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January 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site Hattiesburg, Mississippi

June 29, 2007

Project No. 21-04

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Table of Contents

January 2007 Ground Water Monitoring Report

			Page
Exec	utive S	ummary	1
1.0	Intro	oduction	1
2.0	Grou	and Water Monitoring Program	2
	2.1	Ground Water Monitoring Well Network	2
	2.2	Summary of Ground Water Monitoring Activities	2
		2.2.1 Sample Containers and Preservatives	2
		2.2.2 Water Level Measurement and Well Purging	2
		2.2.3 Sample Collection and Handling	3
		2.2.4 Chain-of-Custody Control	3
		2.2.5 Analytical Program	4
3.0	Grou	ınd Water Monitoring Results	5
	3.1	Ground Water Flow Assessment	5
	3.2	Ground Water Analytical Results	5 5
	3.3	Natural Attenuation Evaluation	6
4.0	Futu	re Ground Water Monitoring Activities	8
	4.1	Monitoring Frequency	8
	4.2	Monitoring Well Network	8
5.0	Sumi	mary and Conclusions	9

Table of Contents

January 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site Hattiesburg, Mississippi

Figures

1-1	Existing Monitoring Well Network
3-1	January 8, 2007 Potentiometric Surface Map - Process Area and Offsite
3-2	January 8, 2007 Potentiometric Surface Map - Fill Area
3-3	Approximate Extent of Affected Ground Water - January 2007
	Tables
2-1	Summary of Monitoring Well Completion Information
2-2	Analytical Parameters
3-1	Summary of Ground Water Elevation Data
3-2	Summary of Ground Water Monitoring Data
3-3	Natural Attenuation Parameters - Comparison of Affected Wells to
	Background Wells

Appendices

A	Site Background Information
В	January 2007 Laboratory Reports
\boldsymbol{C}	Charts Depicting Naphthalene vs. Time

January 2007 Ground Water Monitoring Report

Former Gulf States Creosoting Site Hattiesburg, Mississippi

Executive Summary

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

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

In 2003, KMC implemented remedial measures that included the removal and offsite disposal of materials constituting potential sources of ground water contamination (i.e., materials containing free product and crossote-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 January 2007. Ground water monitoring was performed in accordance with the Mississippi Department of Environmental Quality (MDEQ)-approved Ground Water Monitoring Plan (Michael Pisani & Associates, June 25, 2001). Detailed site background, including information on previous ground water investigations and source area remediation, was provided in Section 1.0 of the Ground Water Monitoring Report, Initial Eight Quarterly Events (Michael Pisani & Associates, March 16, 2005). This background information is provided as Appendix A to this report.

2.0 Ground Water Monitoring Program

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

2.1 Ground Water Monitoring Well Network

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

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

2.2 Summary of Ground Water Monitoring Activities

The January 2007 monitoring event was conducted during the week of January 8, 2007. Activities undertaken during the event included:

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

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

2.2.1 Sample Containers and Preservatives

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

2.2.2 Water Level Measurement and Well Purging

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

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

2.2.3 Sample Collection and Handling

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

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

2.2.4 Chain-of-Custody Control

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

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

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

2.2.5 Analytical Program

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

3.0 Ground Water Monitoring Results

This section summarizes the results from the January 2007 ground water monitoring event. Information on ground water flow, a summary of laboratory analytical results, and an evaluation of monitored natural attenuation are provided in the following subsections.

3.1 Ground Water Flow Assessment

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

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

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

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

3.2 Ground Water Analytical Results

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

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

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

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

In most wells, naphthalene concentrations were relatively consistent over the initial eight quarterly events and three subsequent annual events (i.e., concentrations remained within the same order of magnitude). Naphthalene concentrations in wells MW-17 and MW-19 continue to show decreasing trends, indicating that the source removal activities conducted in 2003 are showing positive effects. None of the wells showed significant increasing trends, nor were target constituents reported for the first time in any plume defining or "sentinel" wells.

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

3.3 Natural Attenuation Evaluation

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

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

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

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

The dissolved oxygen readings from the January 2007 event were significantly different than those previously measured, indicating a meter malfunction for this parameter. The other MNA results summarized in Table 3-3 indicate that, with the exception of MW-2R, most wells within the former Process Area/northeast drainage ditch plume showed strong evidence or positive trend analysis indicating natural attenuation. The evaluation was less meaningful for the Fill Area because ever since installation of the Waterloo Barrier in 2003, well MW-12 is no longer really located within the Fill Area plume. Overall, however, the data demonstrate that conditions are favorable for natural attenuation to occur, and the overall decreasing naphthalene concentrations are an indication of such attenuation.

