

TRONOX

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February 22, 2010

Tony Russell, Chief
Mississippi Department of Environmental Quality
Assessment Remediation Branch
Office of Pollution Control
P.O. Box 2261
Jackson, MS 39225



Re: Gulf States Creosote Site
Hattiesburg, Mississippi
Report Submittal: Ground Water Monitoring Calendar Year 2009 Event

Dear Mr. Russell:

Please find enclosed two copies of a report entitled, *Ground Water Monitoring Report Calendar Year 2009 Event, Former Gulf States Creosoting Site, Hattiesburg, Mississippi*. This report details the results of ground water monitoring activities during the past year. If you have any questions or comments, please contact me at (405) 775-5475 or Robert Pounds at (405) 775-5168.

Sincerely,

A handwritten signature in black ink that reads "A. Keith Watson". The signature is written in a cursive style.

A. Keith Watson
Project Manager

Copy: T. Reed – Tronox
R. Pounds - Tronox

**Ground Water Monitoring Report
Calendar Year 2009 Event**

**Former Gulf States Creosoting Site
Hattiesburg, Mississippi**

Tronox LLC

February 22, 2010

Project No. 21-04

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Ground Water Monitoring Report Calendar Year 2009 Event

Former Gulf States Creosoting Site Hattiesburg, Mississippi

Executive Summary

From 1996 through 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 2009, 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 2009. Ground water monitoring was performed in accordance with the Mississippi Department of Environmental Quality (MDEQ)-approved *Ground Water Monitoring Plan* (Michael Pisani & Associates, June 25, 2001). Detailed site background, including information on previous ground water investigations and source area remediation, was provided in Section 1.0 of the *Ground Water Monitoring Report, Initial Eight Quarterly Events* (Michael Pisani & Associates, March 16, 2005). This background information is provided as Appendix A to this report.

2.0 Ground Water Monitoring Program

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

2.1 Ground Water Monitoring Well Network

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

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

2.2 Summary of Ground Water Monitoring Activities

The December 2009 monitoring event was conducted during the week of December 21, 2009. Activities undertaken during the event included:

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

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

2.2.1 Sample Containers and Preservatives

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

2.2.2 Water Level Measurement and Well Purging

Prior to purging, the water level in each well was measured to the nearest 0.01 foot with an electronic water level indicator. Water level data were used in conjunction with surveyed top-of-casing data to determine ground water

elevations, flow direction, and hydraulic gradient. A discussion regarding ground water flow beneath the site is presented in Section 3.1 of this report.

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

2.2.3 Sample Collection and Handling

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

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

2.2.4 Chain-of-Custody Control

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

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

The sampler retained one copy of each chain-of-custody form. Two copies of each form were shipped to the laboratory inside the sample coolers. Chain-of-custody seals were placed on each cooler to prevent tampering with the

samples. Samples remained in the physical possession of the sample custodian, in direct view of the sample custodian, or stored in a secured area at all times.

2.2.5 Analytical Program

Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by SW-846 Method 8310 and for laboratory 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 2009 ground water monitoring event. Information on ground water flow, a summary of laboratory analytical results, and an evaluation of monitored natural attenuation are provided in the following subsections.

3.1 Ground Water Flow Assessment

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

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

The December 2009 ground water elevation data are consistent with the data from previous ground water investigations at the site. The data indicate that the shallow water-bearing zones beneath the former Process Area and the Fill Area are not hydraulically connected. Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River, generally at an extremely flat gradient. Ground water flow continues in an easterly direction beneath the adjacent residential area. The average hydraulic gradient between MW-4 and MW-22 is approximately 0.003 (i.e., 3 feet per thousand feet).

Ground water within the Fill Area sands flows westward toward Gordon's Creek and downstream along the creek. The average hydraulic gradient between MW-11 and MW-15 is approximately 0.004 (i.e., 4 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 impacted ground water is shown on Figure 3-2.

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.

Since 2003, naphthalene concentrations in the wells show overall decreasing trends, indicating that the source removal activities conducted in 2003 are achieving their desired goals. Well MW-2R does show a slight increasing trend beginning in 2008. 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.

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. Charts showing naphthalene concentrations over time are provided in Appendix C.

3.3 Natural Attenuation Evaluation

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

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

Table 3-3 presents the results of such a comparison for the initial eight quarterly monitoring events and two subsequent annual events.

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

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

The MNA results summarized in Table 3-3 indicate that, with the exception of MW-2R, most wells within the former Process Area/northeast drainage ditch plume showed strong evidence or positive trend analysis indicating natural attenuation. Although samples from MW-2R do not necessarily exhibit evidence that conditions are favorable for natural attenuation, naphthalene concentrations show a steady-state to declining trend. The evaluation was less meaningful for the Fill Area because ever since installation of the Waterloo Barrier in 2003, well MW-12 is no longer really located within the Fill Area plume. Overall, however, the data demonstrate that conditions are favorable for natural attenuation to occur, and the overall decreasing naphthalene concentrations are an indication of such attenuation.

4.0 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.

Figures

Ground Water Monitoring Report December 2009 Event

Former Gulf States Creosoting Site Hattiesburg, Mississippi

835500

837000

838500

660000

660000

659500

659500

835500

837000

838500



TRONOX Fig. 1-1

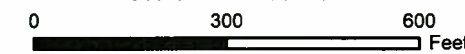
Hattiesburg, Mississippi

**Existing Monitor Well Network
December 2009**

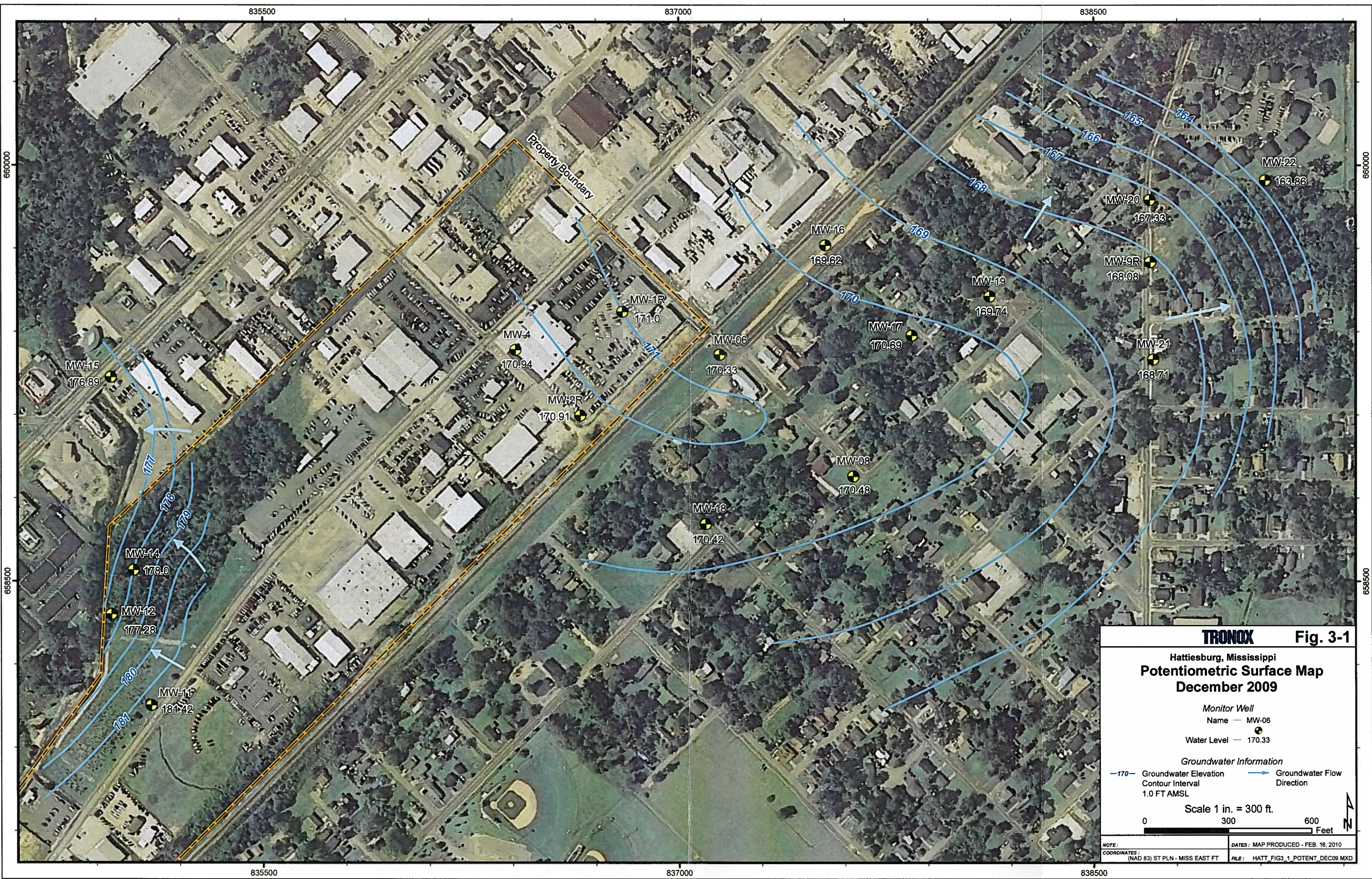
Monitor Well

Name — MW-06

Scale 1 in. = 300 ft.



NOTE: COORDINATES: (NAD 83) ST PLN - MISS EAST FT. DATES: MAP PRODUCED - FEB. 16, 2010. FILE: HATT_FIG1_1_MWELL_DEC09.MXD



TRONOX Fig. 3-1

**Hattiesburg, Mississippi
Potentiometric Surface Map
December 2009**

Monitor Well
Name — MW-06
Water Level — 170.33

Groundwater Information
—170— Groundwater Elevation
Contour Interval
1.0 FT AMSL
→ Groundwater Flow
Direction

Scale 1 in. = 300 ft.
0 300 600 Feet

NOTE: DATES: MAP PRODUCED - FEB. 16, 2010
COORDINATES: (NAD 83) ST PLN - MISS EAST FT FILE: HATT_FIG_1_POTENT_DEC09.MXD



TRONOX Fig. 3-2

Hattiesburg, Mississippi
**Approximate Extent
of
Impacted Groundwater
December 2009**

Monitor Well Name — MW-06
Impacted Groundwater Approximate Extent —

Scale 1 in. = 300 ft.
0 300 600 Feet

NOTE: COORDINATES: (NAD 83) ST PLN - MISS EAST FT
DATES: MAP PRODUCED - FEB. 16, 2010
FILE: HATT_FIG3_2_EXTENT_DEC09.MXD

Tables

**Ground Water Monitoring Report
December 2009 Event**

**Former Gulf States Creosoting Site
Hattiesburg, Mississippi**

Table 2-1
Summary of Monitoring Well Completion Information
Former Gulf States Croosoting Site
Hattiesburg, Mississippi

Well	Date Installed	Borehole Diameter (inches)	Well Diameter (inches)	Construction Material	Well Depth (ft. bis)	Top of Casing Elevation (ft. msl)	Screened Interval (ft. bis)	Screened Interval Elevation (ft. msl)
MW-1R	August 2000	12/8.25	2	Stainless Steel	42	189.06	37-42	147.00-152.06
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-07	September 1998	8.25	2	PVC	38	186.45	18-38	148.45-186.45
MW-08	September 1998	8.25	2	PVC	40	188.73	20-40	148.73-188.73
MW-09	September 1998	8.25	2	PVC	28	174.99	13-28	146.99-161.99
MW-11	September 1998	8.25	2	PVC	14	187.76	9-14	173.76-178.76
MW-12	September 1998	8.25	2	PVC	22	183.84	17-22	161.84-166.84
MW-13	September 1998	8.25	2	PVC	19	183.98	9-19	164.98-174.98
MW-14	November 2001	8.25	2	PVC	22	185.48	17-22	163.48-168.48
MW-15	November 2001	8.25	2	PVC	16	187.17	11-16	171.17-176.17
MW-16	November 2001	8.25	2	PVC	42	188.42	20-40	148.42-188.42
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	181.30	27-42	149.30-184.30
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).
bis - below land surface

**Table 2-2
Analytical Parameters**

**Former Gulf States Creosoting Site
Hattiesburg, Mississippi**

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

Table 3-1
Summary of Ground Water Elevation Data
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Surveyed TOC Elev.	12/18/01	3/18/02	6/8/02	8/18/02	12/18/02	3/24/03	6/23/03	10/6/03	12/13/04	12/12/05	1/8/07	12/3/07	2/2/09	12/23/09
MW-1R	189.06	170.65	173.31	170.46	169.11	173.20	174.75	171.55	169.78	170.06	168.29	169.25	168.84	171.71	171.00
MW-2R	190.45	170.70	173.59	170.70	169.55	173.50	175.16	172.10	170.22	170.08	168.03	169.32	169.20	171.96	170.91
MW-4	191.42	171.07	173.71	170.92	169.62	173.71	175.54	171.89	170.27	170.33	168.82	169.46	169.42	172.06	170.94
MW-06	185.44	170.59	173.13	170.24	169.86	173.14	174.53	171.38	169.49	169.90	168.11	169.29	168.62	171.54	170.33
MW-08	188.73	170.03	171.14	169.98	169.03	173.25	174.51	171.18	169.23	169.78	167.92	169.39	168.22	171.51	170.48
MW-09R	175.73	168.78	170.03	167.84	166.89	170.24	170.88	168.78	166.56	167.23	NM	NM	166.05	168.01	168.08
MW-11	187.76	181.26	181.30	180.14	178.96	181.44	181.87	180.47	180.75	181.53	180.58	181.76	181.09	180.72	181.42
MW-12	183.94	176.52	177.11	175.04	174.04	176.54	178.21	176.44	175.71	175.74	175.39	176.52	177.52	178.92	177.28
MW-13	183.98	177.53	178.77	176.68	175.73	178.58	179.98	176.86	NM	NM	NM	NM	NM	NM	NM
MW-14	185.48	176.68	177.66	176.23	174.03	177.18	179.16	176.42	175.06	174.83	175.01	175.88	174.38	177.04	178.00
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	175.08	175.90	178.89
MW-16	188.42	170.57	172.90	170.20	168.87	172.87	174.21	171.32	169.42	169.87	168.14	169.11	168.60	171.30	169.02
MW-17	179.94	170.69	172.82	169.92	168.49	172.89	174.15	171.13	169.22	169.64	168.00	169.14	168.46	171.42	170.09
MW-18	191.30	170.85	173.64	170.45	169.10	173.92	175.08	171.52	169.80	170.15	168.32	169.64	168.89	172.02	170.42
MW-19	178.50	170.23	172.24	169.55	168.28	172.25	173.40	170.85	168.74	169.25	167.46	168.72	167.99	170.61	169.79
MW-20	179.56	168.65	169.88	167.96	167.21	170.05	170.80	168.80	166.74	167.16	165.38	166.18	165.57	167.41	167.33
MW-21	186.15	169.12	170.64	168.20	167.15	170.92	171.67	169.13	167.21	167.85	166.55	167.49	166.63	169.02	168.71
MW-22	167.92	165.51	165.85	165.10	164.75	165.92	166.09	165.44	162.76	163.39	162.54	163.24	162.69	163.53	163.88

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

Table 3-2

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

**Gulf States Creosoting Site
Hattiesburg, Mississippi**

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acephenanthrene	110j	11	10	0.8	4j	0.0	1.5j	0.8	ND(15)	2	ND(15)	2	4.2j	1.5
Acenaphthylene	ND(110)	11	8	0.8	4j	0.0	0.60j	0.8	ND(15)	2	ND(15)	2	2.6j	1.5
Anthracene	ND(110)	11	0.9	0.04	0.3	0.04	0.19j	0.04	0.17j	0.04	0.066j	0.04	0.3	0.038
Benz(a)anthracene	ND(110)	11	0.06j	0.02	0.04j	0.02	0.028j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019
Benz(b)fluoranthene	ND(110)	11	ND(0.09)	0.02	0.03j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019
Benz(g,h,i)perylene	ND(110)	11	ND(0.2)	0.04	0.05j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Benz(k)fluoranthene	ND(110)	11	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.57)	0.095
Benzofluoranthene	ND(110)	11	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.065)	0.019
Chrysene	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.076
Dibenz(a,h)anthracene	ND(110)	11	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	ND(110)	11	5	0.2	0.3	0.04	0.27	0.04	0.21	0.04	0.12j	0.04	0.25	0.038
Fluorene	59j	11	0.7	0.04	2	0.2	0.93	0.4	0.66j	0.2	0.21j	0.2	2.6	0.17
Indeno(1,2,3-cd)pyrene	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.070
Naphthalene	4700	110	250	0.9	110	1	36	1	22	1	2.2j	1	65	1.1
Phenanthrene	46j	11	6	0.08	2	0.09	1.5	0.08	1.3	0.08	0.54	0.08	2.6	0.076
Pyrene	ND(110)	11	0.4j	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.76)	0.17
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	181	0.41	0.41	38.7	0.41	27.9	0.41	26.2	0.41	12.7	0.41	12.5	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	8.1	1.5	7.8	1.5	7.0	1.5	8.3	1.5	7.7	1.5	7.8	1.5	7.3
Iron (Total)	mg/l	18.1	0.038	8.89	0.038	4.06	0.0349	2	0.0349	1.4	0.0349	0.082j	0.035	1.39
Iron (Dissolved)	mg/l	17.1	0.038	9.12	0.038	3.72	0.0349	2	0.0349	1.42	0.0349	ND(0.1)	0.035	1.28
Methane	µg/l	2400	50	350	10	71	2	43	2	48	2	ND(5)	2	35
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.61	0.4	0.7	0.4	1.1	0.4	0.81
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.8j
Field Parameters														
Dissolved Oxygen	mg/l	0.54	0.34	0.34	0.76	0.76	0.27	0.27	0.32	0.32	0.29	0.29	2.14	1.5
Ferrous Iron	mg/l	8	5.1	5.1	5	5	4	4	2.6	2.6	0	0	1.4	1.5
Oxidation-reduction Pot.	volts	14	-20	14	90	90	116	116	138	138	327	327	165	165
pH	std. units	6.71	6.17	6.17	4.82	4.82	4.93	4.93	5.47	5.47	4.91	4.91	4.96	4.96
Specific Conductance	µS/cm	399	214	214	101	101	84	84	81	81	68	68	66	66
Temperature	°C	23.1	24.26	24.26	24.8	24.8	24.74	24.74	24.23	24.23	23.92	23.92	24.75	24.75

Notes:

mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

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

Gulf States Croosoting Site
Hattiesburg, Mississippi

Parameters	Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6	ND(18)	1	0.85J	0.56	ND(2)	0.51	ND	0.54
Acenaphthylene	µg/l	ND(17)	1.7	ND(15)	1.5	ND(16)	1.6	ND(18)	1.6	ND(2.2)	0.56	ND(2)	1	ND	1.1
Anthracene	µg/l	ND(0.11)	0.022	0.074J	0.039	0.12J	0.039	0.29	0.045	0.088J	0.044	ND(0.1)	0.02	0.034 J	0.022
Benz(a)anthracene	µg/l	ND(0.11)	0.022	0.023J	0.019	0.051J	0.02	0.04J	0.023	0.054J	0.022	ND(0.04)	0.01	0.033 J	0.011
Benz(a)pyrene	µg/l	ND(0.22)	0.043	0.021J	0.019	0.025J	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.04)	0.01	0.040 J	0.011
Benz(b)fluoranthene	µg/l	ND(0.65)	0.11	ND(0.19)	0.039	0.052J	0.039	ND(0.23)	0.045	ND(0.22)	0.044	0.015J	0.0081	0.074	0.0087
Benz(g,h)perylene	µg/l	ND(0.11)	0.022	ND(0.58)	0.066	ND(0.58)	0.098	ND(0.68)	0.11	ND(0.67)	0.11	ND(0.2)	0.061	0.15 J	0.065
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.096)	0.019	0.025J	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.03)	0.0081	0.032 J	0.0087
Chrysene	µg/l	ND(0.43)	0.087	ND(0.38)	0.077	0.076J	0.079	ND(0.45)	0.09	ND(0.44)	0.089	ND(0.2)	0.04	0.071 J	0.065
Dibenz(a,h)anthracene	µg/l	ND(0.22)	0.043	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.1)	0.02	ND	0.022
Fluoranthene	µg/l	0.15J	0.043	0.12J	0.039	0.58	0.030	1.6	0.045	ND(0.22)	0.044	ND(0.1)	0.02	0.14	0.022
Fluorene	µg/l	0.93	0.19	0.36J	0.17	ND(0.79)	0.49	ND(0.90)	0.56	ND(0.86)	0.56	ND(0.4)	0.1	ND	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.43)	0.087	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.45)	0.09	ND(0.44)	0.089	ND(0.2)	0.04	0.079 J	0.043
Naphthalene	µg/l	46	1.3	21	1.5	ND(12)	1.6	ND(14)	1.5	0.59J	0.56	ND(2)	1	ND	1.1
Phenanthrene	µg/l	1.2	0.087	0.63	0.077	0.48	0.079	1	0.09	0.10J	0.089	ND(0.2)	0.04	0.12 J	0.043
Pyrene	µg/l	ND(0.67)	0.19	ND(0.77)	0.17	0.42J	0.18	1.1	0.2	1.1	0.20	ND(0.4)	0.1	0.14 J	0.11
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	9.6	0.41	ND(2)	0.41	18.4	0.46	44.7	0.46	33.6	0.46	29.4	0.46	24.3	0.46
Alkalinity to pH 8.3	mg/l	0.14J	0.043	15.3	0.41	4.3	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	0.46
Chloride	mg/l	7.6	1.5	7	1.5	ND(2)	1.5	7.2	1	7.0	1	6.1	1	ND	1
Iron (Total)	mg/l	0.171J	0.0453	ND(0.2)	0.0495	0.153J	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	4.13	0.05
Iron (Dissolved)	mg/l	0.124J	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	0.316	0.052
Methane	µg/l	3.7J	2	2.2J	2	ND(5)	2	10	2	ND(5)	2	ND(15)	5	ND	10
Nitrate Nitrogen	mg/l	1.4	0.4	1.5	0.4	ND(0.5)	0.4	1.6	0.05	1.0	0.25	1.4	0.25	0.40 J	0.25
Sulfate	mg/l	1.5J	1.5	ND(5)	1.5	2.7J	1.5	1.9J	0.3	4.7J	1.5	4.8J	1.5	1.7 J	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.22		0.08		7.02*		4.32*		0.82		1.47		1.38	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	122		147.5		6		293		87		144.5		53.1	
pH std. units		5.24		5.16		9.6*		5.8		5.77		5.63		7.09	
Specific Conductance	µS/cm	68		75		*		79		121		122		45	
Temperature	°C	32.46*		28.84		22.9		21.3		25.12		24.74		24.30	

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

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	44	1	60	0.8	61	0.9	85	0.8	73	2	52	2	66	1.5
Acenaphthylene	8j		120	0.8	150	0.9	150	0.8	130	2	150	2	120	1.5
Anthracene	ND(10)		ND(0.2)	0.04	ND(0.2)	0.04	ND(2)	2	0.8	0.04	0.74	0.04	0.72	0.038
Benz(a)anthracene	ND(10)		0.4	0.02	0.5	0.02	0.44	0.02	0.39	0.02	0.33	0.02	0.43	0.019
Benz(b)fluoranthene	ND(10)		0.02	0.02	0.05	0.02	0.025	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.027	0.019
Benz(g,h,i)perylene	ND(10)		0.05	0.04	0.1	0.04	0.067	0.04	0.064	0.04	0.057	0.04	0.09	0.038
Benz(k)fluoranthene	ND(10)		ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.096
Chrysene	ND(10)		0.04	0.02	0.07	0.02	0.045	0.02	0.043	0.02	0.036	0.02	0.064	0.019
Dibenz(a,h)anthracene	ND(10)		0.3	0.08	0.4	0.09	0.33	0.08	0.35	0.08	0.35	0.08	0.39	0.077
Fluoranthene	ND(10)		ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluorene	11		39	0.8	10	0.2	9.5	0.4	8.8	0.8	9.3	0.8	10	1.9
Indeno(1,2,3-cd)pyrene	35		10	0.2	50	1	56	2	60	3	66	3	63	8.6
Naphthalene	ND(10)		ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Phenanthrene	12000		8700	50	9000	50	9300	96	8900	120	11000	110	9700	58
Pyrene	140		110	4	140	4	150	0.8	160	2	160	2	150	3.8
	2j		2	0.2	2	0.2	0.87	0.2	1.4	0.2	1.1	0.2	1.6	0.17
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	22.4	0.41	22.1	0.41	22	0.41	ND(2)	0.41	22.4	0.41	21.7	0.41	21.8
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	22.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)
Chloride	mg/l	5.5	1.5	7	1.5	6	1.5	6.3	1.5	5.8	1.5	5.7	1.5	6.1
Iron (Total)	mg/l	0.0718	0.038	0.0398	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0679
Iron (Dissolved)	mg/l	ND(0.1)	0.038	0.0481	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0453
Methane	µg/l	2.8j	2	2.2j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)
Sulfate	mg/l	19.9	1.5	18.8	1.5	20.9	1.5	21.2	1.5	19.3	1.5	20.9	1.5	21.8
Field Parameters														
Dissolved Oxygen	mg/l	0.42	0.41	0.41	0.48	0.48	0.28	0.28	0.33	0.33	0.25	0.25	2.04	2.04
Ferrous Iron	mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	409	200	200	421	421	307	307	237	237	350	350	268	268
pH std. units		5.56	5.36	5.36	4.58	4.58	4.43	4.43	5.4	5.4	5	5	5.08	5.08
Specific Conductance	µS/cm	102	108	108	107	107	113	113	113	113	113	113	116	116
Temperature	°C	21.8	21.53	21.53	22.6	22.6	22.68	22.68	22.23	22.23	22.04	22.04	22.18	22.18

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

Table 3-2

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

Gulf States Creosoting Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009		
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthylene	µg/l	58	1.6	81	1.7	62	1.6	47	1	47	0.57	49	0.51	70	0.54
Acenaphthylene	µg/l	100	1.6	130	1.7	100	1.6	ND(110)	110	130	0.57	ND(110)	110	ND	130
Anthracene	µg/l	0.25	0.02	ND(10)	10	ND(1)	1	ND(0.50)	0.5	0.67	0.045	ND(0.7)	0.7	ND	0.70
Benz(a)anthracene	µg/l	ND(0.1)	0.02	0.21	0.021	0.15	0.019	0.15	0.023	0.14	0.023	0.11	0.01	0.098	0.011
Benz(a)pyrene	µg/l	0.049j	0.041	ND(0.1)	0.021	ND(0.097)	0.019	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.04)	0.01	ND	0.11
Benz(b)fluoranthene	µg/l	ND(0.61)	0.1	0.045j	0.042	0.054j	0.039	0.064j	0.046	0.069j	0.045	0.048	0.0081	0.048	0.0086
Benz(g,h,i)perylene	µg/l	0.032j	0.02	ND(0.62)	0.1	ND(0.58)	0.097	ND(0.69)	0.11	ND(0.68)	0.11	ND(0.2)	0.061	ND	0.065
Benz(k)fluoranthene	µg/l	ND(2)	0.41	0.031j	0.021	0.031j	0.019	0.043j	0.023	0.040j	0.023	0.029j	0.0081	0.035	0.0086
Chrysene	µg/l	0.23j	0.081	0.32j	0.083	0.18j	0.078	0.20j	0.091	0.23j	0.091	0.18j	0.04	0.17	0.065
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.041	ND(0.21)	0.042	ND(0.18)	0.039	ND(0.23)	0.048	ND(0.23)	0.045	ND(0.1)	0.02	ND	0.022
Fluoranthene	µg/l	7.2	0.041	8.2	0.042	6.8	0.039	5.7	0.046	6.3	0.045	5.5	0.02	5.8	0.022
Fluorene	µg/l	51	9.1	64	9.4	52	9.7	54	11	63	11	55	2	70	2.2
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.41)	0.081	ND(0.42)	0.083	ND(0.39)	0.078	ND(0.46)	0.091	ND(0.45)	0.091	ND(0.2)	0.04	ND	0.043
Naphthalene	µg/l	8100	61	7300	83	6000	31	5800	30	7500	11	6,900	20	9,200	54
Phenanthrene	µg/l	120	4.1	120	4.2	110	1.6	94	1.8	130	1.8	130	0.81	140	0.86
Pyrene	µg/l	1.1	0.18	1.3	0.19	0.73j	0.17	0.70j	0.21	0.70j	0.20	0.75	0.1	0.81	0.11
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	21.1	0.41	ND(2)	0.41	10.5	0.46	21.9	0.46	14.4	0.46	20.3	0.46	21.8	.46
Alkalinity to pH 8.3	mg/l	0.42	0.041	22.4	0.41	0.46	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	.46
Chloride	mg/l	5.8	1.5	5.7	1.5	4.8	1.5	5.5	1	5.2	1	5.7	1	6.7	1
Iron (Total)	mg/l	0.0578j	0.0453	ND(0.2)	0.0495	0.0913j	0.038	0.120j	0.052	0.100j	0.0522	0.0647j	0.0522	0.035	.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0680j	0.038	0.100j	0.052	0.0635j	0.0522	0.0584j	0.0522	0.028	0.0522
Methane	µg/l	ND(5)	2	2.1j	2	ND(5)	2	2.3j	2	ND(5)	2	ND(15)	5	ND	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	.25
Sulfate	mg/l	19.9	1.5	17.0	1.5	18.8	1.5	19	1.5	10.8	1.5	14.7	1.5	13.8	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.5	1.3	0	0.36	0	0.36	4.49*		0.8		1.06		76	
Ferrous Iron	mg/l	0	0	0	0	0	0	0.6		0		0		0	
Oxidation-reduction Pot.	volts	166	129	129	115	115	107	107		31		190.3		80.9	
pH std. units		5.31	5.31	5.31	5.11	5.11	5.33	5.33		5.39		4.87		4.68	
Specific Conductance	µS/cm	113	106	106	*	115	115	115		98.17		119		83	
Temperature	°C	25.41*	23.69	23.69	22.39	22.39	22.5	22.5		23.28		22.73		22.43	

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-4Gulf States Creosoting Site
Hattiesburg, Mississippi

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Anthracene	ND(10)	1	0.08j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Benz(a)anthracene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.066)	0.019
Benz(b)pyrene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.066)	0.019
Benz(g,h,i)perylene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Benz(o)fluoranthene	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096
Benz(k)fluoranthene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019
Chrysene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Dibenz(a,h)anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluorene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.77)	0.17
Indeno(1,2,3-cd)pyrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Naphthalene	110	1	ND(8)	0.9	ND(8)	0.9	59	1	4.5j	1	ND(12)	1	ND(12)	1.2
Phenanthrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	0.39j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Pyrene	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	14.6	0.41	15.3	0.41	16	0.41	ND(2)	0.41	16.6	0.41	16	0.41	15.8
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	15.0	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)
Chloride	mg/l	7.7	1.5	8.4	1.5	7.5	1.5	7.9	1.5	7.4	1.5	7.4	1.5	7.0
Iron (Total)	mg/l	0.0526j	0.038	ND(0.1)	0.035	0.333	0.0349	0.51	0.0349	0.826	0.0349	0.038j	0.035	ND(0.2)
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)
Methane	µg/l	3.1j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.5j	1.5	ND(5)	1.5	ND(5)
Field Parameters														
Dissolved Oxygen	mg/l	0.57	0.63	0.63	3.62	3.62	6.09	6.09	3.5	3.5	0.33	0.33	2.86	
Ferrous Iron	mg/l	0	0	0	1	1	0	0	0	0	0	0	0	
Oxidation-reduction Pot.	volts	403	268	268	639	639	221	221	308	308	402	402	276	
pH	std. units	5.67	5.44	5.44	3.04	3.04	5.43	5.43	5.54	5.54	5.05	5.05	5.11	
Specific Conductance	µS/cm	62	61	61	63	63	67	67	66	66	65	65	68	
Temperature	°C	24.2	23.24	23.24	24.7	24.7	24.94	24.94	24	24	24.08	24.08	24.38	

Notes:

mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-4

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1	ND(2.3)	0.57	ND(2)	0.51	ND	0.53
Acenaphthylene	µg/l	ND(17)	1.7	ND(16)	1.6	ND(16)	1.6	ND(18)	1.6	ND(2.3)	0.57	ND(2)	1	ND	1.1
Anthracene	µg/l	ND(0.1)	0.021	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.23)	0.046	ND(0.1)	0.02	ND	0.021
Benz(a)anthracene	µg/l	ND(0.1)	0.021	ND(0.099)	0.02	ND(0.099)	0.02	ND(0.11)	0.022	0.046	0.023	ND(0.041)	0.01	ND	0.011
Benzofluoranthene	µg/l	ND(0.21)	0.042	ND(0.099)	0.02	ND(0.099)	0.02	ND(0.11)	0.022	0.073	0.023	ND(0.041)	0.01	ND	0.011
Benzofluoranthene	µg/l	ND(0.63)	0.1	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.069	0.046	0.0090	0.0082	ND	0.0084
Benzofluoranthene	µg/l	ND(0.1)	0.021	ND(0.59)	0.099	ND(0.59)	0.098	ND(0.67)	0.11	0.13	0.11	ND(0.2)	0.061	ND	0.063
Benzofluoranthene	µg/l	ND(2)	0.41	ND(0.099)	0.02	ND(0.099)	0.02	ND(0.11)	0.022	0.034	0.023	ND(0.031)	0.0082	ND	0.0084
Chrysene	µg/l	ND(0.42)	0.084	ND(0.4)	0.079	ND(0.39)	0.078	ND(0.44)	0.059	ND(0.46)	0.052	ND(0.2)	0.041	ND	0.063
Dibenz(a,h)anthracene	µg/l	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.23)	0.046	ND(0.1)	0.02	ND	0.021
Fluoranthene	µg/l	ND(0.21)	0.042	ND(0.2)	0.04	ND(0.2)	0.039	ND(0.22)	0.044	0.062	0.046	ND(0.1)	0.02	ND	0.021
Fluorene	µg/l	0.26j	0.19	0.19j	0.18	ND(0.78)	0.49	ND(0.89)	0.55	ND(0.92)	0.57	ND(0.041)	0.1	0.29 J	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.42)	0.084	ND(0.4)	0.078	ND(0.39)	0.078	ND(0.44)	0.069	ND(0.46)	0.052	ND(0.2)	0.041	ND	0.042
Naphthalene	µg/l	35	1.3	34	1.6	ND(12)	1.6	38	1.4	13	0.57	ND(2)	1	28	1.1
Phenanthrene	µg/l	0.35j	0.084	0.22	0.079	ND(0.39)	0.078	0.16j	0.069	0.10	0.092	ND(0.2)	0.041	0.21 J	0.042
Pyrene	µg/l	ND(0.64)	0.19	ND(0.79)	0.18	ND(0.78)	0.18	ND(0.89)	0.2	ND(0.92)	0.21	ND(0.041)	0.1	ND	0.11

Natural Attenuation Parameters

Alkalinity to pH 4.5	mg/l	15.6	0.41	ND(2)	0.41	15.2	0.46	16.4	0.46	12.3	0.46	20.5	0.46	20.5	0.46
Alkalinity to pH 8.3	mg/l	ND(0.21)	0.042	15.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	0.46
Chloride	mg/l	7.2	1.5	7.4	1.5	6.8	1.5	7.1	1	2.5	1	5.6	1	7.3	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	0.0522
Methane	µg/l	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(15)	5	ND	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	0.55	0.25	0.35j	0.25	0.28 J	0.25
Sulfate	mg/l	1.9j	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.9j	1.5	1.9j	1.5	1.6 J	1.5

Field Parameters

Dissolved Oxygen	mg/l	0.44		0.54		3.96		5.16		0.91		4.04		0.83	
Ferrous Iron	mg/l	0.1		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	141		144		171		283		150		160.7		196.8	
pH std. units		5.38		5.28		5.33		5.17		5.38		5.48		4.93	
Specific Conductance	µS/cm	64		69		*		65		62.59		78		61	
Temperature	°C	32.85*		24.34		22.51		21.1		25.2		24.96		24.2	

