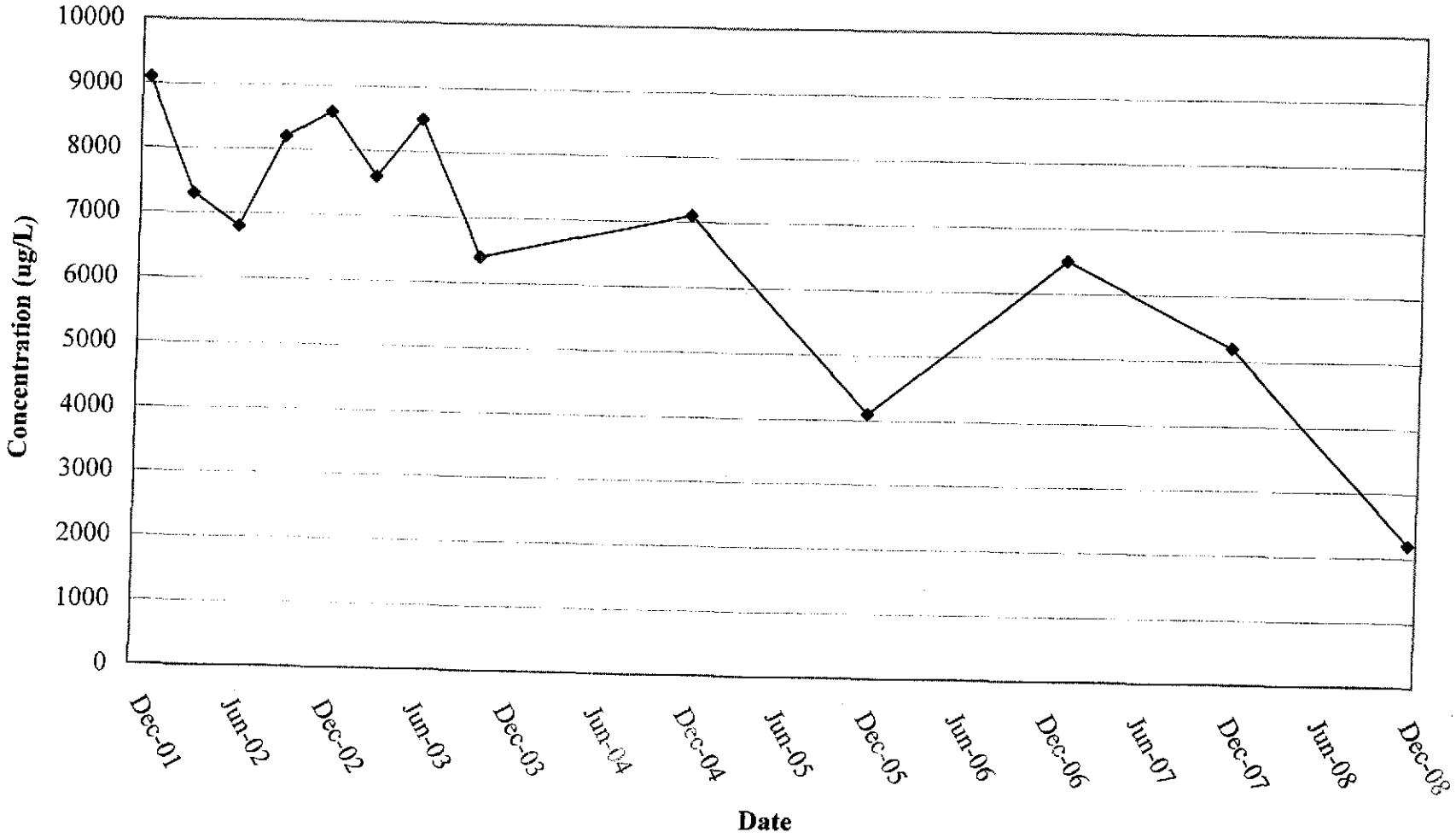

Naphthalene Concentrations in MW-1R
(Logarithmic)
Concentration (ug/L)
10000
1000
100
10
1
0.1
