Ground Water Monitoring Report
December 2007 Event

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

April 11, 2008

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

Table of Contents

December 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Table of Contents

December 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Figures

Tables

Appendices

December 2007 Ground Water Monitoring Report

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 December 2007. 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 December 2007 monitoring event was conducted during the week of December 3, 2007. Activities undertaken during the event included:

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

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

2.2.1 Sample Containers and Preservatives

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

2.2.2 Water Level Measurement and Well Purging

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

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

2.2.3 Sample Collection and Handling

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

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

2.2.4 Chain-of-Custody Control

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

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

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

2.2.5 Analytical Program

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

3.0 Ground Water Monitoring Results

This section summarizes the results from the December 2007 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 December 2007 ground water elevation data are consistent with the data from previous ground water investigations at the site. The data indicate that the shallow water-bearing zones beneath the former Process Area and the Fill Area are not hydraulically connected. Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River, generally at an extremely flat gradient. Ground water flow continues in an easterly direction beneath the adjacent residential area. The average hydraulic gradient between MW-4 and MW-22 is approximately 0.002 (i.e., 2 feet per thousand feet).

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

3.2 Ground Water Analytical Results

Ground water analytical results from the initial eight quarterly sampling events and subsequent annual events are summarized in Table 3-2; laboratory reports are provided in Appendix B. Consistent with previous ground water monitoring results, the number and concentrations of PAH compounds are highest in wells within areas where creosote and creosote residuals were handled and/or deposited (i.e., the former Process Area, the Fill Area, and the northeast drainage ditch). The number and concentrations of PAHs decrease dramatically with distance from these areas. 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 other 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. The evaluation was less meaningful for the Fill Area because ever since installation of the Waterloo Barrier in 2003, well MW-12 is no longer really located within the Fill Area plume. Overall, however, the data demonstrate that conditions are favorable for natural attenuation to occur, and the overall decreasing naphthalene concentrations are an indication of such attenuation.

4.0 Future Ground Water Monitoring Activities

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

4.1 Monitoring Frequency

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

4.2 Monitoring Well Network

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.

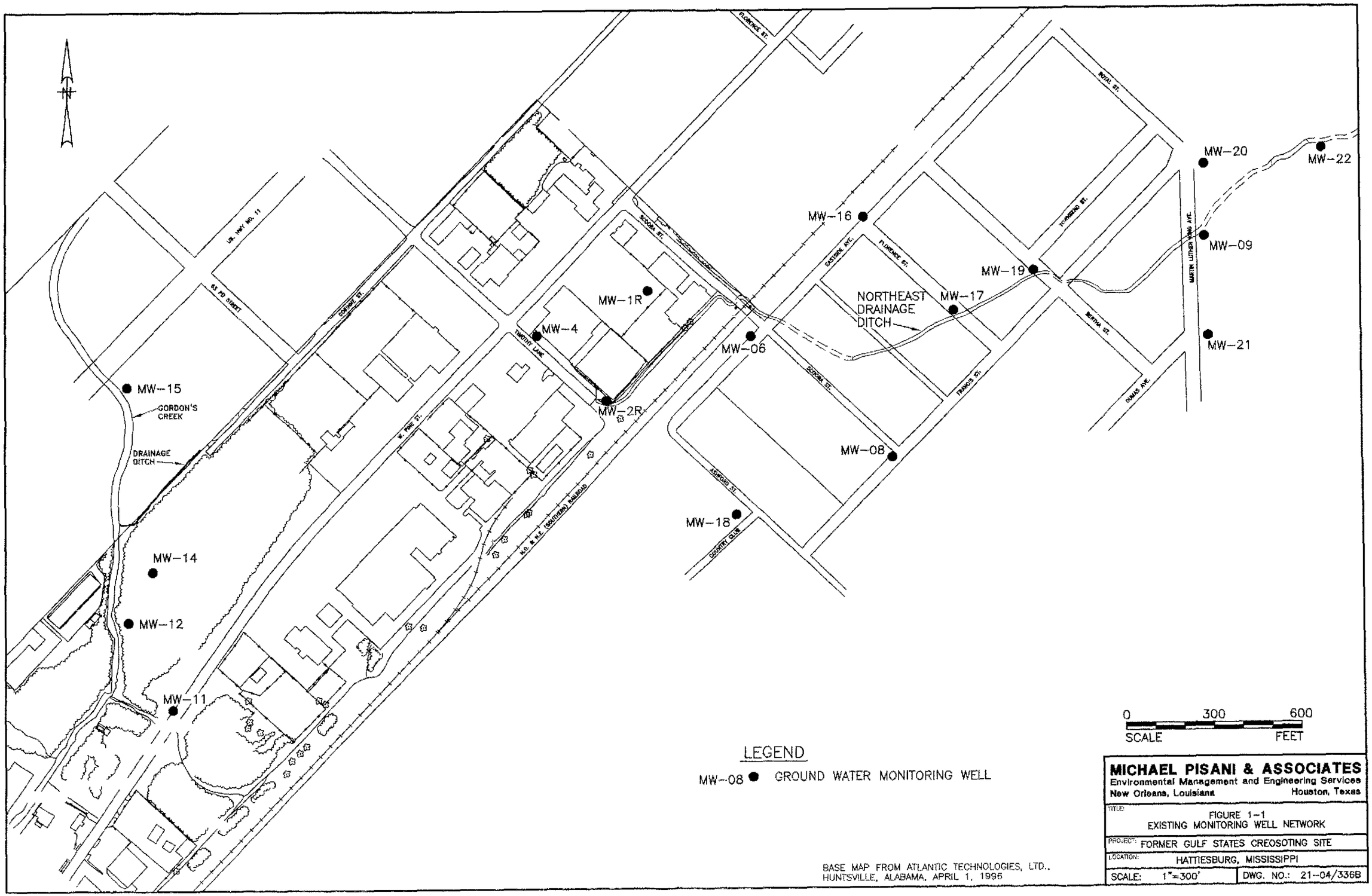
4. Constituent concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, sampling results indicate that conditions are favorable for continued natural attenuation of ground water constituents.

5. Tronox plans to continue annual ground water monitoring at least through 2008. At that time (i.e., at the end of five years of annual monitoring), Tronox will evaluate the data to determine if a change in monitoring frequency is warranted.

Figures

December 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site
Hattiesburg, Mississippi



LEGEND

MW-08 ● GROUND WATER MONITORING WELL

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

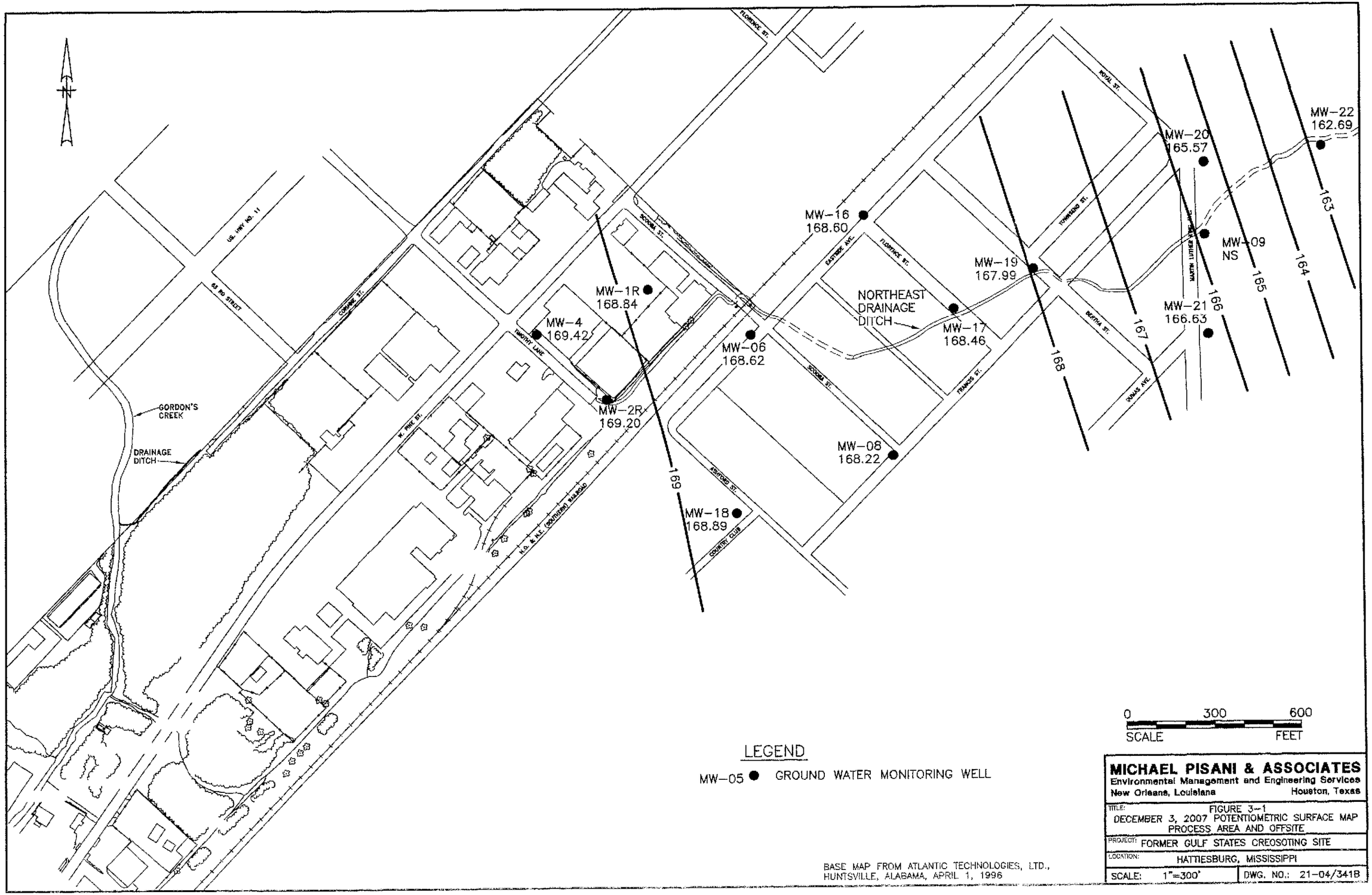
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 1-1
EXISTING MONITORING WELL NETWORK

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/336B



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

0 300 600
SCALE FEET

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

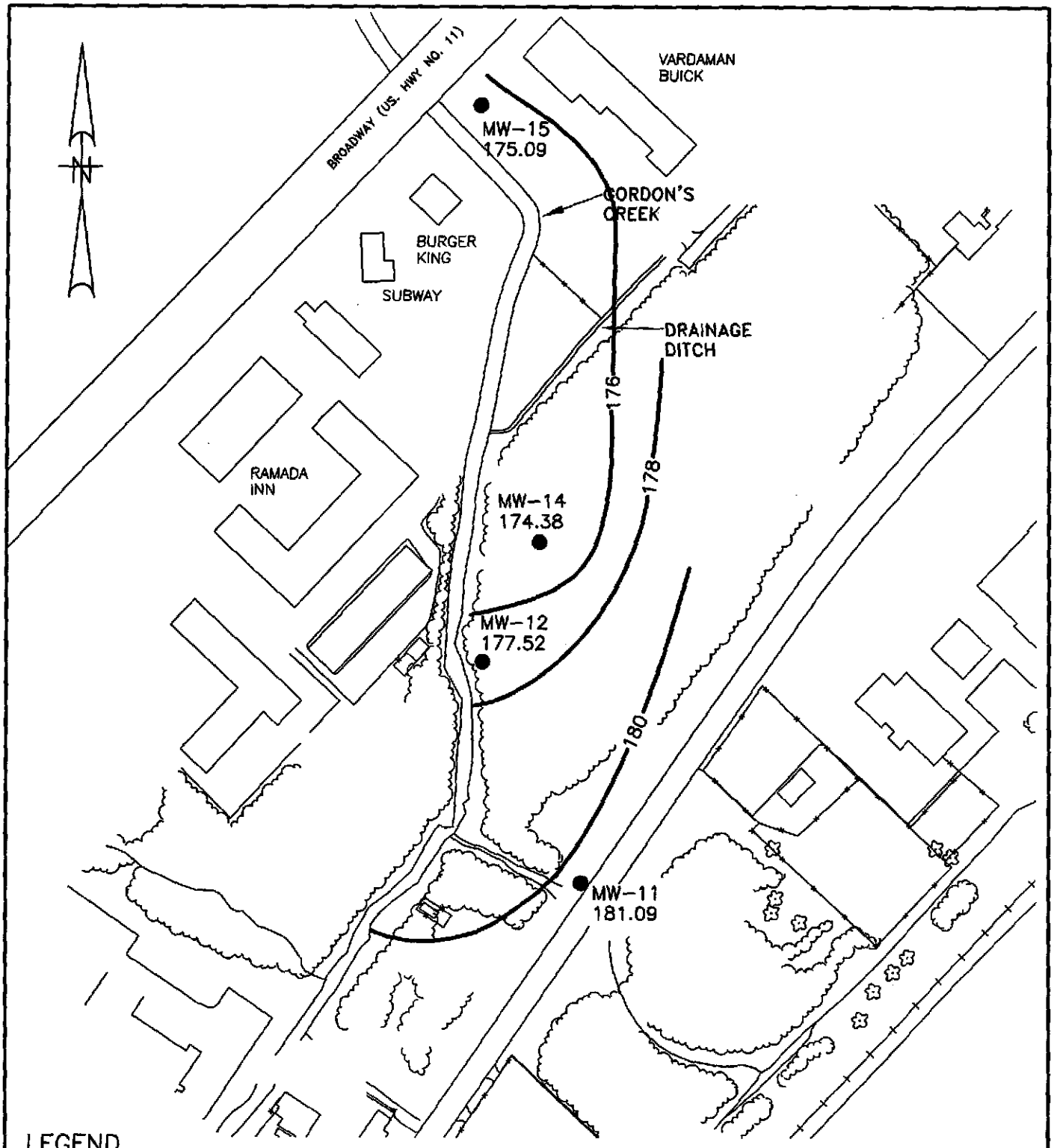
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-1
DECEMBER 3, 2007 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/341B



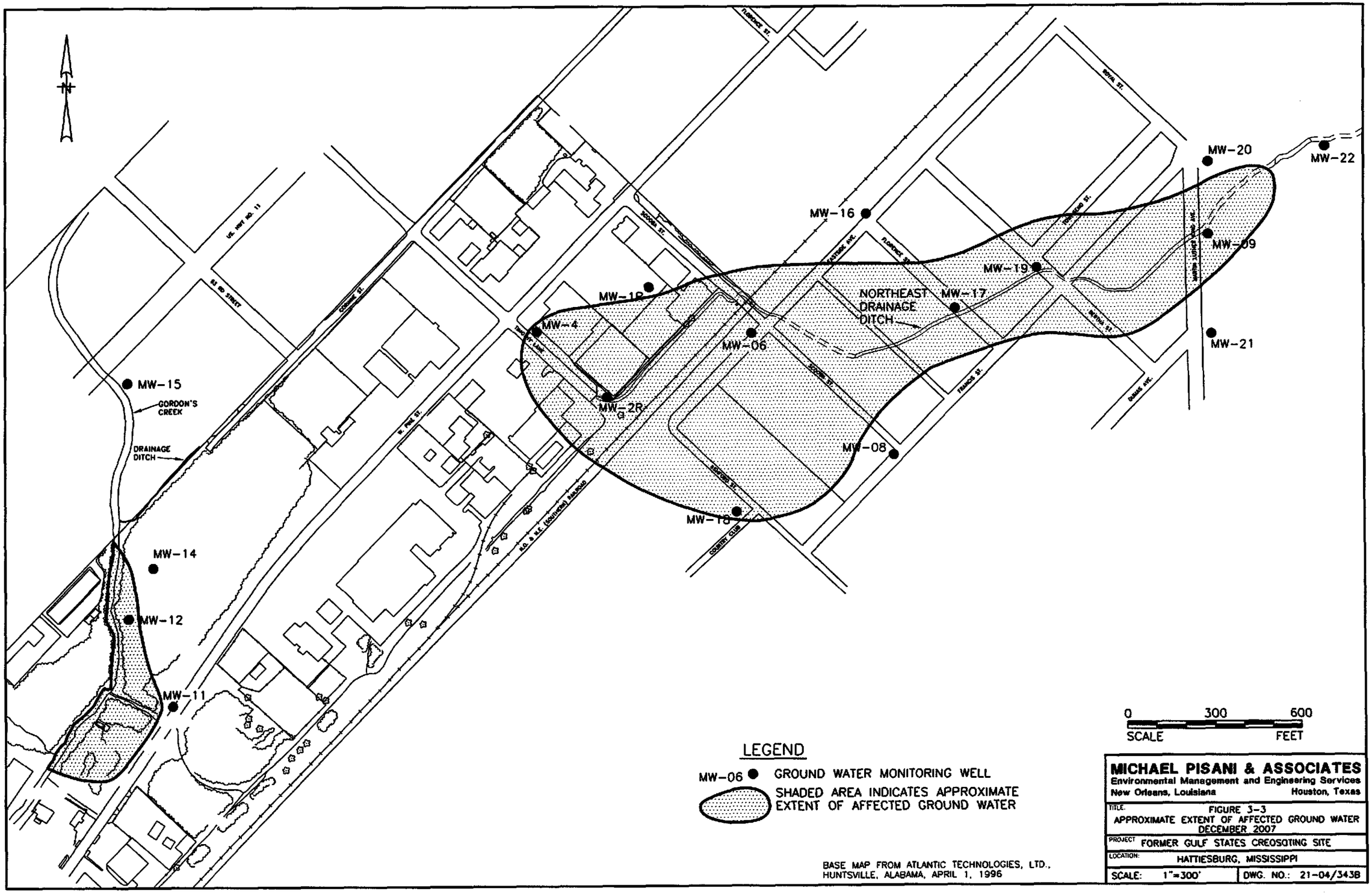
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

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

SCALE: 1"=200' | DWG. NO.: 21-04/342A

FIGURE 3-2
DECEMBER 3, 2007 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI


N
MW-20
MW-22
MW-16
MW-09
MW-19
NORTHEAST DRAINAGE DITCH
MW-17
MW-1R
MW-4
MW-06
MW-21
MW-15
GORDON'S CREEK
DRAINAGE DITCH
MW-2R
MW-08
MW-18
MW-14
MW-12
MW-11
0 300 600
SCALE FEET
LEGEND
MW-06 GROUND WATER MONITORING WELL
SHADED AREA INDICATES APPROXIMATE EXTENT OF AFFECTED GROUND WATER
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas
TITLE: FIGURE 3-3
APPROXIMATE EXTENT OF AFFECTED GROUND WATER DECEMBER 2007
PROJECT: FORMER GULF STATES CREOSOTING SITE
LOCATION: HATTIESBURG, MISSISSIPPI
SCALE: 1"=300' DWG. NO.: 21-04/343B

Tables

December 2007 Ground Water Monitoring Report

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-09	September 2007	8.25	2	PVC	28	To be surveyed	13-28	To be surveyed
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	Biogeochemical Parameters
Naphthalene	Nitrate
Acenaphthylene	Sulfate
Acenaphthene	Methane
Fluorene	Alkalinity
Phenanthrene	Chloride
Anthracene	Iron (total and dissolved)
Fluoranthene	
Pyrene	
Benzo(a)anthracene	Field Parameters
Chrysene	pH
Benzo(b)fluoranthene	Temperature
Benzo(k)fluoranthene	Specific conductance
Benzo(a)pyrene	Dissolved oxygen
Dibenzo(a,h)anthracene	Ferrous iron
Benzo(g,h,i)perylene	Oxidation-reduction potential (Eh)
Indeno(1,2,3-c,d)pyrene	

Table 3-1
Summary of Ground Water Elevation Data

Former Gulf States Creosoting Site
Hattlesburg, Mississippi

Well	Surveyed TOC Elev.	12/18/01	3/18/02	6/6/02	9/16/2002	12/16/2002	3/24/2003	6/23/2003	10/6/2003	12/13/2004	12/12/2005	1/8/2007	12/3/2007
MW-1R	169.06	170.65	173.31	170.46	169.11	173.29	174.75	171.55	169.78	170.06	168.29	169.25	168.84
MW-2R	190.45	170.70	173.59	170.70	169.55	173.50	175.16	172.10	170.22	170.08	168.63	169.32	169.20
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
MW-06	185.44	170.59	173.13	170.24	168.86	173.14	174.53	171.38	169.49	169.90	168.11	169.29	168.62
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
MW-09R	TBS	168.78	170.03	167.84	166.89	170.24	170.88	168.78	166.56	167.23	NM	NM	TBS
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
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
MW-13	183.98	177.53	178.77	176.68	175.73	178.58	179.98	176.86	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	174.83	175.01	175.88	174.38
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
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
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
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
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
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
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
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

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.
TBS - To be surveyed.