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**

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	170	10	160	0.8	140	0.8	150	0.8	160	2	100	2	140	1.5	
Acenaphthylene	ND(100)	10	150	0.8	150	0.8	130	0.8	170	2	130	2	160	1.5	
Anthracene	ND(100)	10	7	0.2	6	0.04	6.6	0.04	8.6	0.4	5.7	0.04	8	0.77	
Benz(a)anthracene	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	
Benz(a)pyrene	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	
Benz(b)fluoranthene	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	
Benz(g,h,i)perylene	ND(100)	10	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	
Benzofluoranthene	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	
Chrysene	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	
Dibenz(a,h)anthracene	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	
Fluoranthene	ND(100)	10	89	0.8	2	0.04	2.6	0.04	2.3	0.04	1.8	0.04	2.1	0.038	
Fluorene	120	10	2	0.04	92	1	92	0.2	120	2	94	3	110	3.5	
Indeno(1,2,3-cd)pyrene	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	
Naphthalene	9100	200	7300	50	6800	50	8200	1	8600	120	7600	57	8500	58	
Phenanthrene	79	10	65	0.4	67	0.4	69	0.09	83	0.8	68	2	78	1.5	
Pyrene	ND(100)	10	0.6	0.2	0.7	0.2	1.7	0.2	0.77	0.2	0.43	0.2	0.74	0.17	
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	97.6	0.41	111	0.41	110	0.41	ND(2)	0.41	99.9	0.41	97.2	0.41	110	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	98.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	9.7	1.5	9.6	1.5	10.5	1.5	10.9	1.5	9.1	1.5	7.4	1.5	8.6	1.5
Iron (Total)	mg/l	20.6	0.038	23	0.038	21.7	0.0349	19.8	0.0349	21.4	0.0349	15.3	0.035	16.8	0.0453
Iron (Dissolved)	mg/l	20.8	0.038	23	0.038	20.2	0.0349	18.7	0.0349	20.1	0.0349	16.2	0.035	17.9	0.0453
Methane	mg/l	1200	50	1400	40	1400	40	1900	2	1900	50	1200	50	1900	100
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	3	1.5	4.9	1.5	3.7	1.5	4.1	1.5	6	1.5	4.6	1.5	2.7	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.35		0.28		0.41		0.17		0.33		0.11		2.68	
Ferrous Iron	mg/l	7		5		3		4.5		5		4.2		6.6	
Oxidation-reduction Pot.	volts	58		-177		-116		-87		-58		-111		-32	
pH	std. units	6.19		6.18		4.92		5.46		6.03		5.81		5.37	
Specific Conductance	µS/cm	215		246		239		238		225		206		246	
Temperature	°C	22.1		21.58		22.5		22.74		22.67		21.2		22.74	

Notes:

mg/l - milligrams per liter
 µg/l - micrograms per liter
 µS/cm - micro siemens per centimeter
 °C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-06

Gulf States Croosoting Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	120	1.5	130	1.5	96	1.6	120	1	80	0.57	59	0.53	69	0.55
Acenaphthylene	120	1.5	ND(770)	770	91	1.6	ND(160)	160	120	0.57	ND(36)	36	N.D.	73
Anthracene	ND(0.095)	0.019	6.9	0.039	4.5	0.039	7.1	0.045	5.0	0.046	3.7	0.021	4.7	0.022
Benz(a)anthracene	ND(0.095)	0.019	ND(0.096)	0.019	ND(0.069)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.042)	0.011	N.D.	0.011
Benz(a)pyrene	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.069)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.042)	0.011	N.D.	0.011
Benzofluoranthene	ND(0.57)	0.095	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.23)	0.046	ND(0.032)	0.0085	N.D.	0.0088
Benzofluoranthene	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.099	ND(0.68)	0.11	ND(0.69)	0.11	ND(0.21)	0.063	N.D.	0.066
Benzofluoranthene	ND(2)	0.41	ND(0.096)	0.019	ND(0.099)	0.02	ND(0.11)	0.023	ND(0.11)	0.023	ND(0.032)	0.0085	N.D.	0.0088
Chrysene	ND(0.36)	0.076	ND(0.39)	0.077	ND(0.39)	0.079	ND(0.45)	0.09	ND(0.46)	0.092	ND(0.21)	0.042	N.D.	0.066
Dibenz(a,h)anthracene	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.23)	0.046	ND(0.11)	0.021	N.D.	0.022
Fluoranthene	1.9	0.038	2.4	0.039	1.5	0.039	2.5	0.045	1.7	0.046	1.3	0.021	2.1	0.022
Fluorene	86	8.6	91	8.7	59	8.9	94	11	68	11.	41	0.11	80	2.2
Indeno(1,2,3-cd)pyrene	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.39)	0.079	ND(0.45)	0.09	ND(0.46)	0.092	ND(0.21)	0.042	N.D.	0.044
Naphthalene	6400	57	7100	77	4100	32	6500	29	5200	11.	2,200	11	3,600	22
Phenanthrene	65	3.8	64	3.9	45	1.6	76	1.8	55	1.8	ND(2.1)	0.42	63	0.88
Pyrene	0.67	0.17	0.78	0.17	45	0.18	0.82	0.2	0.52	0.21	0.47	0.11	0.76	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	108	0.41	ND(2)	0.41	104	0.46	98.2	0.46	104	0.46	98.6	0.46	92.5	.46
Alkalinity to pH 8.3	6.1	0.038	97.5	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	.46
Chloride	8.4	1.5	8	1.5	7.3	1.5	7.6	1	7.8	1.0	6.2	1	7	1
Iron (Total)	18.8	0.0453	22	0.0495	26.9	0.038	26.1	0.0522	26.3	0.0522	23.5	0.0522	26.2	.0522
Iron (Dissolved)	18.9	0.0453	22	0.0495	26	0.038	25.8	0.0522	28.0	0.0522	24.3	0.0522	25.7	0.0522
Methane	1400	50	2500	50	1400	40	2300	500	1400	20.	780	10	1,100	25
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	.25
Sulfate	5.2	1.5	3.4	1.5	3.6	1.5	1.9	1.5	2.8	1.5	4.9	1.5	2.1	1.5
Field Parameters														
Dissolved Oxygen	0.3		0.18		0.37		5.67*		0.74		1.18		0.83	
Ferrous Iron	5.2		4		4		0		2.4		2.6		5	
Oxidation-reduction Pot.	-98		-60.3		-154		-88		-183		22.4		-118	
pH	6.08		5.82		5.77		5.77		6.01		5.93		5.69	
Specific Conductance	206		213		210		210		220		252		194	
Temperature	32.19*		24.09		21.14		22		22.77		21.10		21.41	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-08

Gulf States Croosoting Site
Hattiesburg, Mississippi

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	ND(10)	1	ND(8)	0.8	ND(9)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	
Acenaphthylene	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	
Anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	
Benz(a)anthracene	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	
Benz(a)pyrene	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	
Benz(b)fluoranthene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	
Benz(g,h,i)perylene	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	
Benzo(k)fluoranthene	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	
Chrysene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	
Dibenz(a,h)anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	
Fluoranthene	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	
Fluorene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	
Indeno(1,2,3-cd)pyrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	
Naphthalene	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	
Phenanthrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	
Pyrene	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	4.1	0.41	3	0.41	3.2	0.41	ND(2)	0.41	ND(2)	0.41	3.3	0.41	3.1	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	15.5	1.5	22.5	1.5	24.2	1.5	21.9	1.5	18.6	1.5	25.5	1.5	28.6	1.5
Iron (Total)	mg/l	0.259	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	20.2	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Methane	µg/l	3.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	1.19	0.4	1.47	0.4	1.75	0.4	1.77	0.4	1.19	0.4	1.2	0.4	1.2	0.4
Sulfate	mg/l	6.6	1.5	6.4	1.5	3.3j	1.5	3.9j	1.5	6.4	1.5	4j	1.5	3.4j	1.5
Field Parameters															
Dissolved Oxygen	mg/l	3.33		4.31		2.92		2.82		3.45		2.92		3.28	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	428		528		300		334		307		320		395	
pH std units		5.25		4.46		4.49		4.43		4.96		4.3		4.68	
Specific Conductance	µS/cm	88		114		105		100		95		128		128	
Temperature	°C	21.4		21.95		21.6		22.24		22.15		21.29		21.83	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-08

Gulf States Crocosling Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	3	0.41	ND(2)	0.41	ND(16)	1.6	ND(17)	0.98	ND(2)	0.50	ND(2-1)	0.52	N.D.	0.54
Acenaphthylene	ND(0.2)	0.039	3	0.41	ND(16)	1.6	ND(17)	1.5	ND(2)	0.50	ND(2-1)	1	N.D.	1.1
Anthracene	35	3	28.1	1.5	ND(0.19)	0.038	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021	N.D.	0.022
Benz(a)anthracene	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.041)	0.01	N.D.	0.011
Benz(a)pyrene	ND(5)	2	ND(5)	2	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.041)	0.01	N.D.	0.011
Benz(b)fluoranthene	1.5	0.4	1.5	0.4	ND(0.19)	0.038	ND(0.11)	0.022	ND(0.20)	0.040	ND(0.031)	0.0083	N.D.	0.0086
Benz(g,h,i)perylene	3.4	1.5	3.1	1.5	ND(0.58)	0.067	ND(0.65)	0.11	ND(0.59)	0.099	ND(0.21)	0.062	N.D.	0.065
Benz(k)fluoranthene	1.15	0.41	1.16	0.41	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.099)	0.020	ND(0.031)	0.0083	N.D.	0.0086
Chrysene	0	0.78	0	0.78	ND(0.39)	0.076	ND(0.43)	0.087	ND(0.40)	0.079	ND(0.21)	0.041	N.D.	0.065
Dibenz(a,h)anthracene	196	0.039	188	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021	N.D.	0.022
Fluoranthene	4.94	0.039	4.7	0.038	ND(0.19)	0.039	ND(0.22)	0.043	ND(0.20)	0.040	ND(0.1)	0.021	N.D.	0.022
Fluorene	390	0.18	112	0.17	ND(0.78)	0.49	ND(0.87)	0.54	ND(0.79)	0.50	ND(0.041)	0.1	N.D.	0.11
Indeno(1,2,3-cd)pyrene	32.61*	0.78	23.87	0.76	ND(0.39)	0.076	ND(0.43)	0.087	ND(0.40)	0.078	ND(0.21)	0.041	N.D.	0.043
Naphthalene		1.2		1.5	ND(12)	1.5	ND(13)	1.4	ND(2)	0.50	ND(2-1)	1	N.D.	1.1
Phenanthrene		0.78		0.76	ND(0.39)	0.076	ND(0.43)	0.087	ND(0.40)	0.079	ND(0.21)	0.041	N.D.	0.043
Pyrene		0.18		0.17	ND(0.77)	0.17	ND(0.87)	0.2	ND(0.79)	0.18	ND(0.041)	0.1	N.D.	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l		ND(2)	0.41	2.5	0.48	2.7	0.48	1.6	0.48	2.4	0.46	2.4	.46
Alkalinity to pH 8.3	mg/l		3	0.41	ND(2)	0.48	ND(2)	0.48	ND(2)	0.46	ND(2)	0.46	ND	.46
Chloride	mg/l		35	28.1	33.8	3	12.2	1	25.3	1.0	18.7	1	16.1	1
Iron (Total)	mg/l		ND(0.2)	0.0453	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	.330	.0522
Iron (Dissolved)	mg/l		ND(0.2)	0.0453	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	0.0522
Methane	mg/l		ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2.0	ND(15)	5	ND	5
Nitrate Nitrogen	mg/l		1.5	0.4	2.1	0.4	1.9	0.25	2.6	0.25	2.2	0.25	2.4	.25
Sulfate	mg/l		3.4	1.5	3.6	1.5	4.2	1.5	3.3	1.5	6.8	1.5	3.7 J	1.5
Field Parameters														
Dissolved Oxygen	mg/l		1.15	1.16	2.15	7.96*	7.96*	3.04	3.04	3.04	3.38	2.87	2.87	0
Ferrous Iron	mg/l		0	0	0	0	0	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts		196	188	290	294	4.79	4.86	200	246.8	4.63	219	4.28	4.28
pH std. units			4.94	4.7	4.56	137	137	116.4	4.86	123	72	72	72	72
Specific Conductance	µS/cm		390	112	19.06	19.06	19.40	19.40	116.4	19.40	20.4	19.60	19.60	19.60
Temperature	°C		32.61*	23.87	19.06	19.06	21.2	21.2	19.40	19.40	20.4	19.60	19.60	19.60

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

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	240j	27	230	0.8	310	0.9	280	0.8	230	2	180	2	330	1.6
Acenaphthylene	12	1	ND(8)	0.8	120	0.9	120	0.8	60	2	ND(55)	55	130	1.6
Anthracene	12	1	9	0.4	9	0.4	9.2	0.8	9.8	0.8	7.6	0.4	9.3	0.79
Benz(a)anthracene	ND(11)	1	0.1	0.02	0.1	0.02	0.085j	0.02	0.078j	0.02	0.06j	0.02	0.087j	0.02
Benz(a)pyrene	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(g,h,i)perylene	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1
Benz(k)fluoranthene	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Chrysene	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08
Dibenz(a,h)anthracene	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	14	1	110	2	12	0.4	10	0.8	10	0.8	6	0.4	11	0.79
Fluorene	160j	27	10	0.4	160	2	150	3	130	3	110	2	190	3.6
Indeno(1,2,3-cd)pyrene	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08
Naphthalene	2600	27	1000	9	1600	10	2400	19	1000	23	1100	11	1700	24
Phenanthrene	110	1	97	0.8	130	0.9	120	2	130	2	100	0.8	150	1.6
Pyrene	9j	1	6	0.2	6	0.2	7.6	0.2	5.2	0.2	3.3	0.2	5.1	0.18
Natural Attenuation Parameters														
Alkalinity to pH 4.5	85.5	0.41	80	0.41	80.9	0.41	ND(2)	0.41	73	0.41	96.6	0.41	90.1	0.41
Alkalinity to pH 8.3	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	80	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	5.7	1.5	6.5	1.5	7	1.5	7.6	1.5	5.8	1.5	7	1.5	6.9	1.5
Iron (Total)	15.8	0.038	15.3	0.038	15.2	0.0349	16	0.0349	14.8	0.0349	17.3	0.035	15.8	0.0453
Iron (Dissolved)	15.5	0.038	15.5	0.038	14.8	0.0349	16.2	0.0349	15.2	0.0349	17.3	0.035	16.7	0.0453
Methane	590	40	380	10	480	10	340	10	230	10	750	20	580	20
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	3.4j	1.5	6.6	1.5	4j	1.5	ND(5)	1.5	5.3	1.5	9.6	1.5	6.4	1.5
Field Parameters														
Dissolved Oxygen	0.46		0.34		0.4		0.22		0.17		0.16		4.07	
Ferrous Iron	6		3		7		5		5.5		3		4	
Oxidation-reduction Pot.	62		-178		28		-105		-72		-34		-70.5	
pH std. units	6.25		6.23		4.73		5.09		6.2		4.77		5.68	
Specific Conductance	189		185		180		181		171		220		203	
Temperature	21.6		19.18		21.5		24.27		22.17		18.95		22.03	

Notes:

- mg/l - milligrams per liter
- µg/l - micrograms per liter
- µS/cm - micro siemens per centimeter
- °C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-09

Gulf States Crocooting Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene	220	1.6	200	1.6	Damaged		84	0.56	88	0.52	73	0.54
Acenaphthylene	100	1.6	ND(160)	160	Damaged		37	0.56	ND(47)	47	N.D.	9.0
Anthracene	0.066j	0.02	8.9	0.39	Damaged		3.9	0.044	5.6	0.021	2.4	0.022
Benz(a)anthracene	ND(0.1)	0.02	0.056j	0.019	Damaged		ND(0.1)	0.022	0.029j	0.01	0.057	0.011
Benz(a)pyrene	ND(0.2)	0.04	ND(0.097)	0.019	Damaged		ND(0.2)	0.022	ND(0.042)	0.01	0.043	0.011
Benz(b)fluoranthene	ND(0.61)	0.1	ND(0.19)	0.039	Damaged		ND(0.61)	0.044	ND(0.031)	0.0083	0.042	0.0087
Benz(g,h,i)perylene	ND(0.1)	0.02	ND(0.058)	0.097	Damaged		ND(0.1)	0.11	ND(0.21)	0.062	0.068	0.065
Benz(k)fluoranthene	ND(2)	0.41	ND(0.097)	0.019	Damaged		ND(2)	0.022	ND(0.031)	0.0083	0.054	0.0087
Chrysene	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		ND(0.4)	0.089	ND(0.21)	0.042	0.079	0.065
Dibenz(a,h)anthracene	ND(0.2)	0.04	ND(0.19)	0.039	Damaged		ND(0.2)	0.044	ND(0.1)	0.021	0.065	0.022
Fluoranthene	10	0.4	9.1	0.39	Damaged		3.6	0.044	4.5	0.021	2.7	0.022
Fluorene	140	1.8	130	1.7	Damaged		47	2.8	69	1	64	0.54
Indeno(1,2,3-cd)pyrene	ND(0.4)	0.081	ND(0.39)	0.078	Damaged		ND(0.4)	0.089	ND(0.21)	0.042	0.068	0.043
Naphthalene	1400	12	1300	16	Damaged		760	2.8	1,300	10	190	1.1
Phenanthrene	130	0.81	110	0.78	Damaged		30	0.44	49	0.42	10	0.043
Pyrene	4.2	0.18	5.7	0.17	Damaged		1.9	0.20	2.6	0.1	1.5	0.11
Natural Attenuation Parameters												
Alkalinity to pH 4.5	84.9	0.41	ND(2)	0.41	Damaged		114	0.46	115	0.46	90.7	0.48
Alkalinity to pH 8.3	7	0.04	118	0.41	Damaged		ND(2)	0.46	ND(2)	0.46	ND	0.46
Chloride	6.8	1.5	8.4	1.5	Damaged		10.2	1	12.9	1	15.7	1
Iron (Total)	18	0.0453	26.8	0.0485	Damaged		24.9	0.0522	27.6	0.0522	18.1	0.0522
Iron (Dissolved)	17.6	0.0453	25.9	0.0485	Damaged		25.0	0.0522	28.6	0.0522	19.8	0.0522
Methane	450	20	1500	40	Damaged		2000	40	1,500	25	2,600	1,000
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	Damaged		ND(0.5)	0.25	ND(0.5)	0.25	ND	0.25
Sulfate	13.8	1.5	ND(5)	1.5	Damaged		ND(5)	1.5	ND(5)	1.5	3.7	1.5
Field Parameters												
Dissolved Oxygen	0.42		1.69		Damaged		0.74		1.14		0.70	
Ferrous Iron	4.8		5		Damaged		4		2.8		4	
Oxidation-reduction Pot.	-166		-73		Damaged		-103		21		-128.1	
pH	5.86		6.34		Damaged		6.23		6.04		6.10	
Specific Conductance	238		259		Damaged		253.5		334		227	
Temperature	23.73		28.55		Damaged		21.68		20.46		19.96	

Notes:

mg/l - milligrams per liter

µg/l - micrograms per liter

µS/cm - micro siemens per centimeter

°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-11

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1
Benz(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18

Natural Attenuation Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Alkalinity to pH 4.5	mg/l	0.68j	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.7j	0.41	0.56j	0.41	2.2	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	5.8	1.5	6.2	1.5	6.9	1.5	9.7	1.5	7.8	1.5	10.1	1.5	11.6	1.5
Iron (Total)	mg/l	0.676	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.149	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Methane	µg/l	10	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.56	0.4	0.44j	0.4	0.52	0.4	0.41j	0.4	0.41j	0.4	0.4j	0.4	ND(0.5)	0.4
Sulfate	mg/l	22.2	1.5	20.8	1.5	20.1	1.5	21.4	1.5	20.3	1.5	22.3	1.5	17.8	1.5

Field Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Dissolved Oxygen	mg/l	3.95		1.32		1.59		0.50		0.01		1.17		2	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	336		365		520		326		390		515		369	
pH std. units		5.52		4.18		3.7		4.4		4.74		3.16		4.57	
Specific Conductance	µS/cm	81		86		85		97		94		98		109	
Temperature	°C	22.3		18.92		24.9		27.74		20.44		18.97		25.12	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-11

Gulf States Croosoling Site
Hattiesburg, Mississippi

Parameters	Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.1	ND(2.2)	0.56	ND(2)	0.51	N.D.	0.53
Acenaphthylene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(15)	1.5	ND(19)	1.7	ND(2.2)	0.56	ND(2)	1	N.D.	1.1
Anthracene	µg/l	ND(0.095)	0.019	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02	N.D.	0.021
Benzo(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.04)	0.01	N.D.	0.011
Benzo(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.04)	0.01	N.D.	0.011
Benzo(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.03)	0.0081	N.D.	0.0084
Benzo(g,h)perylene	µg/l	ND(0.095)	0.019	ND(0.57)	0.095	ND(0.58)	0.096	ND(0.71)	0.12	ND(0.67)	0.11	ND(0.2)	0.061	N.D.	0.063
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.12)	0.024	ND(0.11)	0.022	ND(0.03)	0.0081	N.D.	0.0084
Chrysene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04	N.D.	0.063
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02	N.D.	0.021
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.24)	0.047	ND(0.22)	0.044	ND(0.1)	0.02	N.D.	0.021
Fluorene	µg/l	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.17	ND(0.95)	0.59	ND(0.89)	0.56	ND(0.4)	0.1	N.D.	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04	N.D.	0.042
Naphthalene	µg/l	ND(11)	1.1	ND(11)	1.1	ND(12)	1.5	ND(14)	1.5	ND(2.2)	0.56	ND(2)	1	N.D.	1.1
Phenanthrene	µg/l	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.47)	0.095	ND(0.44)	0.089	ND(0.2)	0.04	N.D.	0.042
Pyrene	µg/l	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.77)	0.17	ND(0.95)	0.21	ND(0.89)	0.20	ND(0.4)	0.1	N.D.	0.11
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.46	1.0	0.46	ND(2)	0.46	ND(2)	0.46	2.4	.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	ND(2)	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	.46
Chloride	mg/l	11	1.5	11.1	1.5	7.7	1.5	7.2	1	7.1	1.0	8	1	5.9	2
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0774	0.038	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	0.0788	0.0495	0.0412	0.038	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	.0522
Methane	µg/l	ND(5)	2	24	2	130	2	ND(5)	2	ND(5)	2.0	67	5	36	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	0.30	0.25	ND(0.5)	0.25	ND	.25
Sulfate	mg/l	23.1	1.5	28.6	1.5	24.9	1.5	24.4	1.5	19.9	1.5	25.5	1.5	23.5	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.63		0.63		0.15		5.56*		0.77		1.18		0.45	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	304		166.0		278		353		340		241.2		262.3	
pH std. units		4.41		4.55		3.99		4.44		4.58		4.47		4.10	
Specific Conductance	µS/cm	112		117		*		107		90.17		114		76	
Temperature °C		26.23		21.65		22.08		20.7		22.55		18.53		19.04	

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-12**

**Gulf States Croosoting Site
Hattiesburg, Mississippi**

Parameters	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	130	1	100	0.8	85	0.9	100	0.8	29	2	16	2	4.5j	1.6
Acenaphthylene	µg/l	16	1	81	0.8	63	0.9	97	0.8	17	2	14j	2	2.5j	1.6
Anthracene	µg/l	5j	1	5	0.04	4	0.04	4.4	0.04	1.7	0.04	1.4	0.04	0.08j	0.04
Benzo(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	1j	1	38	0.2	0.5	0.04	1.5	0.04	0.27	0.04	ND(0.2)	0.04	0.002j	0.04
Fluorene	µg/l	64	1	0.7	0.04	29	0.2	52	3	12	0.2	8.9	0.2	ND(0.78)	0.18
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Naphthalene	µg/l	5600	100	2900	20	2600	20	4800	19	360	6	210	1	2.2j	1.2
Phenanthrene	µg/l	41	1	28	2	25	2	34	2	7.4	0.08	3.9	0.08	0.15j	0.08
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	1.3	0.2	ND(0.8)	0.2	ND(0.8)	0.2	0.19j	0.18
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	50.8	0.41	53.5	0.41	52.8	0.41	ND(2)	0.41	49.5	0.41	51.7	0.41	50	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	49.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	3.3	1.5	3.3	1.5	3.3	1.5	3.3	1.5	3	1.5	3.4	1.5	3.1	1.5
Iron (Total)	mg/l	1.83	0.038	1.89	0.038	1.72	0.0349	1.78	0.0349	1.58	0.0349	1.7	0.035	1.4	0.0453
Iron (Dissolved)	mg/l	1.62	0.038	1.85	0.038	1.66	0.0349	1.69	0.0349	1.45	0.0349	1.5	0.035	1.35	0.0453
Methane	µg/l	400	10	360	10	370	10	400	10	240	10	210	10	170	20
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.65		0.4		1.25		0.18		0.22		0.27		2.17	
Ferrous Iron	mg/l	1.4		2.2		3.8		3		3.5		1.8		1.9	
Oxidation-reduction Pot.	volts	269		-2.2		132		20.8		49.5		97.4		145	
pH std. units		6.43		5.86		3.81		6.02		6.28		5.7		5.47	
Specific Conductance	µS/cm	97		110		107		110		108		111		107	
Temperature	°C	20.1		18.19		19		20.86		20.34		18.36		20.18	

Notes:

mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-12

Gulf States Creosoting Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	2.6j	1.7	ND(15)	1.5	ND(15)	1.5	ND(17)	0.95	2.0j	0.55	6.9	0.5	3.3	0.55
Acenaphthylene	2.3j	1.7	ND(15)	1.5	ND(15)	1.5	2.1j	1.5	5.5	0.55	13	1	N.D.	2.7
Anthracene	ND(0.11)	0.022	0.067j	0.038	ND(0.19)	0.2	ND(0.21)	0.042	ND(0.22)	0.20	ND(0.6)	0.6	0.085 J	0.022
Benz(a)anthracene	ND(0.11)	0.022	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.04)	0.01	N.D.	0.011
Benz(a)pyrene	ND(0.22)	0.043	ND(0.065)	0.019	ND(0.065)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.04)	0.01	N.D.	0.011
Benz(b)fluoranthene	ND(0.65)	0.11	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.03)	0.0081	N.D.	0.0087
Benz(g,h)perylene	ND(0.11)	0.022	ND(0.57)	0.095	ND(0.57)	0.095	ND(0.63)	0.11	ND(0.67)	0.11	ND(0.2)	0.06	N.D.	0.066
Benz(k)fluoranthene	ND(2)	0.41	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021	ND(0.11)	0.022	ND(0.03)	0.0081	N.D.	0.0087
Chrysene	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.44)	0.089	ND(0.2)	0.04	N.D.	0.066
Dibenz(a,h)anthracene	ND(0.22)	0.043	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.1)	0.02	N.D.	0.022
Fluoranthene	0.053j	0.043	0.19j	0.038	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.044	ND(0.1)	0.02	0.026 J	0.022
Fluorene	2.1	0.19	ND(0.76)	0.17	ND(0.76)	0.48	ND(0.84)	0.53	2.3	0.55	8.8	0.1	1.7	0.11
Indeno(1,2,3-cd)pyrene	ND(0.43)	0.087	ND(0.38)	0.076	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.44)	0.089	ND(0.2)	0.04	N.D.	0.044
Naphthalene	12j	1.3	ND(11)	1.5	7.8j	1.5	3.7j	1.4	7.9	0.55	160	1	N.D.	1.1
Phenanthrene	0.63	0.087	0.20j	0.076	0.12j	0.076	0.097j	0.084	0.21j	0.089	1.3	0.04	0.17 J	0.044
Pyrene	ND(0.87)	0.19	ND(0.76)	0.17	ND(0.76)	0.17	ND(0.84)	0.19	ND(0.89)	0.20	0.35j	0.1	0.16 J	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	50.9	0.41	ND(2)	0.41	53.5	0.48	54.6	0.48	57.7	0.46	59.9	0.46	59.8	0.46
Alkalinity to pH 8.3	0.47	0.043	49.1	0.41	ND(2)	0.48	ND(2)	0.48	ND(2)	0.46	ND(2)	0.46	ND	0.46
Chloride	3	1.5	3.1	1.5	2.5	1.5	2.8	1	3.0	1.0	2.6	1	4	1
Iron (Total)	1.3	0.0453	1.08	0.0495	1.32	0.038	0.660	0.052	0.854	0.0522	0.76	0.0522	.723	0.0522
Iron (Dissolved)	1.18	0.0453	1.03	0.0495	0.965	0.038	0.582	0.052	0.805	0.0522	0.703	0.0522	0.772	0.0522
Methane	140	2	64	2	50	2	50	2	140	2.0	230	5	180	10
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	0.25
Sulfate	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	2.1j	1.5	ND(5)	1.5	2.2j	1.5	ND	1.5
Field Parameters														
Dissolved Oxygen	0.29		0.5		0.81		5.83*		1.1		1.21		0.49	
Ferrous Iron	MM		1		0.8		0.6		1.2		0.9		0	
Oxidation-reduction Pot.	-20.6		33		-12		44		-86		118.7		-7.9	
pH	6.19		6.2		5.53		5.8		6.07		5.84		5.79	
Specific Conductance	109		103		*		108		103.2		152		102	
Temperature	26.75*		24		20.22		20.3		18.51		18.85		19.43	

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 Croosoling Site
Hattiesburg, Mississippi

Parameters	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	8j	1	ND(8)	0.8	ND(8)	0.8	0.96j	0.8	ND(15)	2	ND(15)	2	ND(15)	2
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	0.83j	0.8	ND(15)	2	ND(15)	2	ND(15)	2
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02
Benz(b)fluoranthene	µg/l	ND(10)	1	ND(0.08)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02
Benz(k)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(g,h)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09
Benzofluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.08)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluorene	µg/l	3j	1	ND(0.2)	0.04	0.2j	0.2	0.43j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08
Naphthalene	µg/l	3j	1	23	0.9	10	1	42	1	6.2j	1	ND(11)	1	ND(11)	1
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	0.1j	0.08	0.16j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	28.7	0.41	13.7	0.41	18.6	0.41	ND(2)	0.41	12.7	0.41	10.8	0.41	13.7	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	23.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	4.4	1.5	4.4	1.5	4.3	1.5	4.6	1.5	4.1	1.5	4.5	1.5	5.1	1.5
Iron (Total)	mg/l	1.56	0.038	1.36	0.038	1.42	0.0349	1.43	0.0349	1.09	0.0349	1.4	0.035	1.26	0.0453
Iron (Dissolved)	mg/l	0.353	0.038	0.872	0.038	1.07	0.0349	1.59	0.0349	0.968	0.0349	1.1	0.035	1.23	0.0453
Methane	µg/l	100	2	100	2	210	10	1100	40	120	2	63	2	150	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	4.1j	1.5	7.5	1.5	9.5	1.5	6	1.5	9.6	1.5	17.1	1.5	14.2	1.5
Field Parameters															
Dissolved Oxygen	mg/l	1.91		0.29		0.81		0.20		0.2		0.32		3.2	
Ferrous Iron	mg/l	0.8		1.5		3		3.5		2.5		1.2		2	
Oxidation-reduction Pot.	volts	345		-60		33		-72		49.1		18.4		-29.7	
pH	std. units	6.6		5.6		4.72		5.05		5.8		5.08		5.34	
Specific Conductance	µS/cm	78		64		69		75		68		83		80	
Temperature	°C	19.6		18.16		18.7		20.32		19.86		18.09		18.83	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-14

Gulf States Creosoting Site
Hattiesburg, Mississippi

Parameter	Units	October 2003		December 2004		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)													
Acenaphthene	µg/l	ND(15)	1.5	4.6j	1.5	ND(16)	1.6	2.4j	1	ND(2)	0.51	ND(2)	0.55
Acenaphthylene	µg/l	ND(15)	1.5	3.6j	1.5	ND(16)	1.6	ND(16)	1.6	ND(2)	0.51	ND(2)	1.1
Anthracene	µg/l	ND(0.066)	0.019	0.06j	0.038	ND(0.2)	0.04	0.049j	0.046	0.060j	0.041	ND(0.1)	0.022
Benz(a)anthracene	µg/l	ND(0.096)	0.019	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.04)	0.011
Benz(a)pyrene	µg/l	ND(0.19)	0.038	ND(0.095)	0.019	ND(0.099)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.04)	0.011
Benz(b)fluoranthene	µg/l	ND(0.58)	0.096	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.03)	0.0087
Benz(g,h,i)perylene	µg/l	ND(0.066)	0.019	ND(0.57)	0.095	ND(0.59)	0.099	ND(0.69)	0.12	ND(0.61)	0.10	ND(0.2)	0.065
Benz(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.065)	0.019	ND(0.069)	0.02	ND(0.12)	0.023	ND(0.10)	0.020	ND(0.03)	0.0087
Chrysene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079	ND(0.46)	0.092	ND(0.41)	0.082	ND(0.2)	0.04
Dibenz(a,h)anthracene	µg/l	ND(0.18)	0.038	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.1)	0.022
Fluoranthene	µg/l	ND(0.18)	0.038	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.23)	0.046	ND(0.20)	0.041	ND(0.1)	0.022
Fluorene	µg/l	ND(0.77)	0.17	1.7	0.17	ND(0.78)	0.5	0.89	0.58	ND(0.82)	0.51	ND(0.4)	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.4)	0.079	ND(0.46)	0.092	ND(0.41)	0.082	ND(0.2)	0.04
Naphthalene	µg/l	ND(12)	1.2	120	1.5	ND(12)	1.6	1.9j	1.5	ND(2)	0.51	ND(2)	1.1
Phenanthrene	µg/l	0.14j	0.077	0.04	0.076	ND(0.4)	0.079	0.35j	0.092	0.098j	0.082	ND(0.2)	0.044
Pyrene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.78)	0.18	ND(0.92)	0.21	ND(0.82)	0.18	ND(0.4)	0.11
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	13.8	0.41	ND(2)	0.41	14	0.46	15.8	0.46	14.8	0.46	8.7	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	15.9	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l	4.4	1.5	4.5	1.5	4.6	1.5	4.9	1	4.5	1.0	4.1	1
Iron (Total)	mg/l	0.796	0.0453	1.58	0.0485	1.24	0.038	2.62	0.0522	0.91	0.0522	2.21	0.0522
Iron (Dissolved)	mg/l	0.896	0.0453	1.04	0.0485	1.21	0.038	1.45	0.0522	1.04	0.0522	0.849	0.0522
Methane	µg/l	47	2	400	10	100	2	180	4	210	4.0	48	5
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	19.2	1.5	ND(0.5)	0.25	0.28j	0.25	ND(0.5)	0.25
Sulfate	mg/l	15.7	1.5	14.1	1.5	19.2	1.5	17.5	1.5	17.5	1.5	25.7	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.23		0.69		3.95		8.19*		0.99		1.2	
Ferrous Iron	mg/l	0.4		2		1.6		0		1.6		1.2	
Oxidation-reduction Pot.	volts	17.8		21.5		-21		12		42		120.7	
pH std. units		5.8		5.81		5.31		5.9		5.59		5.33	
Specific Conductance	µS/cm	69		82		*		79		84.18		129	
Temperature	°C	34.30*		19.7		19.72		19.1		20.83		18.41	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-15
Gulf States Croosoting Site
Hattiesburg, Mississippi