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Date

Naphthalene Concentrations in MW-2R

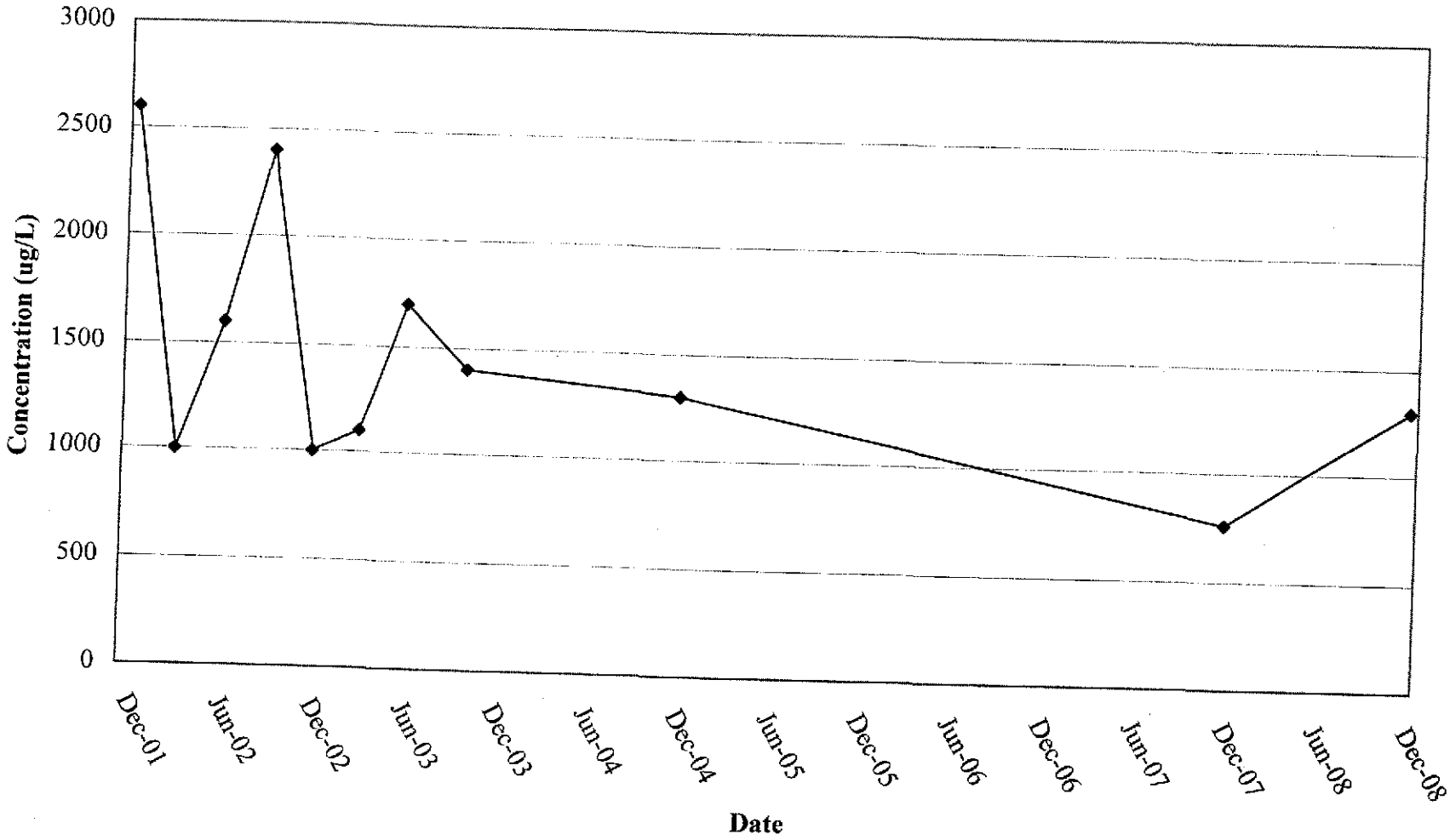