Table 3-2

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

Gulf States Creosoting Site
Hattiesburg, Mississippi

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	110j	11	10	0.8	4j	0.9	1.5j	0.8	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(110)	11	8	0.8	4j	0.9	0.86j	0.8	ND(15)	2	ND(15)	2
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
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
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
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
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
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
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
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
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
Fluorene	µg/l	59j	11	0.7	0.04	2	0.2	0.93	0.4	0.68j	0.2	0.21j	0.2
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
Naphthalene	µg/l	4700	110	250	0.9	110	1	36	1	22	1	2.2j	1
Phenanthrene	µg/l	46j	11	6	0.08	2	0.09	1.5	0.08	1.3	0.08	0.54	0.08
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
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
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		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
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
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
Methane	µg/l	2400	50	350	10	71	2	43	2	48	2	ND(5)	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.61	0.4	0.7	0.4	1.1	0.4
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
Field Parameters													
Dissolved Oxygen	mg/l	0.54		0.34		0.76		0.27		0.32		0.29	
Ferrous Iron	mg/l	8		5.1		5		4		2.6		0	
Oxidation-reduction Pot.	volts	14		-20		90		116		138		327	
pH	std. units	6.71		6.17		4.62		4.93		5.47		4.91	
Specific Conductance	µS/cm	399		214		101		84		81		68	
Temperature	°C	23.1		24.26		24.8		24.74		24.23		23.92	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	4.2j	1.5	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6	ND(18)	1	0.85 j	0.56
Acenaphthylene	*µg/l*	*2.6j*	*1.5*	*ND(17)*	*1.7*	*ND(15)*	*1.5*	*ND(16)*	*1.6*	*ND(18)*	*1.6*	*ND(2.2)*	*0.56*
Anthracene	µg/l	0.3	0.038	ND(0.11)	0.022	0.074j	0.039	0.12j	0.039	0.29	0.045	0.088 j	0.044
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.11)	0.022	0.023j	0.019	0.051j	0.02	0.044j	0.023	0.054 j	0.022
Benzo(a)pyrene	µg/l	ND(0.095)	0.019	ND(0.22)	0.043	0.021j	0.019	0.025j	0.02	ND(0.11)	0.023	ND(0.11)	0.022
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.038	ND(0.65)	0.11	ND(0.19)	0.039	0.052j	0.039	ND(0.23)	0.045	ND(0.22)	0.044
Benzo(g,h,i)perylene	µg/l	ND(0.57)	0.095	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
Benzo(k)fluoranthene	µg/l	ND(0.095)	0.019	ND(2)	0.41	ND(0.096)	0.019	0.025j	0.02	ND(0.11)	0.023	ND(0.11)	0.022
Chrysene	µg/l	ND(0.38)	0.076	ND(0.43)	0.087	ND(0.38)	0.077	0.079j	0.079	ND(0.45)	0.09	ND(0.44)	0.089
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	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
Fluoranthene	µg/l	0.25	0.038	0.15j	0.043	0.12j	0.039	0.58	0.039	1.6	0.045	ND(0.22)	0.044
Fluorene	µg/l	2.6	0.17	0.93	0.19	0.36j	0.17	ND(0.79)	0.49	ND(0.90)	0.56	ND(0.89)	0.56
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	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
Naphthalene	µg/l	65	1.1	46	1.3	21	1.5	ND(12)	1.6	ND(14)	1.5	0.59 j	0.56
Phenanthrene	µg/l	2.6	0.076	1.2	0.087	0.63	0.077	0.48	0.079	1	0.09	0.10j	0.089
Pyrene	µg/l	ND(0.76)	0.17	ND(0.87)	0.19	ND(0.77)	0.17	0.42j	0.18	1.1	0.2	1.1	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	12.5	0.41	9.6	0.41	ND(2)	0.41	18.4	0.46	44.7	0.46	33.6	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	0.14j	0.043	15.3	0.41	4.3	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	7.3	1.5	7.6	1.5	7	1.5	ND(2)	1.5	7.2	1	7.0	1
Iron (Total)	mg/l	1.39	0.0453	0.171j	0.0453	ND(0.2)	0.0495	0.153j	0.0378	ND (0.2)	0.0522	ND (0.2)	0.0522
Iron (Dissolved)	mg/l	1.28	0.0453	0.124j	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND (0.2)	0.0522	ND (0.2)	0.0522
Methane	*µg/l*	*35*	*2*	*3.7j*	*2*	*2.2j*	*2*	*ND(5)*	*2*	*10*	*2*	*ND(5)*	*2*
Nitrate Nitrogen	mg/l	0.81	0.4	1.4	0.4	1.5	0.4	ND(0.5)	0.4	1.6	0.05	1.6	0.25
Sulfate	mg/l	1.8j	1.5	1.5j	1.5	ND(5)	1.5	2.7j	1.5	1.9j	0.3	4.7j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.14		0.22		0.98		7.02*		4.32*		0.82	
Ferrous Iron	mg/l	1.4		0		0		0		0		0	
Oxidation-reduction Pot.	volts	165		122		147.5		6		293		87	
pH	std. units	4.96		5.24		5.16		9.6*		5.8		5.77	
Specific Conductance	µS/cm	66		68		75		*		79		121	
Temperature	°C	24.75		32.46*		28.84		22.9		21.3		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-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
Acenaphthene	µg/l	44	1	60	0.8	61	0.9	85	0.8	73	2	52	2
Acenaphthylene	µg/l	8j	1	120	0.8	150	0.9	150	0.8	130	2	150	2
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
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
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
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
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
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
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
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
Fluoranthene	µg/l	11	1	39	0.8	10	0.2	9.5	0.4	8.8	0.8	9.3	0.8
Fluorene	*µg/l*	*35*	1	*10*	0.2	50	1	56	2	60	3	66	3
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
Naphthalene	µg/l	12000	200	8700	50	9000	50	9300	96	8900	120	11000	110
Phenanthrene	µg/l	140	1	110	4	140	4	150	0.8	160	2	160	2
Pyrene	µg/l	2j	1	2	0.2	2	0.2	0.87	0.2	1.4	0.2	1.1	0.2
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
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
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
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
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
Methane	µg/l	2.8j	2	2.2j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.42		0.41		0.48		0.26		0.33		0.25	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	409		200		421		307		237		350	
pH	std. units	5.56		5.36		4.58		4.43		5.4		5	
Specific Conductance	µS/cm	102		108		107		113		113		113	
Temperature	°C	21.8		21.53		22.6		22.68		22.23		22.04	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	66	1.5	58	1.6	81	1.7	62	1.6	47	1	47	0.57
Acenaphthylene	µg/l	120	1.5	100	1.6	130	1.7	100	1.6	ND(110)	110	130	0.57
Anthracene	µg/l	0.72	0.038	0.25	0.02	ND(10)	10	ND(1)	1	ND(0.50)	0.5	0.67	0.045
Benz(a)anthracene	µg/l	0.43	0.019	ND(0.1)	0.02	0.21	0.021	0.15	0.019	0.15	0.023	0.14	0.023
Benzo(a)pyrene	µg/l	0.027j	0.019	0.049j	0.041	ND(0.1)	0.021	ND(0.097)	0.019	ND(0.11)	0.023	ND(0.11)	0.023
Benzo(b)fluoranthene	µg/l	0.09j	0.038	ND(0.61)	0.1	0.045j	0.042	0.054j	0.039	0.064j	0.046	0.060j	0.045
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.096	0.032j	0.02	ND(0.62)	0.1	ND(0.58)	0.097	ND(0.69)	0.11	ND(0.68)	0.11
Benzo(k)fluoranthene	µg/l	0.064j	0.019	ND(2)	0.41	0.031j	0.021	0.031j	0.019	0.043j	0.023	0.040j	0.023
Chrysene	µg/l	0.38j	0.077	0.23j	0.081	0.32j	0.083	0.18j	0.078	0.20j	0.091	0.23j	0.091
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	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
Fluoranthene	µg/l	10	1.9	7.2	0.041	8.2	0.042	6.8	0.039	5.7	0.046	6.3	0.045
Fluorene	µg/l	63	8.6	51	9.1	64	9.4	52	9.7	54	11	63	11.
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	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
Naphthalene	µg/l	9700	58	8100	61	7300	83	6000	31	5800	30	7500	11.
Phenanthrene	µg/l	150	3.8	120	4.1	120	4.2	110	1.6	94	1.8	130	1.8
Pyrene	µg/l	1.6	0.17	1.1	0.18	1.3	0.19	0.73j	0.17	0.70j	0.21	0.79j	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	*mg/l*	*21.8*	*0.41*	*21.1*	*0.41*	ND(2)	0.41	16.5	0.46	21.9	0.46	14.4	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	0.42	0.041	22.4	0.41		0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	6.1	1.5	5.8	1.5	5.7	1.5	4.8	1.5	5.5	1	5.2	1
Iron (Total)	mg/l	0.0679j	0.0453	0.0578j	0.0453	ND(0.2)	0.0495	0.0813j	0.0378	0.120j	0.0522	0.100j	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0689j	0.0378	0.100j	0.0522	0.0635j	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	2.1j	2	ND(5)	2	2.3j	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)	0.25	ND(0.5)	0.25
Sulfate	mg/l	21.8	1.5	19.9	1.5	17.9	1.5	18.8	1.5	19	1.5	16.8	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.04		0.5		1.3		0.36		4.49*		0.8	
Ferrous Iron	mg/l	0		0		0		0		0.6		0	
Oxidation-reduction Pot.	volts	268		166		129		115		107		31	
pH	std. units	5.08		5.31		5.31		5.11		5.33		5.39	
Specific Conductance	µS/cm	116		113		106		*		115		98.17	
Temperature	°C	22.18		25.41*		23.99		22.39		22.5		23.26	

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
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2
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
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
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
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
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
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
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
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
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
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*
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
Naphthalene	µg/l	110	1	ND(8)	0.9	ND(8)	0.9	59	1	4.5j	1	ND(12)	1
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
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
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
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
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
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
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
Methane	µg/l	3.1j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.57		0.63		3.62		6.09		3.5		0.33	
Ferrous Iron	mg/l	0		0		1		0		0		0	
Oxidation-reduction Pot.	volts	403		268		639		221		308		402	
pH	std. units	5.67		5.44		3.94		5.43		5.54		5.05	
Specific Conductance	µS/cm	62		61		63		67		66		65	
Temperature	°C	24.2		23.24		24.7		24.94		24		24.08	

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-4

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	ND(15)	1.5	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1	ND(2.3)	0.57
Acenaphthylene	µg/l	ND(15)	1.5	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1.6	ND(2.3)	0.57
Anthracene	µg/l	ND(0.19)	0.038	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
Benz(a)anthracene	µg/l	ND(0.096)	0.019	ND(0.1)	0.021	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.046j	0.023
Benzo(a)pyrene	µg/l	ND(0.096)	0.019	ND(0.21)	0.042	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.073j	0.023
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.038	ND(0.63)	0.1	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.069j	0.046
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.096	ND(0.1)	0.021	ND(0.59)	0.099	ND(0.59)	0.098	ND(0.67)	0.11	0.13j	0.11
Benzo(k)fluoranthene	µg/l	ND(0.096)	0.019	ND(2)	0.41	ND(0.099)	0.02	ND(0.098)	0.02	ND(0.11)	0.022	0.034j	0.023
Chrysene	µg/l	ND(0.38)	0.077	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
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	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
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.062j	0.046
Fluorene	µg/l	*ND(0.77)*	*0.17*	*0.26j*	*0.19*	*0.18j*	*0.18*	*ND(0.78)*	*0.49*	*ND(0.89)*	*0.55*	*ND(0.92)*	*0.57*
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	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
Naphthalene	µg/l	ND(12)	1.2	35	1.3	34	1.6	ND(12)	1.6	38	1.4	13	0.57
Phenanthrene	µg/l	ND(0.38)	0.077	0.35j	0.084	0.22j	0.079	ND(0.39)	0.078	0.16j	0.089	0.10j	0.092
Pyrene	µg/l	ND(0.77)	0.17	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	15.8	0.41	15.6	0.41	ND(2)	0.41	15.2	0.46	16.4	0.46	12.3	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.21)	0.042	15.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	7.6	1.5	7.2	1.5	7.4	1.5	6.8	1.5	7.1	1	2.5	1
Iron (Total)	mg/l	ND(0.2)	0.0453	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
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	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
Methane	µg/l	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)	0.25	0.55	0.25
Sulfate	mg/l	ND(5)	1.5	1.9j	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.9j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.86		0.44		0.54		3.86		5.16		0.91	
Ferrous Iron	mg/l	0		0.1		0		0		0		0	
Oxidation-reduction Pot.	volts	276		141		144		171		283		150	
pH	std. units	5.11		5.38		5.28		5.33		5.17		5.38	
Specific Conductance	µS/cm	68		64		69		*		65		62.59	
Temperature	°C	24.38		32.85*		24.34		22.51		21.1		26.2	

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-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
Acenaphthene	µg/l	170	10	160	0.8	140	0.8	150	0.8	160	2	100	2
Acenaphthylene	µg/l	ND(100)	10	150	0.8	150	0.8	130	0.8	170	2	130	2
Anthracene	µg/l	ND(100)	10	7	0.2	6	0.04	6.6	0.04	8.6	0.4	5.7	0.04
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
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
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
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
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
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
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
Fluoranthene	µg/l	ND(100)	10	89	0.8	2	0.04	2.6	0.04	2.3	0.04	1.8	0.04
Fluorene	µg/l	120	10	2	0.04	92	1	92	0.2	120	2	94	3
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
Naphthalene	µg/l	9100	200	7300	50	6800	50	8200	1	8600	120	7600	57
Phenanthrene	µg/l	79j	10	65	0.4	67	0.4	69	0.08	83	0.8	68	2
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
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
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
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
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
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
Methane	µg/l	1200	50	1400	40	1400	40	1900	2	1900	50	1200	50
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
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
Field Parameters													
Dissolved Oxygen	mg/l	0.35		0.26		0.41		0.17		0.33		0.11	
Ferrous Iron	mg/l	7		5		3		4.5		5		4.2	
Oxidation-reduction Pot.	volts	58		-177		-116		-87		-58		-111	
pH	std. units	6.19		6.18		4.92		5.46		6.03		5.81	
Specific Conductance	µS/cm	215		246		239		236		225		206	
Temperature	°C	22.1		21.58		22.5		22.74		22.67		21.2	

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-06

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	140	1.5	120	1.5	130	1.5	96	1.6	120	1	80	0.57
Acenaphthylene	µg/l	160	1.5	120	1.5	ND(770)	770	91	1.6	ND(160)	160	120	0.57
Anthracene	µg/l	8	0.77	ND(0.095)	0.019	6.9	0.039	4.5	0.039	7.1	0.045	5.0	0.046
Benz(a)anthracene	µg/l	ND(0.096)	0.019	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
Benzo(a)pyrene	µg/l	ND(0.096)	0.019	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
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.038	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.096	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
Benzo(k)fluoranthene	µg/l	ND(0.096)	0.019	ND(2)	0.41	ND(0.096)	0.019	ND(0.099)	0.02	ND(0.11)	0.023	ND(0.11)	0.023
Chrysene	*µg/l*	*ND(0.38)*	*0.077*	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
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	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
Fluoranthene	µg/l	2.1	0.038	1.9	0.038	2.4	0.039	1.5	0.039	2.5	0.045	1.7	0.046
Fluorene	µg/l	110	3.5	86	8.6	91	8.7	59	9.9	94	11	68	11.
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	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
Naphthalene	µg/l	8500	58	6400	57	7100	77	4100	32	6500	29	5200	11.
Phenanthrene	µg/l	78	1.5	65	3.8	64	3.9	45	1.6	76	1.8	55	1.8
Pyrene	µg/l	0.74j	0.17	0.67j	0.17	0.78	0.17	45	0.18	0.82j	0.2	0.52j	0.21
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	110	0.41	108	0.41	ND(2)	0.41	104	0.46	98.2	0.46	104	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	6.1	0.038	97.5	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	8.6	1.5	8.4	1.5	8	1.5	7.3	1.5	7.6	1	7.8	1.0
Iron (Total)	*mg/l*	*16.8*	*0.0453*	18.8	0.0453	22	0.0495	26.9	0.0378	26.1	0.0522	26.3	0.0522
Iron (Dissolved)	mg/l	17.9	0.0453	18.9	0.0453	22	0.0495	26	0.0378	25.8	0.0522	28.0	0.0522
Methane	µg/l	1900	100	1400	50	2500	50	1400	40	2300	500	1400	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)	0.25	ND(0.5)	0.25
Sulfate	mg/l	2.7j	1.5	5.2	1.5	3.4j	1.5	3.6j	1.5	1.9j	1.5	2.8j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.68		0.3		0.18		0.37		5.67*		0.74	
Ferrous Iron	mg/l	6.6		5.2		4		4		0		2.4	
Oxidation-reduction Pot.	volts	-32		-98		-60.3		-154		-88		-163	
pH	std. units	5.37		6.08		5.82		5.78		5.77		6.01	
Specific Conductance	µS/cm	246		206		213		*		210		220	
Temperature	°C	22.74		32.19*		24.09		21.14		22		22.77	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-08

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	3.6j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	3.33		4.31		2.92		2.82		3.45		2.92	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	428		528		300		334		367		320	
pH	std. units	5.25		4.46		4.49		4.43		4.96		4.3	
Specific Conductance	µS/cm	88		114		105		100		95		150	
Temperature	°C	21.4		21.95		21.6		22.24		22.15		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-08

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2)	0.50
Acenaphthylene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2)	0.50
Anthracene	µg/l	ND(0.2)	0.04	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
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.6)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.097)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020
Chrysene	µg/l	ND(0.4)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	ND(0.2)	0.04	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
Fluorene	µg/l	ND(0.8)	0.18	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
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2)	0.50
Phenanthrene	µg/l	ND(0.4)	0.08	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
Pyrene	µg/l	ND(0.8)	0.18	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	3.1	0.41	3	0.41	ND(2)	0.41	2.5	0.46	2.7	0.46	1.6j	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.2)	0.039	3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	28.6	1.5	35	3	26.1	1.5	33.8	3	12.2	1	25.3	1.0
Iron (Total)	mg/l	ND(0.2)	0.0453	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
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522		
Methane	µg/l	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	1.2	0.4	1.5	0.4	1.5	0.4	2.1	0.4	*1.9*	*0.25*	*2.6*	*0.25*
Sulfate	mg/l	3.4j	1.5	3.4j	1.5	3.1j	1.5	3.9j	1.5	4.2j	1.5	3.3j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.28		1.15		1.16		2.15		7.96*		3.04	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	395		196		188		290		294		200	
pH	std. units	4.68		4.94		4.7		4.56		4.79		4.86	
Specific Conductance	µS/cm	126		390		112		*		137		116.4	
Temperature	°C	21.83		32.61*		23.87		19.06		21.2		19.46	

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-09

Gulf States Creosoting Site
Hattiesburg, Mississippi

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	*Units*	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	240j	27	230	0.8	310	0.9	280	0.8	230	2	190	2
Acenaphthylene	µg/l	12	1	ND(8)	0.8	120	0.9	120	0.8	80	2	ND(55)	55
Anthracene	µg/l	12	1	9	0.4	9	0.4	9.2	0.8	9.8	0.8	7.6	0.4
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
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
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
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
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
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
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
Fluoranthene	µg/l	14	1	110	2	12	0.4	10	0.8	10	0.8	9	0.4
Fluorene	µg/l	160j	27	10	0.4	160	2	150	3	130	3	110	2
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
Naphthalene	µg/l	*2600*	*27*	*1000*	*9*	*1600*	*10*	*2400*	*19*	*1000*	*23*	*1100*	*11*
Phenanthrene	µg/l	110	1	97	0.8	130	0.9	120	2	130	2	100	0.8
Pyrene	µg/l	9j	1	6	0.2	6	0.2	7.6	0.2	5.2	0.2	3.3	0.2
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
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
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
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
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*
Methane	µg/l	590	40	380	10	480	10	340	10	230	10	750	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.46		0.34		0.4		0.22		0.17		0.16	
Ferrous Iron	mg/l	6		3		7		5		5.5		3	
Oxidation-reduction Pot.	volts	62		-179		28		-105		-72		-34	
pH	std. units	6.25		6.23		4.73		5.09		6.2		4.77	
Specific Conductance	µS/cm	189		185		180		181		171		220	
Temperature	°C	21.6		19.18		21.5		24.27		22.17		18.95	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	330	1.6	220	1.6	200	1.6	Damaged		Damaged		84	0.56
Acenaphthylene	µg/l	130	1.6	100	1.6	ND(160)	160	Damaged		Damaged		37	0.56
Anthracene	µg/l	9.3	0.79	0.066j	0.02	8.9	0.39	Damaged		Damaged		3.9	0.044
Benz(a)anthracene	µg/l	0.082j	0.02	ND(0.1)	0.02	0.058j	0.019	Damaged		Damaged		ND(0.1)	0.022
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	ND(0.2)	0.04	ND(0.097)	0.019	Damaged		Damaged		ND(0.2)	0.022
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	ND(0.61)	0.1	ND(0.19)	0.039	Damaged		Damaged		ND(0.61)	0.044
Benzo(g,h,i)perylene	µg/l	ND(0.59)	0.1	ND(0.1)	0.02	ND(0.058)	0.097	Damaged		Damaged		ND(0.1)	0.11
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.097)	0.019	Damaged		Damaged		ND(2)	0.022
Chrysene	µg/l	ND(0.4)	0.08	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		Damaged		ND(0.4)	0.089
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.039	Damaged		Damaged		ND(0.2)	0.044
Fluoranthene	µg/l	11	0.79	10	0.4	9.1	0.39	Damaged		Damaged		3.6	0.044
Fluorene	µg/l	190	3.6	140	1.8	130	1.7	Damaged		Damaged		47	2.8
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.08	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		Damaged		ND(0.4)	0.089
Naphthalene	µg/l	1700	24	1400	12	1300	16	Damaged		Damaged		760	2.8
Phenanthrene	µg/l	150	1.6	130	0.81	110	0.78	Damaged		Damaged		30	0.44
Pyrene	µg/l	5.1	0.18	4.2	0.18	5.7	0.17	Damaged		Damaged		1.9	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	90.1	0.41	84.9	0.41	ND(2)	0.41	Damaged		Damaged		114	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	7	0.04	118	0.41	Damaged		Damaged		ND(2)	0.46
Chloride	mg/l	6.9	1.5	6.8	1.5	8.4	1.5	Damaged		Damaged		10.2	1
Iron (Total)	mg/l	15.8	0.0453	18	0.0453	26.8	0.0495	Damaged		Damaged		24.9	0.0522
Iron (Dissolved)	mg/l	16.7	0.0453	17.6	0.0453	25.9	0.0495	Damaged		Damaged		25.0	0.0522
Methane	µg/l	580	20	450	20	1500	40	Damaged		Damaged		2000	40
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	Damaged		Damaged		ND(0.5)	0.25
Sulfate	mg/l	6.4	1.5	13.8	1.5	ND(5)	1.5	Damaged		Damaged		ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	4.07		0.42		1.69		Damaged		Damaged		0.74	
Ferrous Iron	mg/l	4		4.6		5		Damaged		Damaged		4	
Oxidation-reduction Pot.	volts	-70.5		-166		-73		Damaged		Damaged		-103	
pH	std. units	5.68		5.96		6.34		Damaged		Damaged		6.23	
Specific Conductance	µS/cm	203		238		259		Damaged		Damaged		253.5	
Temperature	°C	22.03		23.73		28.55		Damaged		Damaged		21.88	