Parameters	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	3j	0.8	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	2.1j	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	0.2	0.04	0.19j	0.04	0.13j	0.04	0.095j	0.04	0.13j	0.04
Benzo(a)anthracene	µg/l	ND(10)	1	0.03j	0.02	0.03j	0.02	0.037j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	0.021j	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.59)	0.1
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	1.1	0.08	0.63	0.08	0.45	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	2j	1	0.7j	0.2	1	0.04	1.5	0.04	0.9	0.04	0.72	0.04	1	0.04
Fluorene	µg/l	2j	1	1	0.04	0.76j	0.2	0.8	0.2	0.56j	0.2	0.38j	0.2	0.7j	0.18
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Naphthalene	µg/l	ND(10)	1	ND(0.9)	0.9	ND(0.6)	1	ND(0.6)	1	ND(12)	1	ND(12)	1	ND(12)	1.2
Phenanthrene	µg/l	2j	1	0.5	0.08	0.5	0.08	0.47	0.08	0.24j	0.08	0.17j	0.08	0.24j	0.08
Pyrene	µg/l	1j	1	0.7j	0.2	0.9	0.2	1.1	0.2	0.65j	0.2	0.48j	0.2	0.68j	0.18
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	128	0.41	102	0.41	129	0.41	ND(2)	0.41	157	0.41	171	0.41	137	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	131	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	4.7	1.5	4.5	1.5	4.7	1.5	4.6	1.5	4.4	1.5	3.7	1.5	4.2	1.5
Iron (Total)	mg/l	27.2	0.038	38.7	0.038	30.7	0.0349	26.2	0.0349	34.9	0.0349	38.3	0.035	30.7	0.0453
Iron (Dissolved)	mg/l	26.2	0.038	37.8	0.038	29.8	0.0349	26.4	0.0349	33.6	0.0349	38.8	0.035	31.7	0.0453
Methane	µg/l	1400	100	1500	40	1800	50	2200	50	1600	100	2500	200	1900	200
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	1.6j	1.5	3j	1.5	ND(5)	1.5	ND(5)	1.5	3.3j	1.5	2j	1.5	2j	1.5
Field Parameters															
Dissolved Oxygen	mg/l	1.06		0.6		0.5		0.36		0.35		0.23		3.95	
Ferrous Iron	mg/l	5.8		4.5		5.8		7		7		5.1		7.1	
Oxidation-reduction Pot.	volts	89		-46		-24		-59		-39		-34.9		-52.6	
pH	std. units	6.44		6.15		5.95		6.39		6.3		6.26		5.82	
Specific Conductance	µS/cm	304		403		320		264		392		401		369	
Temperature	°C	24.6		21.2		25.3		28.77		24.63		20.68		26.3	

Notes:

- mg/l - milligrams per liter
- µg/l - micrograms per liter
- µS/cm - micro siemens per centimeter
- °C - degrees Celsius
- NA - Sample not analyzed for this constituent
- ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
- MDL - Method detection limit
- j - qualifier denotes estimated value either less than quantization 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 Crocoating Site
Hattiesburg, Mississippi**

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	2.3j	1.5	2.3j	1.5	2.6j	1.6	ND(18)	1	1.5j	0.55	0.9j	0.51	ND	1.0
Acenaphthylene	ND(15)	1.5	ND(15)	1.5	ND(10)	1.6	ND(18)	1.0	ND(2.2)	0.55	ND(2)	1	ND	1.1
Anthracene	0.028j	0.019	0.10j	0.038	0.13j	0.039	0.080j	0.045	0.16j	0.044	0.12	0.02	0.086 J	0.022
Benz(a)anthracene	ND(0.095)	0.019	0.022j	0.018	0.026j	0.02	ND(0.11)	0.023	0.029j	0.022	0.022j	0.01	0.020 J	0.011
Benz(a)pyrene	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.068)	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.041)	0.01	ND	0.011
Benz(b)fluoranthene	ND(0.57)	0.085	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.031)	0.0082	ND	0.0089
Benz(g,h,i)perylene	ND(0.095)	0.019	ND(0.58)	0.096	ND(0.59)	0.068	ND(0.68)	0.11	ND(0.60)	0.11	ND(0.2)	0.061	ND	0.067
Benz(k)fluoranthene	ND(2)	0.41	ND(0.096)	0.019	ND(0.096)	0.02	ND(0.11)	0.023	ND(0.11)	0.022	ND(0.031)	0.0082	ND	0.0089
Chrysene	ND(0.7)	0.7	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.45)	0.091	ND(0.44)	0.088	ND(0.2)	0.041	ND	0.067
Di(benz(a,h))anthracene	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.045	ND(0.22)	0.044	ND(0.1)	0.02	ND	0.022
Fluoranthene	1.2	0.038	0.98	0.038	0.93	0.039	0.69	0.045	0.94	0.044	0.60	0.02	0.57	0.022
Fluorene	0.5j	0.17	0.47j	0.17	ND(0.78)	0.49	ND(0.91)	0.57	ND(0.88)	0.55	0.37j	0.1	0.24 J	0.11
Indeno(1,2,3-cd)pyrene	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.39)	0.078	ND(0.45)	0.091	ND(0.44)	0.088	ND(0.2)	0.041	ND	0.044
Naphthalene	ND(11)	1.1	ND(12)	1.5	ND(12)	1.6	ND(14)	1.5	ND(2.2)	0.55	ND(2.0)	1	ND	1.1
Phenanthrene	0.29j	0.076	0.18j	0.077	0.20j	0.078	0.10j	0.091	0.21j	0.088	0.12j	0.041	0.075 J	0.044
Pyrene	0.83	0.17	0.73j	0.17	0.67j	0.18	0.49j	0.2	0.65j	0.2	0.52	0.1	0.48	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	124	0.41	0.41	147	0.46	171	0.46	145	0.48	166	0.46	147	0.48
Alkalinity to pH 8.3	mg/l	0.14j	0.038	0.41	153	0.41	ND(2)	0.46	ND(2)	0.48	ND(2)	0.46	ND	0.40
Chloride	mg/l	4.7	1.5	4.2	1.5	3.6	3.7	1	4.8	1	2.8	1	4.4	1
Iron (Total)	mg/l	31.2	0.0453	30.2	0.0495	34.3	35.9	0.0522	33.2	0.052	37.6	0.0522	32.2	0.0522
Iron (Dissolved)	mg/l	31.1	0.0453	29.8	0.0495	32.7	36.8	0.0522	33	0.052	37.7	0.0522	34.5	0.0522
Methane	mg/l	1800	100	1800	40	1800	1300	200	1700	40	1,000	25	1,200	50
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	0.25
Sulfate	mg/l	1.9j	1.5	ND(5)	1.5	6.7	2.2j	1.5	ND(5)	1.5	2.2j	1.5	ND	1.5
Field Parameters														
Dissolved Oxygen	mg/l	0.53	0.98	0.36	0.98	0.36	5.05*		0.74		1.1		1.3	
Ferrous Iron	mg/l	5.8	5	4.5	5	4.5	3		2		4.0		6	
Oxidation-reduction Pot.	volts	-40.4	-47.7	-9.1	-40.4	-9.1	-84		-134		7.4		-121.6	
pH	std. units	6.16	6.11	5.93	6.11	5.93	6		6.13		6.13		5.93	
Specific Conductance	µS/cm	355	365	365	355	365	384		317		417		302	
Temperature	°C	28.45	25.5	22.7	25.5	22.7	22.9		23.51		21.02		23.23	

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-16**

**Gulf States Creosoting Site
Hattiesburg, Mississippi**

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.16)	0.04
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Benz(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1
Benz(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.36)	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
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(0.8)	0.2	2.7	0.2	ND(0.77)	0.17
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17

Natural Attenuation Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Alkalinity to pH 4.5	mg/l	12.9	0.41	7.4	0.41	8.2	0.41	ND(2)	0.41	6.8	0.41	4.9	0.41	5.3	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	4.5	1.5	4.8	1.5	4.6	1.5	5.6	1.5	4.4	1.5	4.7	1.5	4.6	1.5
Iron (Total)	mg/l	1.3	0.038	0.0658	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.0505	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453
Methane	µg/l	17	2	ND(5)	2	3.3	2	3.3	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.42	0.4	0.68	0.4	0.75	0.4	1.09	0.4	1.05	0.4	1.4	0.4	1.3	0.4
Sulfate	mg/l	3.1	1.5	2.7	1.5	3.1	1.5	15.3	1.5	5.9	1.5	8.1	1.5	12.6	1.5

Field Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Dissolved Oxygen	mg/l	1.09		5.33		4.64		3.03		4.93		4.83		5.81	
Ferrous Iron	mg/l	0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	484		492		613		323		405		390		603	
pH std. units		5.42		4.69		4.21		4.52		5.08		5.19		4.42	
Specific Conductance	µS/cm	49		45		47		73		53		63		70	
Temperature	°C	20.9		21.28		21.5		21.34		21.39		20.13		21.61	

Notes:

mg/l - milligrams per liter
 µg/l - micrograms per liter
 µS/cm - micro siemens per centimeter
 °C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

i - 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

Parameters	Units	October 2003		December 2004		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polyyclic Aromatic Hydrocarbons (PAHs)													
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(17)	0.98	ND(2.1)	0.53	ND(2)	0.5	N.D.	0.56
Acenaphthylene	µg/l	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(2.1)	0.53	ND(2)	1	N.D.	1.1
Anthracene	µg/l	ND(0.095)	0.019	ND(0.10)	0.038	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02	N.D.	0.022
Benz(a)anthracene	µg/l	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.04)	0.01	N.D.	0.011
Benz(a)pyrene	µg/l	0.065J	0.038	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.04)	0.01	N.D.	0.011
Benz(b)fluoranthene	µg/l	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.03)	0.008	N.D.	0.0089
Benz(g,h,i)perylene	µg/l	ND(0.095)	0.019	ND(0.56)	0.098	ND(0.66)	0.11	ND(0.64)	0.11	ND(0.2)	0.03	N.D.	0.067
Benz(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.098)	0.02	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.03)	0.008	N.D.	0.0089
Chrysene	µg/l	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04	N.D.	0.067
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02	N.D.	0.022
Fluoranthene	µg/l	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.22)	0.044	ND(0.21)	0.042	ND(0.1)	0.02	N.D.	0.022
Fluorene	µg/l	ND(2)	2	ND(0.78)	0.49	ND(0.87)	0.55	ND(0.85)	0.53	ND(0.4)	0.1	N.D.	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04	N.D.	0.045
Naphthalene	µg/l	ND(11)	1.1	ND(12)	1.6	ND(13)	1.4	ND(12.1)	0.53	ND(2)	1	N.D.	1.1
Phenanthrene	µg/l	ND(0.38)	0.076	ND(0.39)	0.078	ND(0.44)	0.087	ND(0.42)	0.085	ND(0.2)	0.04	N.D.	0.045
Pyrene	µg/l	ND(0.76)	0.17	ND(0.76)	0.18	ND(0.87)	0.2	ND(0.85)	0.19	ND(0.4)	0.1	N.D.	0.11
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	5.3	0.41	ND(2)	0.41	6.1	0.48	6.0	0.46	4.1	0.48	5.3	0.46
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.038	4.8	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.48	ND	0.46
Chloride	mg/l	4.2	1.5	4.1	1.5	4.3	1	4.1	1.0	5.8	1	4.6	1
Iron (Total)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.98	0.052	0.139 J	0.0522	ND(0.2)	0.0522	1.96	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	0.342	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	ND	0.0522
Methane	µg/l	ND(5)	2	2.1J	2	ND(5)	2	ND(5)	2.0	ND(15)	5	ND	5
Nitrate Nitrogen	mg/l	1.6	0.4	1.3	0.4	1.1	0.25	1.1	0.25	1.5	0.25	1.3	0.25
Sulfate	mg/l	26.6	1.5	9.1	1.5	6.2	1.5	6.5	1.5	13.4	1.5	5.9	1.5
Field Parameters													
Dissolved Oxygen	mg/l	3.49		2.15		7.31		3.74		5.49		3.97	
Ferrous Iron	mg/l	0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	382		154		340		209		244.7		219.2	
pH std. units		5.07		5.05		4.85		5.04		4.74		4.55	
Specific Conductance	µS/cm	80		63		74		55.93		68		44	
Temperature	°C	27.19*		23.26		20		20.98		20.68		20.40	

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
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 Croosoting Site
Hattiesburg, Mississippi

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	38	1	51	0.8	35	0.8	33	0.8	30	2	18	2	6.6j	1.0
Acenaphthylene	2j	1	ND(0.6)	0.8	14	0.8	7.7j	0.8	14j	2	6.9j	2	3j	1.6
Anthracene	2j	1	2	0.04	2	0.04	1.5	0.04	1.5	0.04	0.68	0.04	0.26	0.04
Benz(a)anthracene	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02
Benz(a)pyrene	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.087j	0.02	ND(0.09)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Benz(o,h)perylene	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.58)	0.1
Benz(k)fluoranthene	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02
Chrysene	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.36j	0.08	0.17j	0.08	ND(0.39)	0.08
Dibenz(a,h)anthracene	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.044j	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Fluoranthene	ND(11)	1	28	0.2	0.9	0.04	0.66	0.04	0.69	0.04	0.49	0.04	0.28	0.04
Fluorene	27	1	1	0.04	23	0.2	22	0.2	21	0.2	14	0.2	8.1	0.17
Indeno(1,2,3-cd)pyrene	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Naphthalene	720	11	750	5	560	5	590	5	480	6	140	1	ND(12)	1.2
Phenanthrene	14	1	16	0.4	12	0.08	14	0.08	13	0.08	3.3	0.08	1.7	0.08
Pyrene	ND(11)	1	0.4j	0.2	0.4j	0.2	0.62j	0.2	0.26j	0.2	ND(0.8)	0.2	ND(0.78)	0.17
Natural Attenuation Parameters														
Alkalinity to pH 4.5	42.3	0.41	48	0.41	43.8	0.41	ND(2)	0.41	39.2	0.41	30.5	0.41	17.3	0.41
Alkalinity to pH 8.3	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	44.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	11.4	1.5	13.5	1.5	11.6	1.5	9.9	1.5	12.7	1.5	18.7	1.5	17.9	1.5
Iron (Total)	4.13	0.038	4.49	0.038	4.73	0.0349	8.36	0.0349	5.07	0.0349	2.3	0.035	1.41	0.0453
Iron (Dissolved)	2.64	0.038	3.65	0.038	4.07	0.0349	4.91	0.0349	4.09	0.0349	2.3	0.035	1.04	0.0453
Methane	850	40	1400	40	910	20	930	40	640	20	470	10	300	20
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	2.9j	1.5	2.1j	1.5	2.7j	1.5	3.8j	1.5	3.4j	1.5	3.1j	1.5	4.4j	1.5
Field Parameters														
Dissolved Oxygen	mg/l	0.79	0.3	0.33	0.62	0.33	0.33	0.33	0.31	0.31	0.49	0.49	2.0	2.0
Ferrous Iron	mg/l	1.2	5	5.5	5.5	5.5	5.5	5.5	4.5	4.5	2.2	2.2	1.4	1.4
Oxidation-reduction Pot.	volts	339	13.1	13.1	340	60.3	60.3	60.3	113	208	208	208	278	278
pH	std. units	5.7	5.89	3.86	3.71	3.71	3.71	3.71	5.57	5.57	2.15*	2.15*	4.5	4.5
Specific Conductance	µS/cm	111	147	129	110	129	110	110	110	110	107	107	112	112
Temperature	°C	20.1	18.6	20.4	20.4	20.99	20.99	20.99	20.53	20.53	18.92	18.92	20.02	20.02

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-17

Gulf States Crocosling Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	13j	1.5	22	1.6	8.6j	1.6	2.1j	1	3.8	0.55	10	0.52	1.6	J
Acenaphthylene	4.4j	1.5	ND(16)	18	3.3j	1.6	ND(18)	1.6	1.7j	0.55	ND(8)	8	ND	1.1
Anthracene	0.046j	0.019	0.83	0.04	0.55	0.04	0.058j	0.045	0.14j	0.044	0.28	0.021	ND	0.022
Benz(a)anthracene	0.035j	0.019	ND(0.1)	0.02	0.025j	0.02	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.042)	0.01	ND	0.011
Benzof(a)pyrene	0.04j	0.038	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.042)	0.01	0.016	J
Benzof(b)fluoranthene	ND(0.57)	0.065	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.045	ND(0.22)	0.044	ND(0.031)	0.0083	0.019	J
Benzof(k)fluoranthene	0.022j	0.019	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.67)	0.11	ND(0.66)	0.11	ND(0.21)	0.063	ND	0.065
Benzof(k)fluoranthene	0.083j	0.076	ND(2)	0.41	ND(2)	0.41	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.031)	0.0083	ND	0.0087
Chrysene	0.083j	0.076	ND(0.4)	0.081	ND(0.4)	0.08	ND(0.45)	0.089	ND(0.44)	0.088	ND(0.21)	0.042	ND	0.065
Dibenz(a,h)anthracene	ND(0.19)	0.038	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.045	ND(0.22)	0.044	ND(0.1)	0.021	ND	0.022
Fluoranthene	0.76	0.038	0.44	0.04	0.29	0.04	ND(0.22)	0.045	0.066j	0.044	0.14	0.021	0.10	J
Fluorene	6.2	0.17	12	0.18	5.2	0.5	1.4	0.56	2.8	0.55	11	0.1	ND	0.11
Indenol(1,2,3-cd)pyrene	ND(0.38)	0.076	ND(0.4)	0.081	ND(0.4)	0.08	ND(0.45)	0.089	ND(0.44)	0.088	ND(0.21)	0.042	ND	0.043
Naphthalene	13	1.1	330	1.6	94	1.6	9.6j	1.4	14	0.55	110	1	ND	1.1
Phenanthrene	0.094j	0.076	9	0.081	5	0.08	0.56	0.089	1.1	0.088	2.7	0.042	ND	0.043
Pyrene	0.54j	0.17	0.22j	0.18	ND(0.8)	0.18	ND(0.89)	0.2	ND(0.89)	0.20	ND(0.042)	0.1	ND	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	27.5	0.41	ND(2)	0.41	34	0.46	13	0.45	13.9	0.46	46.2	0.46	50.3	.46
Alkalinity to pH 8.3	0.27	0.038	32.4	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	.48
Chloride	17.1	1.5	11.6	1.5	13.5	1.5	14.9	1	11.0	1.0	8.1	1	6.6	1
Iron (Total)	4.6	0.0453	7.85	0.0495	8.5	0.038	3.45	0.052	3.27	0.0522	2.42	0.0522	6.41	0.0522
Iron (Dissolved)	3.56	0.0453	7.03	0.0495	4.67	0.038	2.19	0.052	2.21	0.0522	1.54	0.0522	1.88	0.0522
Methane	390	20	550	20	300	20	140	2	230	4.0	310	5	150	5
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	.25
Sulfate	5.6	1.5	6.3	1.5	9.8	1.5	6.7	1.5	11.1	1.5	17.5	1.5	20.4	1.5
Field Parameters														
Dissolved Oxygen	0.5		0.33		0.4		5.99*		1.06		1.05		0.02	
Ferrous Iron	2.5		5		4		1		2		1.6		2.6	
Oxidation-reduction Pot.	102		-13		-75		122		-34		95.1		-81.9	
pH std. units	5.15		5.66		5.36		5.12		5.44		5.75		5.8	
Specific Conductance	129		130		123		123		105.6		194		133	
Temperature	20.8		21.4		21.09		20.6		21.5		19.64		20.17	

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

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-18
Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	26	1	42	0.8	9	0.8	1.6j	0.9	12j	2	2.1j	2	ND(16)	1.6
Acenaphthylene	µg/l	2j	1	21	0.8	4j	0.8	ND(0)	0.9	5.6j	2	ND(15)	2	ND(16)	1.6
Anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	0.07j	0.04	ND(0.2)	0.04	0.062j	0.04	ND(0.2)	0.04	0.08j	0.04
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.082j	0.02
Benz(b)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.23	0.02
Benz(g,h,i)perylene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.098j	0.04
Benz(k)fluoranthene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	0.11j	0.1
Chrysene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.085j	0.02
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	0.086j	0.08
Fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.1j	0.04
Fluorene	µg/l	16	1	25	0.2	0.2	0.04	0.066j	0.04	0.28	0.04	0.087j	0.04	0.087j	0.04
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	0.7	0.04	7	0.2	2.7	0.2	9.8	0.2	2	0.2	ND(0.78)	0.18
Naphthalene	µg/l	470	6	830	5	170	1	27	1	310	1	22	1	ND(12)	1.2
Phenanthrene	µg/l	15	1	24	0.4	5	0.08	1.7	0.09	8.9	0.08	0.08j	0.08	0.3j	0.08
Pyrene	µg/l	ND(11)	1	ND(0.6)	0.2	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.6)	0.2	ND(0.78)	0.18

Natural Attenuation Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Alkalinity to pH 4.5	mg/l	23.1	0.41	11.3	0.41	9.7	0.41	ND(2)	0.41	12.4	0.41	10.5	0.41	8.5	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	8.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	12.1	1.5	12.8	1.5	17.3	1.5	23.5	1.5	19.8	1.5	22.1	1.5	22.5	1.5
Iron (Total)	mg/l	0.475	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0406j	0.0349	ND(0.1)	0.035	0.11	0.035	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.1)	0.035	ND(0.2)	0.0453
Methane	µg/l	4.4j	2	4.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.78	0.4	0.67	0.4	1.5	0.4	2.07	0.4	1.51	0.4	1.7	0.4	1.9	0.4
Sulfate	mg/l	10.3	1.5	9.2	1.5	9.1	1.5	7.9	1.5	9.8	1.5	8	1.5	5.6	1.5

Field Parameters		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
Parameter	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Dissolved Oxygen	mg/l	0.67	0	0.37	0	0.63	0	0.37	0	0.35	0	0.38	0	2.39	0
Ferrous Iron	mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	377	377	348	377	423	338	338	338	358	358	410	357	557	469
pH std. units		5.63	5.63	4.93	4.93	4.55	3.71	3.71	3.71	5.28	4.55	4.42	4.69	4.69	4.69
Specific Conductance	µS/cm	104	104	102	104	109	136	136	136	135	135	136	132	132	132
Temperature	°C	22.2	22.2	22.55	22.55	22.3	23.27	23.27	23.27	22.78	22.78	22.35	22.35	22.97	22.97

Notes:
 mg/l - milligrams per liter
 µg/l - micrograms per liter
 µS/cm - micro siemens per centimeter
 °C - degrees Celsius
 NA - Sample not analyzed for this constituent
 ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
 MDL - Method detection limit
 j - qualifier denotes estimated value either less than quantization 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 Crocosling Site
Hattiesburg, Mississippi**

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	ND(15)	1.5	23	1.7	9.1j	1.6	12j	0.97	1.6j	0.55	0.51	1.7 J	0.55	
Acenaphthylene	ND(15)	1.5	ND(17)	1.7	ND(16)	1.6	9.0j	1.5	1.6j	0.55	0.51	N.D.	1.1	
Anthracene	ND(0.095)	0.019	ND(0.21)	0.2	0.056j	0.039	0.078j	0.043	ND(0.21)	0.044	0.021	0.046 J	0.022	
Benz(a)anthracene	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	0.01	N.D.	0.011	
Benzofluoranthene	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	0.01	N.D.	0.011	
Benzofluoranthene	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	0.0082	N.D.	0.0088	
Benzofluoranthene	ND(0.095)	0.019	ND(0.63)	0.1	ND(0.50)	0.088	ND(0.64)	0.11	ND(0.64)	0.11	0.062	N.D.	0.066	
Benzofluoranthene	ND(2)	0.41	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021	ND(0.11)	0.022	0.0082	N.D.	0.0088	
Chrysene	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	0.041	N.D.	0.066	
Dibenz(a,h)anthracene	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	0.021	N.D.	0.022	
Fluoranthene	ND(0.18)	0.038	0.46	0.042	0.33	0.039	0.61	0.043	0.24	0.044	0.11	0.25	0.022	
Fluorene	0.96	0.17	25	0.19	13	0.49	20	0.54	5.7	0.55	2.8	4.4	0.11	
Indeno(1,2,3-cd)pyrene	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	0.041	N.D.	0.044	
Naphthalene	10j	1.1	500	8.4	180	1.0	290	1.4	25	0.55	1.9j	N.D.	1.1	
Phenanthrene	0.39	0.076	16	0.084	11	0.078	17	0.086	5.4	0.088	2.8	0.93	0.044	
Pyrene	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	0.1	N.D.	0.11	
Natural Attenuation Parameters														
Alkalinity to pH 4.5	9.5	0.41	ND(2)	0.41	10.4	0.48	14.2	0.46	8.7	0.46	0.5	12.9	.46	
Alkalinity to pH 8.3	ND(0.19)	0.038	9.4	0.41	ND(2)	0.48	ND(2)	0.46	ND(2)	0.46	ND(2)	ND	.46	
Chloride	23.3	1.5	17.9	1.5	22.1	1.5	17.9	1	18.1	1.0	20.2	19.4	1	
Iron (Total)	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	0.144 J	0.0522	
Iron (Dissolved)	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.0522	ND(0.2)	0.0522	ND(0.2)	ND	0.0522	
Methane	ND(5)	2	3.9j	2	ND(5)	2	ND(5)	2	ND(5)	2.0	ND(15)	ND	5	
Nitrate Nitrogen	2.2	0.4	1.1	0.4	1.5	0.4	1.1	0.25	1.8	0.25	1.6	1.4	.25	
Sulfate	6.9	1.5	9.7	1.5	9.8	1.5	9.7	1.5	5.5	1.5	7.1	7.1	1.5	
Field Parameters														
Dissolved Oxygen	0.37		0.58		0.82		5.49*		1.07		1.55	1.69		
Ferrous Iron	0		0		0		0		0		0	0		
Oxidation-reduction Pot.	352		111		252		293		145		199.3	183		
pH	5.23		5.17		4.66		5.18		5.32		5.12	4.88		
Specific Conductance	112		116		*		122		119.8		147	102		
Temperature	36.81*		23.5		22.41		21.3		22.65		22.15	20.79		

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

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	49	1	93	0.8	83	0.8	71	0.8	91	2	88	2	83	1.6	
Acenaphthylene	2	1	ND(8)	0.8	36	0.8	11	0.8	39	2	26	2	37	1.8	
Anthracene	2	1	4	0.04	3	0.04	2.1	0.04	3.6	0.04	3.7	0.04	3	0.04	
Benz(a)anthracene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07	0.02	
Benz(a)pyrene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.16	0.02	
Benz(b)fluoranthene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.08	0.04	
Benz(b)k)perylene	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	
Benz(k)fluoranthene	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07	0.02	
Chrysene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.08	0.08	ND(0.4)	0.08	0.11	0.08	
Dibenz(a,h)anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.083	0.04	
Fluoranthene	ND(10)	1	39	2	1	0.04	1.4	0.04	1.6	0.04	2.2	0.04	1.8	0.04	
Fluorene	22	1	2	0.04	33	0.2	26	0.2	38	2	39	2	35	0.18	
Indeno(1,2,3-cd)pyrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.1	0.08	
Naphthalene	290	5	980	9	890	9	500	5	1100	11	1000	11	970	12	
Phenanthrene	17	1	36	0.8	31	0.8	24	0.4	37	0.8	39	0.8	32	0.78	
Pyrene	ND(10)	1	0.8	0.2	0.7	0.2	1.3	0.2	0.99	0.2	0.67	0.2	0.81	0.18	
Natural Attenuation Parameters															
Alkalinity to pH 4.5	mg/l	68.6	0.41	82.3	0.41	78.4	0.41	ND(2)	0.41	92.2	0.41	87.5	0.41	84.9	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	78.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41
Chloride	mg/l	10.5	1.5	10.2	1.5	10.1	1.5	1020	150	9.8	1.5	9.7	1.5	10.7	1.5
Iron (Total)	mg/l	4.69	0.038	5.71	0.038	5.75	0.0349	5.47	0.0349	6.76	0.0349	5.6	0.035	6	0.0453
Iron (Dissolved)	mg/l	3.66	0.038	5.29	0.038	5.61	0.0349	5.48	0.0349	6.74	0.0349	5.8	0.035	6.02	0.0453
Methane	µg/l	590	40	1400	20	1200	40	1000	40	1400	40	1400	40	1200	40
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	6.7	1.5	4.3	1.5	4.3	1.5	ND(5)	1.5	3.3	1.5	4.1	1.5	4.7	1.5
Field Parameters															
Dissolved Oxygen	mg/l	0.81		1.3		0.51		0.19		0.24		0.23		2.13	
Ferrous Iron	mg/l	4.6		6		7		5.5		5		4.8		4.8	
Oxidation-reduction Pot.	volts	177		-90		178		-49		-5.7		25.4		100	
pH	std. units	5.88		6.07		5.15		5.07		6.04		4.12		5.35	
Specific Conductance	µS/cm	176		193		179		192		204		198		203	
Temperature	°C	22.3		19.9		21.1		23.42		22.11		19.98		22.02	

Notes:

- mg/l - milligrams per liter
- µg/l - micrograms per liter
- µS/cm - micro siemens per centimeter
- °C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

J - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspended measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-19

Gulf States Crocooting Site
Hattiesburg, Mississippi

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	80	1.7	73	1.5	61	1.6	46	1.1	30	0.56	30	0.52	19	0.54
Acenaphthylene	36	1.7	33	1.5	ND(26)	26	ND(26)	26	ND(11)	11	ND(13)	13	N.D.	1.1
Anthracene	ND(0.1)	0.021	2.5	0.038	2.2	0.039	2	0.047	1.5	0.045	1.4	0.021	0.65	0.022
Benz(a)anthracene	ND(0.21)	0.021	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.041)	0.01	N.D.	0.011
Benzofluoranthene	ND(0.03)	0.042	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.041)	0.01	N.D.	0.011
Benzofluoranthene	ND(0.03)	0.1	ND(0.19)	0.039	ND(0.2)	0.039	ND(0.23)	0.047	ND(0.22)	0.045	ND(0.031)	0.0083	N.D.	0.0086
Benzofluoranthene	ND(0.1)	0.021	ND(0.57)	0.095	ND(0.59)	0.098	ND(0.70)	0.12	ND(0.67)	0.11	ND(0.21)	0.062	N.D.	0.065
Benzofluoranthene	ND(0.2)	0.41	ND(0.095)	0.019	ND(0.098)	0.02	ND(0.12)	0.023	ND(0.11)	0.022	ND(0.031)	0.0083	N.D.	0.0086
Chrysene	ND(0.42)	0.084	ND(0.38)	0.076	0.10j	0.079	0.12j	0.094	ND(0.45)	0.089	ND(0.21)	0.041	N.D.	0.065
Dibenz(a,h)anthracene	ND(0.21)	0.042	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.23)	0.047	ND(0.22)	0.045	ND(0.1)	0.021	N.D.	0.022
Fluoranthene	1.7	0.042	1.8	0.038	1.5	0.039	1.8	0.047	1.3	0.045	1.2	0.021	0.83	0.022
Fluorene	34	0.19	27	0.17	22	0.49	22	0.59	15	0.56	15	0.1	7.6	0.11
Indeno(1,2,3-cd)pyrene	ND(0.42)	0.084	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.47)	0.094	ND(0.45)	0.089	ND(0.21)	0.041	N.D.	0.043
Naphthalene	1000	13	830	7.6	640	7.9	270	1.5	37	0.56	38	1	11	1.1
Phenanthrene	37	0.84	26	0.38	22	0.39	19	0.47	13	0.089	11	0.041	4.7	0.043
Pyrene	0.77j	0.19	0.85	0.17	0.58j	0.18	0.84j	0.21	0.59j	0.20	0.68	0.1	0.59	0.11
Natural Attenuation Parameters														
Alkalinity to pH 4.5	88.6	0.41	ND(2)	0.41	112	0.48	109	0.48	105	0.46	104	0.48	101	.46
Alkalinity to pH 8.3	3.1	0.042	95.6	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	.46
Chloride	10.2	1.5	11.5	1.5	10.4	1.5	10.3	1	10.6	1.0	11.1	1	12.7	1
Iron (Total)	5.61	0.0453	6.07	0.0495	7.25	0.038	8	0.0522	6.62	0.0522	7.77	0.0522	7.01	0.0522
Iron (Dissolved)	5.49	0.0453	6.05	0.0495	6.66	0.038	7.54	0.0522	6.07	0.0522	6.87	0.0522	5.56	0.0522
Methane	1300	50	1300	40	780	40	700	10	450	10	580	10	390	10
Nitrate Nitrogen	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	ND(0.5)	0.25	ND(0.5)	0.25	ND	.25
Sulfate	2.8j	1.5	2.1j	1.5	2.3j	1.5	2.1j	1.5	2.6j	1.5	2.8j	1.5	2.1 j	1.5
Field Parameters														
Dissolved Oxygen	0.39		0.82		0.38		5.50*		0.65		1.21		1.07	
Ferrous Iron	NM		4		5		5		2.5		2.6		3.4	
Oxidation-reduction Pot.	-127		-26		-114		-66		-129		50.8		-143	
pH std. units	5.95		6.06		5.73		5.55		6.09		5.98		5.85	
Specific Conductance	234		208		*		201		217.7		282		200	
Temperature °C	22.41		27.24		22.07		20.9		22.39		20.37		20.19	

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 Crossting Site
Hattiesburg, Mississippi**

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.066)	0.019
Benz(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.066)	0.019
Benz(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Benz(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096
Benz(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.19)	0.038
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17

Natural Attenuation Parameters		December 2001	March 2002	June 2002	September 2002	December 2002	March 2003	June 2003
Alkalinity to pH 4.5	mg/l	9.7	0.41	7.8	0.41	ND(2)	0.41	8
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)
Chloride	mg/l	10.2	1.5	10.4	1.5	10.6	1.5	10
Iron (Total)	mg/l	0.331	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.0473
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.2)
Methane	µg/l	3.5	2	ND(5)	2	ND(5)	2	ND(5)
Nitrate Nitrogen	mg/l	0.58	0.4	0.48	0.4	0.52	0.4	ND(0.5)
Sulfate	mg/l	3	1.5	2.2	1.5	2.8	1.5	3

Field Parameters		December 2001	March 2002	June 2002	September 2002	December 2002	March 2003	June 2003
Dissolved Oxygen	mg/l	1.27	0.89	1.84	0.64	0.6	0.58	2.93
Ferrous Iron	mg/l	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	478	543	591	272	417	495	286
pH std. units		5.36	4.78	3.57	4.07	5.21	4.62	4.62
Specific Conductance	µS/cm	67	60	61	64	72	70	64
Temperature	°C	22.7	21.08	22.8	24.25	23.2	20.22	23.11

Notes:

mg/l - milligrams per liter

µg/l - micrograms per liter

µS/cm - micro siemens per centimeter

°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

J - qualifier denotes estimated value either less than quantization 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 Croosoting Site
Hattiesburg, Mississippi

Parameters	Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	µg/l	ND(15)	1.5	ND(15)	1.5	ND(16)	1.6	ND(17)	0.88	ND(2.3)	0.56	ND(2.1)	0.52	ND	0.55
Acenaphthylene	µg/l	ND(15)	1.5	ND(16)	1.6	ND(17)	1.5	ND(17)	1.5	ND(2.3)	0.56	ND(2.1)	1	ND	1.1
Anthracene	µg/l	ND(0.066)	0.019	ND(0.19)	0.038	ND(0.22)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.23)	0.021	ND	0.022
Benz(a)anthracene	µg/l	ND(0.066)	0.019	ND(0.066)	0.02	ND(0.066)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.041)	0.01	ND	0.011
Benzo(a)pyrene	µg/l	ND(0.19)	0.039	ND(0.066)	0.02	ND(0.066)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.041)	0.01	ND	0.011
Benzo(b)fluoranthene	µg/l	ND(0.58)	0.098	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.031)	0.0083	ND	0.0087
Benzo(g,h,i)perylene	µg/l	ND(0.066)	0.019	ND(0.57)	0.095	ND(0.59)	0.099	ND(0.65)	0.11	ND(0.68)	0.11	ND(0.21)	0.062	ND	0.066
Benzo(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.066)	0.019	ND(0.066)	0.02	ND(0.11)	0.022	ND(0.11)	0.023	ND(0.031)	0.0083	ND	0.0087
Chrysene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041	ND	0.066
Dibenz(a,h)anthracene	µg/l	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.1)	0.021	ND	0.022
Fluoranthene	µg/l	ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	0.039	ND(0.22)	0.043	ND(0.23)	0.045	ND(0.1)	0.021	ND	0.022
Fluorene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.78)	0.18	ND(0.87)	0.54	ND(0.90)	0.58	ND(0.041)	0.1	ND	0.11
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.38)	0.077	ND(0.38)	0.076	ND(0.38)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041	ND	0.044
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.5	ND(13)	1.6	ND(13)	1.4	ND(2.3)	0.56	ND(2.1)	1	ND	1.1
Phenanthrene	µg/l	ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	0.079	ND(0.43)	0.087	ND(0.45)	0.090	ND(0.21)	0.041	ND	0.044
Pyrene	µg/l	ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)	0.18	ND(0.87)	0.2	ND(0.90)	0.20	ND(0.041)	0.1	ND	0.11