Naphthalene Concentrations in MW-4
120
100
80
60
40
20
0
Concentration (ug/L)
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Date

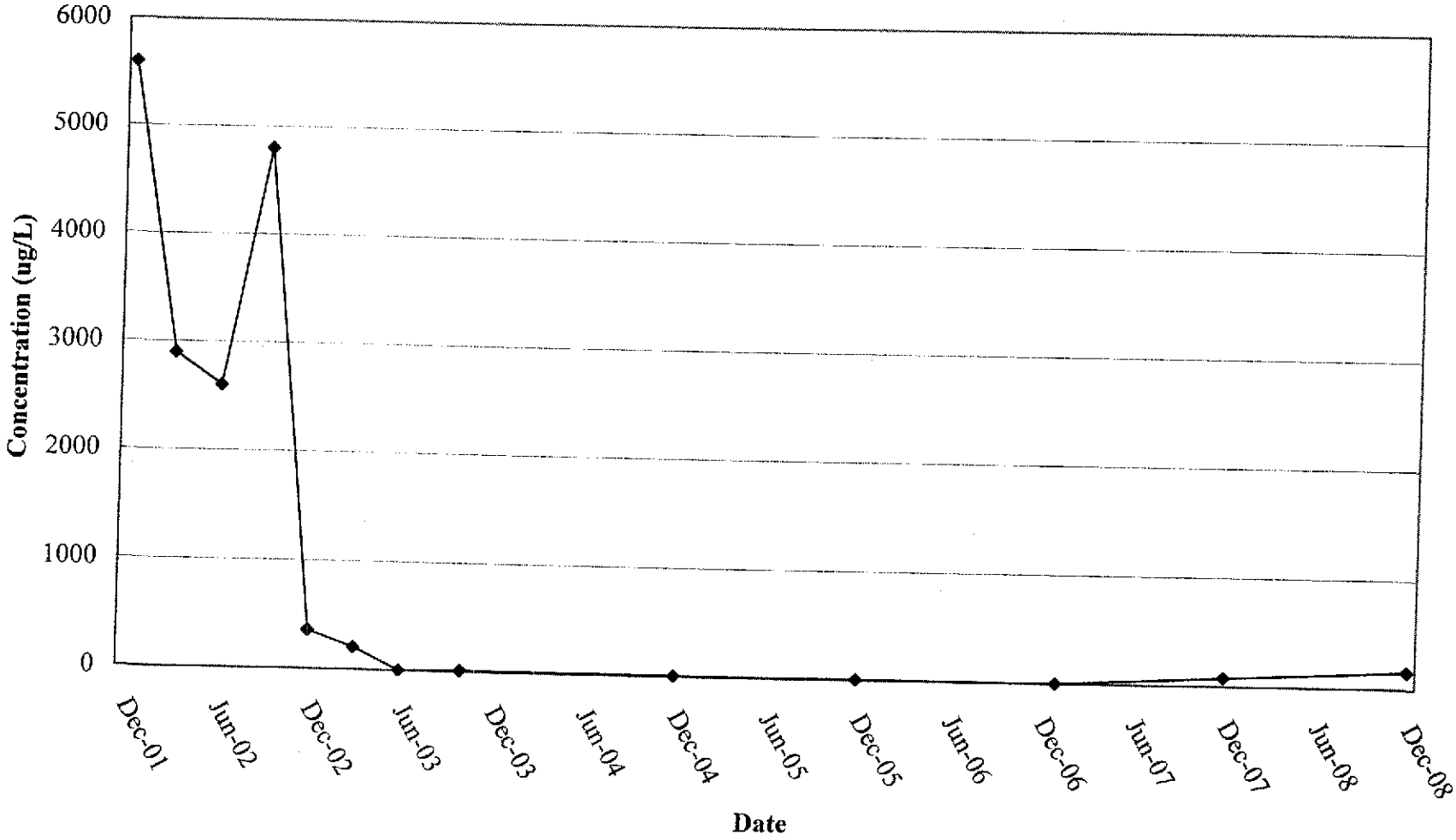
Naphthalene Concentrations in MW-06



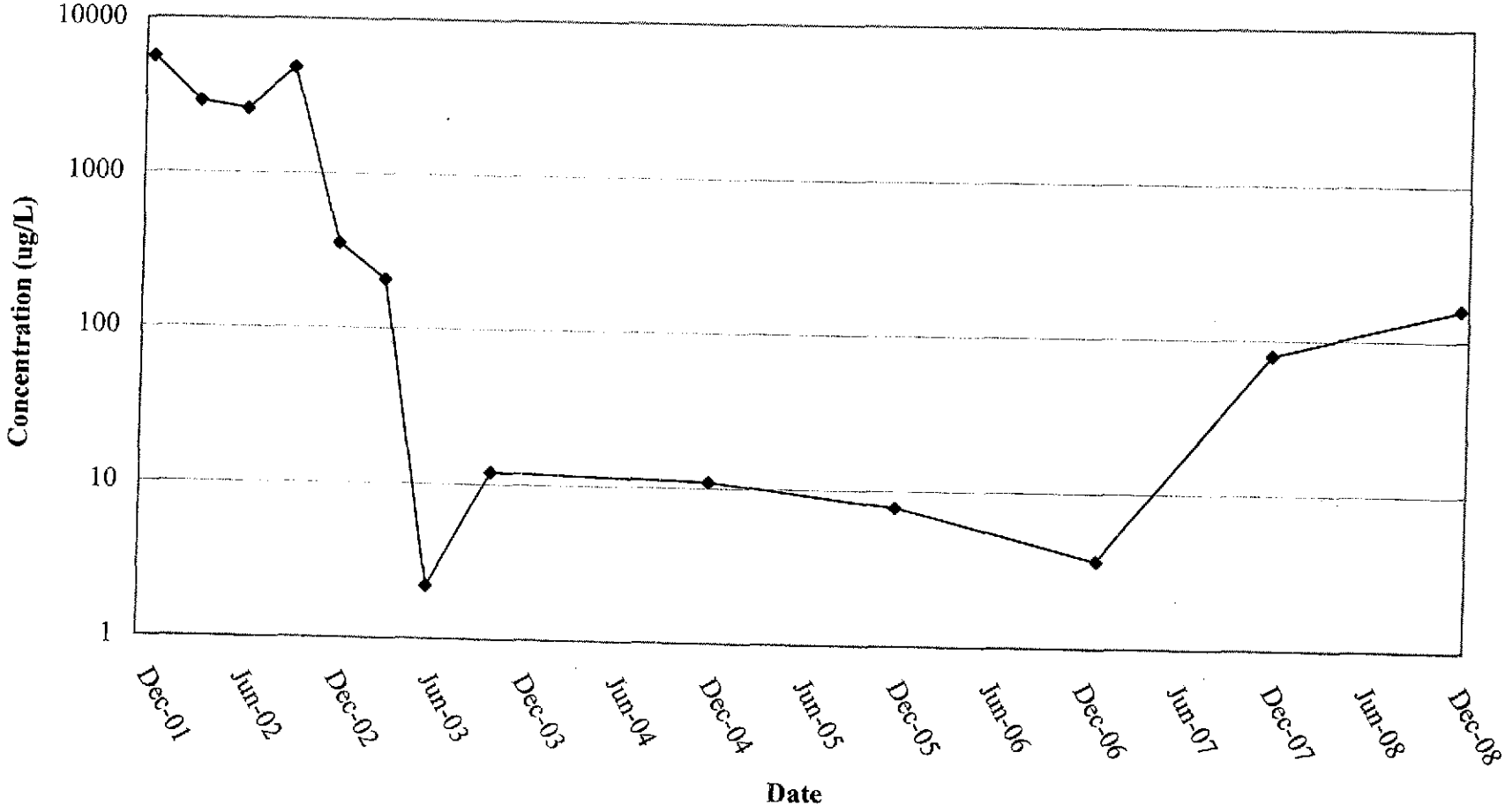
Naphthalene Concentrations in MW-09