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
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	10	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
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
Field Parameters													
Dissolved Oxygen	mg/l	3.95		1.32		1.59		0.56		0.61		1.17	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	336		365		520		326		390		515	
pH	std. units	5.52		4.18		3.7		4.4		4.74		3.16	
Specific Conductance	µS/cm	81		86		85		97		94		98	
Temperature	°C	22.3		18.92		24.9		27.74		20.44		18.97	

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-11

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.1	ND(2.2)	0.56
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.7	ND(2.2)	0.56
Anthracene	µg/l	ND(0.2)	0.04	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
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.59)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.12)	0.024	ND(0.11)	0.022
Chrysene	µg/l	ND(0.39)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	ND(0.2)	0.04	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
Fluorene	µg/l	ND(0.78)	0.18	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
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.1	ND(11)	1.5	ND(12)	1.5	ND(14)	1.5	ND(2.2)	0.56
Phenanthrene	µg/l	ND(0.39)	0.08	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
Pyrene	µg/l	ND(0.78)	0.18	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	2.2	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.46	1.0j	0.46	ND(2)	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.19)	0.038	ND(2)	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	11.6	1.5	11	1.5	11.1	1.5	7.7	1.5	7.2	1	7.1	1.0
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0774j	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	0.0788j	0.0495	0.0412j	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	24	2	130	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	0.30j	0.25
Sulfate	mg/l	17.8	1.5	23.1	1.5	28.6	1.5	24.9	1.5	24.4	1.5	19.9	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2		0.63		0.63		0.15		5.56*		0.77	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	369		304		166.6		278		353		340	
pH	std. units	4.57		4.41		4.55		3.99		4.44		4.58	
Specific Conductance	µS/cm	109		112		117		*		107		90.17	
Temperature	°C	25.12		26.23		21.65		22.08		20.7		22.55	

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 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
Acenaphthene	µg/l	130	1	100	0.8	85	0.9	100	0.8	29	2	16	2
Acenaphthylene	µg/l	16	1	81	0.8	63	0.9	97	0.8	17	2	14j	2
Anthracene	µg/l	5j	1	5	0.04	4	0.04	4.4	0.04	1.7	0.04	1.4	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
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
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
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
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
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
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
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
Fluorene	µg/l	64	1	0.7	0.04	29	0.2	52	3	12	0.2	6.9	0.2
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
Naphthalene	µg/l	5600	100	2900	20	2600	20	4800	19	360	6	210	1
Phenanthrene	µg/l	41	1	28	2	25	2	34	2	7.4	0.08	3.9	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
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
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
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
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
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
Methane	µg/l	400	10	360	10	370	10	400	10	240	10	210	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.65		0.4		1.25		0.18		0.22		0.27	
Ferrous Iron	mg/l	1.4		2.2		3.8		3		3.5		1.8	
Oxidation-reduction Pot.	volts	269		-2.2		132		20.8		49.5		97.4	
pH	std. units	6.43		5.86		3.81		6.02		6.28		5.7	
Specific Conductance	µS/cm	97		110		107		110		108		111	
Temperature	°C	20.1		18.19		19		20.86		20.34		18.36	

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

		June 2003		October 2003		December 2004		December 2005		January 2007		December 2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	4.5j	1.6	2.6j	1.7	ND(15)	1.5	ND(15)	1.5	ND(17)	0.95	2.0j	0.55
Acenaphthylene	µg/l	2.5j	1.6	2.3j	1.7	ND(15)	1.5	ND(15)	1.5	2.1j	1.5	5.5	0.55
Anthracene	µg/l	0.08j	0.04	ND(0.11)	0.022	0.067j	0.038	ND(0.19)	0.2	ND(0.21)	0.042	ND(0.22)	0.20
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.59)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022
Chrysene	µg/l	ND(0.39)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	0.062j	0.04	0.053j	0.043	0.19j	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044
Fluorene	µg/l	ND(0.78)	0.18	2.1	0.19	ND(0.76)	0.17	ND(0.76)	0.48	ND(0.84)	0.53	2.3	0.55
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	2.2j	1.2	12j	1.3	ND(11)	1.5	7.8j	1.5	3.7j	1.4	79	0.55
Phenanthrene	µg/l	0.15j	0.08	0.63	0.087	0.20j	0.076	0.12j	0.076	0.097j	0.084	0.21j	0.089
Pyrene	µg/l	0.19j	0.18	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	50	0.41	50.9	0.41	ND(2)	0.41	53.5	0.46	54.6	0.46	57.7	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	0.47	0.043	49.1	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	3.1	1.5	3	1.5	3.1	1.5	2.5	1.5	2.8	1	3.0	1.0
Iron (Total)	mg/l	1.4	0.0453	1.3	0.0453	1.08	0.0495	1.32	0.0378	0.869	0.0522	0.854	0.0522
Iron (Dissolved)	mg/l	1.35	0.0453	1.18	0.0453	1.03	0.0495	0.985	0.0378	0.582	0.0522	0.805	0.0522
Methane	µg/l	170	20	140	2	64	2	50	2	50	2	140	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	2.1j	1.5	ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.17		0.29		0.5		0.81		5.83*		1.1	
Ferrous Iron	mg/l	1.9		NM		1		0.8		0.6		1.2	
Oxidation-reduction Pot.	volts	145		-20.6		33		-12		44		-86	
pH	std. units	5.47		6.19		6.2		5.53		5.8		6.07	
Specific Conductance	µS/cm	107		109		103		*		108		103.2	
Temperature	°C	20.18		26.75*		24		20.22		20.3		18.51	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-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
Acenaphthene	µg/l	8j	1	ND(8)	0.8	ND(8)	0.8	0.96j	0.8	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
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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	3j	1	23	0.9	10	1	42	1	6.2j	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
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
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
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
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
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
Iron (Dissolved)	mg/l	0.353	0.038	0.672	0.038	1.07	0.0349	1.59	0.0349	0.968	0.0349	1.1	0.035
Methane	µg/l	100	2	100	2	210	10	1100	40	120	2	63	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
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
Field Parameters													
Dissolved Oxygen	mg/l	1.91		0.29		0.81		0.29		0.2		0.32	
Ferrous Iron	mg/l	0.8		1.5		3		3.5		2.5		1.2	
Oxidation-reduction Pot.	volts	345		-90		33		-72		49.1		18.4	
pH	std. units	6.6		5.6		4.72		5.65		5.8		5.08	
Specific Conductance	µS/cm	78		64		68		75		68		83	
Temperature	°C	19.6		18.16		18.7		20.32		19.86		18.09	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-14

Gulf States Creosoting Site
Hattiesburg, Mississippi

		June 2003		October 2003		December 2004		December 2005		January 2007		December 2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(15)	2	ND(15)	1.5	4.8j	1.5	ND(16)	1.6	2.4j	1	ND(2)	0.51
Acenaphthylene	µg/l	ND(15)	2	ND(15)	1.5	3.6j	1.5	ND(16)	1.6	ND(18)	1.6	ND(2)	0.51
Anthracene	µg/l	ND(0.2)	0.04	ND(0.096)	0.019	0.06j	0.038	ND(0.2)	0.04	0.049j	0.046	0.060j	0.041
Benz(a)anthracene	µg/l	ND(0.09)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.09)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.6)	0.09	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
Benzo(k)fluoranthene	µg/l	ND(0.09)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020
Chrysene	µg/l	ND(0.4)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	ND(0.2)	0.04	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
Fluorene	µg/l	ND(0.8)	0.2	ND(0.77)	0.17	1.7	0.17	ND(0.79)	0.5	0.99	0.58	ND(0.82)	0.51
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.08	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
Naphthalene	µg/l	ND(11)	1	ND(12)	1.2	120	1.5	ND(12)	1.6	1.9j	1.5	ND(2)	0.51
Phenanthrene	µg/l	ND(0.4)	0.08	0.14j	0.077	0.64	0.076	ND(0.4)	0.079	0.35j	0.092	0.098j	0.082
Pyrene	µg/l	ND(0.8)	0.2	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	13.7	0.41	13.8	0.41	ND(2)	0.41	14	0.46	15.8	0.46	14.8	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.19)	0.038	15.9	0.41		0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	5.1	1.5	4.4	1.5	4.5	1.5	4.6	1.5	4.9	1	4.5	1.0
Iron (Total)	mg/l	1.26	0.0453	0.796	0.0453	1.58	0.0495	1.24	0.0378	2.62	0.0522	6.91	0.0522
Iron (Dissolved)	mg/l	1.23	0.0453	0.896	0.0453	1.04	0.0495	1.21	0.0378	1.45	0.0522	1.04	0.0522
Methane	µg/l	150	10	47	2	400	10	100	2	180	4	210	4.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4		0.4	ND(0.5)	0.25	0.28j	0.25
Sulfate	mg/l	14.2	1.5	15.7	1.5	14.1	1.5	19.2	1.5	17.5	1.5	17.5	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.2		0.23		0.69		3.95		6.19*		0.98	
Ferrous Iron	mg/l	2		0.4		2		1.6		0		1.6	
Oxidation-reduction Pot.	volts	-29.7		17.8		21.5		-21		12		42	
pH	std. units	5.34		5.8		5.81		5.31		5.9		5.59	
Specific Conductance	µS/cm	80		69		82		*		79		84.18	
Temperature	°C	18.83		34.39*		19.7		19.72		19.1		20.83	

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 - quallfier 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

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	3j	1	3j	0.8	2j	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2
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
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
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
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
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
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
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
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
Fluoranthene	µg/l	2j	1	0.7j	0.2	1	0.04	1.5	0.04	0.9	0.04	0.72	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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	1400	100	1500	40	1800	50	2200	50	1900	100	2500	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
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
Field Parameters													
Dissolved Oxygen	mg/l	1.06		0.6		0.5		0.36		0.35		0.23	
Ferrous Iron	mg/l	5.8		4.5		5.8		7		7		5.1	
Oxidation-reduction Pot.	volts	89		-46		-24		-59		-39		-34.9	
pH	std. units	6.44		6.15		5.95		6.39		6.3		6.26	
Specific Conductance	µS/cm	304		403		320		294		392		401	
Temperature	°C	24.6		21.2		25.3		28.77		24.63		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-15

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	2.1j	1.6	2.3j	1.5	2.3j	1.5	2.6j	1.6	ND(18)	1	1.5j	0.55
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(18)	1.6	ND(2.2)	0.55
Anthracene	µg/l	0.13j	0.04	0.028j	0.019	0.10j	0.038	0.13j	0.039	0.080j	0.045	0.16j	0.044
Benz(a)anthracene	µg/l	0.021j	0.02	ND(0.095)	0.019	0.022j	0.019	0.026j	0.02	ND(0.11)	0.023	0.029j	0.022
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.59)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.11)	0.023	ND(0.11)	0.022
Chrysene	µg/l	0.45	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	1	0.04	1.2	0.038	0.98	0.038	0.93	0.039	0.69	0.045	0.94	0.044
Fluorene	µg/l	0.7j	0.18	0.5j	0.17	0.47j	0.17	ND(0.78)	0.49	ND(0.91)	0.57	ND(0.88)	0.55
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.1	ND(12)	1.5	ND(12)	1.6	ND(14)	1.5	ND(2.2)	0.55
Phenanthrene	µg/l	0.24j	0.08	0.29j	0.076	0.18j	0.077	0.20j	0.078	0.10j	0.091	0.21j	0.088
Pyrene	µg/l	0.68j	0.18	0.83	0.17	0.73j	0.17	0.67j	0.18	0.49j	0.2	0.65j	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	137	0.41	124	0.41	ND(2)	0.41	147	0.46	171	0.46	145	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	0.14j	0.038	153	0.41		0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.2	1.5	4.7	1.5	4.2	1.5	3.6	1.5	3.7	1	4.8	1.0
Iron (Total)	mg/l	30.7	0.0453	31.2	0.0453	30.2	0.0495	34.3	0.0378	35.9	0.0522	33.2	0.0522
Iron (Dissolved)	mg/l	31.7	0.0453	31.1	0.0453	29.8	0.0495	32.7	0.0378	36.8	0.0522	33.0	0.0522
Methane	µg/l	1900	200	1800	100	1800	40	1800	50	1300	200	1700	40.
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4		0.4	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	2j	1.5	1.9j	1.5	ND(5)	1.5	6.7	1.5	2.2j	1.5	ND(5)	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.95		0.53		0.98		0.36		5.05*		0.74	
Ferrous Iron	mg/l	7.1		5.8		5		4.5		3		2	
Oxidation-reduction Pot.	volts	-52.6		-40.4		-47.7		-91		-84		-134	
pH	std. units	5.82		6.16		6.11		5.93		6		6.13	
Specific Conductance	µS/cm	369		355		365		*		384		317	
Temperature	°C	26.3		28.45		25.5		22.7		22.9		23.51	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-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
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	17	2	ND(5)	2	3.3j	2	3.3j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	1.99		5.33		4.64		3.03		4.93		4.83	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	484		492		613		323		405		390	
pH	std. units	5.42		4.69		4.21		4.52		5.08		5.19	
Specific Conductance	µS/cm	49		45		47		73		53		63	
Temperature	°C	20.9		21.28		21.5		21.34		21.39		20.13	

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
Hattlesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2.1)	0.53
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2.1)	0.53
Anthracene	µg/l	ND(0.19)	0.04	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
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	0.065j	0.038	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021
Chrysene	µg/l	ND(0.39)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.04	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
Fluoranthene	µg/l	ND(0.19)	0.04	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
Fluorene	µg/l	ND(0.77)	0.17	ND(2)	2	ND(0.76)	0.17	ND(0.78)	0.49	ND(0.87)	0.55	ND(0.85)	0.53
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.1	ND(11)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2.1)	0.53
Phenanthrene	µg/l	ND(0.39)	0.08	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
Pyrene	µg/l	ND(0.77)	0.17	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	5.3	0.41	5.3	0.41	ND(2)	0.41	5.8	0.46	6.1	0.46	6.0	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.19)	0.038	4.8	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.6	1.5	4.2	1.5	4.1	1.5	5.2	1.5	4.3	1	4.1	1.0
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	0.98	0.0522	0.139 J	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	0.342	0.0522	ND(0.2)	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	2.1j	2	ND(5)	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	1.3	0.4	1.6	0.4	1.3	0.4	1.2	0.4	1.1	0.25	1.1	0.25
Sulfate	mg/l	12.6	1.5	26.6	1.5	9.1	1.5	18.8	1.5	6.2	1.5	6.5	1.5
Field Parameters													
Dissolved Oxygen	mg/l	5.61		3.49		2.15		5.3		7.31		3.74	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	603		382		154		272		340		209	
pH	std. units	4.42		5.07		5.05		4.5		4.85		5.04	
Specific Conductance	µS/cm	70		80		63		*		74		55.93	
Temperature	°C	21.61		27.19*		23.26		21.01		20		20.98	

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

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	38	1	51	0.8	35	0.8	33	0.8	30	2	18	2
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	14	0.8	7.7j	0.8	14j	2	6.9j	2
Anthracene	µg/l	2j	1	2	0.04	2	0.04	1.5	0.04	1.5	0.04	0.68	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
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
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
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
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
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
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
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
Fluorene	µg/l	27	1	1	0.04	23	0.2	22	0.2	21	0.2	14	0.2
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
Naphthalene	µg/l	720	11	750	5	560	5	590	5	480	6	140	1
Phenanthrene	µg/l	14	1	16	0.4	12	0.08	14	0.08	13	0.08	3.3	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
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
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
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
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
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
Methane	µg/l	850	40	1400	40	910	20	930	40	640	20	470	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.79		0.3		0.62		0.33		0.31		0.49	
Ferrous Iron	mg/l	1.2		5		5.5		5.5		4.5		2.2	
Oxidation-reduction Pot.	volts	339		13.1		340		60.3		113		208	
pH	std. units	5.7		5.89		3.86		3.71		5.57		2.15*	
Specific Conductance	µS/cm	111		147		121		126		116		107	
Temperature	°C	20.1		18.6		20.4		20.99		20.53		18.92	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	6.8j	1.6	13j	1.5	22	1.6	8.6j	1.6	2.1j	1	3.8	0.55
Acenaphthylene	µg/l	3j	1.6	4.4j	1.5	ND(16)	16	3.3j	1.6	ND(18)	1.6	1.7j	0.55
Anthracene	µg/l	0.26	0.04	0.046j	0.019	0.83	0.04	0.55	0.04	0.058j	0.045	0.14j	0.044
Benz(a)anthracene	µg/l	ND(0.1)	0.02	0.035j	0.019	ND(0.1)	0.02	0.025j	0.02	ND(0.11)	0.022	ND(0.11)	0.022
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	0.04j	0.038	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.11)	0.022
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.1	0.022j	0.019	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.67)	0.11	ND(0.66)	0.11
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.11)	0.022
Chrysene	µg/l	ND(0.39)	0.08	0.083j	0.076	ND(0.4)	0.081	ND(0.4)	0.08	ND(0.45)	0.089	ND(0.44)	0.088
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.04	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
Fluoranthene	µg/l	0.28	0.04	0.76	0.038	0.44	0.04	0.29	0.04	ND(0.22)	0.045	0.066j	0.044
Fluorene	µg/l	8.1	0.17	6.2	0.17	12	0.18	5.2	0.5	1.4	0.56	2.8	0.55
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	13	1.1	330	1.6	94	1.6	9.6j	1.4	14	0.55
Phenanthrene	µg/l	1.7	0.08	0.094j	0.076	9	0.081	5	0.08	0.56	0.089	1.1	0.088
Pyrene	µg/l	ND(0.78)	0.17	0.54j	0.17	0.22j	0.18	ND(0.8)	0.18	ND(0.89)	0.2	ND(0.88)	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	17.3	0.41	27.5	0.41	ND(2)	0.41	34	0.46	13	0.46	13.9	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	0.27	0.038	32.4	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	17.9	1.5	17.1	1.5	11.6	1.5	13.5	1.5	14.9	1	11.0	1.0
Iron (Total)	mg/l	1.41	0.0453	4.6	0.0453	7.85	0.0495	8.5	0.0378	3.45	0.0522	3.27	0.0522
Iron (Dissolved)	mg/l	1.04	0.0453	3.56	0.0453	7.03	0.0495	4.67	0.0378	2.19	0.0522	2.21	0.0522
Methane	µg/l	300	20	390	20	550	20	300	20	140	2	230	4.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25
Sulfate	mg/l	4.4j	1.5	5.6	1.5	6.3	1.5	9.8	1.5	6.7	1.5	11.1	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.6		0.5		0.33		0.4		5.98*		1.06	
Ferrous Iron	mg/l	1.4		2.5		5		4		1		2	
Oxidation-reduction Pot.	volts	278		162		-13		-75		122		-34	
pH	std. units	4.5		5.15		5.86		5.36		5.12		5.44	
Specific Conductance	µS/cm	112		129		130		*		123		1.05.6	
Temperature	°C	20.02		20.9		21.4		21.09		20.6		21.5	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-18

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	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
Acenaphthene	µg/l	26	1	42	0.8	9	0.8	1.6j	0.9	12j	2	2.1j	2
Acenaphthylene	µg/l	2j	1	21	0.8	4j	0.8	ND(9)	0.9	5.6j	2	ND(15)	2
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
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
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
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
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
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
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
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
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
Fluorene	µg/l	16	1	0.7	0.04	7	0.2	2.7	0.2	9.8	0.2	2	0.2
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
Naphthalene	µg/l	470	6	830	5	170	1	27	1	310	1	22	1
Phenanthrene	µg/l	15	1	24	0.4	5	0.08	1.7	0.09	8.9	0.08	0.08j	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
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
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
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
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
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
Methane	µg/l	4.4j	2	4.6j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.67		0.37		0.63		0.37		0.35		0.38	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	377		348		423		338		358		410	
pH	std. units	5.63		4.93		4.55		3.71		5.28		4.42	
Specific Conductance	µS/cm	104		102		109		136		135		136	
Temperature	°C	22.2		22.55		22.3		23.27		22.78		22.35	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	23	1.7	9.1j	1.6	12j	0.97	1.6j	0.55
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(17)	17	ND(16)	1.6	9.0j	1.5	1.6j	0.55
Anthracene	µg/l	0.06j	0.04	ND(0.095)	0.019	ND(0.21)	0.2	0.056j	0.039	0.078j	0.043	ND(0.21)	0.044
Benz(a)anthracene	µg/l	0.082j	0.02	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
Benzo(a)pyrene	µg/l	0.23	0.02	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
Benzo(b)fluoranthene	µg/l	0.098j	0.04	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
Benzo(g,h,i)perylene	µg/l	0.11j	0.1	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
Benzo(k)fluoranthene	µg/l	0.085j	0.02	ND(2)	0.41	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021	ND(0.11)	0.022
Chrysene	µg/l	0.096j	0.08	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
Dibenz(a,h)anthracene	µg/l	0.1j	0.04	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
Fluoranthene	µg/l	0.087j	0.04	ND(0.19)	0.038	0.46	0.042	0.33	0.039	0.61	0.043	0.24	0.044
Fluorene	µg/l	ND(0.78)	0.18	0.96	0.17	25	0.19	13	0.49	20	0.54	5.7	0.55
Indeno(1,2,3-cd)pyrene	µg/l	0.1j	0.08	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
Naphthalene	µg/l	ND(12)	1.2	10j	1.1	500	8.4	180	1.6	290	1.4	25	0.55
Phenanthrene	µg/l	0.3j	0.08	0.39	0.076	16	0.084	11	0.078	17	0.086	5.4	0.088
Pyrene	µg/l	ND(0.78)	0.18	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	8.5	0.41	9.5	0.41	ND(2)	0.41	10.4	0.46	14.2	0.46	8.7	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.19)	0.038	9.4	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	22.5	1.5	23.3	1.5	17.9	1.5	22.1	1.5	17.9	1	19.1	1.0
Iron (Total)	mg/l	ND(0.2)	0.0453	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
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	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
Methane	µg/l	ND(5)	2	ND(5)	2	3.9j	2	ND(5)	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	1.9	0.4	2.2	0.4	1.1	0.4	1.5	0.4	1.1	0.25	1.8	0.25
Sulfate	mg/l	5.6	1.5	6.9	1.5	9.7	1.5	9.8	1.5	9.7	1.5	5.5	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.39		0.37		0.58		0.82		5.49*		1.07	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	557		352		111		252		293		145	
pH	std. units	4.69		5.23		5.17		4.66		5.18		5.32	
Specific Conductance	µS/cm	132		112		116		*		122		119.8	
Temperature	°C	22.97		36.81*		23.5		22.41		21.3		22.65	