Natural Attenuation

Parameters	Units	October 2003	December 2004	December 2005	January 2007	December 2007	February 2009	December 2009
Alkalinity to pH 4.5	mg/l	9.2	0.41	10.6	0.46	11.7	0.46	7.0
Alkalinity to pH 8.3	mg/l	ND(0.19)	0.039	ND(2)	0.46	ND(2)	0.46	ND(2)
Chloride	mg/l	9.1	1.5	10.7	1.5	9.8	1	9.6
Iron (Total)	mg/l	ND(0.2)	0.0453	0.104	0.038	0.136	0.052	0.0590
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)
Methane	µg/l	ND(5)	2	ND(5)	2	3.3	2	ND(5)
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	0.45	0.4	0.32	0.25	0.55
Sulfate	mg/l	5.8	1.5	1.6	1.5	5.5	1.5	1.7

Field Parameters

Parameters	Units	October 2003	December 2004	December 2005	January 2007	December 2007	February 2009	December 2009
Dissolved Oxygen	mg/l	0.45	0.88	0.41	5.73*	0.81	1.42	0.87
Ferrous Iron	mg/l	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	327	185.2	266	321	221	268.6	250
pH std. units		5.14	5.01	4.41	4.89	4.98	4.7	4.79
Specific Conductance	µS/cm	61	74	*	68	60.39	89	58
Temperature	°C	34.16*	28.74	22.54	22.1	23.54	21.29	21.1

Notes:

- mg/l - milligrams per liter
- µg/l - micrograms per liter
- µS/cm - micro siemens per centimeter
- °C - degrees Celsius
- N/A - 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 Crocooting Site
Hattiesburg, Mississippi

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	µg/l	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6
Acenaphthylene	µg/l	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6
Anthracene	µg/l	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(a)anthracene	µg/l	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	µg/l	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(g,h)perylene	µg/l	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Benz(k)fluoranthene	µg/l	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1
Chrysene	µg/l	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Dibenz(a,h)anthracene	µg/l	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Fluorene	µg/l	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Indeno(1,2,3-cd)pyrene	µg/l	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18
Naphthalene	µg/l	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Phenanthrene	µg/l	1	ND(8)	1	ND(9)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2
Pyrene	µg/l	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
			ND(0.6)	0.2	ND(0.6)	0.2	ND(0.6)	0.2	ND(0.6)	0.2	ND(0.6)	0.2	ND(0.78)	0.18
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	6.5	0.41	4.1	0.41	4	0.41	0.41	ND(2)	0.41	ND(2)	0.41	4.5	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	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	10.1	1.5
Iron (Total)	mg/l	7	0.038	0.172	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.233	0.0349	ND(0.1)	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	ND(0.2)	0.0453
Methane	µg/l	2.8j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	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	0.8	0.4
Sulfate	mg/l	3.1j	1.5	2.9j	1.5	2.7j	1.5	3j	1.5	3j	1.5	2.1j	2j	1.5
Field Parameters														
Dissolved Oxygen	mg/l	4.4	4.52	4.52	4.54	4.54	4.06	4.06	4.22	4.22	4.34	4.34	6.06	6.06
Ferrous Iron	mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	507	520	520	516	516	274	274	405	405	423	423	571	571
pH	std. units	5.53	4.54	4.54	4.73	4.73	5.02	5.02	5.14	5.14	3.64	3.64	4.5	4.5
Specific Conductance	µS/cm	67	69	69	69	69	72	72	68	68	68	68	61	61
Temperature	°C	22	22.08	22.08	21.6	21.6	22.8	22.8	22.71	22.71	21.33	21.33	22.2	22.2

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

Table 3-2

**Summary of Ground Water Monitoring Data
Monitoring Well MW-21**

**Gulf States Crocositing Site
Hattiesburg, Mississippi**

Units	October 2003		December 2004		December 2005		January 2007		December 2007		February 2009		December 2009	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(17)	0.95	ND(22)	0.56	ND(21)	0.52	ND(21)	0.52	ND(21)
Acenaphthylene	µg/l	ND(16)	1.6	ND(15)	1.5	ND(17)	1.5	ND(22)	0.56	ND(21)	1	ND(21)	1	ND(21)
Anthracene	µg/l	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.11)	0.021	ND(0.11)	0.021	ND(0.11)
Benz(a)anthracene	µg/l	ND(0.1)	0.02	ND(0.095)	0.019	ND(0.097)	0.021	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.042)	0.01	ND(0.042)
Benz(a)pyrene	µg/l	ND(0.2)	0.04	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.11)	0.021	ND(0.042)	0.01	ND(0.042)
Benz(b)fluoranthene	µg/l	ND(0.6)	0.1	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.031)	0.0084	ND(0.031)
Benz(o)fluoranthene	µg/l	ND(0.1)	0.02	ND(0.57)	0.095	ND(0.58)	0.097	ND(0.63)	0.11	ND(0.67)	0.11	ND(0.21)	0.063	ND(0.21)
Benz(k)fluoranthene	µg/l	ND(2)	0.41	ND(0.095)	0.019	ND(0.097)	0.019	ND(0.11)	0.022	ND(0.11)	0.022	ND(0.031)	0.0084	ND(0.031)
Chrysene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042	ND(0.21)
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.11)	0.021	ND(0.11)
Fluoranthene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039	ND(0.21)	0.042	ND(0.22)	0.045	ND(0.11)	0.021	ND(0.11)
Fluorene	µg/l	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.18	ND(0.84)	0.53	ND(0.89)	0.56	ND(0.42)	0.1	ND(0.42)
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042	ND(0.21)
Naphthalene	µg/l	ND(12)	1.2	ND(11)	1.5	ND(12)	1.5	ND(13)	1.4	ND(22)	0.56	ND(21)	1	ND(21)
Phenanthrene	µg/l	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.39)	0.077	ND(0.42)	0.084	ND(0.45)	0.089	ND(0.21)	0.042	ND(0.21)
Pyrene	µg/l	ND(0.8)	0.18	ND(0.76)	0.17	ND(0.77)	0.17	ND(0.84)	0.19	ND(0.89)	0.20	ND(0.42)	0.1	ND(0.42)
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	4.6	0.41	ND(2)	0.41	3.7	0.46	3.5	0.46	2.8	0.46	3.8	0.46	3.6
Alkalinity to pH 8.3	mg/l	ND(0.2)	0.04	3	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND
Chloride	mg/l	10.6	1.5	11.8	1.5	12	1.5	13.3	1	10.5	1.0	12.8	1	12.6
Iron (Total)	mg/l	0.054	0.0453	ND(0.2)	0.0495	0.0417	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	0.0575	0.0522	ND
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.038	ND(0.2)	0.052	ND(0.2)	0.0522	ND(0.2)	0.0522	0.972 J
Methane	µg/l	ND(5)	2	ND(5)	2	4.1	2	ND(5)	2	ND(5)	2.0	ND(15)	5	ND
Nitrate Nitrogen	mg/l	1.2	0.4	2	0.4	1.5	0.4	1.7	0.25	1.2	0.25	ND(0.5)	0.25	1
Sulfate	mg/l	2.1	1.5	2.4	1.5	4.6	1.5	3.4	1.5	2.3	1.5	ND(5)	1.5	2.4 J
Field Parameters														
Dissolved Oxygen	mg/l	3.78		1.44		3.51		6.57		2.88		3.79		2.32
Ferrous Iron	mg/l	0		0		0		0		0		0.2		0
Oxidation-reduction Pot.	volts	389		164		264		326		203		261.1		201
pH	std. units	5.18		4.96		4.51		4.79		5.01		4.88		4.58
Specific Conductance	µS/cm	91		78		*		74		68.36		85		57
Temperature	°C	22.14		22.7		22.58		22.4		22.23		21.58		21.43

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 Croosoting Site
Hattiesburg, Mississippi**

Units	December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5
Anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Benz(a)anthracene	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(a)pyrene	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benz(b)fluoranthene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Benz(g,h)perylene	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1
Benz(k)fluoranthene	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Chrysene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Di-benz(a,h)anthracene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04
Fluoranthene	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Fluorene	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.39)	0.08
Indeno(1,2,3-cd)pyrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(12)	1.2
Naphthalene	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2
Phenanthrene	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08
Pyrene	ND(10)	1	0.6j	0.2	0.6j	0.2	0.3j	0.2	0.84	0.2	0.83	0.2	0.76j	0.17
Natural Attenuation Parameters														
Alkalinity to pH 4.5	mg/l	48.4	0.41	52.1	0.41	50.6	0.41	ND(2)	0.41	54	59.9	0.41	62.3	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	39.4	0.41	ND(2)	0.41	ND(2)	0.41	0.41
Chloride	mg/l	9.7	1.5	14.9	1.5	10	1.5	11.5	1.5	10.2	1.5	9.3	1.5	9.4
Iron (Total)	mg/l	2.54	0.038	0.0906j	0.038	ND(0.1)	0.0349	0.0368j	0.0349	0.0506j	0.0349	0.054j	0.035	0.0855j
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0371j	0.0349	ND(0.1)	0.0349	0.042j	0.035	ND(0.2)
Methane	mg/l	100	2	71	2	41	2	19	2	33	2	48	2	55
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.57	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)
Sulfate	mg/l	6.3	1.5	5j	1.5	4.9j	1.5	4.3j	1.5	5.4	1.5	5j	1.5	4.8j
Field Parameters														
Dissolved Oxygen	mg/l	1.03	0.3	0.3	0.10	0.10	0.43	0	0.4	0.4	0.21	0	1.74	0
Ferrous Iron	mg/l	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxidation-reduction Pot.	volts	420	278	278	420	420	207	207	182	182	240	240	274	274
pH std. units		5.97	5.61	5.61	5.06	5.06	5.3	5.3	5.90	5.90	5.15	5.15	5.59	5.59
Specific Conductance	µS/cm	131	143	143	134	134	127	127	149	149	158	158	161	161
Temperature	°C	21	20.13	20.13	21.3	21.3	21.91	21.91	21.42	21.42	20.09	20.09	21.08	21.08

Notes:

mg/l - milligrams per liter

µg/l - micrograms per liter

µS/cm - micro siemens per centimeter

°C - degrees Celsius

NA - Sample not analyzed for this constituent

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

MDL - Method detection limit

j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
Monitoring Well MW-22

Gulf States Crocosling Site
Hattiesburg, Mississippi

Parameters	Units	October 2003		December 2004		January 2007		December 2007		February 2009		December 2009	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Polycyclic Aromatic Hydrocarbons (PAHs)													
Azaphthene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(20)	1.1	ND(22)	0.55	ND(2.1)	0.52	ND(2.1)	0.53
Azanthracene	µg/l	ND(16)	1.6	ND(16)	1.6	ND(20)	1.7	ND(22)	0.55	ND(2.1)	1	ND(2.1)	1.1
Anthracene	µg/l	ND(0.099)	0.02	ND(0.19)	0.038	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(0.099)	0.02	ND(0.099)	0.02	ND(0.12)	0.025	ND(0.11)	0.022	ND(0.041)	0.01	ND(0.041)	0.011
Benz(b)fluoranthene	µg/l	ND(0.2)	0.04	ND(0.099)	0.019	ND(0.12)	0.025	ND(0.11)	0.022	ND(0.041)	0.01	ND(0.041)	0.011
Benz(k)fluoranthene	µg/l	ND(0.59)	0.099	ND(0.19)	0.038	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.031)	0.0083	ND(0.031)	0.0085
Benz(a,h)perylene	µg/l	ND(0.099)	0.02	ND(0.58)	0.096	ND(0.75)	0.12	ND(0.66)	0.11	ND(0.21)	0.002	ND(0.21)	0.0085
Benzofluoranthene	µg/l	ND(2)	0.41	ND(0.099)	0.019	ND(0.12)	0.025	ND(0.11)	0.022	ND(0.031)	0.0083	ND(0.031)	0.0085
Chrysene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041	ND(0.21)	0.043
Dibenz(a,h)anthracene	µg/l	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021	ND(0.1)	0.021
Fluorene	µg/l	0.16j	0.04	ND(0.18)	0.038	ND(0.25)	0.05	ND(0.22)	0.044	ND(0.1)	0.021	ND(0.1)	0.021
Indeno(1,2,3-cd)pyrene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041	ND(0.21)	0.043
Naphthalene	µg/l	ND(12)	1.2	ND(12)	1.2	ND(15)	1.6	ND(2.2)	0.55	ND(2.1)	1	ND(2.1)	1.1
Phenanthrene	µg/l	ND(0.4)	0.079	ND(0.38)	0.077	ND(0.50)	0.1	ND(0.44)	0.089	ND(0.21)	0.041	ND(0.21)	0.043
Pyrene	µg/l	0.61j	0.18	ND(0.77)	0.17	ND(1.0)	0.22	ND(0.89)	0.20	ND(0.041)	0.1	ND(0.041)	0.11
Natural Attenuation Parameters													
Alkalinity to pH 4.5	mg/l	50.6	0.41	ND(2)	0.41	32.8	0.46	25.3	0.48	27.2	0.46	24.5	0.46
Alkalinity to pH 8.3	mg/l	ND(0.2)	0.04	34.2	0.41	ND(2)	0.46	ND(2)	0.46	ND(2)	0.46	ND	0.46
Chloride	mg/l	9.8	1.5	11.7	1.5	10.8	1	11.0	1.0	11.5	1	12.4	1
Iron (Total)	mg/l	0.071j	0.0453	0.859	0.0495	14.2	0.052	6.60	0.0522	12.8	0.0522	2.49	0.0522
Iron (Dissolved)	mg/l	ND(0.2)	0.0453	0.339	0.0485	0.185j	0.052	0.712	0.0522	0.453	0.0522	ND	0.0522
Methane	µg/l	36	2	16	2	9.7	2	19	2.0	18	5	15	10
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	0.42j	0.4	0.37j	0.25	0.61	0.25	0.54	0.25	0.43 J	0.25
Sulfate	mg/l	4.1j	1.5	4.6j	1.5	5.2	1.5	4.8j	1.5	4.1j	1.5	5.1	1.5
Field Parameters													
Dissolved Oxygen	mg/l	0.3	0.6	0.6	0.58	5.51*		1.01		1.42		0.69	
Ferrous Iron	mg/l	0.4	0	0	1	0		1.2		0.6		0	
Oxidation-reduction Pot.	volts	369	111	127	127	153		138		223		239	
pH std. units	units	5.18	5.03	4.92	4.92	5.40		5.46		5.12		4.98	
Specific Conductance	µS/cm	91	114	*	*	121		94.79		127		79	
Temperature	°C	22.14	25	20.71	20.71	20.3		20.6		19.16		18.5	

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

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation ⁽¹⁾		Dissolved Oxygen (mg/L)													
		Plume Concentration < Background Concentration													
Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05	Jan-07	Dec-07	Feb-09	Dec-09
Plume	MW-1R	0.54	0.34	0.76	0.27	0.32	0.29	2.14	0.22	0.98	7.02 ⁽²⁾	4.32 ⁽²⁾	0.82	1.47	NM
Plume	MW-2R	0.42	0.41	0.48	0.26	0.33	0.25	2.04	0.5	1.3	0.36	4.49 ⁽²⁾	0.8	1.06	NM
Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3	0.18	0.37	5.67 ⁽²⁾	0.74	1.18	NM
Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3	7.31	3.74	5.49	NM
Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82	5.49 ⁽²⁾	1.07	1.55	NM
Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3	0.18	0.37	5.67 ⁽²⁾	0.74	1.18	NM
Plume	MW-09	0.46	0.34	0.4	0.22	0.17	0.16	4.07	0.42	1.69	Damaged	Damaged	0.74	1.14	NM
Plume	MW-17	0.79	0.3	0.62	0.33	0.31	0.49	2.6	0.5	0.33	0.4	5.98 ⁽²⁾	1.06	1.65	NM
Plume	MW-19	0.81	1.3	0.51	0.19	0.24	0.23	2.13	0.39	0.82	0.38	5.56 ⁽²⁾	0.65	1.21	NM
Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49	2.15	5.3	7.31	3.74	5.49	NM
Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37	0.58	0.82	5.49 ⁽²⁾	1.07	1.55	NM
Background*	MW-20	1.27	0.89	1.84	0.64	0.6	0.58	2.93	0.45	0.88	0.41	5.73 ⁽²⁾	0.81	1.42	NM
Background*	MW-21	4.4	4.52	4.54	4.06	4.22	4.34	6.06	3.78	1.44	3.51	6.57 ⁽²⁾	2.88	3.79	NM
Background*	MW-22	1.63	0.3	0.16	0.43	0.4	0.21	1.74	0.3	0.6	0.58	5.51 ⁽²⁾	1.1	1.42	NM
Plume	MW-12	0.65	0.4	1.25	0.18	0.22	0.27	2.17	0.29	0.5	0.81	5.83 ⁽²⁾	1.1	1.21	NM
Background*	MW-13	0.83	0.22	0.28	0.21	0.26	0.46	2.19	NM	NM	NM	NM	P&A ⁽²⁾	P&A ⁽²⁾	NM
Background*	MW-15	1.06	0.6	0.5	0.36	0.35	0.23	3.95	0.53	0.98	0.36	5.05 ⁽²⁾	0.74	1.1	NM

Notes

mg/L - milligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication

Policy on Use of Natural Attenuation for Site Remediation, 1997

(2) - Indicates suspect measurement likely due to instrument malfunction

NM - Not Measured

NA - Not Analyzed

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

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

Gulf States Creosote Site
 Hattiesburg, Mississippi

Indicator of Natural Attenuation ⁽¹⁾		Iron - Fe+2 (mg/L)													
		Plume Concentration > Background Concentration													
Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Dec-05	Jan-07	Dec-07	Feb-09	Dec-09
Plume	MW-1R	8	5.1	5	4	2.6	0	1.4	0	0	0	0	0	0	NM
Plume	MW-2R	0	0	0	0	0	0	0	0	0	0	0.6	0	0	NM
Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4	0	2.4	2.6	NM
Background*	MW-16	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-18	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2	4	4	0	2.4	2.6	NM
Plume	MW-09	6	3	7	5	5.5	3	4	4.6	5	4	0	4	2.8	NM
Plume	MW-17	1.2	5	5.5	5.5	4.5	2.2	1.4	2.5	5	4	1	2	1.6	NM
Plume	MW-19	4.6	6	7	5.5	5	4.8	4.8	NM	4	5	5	2.5	2.6	NM
Background*	MW-16	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-18	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-16	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-18	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-20	0	0	0	0	0	0	0	0	0	0	0	0	0	NM
Background*	MW-21	0	0	0	0	0	0	0	0	0	0	0	0	0.2	NM
Background*	MW-22	0	0	0	0	0	0	0	0.4	0	1	0	1.2	0.6	NM
Plume	MW-12	1.4	2.2	3.8	3	3.5	1.8	1.9	NM	1	0.8	0.6	1.2	0.9	NM
Background*	MW-13	4.8	5.1	8	4	5.5	1.2	4	NM	NM	NM	NM	P&A'd	P&A'd	NM
Background*	MW-15	5.8	4.5	5.8	7	7	5.1	7.1	5.8	5	4.5	3	2	4.6	NM

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 Croosote Site
Hattiesburg, Mississippi

		Methane (µg/L)													
		Plume Concentration > Background Concentration													
Indicator of Natural Attenuation ⁽¹⁾	Well I.D.	Dec-01	Mar-02	Jun-02	Sept-02	Dec-02	Mar-03	Jun-03	Sept-03	Dec-04	Dec-05	Jan-07	Dec-07	Feb-09	Dec-09
Plume	MW-1R	2400	350	71	43	48	ND(5)	35	3.7j	2.2j	ND(5)	10	ND(5)	ND(15)	ND
Plume	MW-2R	2.8j	2.2j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	2.3j	ND(5)	ND(15)	ND
Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400	2300	1400	780	1100
Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	ND(5)	ND(5)	ND(15)	ND
Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)	ND(5)	ND(5)	ND(15)	ND
Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400	2500	1400	2300	1400	780	1100
Plume	MW-09	590	380	480	340	230	750	580	450	1500	Damaged	Damaged	2000	1500	2600
Plume	MW-17	850	1400	910	930	640	470	300	390	550	300	140	230	310	150
Plume	MW-19	590	1400	1200	1000	1400	1400	1200	1300	1300	780	700	450	580	390
Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	ND(5)	ND(5)	ND(15)	ND
Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	3.9j	ND(5)	ND(5)	ND(5)	ND(15)	ND
Background*	MW-20	3.5j	2.6j	ND(5)	ND(5)	ND(5)	2.7j	ND(5)	ND(5)	9.6	ND(5)	3.3j	ND(5)	ND(15)	ND
Background*	MW-21	2.8j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	4.1j	ND(5)	ND(5)	ND(15)	ND
Background*	MW-22	100	71	41	19	33	46	55	38	16	11	9.7	19	15	15
Plume	MW-12	400	360	370	400	240	210	170	140	64	50	50	140	230	180
Background*	MW-13	42	130	57	43	42	290	47	NA	NA	NA	NA	P&A'd	P&A'd	P&A'd
Background*	MW-15	1400	1500	1800	2200	1900	2500	1900	1800	1800	1800	1300	1700	1000	1200

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

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

Gulf States Crocoate Site
Hattiesburg, Mississippi

		Sulfate (mg/L)													
		Plume Concentration < Background Concentration													
Indicator of Natural Attenuation (1)		Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-04	Jan-07	Dec-07	Feb-09	Dec-09
Process Area	Plume	MW-1R	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	1.8j	1.5j	ND(5)	1.9j	4.7j	4.8j	1.7j
	Plume	MW-2R	19.9	18.8	20.9	21.2	19.3	20.9	21.8	19.9	17.9	19	16.8	14.7	13.8
	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2	3.4j	1.9j	2.8j	4.9j	2.1j
Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8	6.2	6.5	13.4	5.9
	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8	9.7	5.5	7.1	7.1
Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2	3.4j	3.6j	1.9j	2.8j	4.9j	2.1j
	MW-09	3.4j	6.6	4j	ND(5)	5.3	9.6	6.4	13.8	ND(5)	Damaged	Damaged	ND(5)	ND(5)	3.7j
	MW-17	2.9j	2.1j	2.7j	3.8j	3.4j	3.1j	4.4j	5.6	6.3	9.8	6.7	11.1	17.5	20.4
	MW-19	6.7	4.3j	4.3j	ND(5)	3.3j	4.1j	4.7j	2.8j	2.1j	2.3j	2.1j	2.9j	2.8j	2.1j
Not Nearest Drainage Area	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6	9.1	18.8	6.2	6.5	5.9
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9	9.7	9.8	5.5	7.1	7.1
	Background*	MW-20	3j	3.2j	2.2j	2.8j	3.9j	3.4j	3j	5.8	ND(5)	5.5	1.7j	ND(5)	3.2j
	Background*	MW-21	3.1j	2.9j	2.7j	3j	3j	2.1j	2j	2.1j	2.4j	3.4j	2.3j	ND(5)	2.4j
Not Nearest Drainage Area	Background*	MW-22	6.3	5j	4.9j	4.3j	5.4	5j	4.8j	4.1j	4.6j	5.2	4.8j	4.1j	5.1
	Plume	MW-12	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	2.1j	ND(5)	2.2j	ND(1.5)
Not Nearest Drainage Area	Background*	MW-13	3.7j	8.7	3.1j	2.7j	3.8j	22.9	4.1j	NA	NA	NA	P&A'd	P&A'd	P&A'd
	Background*	MW-15	1.6j	3j	ND(5)	ND(5)	3.3j	2j	2j	1.9j	ND(5)	2.2j	ND(5)	2.2j	ND(1.5)

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 suspected 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 quantification 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 Crocozoto Site
Hattiesburg, Mississippi

		Nitrate (mg/L)												
		Plume Concentration < Background Concentration												
Indicator of Natural Attenuation ⁽¹⁾	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-03	Jan-07	Dec-07	Feb-09	Dec-09
Plume	MW-1R	ND(0.5)	ND(0.5)	ND(0.5)	0.61	0.7	1.1	0.81	1.4	1.5	1.6	1.6	1.4	.40J
Plume	MW-2R	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6	1.3	1.1	1.1	1.5	1.3
Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.1	1.8	1.6	1.4
Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Plume	MW-09	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	Damaged	ND(0.5)	ND(0.5)	ND(0.5)
Plume	MW-17	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Plume	MW-19	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6	1.3	1.1	1.1	1.5	1.3
Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2	1.1	1.1	1.8	1.6	1.4
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	0.32j	0.55	0.75	.29J
Background*	MW-21	1.22	1.2	1.23	1.4	1.15	1	0.8	1.2	2	1.7	1.2	ND(0.5)	1
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	0.37j	0.61	.54	0.43J
Plume	MW-12	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Background*	MW-13	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	NA	NA	NA	P&A'd	P&A'd	P&A'd
Background*	MW-15	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

Notes

mg/L - milligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication

Policy on Use of Natural Attenuation for Site Remediation, 1997

(2) - Indicates suspect measurement likely due to instrument malfunction

NM - Not Measured

NA - Not Analyzed

ND - Constituent not detected at or above laboratory reporting limit shown in parentheses

j - Qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

Appendix A
Site Background Information
Ground Water Monitoring Report
December 2009 Event

1.0 Introduction

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

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

1.1 Site Description and Background

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

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

1.2 Summary of Previous Ground Water Investigations

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

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

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

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

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

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

Major conclusions from these ground water investigations were:

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

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

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

1.3 Source Area Remediation

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

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

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

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

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

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

Appendix B
December 2009 Laboratory Reports

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

January 06, 2010

Project: Gulf States Creosoting/Hattiesburg, MS

Samples arrived at the laboratory on Wednesday, December 23, 2009. The PO# for this group is ZAKWICEOK0A50149. The group number for this submittal is 1176456.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLD) #</u>
MW-15 Unspiked Filtered Grab Water	5872303
MW-15MS Matrix Spike Filtered Grab Water	5872304
MW-15MSD Filtered Grab Water	5872305
MW-15 Duplicate Filtered Grab Water	5872306
MW-1R Filtered Grab Water	5872307
MW-2R Filtered Grab Water	5872308
MW-04 Filtered Grab Water	5872309

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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



Analysis Report

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

Respectfully Submitted,

A handwritten signature in cursive script that reads "Max E. Snavely".

Max E. Snavely
Senior Specialist



Analysis Report

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Page 1 of 1

Sample Description: MW-15 Unspiked Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872303
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:35 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Trenox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF15 SDG#: HXS71-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	1
01754	Iron	7439-89-6	34.5	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:00	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1

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



Analysis Report

2426 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Sample Description: KW-15MS Matrix Spike Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872304
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:45 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF15 SDG#: HMS71-01MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	1
01754	Iron	7439-89-6	35.3	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:09	John P Hook	1
01646	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise X Connors	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-15MSD Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5872305
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:00 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF15 SDG#: HMS71-01MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	34.3	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:12	John P Hook	1
01848	MW SW846 ICP Digest (total rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-15 Duplicate Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872306
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:35 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Trenox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF15 SDG#: HMS71-01DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	35.1	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:06	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-1R Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872307
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Tronex LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF1R SDG#: HMS71-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	1
01754	Iron	7439-89-6	0.316	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:28	John P Keok	1
01848	MW 58846 ICP Digest (tot res)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1

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

Sample Description: MW-2R Filtered Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872308
 LLI Group # 1176456
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 13:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/06/2010 at 13:07
 Discard: 03/08/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF2R SDG#: HMS71-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010B 7439-89-6	mg/l 0.0828 U	mg/l 0.200	mg/l 0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:21	John P Hook	1
01646	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1



Analysis Report

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Sample Description: MW-04 Filtered Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872309
LLI Group # 1176456
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 14:40 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/06/2010 at 13:07
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF04 SDG#: HMS71-04*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	N.D.	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848007	01/05/2010 19:30	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848007	01/04/2010 09:40	Denise K Connors	1

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

Quality Control Summary

 Client Name: Tronox LLC
 Reported: 01/06/10 at 01:07 PM

Group Number: 1176456

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: 093651848007 Iron				Sample number(s): 5872303-5872309 N.D.	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: 093651848007 Iron									
	82 (2)	-23 (2)	75-125	3	20	34.5	35.1	2	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



For Lancaster Laboratories use only
 Acc. # 11947 Group # 1176456 Sample # 5872303-09 COC # 229352

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

For Lab Use Only
 FSC:
 SCR#: _____

1 Client: <u>Michael Pisani & Assoc.</u> Acc. #: _____ Project Name: <u>Gulf States Cares</u> PWSID #: _____ Project Manager: <u>DAVE WYTHEBROUKE</u> P.O. #: _____ Sampler: <u>DAD BLAOCK</u> Quote #: <u>MS</u> Name of state where samples were collected: _____		4		5		6	
						Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other	Remarks * Diss Fe 10-16 Hg's BEEN Filtered *
2		3		5		6	
MW-15	12/22/09	1135	9	9	2	2	11
MW-15 MS		1145	9	9	2	2	11
MW-15 MSD		1200	9	9	2	2	11
MW-1R		1250	9	9	2	2	11
MW-2R		1350	9	9	2	2	11
MW-04		1440	9	9	2	2	11
TRIP BLANK							
7 Turnaround Time Requested (TAT) (please circle): <u>Normal</u> 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: _____		Relinquished by: <u>[Signature]</u> Date: <u>12/22/09</u> Time: <u>1700</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Date Date Date Date Date Date		Time Time Time Time Time Time	
8 Data Package Options (please circle if required) Type I (validation/NJ Reg) TX TRRP-13 SDG Complete? Yes No Type II (Tier II) MA/MCP CT RCP Type III (Reduced NJ) Site-specific CC (MS/MSD/Dup)? Yes No Type IV (CLP SOW) Internal COC Required? Yes / No Type VI (Raw Data Only)		Relinquished by: <u>[Signature]</u> Date: <u>12/23/09</u> Time: <u>1105</u>		Date Date Date Date Date Date		Time Time Time Time Time Time	

**Environmental Sample Administration
Receipt Documentation Log**

Client/Project: Michael Pisani - Assoc.

Shipping Container Sealed: YES NO

Date of Receipt: 12/23/09

Custody Seal Present*: YES NO

Time of Receipt: 1105

* Custody seal was intact unless otherwise noted in the discrepancy section

Source Code: 50-1

Package: Chilled Not Chilled

Unpacker Emp. No.: 208

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	0429951	1.0	TB	WI	Y	B	
2	↓	1.6	↓	↓	↓	↓	
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
<u>Mary Beth Reed</u>	<u>12/23/09</u>	<u>1230</u>	Unpacking <u>Storage</u>
	<u>12/23/09</u>	<u>1239</u>	Place in Storage or <u>Entry</u>
			Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers		
A	TIC is a possible aldol-condensation product	B	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike amount not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
J	Estimated value	U	Compound was not detected
N	Presumptive evidence of a compound (TICs only)	W	Post digestion spike out of control limits
P	Concentration difference between primary and confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA <0.995
X,Y,Z	Defined in case narrative		

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

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

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

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859
 405-775-5429

Prepared by:

Lancaster Laboratories
 2425 New Holland Pike
 Lancaster, PA 17605-2425
 January 06, 2010

SAMPLE GROUP

The sample group for this submittal is 1176456. Samples arrived at the laboratory on Wednesday, Dec 23 2009.
 The project for this group is Gulf States Creosoting/Hattiesburg, MS.
 The PO# for this sample group is ZAKW1CEOK0A50149.

<u>Sample No.</u>	<u>Collected</u>	<u>Client Description</u>
5872303	12/22/2009 11:35	MW-15 Unspiked Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872304	12/22/2009 11:45	MW-15MS Matrix Spike Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872305	12/22/2009 12:00	MW-15MSD Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872306	12/22/2009 11:35	MW-15 Duplicate Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872307	12/22/2009 12:50	MW-1R Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872308	12/22/2009 13:50	MW-2R Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872309	12/22/2009 14:40	MW-04 Filtered Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO

Michael Pisani & Associates

Attn: David Upthegrove

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 288859
Oklahoma City OK 73128-8859
405-775-5429

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425
January 06, 2010

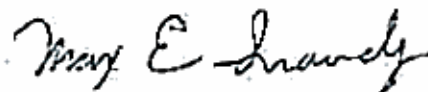
Attn: Sherron Hendricks
Attn: Roy Widmann

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1 COPY TO

Tronox LLC
Tronox LLC
Data Package Group

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

Respectfully Submitted,



Max E. Snavelly
Senior Specialist

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS71

Report Date: 1/6/2010 13:07
 Submit Date: 12/23/2009 11:05

		5872303 MW-15 Unspiked Filtered			5872304 MW-15MS Matrix Spike Filtered		
Analysis Name	Units	Result	LOQ**	MDL	Result	LOQ**	MDL
Iron	mg/l	34.5	0.200	0.0522	35.3	0.200	0.0522
		5872305 MW-15MSD Filtered			5872306 MW-15 Duplicate Filtered		
Analysis Name	Units	Result	LOQ**	MDL	Result	LOQ**	MDL
Iron	mg/l	34.3	0.200	0.0522	35.1	0.200	0.0522
		5872307 MW-1R Filtered			5872308 MW-2R Filtered		
Analysis Name	Units	Result	LOQ**	MDL	Result	LOQ**	MDL
Iron	mg/l	0.316	0.200	0.0522	0.0828 J	0.200	0.0522
		5872309 MW-04 Filtered					
Analysis Name	Units	Result	LOQ**	MDL			
Iron	mg/l	N.D.	0.200	0.0522			

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

CAT No.	Analysis Name	Method	Trial ID	Analysis Date/Time	Analyst	Dilution
5872303 MW-15 Unspiked Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1900	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872304 MW-15MS Matrix Spike Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1909	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872305 MW-15MSD Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1912	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872306 MW-15 Duplicate Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1906	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872307 MW-1R Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1918	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872308 MW-2R Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1921	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1
5872309 MW-04 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 1930	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 0940	Denise K Connors	1

Client Name: Tronox LLC

Group Number: 1176456

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	Max RPD
---------------	--------------	-------------	-----------	--------------	----------	-----------	-----------------	-----	---------

Batch number: 093651848007

Sample number(s): 5872303-5872309

Iron	N.D.	0.200	0.0522	mg/l	101		90-112		
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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: 093651848007

Sample number(s): 5872303-5872309 UNSPK: 5872303 BKG: 5872303

Iron	82 (2)	82 (2)	75-125	3	20	34.5	35.1	2	20
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* - Outside of specification

(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.

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

QC Comment

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.

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

5872303 MW-15 Unspiked Filtered Grab Water

This sample was field filtered for dissolved metals.

5872304 MW-15MS Matrix Spike Filtered Grab Water

This sample was field filtered for dissolved metals.

5872305 MW-15MSD Filtered Grab Water

This sample was field filtered for dissolved metals.

5872306 MW-15 Duplicate Filtered Grab Water

This sample was field filtered for dissolved metals.

5872307 MW-1R Filtered Grab Water

This sample was field filtered for dissolved metals.