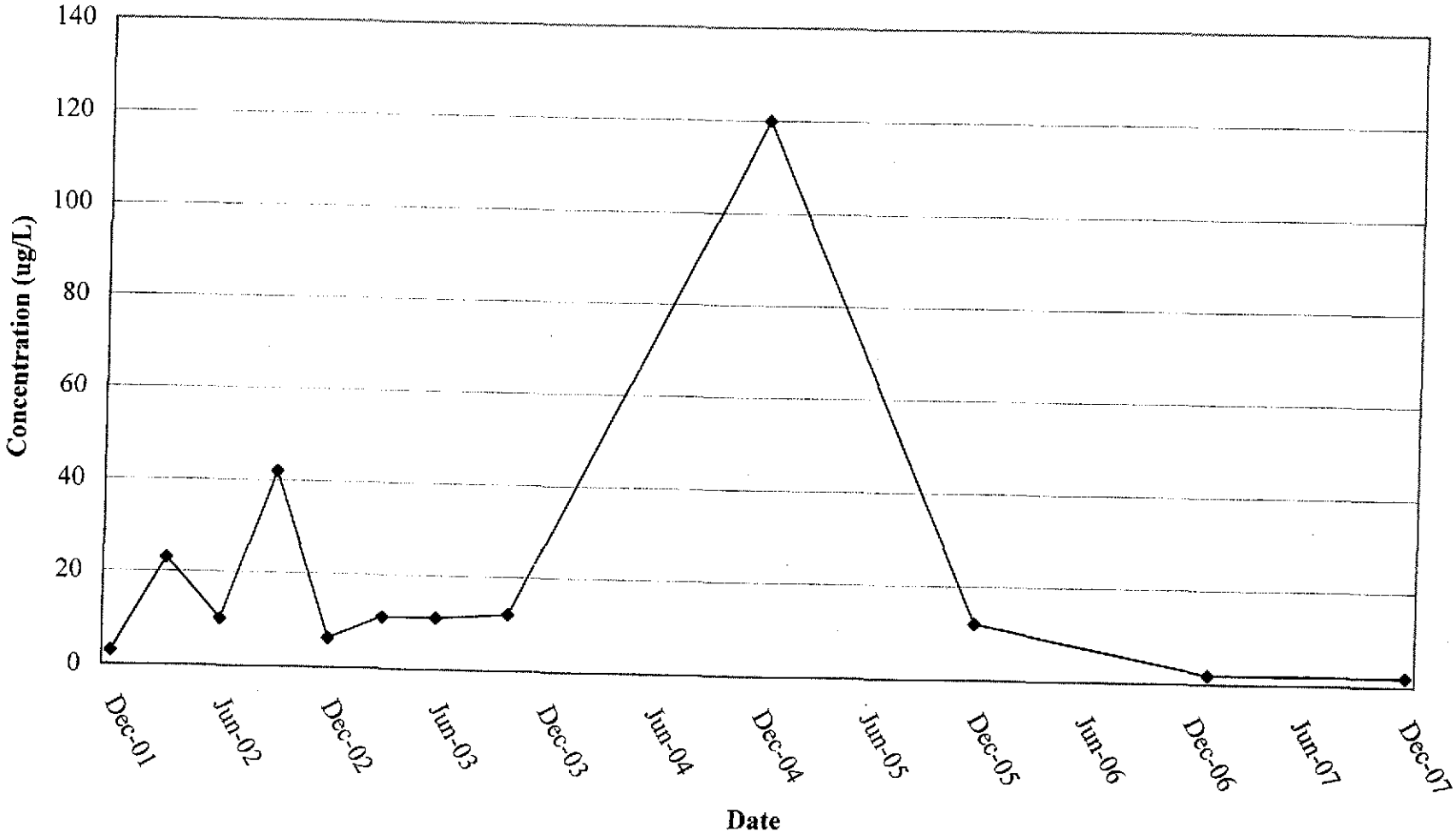
Naphthalene Concentrations in MW-12



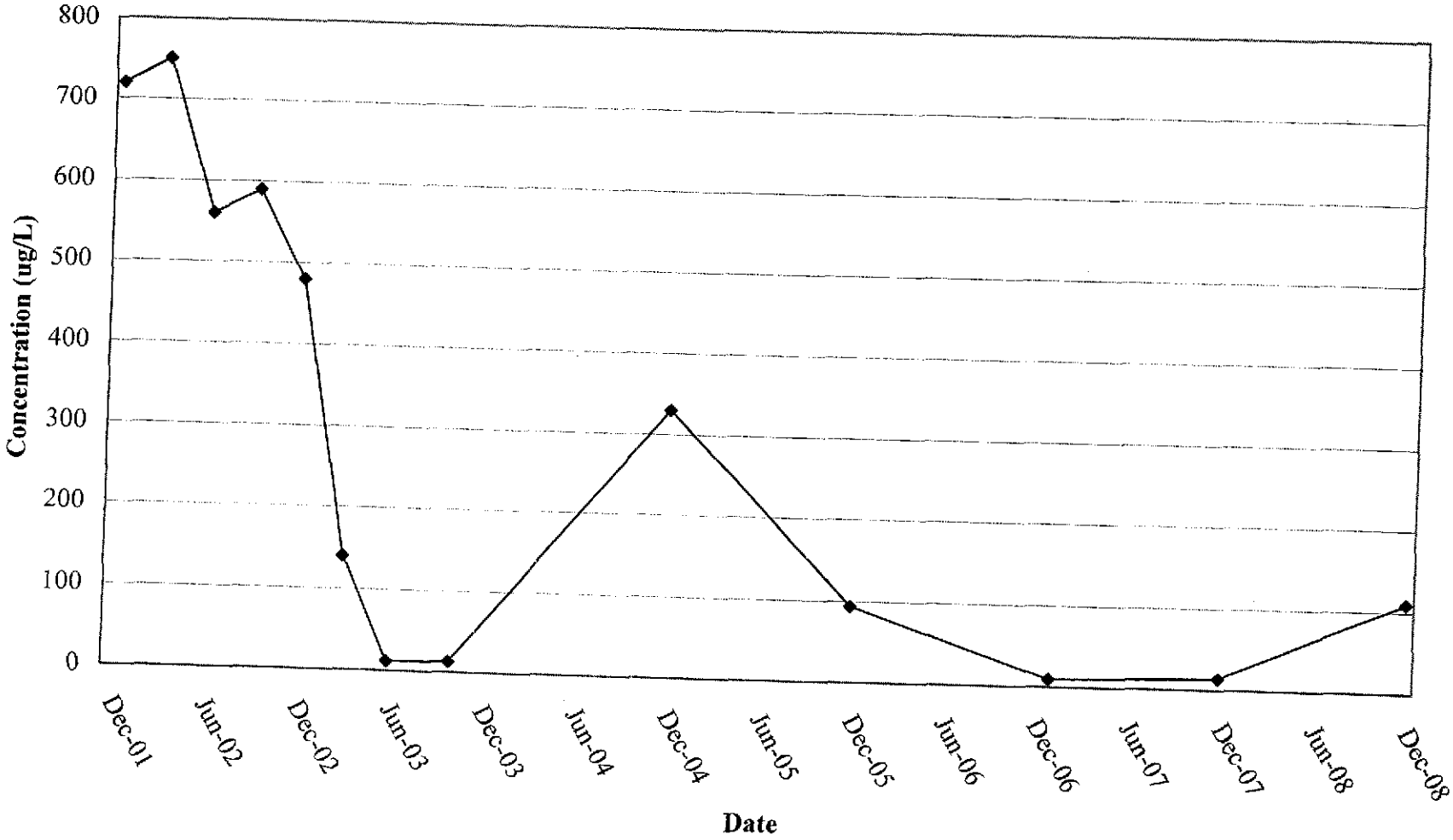