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
Acenaphthene	µg/l	49	1	93	0.8	83	0.8	71	0.8	91	2	88	2
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	36	0.8	11	0.8	39	2	26	2
Anthracene	µg/l	2j	1	4	0.04	3	0.04	2.1	0.04	3.6	0.04	3.7	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
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
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
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
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
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
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
Fluoranthene	µg/l	ND(10)	1	39	2	1	0.04	1.4	0.04	1.6	0.04	2.2	0.04
Fluorene	µg/l	22	1	2	0.04	33	0.2	26	0.2	38	2	39	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
Naphthalene	µg/l	290	5	980	9	890	9	500	5	1100	11	1000	11
Phenanthrene	µg/l	17	1	36	0.8	31	0.8	24	0.4	37	0.8	39	0.8
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
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
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
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
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
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
Methane	µg/l	590	40	1400	20	1200	40	1000	40	1400	40	1400	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
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
Field Parameters													
Dissolved Oxygen	mg/l	0.81		1.3		0.51		0.19		0.24		0.23	
Ferrous Iron	mg/l	4.6		6		7		5.5		5		4.8	
Oxidation-reduction Pot.	volts	177		-90		178		-49		-5.7		25.4	
pH	std. units	5.88		6.07		5.15		5.07		6.04		4.12	
Specific Conductance	µS/cm	176		193		179		192		204		198	
Temperature	°C	22.3		19.9		21.1		23.42		22.11		19.98	

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	June 2003 Result	June 2003 MDL	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
Acenaphthene	µg/l	83	1.6	80	1.7	73	1.5	61	1.6	46	1.1	30	0.56
Acenaphthylene	µg/l	37	1.6	36	1.7	33	1.5	ND(26)	26	ND(26)	26	ND(11)	11
Anthracene	µg/l	3	0.04	ND(0.1)	0.021	2.5	0.038	2.2	0.039	2	0.047	1.5	0.045
Benz(a)anthracene	µg/l	0.07j	0.02	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
Benzo(a)pyrene	µg/l	0.16	0.02	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
Benzo(b)fluoranthene	µg/l	0.081j	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.1	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
Benzo(k)fluoranthene	µg/l	0.07j	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022
Chrysene	µg/l	0.11j	0.08	ND(0.42)	0.084	ND(0.38)	0.076	0.10j	0.079	0.12j	0.094	ND(0.45)	0.089
Dibenz(a,h)anthracene	µg/l	0.083j	0.04	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
Fluoranthene	µg/l	1.8	0.04	1.7	0.042	1.8	0.038	1.5	0.039	1.8	0.047	1.3	0.045
Fluorene	µg/l	35	0.18	34	0.19	27	0.17	22	0.49	22	0.59	15	0.56
Indeno(1,2,3-cd)pyrene	µg/l	0 1j	0.08	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
Naphthalene	µg/l	970	12	1000	13	830	7.6	640	7.9	270	1.5	37	0.56
Phenanthrene	µg/l	32	0.78	37	0.84	26	0.38	22	0.39	19	0.47	13	0.089
Pyrene	µg/l	0.81	0.18	0.77j	0.19	0.85	0.17	0.58j	0.18	0.84j	0.21	0.59j	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	84.9	0.41	88.6	0.41	ND(2)	0.41	112	0.46	109	0.46	105	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	3.1	0.042	95.6	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	10.7	1.5	10.2	1.5	11.5	1.5	10.4	1.5	10.3	1	10.6	1.0
Iron (Total)	mg/l	6	0.0453	5.61	0.0453	6.07	0.0495	7.25	0.0378	8	0.0522	6.62	0.0522
Iron (Dissolved)	mg/l	6.02	0.0453	5.49	0.0453	6.05	0.0495	6.86	0.0378	7.54	0.0522	6.07	0.0522
Methane	µg/l	1200	40	1300	50	1300	40	780	40	700	10	450	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)	0.25	ND(0.5)	0.25
Sulfate	mg/l	4 7j	1.5	2.8j	1.5	2.1j	1.5	2.3j	1.5	2.1j	1.5	2.9j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.13		0.39		0.82		0.38		5.56*		0.65	
Ferrous Iron	mg/l	4.8		NM		4		5		5		2.5	
Oxidation-reduction Pot.	volts	100		-127		-26		-114		-66		-129	
pH	std. units	5.35		5.95		6.06		5.73		5.55		6.09	
Specific Conductance	µS/cm	203		234		208		*		201		217.7	
Temperature	°C	22.02		22.41		27.24		22.07		20.9		22.39	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-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
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	3.5j	2	2.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	2.7j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	1.27		0.89		1.84		0.64		0.6		0.58	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	478		543		591		272		417		495	
pH	std. units	5.36		4.78		3.57		4.97		5.21		4.62	
Specific Conductance	µS/cm	67		66		61		64		72		70	
Temperature	°C	22.7		21.08		22.8		24.25		23.2		20.22	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-20

Gulf States Creosoting Site
Hattiesburg, Mississippi

		June 2003		October 2003		December 2004		December 2005		January 2007		December 2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	0.98	ND(2.3)	0.56
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2.3)	0.56
Anthracene	µg/l	ND(0.19)	0.038	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
Benz(a)anthracene	µg/l	ND(0.096)	0.019	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
Benzo(a)pyrene	µg/l	ND(0.096)	0.019	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
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.038	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.096	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
Benzo(k)fluoranthene	µg/l	ND(0.096)	0.019	ND(2)	0.41	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.11)	0.022	ND(0.11)	0.023
Chrysene	µg/l	ND(0.38)	0.077	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
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	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
Fluoranthene	µg/l	ND(0.19)	0.038	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
Fluorene	µg/l	ND(0.77)	0.17	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
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	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
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.2	ND(11)	1.5	ND(12)	1.6	ND(13)	1.4	ND(2.3)	0.56
Phenanthrene	µg/l	ND(0.38)	0.077	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
Pyrene	µg/l	ND(0.77)	0.17	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	8	0.41	9.2	0.41	ND(2)	0.41	10.6	0.46	11.7	0.46	7.0	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.19)	0.039	7.3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	10	1.5	9.1	1.5	11.3	1.5	10.7	1.5	9.8	1	9.6	1.0
Iron (Total)	mg/l	0.0473j	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.164j	0.0378	0.136j	0.0522	0.0590j	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	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
Methane	µg/l	ND(5)	2	ND(5)	2	9.6	2	ND(5)	2	3.3j	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	0.45j	0.4	0.47j	0.4	0.32j	0.25	0.55	0.25
Sulfate	mg/l	3j	1.5	5.8	1.5	ND(5)	1.5	1.6j	1.5	5.5	1.5	1.7j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	2.93		0.45		0.88		0.41		5.73*		0.81	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	286		327		185.2		266		321		221	
pH	std. units	4.62		5.14		5.01		4.41		4.89		4.98	
Specific Conductance	µS/cm	64		61		74		*		68		66.39	
Temperature	°C	23.11		34.16*		28.74		22.54		22.1		23.54	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-21

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 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
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(9)	1	ND(8)	1	ND(11)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	2.8j	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
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
Field Parameters													
Dissolved Oxygen	mg/l	4.4		4.52		4.54		4.06		4.22		4.34	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	507		520		516		274		405		423	
pH	std. units	5.53		4.54		4.73		5.02		5.14		3.84	
Specific Conductance	µS/cm	67		69		68		72		73		68	
Temperature	°C	22		22.08		21.6		22.8		22.71		21.33	

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

		June 2003		October 2003		December 2004		December 2005		January 2007		December 2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(17)	0.95	ND(2.2)	0.56
Acenaphthylene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(15)	1.5	ND(15)	1.5	ND(17)	1.5	ND(2.2)	0.56
Anthracene	µg/l	ND(0.2)	0.04	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
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.2)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.59)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.021	ND(0.11)	0.022
Chrysene	µg/l	ND(0.39)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	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
Fluoranthene	µg/l	ND(0.2)	0.04	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
Fluorene	µg/l	ND(0.78)	0.18	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
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.2	ND(11)	1.5	ND(12)	1.5	ND(13)	1.4	ND(2.2)	0.56
Phenanthrene	µg/l	ND(0.39)	0.08	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
Pyrene	µg/l	ND(0.78)	0.18	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
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	4.5	0.41	4.6	0.41	ND(2)	0.41	3.7	0.46	3.5	0.46	2.8	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.2)	0.04	3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	10.1	1.5	10.6	1.5	11.8	1.5	12	1.5	13.3	1	10.5	1.0
Iron (Total)	mg/l	ND(0.2)	0.0453	0.054j	0.0453	ND(0.2)	0.0495	0.0417 J	0.0378	ND(0.2)	0.0522	ND(0.2)	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	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
Methane	µg/l	ND(5)	2	ND(5)	2	ND(5)	2	4.1 J	2	ND(5)	2	ND(5)	2.0
Nitrate Nitrogen	mg/l	0.8	0.4	1.2	0.4	2	0.4	1.5	0.4	1.7	0.25	1.2	0.25
Sulfate	mg/l	2j	1.5	2.1j	1.5	2.4j	1.5	4.6 J	1.5	3.4j	1.5	2.3j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	6.06		3.78		1.44		3.51		6.57		2.88	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	571		369		164		264		326		203	
pH	std. units	4.5		5.18		4.96		4.51		4.79		5.01	
Specific Conductance	µS/cm	61		91		78		*		74		68.36	
Temperature	°C	22.2		22.14		22.7		22.58		22.4		22.23	

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

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	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
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
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
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
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
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
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
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
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
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
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
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1
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
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
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
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
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
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
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
Methane	µg/l	100	2	71	2	41	2	19	2	33	2	46	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
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
Field Parameters													
Dissolved Oxygen	mg/l	1.63		0.3		0.16		0.43		0.4		0.21	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	420		278		420		207		182		240	
pH	std. units	5.97		5.61		5.06		5.3		5.96		5.15	
Specific Conductance	µS/cm	131		143		134		127		149		158	
Temperature	°C	21		20.13		21.3		21.91		21.42		20.09	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-22

Gulf States Creosoting Site
Hattiesburg, Mississippi

		June 2003		October 2003		December 2004		December 2005		January 2007		December 2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(15)	1.5	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(20)	1.1	ND(2.2)	0.55
Acenaphthylene	µg/l	ND(15)	1.5	ND(16)	1.6	ND(15)	1.5	ND(16)	1.6	ND(20)	1.7	ND(2.2)	0.55
Anthracene	µg/l	ND(0.19)	0.04	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
Benz(a)anthracene	µg/l	ND(0.1)	0.02	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
Benzo(a)pyrene	µg/l	ND(0.1)	0.02	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
Benzo(b)fluoranthene	µg/l	ND(0.19)	0.04	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
Benzo(g,h,i)perylene	µg/l	ND(0.58)	0.1	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
Benzo(k)fluoranthene	µg/l	ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	0.02	ND(0.12)	0.025	ND(0.11)	0.022
Chrysene	µg/l	ND(0.39)	0.08	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
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.04	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
Fluoranthene	µg/l	0.14j	0.04	0.19j	0.04	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.25)	0.05	ND(0.22)	0.044
Fluorene	µg/l	ND(0.77)	0.17	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
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.39)	0.08	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
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.2	ND(12)	1.5	ND(12)	1.6	ND(15)	1.6	ND(2.2)	0.55
Phenanthrene	µg/l	ND(0.39)	0.08	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
Pyrene	µg/l	0.76j	0.17	0.61j	0.18	ND(0.77)	0.17	ND(0.78)	0.18	ND(1.0)	0.22	ND(0.89)	0.20
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	62.3	0.41	50.6	0.41	ND(2)	0.41	25.5	0.46	32.8	0.46	25.3	0.46
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(0.2)	0.04	34.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	9.4	1.5	9.8	1.5	11.7	1.5	10.3	1.5	10.8	1	11.0	1.0
Iron (Total)	mg/l	0.0855j	0.0453	0.071j	0.0453	0.859	0.0495	1.18	0.0378	14.2	0.0522	6.60	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0453	0.339	0.0495	0.256	0.0378	0.185j	0.0522	0.712	0.0522
Methane	µg/l	55	2	38	2	16	2	11	2	9.7	2	19	2.0
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	0.42j	0.4	0.54	0.4	0.37j	0.25	0.61	0.25
Sulfate	mg/l	4.8j	1.5	4.1j	1.5	4.6j	1.5	5.2	1.5	5.2	1.5	4.8j	1.5
Field Parameters													
Dissolved Oxygen	mg/l	1.74		0.3		0.6		0.58		5.51*		1.01	
Ferrous Iron	mg/l	0		0.4		0		1		0		1.2	
Oxidation-reduction Pot.	volts	274		369		111		127		153		138	
pH	std. units	5.59		5.18		5.63		4.92		5.46		5.46	
Specific Conductance	µS/cm	161		91		114		*		121		94.79	
Temperature	°C	21.08		22.14		26		20.71		20.3		20.6	

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
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
	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
	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
	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
	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
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
	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
	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
	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
	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
	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
	Background*	MW-20	1.27	0.89	1.84	0.64	0.5	0.58	2.93	0.45	0.89	0.41	5.73[2]	0.61
	Background*	MW-21	4.4	4.52	4.54	4.06	4.22	4.34	6.06	3.78	1.44	3.51	5.5[2]	2.68
	Background*	MW-22	1.63	0.3	0.16	0.43	0.4	0.21	1.74	0.3	0.5	0.58	5.51[2]	1-Jan
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
	Background*	MW-13	0.63	0.22	0.28	0.21	0.26	0.46	2.19	NM	NM	NM	NM	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

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
Process Area	Plume	MW-1R	8	5.1	5	4	2.6	0	1.4	0	0	0	0	0
	Plume	MW-2R	0	0	0	0	0	0	0	0	0	0	0.6	0
	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4	0	2.4
	Background*	MW-16	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
Northeast Drainage Ditch Area	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4	0	2.4
	Plume	MW-09	6	3	7	5	5.5	3	4	4.6	5	Damaged	Damaged	4
	Plume	MW-17	1.2	5	5.5	5.5	4.5	2.2	1.4	2.5	5	4	1	2
	Plume	MW-19	4.6	6	7	5.5	5	4.8	4.8	NM	4	5	5	2.5
	Background*	MW-16	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
	Background*	MW-20	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
	Background*	MW-22	0	0	0	0	0	0	0	0.4	0	1	0	1.2
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
	Background*	MW-15	4.8	5.1	8	4	6.5	1.2	4	NM	NM	NM	NM	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

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

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
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
	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
	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
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.5	26.6	9.1	18.8	6.2	6.5
	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
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
	Plume	MW-09	3.4j	6.6	4j	ND(5)	5.3	9.6	6.4	13.8	ND(5)	Damaged	Damaged	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
	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
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.5	26.6	9.1	18.8	6.2	6.5
	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
	Background*	MW-20	2j	3.2j	2.2j	2.8j	3.9j	3.4j	3j	5.8	ND(5)	1.6j	5.5	1.7j
	Background*	MW-21	3.1j	2.9j	2.7j	3j	3j	2.1j	2j	2.1j	2.4j	4.6j	3.4j	2.3j
	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
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)
	Background*	MW-13	3.7j	8.7	3.1j	2.7j	3.8j	22.9	4.1j	NA	NA	NA	NA	P&Ad
	Background*	MW-15	1.6j	3j	ND(5)	ND(5)	3.3j	2j	2j	1.9j	ND(5)	7	2.2j	ND(5)

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

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

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation [1]: 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
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
	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)
	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)
	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
	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
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)
	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)
	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)
	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)
	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
	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
	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
	Background*	MW-21	1.22	1.2	1.23	1.4	1.18	1	0.8	1.2	2	1.5	1.7	1.2
	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	0.64	0.37j	0.61
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)
	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&Ad
	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)

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

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

1.0 Introduction

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

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

1.1 Site Description and Background

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

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

1.2 Summary of Previous Ground Water Investigations

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

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

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

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

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

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

Major conclusions from these ground water investigations were:

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

wells within the former Process Area. Affected ground water does not extend westward, southward, or northward from the former Process Area.

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

1.3 Source Area Remediation

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

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

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

and disposed offsite at a permitted Subtitle C landfill. Liquids were transported to KMC's facility in Columbus, Mississippi facility for reuse/recycle.

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

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

Appendix B

December 2007 Laboratory Reports

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Analysis Report

Lancaster Laboratories

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 1068163. Samples arrived at the laboratory on Wednesday, December 05, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-12 Grab Water Sample	5227658
MW-11 Grab Water Sample	5227659
MW-15 Grab Water Sample	5227660
MW-9R Grab Water Sample	5227661
MW-22 Grab Water Sample	5227663
MW-21 Grab Water Sample	5227664
MW-20 Grab Water Sample	5227665
MW-19 Grab Water Sample	5227666
MW-17 Grab Water Sample	5227667
MW-16 Grab Water Sample	5227668

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Chad A. Moline
Group Leader

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227658

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

Collected:12/03/2007 14:40 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT12 SDG#: HMS63-01

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	0.854		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.	57.7		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	3.0		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	140.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	79.		2.2	0.55	ug/l	1
00782	Acenaphthylene	208-96-8	5.5		2.2	0.55	ug/l	1
00783	Acenaphthene	83-32-9	2.0	J	2.2	0.55	ug/l	1
00784	Fluorene	86-73-7	2.3		0.89	0.55	ug/l	1
00785	Phenanthrene	85-01-8	0.21	J	0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.22	0.20	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to the presence of an interferent near its retention time, the normal

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227658

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

Collected:12/03/2007 14:40 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT12 SDG#: HMS63-01

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

reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:40	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 12:55	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 12:55	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 12:55	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 12:22	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 10:44	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227659

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

Collected:12/03/2007 15:45 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT11 SDG#: HMS63-02

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
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.1		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	19.9		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.30	J	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227659

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

Collected:12/03/2007 15:45 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT11 SDG#: HMS63-02

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:43	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 13:09	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 13:09	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 13:09	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 12:39	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 11:23	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227660

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

Collected:12/04/2007 09:10 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT15 SDG#: HMS63-03

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	33.2		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.	145.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.8		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	1,700.		100.	40.	ug/l	20
07107	Ethane	74-84-0	4.8	J	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.2	0.55	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.2	0.55	ug/l	1
00783	Acenaphthene	83-32-9	1.5	J	2.2	0.55	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.88	0.55	ug/l	1
00785	Phenanthrene	85-01-8	0.21	J	0.44	0.088	ug/l	1
00789	Anthracene	120-12-7	0.16	J	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	0.94		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	0.65	J	0.88	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.029	J	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.088	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.66	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.088	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227660

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

Collected:12/04/2007 09:10 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT15 SDG#: HMS63-03

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:54	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 13:23	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 13:23	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 13:23	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 12:54	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 11:48	Glorines Suarez-Rivera	20
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 12:01	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227661

MW-9R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/04/2007 10:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT9R SDG#: HMS63-04

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	24.9	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.	114.	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.2	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	2,000.	100.	40.	ug/l	20
07107	Ethane	74-84-0	N.D.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	760.	11.	2.8	ug/l	5
00782	Acenaphthylene	208-96-8	37.	2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	84.	2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	47.	4.4	2.8	ug/l	5
00785	Phenanthrene	85-01-8	30.	2.2	0.44	ug/l	5
00789	Anthracene	120-12-7	3.9	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	3.6	0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	1.9	0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227661

MW-9R Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/04/2007 10:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT9R SDG#: HMS63-04

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:57	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 13:38	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 13:38	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 13:38	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 13:10	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 12:04	Glorines Suarez-Rivera	20
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 12:40	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/13/2007 03:02	Mark A Clark	5
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227663

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

Collected:12/04/2007 11:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT22 SDG#: HMS63-05

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	6.60		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.	25.3		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	11.0		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	0.61		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	19.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.2	0.55	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.2	0.55	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.2	0.55	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.89	0.55	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.66	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227663

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

Collected:12/04/2007 11:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT22 SDG#: HMS63-05

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:01	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 13:52	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 13:52	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 13:52	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 13:25	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 13:19	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227664

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

Collected:12/04/2007 12:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT21 SDG#: HMS63-06

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
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.	2.8		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.5		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.3	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.2		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.45	0.089	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.22	0.045	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.22	0.045	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.045	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.045	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.45	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.45	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227664

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

Collected:12/04/2007 12:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT21 SDG#: HMS63-06

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:04	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 14:07	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 14:07	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 14:07	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 13:42	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 13:58	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227665

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

Collected:12/04/2007 13:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT20 SDG#: HMS63-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0590 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.	7.0	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	9.6	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	1.7 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.55	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.3	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.3	0.56	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.3	0.56	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.90	0.56	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.45	0.090	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.23	0.045	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.23	0.045	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.90	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.11	0.023	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.23	0.045	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.23	0.045	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.090	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.68	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.45	0.090	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.11	0.023	ug/l	1

Trip blank vials were not received by the laboratory for this sample group.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227665

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

Collected:12/04/2007 13:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT20 SDG#: HMS63-07

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	12/12/2007 00:07	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 14:21	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 14:21	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 14:21	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 13:57	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 14:37	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227666

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

Collected:12/04/2007 14:20 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT19 SDG#: HMS63-08

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	6.62		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.	105.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.6		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.9	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	450.		25.	10.	ug/l	5
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	37.		2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		11.	11.	ug/l	1
00783	Acenaphthene	83-32-9	30.		2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	15.		0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	13.		0.45	0.089	ug/l	1
00789	Anthracene	120-12-7	1.5		0.22	0.045	ug/l	1
00807	Fluoranthene	206-44-0	1.3		0.22	0.045	ug/l	1
00811	Pyrene	129-00-0	0.59	J	0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.045	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.045	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.45	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.45	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to the presence of an interferent near its retention time, the normal

Lancaster Laboratories, Inc.
2425 New Holland Pike
Lancaster, PA 17601-1425
717-656-2300 Fax: 717-656-2681

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227666

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

Collected:12/04/2007 14:20 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT19 SDG#: HMS63-08

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

reporting limit was not attained for acenaphthylene. The reporting limit for this compound was raised accordingly.