5872308 MW-2R Filtered Grab Water

This sample was field filtered for dissolved metals.

5872309 MW-04 Filtered Grab Water

This sample was field filtered for dissolved metals.

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

January 14, 2010

Project: Gulf States Creosoting/Hattiesburg, MS

Samples arrived at the laboratory on Wednesday, December 23, 2009. The PO# for this group is ZAKWICEOK0A50149. The group number for this submittal is 1176455.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
MW-15 Unspiked Grab Water	5872295
MW-15MS Matrix Spike Grab Water	5872296
MW-15MSD Matrix Spike Dup Grab Water	5872297
MW-15 Duplicate Grab Water	5872298
MW-1R Grab Water	5872299
MW-2R Grab Water	5872300
MW-04 Grab Water	5872301
Trip Blank Water	5872302

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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



Analysis Report

2425 New Holland Pk., PO Box 12428, Lancaster, PA 17635-2425 • 717-655-1300 Fax: 717-656-2681 • www.lancasterlabs.com

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

Respectfully Submitted,

A handwritten signature in cursive script that reads "Robert Strocko Jr." with a large, stylized flourish at the end.

Robert Strocko Jr.
Manager

Sample Description: MW-15 Unspiked Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5872295
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:35 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	1.0	1
00774	Acenaphthylene	203-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	0.086 J	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	0.020 J	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.033	0.0089	1
00774	Chrysene	218-01-9	N.D.	0.22	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	0.57	0.11	0.022	1
00774	Fluorene	86-73-7	0.24 J	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-6	0.075 J	0.22	0.044	1
00774	Pyrene	129-00-0	0.48	0.44	0.11	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 reporting limit was not attained for acenaphthene. The reporting limit for this compound was raised accordingly.

The LCS recovery is outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAP Standards. The following analyte is accepted based on this allowance:
pyrene

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	1,200	150	50	10
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	32.2	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	4.4	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
00228	Sulfate	14808-79-8	N.D.	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	147	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-658-2300 Fax: 717-658-2681 • www.lancasterlabs.com

Sample Description: MW-15 Unspiked Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872295
LLI Group # 1176455
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:35 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/14/2010 at 09:21
Discard: 03/16/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01BKG

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 6310	1	09362WAA026	01/07/2010 07:43	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09362WAA026	12/28/2009 14:00	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 12:23	Dustin A Underkoffler	10
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:22	John W Yanzuk II	1
01848	KW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/23/2009 23:53	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/23/2009 23:53	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196602A	12/23/2009 23:53	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

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

Sample Description: MW-15MS Matrix Spike Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5872296
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:45 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	81-32-9	97	2.2	0.56	1
00774	Acenaphthylene	208-96-8	180	2.2	1.1	1
00774	Anthracene	120-12-7	3.1	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	1.7	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.8	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.4	0.033	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	14	0.22	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	1.4	0.033	0.0069	1
00774	Chrysene	218-01-9	7.0	0.22	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	3.5	0.11	0.022	1
00774	Fluoranthene	206-44-0	3.7	0.11	0.022	1
00774	Fluorene	86-73-7	20	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	7.4	0.22	0.044	1
00774	Naphthalene	91-20-3	160	2.2	1.1	1
00774	Phenanthrene	85-01-8	6.3	0.22	0.044	1
00774	Pyrene	129-00-0	24	0.44	0.11	1
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.						
GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	740	15	10	1
Metals	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	33.2	0.200	0.0522	1
Wet Chemistry	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	29.2	4.0	2.0	10
00368	Nitrate Nitrogen	14797-55-8	12.5	1.0	0.50	10
00228	Sulfate	14808-79-8	62.8	10.0	3.0	10
	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	305	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/07/2010 08:21	Mark A Clark	1

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

Sample Description: MW-15MS Matrix Spike Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872296
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:45 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
03337	PAH Water Extraction	SW-846 3310C	1	0936200AC26	12/28/2009 14:00	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 80153 modified	1	093620011A	12/29/2009 10:32	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:31	John W Yanzuk II	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/24/2009 00:24	Ashley M Adams	10
00368	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/24/2009 00:24	Ashley M Adams	10
00228	Sulfate	EPA 300.0	1	09357196602A	12/24/2009 00:24	Ashley M Adams	10
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

Sample Description: MW-15MSD Matrix Spike Dup Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872297
LLI Group # 1176455
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:00 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/14/2010 at 09:21
Discard: 03/16/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	93	2.2	0.56	1
00774	Acenaphthylene	208-96-8	170	2.2	1.1	1
00774	Anthracene	120-12-7	2.9	0.11	0.022	1
00774	Benzo(a)anthracene	36-55-3	1.6	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	1.6	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	1.3	0.033	0.0089	1
00774	Benzo(g,h,i)perylene	191-24-2	13	0.22	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	1.3	0.033	0.0089	1
00774	Chrysene	218-01-9	6.5	0.22	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	3.3	0.11	0.022	1
00774	Fluoranthene	206-44-0	3.5	0.11	0.022	1
00774	Fluorene	86-73-7	20	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	7.0	0.22	0.044	1
00774	Naphthalene	91-20-3	160	2.2	1.1	1
00774	Phenanthrene	85-01-8	6.0	0.22	0.044	1
00774	Pyrene	129-00-0	22	0.44	0.11	1
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.						
GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	740	15	10	1
Metals	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	33.1	0.200	0.0522	1
Wet Chemistry	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	307	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trials	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/07/2010 09:00	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09362WAA026	12/28/2009 14:00	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 10:45	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093651846004	01/05/2010 23:35	John W Yanzuk II	1

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

Sample Description: MW-15MSD Matrix Spike Dup Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872297
LLI Group # 1176455
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:00 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05

Tronox LLC

Reported: 01/14/2010 at 09:21

PO Box 268859

Discard: 03/16/2010

Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01848	MW SW646 ICP Digest (tot rec)	SN-246 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

Sample Description: MW-15 Duplicate Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872298
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 11:35 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT15 SDG#: HMS70-01DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	32.8	0.200	0.0522	1
Wet Chemistry						
	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	4.4	2.0	1.0	5
00366	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
00228	Sulfate	14808-79-8	N.D.	3.0	1.5	5
	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	147	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:28	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/24/2009 00:08	Ashley M Adams	5
00366	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/24/2009 00:08	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196602A	12/24/2009 00:08	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

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

Sample Description: MW-1R Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # KW 5872299
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT1R SDG#: HMS70-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	0.034 J	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	0.033 J	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	0.040 J	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.074	0.032	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	0.15 J	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	0.032 J	0.032	0.0087	1
00774	Chrysene	218-01-9	0.071 J	0.22	0.065	1
00774	Dibenz(a,h)anthracene	33-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	226-44-0	0.14	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	0.079 J	0.22	0.043	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	0.12 J	0.22	0.043	1
00774	Pyrene	129-00-0	0.14 J	0.43	0.11	1

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

The recoveries of pyrene and benzo(a)pyrene were above QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and the recoveries of these compounds were again above QC limits in the LCS/LCSD. Pyrene was not detected in the reanalysis, and benzo(a)pyrene was detected at half the concentration of the initial analysis. The data reported here is from the initial extraction of the sample.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	N.D.	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	4.13	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	N.D.	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	0.40 J	0.50	0.25	5
00228	Sulfate	14808-79-8	1.7 J	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	24.3	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-1R Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872299
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 12:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT1R SDG#: HMS70-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/07/2010 09:39	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09362WAA026	12/28/2009 14:00	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 10:58	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:41	John W Yanzuk II	1
01848	KW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/24/2009 00:39	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/24/2009 00:39	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196602A	12/24/2009 00:39	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

Sample Description: MW-2R Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872300
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 13:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT2R SDG#: HMS70-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	70	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	130	130	1
00774	Anthracene	120-12-7	N.D.	0.70	0.70	1
00774	Benzo(a)anthracene	56-55-3	0.098	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.048	0.032	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-3	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	0.035	0.032	0.0086	1
00774	Chrysene	218-01-9	0.17 J	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	3.8	0.11	0.022	1
00774	Fluorene	86-73-7	70	3.6	2.2	20
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.043	1
00774	Naphthalene	91-20-3	9,200	110	54	50
00774	Phenanthrene	85-01-8	140	4.3	0.86	20
00774	Pyrene	129-00-0	0.81	0.43	0.11	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 interferences near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

The LCS recovery is outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAP Standards. The following analyte is accepted based on this allowance: pyrene

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	N.D.	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	0.0935 J	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	6.7	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
00228	Sulfate	14806-79-8	13.8	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	21.8	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1



Analysis Report

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Sample Description: MW-2R Grab Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872300
LLI Group # 1176455
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 13:50 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
Reported: 01/14/2010 at 09:21
Discard: 03/16/2010

Trenox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAT2R SDG#: HMS70-03

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/07/2010 10:18	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/08/2010 10:16	Mark A Clark	20
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/09/2010 21:58	Mark A Clark	50
03337	PAH Water Extraction	SW-846 3510C	1	09362WAA026	12/28/2009 14:00	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 11:10	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:44	John W Yanzuk II	1
01846	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Kertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/24/2009 00:54	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/24/2009 00:54	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196602A	12/24/2009 00:54	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1

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

Sample Description: MW-04 Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872301
 LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 14:40 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT04 SDG#: HMS70-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8310						
00774	Acenaphthene	83-32-9	N.D.	2.1	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	2.1	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.021	1
00774	Benzo(a)anthracene	36-55-3	N.D.	0.042	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0084	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0084	1
00774	Chrysene	218-01-9	N.D.	0.21	0.063	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.021	1
00774	Fluorene	85-73-7	0.29 J	0.42	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.042	1
00774	Naphthalene	91-20-3	26	2.1	1.1	1
00774	Phenanthrene	85-01-6	0.21 J	0.21	0.042	1
00774	Pyrene	129-00-0	N.D.	0.42	0.11	1
GC Miscellaneous SW-846 8015B modified ug/l						
07105	Methane	74-82-8	N.D.	15	10	1
Metals SW-846 6010B mg/l						
01754	Iron	7439-89-6	N.D.	0.200	0.0522	1
Wet Chemistry EPA 300.0 mg/l						
00224	Chloride	16887-00-6	7.3	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	0.28 J	0.50	0.25	5
00228	Sulfate	14808-79-8	1.6 J	5.0	1.5	5
SM20 2320 B mg/l as CaCO3						
00202	Alkalinity to pH 4.5	n.a.	20.5	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09362WAA026	01/07/2010 10:57	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09362WAA026	12/28/2009 14:00	Kevin P Love	1

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

Sample Description: MW-04 Grab Water
 COC # 229352
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872301
LLI Group # 1176455
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009 14:40 by BB

Account Number: 11947

Submitted: 12/23/2009 11:05
 Reported: 01/14/2010 at 09:21
 Discard: 03/16/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT04 SDG#: HMS70-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 11:22	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093651848004	01/05/2010 23:53	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848004	01/04/2010 14:15	James L Mertz	1
00224	Chloride	EPA 300.0	1	09357196602A	12/24/2009 01:41	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196602A	12/24/2009 01:41	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196602A	12/24/2009 01:41	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09365020201A	12/31/2009 12:43	Geraldine C Smith	1



Analysis Report

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Page 1 of 1

Sample Description: Trip Blank Water
COC # 229352
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5872302
LLI Group # 1176455
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/22/2009

Account Number: 11947

Submitted: 12/23/2009 11:05

Tronox LLC

Reported: 01/14/2010 at 09:21

PO Box 268859

Discard: 03/16/2010

Oklahoma City OK 73126-8859

T-HAT SDG#: HMS70-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC Miscellaneous	SW-846 8015B modified		ug/l	ug/l		
07105	Methane	74-82-8	N.D.	15	10	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 11:35	Dustin A Underkoffler	1

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

Quality Control Summary

 Client Name: Tronox LLC
 Reported: 01/14/10 at 09:21 AM

Group Number: 1176455

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: 09362MAA026	Sample number(s): 5872295-5872297, 5872299-5872301								
Acenaphthene	N.D.	2.0	0.50	ug/l			61-102		
Acenaphthylene	N.D.	2.0	1.0	ug/l	84		61-99		
Anthracene	N.D.	0.10	0.020	ug/l	94		69-103		
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	106		74-109		
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	110*		67-107		
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	105		76-110		
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	104		62-117		
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	107		77-109		
Chrysene	N.D.	0.20	0.060	ug/l	107		74-111		
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	103		75-109		
Fluoranthene	N.D.	0.10	0.020	ug/l	100		68-103		
Fluorene	N.D.	0.40	0.10	ug/l	95		67-107		
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	110		81-122		
Naphthalene	N.D.	2.0	1.0	ug/l	79		57-95		
Phenanthrene	N.D.	0.20	0.040	ug/l	98		71-108		
Pyrene	N.D.	0.40	0.10	ug/l	110*		70-108		
Batch number: 093620011A	Sample number(s): 5872295-5872297, 5872299-5872302								
Methane	N.D.	15.	10	ug/l	102		80-120		
Batch number: 093651848004	Sample number(s): 5872295-5872301								
Iron	N.D.	0.200	0.0522	ug/l	102		90-112		
Batch number: 09357196602A	Sample number(s): 5872295-5872296, 5872298-5872301								
Chloride	N.D.	0.40	0.20	mg/l	99		90-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	103		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	101		89-110		
Batch number: 09365020201A	Sample number(s): 5872295-5872301								
Alkalinity to pH 4.5	N.D.	2.0	0.46	mg/l as CaCO3	100		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: 09362MAA026	Sample number(s): 5872295-5872297, 5872299-5872301 UNSPK: 5872295								
Acenaphthene	86	83	67-99	4	30				
Acenaphthylene	79	77	66-97	3	30				

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

 Client Name: Troncx LLC
 Reported: 01/14/10 at 09:21 AM

Group Number: 1176455

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	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Anthracene	90	85	74-101	7	30				
Benzo (a) anthracene	103	96	78-106	8	30				
Benzo (a) pyrene	107*	98	77-102	9	30				
Benzo (b) fluoranthene	103	96	79-108	7	30				
Benzo (g,h,i) perylene	105	100	68-116	5	30				
Benzo (k) fluoranthene	106*	98	81-105	8	30				
Chrysene	105	97	78-108	8	30				
Dibenz (a,h) anthracene	104	99	75-104	5	30				
Fluoranthene	95	89	75-95	6	30				
Fluorene	91	87	73-103	4	30				
Indeno (1,2,3-cd) pyrene	111*	104	78-106	7	30				
Naphthalene	74	73	61-94	2	30				
Phenanthrene	94	89	66-115	5	30				
Pyrene	106*	99	73-105	7	30				

 Batch number: 093620011A
 Methane

 Sample number(s): 5872295-5872297, 5872299-5872302 UNSPK: 5872295
 -767 -767 35-157 0 20
 (2) (2)

 Batch number: 093651848004
 Iron

 Sample number(s): 5872295-5872301 UNSPK: 5872295 BKG: 5872295
 103 (2) 90 (2) 75-125 0 20 32.2 32.8 2 20

 Batch number: 09357196602A
 Chloride
 Nitrate Nitrogen
 Sulfate

 Sample number(s): 5872295-5872296, 5872298-5872301 UNSPK: 5872295 BKG: 5872295
 124* 90-110 4.4 4.4 0 (1) 20
 125* 90-110 N.D. N.D. 0 (1) 20
 126* 90-110 N.D. N.D. 0 (1) 20

 Batch number: 09365020201A
 Alkalinity to pH 4.5
 Alkalinity to pH 8.3

 Sample number(s): 5872295-5872301 UNSPK: 5872295 BKG: 5872295
 84 85 64-130 1 2 147 147 0 4
 N.D. N.D. 0 (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: PAH's in Water by HPLC
 Batch number: 09362KAA026

	Nitrobenzene	Triphenylene
5872295	102	111
5872296	102	114
5872297	96	106
5872299	86	92
5872300	102	105
5872301	99	107
Blank	98	110
LCS	101	119
MS	102	114
MSD	96	106

* - Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC
Reported: 01/14/10 at 09:21 AM

Group Number: 1176455

Surrogate Quality Control

Limits: 67-111 77-122

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 093620011A
Propene

5872295	102
5872296	64
5872297	60
5872299	87
5872300	72
5872301	75
5872302	84
Blank	116
LCS	115
MS	64
MSD	60

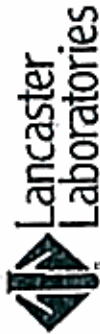
Limits: 42-131

*- 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



Acct. # 11947 Group # 1176455 Sample # 587295-02 COC # 229352

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

For Lab Use Only

1 Client: Michael Pisani & Assoc. Acct. #: _____
 Project Name: Gulf States Cares PWSID #: _____
 Project Manager: Dave Vithelove P.O.#: _____
 Sampler: Dave Blacklock Quote #: _____
 Name of state where samples were collected: MS.

5 Analysis Requested

H	Preservation Codes		Remarks
	Analysis Requested	Preservation Codes	
92	2	1	10-1609 * Diss Fe Has been Filtered *
92	2	1	
92	2	1	
92	2	1	
92	2	1	
92	2	1	
92	2	1	
92	2	1	
92	2	1	
92	2	1	

6 Preservation Codes
 H=HCl T=Thiosulfate
 N=HNO₃ B=NaOH
 S=H₂SO₄ O=Other

3

Sample Identification	Date Collected	Time Collected	Relinquished by:	Date	Time
MW-15	12/2/09	1135	<i>[Signature]</i>	12/2/09	1700
MW-15 MS		1145			
MW-15 MSO		1200			
MW-1R		1250			
MW-2R		1350			
MW-04		1440			
Trip Blank					

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	SDG Complete?	Yes	No
Type II (Tier II)	MA MCP	CT RCP		
Type III (Reduced NJ)	Site-specific QC (MS/MSD/Dup)?	Yes	No	
Type IV (CLP SOW)	Internal QC Required?	Yes	No	
Type VI (Raw Data Only)	Internal COC Required?	Yes	No	

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6706
 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.



Environmental Sample Administration Receipt Documentation Log

Client/Project: Michael Pisani + Assoc.

Shipping Container Sealed: YES NO

Date of Receipt: 12/23/09

Custody Seal Present * : YES NO

Time of Receipt: 1105

* Custody seal was intact unless otherwise noted in the discrepancy section

Source Code: 50-1

Unpacker Emp. No.: 208

Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	0429951	1.0	TB	WI	Y	B	
2	↓	1.6	↓	↓	↓	↓	
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
<u>S. Nesher</u>	<u>12/23/09</u>	<u>1230</u>	Unpacking / <u>Storage</u>
<u>Mary Beth Reed</u>	<u>12/23/09</u>	<u>1238</u>	Place in Storage or <u>Entry</u>
			Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers
A TIC is a possible aldol-condensation product	B Value is <CRDL, but ≥IDL
B Analyte was also detected in the blank	E Estimated due to interference
C Pesticide result confirmed by GC/MS	M Duplicate injection precision not met
D Compound quantitated on a diluted sample	N Spike amount not within control limits
E Concentration exceeds the calibration range of the instrument	S Method of standard additions (MSA) used for calculation
J Estimated value	U Compound was not detected
N Presumptive evidence of a compound (TICs only)	W Post digestion spike out of control limits
P Concentration difference between primary and confirmation columns >25%	* Duplicate analysis not within control limits
U Compound was not detected	+ Correlation coefficient for MSA <0.995
X,Y,Z Defined in case narrative	

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

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

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ANALYTICAL RESULTS

Prepared for:

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859
 405-775-5429

Prepared by:

Lancaster Laboratories
 2425 New Holland Pike
 Lancaster, PA 17605-2425
 January 14, 2010

SAMPLE GROUP

The sample group for this submittal is 1176455. Samples arrived at the laboratory on Wednesday, Dec 23 2009.
 The project for this group is Gulf States Creosoting/Hattiesburg, MS.
 The PO# for this sample group is ZAKW1CEOK0A50149.

<u>Sample No.</u>	<u>Collected</u>	<u>Client Description</u>
5872295	12/22/2009 11:35	MW-15 Unspiked Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872296	12/22/2009 11:45	MW-15MS Matrix Spike Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872297	12/22/2009 12:00	MW-15MSD Matrix Spike Dup Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872298	12/22/2009 11:35	MW-15 Duplicate Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872299	12/22/2009 12:50	MW-1R Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872300	12/22/2009 13:50	MW-2R Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872301	12/22/2009 14:40	MW-D4 Grab Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS
5872302	12/22/2009	Trip Blank Water COC # 229352 Gulf States Creosoting/Hattiesburg, MS

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859
405-775-5429

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425
January 14, 2010

Laboratory Sample Analysis Record.

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

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

Respectfully Submitted,



Robert Strocko Jr.
Manager

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS70

Report Date: 1/14/2010 9:21
 Submit Date: 12/23/2009 11:05

Analysis Name	Units	5872295 MW-15 Unspiked			5872296 MW-15MS Matrix Spike		
		Result	LOQ**	MDL	Result	LOQ**	MDL
		Acenaphthene	ug/l	N.D.	2.2	1.0	97
Acenaphthylene	ug/l	N.D.	2.2	1.1	180	2.2	1.1
Anthracene	ug/l	0.089 J	0.11	0.022	3.1	0.11	0.022
Benzo(a)anthracene	ug/l	0.020 J	0.044	0.011	1.7	0.044	0.011
Benzo(a)pyrene	ug/l	N.D.	0.044	0.011	1.8	0.044	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.033	0.0089	1.4	0.033	0.0089
Benzo(g,h,i)perylene	ug/l	N.D.	0.22	0.067	14	0.22	0.067
Benzo(k)fluoranthene	ug/l	N.D.	0.033	0.0089	1.4	0.033	0.0089
Chrysene	ug/l	N.D.	0.22	0.067	7.0	0.22	0.067
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.022	3.5	0.11	0.022
Fluoranthene	ug/l	0.57	0.11	0.022	3.7	0.11	0.022
Fluorene	ug/l	0.24 J	0.44	0.11	20	0.44	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.22	0.044	7.4	0.22	0.044
Naphthalene	ug/l	N.D.	2.2	1.1	160	2.2	1.1
Phenanthrene	ug/l	0.075 J	0.22	0.044	6.3	0.22	0.044
Pyrene	ug/l	0.48	0.44	0.11	24	0.44	0.11
Methane	ug/l	1,200	150	50	740	15	10
Iron	mg/l	32.2	0.200	0.0522	33.2	0.200	0.0522
Chloride	mg/l	4.4	2.0	1.0	29.2	4.0	2.0
Nitrate Nitrogen	mg/l	N.D.	0.50	0.25	12.5	1.0	0.50
Sulfate	mg/l	N.D.	5.0	1.5	62.8	10.0	3.0
Alkalinity to pH 4.5	mg/l as CaCO3	147	2.0	0.46	305	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5872297 MW-15MSD Matrix Spike			5872298 MW-15 Duplicate		
		Result	LOQ**	MDL	Result	LOQ**	MDL
		Acenaphthene	ug/l	93	2.2	0.56	n.a.
Acenaphthylene	ug/l	170	2.2	1.1	n.a.	n.a.	
Anthracene	ug/l	2.9	0.11	0.022	n.a.	n.a.	
Benzo(a)anthracene	ug/l	1.6	0.044	0.011	n.a.	n.a.	
Benzo(a)pyrene	ug/l	1.6	0.044	0.011	n.a.	n.a.	
Benzo(b)fluoranthene	ug/l	1.3	0.033	0.0089	n.a.	n.a.	
Benzo(g,h,i)perylene	ug/l	13	0.22	0.067	n.a.	n.a.	
Benzo(k)fluoranthene	ug/l	1.3	0.033	0.0089	n.a.	n.a.	
Chrysene	ug/l	6.5	0.22	0.067	n.a.	n.a.	
Dibenz(a,h)anthracene	ug/l	3.3	0.11	0.022	n.a.	n.a.	

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

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS70

Report Date: 1/14/2010 9:21
 Submit Date: 12/23/2009 11:05

Fluoranthene	ug/l	3.5	0.11	0.022		n.a.	n.a.
Fluorene	ug/l	20	0.44	0.11		n.a.	n.a.
Indeno(1,2,3-cd)pyrene	ug/l	7.0	0.22	0.044		n.a.	n.a.
Naphthalene	ug/l	160	2.2	1.1		n.a.	n.a.
Phenanthrene	ug/l	6.0	0.22	0.044		n.a.	n.a.
Pyrene	ug/l	22	0.44	0.11		n.a.	n.a.
Methane	ug/l	740	15	10		n.a.	n.a.
Iron	mg/l	33.1	0.200	0.0522	32.8	0.200	0.0522
Chloride	mg/l		n.a.	n.a.	4.4	2.0	1.0
Nitrate Nitrogen	mg/l		n.a.	n.a.	N.D.	0.50	0.25
Sulfate	mg/l		n.a.	n.a.	N.D.	5.0	1.5
Alkalinity to pH 4.5	mg/l as CaCO3	307	2.0	0.46	147	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5872299			5872300			
		MW-1R	Result	LOQ**	MDL	MW-2R	Result	LOQ**
Acenaphthene	ug/l		N.D.	2.2	0.54	70	2.2	0.54
Acenaphthylene	ug/l		N.D.	2.2	1.1	N.D.	130	130
Anthracene	ug/l		0.034 J	0.11	0.022	N.D.	0.70	0.70
Benzo(a)anthracene	ug/l		0.033 J	0.043	0.011	0.098	0.043	0.011
Benzo(a)pyrene	ug/l		0.040 J	0.043	0.011	N.D.	0.043	0.011
Benzo(b)fluoranthene	ug/l		0.074	0.032	0.0087	0.048	0.032	0.0086
Benzo(g,h,i)perylene	ug/l		0.15 J	0.22	0.065	N.D.	0.22	0.065
Benzo(k)fluoranthene	ug/l		0.032 J	0.032	0.0087	0.035	0.032	0.0086
Chrysene	ug/l		0.071 J	0.22	0.065	0.17 J	0.22	0.065
Dibenz(a,h)anthracene	ug/l		N.D.	0.11	0.022	N.D.	0.11	0.022
Fluoranthene	ug/l		0.14	0.11	0.022	5.8	0.11	0.022
Fluorene	ug/l		N.D.	0.43	0.11	70	8.6	2.2
Indeno(1,2,3-cd)pyrene	ug/l		0.079 J	0.22	0.043	N.D.	0.22	0.043
Naphthalene	ug/l		N.D.	2.2	1.1	9,200	110	54
Phenanthrene	ug/l		0.12 J	0.22	0.043	140	4.3	0.86
Pyrene	ug/l		0.14 J	0.43	0.11	0.81	0.43	0.11
Methane	ug/l		N.D.	15	10	N.D.	15	10
Iron	mg/l		4.13	0.200	0.0522	0.0935 J	0.200	0.0522
Chloride	mg/l		N.D.	2.0	1.0	6.7	2.0	1.0
Nitrate Nitrogen	mg/l		0.40 J	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l		1.7 J	5.0	1.5	13.8	5.0	1.5
Alkalinity to pH 4.5	mg/l as CaCO3		24.3	2.0	0.46	21.8	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3		N.D.	2.0	0.46	N.D.	2.0	0.46

5872301

5872302

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

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS70

Report Date: 1/14/2010 9:21
 Submit Date: 12/23/2009 11:05

Analysis Name	Units	MW-04			Trip Blank		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.1	0.53		n.a.	n.a.
Acenaphthylene	ug/l	N.D.	2.1	1.1		n.a.	n.a.
Anthracene	ug/l	N.D.	0.11	0.021		n.a.	n.a.
Benzo(a)anthracene	ug/l	N.D.	0.042	0.011		n.a.	n.a.
Benzo(a)pyrene	ug/l	N.D.	0.042	0.011		n.a.	n.a.
Benzo(b)fluoranthene	ug/l	N.D.	0.032	0.0084		n.a.	n.a.
Benzo(g,h,i)perylene	ug/l	N.D.	0.21	0.063		n.a.	n.a.
Benzo(k)fluoranthene	ug/l	N.D.	0.032	0.0084		n.a.	n.a.
Chrysene	ug/l	N.D.	0.21	0.063		n.a.	n.a.
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.021		n.a.	n.a.
Fluoranthene	ug/l	N.D.	0.11	0.021		n.a.	n.a.
Fluorene	ug/l	0.29 J	0.42	0.11		n.a.	n.a.
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.21	0.042		n.a.	n.a.
Naphthalene	ug/l	28	2.1	1.1		n.a.	n.a.
Phenanthrene	ug/l	0.21 J	0.21	0.042		n.a.	n.a.
Pyrene	ug/l	N.D.	0.42	0.11		n.a.	n.a.
Methane	ug/l	N.D.	15	10	N.D.	15	10
Iron	mg/l	N.D.	0.200	0.0522		n.a.	n.a.
Chloride	mg/l	7.3	2.0	1.0		n.a.	n.a.
Nitrate Nitrogen	mg/l	0.28 J	0.50	0.25		n.a.	n.a.
Sulfate	mg/l	1.6 J	5.0	1.5		n.a.	n.a.
Alkalinity to pH 4.5	mg/l as CaCO3	20.5	2.0	0.46		n.a.	n.a.
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46		n.a.	n.a.

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

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
5872295 MW-15 Unspiked Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 0743	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1213	Dustin A Underkoffler	10
01754	Iron	SW-846 6010B	1	1/5/10 2322	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00224	Chloride	EPA 300.0	1	12/23/09 2353	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/23/09 2353	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/23/09 2353	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872296 MW-15MS Matrix Spike Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 0821	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1032	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 2331	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00224	Chloride	EPA 300.0	1	12/24/09 0024	Ashley M Adams	10
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0024	Ashley M Adams	10
00228	Sulfate	EPA 300.0	1	12/24/09 0024	Ashley M Adams	10
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872297 MW-15MSD Matrix Spike Dup Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 0900	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1045	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 2335	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872298 MW-15 Duplicate Grab Water						
01754	Iron	SW-846 6010B	1	1/5/10 2328	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00224	Chloride	EPA 300.0	1	12/24/09 0008	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0008	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0008	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872299 MW-1R Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 0939	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1058	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 2341	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
00224	Chloride	EPA 300.0	1	12/24/09 0039	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0039	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0039	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872300 MW-2R Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 1018	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	1/8/10 1016	Mark A Clark	20
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 2158	Mark A Clark	50
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1110	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 2344	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00224	Chloride	EPA 300.0	1	12/24/09 0054	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0054	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0054	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872301 MW-04 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/7/10 1057	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/28/09 1400	Kevin P Love	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1122	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 2353	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	1/4/10 1415	James L Mertz	1
00224	Chloride	EPA 300.0	1	12/24/09 0141	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0141	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0141	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/31/09 1243	Geraldine C Smith	1
5872302 Trip Blank Water						
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1135	Dustin A Underkoffler	1

Client Name: Tronox LLC

Group Number: 1176455

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	Max RPD
Batch number: 09362WAA026 Sample number(s): 5872295-5872297,5872299-5872301									
Acenaphthene	N.D.	2.0	0.50	ug/l	90		61-102		
Acenaphthylene	N.D.	2.0	1.0	ug/l	84		61-99		
Anthracene	N.D.	0.10	0.020	ug/l	94		69-103		
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	106		74-109		
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	110*		67-107		
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	105		76-110		
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	104		62-117		
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	107		77-108		
Chrysene	N.D.	0.20	0.060	ug/l	107		74-111		
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	103		75-109		
Fluoranthene	N.D.	0.10	0.020	ug/l	100		68-103		
Fluorene	N.D.	0.40	0.10	ug/l	95		67-107		
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	110		81-122		
Naphthalene	N.D.	2.0	1.0	ug/l	79		57-95		
Phenanthrene	N.D.	0.20	0.040	ug/l	98		71-108		
Pyrene	N.D.	0.40	0.10	ug/l	110*		70-108		
Batch number: 093620011A Sample number(s): 5872295-5872297,5872299-5872302									
Methane	N.D.	15.	10	ug/l	102		80-120		
Batch number: 093651848004 Sample number(s): 5872295-5872301									
Iron	N.D.	0.200	0.0522	mg/l	102		90-112		
Batch number: 09357106602A Sample number(s): 5872295-5872299,5872298-5872301									
Chloride	N.D.	0.40	0.20	mg/l	99		90-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	103		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	101		89-110		
Batch number: 09365020201A Sample number(s): 5872295-5872301									

* - Outside of specification

(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.

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

Alkalinity to pH 4.5 N.D. 2.0 0.46 mg/l as Ca 100 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: 09362WAA026 Sample number(s): 5872295-5872297,5872299-5872301 UNSPK: 5872295									
Acenaphthene	86	83	67-99	4	30				
Acenaphthylene	79	77	66-97	3	30				
Anthracene	90	85	74-101	7	30				
Benzo(a)anthracene	103	96	78-106	8	30				
Benzo(a)pyrene	107*	98	77-102	9	30				
Benzo(b)fluoranthene	103	96	79-108	7	30				
Benzo(g,h,i)perylene	105	100	68-116	5	30				
Benzo(k)fluoranthene	106*	98	81-105	8	30				
Chrysene	105	97	78-108	8	30				
Dibenz(a,h)anthracene	104	99	75-104	5	30				
Fluoranthene	95	89	75-96	6	30				
Fluorene	91	87	73-103	4	30				
Indeno(1,2,3-cd)pyrene	111*	104	78-106	7	30				
Naphthalene	74	73	61-94	2	30				
Phenanthrene	94	89	68-115	5	30				
Pyrene	106*	99	73-105	7	30				
Batch number: 093620011A Sample number(s): 5872295-5872297,5872299-5872302 UNSPK: 5872295									
Methane	-767 (2)	-767 (2)	35-157	0	20				
Batch number: 093651848004 Sample number(s): 5872295-5872301 UNSPK: 5872295 BKG: 5872295									
Iron	103 (2)	103 (2)	75-125	0	20	32.2	32.8	2	20
Batch number: 09357196602A Sample number(s): 5872295-5872296,5872298-5872301 UNSPK: 5872295 BKG: 5872295									
Chloride	124*		90-110			4.4	4.4	0 (1)	20
Nitrate Nitrogen	125*		90-110			N.D.	N.D.	0 (1)	20
Sulfate	126*		90-110			N.D.	N.D.	0 (1)	20

* - Outside of specification

(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.

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

Batch number: 09365020201A

Sample number(s): 5872295-5872301 UNSPK: 5872295 BKG: 5872295

Alkalinity to pH 4.5	84	85	64-130	1	2	147	147	0	4
Alkalinity to pH 8.3						N.D.	N.D.	0 (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: PAH's in Water by HPLC

Batch number: 09362WAA026

	Nitrobenzene	Triphenylene
5872295	102	111
5872296	102	114
5872297	99	106
5872299	86	92
5872300	102	105
5872301	99	107
Blank	98	110
LCS	101	119
MS	102	114
MSD	96	106
Limits:	67-111	77-122

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 093620011A

	Propene
5872295	102
5872296	64
5872297	60
5872299	87
5872300	72
5872301	75
5872302	64
Blank	116
LCS	115
MS	64
MSD	60
Limits:	42-131

* - Outside of specification

(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.

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

QC Comment

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.

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

5872295 MX-15 Unspiked Grab Water

00774 PAH's in Water by HPLC

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

The LCS recovery is outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analyte is accepted based on this allowance:
pyrene

5872296 MX-15MS Matrix Spike Grab Water

00774 PAH's in Water by HPLC

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

5872297 MX-15MSD Matrix Spike Dup Grab Water

00774 PAH's in Water by HPLC

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

5872298 MX-15 Duplicate Grab Water

5872299 J06-1R Grab Water

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

The recoveries of pyrene and benzo(a)pyrene were above QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and the recoveries of these compounds were again above QC limits in the LCS/LCSD. Pyrene was not detected in the reanalysis, and benzo(a)pyrene was detected at half the concentration of the initial analysis. The data reported here is from the initial extraction of the sample.