Naphthalene Concentrations in MW-12
(Logarithmic)



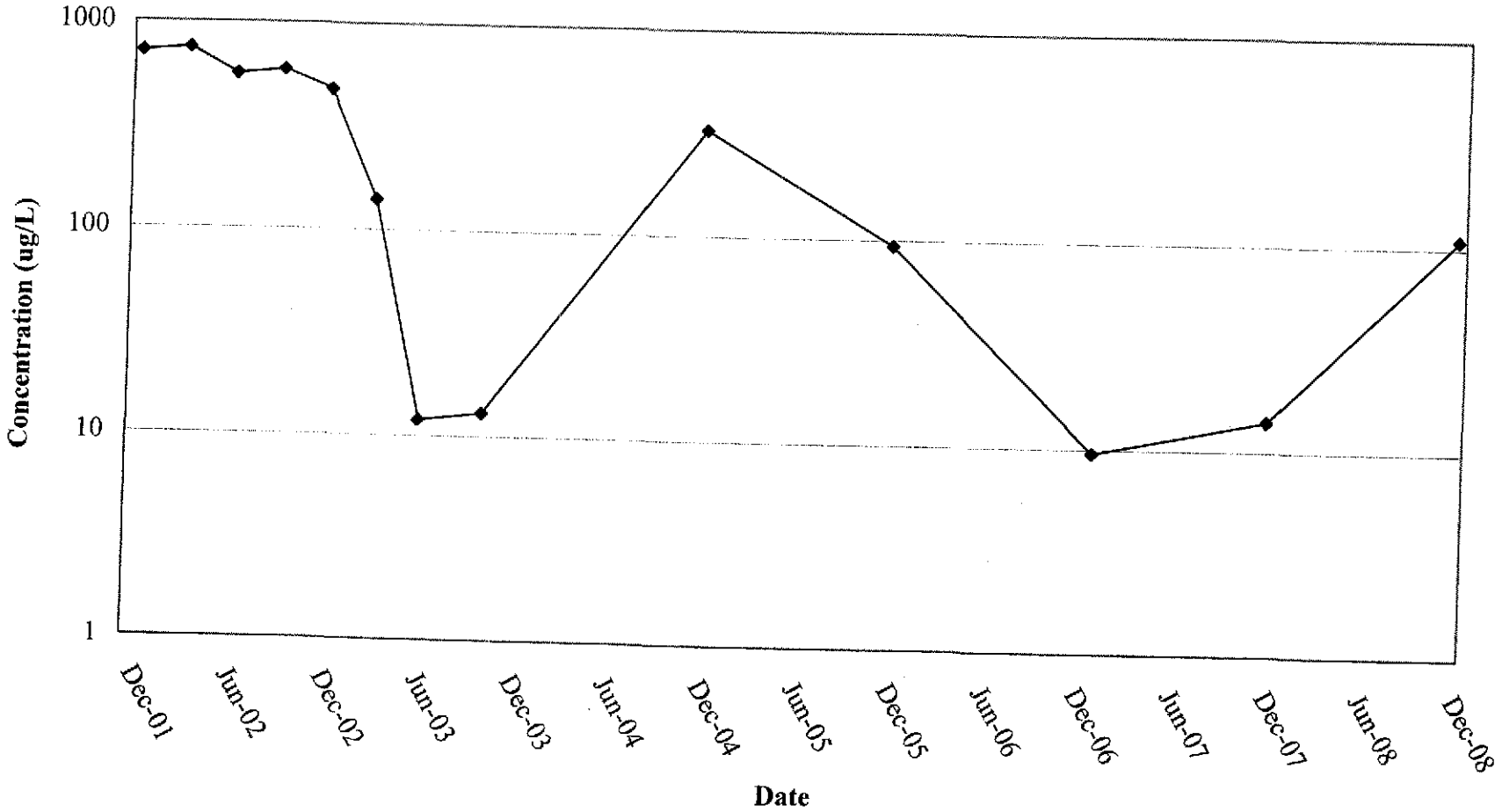
Naphthalene Concentrations in MW-14