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:11	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 14:35	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 14:35	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 14:35	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 14:29	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 12:20	Glorines Suarez-Rivera	5
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 15:16	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227667

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

Collected:12/04/2007 15:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT17 SDG#: HMS63-09

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	3.27		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.	13.9		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	11.0		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	11.1		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	230.		10.	4.0	ug/l	2
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	14.		2.2	0.55	ug/l	1
00782	Acenaphthylene	208-96-8	1.7	J	2.2	0.55	ug/l	1
00783	Acenaphthene	83-32-9	3.8		2.2	0.55	ug/l	1
00784	Fluorene	86-73-7	2.8		0.88	0.55	ug/l	1
00785	Phenanthrene	85-01-8	1.1		0.44	0.088	ug/l	1
00789	Anthracene	120-12-7	0.14	J	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	0.066	J	0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.88	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.088	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.66	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.088	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227667

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

Collected:12/04/2007 15:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT17 SDG#: HMS63-09

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:14	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 14:50	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 14:50	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 14:50	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 14:44	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 12:36	Glorines Suarez-Rivera	2
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 15:54	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227668

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

Collected:12/04/2007 16:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT16 SDG#: HMS63-10

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	0.139 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.	6.0	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	6.5	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.1	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	2.1	0.53	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	2.1	0.53	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	2.1	0.53	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.85	0.53	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.42	0.085	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.21	0.042	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.21	0.042	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.85	0.19	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.11	0.021	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.21	0.042	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.021	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.21	0.042	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.42	0.085	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.64	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.42	0.085	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.11	0.021	ug/l	1

Trip blank vials were not received by the laboratory for this sample group.

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227668

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

Collected:12/04/2007 16:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/14/2007 at 11:34
Discard: 02/13/2008

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

HAT16 SDG#: HMS63-10

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	12/12/2007 00:18	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 01:07	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/05/2007 15:04	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/05/2007 15:04	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/05/2007 15:04	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 13:39	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/12/2007 16:33	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/07/2007 06:30	Mariam G Attalla	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/14/07 at 11:34 AM

Group Number: 1068163

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: 07339196101A	Sample number(s): 5227658-5227661,5227663								
Chloride	N.D.	0.40	0.20	mg/l	100		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	100		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98		90-110		
Batch number: 07339196101B	Sample number(s): 5227664-5227668								
Chloride	N.D.	0.40	0.20	mg/l	100		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	100		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98		90-110		
Batch number: 07340WAH026	Sample number(s): 5227658-5227661,5227663-5227668								
Naphthalene	N.D.	2.0	0.50	ug/l	87	82	55-94	6	30
Acenaphthylene	N.D.	2.0	0.50	ug/l	90	86	59-96	4	30
Acenaphthene	N.D.	2.0	0.50	ug/l	92	89	60-116	4	30
Fluorene	N.D.	0.80	0.50	ug/l	99	96	66-106	3	30
Phenanthrene	N.D.	0.40	0.080	ug/l	101	99	67-115	2	30
Anthracene	N.D.	0.20	0.040	ug/l	97	96	67-109	1	30
Fluoranthene	N.D.	0.20	0.040	ug/l	94	92	70-112	2	30
Pyrene	N.D.	0.80	0.18	ug/l	99	99	69-113	0	30
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	101	101	73-114	0	30
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	102	102	72-113	1	30
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	96	96	67-113	0	30
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	99	98	66-114	1	30
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	100	100	78-114	1	30
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	102	101	65-116	1	30
Chrysene	N.D.	0.40	0.080	ug/l	102	101	70-111	1	30
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	102	102	72-119	1	30
Batch number: 073410032A	Sample number(s): 5227658-5227661,5227663-5227668								
Methane	N.D.	5.0	2.0	ug/l	110		80-120		
Ethane	N.D.	5.0	1.0	ug/l	107		80-120		
Ethene	N.D.	5.0	1.0	ug/l	111		80-120		
Propane	N.D.	5.0	1.0	ug/l	108		73-125		
Batch number: 073411848002	Sample number(s): 5227658-5227661,5227663-5227668								
Iron	N.D.	0.200	0.0522	mg/l	108		90-112		
Batch number: 07345020201A	Sample number(s): 5227658-5227661,5227663-5227668								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	100		98-103		

Sample Matrix Quality Control

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

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC Group Number: 1068163
Reported: 12/14/07 at 11:34 AM
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: 07339196101A	Sample number(s): 5227658-5227661,5227663 UNSPK: P227742 BKG: P227742								
Chloride	100		90-110			52.4	50.7	3	3
Sulfate	101		90-110			39.8	39.8	0	3
Nitrate Nitrogen	90		90-110			N.D.	N.D.	0 (1)	2
Batch number: 07339196101B	Sample number(s): 5227664-5227668 UNSPK: 5227668 BKG: 5227668								
Chloride	90		90-110			4.1	4.0	2 (1)	3
Sulfate	99		90-110			6.5	6.4	2 (1)	3
Nitrate Nitrogen	92		90-110			1.1	1.1	3* (1)	2
Batch number: 073410032A	Sample number(s): 5227658-5227661,5227663-5227668 UNSPK: P228896								
Methane	92	103	71-123	12	20				
Ethane	84	95	68-131	13	20				
Ethene	89	100	46-164	12	20				
Propane	79	90	36-149	14	20				
Batch number: 073411848002	Sample number(s): 5227658-5227661,5227663-5227668 UNSPK: P228896 BKG: P228896								
Iron	104	97	75-125	7	20	N.D.	N.D.	0 (1)	20
Batch number: 07345020201A	Sample number(s): 5227658-5227661,5227663-5227668 UNSPK: P227742 BKG: P227742								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	98	98	64-130	0	2	285.	283.	0	4

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: 07340WAH026

	Nitrobenzene	Triphenylene
5227658	104	98
5227659	103	101
5227660	98	90
5227661	101	93
5227663	102	96
5227664	97	94
5227665	91	85
5227666	103	95
5227667	96	90
5227668	97	91
Blank	99	96
LCS	103	99
LCSD	99	98
Limits:	62-125	55-130

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 073410032A

*- 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

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1068163
Reported: 12/14/07 at 11:34 AM

Surrogate Quality Control

	Propene
5227658	102
5227659	99
5227660	100
5227661	101
5227663	66
5227664	99
5227665	84
5227666	96
5227667	99
5227668	68
Blank	120
LCS	120
MS	89
MSD	101
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# 1068163 Sample # 5227658-68

COC # 0168499

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

(1) Client: Michael Pisani Acct. #:

Project Name/#: Tronox/21-04/Hattiesburg, MS PWSID #:

Project Manager: Dave Upthegrove P.O.#:

Sampler: Brad Blalock Quote #:

Name of state where samples were collected: MS

For Lab Use Only

FSC:

SCR#: 57071

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	(4) Matrix: Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: 8015 B/Methane	Nitrates	Total Fe	Diss Fe	Alk	Cl, SO_4	PAH's (8310)	Remarks
									H		N	N				
MW-12	12/03/07	1440	X			X		10	2	2	1	1	1	1	2	
MW-11	↓	1545														
MW-15	12/04/07	0910														
MW-9R		1015														
MW-22		1125														
MW-21		1215														
MW-20		1325														
MW-19		1420														
MW-17		1560														
MW-16	↓	1600	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	

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

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

Rush results requested by (please circle): Phone Fax E-mail

Phone #: Fax #:

E-mail address:

(8) **Data Package Options** (please circle if required)

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

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

(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

SDG Complete? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
	12/5/07	1145	BMB		
Brad Blalock	12/5/07				
				12/5/07	0950

(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

Analysis Report

Lancaster Laboratories

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 1068165. Samples arrived at the laboratory on Wednesday, December 05, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-12 Filtered Grab Water Sample	5227670
MW-11 Filtered Grab Water Sample	5227671
MW-15 Filtered Grab Water Sample	5227672
MW-9R Filtered Grab Water Sample	5227673
MW-22 Filtered Grab Water Sample	5227674
MW-21 Filtered Grab Water Sample	5227675
MW-20 Filtered Grab Water Sample	5227676
MW-19 Filtered Grab Water Sample	5227677
MW-17 Filtered Grab Water Sample	5227678
MW-16 Filtered Grab Water Sample	5227679

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Robert Strocko, Jr.
Manager

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227670

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

Collected:12/03/2007 14:40 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

12-F- SDG#: HMS64-01

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	0.805	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	12/11/2007 21:20	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227671

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

Collected:12/03/2007 15:45 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

11-F- SDG#: HMS64-02

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	12/11/2007 21:24	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227672

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

Collected:12/04/2007 09:10 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

15-F- SDG#: HMS64-03

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	33.0	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	12/11/2007 21:36	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227673

MW-9R Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/04/2007 10:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

9R-F- SDG#: HMS64-04

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	25.0	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	12/11/2007 21:40	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227674

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

Collected:12/04/2007 11:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

22-F- SDG#: HMS64-05

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	0.712	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	12/11/2007 21:44	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227675

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

Collected:12/04/2007 12:15 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

21-F- SDG#: HMS64-06

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	12/11/2007 21:48	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227676

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

Collected:12/04/2007 13:25 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

20-F- SDG#: HMS64-07

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	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	12/11/2007 21:52	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227677

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

Collected:12/04/2007 14:20 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

19-F- SDG#: HMS64-08

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	6.07	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	12/11/2007 21:56	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227678

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

Collected:12/04/2007 15:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

17-F- SDG#: HMS64-09

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	2.21	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	12/11/2007 22:00	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5227679

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

Collected:12/04/2007 16:00 by BB

Account Number: 11947

Submitted: 12/05/2007 09:50
Reported: 12/13/2007 at 13:31
Discard: 02/12/2008

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

16-F- SDG#: HMS64-10

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	12/11/2007 22:04	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1068165
Reported: 12/13/07 at 01:31 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: 073411848003	Sample number(s): 5227670-5227679								
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: 073411848003	Sample number(s): 5227670-5227679 UNSPK: P228906 BKG: P228906								
Iron	98	98	75-125	0	20	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.

Analysis Request/Environmental Service Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1068165 Sample # 5227670-79

COC # 0168499

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

(1) Client: MICHAEL PESANI Acct. #:

Project Name/#: TRONOX/21-04/HATTIESBURG, MS PWSID #:

Project Manager: DAVE UPTHEGROVE P.O.#:

Sampler: BRAD BLALOCK Quote #:

Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR#: 57971

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

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

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: 8015 B/Methane	Nitrates	Total Fe	Diss Fe	Alk	Cl, SO4	PAH's (8310)	Remarks
MW-12	12/05/07	1440	X			X		10	2	2	1	1	1	1	2	
MW-11	↓	1545														
MW-15	12/04/07	0910														
MW-9R		1015														
MW-22		1125														
MW-21		1215														
MW-20		1325														
MW-19		1420														
MW-17		1560														
MW-16	↓	1600	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	

(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

(If yes, indicate QC sample and submit triple volume.)

Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
			BMB		
Brad Blalock	12/6/07				
				12/6/07	0950

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

Analysis Report

Lancaster Laboratories

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 1068435. Samples arrived at the laboratory on Thursday, December 06, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
DUP-01 Grab Water Sample	5228893
MW-18 Grab Water Sample	5228894
MW-6 Grab Water Sample	5228895
MW-1R Unspiked Grab Water Sample	5228896
MW-1RMS Matrix Spike Grab Water Sample	5228897
MW-1RMSD Matrix Spike Dup Grab Water Sample	5228898
MW-1R Duplicate Grab Water Sample	5228899
MW-2R Grab Water Sample	5228900
MW-4 Grab Water Sample	5228901
MW-14 Grab Water Sample	5228902

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Chad A. Moline
Group Leader

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228893

DUP-01 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CREFD SDG#: HMS63-11FD

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	26.7		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.	101.		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.5		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	1.7	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	1,400.		50.	20.	ug/l	10
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	5,900.		45.	11.	ug/l	20
00782	Acenaphthylene	208-96-8	130.		2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	93.		2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	79.		18.	11.	ug/l	20
00785	Phenanthrene	85-01-8	64.		9.0	1.8	ug/l	20
00789	Anthracene	120-12-7	5.7		0.22	0.045	ug/l	1
00807	Fluoranthene	206-44-0	1.9		0.22	0.045	ug/l	1
00811	Pyrene	129-00-0	0.61	J	0.90	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.045	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.045	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.45	0.090	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.45	0.090	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228893

DUP-01 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CREFD SDG#: HMS63-11FD

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:36	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 19:48	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 19:48	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 19:48	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 15:16	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 12:52	Glorines Suarez-Rivera	10
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 04:54	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2007 15:05	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228894

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

Collected:12/05/2007 09:40 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE18 SDG#: HMS63-12

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
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	19.1		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	5.5		5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.8		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	25.		2.2	0.55	ug/l	1
00782	Acenaphthylene	208-96-8	1.6	J	2.2	0.55	ug/l	1
00783	Acenaphthene	83-32-9	1.6	J	2.2	0.55	ug/l	1
00784	Fluorene	86-73-7	5.7		0.88	0.55	ug/l	1
00785	Phenanthrene	85-01-8	5.4		0.44	0.088	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	0.24		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.88	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.088	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.66	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.088	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228894

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

Collected:12/05/2007 09:40 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE18 SDG#: HMS63-12

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:39	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 20:02	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 20:02	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 20:02	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 15:32	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 05:33	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Lancaster Laboratories, Inc.
2425 New Holland Pike
Lancaster, PA 17601-5994
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228895

MW-6 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 10:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CREM6 SDG#: HMS63-13

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	26.3		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	7.8		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	1,400.		50.	20.	ug/l	10
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	5,200.		46.	11.	ug/l	20
00782	Acenaphthylene	208-96-8	120.		2.3	0.57	ug/l	1
00783	Acenaphthene	83-32-9	80.		2.3	0.57	ug/l	1
00784	Fluorene	86-73-7	68.		18.	11.	ug/l	20
00785	Phenanthrene	85-01-8	55.		9.2	1.8	ug/l	20
00789	Anthracene	120-12-7	5.0		0.23	0.046	ug/l	1
00807	Fluoranthene	206-44-0	1.7		0.23	0.046	ug/l	1
00811	Pyrene	129-00-0	0.52	J	0.92	0.21	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.11	0.023	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.23	0.046	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.23	0.046	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.46	0.092	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.69	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.46	0.092	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.023	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228895

MW-6 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 10:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CREM6 SDG#: HMS63-13

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:42	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 20:17	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 20:17	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 20:17	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 15:47	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 13:08	Glorines Suarez-Rivera	10
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 06:12	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2007 15:51	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228896

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

Collected:12/05/2007 12:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0522	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.	33.6		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.0		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	4.7	J	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.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	0.59	J	2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	0.85	J	2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	0.10	J	0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	0.088	J	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	1.2		0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	1.1		0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.054	J	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories, Inc.
2425 New Holland Pike
Lancaster, PA 17601-5994
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228896

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

Collected:12/05/2007 12:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14BKG

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:19	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 20:31	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 20:31	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 20:31	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 16:03	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 02:58	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228897

MW-1RMS Matrix Spike Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.04	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.	218.	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	28.1	4.0	2.0	mg/l	10
00228	Sulfate	14808-79-8	59.3	10.0	3.0	mg/l	10
00368	Nitrate Nitrogen	14797-55-8	12.1	1.0	0.50	mg/l	10
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	54.	5.0	2.0	ug/l	1
07107	Ethane	74-84-0	51.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	54.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	48.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	190.	2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	200.	2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	190.	2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	22.	0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	6.8	0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	3.3	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	4.1	0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	21.	0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.6	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.3	0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.5	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.1	0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.3	0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	6.2	0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.3	0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228897

MW-1RMS Matrix Spike Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14MS

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/11/2007 23:29	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 21:00	Ashley M Heckman	10
00228	Sulfate	EPA 300.0	1	12/06/2007 21:00	Ashley M Heckman	10
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 21:00	Ashley M Heckman	10
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 16:19	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 03:37	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228898

MW-1RMSD Matrix Spike Dup Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:55 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.974	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.	218.	2.0	0.46	mg/l as CaCO3	1
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	61.	5.0	2.0	ug/l	1
07107	Ethane	74-84-0	58.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	61.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	55.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	180.	2.2	0.56	ug/l	1
00782	Acenaphthylene	208-96-8	190.	2.2	0.56	ug/l	1
00783	Acenaphthene	83-32-9	180.	2.2	0.56	ug/l	1
00784	Fluorene	86-73-7	21.	0.89	0.56	ug/l	1
00785	Phenanthrene	85-01-8	6.6	0.44	0.089	ug/l	1
00789	Anthracene	120-12-7	3.2	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	4.0	0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	20.	0.89	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	1.5	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	1.2	0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	1.4	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	3.0	0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.0	0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	12.	0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	6.1	0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	1.2	0.11	0.022	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Trip blank vials were not received by the laboratory for this sample group.

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

Lancaster Laboratories Sample No. WW 5228898

MW-1RMSD Matrix Spike Dup Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:55 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14MSD

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/11/2007 23:33	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 16:35	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 04:16	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228899

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

Collected:12/05/2007 12:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE1R SDG#: HMS63-14DUP

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0522	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.	33.4		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.0		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	4.5	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.6		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	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/11/2007 23:26	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 20:45	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 20:45	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 20:45	Ashley M Heckman	5
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228900

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

Collected:12/05/2007 13:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE2R SDG#: HMS63-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.100 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.	14.4	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	5.2	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	16.8	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.	5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.	5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.	5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.	5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	7,500.	45.	11.	ug/l	20
00782	Acenaphthylene	208-96-8	130.	2.3	0.57	ug/l	1
00783	Acenaphthene	83-32-9	47.	2.3	0.57	ug/l	1
00784	Fluorene	86-73-7	63.	18.	11.	ug/l	20
00785	Phenanthrene	85-01-8	130.	9.1	1.8	ug/l	20
00789	Anthracene	120-12-7	0.67	0.23	0.045	ug/l	1
00807	Fluoranthene	206-44-0	6.3	0.23	0.045	ug/l	1
00811	Pyrene	129-00-0	0.79 J	0.91	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.14	0.11	0.023	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.060 J	0.23	0.045	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.23	0.045	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.091	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.68	0.11	ug/l	1
07409	Chrysene	218-01-9	0.23 J	0.45	0.091	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.040 J	0.11	0.023	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228900

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

Collected:12/05/2007 13:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

CRE2R SDG#: HMS63-15

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:46	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 21:14	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 21:14	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 21:14	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 17:06	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 06:51	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/16/2007 16:37	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228901

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

Collected:12/05/2007 14:35 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:14
Discard: 02/17/2008

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

CREM4 SDG#: HMS63-16

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	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.	12.3		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	2.5		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	0.55		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	13.		2.3	0.57	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.3	0.57	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.3	0.57	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.92	0.57	ug/l	1
00785	Phenanthrene	85-01-8	0.10	J	0.46	0.092	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.23	0.046	ug/l	1
00807	Fluoranthene	206-44-0	0.062	J	0.23	0.046	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.92	0.21	ug/l	1
00812	Benzo(a)anthracene	56-55-3	0.046	J	0.11	0.023	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	0.069	J	0.23	0.046	ug/l	1
00823	Benzo(a)pyrene	50-32-8	0.073	J	0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.23	0.046	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.46	0.092	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	0.13	J	0.69	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.46	0.092	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	0.034	J	0.11	0.023	ug/l	1

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228901

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

Collected:12/05/2007 14:35 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:14
Discard: 02/17/2008

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

CREM4 SDG#: HMS63-16

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

Trip blank vials were not received by the laboratory for this sample group.

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	12/12/2007 00:49	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 21:57	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 21:57	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 21:57	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 17:22	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 07:30	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228902

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

Collected:12/05/2007 15:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:14
Discard: 02/17/2008

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

CRE14 SDG#: HMS63-17

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	6.91		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.	14.8		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.5		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	0.28	J	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	210.		10.	4.0	ug/l	2
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.0	0.51	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.0	0.51	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.0	0.51	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.82	0.51	ug/l	1
00785	Phenanthrene	85-01-8	0.098	J	0.41	0.082	ug/l	1
00789	Anthracene	120-12-7	0.060	J	0.20	0.041	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.20	0.041	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.82	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.10	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.041	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.10	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.041	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.41	0.082	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.61	0.10	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.41	0.082	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.10	0.020	ug/l	1

Trip blank vials were not received by the laboratory for this sample group.