5872300 MW-2R Grab Water

00774 PAH's in Water by HPLC
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 interferences near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

The LCS recovery is outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAP Standards. The following analyte is accepted based on this allowance:
pyrene

5872301 MW-04 Grab Water

5872302 Trip Blank Water

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

January 06, 2010

Project: Gulf States Creosoting/Hattiesburg, MS

Samples arrived at the laboratory on Tuesday, December 22, 2009. The PO# for this group is ZAKWICEOK0A50149. The group number for this submittal is 1176264.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
MW-18 Filtered Grab Water	5871251
MW-19 Filtered Grab Water	5871252
MW-16 Filtered Grab Water	5871253
MW-06 Filtered Grab Water	5871254
MW-08 Filtered Grab Water	5871255
MW-17 Filtered Grab Water	5871256
MW-21 Filtered Grab Water	5871257
MW-9R Filtered Grab Water	5871258
MW-20 Filtered Grab Water	5871259
MW-22 Filtered Grab Water	5871260
MW-14 Filtered Grab Water	5871261
MW-12 Filtered Grab Water	5871262
MW-11 Filtered Grab Water	5871263
DUP-01 Filtered Grab Water	5871264

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Michael Pisani & Associates
COPY TO

Attn: David Upthegrove



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17603-2425 • 717-656-2300 Fax 717-656-2881 • www.lancasterlabs.com

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Tronox LLC
Tronox LLC
Data Package Group

Attn: Sherron Hendricks

Attn: Roy Widmann

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

Respectfully Submitted,

A handwritten signature in cursive script that reads 'Max E. Snaveley'.

Max E. Snaveley
Senior Specialist

Sample Description: MW-18 Filtered Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871251
 LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 08:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/06/2010 at 12:26

PO Box 268859

Discard: 03/08/2010

Oklahoma City OK 73126-8859

HAF18 SDG#: HMS69-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	N.D.	0.300	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:15	John P Hock	1
01848	WW SNE46 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1



Analysis Report

2425 New Holland Pk, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2881 • www.lancasterlabs.com

Sample Description: MW-19 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871252
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 09:45 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Trenox LLC
PO Box 268859
Oklahoma City OK 73126-8859

MAF19 SDG#: HMS69-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	5.56	0.200	0.0322	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:37	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Wertz	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-16 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871253
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 11:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF16 SDG#: HMS69-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	N.D.	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:40	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-06 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871254
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 13:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF06 SDG#: HMS69-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	25.7	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:51	John P Hook	1
01848	MW 5871254 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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



Analysis Report

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Sample Description: MW-08 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871255
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 14:35 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF08 SDG#: HMS69-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	N.D.	0.200	0.0322	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:54	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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



Analysis Report

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Page 1 of 1

Sample Description: MW-17 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5871256
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 15:30 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF17 SDG#: HMS69-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	1.88	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 19:58	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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



Analysis Report

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Sample Description: MW-21 Filtered Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5871257
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 16:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronex LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF21 SDG#: HMS69-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	0.0972 J	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:02	John P Hook	1
01848	WN SW846 ICP Digest (total)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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

Sample Description: MW-9R Filtered Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871258
 LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 08:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/06/2010 at 12:26
 Discard: 03/08/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF9R SDG#: HMS69-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	19.8	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:05	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 1005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

Sample Description: MW-20 Filtered Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871259
 LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 09:10 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/06/2010 at 12:26
 Discard: 03/08/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF20 SDG#: HMS69-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010B 7439-89-6	mg/l N.D.	mg/l 0.200	mg/l 0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:09	John P Hook	1
01848	WW SWE46 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Wertz	1

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

Sample Description: MW-22 Filtered Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871260
 LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 10:30 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/06/2010 at 12:26
 Discard: 03/08/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF22 SDG#: HMS69-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010B 7439-89-6	mg/l N.D.	mg/l 0.200	mg/l 0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:12	John P Hook	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Hertz	1

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

Sample Description: MW-14 Filtered Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5871261
LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 12:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF14 SDG#: HMS69-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010B 7439-89-6	mg/l 1.04	mg/l 0.200	mg/l 0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:16	John P Hook	1
01846	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:25	James L Hertz	1

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

Sample Description: MW-12 Filtered Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871262
 LLI Group # 1176264
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 13:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/06/2010 at 12:26
 Discard: 03/08/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAF12 SDG#: HMS69-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	0.772	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:20	John P Hook	1
01848	KW SW646 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Hertz	1



Analysis Report

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Sample Description: MW-11 Filtered Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871263
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 15:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/09/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAF11 SDG#: HMS69-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
	Metals Dissolved	SW-846 6010B	mg/l	mg/l	mg/l	1
01754	Iron	7439-89-6	N.D.	0.200	0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:23	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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



Analysis Report

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Page 1 of 1

Sample Description: DUP-01 Filtered Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871264
LLI Group # 1176264
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
Reported: 01/06/2010 at 12:26
Discard: 03/08/2010

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

HAFFD SDG#: HMS69-14FD*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010B 7439-89-6	mg/l 1.01	mg/l 0.200	mg/l 0.0522	1

General Sample Comments

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 Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	093651848006	01/04/2010 20:34	John P Hook	1
01848	WN SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848006	12/31/2009 14:15	James L Mertz	1

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

Quality Control Summary

 Client Name: Tronox LLC
 Reported: 01/06/10 at 12:26 PM

Group Number: 1176264

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

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ**</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 093651848006 Iron					105		90-112		
	Sample number(s): 5871251-5871264								
	N.D.	0.200	0.0522	mg/l					

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 093651848006 Iron									
	Sample number(s): 5871251-5871264 UNSPK: 5871251 BKG: 5871251								
	111	95	75-125	12	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.



Acct # 11947

Group # 117 lead Sample # 5871251-64

COC # 229355

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

<p>1 Client: <u>Michael Pisani & Assoc</u> Acct. #:</p> <p>Project Name: <u>Ball State Cree.</u> PWSID #:</p> <p>Project Manager: <u>Dave O'Hegrove</u> P.O.#:</p> <p>Sampler: <u>Dave Black</u> Quote #:</p> <p>Name of site where samples were collected: <u>MS</u></p>		<p>2 Sample Identification:</p> <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Date Collected</th> <th>Time Collected</th> </tr> </thead> <tbody> <tr> <td>MW-9R</td> <td>12/17/09</td> <td>0815</td> </tr> <tr> <td>MW-20</td> <td></td> <td>0910</td> </tr> <tr> <td>MW-22</td> <td></td> <td>1030</td> </tr> <tr> <td>MW-14</td> <td></td> <td>1200</td> </tr> <tr> <td>MW-12</td> <td></td> <td>1350</td> </tr> <tr> <td>MW-11</td> <td></td> <td>1500</td> </tr> <tr> <td>MUP-01</td> <td></td> <td>0000</td> </tr> <tr> <td>TRIP BLANK</td> <td></td> <td></td> </tr> </tbody> </table>		Sample ID	Date Collected	Time Collected	MW-9R	12/17/09	0815	MW-20		0910	MW-22		1030	MW-14		1200	MW-12		1350	MW-11		1500	MUP-01		0000	TRIP BLANK		
Sample ID	Date Collected	Time Collected																												
MW-9R	12/17/09	0815																												
MW-20		0910																												
MW-22		1030																												
MW-14		1200																												
MW-12		1350																												
MW-11		1500																												
MUP-01		0000																												
TRIP BLANK																														
<p>3 Matrix</p> <table border="1"> <thead> <tr> <th>Matrix</th> <th>Cap</th> <th>Composite</th> </tr> </thead> <tbody> <tr> <td>Soil</td> <td>X</td> <td></td> </tr> <tr> <td>Water</td> <td>X</td> <td></td> </tr> <tr> <td>Other</td> <td>X</td> <td></td> </tr> </tbody> </table>		Matrix	Cap	Composite	Soil	X		Water	X		Other	X		<p>4 Total # of Containers</p> <table border="1"> <thead> <tr> <th>Matrix</th> <th>Total # of Containers</th> </tr> </thead> <tbody> <tr> <td>Soil</td> <td>6</td> </tr> <tr> <td>Water</td> <td>6</td> </tr> <tr> <td>Other</td> <td>6</td> </tr> </tbody> </table>		Matrix	Total # of Containers	Soil	6	Water	6	Other	6							
Matrix	Cap	Composite																												
Soil	X																													
Water	X																													
Other	X																													
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Soil	6																													
Water	6																													
Other	6																													
<p>5 Analyses Requested</p> <table border="1"> <thead> <tr> <th>Analysis</th> <th>Requested</th> </tr> </thead> <tbody> <tr> <td>CL, SC, NO₃</td> <td>X</td> </tr> <tr> <td>PH₂O</td> <td>X</td> </tr> <tr> <td>ALK</td> <td>X</td> </tr> <tr> <td>TOTAL Fe</td> <td>X</td> </tr> <tr> <td>Diss Fe</td> <td>X</td> </tr> </tbody> </table>		Analysis	Requested	CL, SC, NO ₃	X	PH ₂ O	X	ALK	X	TOTAL Fe	X	Diss Fe	X	<p>6 Preservation Codes</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Requested</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>X</td> </tr> <tr> <td>M</td> <td>X</td> </tr> <tr> <td>N</td> <td>X</td> </tr> </tbody> </table>		Code	Requested	N	X	M	X	N	X							
Analysis	Requested																													
CL, SC, NO ₃	X																													
PH ₂ O	X																													
ALK	X																													
TOTAL Fe	X																													
Diss Fe	X																													
Code	Requested																													
N	X																													
M	X																													
N	X																													
<p>7 Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush</p> <p>(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)</p> <p>Date results are needed: _____</p> <p>Rush results requested by (please circle): Phone Fax E-mail</p> <p>Phone #: _____ Fax #: _____</p> <p>E-mail address: _____</p>		<p>8 Data Package Options (please circle if required)</p> <table border="1"> <tr> <td>Type I (Validation NJ Reg)</td> <td>TX TRRP-13</td> <td>SDG Complete?</td> <td>Yes No</td> </tr> <tr> <td>Type II (Tier II)</td> <td>MA MGP</td> <td>GLICP</td> <td></td> </tr> <tr> <td>Type III (Reduced NJ)</td> <td>Site-specific: OC (MS/MSD/DP)</td> <td>Yes No</td> <td></td> </tr> <tr> <td>Type IV (CLP SDW)</td> <td>Internal COC Required?</td> <td>Yes/No</td> <td></td> </tr> <tr> <td>Type VI (Raw Data Only)</td> <td></td> <td></td> <td></td> </tr> </table>		Type I (Validation NJ Reg)	TX TRRP-13	SDG Complete?	Yes No	Type II (Tier II)	MA MGP	GLICP		Type III (Reduced NJ)	Site-specific: OC (MS/MSD/DP)	Yes No		Type IV (CLP SDW)	Internal COC Required?	Yes/No		Type VI (Raw Data Only)										
Type I (Validation NJ Reg)	TX TRRP-13	SDG Complete?	Yes No																											
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Type III (Reduced NJ)	Site-specific: OC (MS/MSD/DP)	Yes No																												
Type IV (CLP SDW)	Internal COC Required?	Yes/No																												
Type VI (Raw Data Only)																														
<p>9 Relinquished by: <u>[Signature]</u> Date: <u>12/24/1830</u> Time: _____</p> <p>Relinquished by: _____ Date: _____ Time: _____</p> <p>Relinquished by: _____ Date: _____ Time: _____</p> <p>Relinquished by: _____ Date: _____ Time: _____</p> <p>Relinquished by: _____ Date: _____ Time: _____</p> <p>Relinquished by: <u>[Signature]</u> Date: <u>12/20/10</u> Time: _____</p>		<p>Remarks</p> <p><u>* Diss. Fe</u></p> <p><u>MS BEEN</u></p> <p><u>Filtered</u></p>																												

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 658-2300 Fax: (717) 658-6705

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



Environmental Sample Administration Receipt Documentation Log

Client/Project: MP&A
 Date of Receipt: 12/22/09
 Time of Receipt: 1015
 Source Code: 501
 Unpacker Emp. No.: 2311

Shipping Container Sealed: YES NO
 Custody Seal Present * : YES NO
 * Custody seal was intact unless otherwise noted in the discrepancy section
 Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	03106 0310C	4.0-4.6°C	ST	WI	Y	L+B	
2	012966S	0.5°C	TB			B	
3	↓	0.5°C	↓			B	
4	03106	3.8°C-4.8°C	ST			L+B	
5	012966S	1.2°C	TB			L+B	
6	012966S	4.2°C	TB	↓	↓	B	

Number of Trip Blanks received NOT listed on chain of custody: _____

Paperwork Discrepancy/Unpacking Problems:

- NO PW.
- Received 2 Trip Blanks.
- Received 3 broken vials: MW-06 @ 1315 on 12/16/09 (NO₃) x1, MW-18 @ 0850 on 12/16/09 (NO₃) x1, and MW-19 @ 0945 on 12/16/09 (NO₃) x1 due to freezing. ^(S) paperwork failed
- Received 1 MW-08 @ 1435 on 12/22/09 with a cracked lid. ^(S) over. MRE 12/22/09

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
Mary Beth Reed	12/22/09	1225	Unpacking / Storage
Mary Beth Reed	12/22/09	1330	Place in Storage or <input checked="" type="checkbox"/> Entry
		(S) MRE 12/22/09	Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers
A TIC is a possible aldol-condensation product	B Value is <CRDL, but ≥IDL
B Analyte was also detected in the blank	E Estimated due to interference
C Pesticide result confirmed by GC/MS	M Duplicate injection precision not met
D Compound quantitated on a diluted sample	N Spike amount not within control limits
E Concentration exceeds the calibration range of the instrument	S Method of standard additions (MSA) used for calculation
J Estimated value	U Compound was not detected
N Presumptive evidence of a compound (TICs only)	W Post digestion spike out of control limits
P Concentration difference between primary and confirmation columns >25%	* Duplicate analysis not within control limits
U Compound was not detected	+ Correlation coefficient for MSA <0.995
X,Y,Z Defined in case narrative	

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

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

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ANALYTICAL RESULTS

Prepared for:

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859
 405-775-5429

Prepared by:

Lancaster Laboratories
 2425 New Holland Pike
 Lancaster, PA 17605-2425
 January 06, 2010

SAMPLE GROUP

The sample group for this submittal is 1176264. Samples arrived at the laboratory on Tuesday, Dec 22 2009.
 The project for this group is Gulf States Creosoting/Hattiesburg, MS.
 The PO# for this sample group is ZAKW1CEOK0A50149.

<u>Sample No.</u>	<u>Collected</u>	<u>Client Description</u>
5871251	12/16/2009 8:50	MW-18 Filtered Grab Water COC # 229356
5871252	12/16/2009 9:45	Gulf States Creosoting/Hattiesburg, MS MW-19 Filtered Grab Water COC # 229356
5871253	12/16/2009 11:00	Gulf States Creosoting/Hattiesburg, MS MW-16 Filtered Grab Water COC # 229356
5871254	12/16/2009 13:15	Gulf States Creosoting/Hattiesburg, MS MW-06 Filtered Grab Water COC # 229356
5871255	12/16/2009 14:35	Gulf States Creosoting/Hattiesburg, MS MW-08 Filtered Grab Water COC # 229356
5871256	12/16/2009 15:30	Gulf States Creosoting/Hattiesburg, MS MW-17 Filtered Grab Water COC # 229356
5871257	12/16/2009 16:50	Gulf States Creosoting/Hattiesburg, MS MW-21 Filtered Grab Water COC # 229356
5871258	12/17/2009 8:15	Gulf States Creosoting/Hattiesburg, MS MW-09 Filtered Grab Water COC # 229355
5871259	12/17/2009 9:10	Gulf States Creosoting/Hattiesburg, MS MW-20 Filtered Grab Water COC # 229355
		Gulf States Creosoting/Hattiesburg, MS

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859
405-775-5429

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425
January 09, 2010

5871260	12/17/2009 10:30	MW-22 Filtered Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871261	12/17/2009 12:00	MW-14 Filtered Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871262	12/17/2009 13:50	MW-12 Filtered Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871263	12/17/2009 15:00	MW-11 Filtered Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871264	12/17/2009	DUP-01 Filtered Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS


METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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

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

Respectfully Submitted,



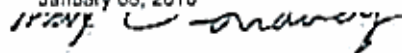
ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859
405-775-5429

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425
January 08, 2010



Max E. Snavelly
Senior Specialist

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS60

Report Date: 1/8/2010 12:26
 Submit Date: 12/22/2009 10:15

Analysis Name	Units	5871251 MW-18 Filtered	Result	LOQ**	MDL	5871252 MW-19 Filtered	Result	LOQ**	MDL
Iron	mg/l		N.D.	0.200	0.0522		5.56	0.200	0.0522
Analysis Name	Units	5871253 MW-16 Filtered	Result	LOQ**	MDL	5871254 MW-06 Filtered	Result	LOQ**	MDL
Iron	mg/l		N.D.	0.200	0.0522		25.7	0.200	0.0522
Analysis Name	Units	5871255 MW-08 Filtered	Result	LOQ**	MDL	5871256 MW-17 Filtered	Result	LOQ**	MDL
Iron	mg/l		N.D.	0.200	0.0522		1.88	0.200	0.0522
Analysis Name	Units	5871257 MW-21 Filtered	Result	LOQ**	MDL	5871258 MW-0R Filtered	Result	LOQ**	MDL
Iron	mg/l		0.0972 J	0.200	0.0522		19.8	0.200	0.0522
Analysis Name	Units	5871259 MW-20 Filtered	Result	LOQ**	MDL	5871260 MW-22 Filtered	Result	LOQ**	MDL
Iron	mg/l		N.D.	0.200	0.0522		N.D.	0.200	0.0522
Analysis Name	Units	5871261 MW-14 Filtered	Result	LOQ**	MDL	5871262 MW-12 Filtered	Result	LOQ**	MDL
Iron	mg/l		1.04	0.200	0.0522		0.772	0.200	0.0522
Analysis Name	Units	5871263 MW-11 Filtered	Result	LOQ**	MDL	5871264 DUP-01 Filtered	Result	LOQ**	MDL
Iron	mg/l		N.D.	0.200	0.0522		1.01	0.200	0.0522

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

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
5871251 MW-18 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1915	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871252 MW-19 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1937	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871253 MW-16 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1940	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871254 MW-06 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1951	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871255 MW-08 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1954	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871256 MW-17 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 1958	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871257 MW-21 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2002	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871258 MW-9R Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2005	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871259 MW-20 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2009	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871260 MW-22 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2012	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871261 MW-14 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2016	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871262 MW-12 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2020	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
5871263 MW-11 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2023	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1
5871264 DUP-01 Filtered Grab Water						
01754	Iron	SW-846 6010B	1	1/4/10 2034	John P Hook	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1415	James L Mertz	1

Client Name: Tronox LLC

Group Number: 1176264

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	Max RPD
---------------	--------------	-------------	-----------	--------------	----------	-----------	-----------------	-----	---------

Batch number: 093651848006

Sample number(s): 5871251-5871264

Iron	N.D.	0.200	0.0522	mg/l	105		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: 093651848006

Sample number(s): 5871251-5871264 UNSPK: 5871251 BKG: 5871251

Iron	111	98	75-125	12	20	N.D.	N.D.	0 (1)	20
------	-----	----	--------	----	----	------	------	-------	----

* - Outside of specification

(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.

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

QC Comment

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.

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

5871251 MW-18 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871252 MW-19 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871253 MW-16 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871254 MW-06 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871255 MW-08 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871256 MW-17 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871257 MW-21 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871258 MW-9R Filtered Grab Water

This sample was field filtered for dissolved metals.

5871259 MW-20 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871260 MW-22 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871261 MW-14 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871262 MW-12 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871263 MW-11 Filtered Grab Water

This sample was field filtered for dissolved metals.

5871264 DUP-01 Filtered Grab Water

This sample was field filtered for dissolved metals.

ANALYTICAL RESULTS

Prepared for:

Tronox LLC
PO Box 268859
Oklahoma City OK 73126-8859

405-775-5429

Prepared by:

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

January 12, 2010

Project: Gulf States Creosoting/Hattiesburg, MS

Samples arrived at the laboratory on Tuesday, December 22, 2009. The PO# for this group is ZAKWICEOK0A50149. The group number for this submittal is 1176263.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
MW-18 Grab Water	5871236
MW-19 Grab Water	5871237
MW-16 Grab Water	5871238
MW-06 Grab Water	5871239
MW-08 Grab Water	5871240
MW-17 Grab Water	5871241
MW-21 Grab Water	5871242
MW-9R Grab Water	5871243
MW-20 Grab Water	5871244
MW-22 Grab Water	5871245
MW-14 Grab Water	5871246
MW-12 Grab Water	5871247
MW-11 Grab Water	5871248
DUP-01 Grab Water	5871249
Trip Blank Water	5871250

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Michael Pisani & Associates

Attn: David Upthegrove



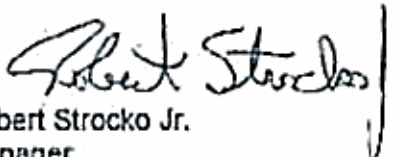
Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-0981 • www.lancasterlabs.com

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

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

Respectfully Submitted,


Robert Strocko Jr.
Manager

Sample Description: MW-18 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871236
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 08:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT18 SDG#: HMS68-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	1.7 J	2.2	0.55	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	0.046 J	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0088	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.066	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.033	0.0088	1
00774	Chrysene	218-01-9	N.D.	0.22	0.066	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	0.25	0.11	0.022	1
00774	Fluorene	86-73-7	4.4	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	0.93	0.22	0.044	1
00774	Pyrene	129-00-0	N.D.	0.44	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	15	5.0	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	0.144 J	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	19.4	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	1.4	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	7.1	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	12.9	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-18 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # **WW 5871236**
 LLI Group # **1176263**
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 08:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT18 SDG#: HMS68-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/05/2010	21:04	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009	10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620010A	12/29/2009	15:01	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010	01:48	Tara L Snyder	1
01648	NW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009	10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357186601A	12/24/2009	05:02	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357186601A	12/24/2009	05:02	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357186601A	12/24/2009	05:02	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1

Sample Description: MW-19 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871237
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 09:45 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT19 SDG#: HMS68-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	19	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	0.65	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0086	1
00774	Chrysene	218-01-9	N.D.	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	0.63	0.11	0.022	1
00774	Fluorene	86-73-7	7.6	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.043	1
00774	Naphthalene	91-20-3	11	2.2	1.1	1
00774	Phenanthrene	85-01-8	4.7	0.22	0.043	1
00774	Pyrene	129-00-0	0.59	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	390	30	10	2
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	7.01	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	12.7	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	2.1 J	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	101	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-19 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WN 5871237
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 09:45 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT19 SDG#: HMS68-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05774	PAH's in Water by HPLC	SW-846 8310	1	C9356WAZ026	01/05/2010 21:43	Mark A Clark	1
01337	PAH Water Extraction	SW-846 3510C	1	C9356WAZ026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	C93620010A	12/30/2009 07:23	Dustin A Underkoffler	2
01754	Iron	SW-846 6010B	1	C93641848005	01/05/2010 01:51	Tara L Snyder	1
01848	MS SW846 ICP Digest (tot rec)	SW-846 3005A	1	C93641848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	C9357196601A	12/24/2009 05:17	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	C9357196601A	12/24/2009 05:17	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	C9357196601A	12/24/2009 05:17	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	C9362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	C9362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-16 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871238
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 11:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronex LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT16 SDG#: HMS68-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	0.56	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.045	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.045	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.034	0.0069	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.067	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.034	0.0069	1
00774	Chrysene	218-01-9	N.D.	0.22	0.067	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.45	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.045	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-51-8	N.D.	0.22	0.045	1
00774	Pyrene	129-00-0	N.D.	0.45	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSO extract. A dilution was performed on the LCSO to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	N.D.	15	5.0	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	1.95	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	4.6	2.0	1.0	5
00368	Nitrate Nitrogen	14787-55-8	1.3	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	5.9	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	5.3	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-16 Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871238
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 11:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT16 SDG#: HMS68-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
00774	PAH's in Water by HPLC	SW-846 8310	1	09356MAIC26	01/05/2010	22:21	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356MAIC26	12/23/2009	10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	09362001CA	12/29/2009	15:55	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010	01:54	Tara L Snyder	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009	10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601A	12/24/2009	05:32	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601A	12/24/2009	05:32	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601A	12/24/2009	05:32	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1

Sample Description: MW-06 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871239
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 13:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT-6 SDG#: HMS68-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	89	2.2	0.55	1
00774	Acenaphthylene	208-96-8	N.D.	73	73	1
00774	Anthracene	120-12-7	4.7	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0088	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.066	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.033	0.0088	1
00774	Chrysene	218-01-9	N.D.	0.22	0.066	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	2.1	0.11	0.022	1
00774	Fluorene	86-73-7	80	8.8	2.2	20
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	3,600	44	22	20
00774	Phenanthrene	85-01-6	63	4.4	0.88	20
00774	Pyrene	129-00-0	0.76	0.44	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSB extract. A dilution was performed on the LCSB to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	1,100	75	25	5
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	26.2	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	7.0	2.0	1.0	5
00368	Nitrate Nitrogen	14797-85-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	2.1 J	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	92.5	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

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

Sample Description: MW-06 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871239
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 13:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT-6 SDG#: HMS68-04

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
00774	PAH's in Water by HPLC	SM-846 8310	1	09356WAI026	01/05/2010	23:00	Mark A Clark	1
00774	PAH's in Water by HPLC	SM-846 8310	1	09356WAI026	01/08/2010	09:31	Mark A Clark	20
03337	PAH Water Extraction	SM-846 3510C	1	09356WAI026	12/23/2009	10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SM-846 8015B modified	1	093620010A	12/30/2009	07:37	Dustin A Underkoffler	5
01754	Iron	SM-846 6010B	1	093642848005	01/05/2010	01:57	Tara L Snyder	1
01848	MW SW846 ICP Digest (tot rec)	SM-846 3005A	1	093642848005	12/31/2009	10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601A	12/24/2009	05:48	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601A	12/24/2009	05:48	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601A	12/24/2009	05:48	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1

Sample Description: MW-08 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871240
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 14:35 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT-8 SDG#: HMS68-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8310						
00774	Acenaphthene	83-32-9	N.D.	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0086	1
00774	Chrysene	218-01-9	N.D.	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-19-5	N.D.	0.22	0.043	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.22	0.043	1
00774	Pyrene	129-00-0	N.D.	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSO extract. A dilution was performed on the LCSO to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous SW-846 8015B modified						
07105	Methane	74-82-8	N.D.	15	5.0	1
Metals SW-846 6010B						
01754	Iron	7439-89-6	0.330	0.200	0.0522	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	16.1	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	2.4	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	3.7 J	5.0	1.5	5
SM20 2320 B						
00202	Alkalinity to pH 4.5	n.a.	2.4	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-08 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871240
LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 14:35 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT-8 SDG#: HMS68-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356MAIC26	01/05/2010 23:39	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356MAIC26	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8013B modified	1	09362001CA	12/29/2009 16:36	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 01:39	Tara L Snyder	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 06:03	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 06:03	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 06:03	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-17 Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871241
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 15:30 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Troxox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT17 SDG#: HMS68-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	1.6 J	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	0.016 J	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.019 J	0.032	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	0.10 J	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.043	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.22	0.043	1
00774	Pyrene	129-00-0	N.D.	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSG extract. A dilution was performed on the LCSG to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	150	15	5.0	1
Metals	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	6.41	0.200	0.0522	1
Wet Chemistry	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	6.6	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00226	Sulfate	14808-79-8	20.4	5.0	1.5	5
	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	50.3	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-17 Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871241
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 15:30 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT17 SDG#: HMS68-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/06/2010 00:18	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 80193 modified	1	093620010A	12/29/2009 16:49	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 02:02	Tara L Snyder	1
01848	NW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 06:50	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 06:50	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 06:50	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-21 Grab Water
 COC # 229356
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871242
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 16:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT21 SDG#: HMS68-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.1	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	2.1	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.042	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.21	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.021	1
00774	Fluorene	86-73-7	N.D.	0.42	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.042	1
00774	Naphthalene	91-20-3	N.D.	2.1	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.21	0.042	1
00774	Pyrene	129-00-0	N.D.	0.42	0.11	1

Due to an extraction error, methylene chloride was present in the LCSD extract.
 A dilution was performed on the LCSD to remove the interfering solvent and
 improve chromatography. The QC summary reflects this dilution factor. No
 further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	N.D.	15	5.0	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	N.D.	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	12.6	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	1.0	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-6	2.4 J	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	3.6	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-21 Grab Water
COC # 229356
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871242
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009 16:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT21 SDG#: HMS68-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 6310	1	09356MAI026	01/06/2010 09:23	Mark A Clark	1
03337	PAM Water Extraction	SW-846 3510C	1	09356MAI026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	09362001CA	12/29/2009 17:03	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 02:05	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Denise X Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 07:05	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 07:05	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 07:05	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-9R Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871243
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 08:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT9R SDG#: HMS66-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	73	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	9.0	9.0	1
00774	Anthracene	120-12-7	2.4	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	0.057	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-6	0.043 J	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	0.042	0.033	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	0.068 J	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	0.054	0.033	0.0087	1
00774	Chrysene	218-01-9	0.079 J	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	0.065 J	0.11	0.022	1
00774	Fluoranthene	206-44-0	2.7	0.11	0.022	1
00774	Fluorene	86-73-7	64	2.2	0.54	5
00774	Indeno(1,2,3-cd)pyrene	193-39-5	0.068 J	0.22	0.043	1
00774	Naphthalene	91-20-3	190	2.2	1.1	1
00774	Phenanthrene	85-01-8	10	0.22	0.043	1
00774	Pyrene	129-00-0	1.5	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	2,600	1,500	1,000	100
Metals	SW-846 6010B	ug/l	ug/l	ug/l		
01754	Iron	7439-89-6	19.1	0.200	0.0522	1
Wet Chemistry	EPA 300.0	ug/l	ug/l	ug/l		
00224	Chloride	16887-00-6	15.7	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	3.7 J	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	90.7	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

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

Sample Description: MW-9R Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871243
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 08:15 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT9R SDG#: HMS68-08

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/08/2010	23:05	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/09/2010	21:12	Mark A Clark	5
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009	10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009	12:00	Dustin A Underkoffler	100
01754	Iron	SW-846 8010B	1	093641848005	01/05/2010	02:08	Tara L Snyder	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009	10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009	07:51	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009	07:51	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009	07:51	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1

Sample Description: MW-20 Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871244
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 09:10 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT20 SDG#: HMS68-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	0.55	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.066	1
00774	Benzo(k)fluoranthene	207-06-9	N.D.	0.033	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.22	0.066	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.22	0.044	1
00774	Pyrene	129-00-0	N.D.	0.44	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	15	10	1
Metals	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	0.0863 J	0.200	0.0522	1
Wet Chemistry	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	10.3	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	0.29 J	0.50	0.25	3
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	Sulfate	14808-79-8	3.2 J	5.0	1.5	5
	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	10.5	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-20 Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871244
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 09:10 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT20 SDG#: HMS68-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/08/2010 23:44	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 06:52	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 02:11	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 08:07	Ashley M Adams	5
00365	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 08:07	Ashley M Adams	5
00225	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 08:07	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/26/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/26/2009 13:05	Geraldine C Smith	1

Sample Description: MW-22 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WH 5871245
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 10:30 by BB Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT22 SDG#: HMS68-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.1	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	2.1	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0085	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.064	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0085	1
00774	Chrysene	218-01-9	N.D.	0.21	0.064	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.021	1
00774	Fluorene	86-73-7	N.D.	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.21	0.043	1
00774	Naphthalene	91-20-3	N.D.	2.1	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.21	0.043	1
00774	Pyrene	129-00-0	N.D.	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSO extract. A dilution was performed on the LCSO to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified		ug/l	ug/l	ug/l	
07105	Methane	74-82-8	15	15	10	1
Metals	SW-846 6010B		mg/l	mg/l	mg/l	
01754	Iron	7439-89-6	2.49	0.200	0.0522	1
Wet Chemistry	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	12.4	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	0.43 U	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	5.1	5.0	1.5	5
	SM20 2320 B		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	24.5	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-22 Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871245
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 10:30 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT22 SDG#: HMS66-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAIC26	01/09/2010 00:23	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAIC26	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 09:04	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093642848005	01/05/2010 02:14	Tara L Snyder	1
01848	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093642848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 08:22	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 08:22	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 08:22	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-14 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871246
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 12:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT14 SDG#: HMS68-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	0.55	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.033	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.022	1
00774	Fluorene	86-73-7	N.D.	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	0.056 J	0.22	0.044	1
00774	Pyrene	129-00-0	N.D.	0.44	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	98	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	1.37	0.200	0.2522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	5.2	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	27.5	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	11.1	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-14 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # MW 5871246
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 12:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Trenox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT14 SDG#: HMS68-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356NAIC26	01/09/2010 01:02	Mark A Clark	1
03337	PAN Water Extraction	SW-846 3510C	1	09356NAIC26	12/23/2009 10:20	Cynthia J Salvatori	1
07103	Volatile Headspace Hydrocarbon	SW-846 80153 modified	1	093620011A	12/29/2009 09:17	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641646005	01/05/2010 02:23	Tara L Snyder	1
01646	MW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641646005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 08:38	Ashley M Adams	5
00366	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 08:38	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 08:38	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-12 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # KW 5871247
LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 13:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HAT12 SDG#: HMS68-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	3.3	2.2	0.55	1
00774	Acenaphthylene	208-96-8	N.D.	2.7	2.7	1
00774	Anthracene	120-12-7	0.085 J	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.044	0.011	1
00774	Benzo(a)pyrene	50-32-6	N.D.	0.044	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.033	0.0087	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.066	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.033	0.0087	1
00774	Chrysene	218-01-9	N.D.	0.22	0.066	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	0.026 J	0.11	0.022	1
00774	Fluorene	86-73-7	1.7	0.44	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.044	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	0.17 J	0.22	0.044	1
00774	Pyrene	129-00-0	0.16 J	0.44	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	180	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	0.723	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	4.0	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14802-79-8	N.D.	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	58.8	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

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

Sample Description: MW-12 Grab Water
COC # 229355
Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871247
LLI Group # 1176263
MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 13:50 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT12 SDG#: HMS68-12

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/09/2010 01:41	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 09:30	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 02:26	Tara L Snyder	1
01848	NW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 08:53	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 08:53	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 08:53	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: MW-11 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871248
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 15:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HA-11 SDG#: HMS68-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.1	0.53	1
00774	Acenaphthylene	208-96-8	N.D.	2.1	1.1	1
00774	Anthracene	120-12-7	N.D.	0.11	0.021	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.042	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.042	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0084	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.21	0.063	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0084	1
00774	Chrysene	218-01-9	N.D.	0.21	0.063	1
00774	Dibenz(a,h)anthracene	33-70-3	N.D.	0.11	0.021	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.021	1
00774	Fluorene	86-73-7	N.D.	0.42	0.11	1
00774	Indeno(1,2,3-cd)pyrene	153-39-5	N.D.	0.21	0.042	1
00774	Naphthalene	91-20-3	N.D.	2.1	1.1	1
00774	Phenanthrene	85-01-8	N.D.	0.21	0.042	1
00774	Pyrene	129-00-0	N.D.	0.42	0.11	1

Due to an extraction error, methylene chloride was present in the LCSD extract.
 A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The GC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	36	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	N.D.	0.200	0.0523	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	5.9	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.30	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	23.5	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	2.4	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: MW-11 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871248
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 15:00 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15
 Reported: 01/12/2010 at 14:34
 Discard: 03/14/2010

Trenox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859

HA-11 SDG#: HMS68-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/09/2010 02:19	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009 10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009 09:42	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010 02:29	Tara L Snyder	1
01848	WV SW846 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009 10:10	Dentee K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009 09:09	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009 09:09	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009 09:09	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009 13:05	Geraldine C Smith	1