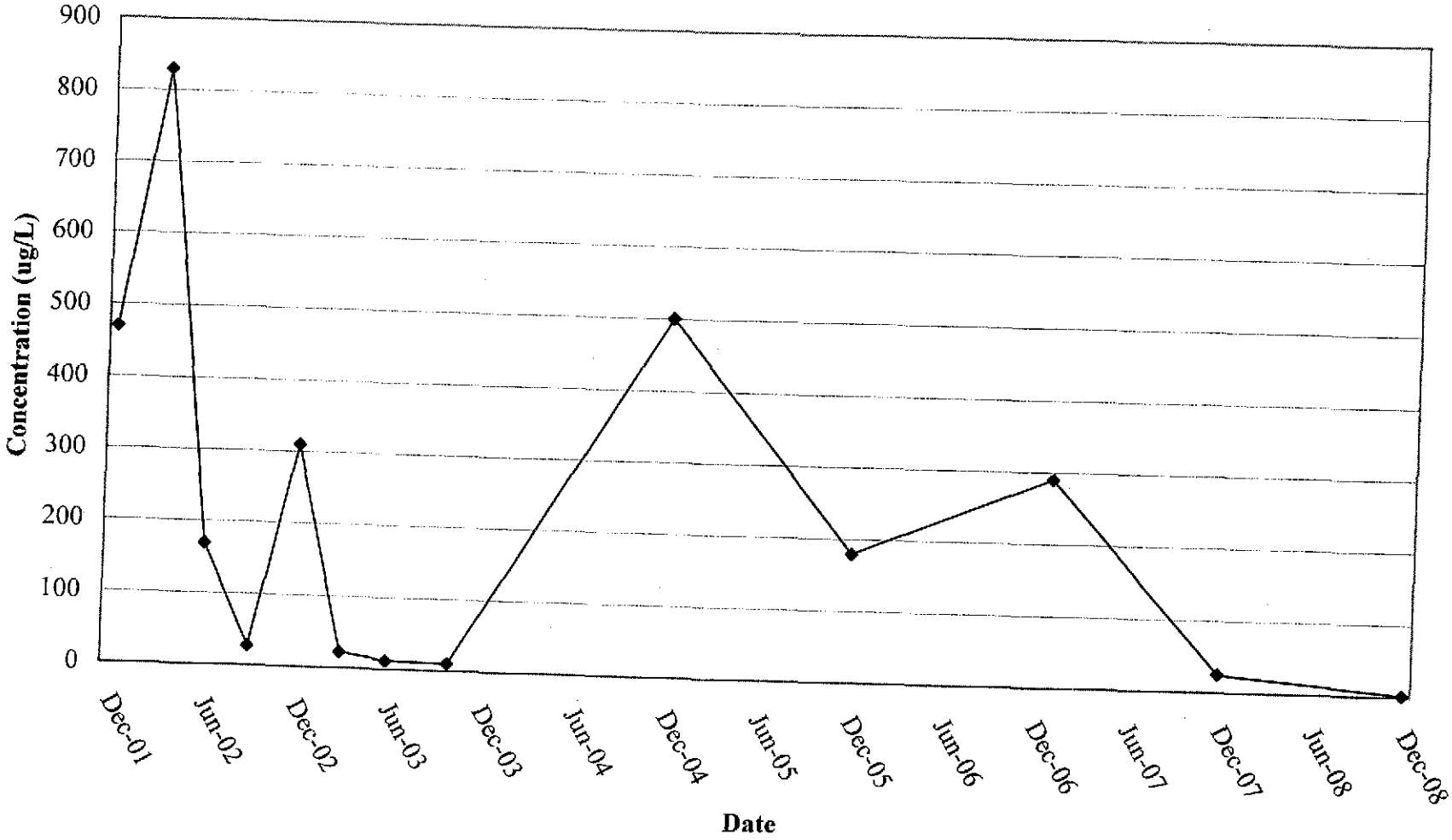
Naphthalene Concentrations in MW-17



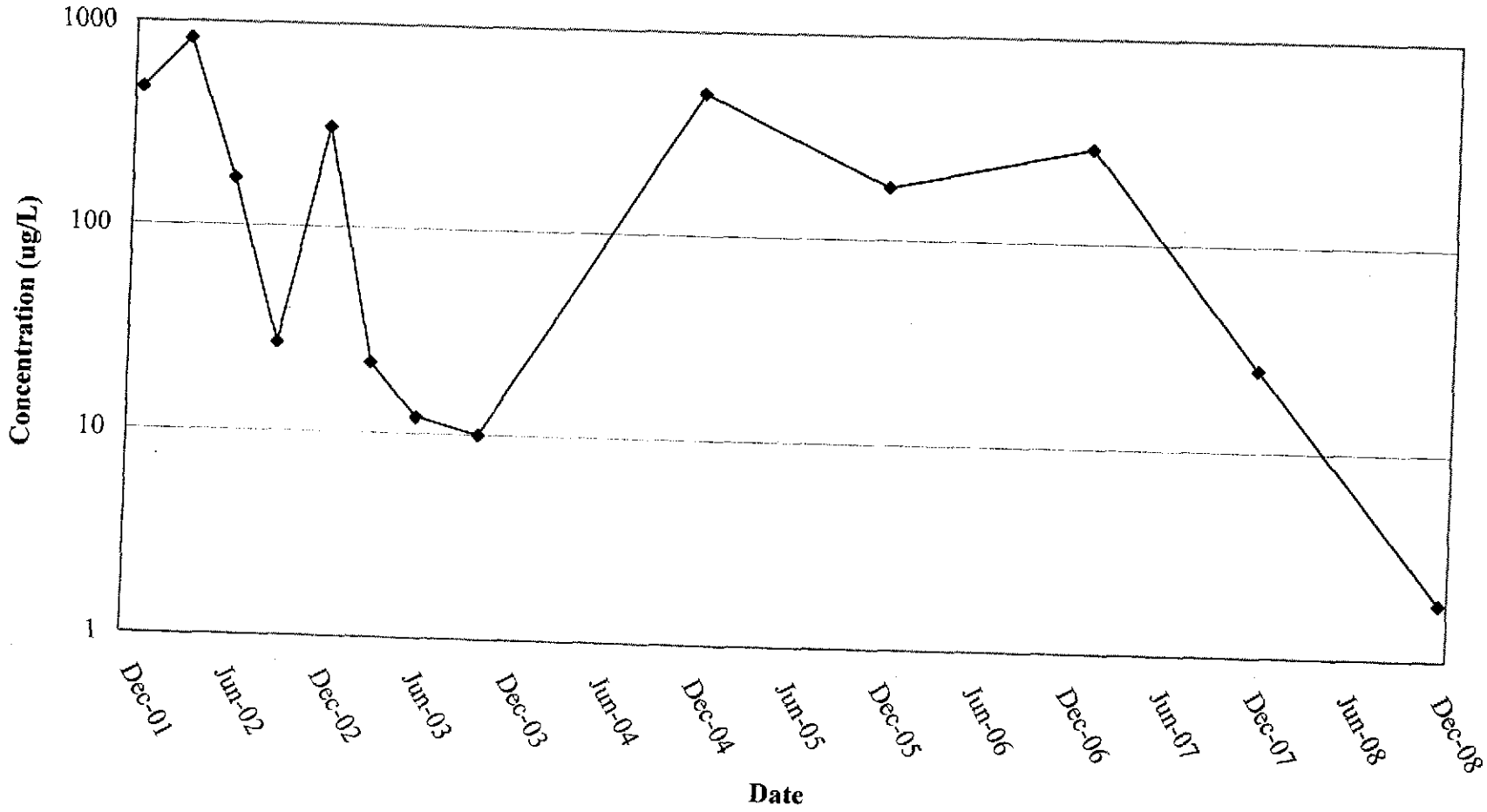
Naphthalene Concentrations in MW-17
(Logarithmic)



Naphthalene Concentrations in MW-18



Naphthalene Concentrations in MW-18
(Logarithmic)



Naphthalene Concentrations in MW-19