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

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228902

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

Collected:12/05/2007 15:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/18/2007 at 15:14
Discard: 02/17/2008

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

CRE14 SDG#: HMS63-17

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	12/12/2007 00:53	John P Hook	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/11/2007 18:59	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/06/2007 22:12	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/06/2007 22:12	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/06/2007 22:12	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 17:38	Glorines Suarez-Rivera	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/11/2007 13:24	Glorines Suarez-Rivera	2
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 08:47	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 09:33	Jennifer R Helfer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/18/07 at 03:14 PM

Group Number: 1068435

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: 07340196101A	Sample number(s): 5228893								
Chloride	N.D.	0.40	0.20	mg/l	101		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	102		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	99		90-110		
Batch number: 07340196101B	Sample number(s): 5228894-5228897,5228899-5228902								
Chloride	N.D.	0.40	0.20	mg/l	101		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	102		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	99		90-110		
Batch number: 073410032A	Sample number(s): 5228893-5228898,5228900-5228902								
Methane	N.D.	5.0	2.0	ug/l	110		80-120		
Ethane	N.D.	5.0	1.0	ug/l	107		80-120		
Ethene	N.D.	5.0	1.0	ug/l	111		80-120		
Propane	N.D.	5.0	1.0	ug/l	108		73-125		
Batch number: 073411848002	Sample number(s): 5228893-5228902								
Iron	N.D.	0.200	0.0522	mg/l	108		90-112		
Batch number: 07342WAD026	Sample number(s): 5228893-5228898,5228900-5228902								
Naphthalene	N.D.	2.0	0.50	ug/l	81		55-94		
Acenaphthylene	N.D.	2.0	0.50	ug/l	86		59-96		
Acenaphthene	N.D.	2.0	0.50	ug/l	81		60-116		
Fluorene	N.D.	0.80	0.50	ug/l	97		66-106		
Phenanthrene	N.D.	0.40	0.080	ug/l	101		67-115		
Anthracene	N.D.	0.20	0.040	ug/l	96		67-109		
Fluoranthene	N.D.	0.20	0.040	ug/l	87		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	90		69-113		
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	94		73-114		
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	96		72-113		
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	90		67-113		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	94		66-114		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	96		78-114		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	94		65-116		
Chrysene	N.D.	0.40	0.080	ug/l	95		70-111		
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	98		72-119		
Batch number: 07345020202A	Sample number(s): 5228893-5228902								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	99		98-103		

Sample Matrix Quality Control

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

Analysis Report

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC   Group Number: 1068435
Reported: 12/18/07 at 03:14 PM
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: 07340196101A	Sample number(s): 5228893 UNSPK: P228885 BKG: P228885								
Chloride	124*		90-110			44.8	44.2	1	3
Sulfate	111*		90-110			103.	103.	0	3
Nitrate Nitrogen	107		90-110			N.D.	N.D.	0 (1)	2
Batch number: 07340196101B	Sample number(s): 5228894-5228897,5228899-5228902 UNSPK: 5228896 BKG: 5228896								
Chloride	106		90-110			7.0	7.0	0 (1)	3
Sulfate	109		90-110			4.7 J	4.5 J	3 (1)	3
Nitrate Nitrogen	105		90-110			1.6	1.6	0 (1)	2
Batch number: 073410032A	Sample number(s): 5228893-5228898,5228900-5228902 UNSPK: 5228896								
Methane	92	103	71-123	12	20				
Ethane	84	95	68-131	13	20				
Ethene	89	100	46-164	12	20				
Propane	79	90	36-149	14	20				
Batch number: 073411848002	Sample number(s): 5228893-5228902 UNSPK: 5228896 BKG: 5228896								
Iron	104	97	75-125	7	20	N.D.	N.D.	0 (1)	20
Batch number: 07342WAD026	Sample number(s): 5228893-5228898,5228900-5228902 UNSPK: 5228896								
Naphthalene	86	81	54-112	6	30				
Acenaphthylene	89	85	54-117	5	30				
Acenaphthene	83	80	59-114	5	30				
Fluorene	98	94	65-121	4	30				
Phenanthrene	101	97	66-115	4	30				
Anthracene	95	92	68-104	3	30				
Fluoranthene	88	84	67-119	3	30				
Pyrene	88	86	66-106	2	30				
Benzo(a)anthracene	92	90	63-111	2	30				
Benzo(b)fluoranthene	95	92	71-121	3	30				
Benzo(a)pyrene	88	86	65-133	2	30				
Dibenz(a,h)anthracene	92	89	75-115	3	30				
Indeno(1,2,3-cd)pyrene	94	91	72-119	4	30				
Benzo(g,h,i)perylene	92	89	68-116	3	30				
Chrysene	93	91	69-107	3	30				
Benzo(k)fluoranthene	96	92	70-109	3	30				
Batch number: 07345020202A	Sample number(s): 5228893-5228902 UNSPK: 5228896 BKG: 5228896								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	98	98	64-130	0	2	33.6	33.4	0	4

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: 073410032A
Propene

---

*- 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

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1068435
Reported: 12/18/07 at 03:14 PM

Surrogate Quality Control

5228893	91
5228894	93
5228895	86
5228896	90
5228897	89
5228898	101
5228900	95
5228901	102
5228902	86
Blank	120
LCS	120
MS	89
MSD	101
Limits:	42-131

Analysis Name: PAH's in Water by HPLC
Batch number: 07342WAD026

	Nitrobenzene	Triphenylene
5228893	104	94
5228894	94	89
5228895	95	84
5228896	101	89
5228897	105	86
5228898	104	87
5228900	105	85
5228901	98	91
5228902	102	93
Blank	105	96
LCS	105	97
MS	105	86
MSD	104	87
Limits:	62-125	55-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The 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# 1068435 Sample # 5228893-02

COC # 0168501

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

(1) Client: Michael Pisani Acct. #:

Project Name/#: Tronox/21-04 / Hattiesburg, MS PWSID #:

Project Manager: Dave Up the Grove P.O.#:

Sampler: Brad Blalock Quote #:

Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR#:

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

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

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water	Other	(4) Total # of Containers	(5) 8015 B/methane	Nitrates	Total Fe	Diss Fe	Alk	Cl SO4	PAH's (8310)	Remarks
Preservation Codes									H		N	N			T	
DUP-01	10/09/07	0000	X			X		10	2	2	1	1	1	1	2	ONLY 1 SET PRESERVED w/ THIO.
MW-18	↓	0940	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-6	↓	1050	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-1R	↓	1245	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-1RMS	↓	1250	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-1RMSD	↓	1255	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-2R	↓	1345	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-4	↓	1435	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-14	↓	1545	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	

Matrix: Check if applicable ☐ Potable ☐ NPDES

(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

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
B. Blalock	12/5/07	1800			
			[signature]	12-6-07	1005

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

Analysis Report

Lancaster Laboratories

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 1068436. Samples arrived at the laboratory on Thursday, December 06, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
DUP-01 Filtered Grab Water Sample	5228903
MW-18 Filtered Grab Water Sample	5228904
MW-6 Filtered Grab Water Sample	5228905
MW-1R Unspiked Filtered Grab Water Sample	5228906
MW-1RMS Matrix Spike Filtered Grab Water Sample	5228907
MW-1RMSD Matrix Spike Dup Filtered Grab Water	5228908
MW-1R Duplicate Filtered Grab Water Sample	5228909
MW-2R Filtered Grab Water Sample	5228910
MW-4 Filtered Grab Water Sample	5228911
MW-14 Filtered Grab Water Sample	5228912

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Robert Strocko, Jr.
Manager

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228903

DUP-01 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HATFD SDG#: HMS64-11FD

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

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	12/11/2007 22:08	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228904

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

Collected:12/05/2007 09:40 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT18 SDG#: HMS64-12

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	12/11/2007 22:12	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228905

MW-6 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 10:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HATM6 SDG#: HMS64-13

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	28.0	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	12/11/2007 22:25	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228906

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

Collected:12/05/2007 12:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT1R SDG#: HMS64-14BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	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	12/11/2007 20:56	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228907

MW-1RMS Matrix Spike Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:50 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT1R SDG#: HMS64-14MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.984	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	12/11/2007 21:08	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228908

MW-1RMSD Matrix Spike Dup Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/05/2007 12:55 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT1R SDG#: HMS64-14MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.984	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	12/11/2007 21:12	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228909

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

Collected:12/05/2007 12:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT1R SDG#: HMS64-14DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	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	12/11/2007 21:04	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228910

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

Collected:12/05/2007 13:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT2R SDG#: HMS64-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.0635 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	12/11/2007 22:29	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228911

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

Collected:12/05/2007 14:35 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HATM4 SDG#: HMS64-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	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	12/11/2007 22:33	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5228912

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

Collected:12/05/2007 15:45 by BB

Account Number: 11947

Submitted: 12/06/2007 10:05
Reported: 12/13/2007 at 13:33
Discard: 02/12/2008

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

HAT14 SDG#: HMS64-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	1.04	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	12/11/2007 22:37	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 10:15	Jennifer R Helfer	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Group Number: 1068436
Reported: 12/13/07 at 01:33 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: 073411848003	Sample number(s): 5228903-5228912								
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: 073411848003	Sample number(s): 5228903-5228912 UNSPK: 5228906 BKG: 5228906								
Iron	98	98	75-125	0	20	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.

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1068436 Sample # 5228903-13

COC # 0168501

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

(1) Client: Michael Risani Acct. #:

Project Name/#: Tronox/21-04/Hattiesburg, MS PWSID #:

Project Manager: Dave Up The Grove P.O.#:

Sampler: Brad Blalock Quote #:

Name of state where samples were collected: MS

(4) Matrix: ☐ Potable ☐ NPDES (Check if Applicable)

(5) Analyses Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#:

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

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

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water	Other	Total # of Containers	H	N	N	T	Remarks
									BOD5 Methane	Nitrates	Total Fe	Diss Fe	Alk	Cl, SO4	PAH's (8310)	
DUP-01	12/03/07	0000	X			X		10	2	2	1	1	1	1	2	only 1 set preserved w/ Thio.
MW-18		0940														
MW-6		1050														
MW-1R		1245														
MW-1RMS		1250														
MW-1RMSD		1255														
MW-2R		1345														
MW-4		1435														
MW-14	↓	1545	↓			↓		↓	↓	↓	↓	↓	↓	↓	↓	

(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
(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
D-/B Blalock	12/03/07	1800			
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: Christal Moyer	12-6-07	1005

(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

Analysis Report

Lancaster Laboratories

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 1068657. Samples arrived at the laboratory on Friday, December 07, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-8 Grab Water Sample	5230307

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Chad A. Moline
Group Leader

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5230307

MW-8 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/06/2007 08:50 by BB

Account Number: 11947

Submitted: 12/07/2007 09:25
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

HATM8 SDG#: HMS63-18*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	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.	1.6	J	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	25.3		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	3.3	J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	2.6		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
07107	Ethane	74-84-0	N.D.		5.0	1.0	ug/l	1
07108	Ethene	74-85-1	N.D.		5.0	1.0	ug/l	1
07109	Propane	74-98-6	N.D.		5.0	1.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	N.D.		2.0	0.50	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.		2.0	0.50	ug/l	1
00783	Acenaphthene	83-32-9	N.D.		2.0	0.50	ug/l	1
00784	Fluorene	86-73-7	N.D.		0.79	0.50	ug/l	1
00785	Phenanthrene	85-01-8	N.D.		0.40	0.079	ug/l	1
00789	Anthracene	120-12-7	N.D.		0.20	0.040	ug/l	1
00807	Fluoranthene	206-44-0	N.D.		0.20	0.040	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.79	0.18	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.		0.099	0.020	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.		0.20	0.040	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.099	0.020	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.		0.20	0.040	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.40	0.079	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.59	0.099	ug/l	1
07409	Chrysene	218-01-9	N.D.		0.40	0.079	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.		0.099	0.020	ug/l	1

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

Lancaster Laboratories Sample No. WW 5230307

MW-8 Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/06/2007 08:50 by BB

Account Number: 11947

Submitted: 12/07/2007 09:25
Reported: 12/18/2007 at 15:13
Discard: 02/17/2008

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

HATM8 SDG#: HMS63-18*

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

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	12/11/2007 23:05	Tara L Snyder	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/12/2007 17:11	Geraldine C Smith	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/12/2007 17:11	Geraldine C Smith	1
00224	Chloride	EPA 300.0	1	12/07/2007 13:38	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	12/07/2007 13:38	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/07/2007 13:38	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/09/2007 17:54	Glorines Suarez-Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	12/14/2007 09:26	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 22:45	Helen L Schaeffer	1
03337	PAH Water Extraction	SW-846 3510C	1	12/09/2007 05:30	Tracy L Schickel	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/18/07 at 03:13 PM

Group Number: 1068657

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: 073410032A	Sample number(s): 5230307								
Methane	N.D.	5.0	2.0	ug/l	110		80-120		
Ethane	N.D.	5.0	1.0	ug/l	107		80-120		
Ethene	N.D.	5.0	1.0	ug/l	111		80-120		
Propane	N.D.	5.0	1.0	ug/l	108		73-125		
Batch number: 07341130101A	Sample number(s): 5230307								
Chloride	N.D.	0.40	0.20	mg/l	102		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	102		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	100		90-110		
Batch number: 07342WAD026	Sample number(s): 5230307								
Naphthalene	N.D.	2.0	0.50	ug/l	81		55-94		
Acenaphthylene	N.D.	2.0	0.50	ug/l	86		59-96		
Acenaphthene	N.D.	2.0	0.50	ug/l	81		60-116		
Fluorene	N.D.	0.80	0.50	ug/l	97		66-106		
Phenanthrene	N.D.	0.40	0.080	ug/l	101		67-115		
Anthracene	N.D.	0.20	0.040	ug/l	96		67-109		
Fluoranthene	N.D.	0.20	0.040	ug/l	87		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	90		69-113		
Benzo(a)anthracene	N.D.	0.10	0.020	ug/l	94		73-114		
Benzo(b)fluoranthene	N.D.	0.20	0.040	ug/l	96		72-113		
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	90		67-113		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	94		66-114		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	96		78-114		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	94		65-116		
Chrysene	N.D.	0.40	0.080	ug/l	95		70-111		
Benzo(k)fluoranthene	N.D.	0.10	0.020	ug/l	98		72-119		
Batch number: 073441848001	Sample number(s): 5230307								
Iron	N.D.	0.200	0.0522	mg/l	101		90-112		
Batch number: 07346020201A	Sample number(s): 5230307								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	99		98-103		

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: 073410032A	Sample number(s): 5230307 UNSPK: P228896								

*- 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

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/18/07 at 03:13 PM

Group Number: 1068657

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
Methane	92	103	71-123	12	20				
Ethane	84	95	68-131	13	20				
Ethene	89	100	46-164	12	20				
Propane	79	90	36-149	14	20				
Batch number: 07341130101A	Sample number(s): 5230307 UNSPK: 5230307 BKG: 5230307								
Chloride	96		90-110			25.3	26.1	3	3
Sulfate	96		90-110			3.3 J	3.2 J	5* (1)	3
Nitrate Nitrogen	95		90-110			2.6	2.5	1	2
Batch number: 07342WAD026	Sample number(s): 5230307 UNSPK: P228896								
Naphthalene	86	81	54-112	6	30				
Acenaphthylene	89	85	54-117	5	30				
Acenaphthene	83	80	59-114	5	30				
Fluorene	98	94	65-121	4	30				
Phenanthrene	101	97	66-115	4	30				
Anthracene	95	92	68-104	3	30				
Fluoranthene	88	84	67-119	3	30				
Pyrene	88	86	66-106	2	30				
Benzo(a)anthracene	92	90	63-111	2	30				
Benzo(b)fluoranthene	95	92	71-121	3	30				
Benzo(a)pyrene	88	86	65-133	2	30				
Dibenz(a,h)anthracene	92	89	75-115	3	30				
Indeno(1,2,3-cd)pyrene	94	91	72-119	4	30				
Benzo(g,h,i)perylene	92	89	68-116	3	30				
Chrysene	93	91	69-107	3	30				
Benzo(k)fluoranthene	96	92	70-109	3	30				
Batch number: 073441848001	Sample number(s): 5230307 UNSPK: P232168 BKG: P232168								
Iron	100	99	75-125	0	20	3.00	2.85	5	20
Batch number: 07346020201A	Sample number(s): 5230307 UNSPK: P228889 BKG: P228889								
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	101	99	64-130	1	2	268.	272.	1	4

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: 073410032A

	Propene
5230307	85
Blank	120
LCS	120
MS	89
MSD	101

*- 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

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/18/07 at 03:13 PM

Group Number: 1068657

Surrogate Quality Control

Limits: 42-131

Analysis Name: PAH's in Water by HPLC
Batch number: 07342WAD026

	Nitrobenzene	Triphenylene
5230307	97	88
Blank	105	96
LCS	105	97
MS	105	86
MSD	104	87
Limits:	62-125	55-130

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

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

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1068657 Sample # 5330307

COC # 172642

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

(1) Client: Michael Pisani & Assoc. Acct. #:

Project Name/#: Tronox / 21-04 / Hattiesburg, MS PWSID #:

Project Manager: Dave Upthegrove P.O.#:

Sampler: Brad Blalock Quote #:

Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR#:

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

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

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Check if Applicable: ☐ Potable ☐ NPDES)	Other	(4) Total # of Containers	(5) Analyses Requested: Methane (H)	Nitrates	Total Fe (N)	Diss. Fe (N)	Alk	Cl SO4	PAHs (T)			Remarks
MW-8	12/06/07	0850	X			X		10	2	2	1	1	1	1	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) 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 (9)
[signature]	12/06/07	1000			
			[signature]	12-7-07	0925

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

Analysis Report

Lancaster Laboratories

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 1068658. Samples arrived at the laboratory on Friday, December 07, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-8 Filtered Grab Water Sample	5230308

METHODOLOGY

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

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

Analysis Report

Lancaster Laboratories

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

Respectfully Submitted,

Robert Strocko, Jr.
Manager

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5230308

MW-8 Filtered Grab Water Sample
Gulf States Creosoting/Hattiesburg, MS

Collected:12/06/2007 08:50 by BB

Account Number: 11947

Submitted: 12/07/2007 09:25
Reported: 12/12/2007 at 10:42
Discard: 02/11/2008

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

HAT8F SDG#: HMS64-18*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	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	12/11/2007 23:10	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/10/2007 22:45	Helen L Schaeffer	1

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

Lancaster Laboratories

Quality Control Summary

Client Name: Tronox LLC
Reported: 12/12/07 at 10:43 AM

Group Number: 1068658

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: 073441848001	Sample number(s): 5230308								
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: 073441848001	Sample number(s): 5230308 UNSPK: P232168 BKG: P232168								
Iron	100	99	75-125	0	20	3.00	2.85	5	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.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11947 Group# 1068658 Sample # 5230308

COC # 172642

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

(1) Client: Michael Pisani & Assoc. Acct. #:

Project Name/#: Tronox/21-04/HATTIESBURG, MS PWSID #:

Project Manager: Dave Uptegrove P.O.#:

Sampler: BRAD BLALOCK Quote #:

Name of state where samples were collected: MS

For Lab Use Only
FSC:
SCR#:

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

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

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: H Methane	H Nitrates	N Total Fe	N Diss. Fe	Alk	Cl, SO_4	T PAHs
MW-8	12/6/07	0850	X			X		10	2	2	1	1	1	1	2

Remarks

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

(9)

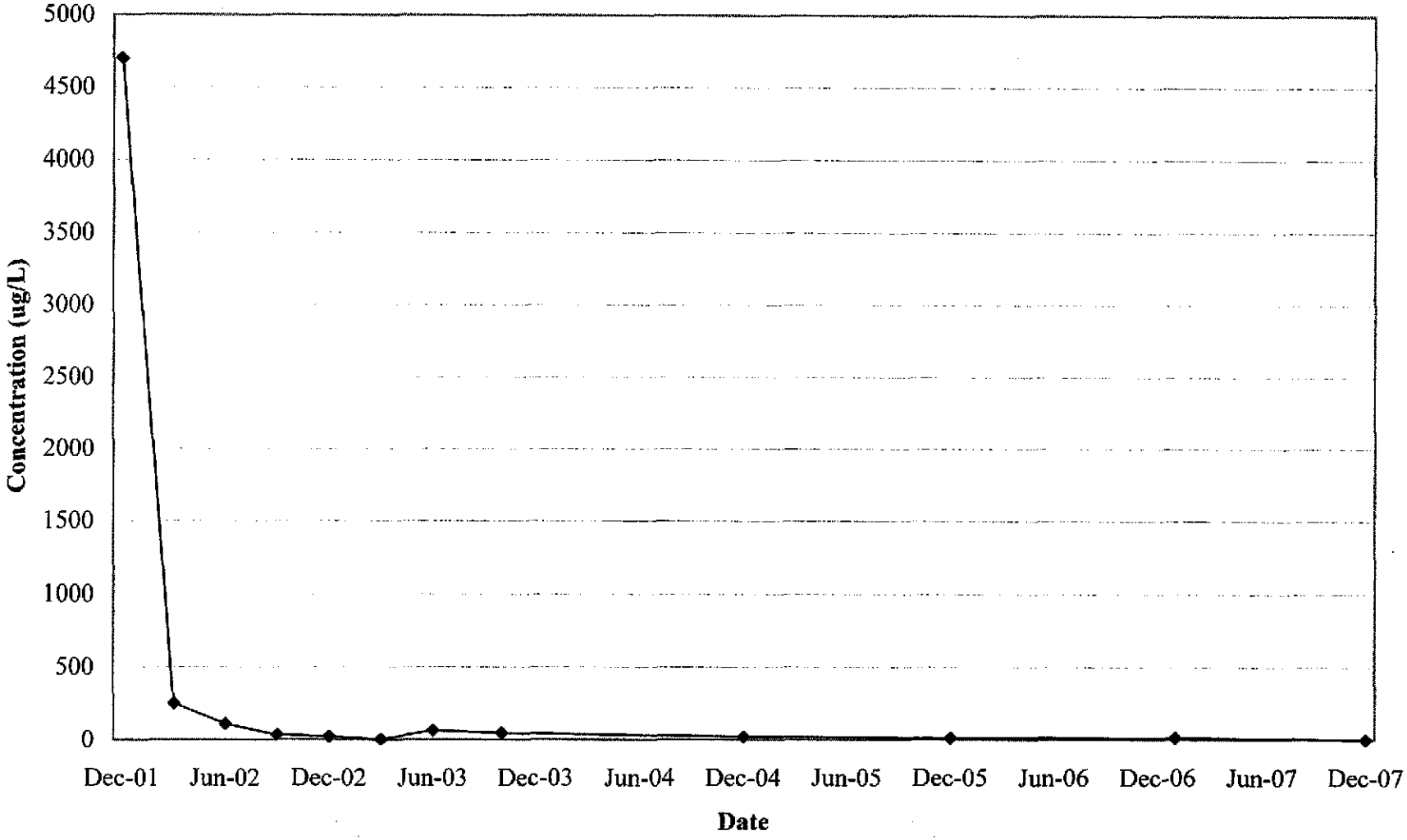
Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/6/07	1600			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	12-7-07	0925