Sample Description: DUP-01 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871249
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HATFD SDG#: HKS68-14FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS	Semivolatiles	SW-846 8310	ug/l	ug/l	ug/l	
00774	Acenaphthene	83-32-9	N.D.	2.2	0.54	1
00774	Acenaphthylene	208-96-8	N.D.	2.2	1.2	1
00774	Anthracene	120-12-7	N.D.	0.11	0.022	1
00774	Benzo(a)anthracene	56-55-3	N.D.	0.043	0.011	1
00774	Benzo(a)pyrene	50-32-8	N.D.	0.043	0.011	1
00774	Benzo(b)fluoranthene	205-99-2	N.D.	0.032	0.0086	1
00774	Benzo(g,h,i)perylene	191-24-2	N.D.	0.22	0.065	1
00774	Benzo(k)fluoranthene	207-08-9	N.D.	0.032	0.0086	1
00774	Chrysene	218-01-9	N.D.	0.22	0.065	1
00774	Dibenz(a,h)anthracene	53-70-3	N.D.	0.11	0.022	1
00774	Fluoranthene	206-44-0	N.D.	0.11	0.022	1
00774	Fluorene	86-73-7	0.11 J	0.43	0.11	1
00774	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.22	0.043	1
00774	Naphthalene	91-20-3	N.D.	2.2	1.1	1
00774	Phenanthrene	85-01-8	0.050 J	0.22	0.043	1
00774	Pyrene	129-00-0	N.D.	0.43	0.11	1

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

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

GC Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l		
07105	Methane	74-82-8	100	15	10	1
Metals	SW-846 6010B	mg/l	mg/l	mg/l		
01754	Iron	7439-89-6	1.45	0.200	0.0522	1
Wet Chemistry	EPA 300.0	mg/l	mg/l	mg/l		
00224	Chloride	16887-00-6	5.1	2.0	1.0	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	5
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.						
00228	Sulfate	14808-79-8	23.5	5.0	1.5	5
	SM20 2320 B	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3		
00202	Alkalinity to pH 4.5	n.a.	11.7	2.0	0.46	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	1

General Sample Comments

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

Sample Description: DUP-01 Grab Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # NW 5871249
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/17/2009 by BB

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

NATFD SDG#: HMS68-14FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution Factor
					Date	Time		
00774	PAH's in Water by HPLC	SW-846 8310	1	09356WAI026	01/09/2010	02:58	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	09356WAI026	12/23/2009	10:20	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620011A	12/29/2009	09:54	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	093641848005	01/05/2010	02:32	Tara L Snyder	1
01646	WW SW646 ICP Digest (tot rec)	SW-846 3005A	1	093641848005	12/31/2009	10:10	Denise K Connors	1
00224	Chloride	EPA 300.0	1	09357196601B	12/24/2009	09:24	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	09357196601B	12/24/2009	09:24	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09357196601B	12/24/2009	09:24	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09362020201A	12/28/2009	13:05	Geraldine C Smith	1

Sample Description: Trip Blank Water
 COC # 229355
 Gulf States Creosoting/Hattiesburg, MS

LLI Sample # WW 5871250
 LLI Group # 1176263
 MS

Project Name: Gulf States Creosoting/Hattiesburg, MS

Collected: 12/16/2009

Account Number: 11947

Submitted: 12/22/2009 10:15

Tronox LLC

Reported: 01/12/2010 at 14:34

PO Box 268859

Discard: 03/14/2010

Oklahoma City OK 73126-8859

HAT-T SDG#: HMS66-15TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC	Miscellaneous	SW-846 8015B modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	15	5.0	1

General Sample Comments

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	093620010A	12/29/2009 17:17	Dustin A Underkoffler	1

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

Quality Control Summary

 Client Name: Troncx LLC
 Reported: 01/12/10 at 02:34 PM

Group Number: 1176263

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: 09356NAI026	Sample number(s): 5871236-5871249								
Acenaphthene	N.D.	2.0	0.50	ug/l	76	88	61-102	15	30
Acenaphthylene	N.D.	2.0	1.0	ug/l	72	86	61-99	18	30
Anthracene	N.D.	0.10	0.020	ug/l	82	88	69-103	8	30
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	91	96	74-109	6	30
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	97	94	67-107	3	30
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	93	100	76-110	7	30
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	99	100	62-117	1	30
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	96	100	77-109	4	30
Chrysene	N.D.	0.20	0.060	ug/l	93	97	74-111	5	30
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	97	97	75-109	0	30
Fluoranthene	N.D.	0.10	0.020	ug/l	85	93	68-103	9	30
Fluorene	N.D.	0.40	0.10	ug/l	82	92	67-107	12	30
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	105	108	81-122	3	30
Naphthalene	N.D.	2.0	1.0	ug/l	68	81	57-95	18	30
Phenanthrene	N.D.	0.20	0.040	ug/l	85	95	71-108	11	30
Pyrene	N.D.	0.40	0.10	ug/l	92	99	70-108	7	30
Batch number: 093620010A	Sample number(s): 5871236-5871242, 5871250								
Methane	N.D.	15.	5.0	ug/l	98		80-120		
Batch number: 093620011A	Sample number(s): 5871243-5871249								
Methane	N.D.	15.	10	ug/l	102		80-120		
Batch number: 093641848005	Sample number(s): 5871236-5871249								
Iron	N.D.	0.200	0.0522	mg/l	101		90-112		
Batch number: 09357196601A	Sample number(s): 5871236-5871239								
Chloride	N.D.	0.40	0.20	mg/l	95		90-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	96		89-110		
Batch number: 09357196601B	Sample number(s): 5871240-5871249								
Chloride	N.D.	0.40	0.20	mg/l	95		90-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	96		89-110		
Batch number: 09362020201A	Sample number(s): 5871236-5871249								
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.

Quality Control Summary

Client Name: Tronox LLC Group Number: 1176263

Reported: 01/12/10 at 02:34 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	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 093620010A Methane	83	82	35-157	2	20				
Sample number(s): 5871236-5871242, 5871250 UNSPK: 5871236									
Batch number: 093620011A Methane	-767 (2)	-767 (2)	35-157	0	20				
Sample number(s): 5871243-5871249 UNSPK: P872295									
Batch number: 093641848005 Iron	88 (2)	118 (2)	75-125	2	20	19.1	19.4	2	20
Sample number(s): 5871236-5871249 UNSPK: P871211 BKG: P871211									
Batch number: 09357196601A Chloride	110		90-110			28.7	28.9	1 (1)	20
Nitrate Nitrogen	126*		90-110			0.30	0.29	2 (1)	20
Sulfate	115*		90-110			228	230	1	20
Sample number(s): 5871236-5871239 UNSPK: P871119 BKG: P871119									
Batch number: 09357196601B Chloride	109		90-110			16.1	16.0	0	20
Nitrate Nitrogen	110		90-110			2.4	2.4	0 (1)	20
Sulfate	109		90-110			3.7	3.7	0 (1)	20
Sample number(s): 5871240-5871249 UNSPK: 5871240 BKG: 5871240									
Batch number: 09362020201A Alkalinity to pH 4.5	100	99	64-130	0	2	76.3	79.0	3	4
Alkalinity to pH 8.3						N.D.	N.D.	0 (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: PAH's in Water by HPLC

Batch number: 09356WAI026

	Nitrobenzene	Triphenylene
5871236	82	95
5871237	83	95
5871238	89	101
5871239	98	108
5871240	89	105
5871241	88	97
5871242	85	100
5871243	79	90
5871244	91	98
5871245	89	97
5871246	91	102
5871247	89	100
5871248	85	99
5871249	97	105
Blank	70	89
LCS	90	102
LCSD	94	107

* - Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tronox LLC Group Number: 1176263
Reported: 01/12/10 at 02:34 PM

Surrogate Quality Control

Limits: 67-111 77-122

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 093620010A
Propene

5871236	78
5871237	76
5871238	48
5871239	73
5871240	70
5871241	74
5871242	67
5871250	77
Blank	101
LCS	101
MS	77
MSD	71

Limits: 42-131

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 093620011A
Propene

5871243	111
5871244	90
5871245	80
5871246	92
5871247	91
5871248	69
5871249	75
Blank	116
LCS	115
MS	64
MSD	60

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.

Please print. Instructions on reverse side correspond with circled numbers

1 Client: Michael Pisani Assoc. Acc. #:
 Project Name/Alt: Belt Sinks Carb. PWSID #:
 Project Manager: Missy Lytle & Steve P.O.#:
 Sampler: BRAD BLACK Quote #: MS
 Name of state where samples were collected: MS

2 Sample Identification

Sample ID	Date Collected	Time Collected	Composites
MW-18	12/16/09	0850	X
MW-19		0945	X
MW-16		1100	X
MW-06		1315	X
MW-08		1435	X
MW-17		1530	X
MW-21		1650	X

3 Matrix

Matrix	Soil	Water	Sludge	Composites
ALK				
PH'S				
Cl, SO ₄ , NO ₃				
VOC				

4 Total # of Containers

Matrix	Soil	Water	Sludge	Composites	Total # of Containers
ALK					9
PH'S					9
Cl, SO ₄ , NO ₃					9
VOC					9

5 Analyses Requested

Analyses Requested	Preservation Codes
ALK	ALR
PH'S	PHS
Cl, SO ₄ , NO ₃	CLN
VOC	VOC

6 Preservation Codes

H=HCl T=Thiosulfate
 N=HNO₃ B=NaOH
 S=H₂SO₄ O=Other

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

8 Data Package Options (please circle if required)

Type I (Validation/NJ Reg)	TX TRRP-13	SDG Complete?	Yes No
Type II (Tier II)	MA MCP CI RCP		
Type III (Reduced NJ)	Site specific: QC (MS/MS/SD/UP)?	Yes No	
Type IV (CLP SCW)	Internal COC Required?	Yes / No	
Type VI (Raw Data Only)			

9 Relinquished by:

Relinquished by:	Date	Time	Received by:	Date	Time
<i>[Signature]</i>	12/11/09	0830	<i>[Signature]</i>	12/11/09	0830
<i>[Signature]</i>	12/11/09	1030	<i>[Signature]</i>	12/11/09	1030
<i>[Signature]</i>	12/11/09	1030	<i>[Signature]</i>	12/11/09	1030
<i>[Signature]</i>	12/11/09	1030	<i>[Signature]</i>	12/11/09	1030
<i>[Signature]</i>	12/11/09	1030	<i>[Signature]</i>	12/11/09	1030
<i>[Signature]</i>	12/11/09	1030	<i>[Signature]</i>	12/11/09	1030

Remarks

* Diss Fe
 HAS BEEN
 FILTERED

Operator of Samples

6



Lancaster Laboratories

Acc. # 11947

Group # 1176263

Sample # 5871236-50

COC # 229355

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

1 Client: Michael Pisani Assoc. Acc. #: 11947

Project Name/State: SOLE STATES CREO. PWSID #: MS

Project Manager: DAVE UPHEGROVE P.O.#: MS

Sampler: DAVE BLAICK Onoto #: MS

Name of site where samples were collected: MS

Sample Identification	Date Collected	Time Collected	Matrix			Total # of Containers	Analyses Requested				Remarks	
			Soil	Water	Other		Preservation Codes	Preservation Codes	Preservation Codes	Preservation Codes		
MW-9R	12/17/09	0815	X	X	X	6	CL, SC, NO ₃	PH ⁺	ALK	TOTL Fe	DISS Fe	* DISS. Fe
MW-20		0910	X	X	X	6						HAS BEEN
MW-22		1030	X	X	X	6						FILTERED
MW-14		1200	X	X	X	9						
MW-12		1350	X	X	X	9						
MW-11		1500	X	X	X	9						
DUP-01		0000	X	X	X	2						
TRIP BLANK												

2 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: _____

3 Data Package Options (please circle if required)

Type I (Validation NJ Reg) TX TRAP-13 Yes No

Type II (Tier II) MA MCP CL MCP Yes No

Type III (Rud-cod NJ) SMO-specific QC (MS/MS/Dip)? Yes No

Type IV (CLP SDWY) Internal COC Required? Yes No

Type VI (Raw Data Only) _____

4 Relinquished by: [Signature] Date: 12/17/09 Time: 1830

Relinquished by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

5 Preservation Codes: N, H, Fe, ALK, CL, SC, NO₃

6 Preservation Codes: H=HCl, T=Thiourea, N=HNO₃, B=NaOH, S=H₂SO₄, O=Other

Temperature of sample upon receipt (if requested): _____

7 Date: _____ Time: _____

8 Date: _____ Time: _____

9 Date: _____ Time: _____

Date: 12/21/09 Time: 1015

Lancaster Laboratories, Inc., 2425 New Holland Pkwy, Lancaster, PA 17601 (717) 559-2300 Fax: (717) 653-0765
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.



Environmental Sample Administration Receipt Documentation Log

Client/Project: MP: A
 Date of Receipt: 12/22/09
 Time of Receipt: 1015
 Source Code: 561
 Unpacker Emp. No.: 2326

Shipping Container Sealed: YES NO

Custody Seal Present * : YES NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	0129865 03106	4.0-4.6°C	ST	WI	Y	L+B	
2	0129865	0.5°C	TB	↓	↓	B	
3	↓	0.5°C	↓			B	
4	03106	3.8°C-4.5°C	ST			L+B	
5	0129865	1.2°C	TB			L+B	
6	0129865	4.2°C	TB			B	

Number of Trip Blanks received NOT listed on chain of custody: _____

Paperwork Discrepancy/Unpacking Problems:

- NO PW.
- Received 2 Trip Blanks.
- Received 3 broken vials MW-06 @ 1315 on 12/16/09 (NO₃) x1, MW-18 @ 0850 on 12/16/09 (NO₃) x1, and MW-19 @ 0945 on 12/16/09 (BOISB) x1 due to freezing. (B) paperwork covered over.
- Received 1 MW-08 @ 1435 amber with a cracked lid. MBCL 12/22/09

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
<u>Mary Beth Reed</u>	<u>12/22/09</u>	<u>1225</u>	Unpacking / Storage
<u>Mary Beth Reed</u>	<u>12/22/09</u>	<u>1320</u>	Place in Storage or <u>Entry</u>
			Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers

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

Inorganic Qualifiers

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

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

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

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ANALYTICAL RESULTS

Prepared for:

Tronox LLC
 PO Box 268859
 Oklahoma City OK 73126-8859
 405-775-5429

Prepared by:

Lancaster Laboratories
 2425 New Holland Pike
 Lancaster, PA 17605-2425
 January 12, 2010

SAMPLE GROUP

The sample group for this submittal is 1176263. Samples arrived at the laboratory on Tuesday, Dec 22 2009.
 The project for this group is Gulf States Creosoting/Hattiesburg, MS.
 The PO# for this sample group is ZAKW1CEOK0A50149.

<u>Sample No.</u>	<u>Collected</u>	<u>Client Description</u>
5871236	12/16/2009 8:50	MW-18 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871237	12/16/2009 9:45	MW-19 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871238	12/16/2009 11:00	MW-16 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871239	12/16/2009 13:15	MW-06 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871240	12/16/2009 14:35	MW-08 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871241	12/16/2009 15:30	MW-17 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871242	12/16/2009 16:50	MW-21 Grab Water COC # 229356 Gulf States Creosoting/Hattiesburg, MS
5871243	12/17/2009 8:15	MW-9R Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871244	12/17/2009 9:10	MW-20 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS

ANALYTICAL RESULTS

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PO Box 268859
Oklahoma City OK 73126-8859
405-775-5429

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2425 New Holland Pike
Lancaster, PA 17605-2425
January 12, 2010

5871245	12/17/2009 10:30	MW-22 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871246	12/17/2009 12:00	MW-14 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871247	12/17/2009 13:50	MW-12 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871248	12/17/2009 15:00	MW-11 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871249	12/17/2009	DUP-01 Grab Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS
5871250	12/16/2009	Trip Blank Water COC # 229355 Gulf States Creosoting/Hattiesburg, MS

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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

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

Respectfully Submitted,


ANALYTICAL RESULTS

Prepared for:

Tronex LLC
PO Box 268859
Oklahoma City OK 73126-8859
405-775-5429

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425
January 12, 2010


Robert Strocko Jr.
Manager

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS68

Report Date: 1/12/2010 14:34
 Submit Date: 12/22/2009 10:15

Analysis Name	Units	5871238			5871237		
		MW-18			MW-19		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	1.7 J	2.2	0.55	19	2.2	0.54
Acenaphthylene	ug/l	N.D.	2.2	1.1	N.D.	2.2	1.1
Anthracene	ug/l	0.045 J	0.11	0.022	0.65	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.044	0.011	N.D.	0.043	0.011
Benzo(a)pyrene	ug/l	N.D.	0.044	0.011	N.D.	0.043	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.033	0.0088	N.D.	0.032	0.0088
Benzo(g,h,i)perylene	ug/l	N.D.	0.22	0.066	N.D.	0.22	0.055
Benzo(k)fluoranthene	ug/l	N.D.	0.033	0.0088	N.D.	0.032	0.0088
Chrysene	ug/l	N.D.	0.22	0.066	N.D.	0.22	0.055
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.022	N.D.	0.11	0.022
Fluoranthene	ug/l	0.25	0.11	0.022	0.83	0.11	0.022
Fluorene	ug/l	4.4	0.44	0.11	7.6	0.43	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.22	0.044	N.D.	0.22	0.043
Naphthalene	ug/l	N.D.	2.2	1.1	11	2.2	1.1
Phenanthrene	ug/l	0.93	0.22	0.044	4.7	0.22	0.043
Pyrene	ug/l	N.D.	0.44	0.11	0.59	0.43	0.11
Methane	ug/l	N.D.	15	5.0	390	30	10
Iron	mg/l	0.144 J	0.200	0.0522	7.01	0.200	0.0522
Chloride	mg/l	19.4	2.0	1.0	12.7	2.0	1.0
Nitrate Nitrogen	mg/l	1.4	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	7.1	5.0	1.5	2.1 J	5.0	1.5
Alkalinity to pH 4.5	mg/l as CaCO3	12.9	2.0	0.46	101	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871238			5871239		
		MW-16			MW-06		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.2	0.56	89	2.2	0.55
Acenaphthylene	ug/l	N.D.	2.2	1.1	N.D.	73	73
Anthracene	ug/l	N.D.	0.11	0.022	4.7	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.045	0.011	N.D.	0.044	0.011
Benzo(a)pyrene	ug/l	N.D.	0.045	0.011	N.D.	0.044	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.034	0.0089	N.D.	0.033	0.0088
Benzo(g,h,i)perylene	ug/l	N.D.	0.22	0.067	N.D.	0.22	0.066
Benzo(k)fluoranthene	ug/l	N.D.	0.034	0.0089	N.D.	0.033	0.0088
Chrysene	ug/l	N.D.	0.22	0.067	N.D.	0.22	0.066
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.022	N.D.	0.11	0.022
Fluoranthene	ug/l	N.D.	0.11	0.022	2.1	0.11	0.022
Fluorene	ug/l	N.D.	0.45	0.11	80	8.8	2.2
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.22	0.045	N.D.	0.22	0.044

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

Tronox LLC
 Project: Gulf States Creosoting/Hattiesburg, MS
 SDG: HMS88

Report Date: 1/12/2010 14:34
 Submit Date: 12/22/2009 10:15

Naphthalene	ug/l	N.D.	2.2	1.1	3,600	44	22
Phenanthrene	ug/l	N.D.	0.22	0.045	63	4.4	0.88
Pyrene	ug/l	N.D.	0.45	0.11	0.76	0.44	0.11
Methane	ug/l	N.D.	15	5.0	1,100	75	25
Iron	mg/l	1.96	0.200	0.0522	26.2	0.200	0.0522
Chloride	mg/l	4.6	2.0	1.0	7.0	2.0	1.0
Nitrate Nitrogen	mg/l	1.3	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	5.9	5.0	1.5	2.1 J	5.0	1.5
	mg/l as						
Alkalinity to pH 4.5	CaCO3	5.3	2.0	0.46	92.5	2.0	0.46
	mg/l as						
Alkalinity to pH 8.3	CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871240 MW-08			5871241 MW-17		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.2	0.54	1.6 J	2.2	0.54
Acenaphthylene	ug/l	N.D.	2.2	1.1	N.D.	2.2	1.1
Anthracene	ug/l	N.D.	0.11	0.022	N.D.	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.043	0.011	N.D.	0.043	0.011
Benzo(a)pyrene	ug/l	N.D.	0.043	0.011	0.016 J	0.043	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.032	0.0086	0.019 J	0.032	0.0087
Benzo(g,h,i)perylene	ug/l	N.D.	0.22	0.065	N.D.	0.22	0.065
Benzo(k)fluoranthene	ug/l	N.D.	0.032	0.0086	N.D.	0.032	0.0087
Chrysene	ug/l	N.D.	0.22	0.065	N.D.	0.22	0.065
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.022	N.D.	0.11	0.022
Fluoranthene	ug/l	N.D.	0.11	0.022	0.10 J	0.11	0.022
Fluorene	ug/l	N.D.	0.43	0.11	N.D.	0.43	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.22	0.043	N.D.	0.22	0.043
Naphthalene	ug/l	N.D.	2.2	1.1	N.D.	2.2	1.1
Phenanthrene	ug/l	N.D.	0.22	0.043	N.D.	0.22	0.043
Pyrene	ug/l	N.D.	0.43	0.11	N.D.	0.43	0.11
Methane	ug/l	N.D.	15	5.0	150	15	5.0
Iron	mg/l	0.330	0.200	0.0522	6.41	0.200	0.0522
Chloride	mg/l	16.1	2.0	1.0	6.6	2.0	1.0
Nitrate Nitrogen	mg/l	2.4	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	3.7 J	5.0	1.5	20.4	5.0	1.5
	mg/l as						
Alkalinity to pH 4.5	CaCO3	2.4	2.0	0.46	50.3	2.0	0.46
	mg/l as						
Alkalinity to pH 8.3	CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871242 MW-21			5871243 MW-9R		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.1	0.53	73	2.2	0.54

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

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Acenaphthylene	ug/l	N.D.	2.1	1.1	N.D.	9.0	9.0
Anthracene	ug/l	N.D.	0.11	0.021	2.4	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.042	0.011	0.057	0.043	0.011
Benzo(a)pyrene	ug/l	N.D.	0.042	0.011	0.043 J	0.043	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.032	0.0085	0.042	0.033	0.0087
Benzo(g,h,i)perylene	ug/l	N.D.	0.21	0.064	0.068 J	0.22	0.065
Benzo(k)fluoranthene	ug/l	N.D.	0.032	0.0085	0.054	0.033	0.0087
Chrysene	ug/l	N.D.	0.21	0.084	0.079 J	0.22	0.065
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.021	0.065 J	0.11	0.022
Fluoranthene	ug/l	N.D.	0.11	0.021	2.7	0.11	0.022
Fluorene	ug/l	N.D.	0.42	0.11	64	2.2	0.54
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.21	0.042	0.058 J	0.22	0.043
Naphthalene	ug/l	N.D.	2.1	1.1	190	2.2	1.1
Phenanthrene	ug/l	N.D.	0.21	0.042	10	0.22	0.043
Pyrene	ug/l	N.D.	0.42	0.11	1.5	0.43	0.11
Methane	ug/l	N.D.	15	5.0	2,600	1,500	1,000
Iron	mg/l	N.D.	0.200	0.0522	19.1	0.200	0.0522
Chloride	mg/l	12.6	2.0	1.0	15.7	2.0	1.0
Nitrate Nitrogen	mg/l	1.0	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	2.4 J	5.0	1.5	3.7 J	5.0	1.5
	mg/l as						
Alkalinity to pH 4.5	CaCO3	3.6	2.0	0.46	90.7	2.0	0.46
	mg/l as						
Alkalinity to pH 8.3	CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871244			5871245			
		MW-20	Result	LOQ**	MDL	MW-22	Result	LOQ**
Acenaphthene	ug/l	N.D.	N.D.	2.2	0.55	N.D.	2.1	0.53
Acenaphthylene	ug/l	N.D.	N.D.	2.2	1.1	N.D.	2.1	1.1
Anthracene	ug/l	N.D.	N.D.	0.11	0.022	N.D.	0.11	0.021
Benzo(a)anthracene	ug/l	N.D.	N.D.	0.044	0.011	N.D.	0.043	0.011
Benzo(a)pyrene	ug/l	N.D.	N.D.	0.044	0.011	N.D.	0.043	0.011
Benzo(b)fluoranthene	ug/l	N.D.	N.D.	0.033	0.0087	N.D.	0.032	0.0085
Benzo(g,h,i)perylene	ug/l	N.D.	N.D.	0.22	0.066	N.D.	0.21	0.064
Benzo(k)fluoranthene	ug/l	N.D.	N.D.	0.033	0.0087	N.D.	0.032	0.0085
Chrysene	ug/l	N.D.	N.D.	0.22	0.066	N.D.	0.21	0.064
Dibenz(a,h)anthracene	ug/l	N.D.	N.D.	0.11	0.022	N.D.	0.11	0.021
Fluoranthene	ug/l	N.D.	N.D.	0.11	0.022	N.D.	0.11	0.021
Fluorene	ug/l	N.D.	N.D.	0.44	0.11	N.D.	0.43	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	N.D.	0.22	0.044	N.D.	0.21	0.043
Naphthalene	ug/l	N.D.	N.D.	2.2	1.1	N.D.	2.1	1.1
Phenanthrene	ug/l	N.D.	N.D.	0.22	0.044	N.D.	0.21	0.043
Pyrene	ug/l	N.D.	N.D.	0.44	0.11	N.D.	0.43	0.11
Methane	ug/l	N.D.	N.D.	15	10	15	15	10
Iron	mg/l	0.0863 J	0.200	0.0522	0.0522	2.49	0.200	0.0522

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

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Chloride	mg/l	10.3	2.0	1.0	12.4	2.0	1.0
Nitrate Nitrogen	mg/l	0.29 J	0.50	0.25	0.43 J	0.50	0.25
Sulfate	mg/l	3.2 J	5.0	1.5	5.1	5.0	1.5
Alkalinity to pH 4.5	mg/l as CaCO3	10.5	2.0	0.46	24.5	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871248			5871247		
		MW-14			MW-12		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.2	0.55	3.3	2.2	0.55
Acenaphthylene	ug/l	N.D.	2.2	1.1	N.D.	2.7	2.7
Anthracene	ug/l	N.D.	0.11	0.022	0.085 J	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.044	0.011	N.D.	0.044	0.011
Benzo(a)pyrene	ug/l	N.D.	0.044	0.011	N.D.	0.044	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.033	0.0087	N.D.	0.033	0.0087
Benzo(g,h,i)perylene	ug/l	N.D.	0.22	0.065	N.D.	0.22	0.065
Benzo(k)fluoranthene	ug/l	N.D.	0.033	0.0087	N.D.	0.033	0.0087
Chrysene	ug/l	N.D.	0.22	0.065	N.D.	0.22	0.065
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.022	N.D.	0.11	0.022
Fluoranthene	ug/l	N.D.	0.11	0.022	0.026 J	0.11	0.022
Fluorene	ug/l	N.D.	0.44	0.11	1.7	0.44	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.22	0.044	N.D.	0.22	0.044
Naphthalene	ug/l	N.D.	2.2	1.1	N.D.	2.2	1.1
Phenanthrene	ug/l	0.058 J	0.22	0.044	0.17 J	0.22	0.044
Pyrene	ug/l	N.D.	0.44	0.11	0.16 J	0.44	0.11
Methane	ug/l	98	15	10	180	15	10
Iron	mg/l	1.37	0.200	0.0522	0.723	0.200	0.0522
Chloride	mg/l	5.2	2.0	1.0	4.0	2.0	1.0
Nitrate Nitrogen	mg/l	N.D.	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	27.5	5.0	1.5	N.D.	5.0	1.5
Alkalinity to pH 4.5	mg/l as CaCO3	11.1	2.0	0.46	58.8	2.0	0.46
Alkalinity to pH 8.3	mg/l as CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871248			5871249		
		MW-11			DUP-01		
		Result	LOQ**	MDL	Result	LOQ**	MDL
Acenaphthene	ug/l	N.D.	2.1	0.53	N.D.	2.2	0.54
Acenaphthylene	ug/l	N.D.	2.1	1.1	N.D.	2.2	1.1
Anthracene	ug/l	N.D.	0.11	0.021	N.D.	0.11	0.022
Benzo(a)anthracene	ug/l	N.D.	0.042	0.011	N.D.	0.043	0.011
Benzo(a)pyrene	ug/l	N.D.	0.042	0.011	N.D.	0.043	0.011
Benzo(b)fluoranthene	ug/l	N.D.	0.032	0.0084	N.D.	0.032	0.0085

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

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Benzo(g,h,i)perylene	ug/l	N.D.	0.21	0.063	N.D.	0.22	0.065
Benzo(k)fluoranthene	ug/l	N.D.	0.032	0.0084	N.D.	0.032	0.0088
Chrysene	ug/l	N.D.	0.21	0.063	N.D.	0.22	0.065
Dibenz(a,h)anthracene	ug/l	N.D.	0.11	0.021	N.D.	0.11	0.022
Fluoranthene	ug/l	N.D.	0.11	0.021	N.D.	0.11	0.022
Fluorene	ug/l	N.D.	0.42	0.11	0.11 J	0.43	0.11
Indeno(1,2,3-cd)pyrene	ug/l	N.D.	0.21	0.042	N.D.	0.22	0.043
Naphthalene	ug/l	N.D.	2.1	1.1	N.D.	2.2	1.1
Phenanthrene	ug/l	N.D.	0.21	0.042	0.050 J	0.22	0.043
Pyrene	ug/l	N.D.	0.42	0.11	N.D.	0.43	0.11
Methane	ug/l	35	15	10	100	15	10
Iron	mg/l	N.D.	0.200	0.0522	1.45	0.200	0.0522
Chloride	mg/l	5.9	2.0	1.0	5.1	2.0	1.0
Nitrate Nitrogen	mg/l	N.D.	0.50	0.25	N.D.	0.50	0.25
Sulfate	mg/l	23.5	5.0	1.5	23.5	5.0	1.5
	mg/l as						
Alkalinity to pH 4.5	CaCO3	2.4	2.0	0.46	11.7	2.0	0.46
	mg/l as						
Alkalinity to pH 8.3	CaCO3	N.D.	2.0	0.46	N.D.	2.0	0.46

Analysis Name	Units	5871250		
		Result	LOQ**	MDL
Acenaphthene	ug/l		n.a.	n.a.
Acenaphthylene	ug/l		n.a.	n.a.
Anthracene	ug/l		n.a.	n.a.
Benzo(a)anthracene	ug/l		n.a.	n.a.
Benzo(a)pyrene	ug/l		n.a.	n.a.
Benzo(b)fluoranthene	ug/l		n.a.	n.a.
Benzo(g,h,i)perylene	ug/l		n.a.	n.a.
Benzo(k)fluoranthene	ug/l		n.a.	n.a.
Chrysene	ug/l		n.a.	n.a.
Dibenz(a,h)anthracene	ug/l		n.a.	n.a.
Fluoranthene	ug/l		n.a.	n.a.
Fluorene	ug/l		n.a.	n.a.
Indeno(1,2,3-cd)pyrene	ug/l		n.a.	n.a.
Naphthalene	ug/l		n.a.	n.a.
Phenanthrene	ug/l		n.a.	n.a.
Pyrene	ug/l		n.a.	n.a.
Methane	ug/l	N.D.	15	5.0
Iron	mg/l		n.a.	n.a.
Chloride	mg/l		n.a.	n.a.
Nitrate Nitrogen	mg/l		n.a.	n.a.
Sulfate	mg/l		n.a.	n.a.
	mg/l as			
Alkalinity to pH 4.5	CaCO3		n.a.	n.a.

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Alkalinity to pH 8.3	mg/l as CaCO3	n.a.	n.a.
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** = This limit was used in the evaluation of the final result

CAT No.	Analysis Name	Method	Trial ID	Analysis Date/Time	Analyst	Dilution
5871236 MW-18 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/5/10 2104	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1501	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0148	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0502	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0502	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0502	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871237 MW-19 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/5/10 2143	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/30/09 0723	Dustin A Underkoffler	2
01754	Iron	SW-846 6010B	1	1/5/10 0151	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0517	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0517	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0517	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871238 MW-16 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/5/10 2221	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1555	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0154	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0532	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0532	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0532	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871239 MW-06 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/5/10 2300	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	1/8/10 0931	Mark A Clark	20
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/30/09 0737	Dustin A Underkoffler	5
01754	Iron	SW-846 6010B	1	1/5/10 0157	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0548	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0548	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0548	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
5871240 MW-08 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/5/10 2339	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1636	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0159	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0603	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0603	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0603	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871241 MW-17 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/6/10 0018	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1649	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0202	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0650	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0650	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0650	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871242 MW-21 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/6/10 0923	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1703	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0205	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0705	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0705	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0705	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871243 MW-9R Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/8/10 2305	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 2112	Mark A Clark	5
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1200	Dustin A Underkoffler	100
01754	Iron	SW-846 6010B	1	1/5/10 0208	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0751	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0751	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0751	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871244	MW-20 Grab Water					
00774	PAH's in Water by HPLC	SW-846 8310	1	1/8/10 2344	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0852	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0211	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0807	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0807	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0807	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871245	MW-22 Grab Water					
00774	PAH's in Water by HPLC	SW-846 8310	1	1/8/10 0023	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0904	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0214	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0822	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0822	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0822	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871246	MW-14 Grab Water					
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 0102	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0917	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0223	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0838	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0838	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0838	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871247	MW-12 Grab Water					
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 0141	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0930	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0226	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Conners	1
00224	Chloride	EPA 300.0	1	12/24/09 0853	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0853	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0853	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1

CAT No.	Analysis Name	Method	Trial Analysis		Analyst	Dilution
			ID	Date/Time		
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871248 MW-11 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 0219	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0942	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0229	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Connors	1
00224	Chloride	EPA 300.0	1	12/24/09 0909	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0909	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0909	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871249 DUP-01 Grab Water						
00774	PAH's in Water by HPLC	SW-846 8310	1	1/9/10 0258	Mark A Clark	1
03337	PAH Water Extraction	SW-846 3510C	1	12/23/09 1020	Cynthia J Salvatori	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 0954	Dustin A Underkoffler	1
01754	Iron	SW-846 6010B	1	1/5/10 0232	Tara L Snyder	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	12/31/09 1010	Denise K Connors	1
00224	Chloride	EPA 300.0	1	12/24/09 0924	Ashley M Adams	5
00368	Nitrate Nitrogen	EPA 300.0	1	12/24/09 0924	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	12/24/09 0924	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	12/28/09 1305	Geraldine C Smith	1
5871250 Trip Blank Water						
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	12/29/09 1717	Dustin A Underkoffler	1

Client Name: Tronox LLC

Group Number: 1176263

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCS D %REC	LCS/LCSD Limits	RPD	Max RPD
Batch number: 09356WAI026 Sample number(s): 5871236-5871249									
Acenaphthene	N.D.	2.0	0.50	ug/l	76	88	61-102	15	30
Acenaphthylene	N.D.	2.0	1.0	ug/l	72	86	61-99	18	30
Anthracene	N.D.	0.10	0.020	ug/l	82	88	69-103	8	30
Benzo(a)anthracene	N.D.	0.040	0.010	ug/l	91	96	74-109	6	30
Benzo(a)pyrene	N.D.	0.040	0.010	ug/l	97	94	67-107	3	30
Benzo(b)fluoranthene	N.D.	0.030	0.0080	ug/l	93	100	76-110	7	30
Benzo(g,h,i)perylene	N.D.	0.20	0.060	ug/l	99	100	62-117	1	30
Benzo(k)fluoranthene	N.D.	0.030	0.0080	ug/l	96	100	77-109	4	30
Chrysene	N.D.	0.20	0.060	ug/l	93	97	74-111	5	30
Dibenz(a,h)anthracene	N.D.	0.10	0.020	ug/l	97	97	75-109	0	30
Fluoranthene	N.D.	0.10	0.020	ug/l	85	93	68-103	9	30
Fluorene	N.D.	0.40	0.10	ug/l	82	92	67-107	12	30
Indeno(1,2,3-cd)pyrene	N.D.	0.20	0.040	ug/l	105	108	81-122	3	30
Naphthalene	N.D.	2.0	1.0	ug/l	68	81	57-95	18	30
Phenanthrene	N.D.	0.20	0.040	ug/l	85	95	71-108	11	30
Pyrene	N.D.	0.40	0.10	ug/l	92	99	70-108	7	30

Batch number: 093620010A Sample number(s): 5871236-5871242,5871250

Methane N.D. 15. 5.0 ug/l 98 80-120

Batch number: 093620011A Sample number(s): 5871243-5871249

Methane N.D. 15. 10 ug/l 102 80-120

Batch number: 093641848005 Sample number(s): 5871236-5871249

Iron N.D. 0.200 0.0522 mg/l 101 90-112

Batch number: 09357195601A Sample number(s): 5871236-5871239

Chloride N.D. 0.40 0.20 mg/l 95 90-110

* - Outside of specification

(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.

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

Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98	90-110
Sulfate	N.D.	1.0	0.30	mg/l	96	89-110

Batch number: 09357196601B Sample number(s): 5871240-5871249

Chloride	N.D.	0.40	0.20	mg/l	95	90-110
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	98	90-110
Sulfate	N.D.	1.0	0.30	mg/l	96	89-110

Batch number: 09362020201A Sample number(s): 5871236-5871249

Alkalinity to pH 4.5	N.D.	2.0	0.46 mg/l as Ca		99	98-103
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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	RPD MAX	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
Batch number: 093620010A Sample number(s): 5871236-5871242,5871250 UNSPK: 5871236									
Methane	83	82	35-157	2	20				
Batch number: 093620011A Sample number(s): 5871243-5871249 UNSPK: P872295									
Methane	-767 (2)	-767 (2)	35-157	0	20				
Batch number: 093641848005 Sample number(s): 5871236-5871249 UNSPK: P871211 BKG: P871211									
Iron	88 (2)	88 (2)	75-125	2	20	19.1	19.4	2	20
Batch number: 09357196601A Sample number(s): 5871236-5871239 UNSPK: P871119 BKG: P871119									
Chloride	110		90-110			28.7	28.9	1 (1)	20
Nitrate Nitrogen	126*		90-110			0.30 J	0.29 J	2 (1)	20
Sulfate	115*		90-110			228	230	1	20
Batch number: 09357196601B Sample number(s): 5871240-5871249 UNSPK: 5871240 BKG: 5871240									
Chloride	109		90-110			16.1	16.0	0	20

* - Outside of specification

(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.

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

Nitrate Nitrogen	110	90-110		2.4	2.4	0 (1)	20
Sulfate	109	90-110		3.7 J	3.7 J	0 (1)	20

Batch number: 09362020201A Sample number(s): 5871236-5871249 UNSPK: P869084 BKG: P869084

Alkalinity to pH 4.5	100	99	64-130	0	2	76.3	79.0	3	4
Alkalinity to pH 8.3						N.D.	N.D.	0 (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: PAH's in Water by HPLC
Batch number: 09356WAI026

	Nitrobenzene	Triphenylene
5871236	82	95
5871237	83	95
5871238	89	101
5871239	98	108
5871240	89	105
5871241	88	97
5871242	85	100
5871243	79	90
5871244	91	98
5871245	89	97
5871246	91	102
5871247	89	100
5871248	88	99
5871249	97	105
Blank	70	89
LCS	90	102
LCSd	94	107
Limits:	67-111	77-122

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 093620010A

	Propene
5871236	78
5871237	76
5871238	48

* - Outside of specification

(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.

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

5871239	73
5871240	70
5871241	74
5871242	67
5871250	77
Blank	101
LCS	101
MS	77
MSD	71
Limits:	42-131

Analysis Name: Volatile Headspace Hydrocarbon
 Batch number: 093620011A

Propene	
5871243	111
5871244	90
5871245	80
5871246	92
5871247	91
5871248	69
5871249	75
Blank	116
LCS	115
MS	64
MSD	60
Limits:	42-131

* - Outside of specification

(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.

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

QC Comment

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.

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

5871236 MW-18 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871237 MW-19 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871238 MW-16 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871239 XM-06 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

5871240 XM-08 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871241 XM-17 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871242 JM-21 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871243 JM-9R Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

this compound was raised accordingly.

5871244 09-20 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871245 09-22 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871246 09-14 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No

further action was needed.

5871247 MW-12 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

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

5871248 MW-11 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871249 DUP-01 Grab Water

00368 Nitrate Nitrogen
The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

00774 PAH's in Water by HPLC
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

Due to an extraction error, methylene chloride was present in the LCSD extract. A dilution was performed on the LCSD to remove the interfering solvent and

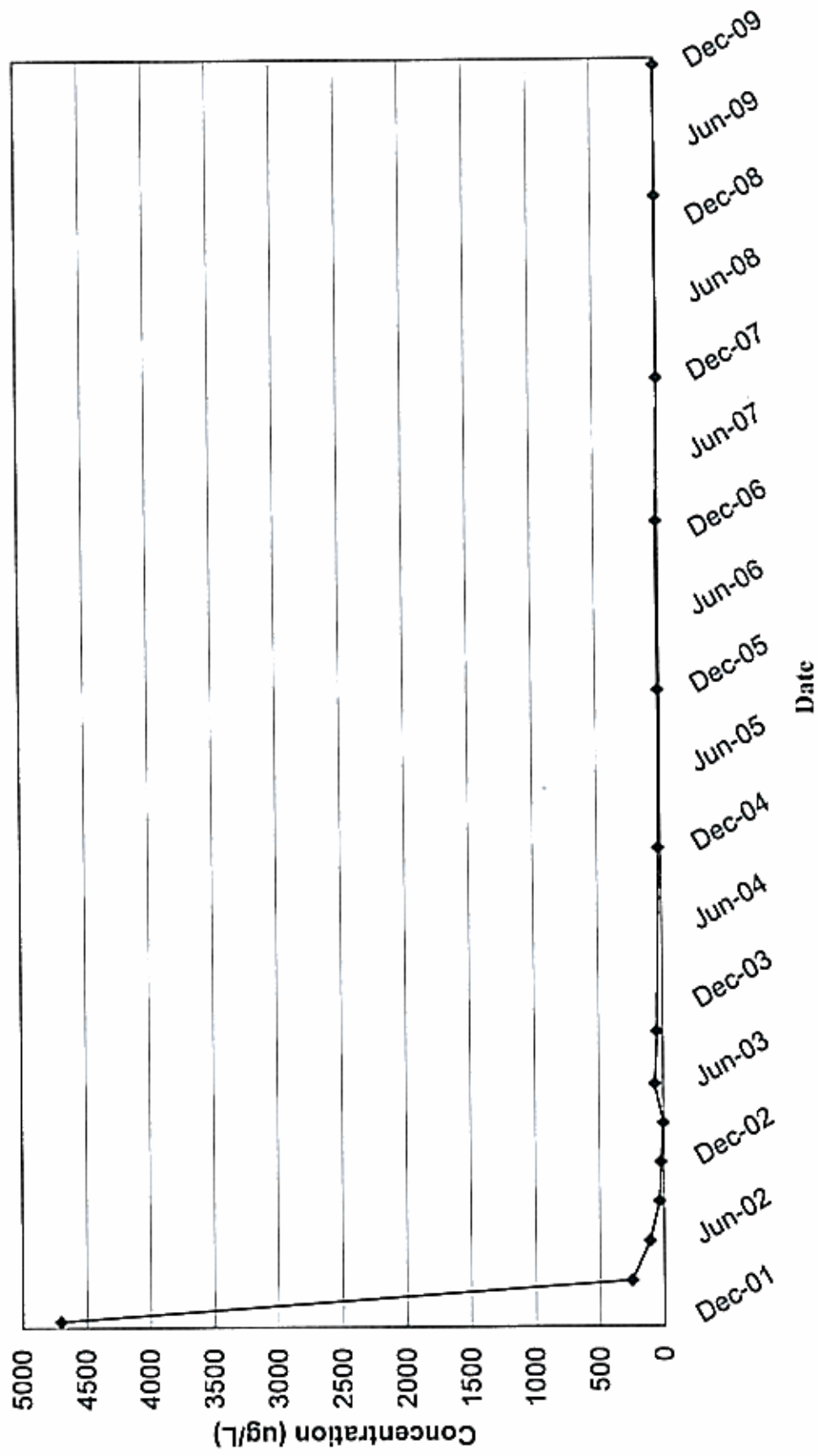
improve chromatography. The QC summary reflects this dilution factor. No further action was needed.

5871250 Trip Blank Water

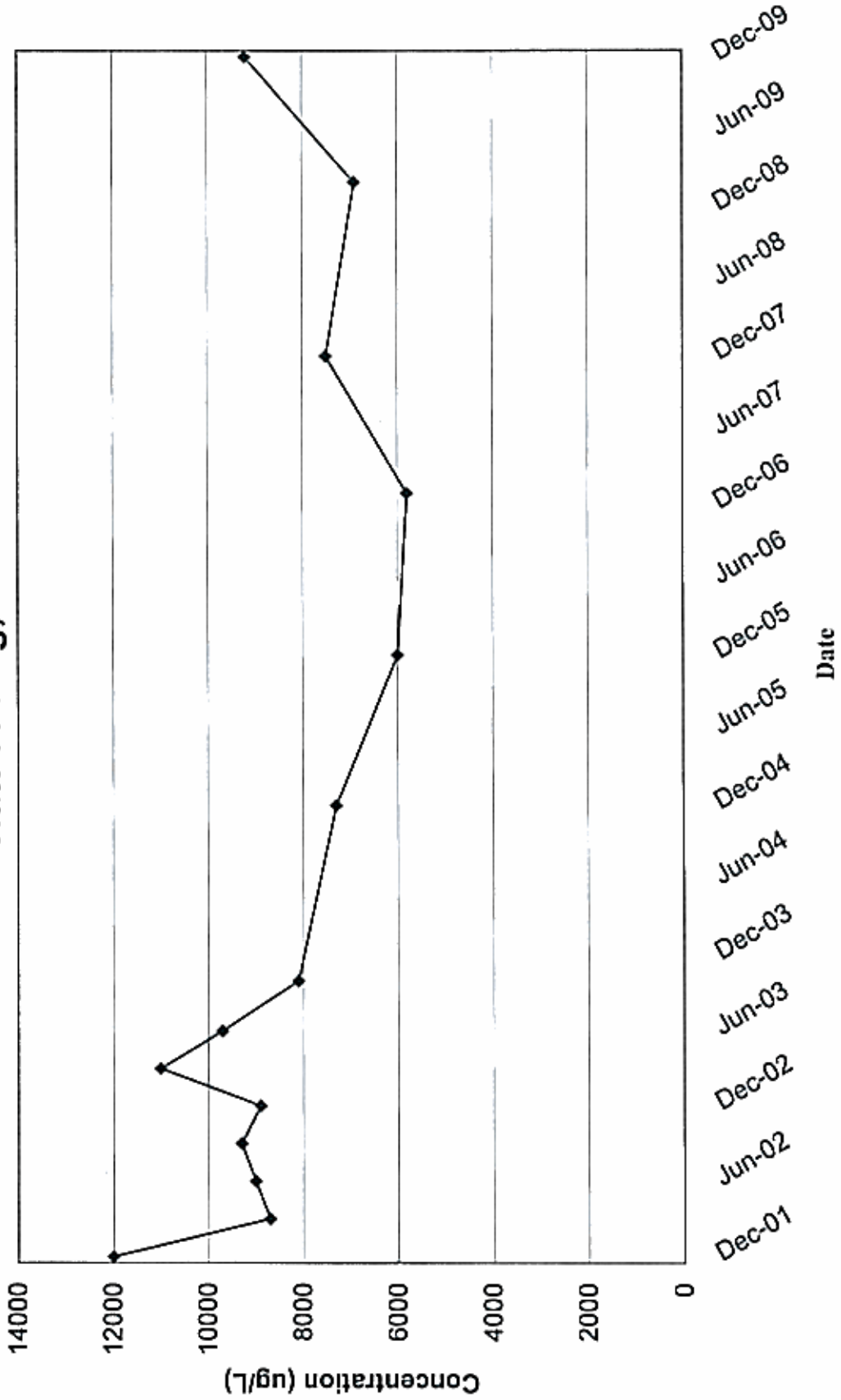
Appendix C

Charts Depicting Naphthalene Concentrations vs. Time

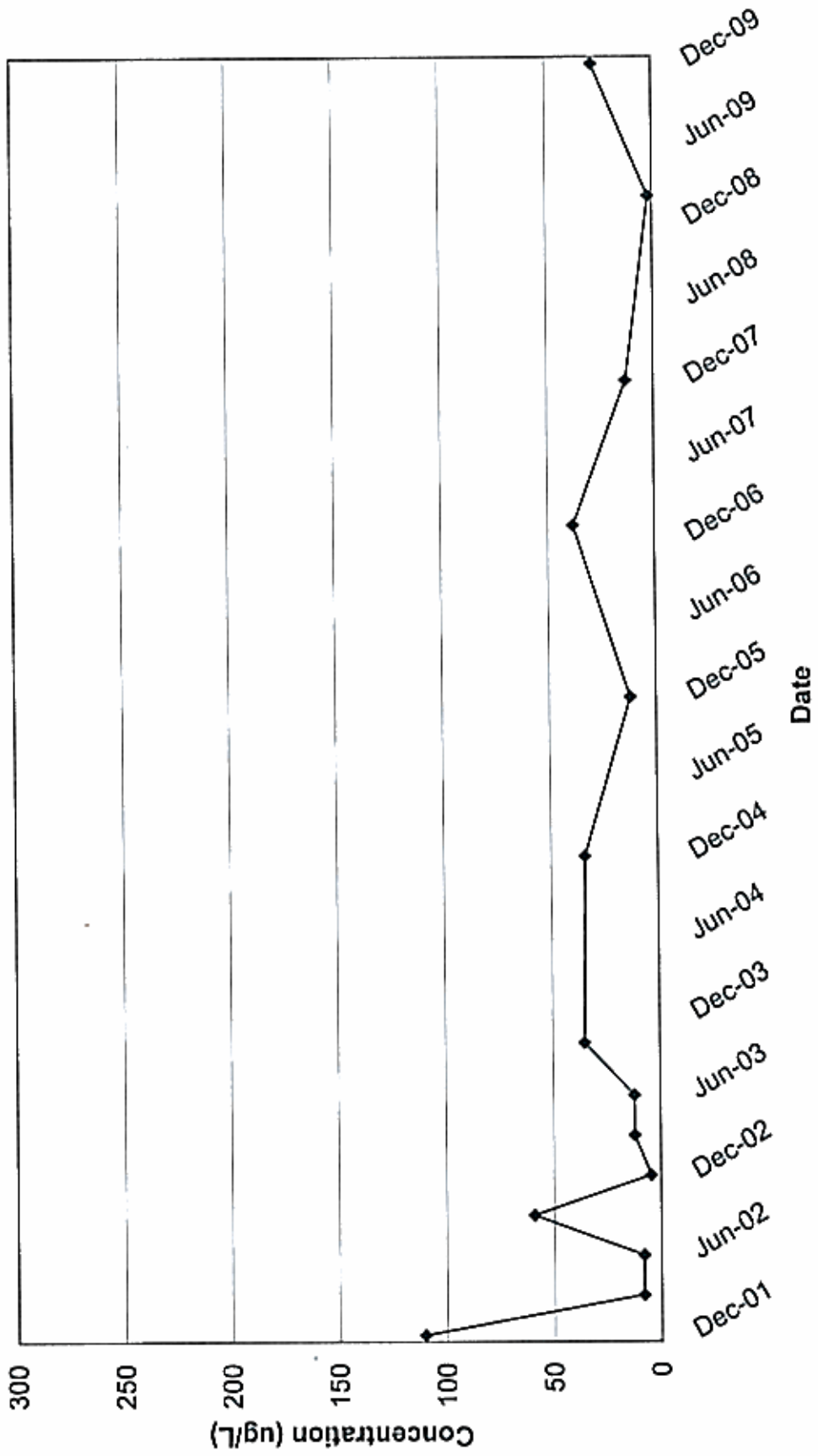
Naphthalene Concentrations in MW-1R Hattiesburg, MS



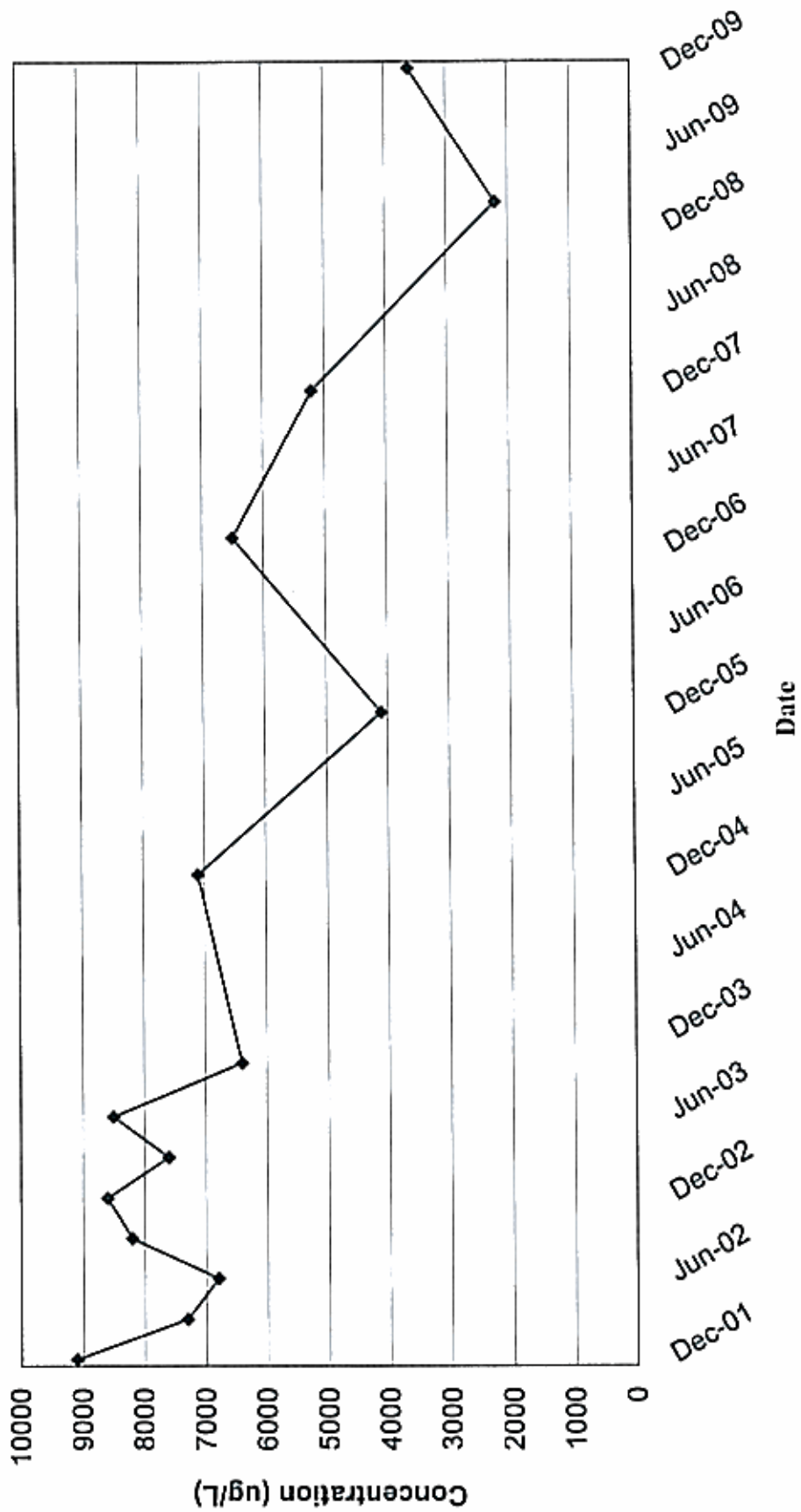
Naphthalene Concentrations in MW-2R Hattiesburg, MS



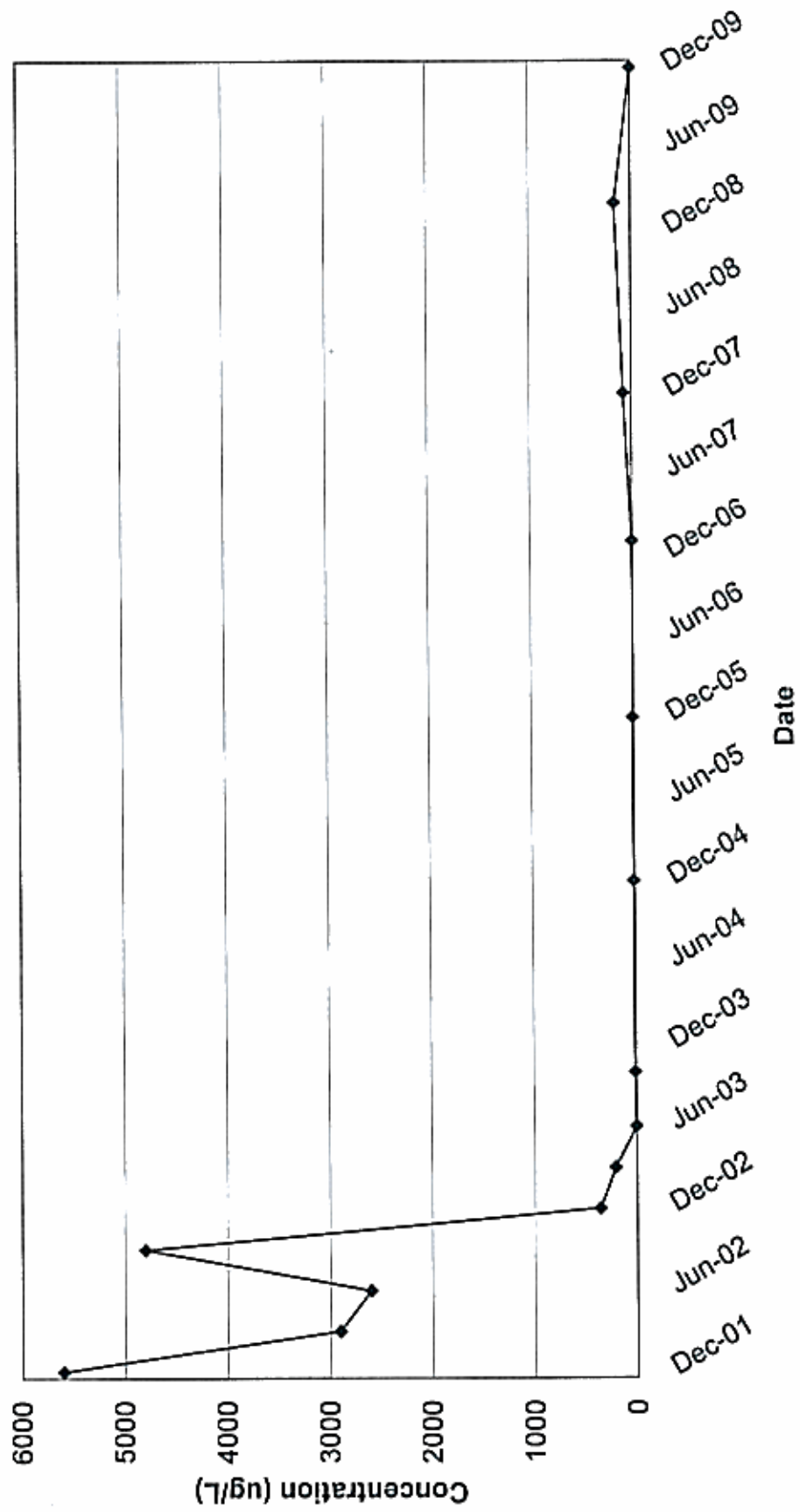
Naphthalene Concentrations in MW-4 Hattiesburg, MS



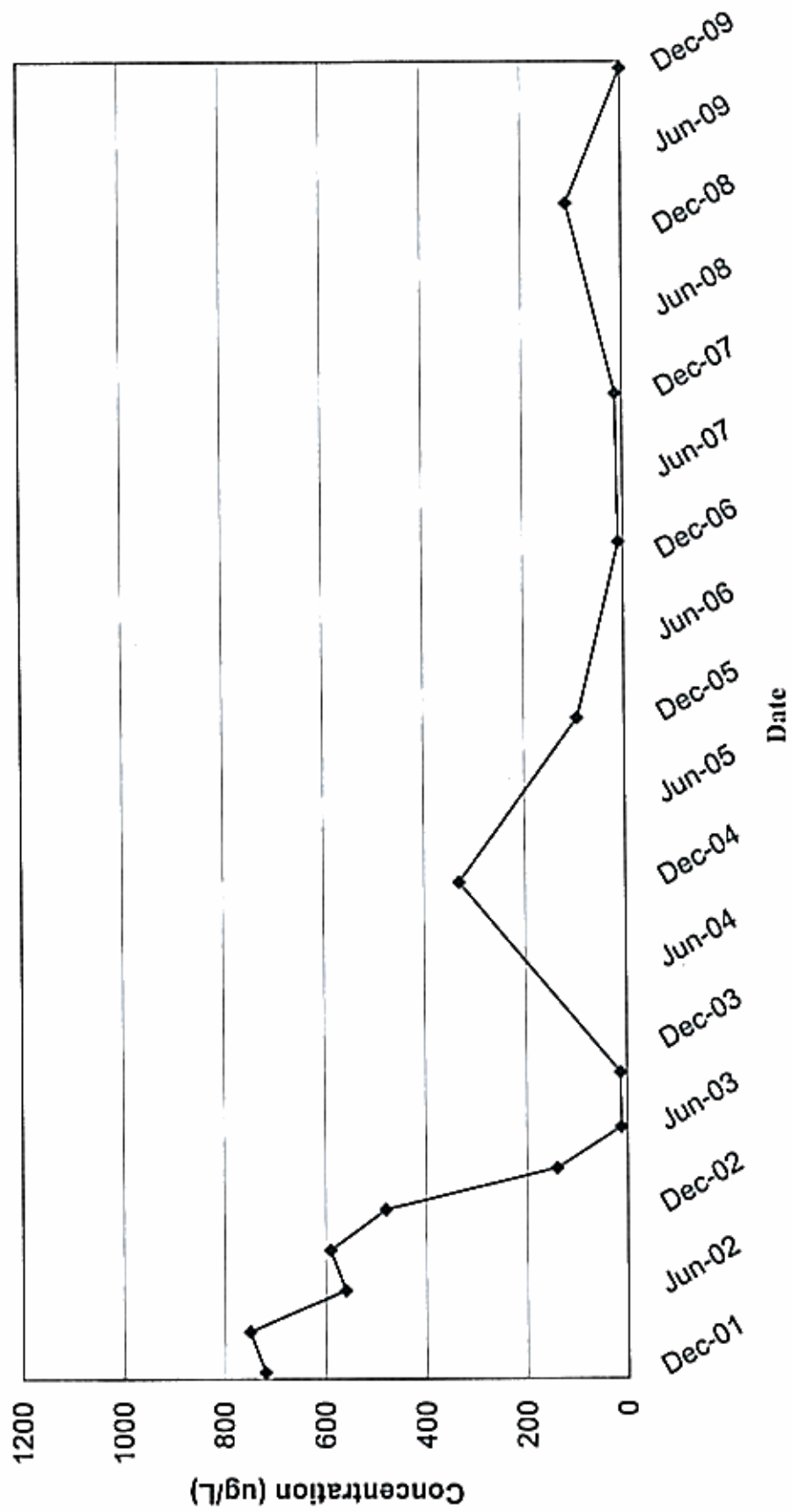
Naphthalene Concentrations in MW-06 Hattiesburg, MS



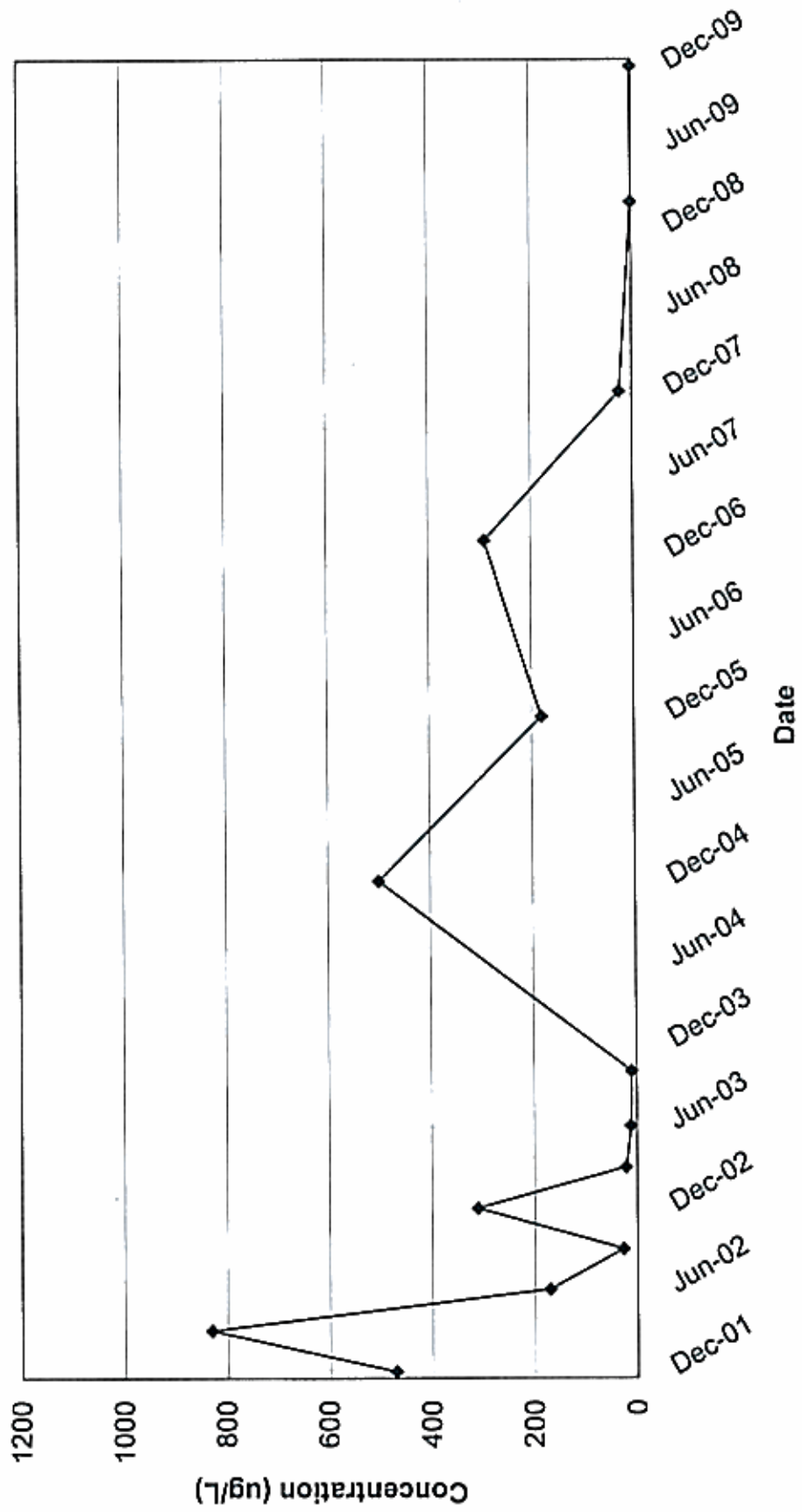
Naphthalene Concentrations in MW-12 Hattiesburg, MS.



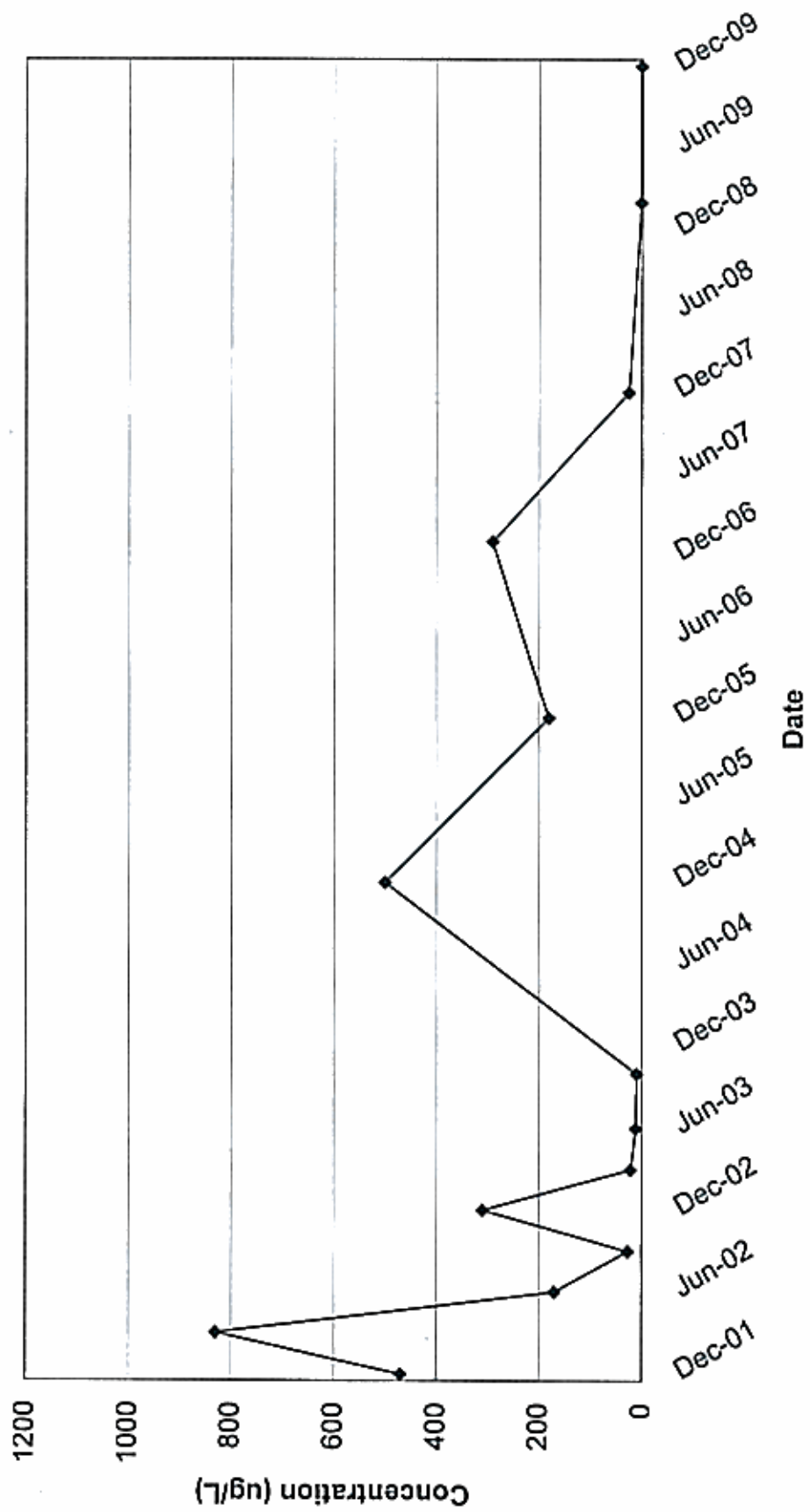
Naphthalene Concentrations in MW-17 Hattiesburg, MS



Naphthalene Concentrations in MW-18 Hattiesburg, MS



Naphthalene Concentrations in MW-18 Hattiesburg, MS



Naphthalene Concentrations in MW-19 Hattiesburg, MS