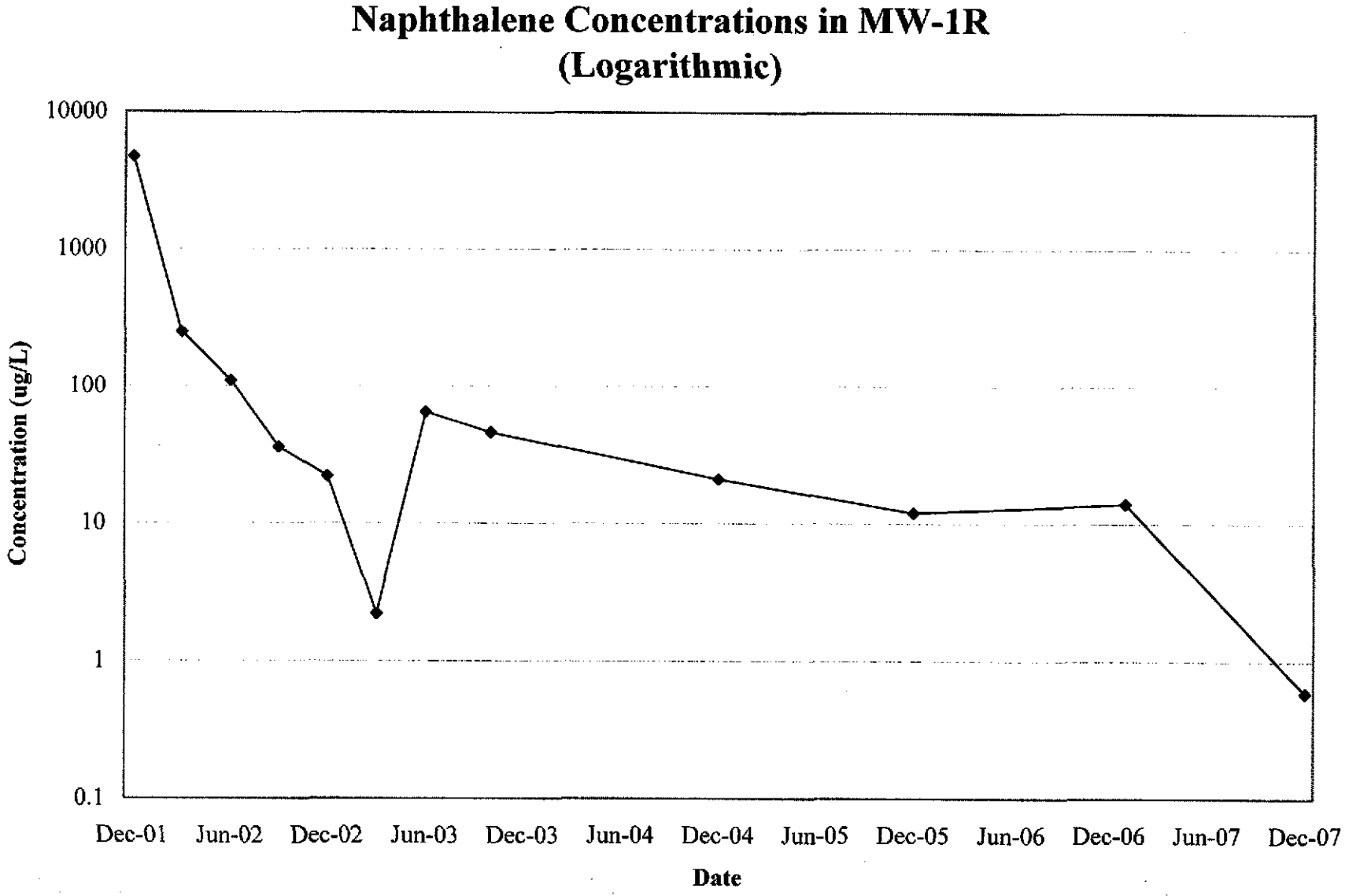
Appendix C

Charts Depicting Naphthalene Concentrations vs. Time

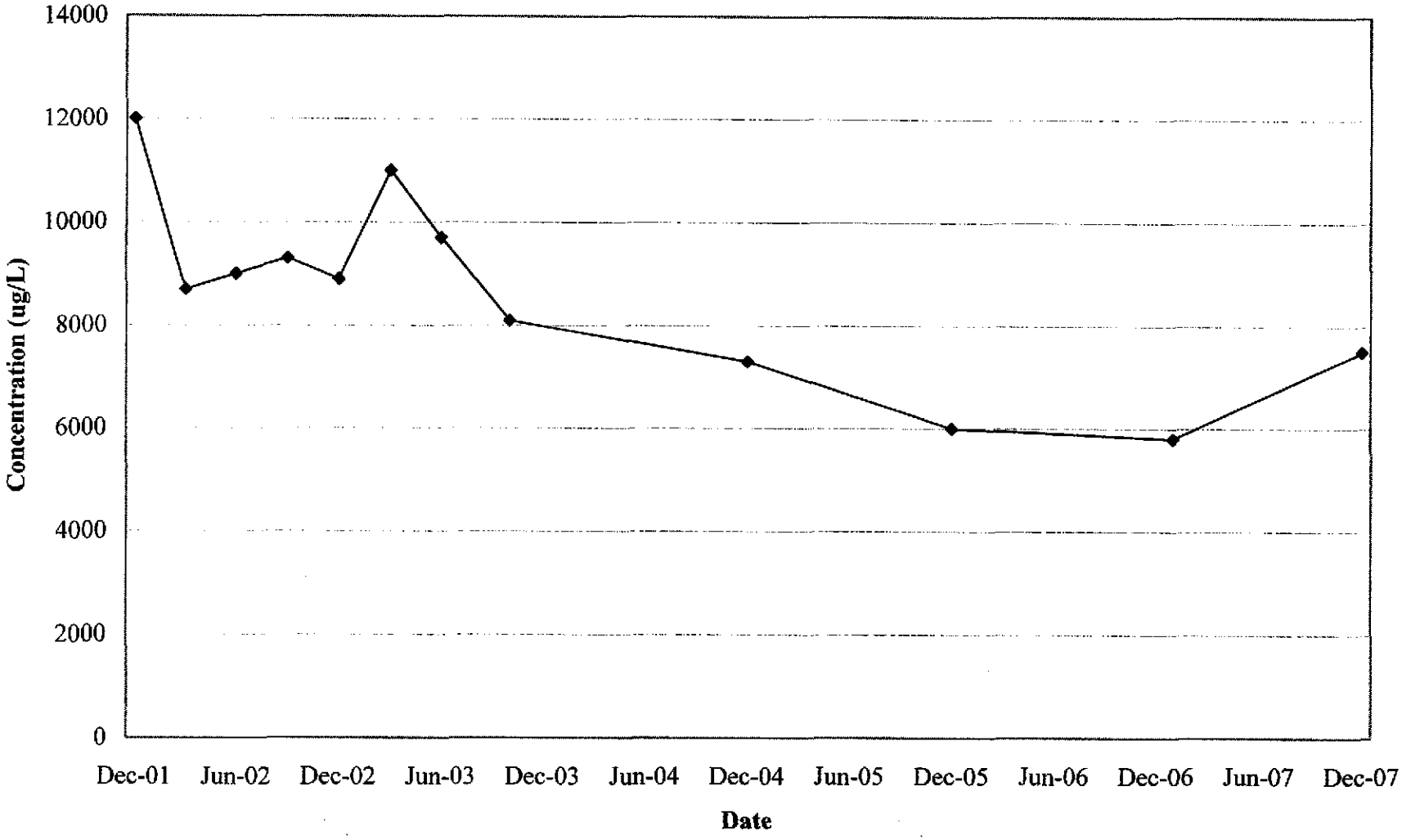
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Naphthalene Concentrations in MW-1R



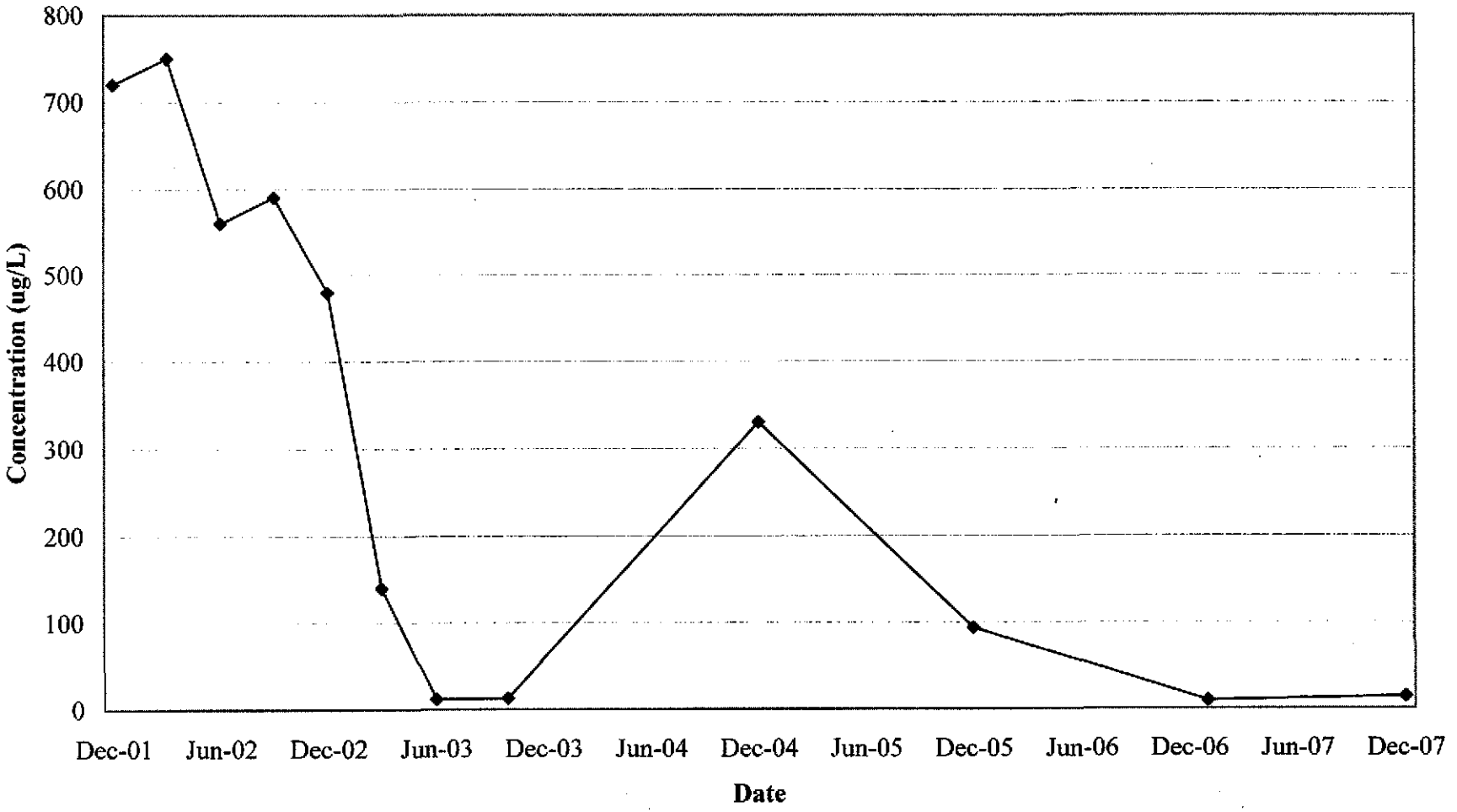

Naphthalene Concentrations in MW-1R
(Logarithmic)
Concentration (ug/L)
10000
1000
100
10
1
0.1
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Date

Naphthalene Concentrations in MW-2R

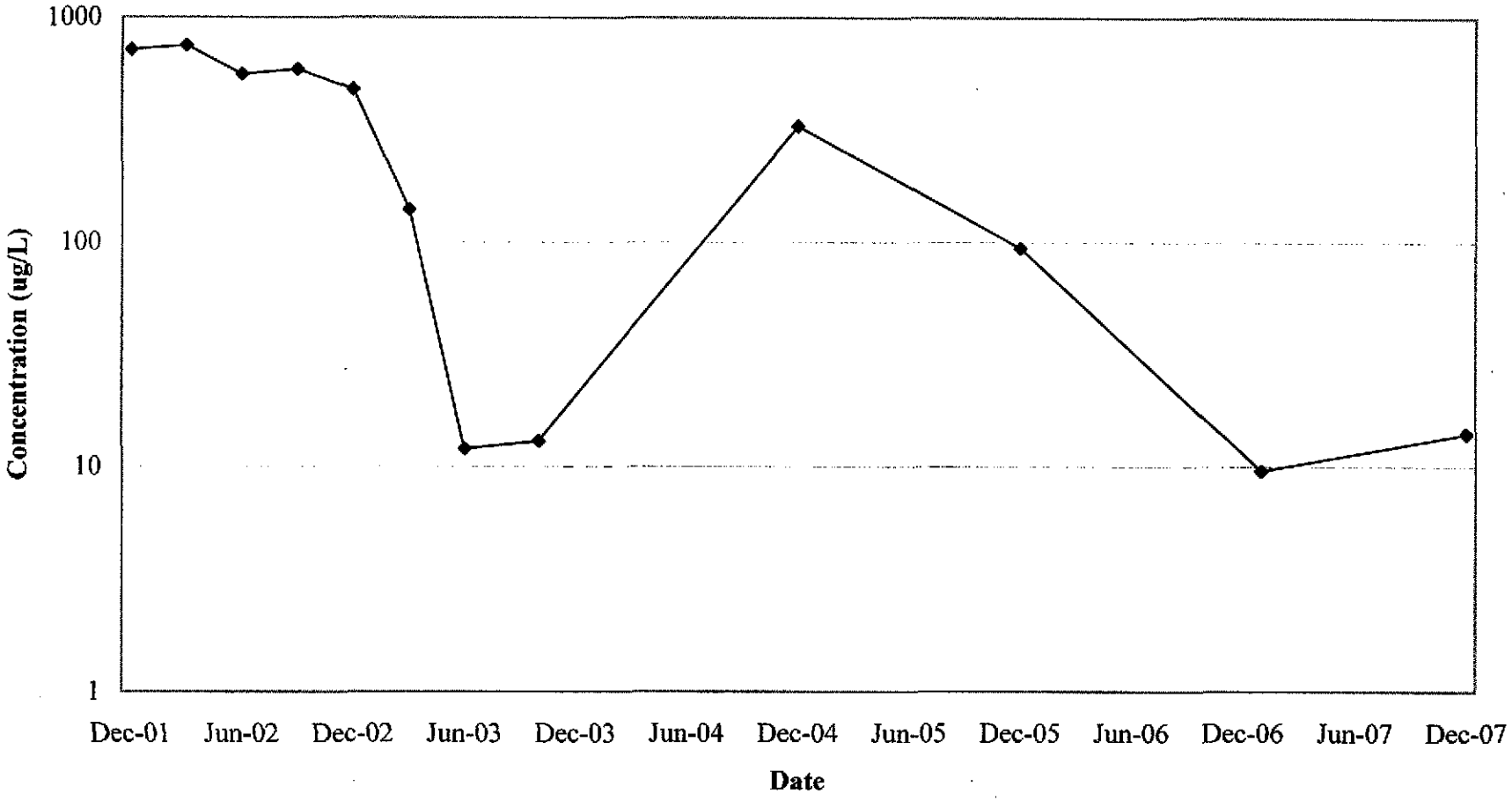


Naphthalene Concentrations in MW-06

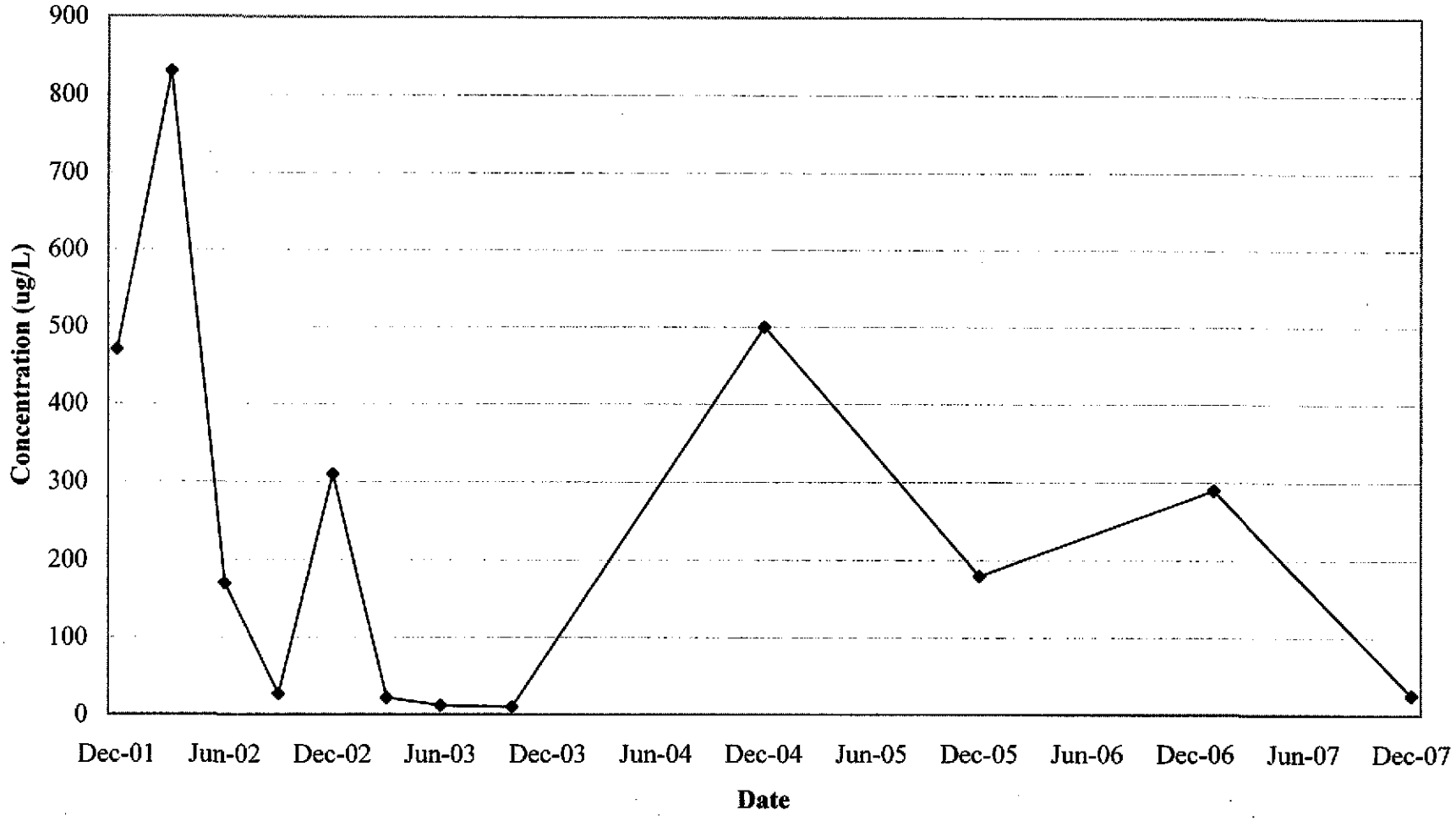
Naphthalene Concentrations in MW-17



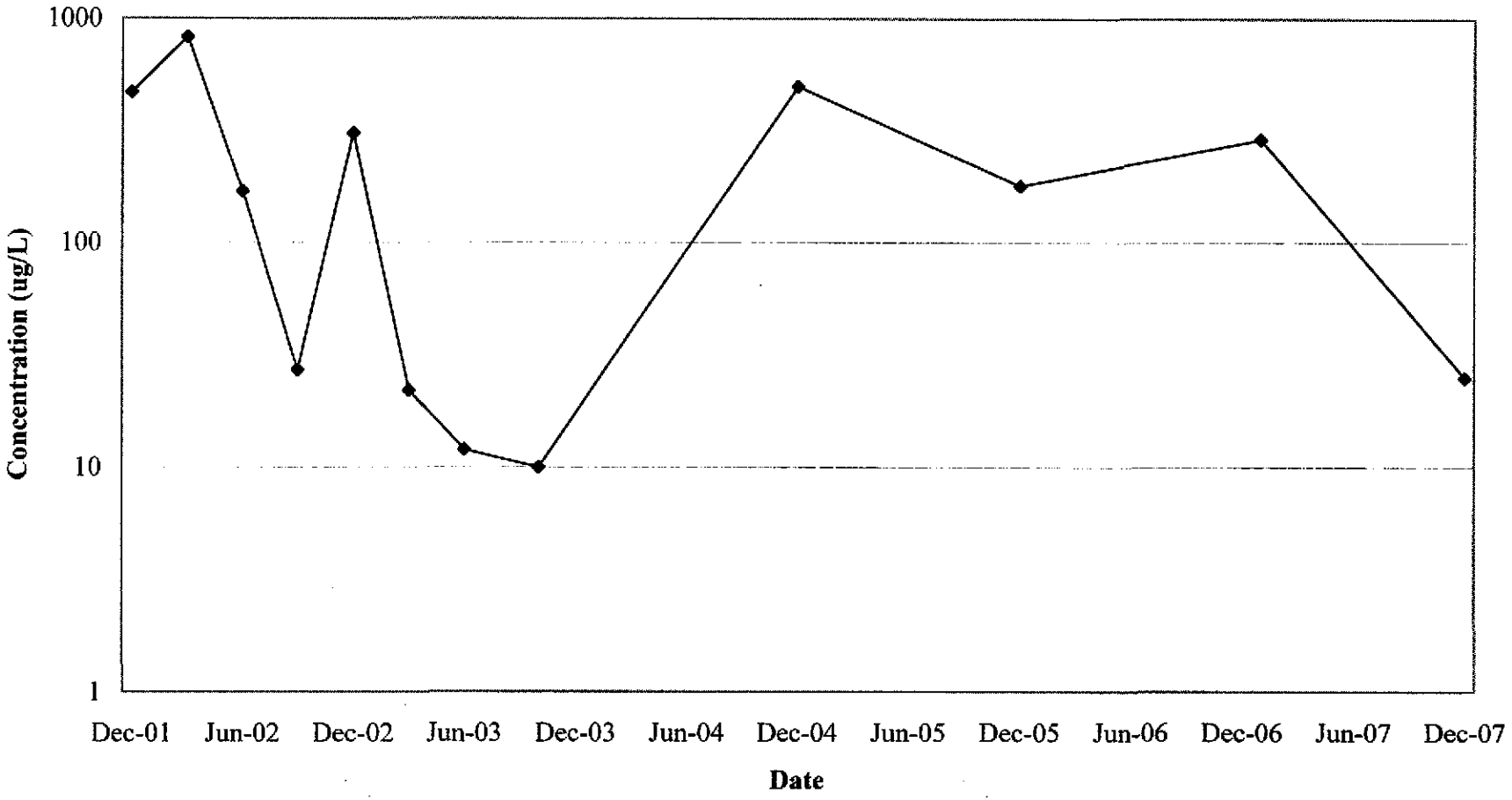
Naphthalene Concentrations in MW-17
(Logarithmic)



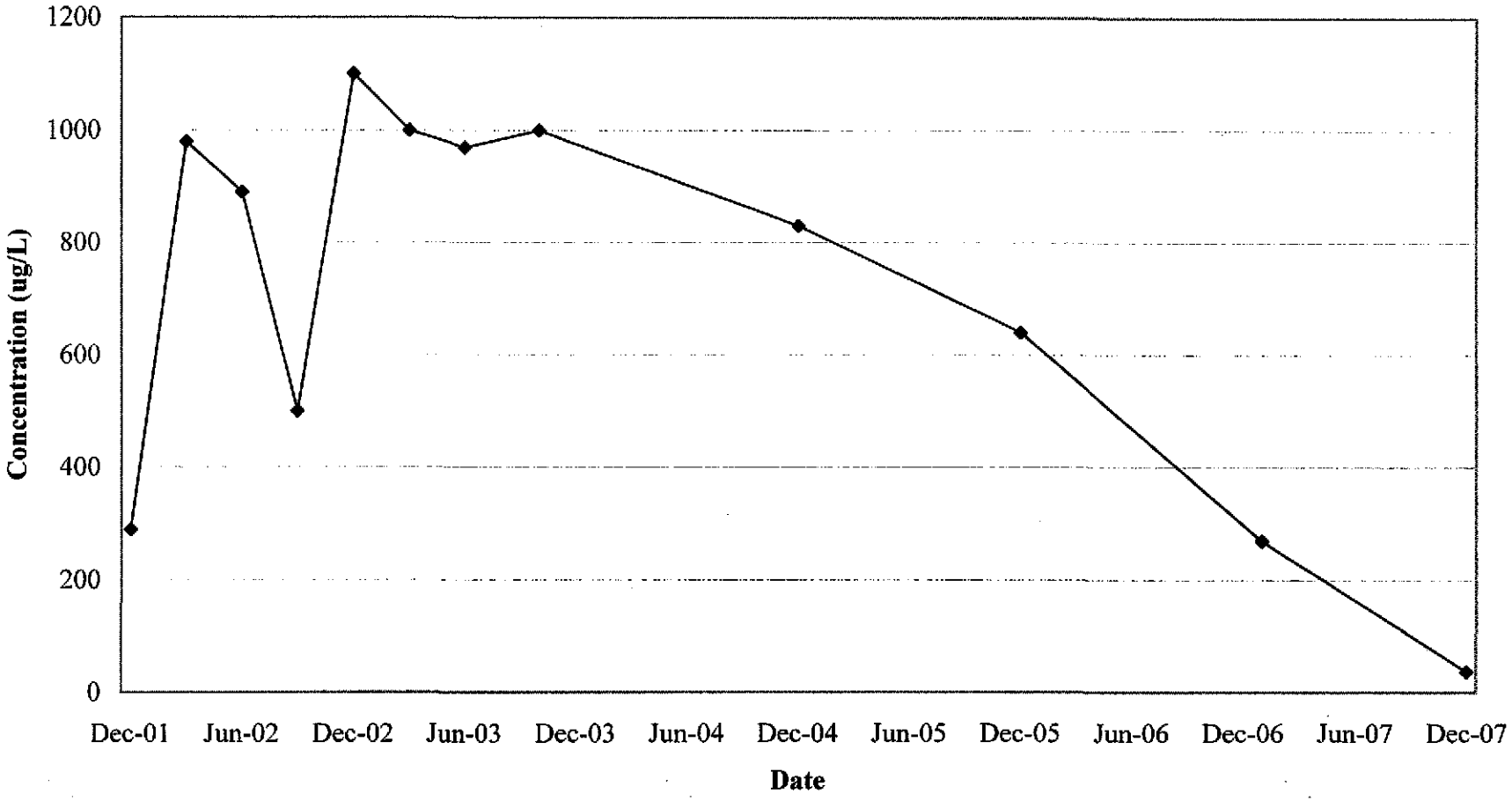
Naphthalene Concentrations in MW-18



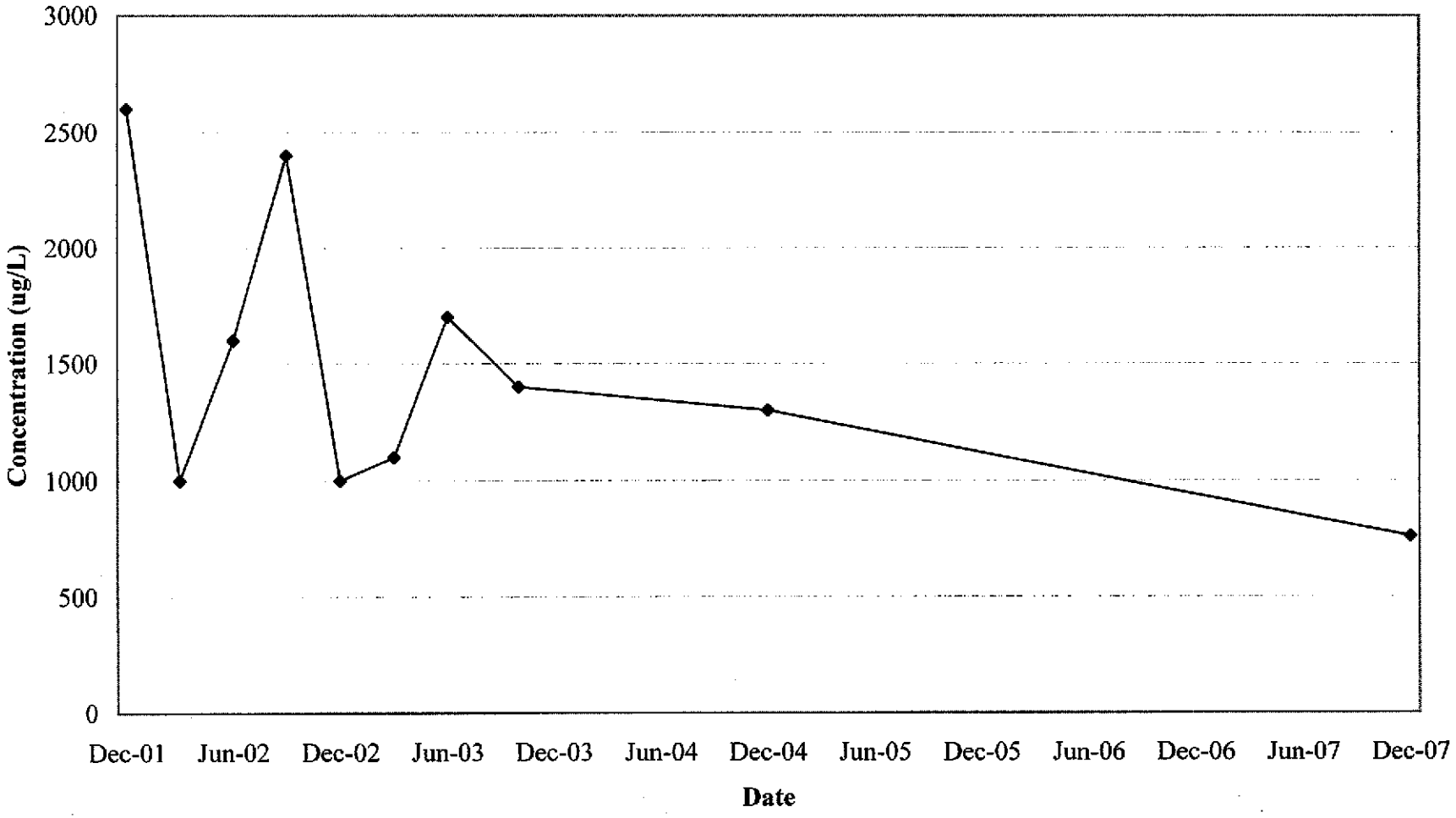
Naphthalene Concentrations in MW-18 (Logarithmic)



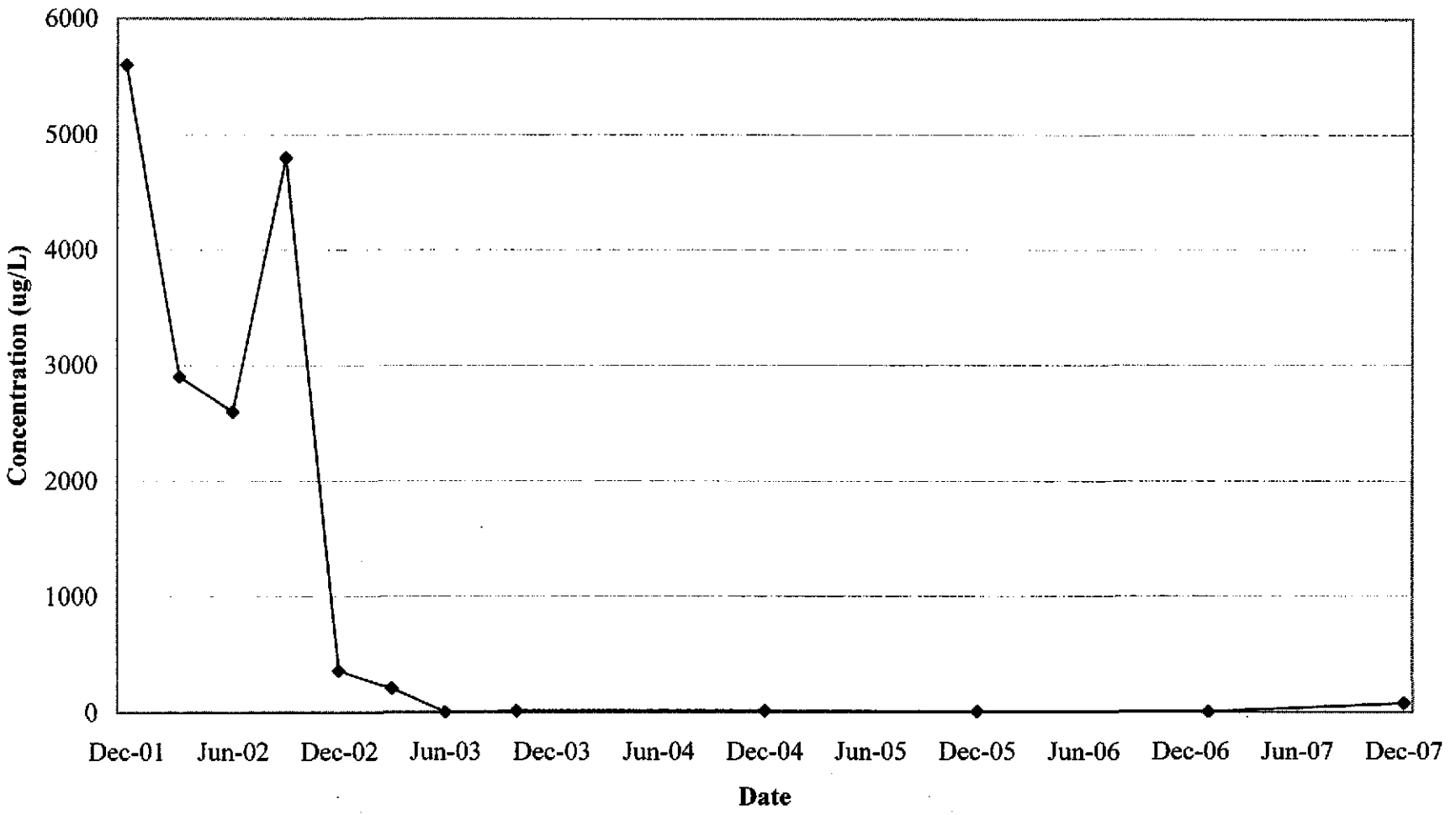
Naphthalene Concentrations in MW-19



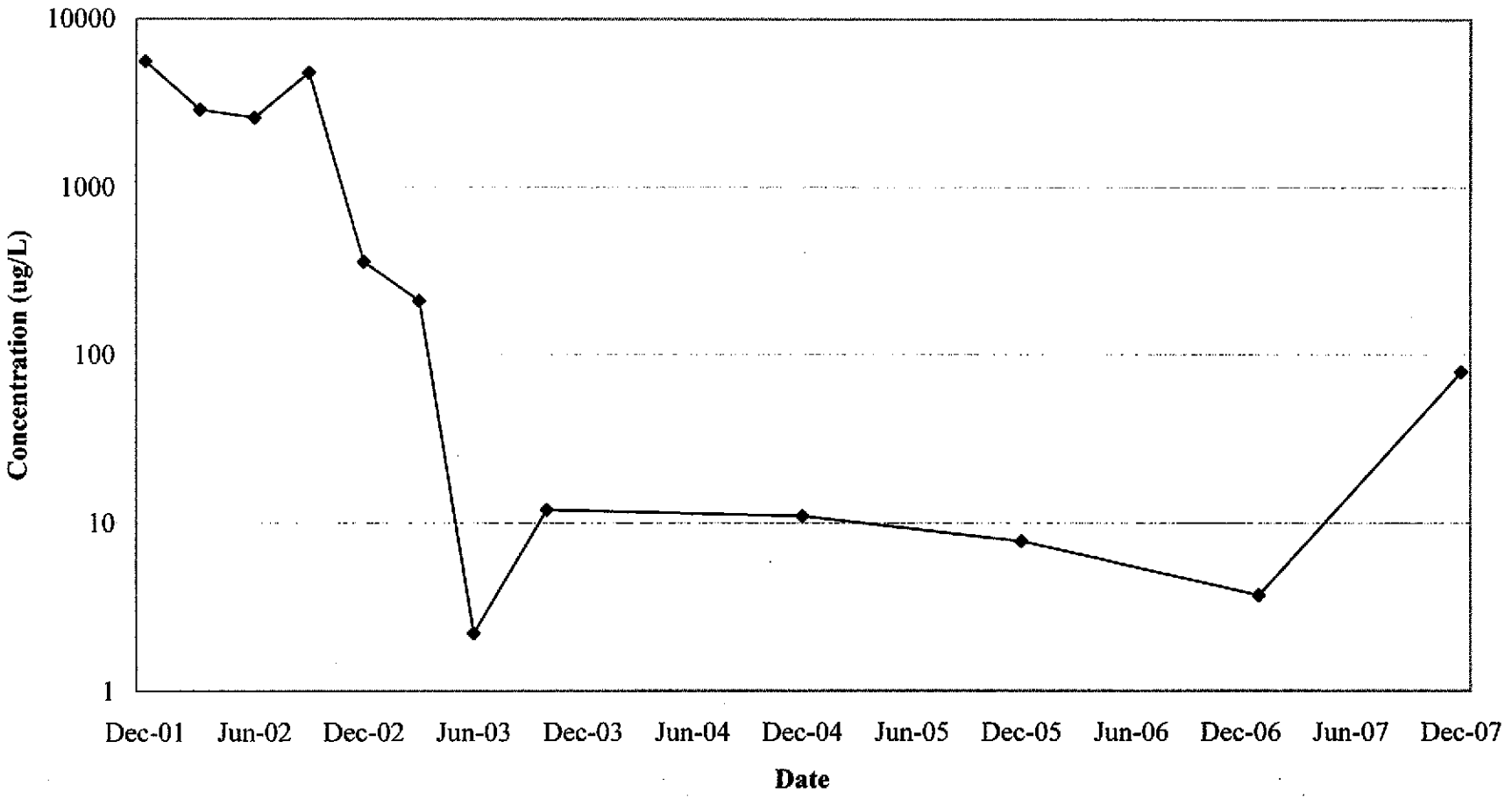
Naphthalene Concentrations in MW-09



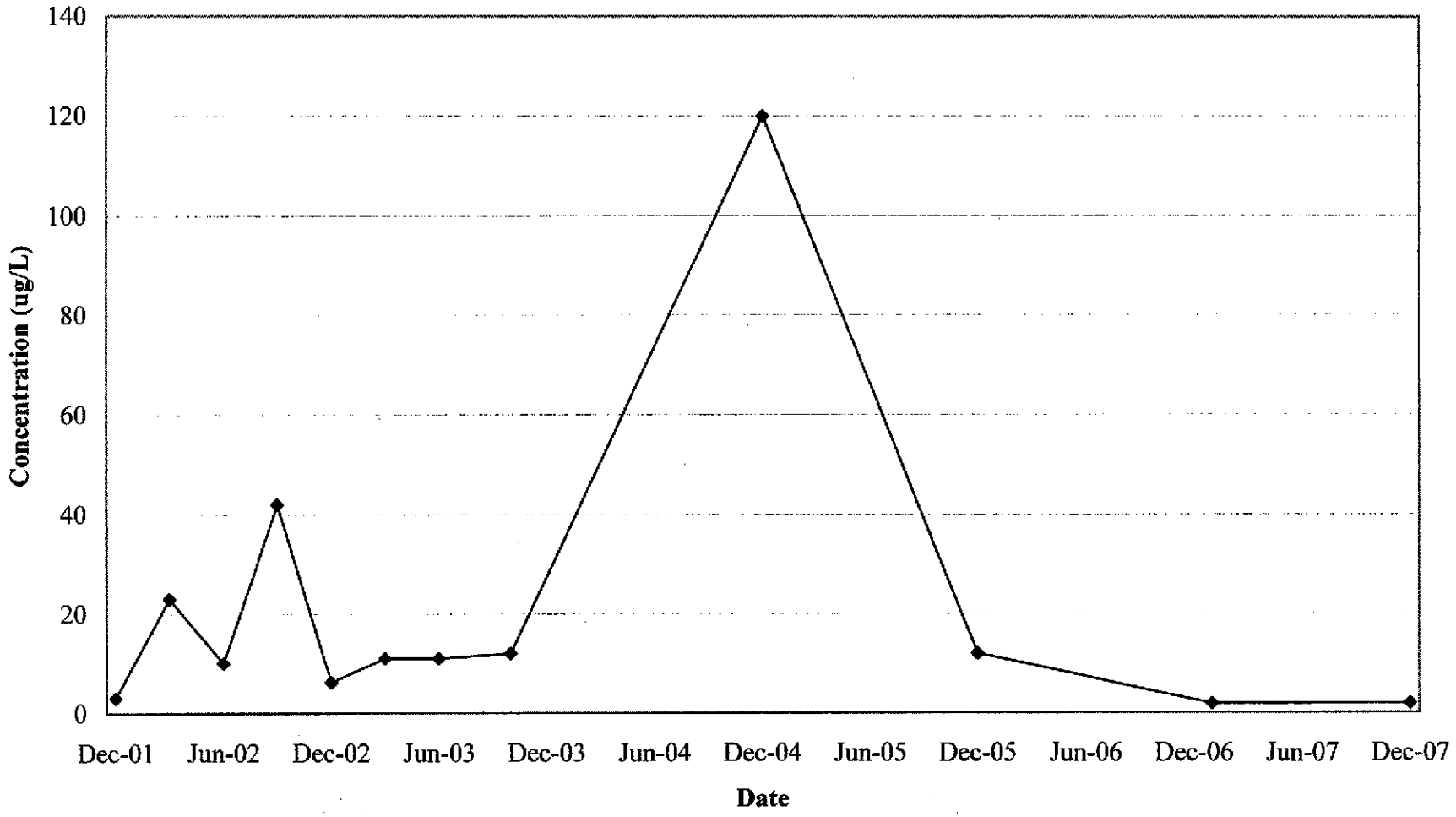
Naphthalene Concentrations in MW-12



Naphthalene Concentrations in MW-12 (Logarithmic)



Naphthalene Concentrations in MW-14



Naphthalene Concentrations in MW-4