4.0 Future Ground Water Monitoring Activities

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

4.1 Monitoring Frequency

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

4.2 Monitoring Well Network

Well MW-09, which is located adjacent to Martin Luther King Avenue, was damaged during road construction in 2005; soil and other surface debris have apparently entered the well. In late 2006, Tronox requested MDEQ approval to abandon well MW-09. Subsequent to the January 2007 monitoring event, MDEQ issued a letter requiring that the well be either repaired or replaced. Tronox will plug and abandoned the existing well and install a replacement well prior to the next sampling event, which is scheduled for December 2007.

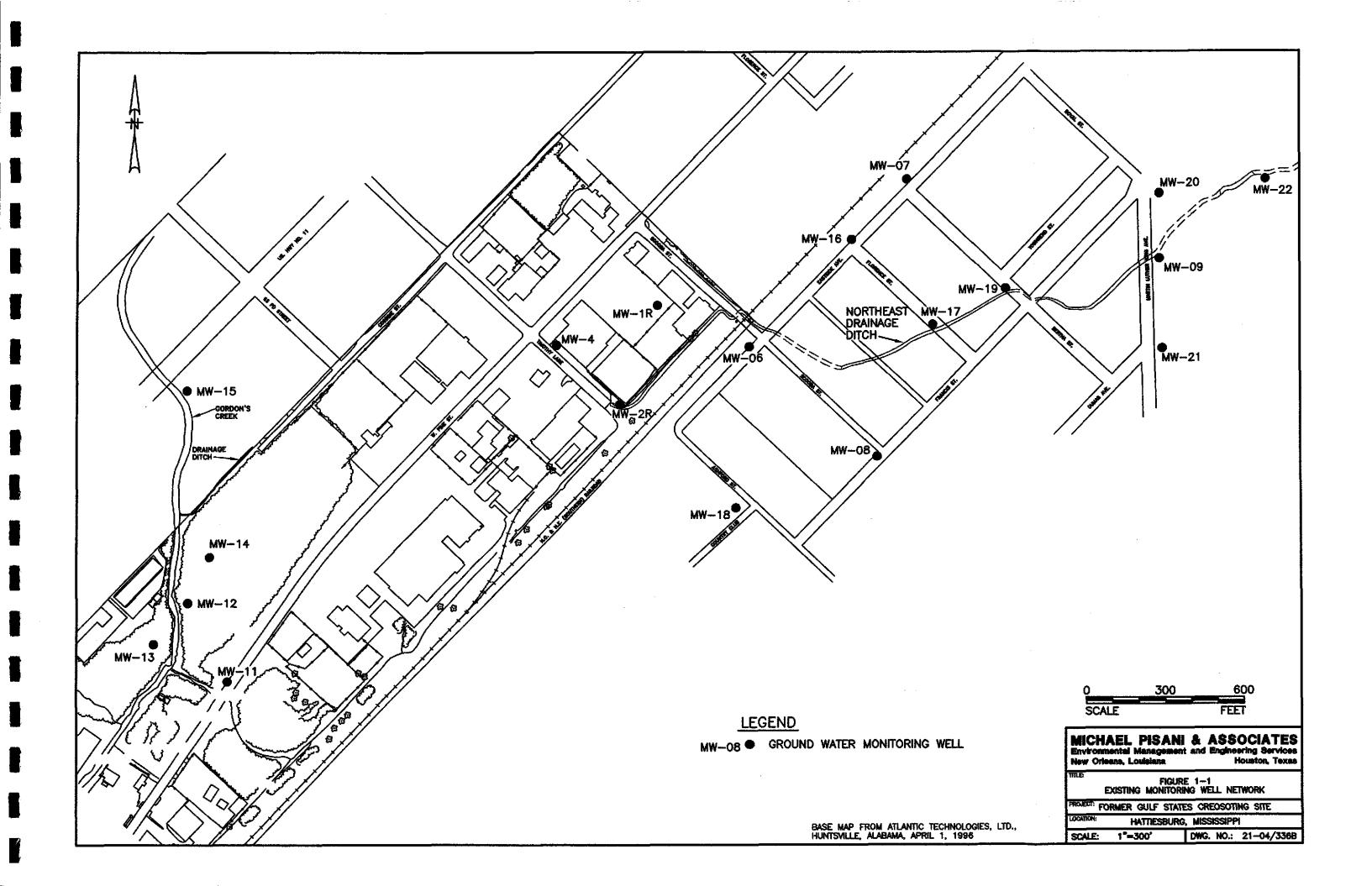
5.0 Summary and Conclusions

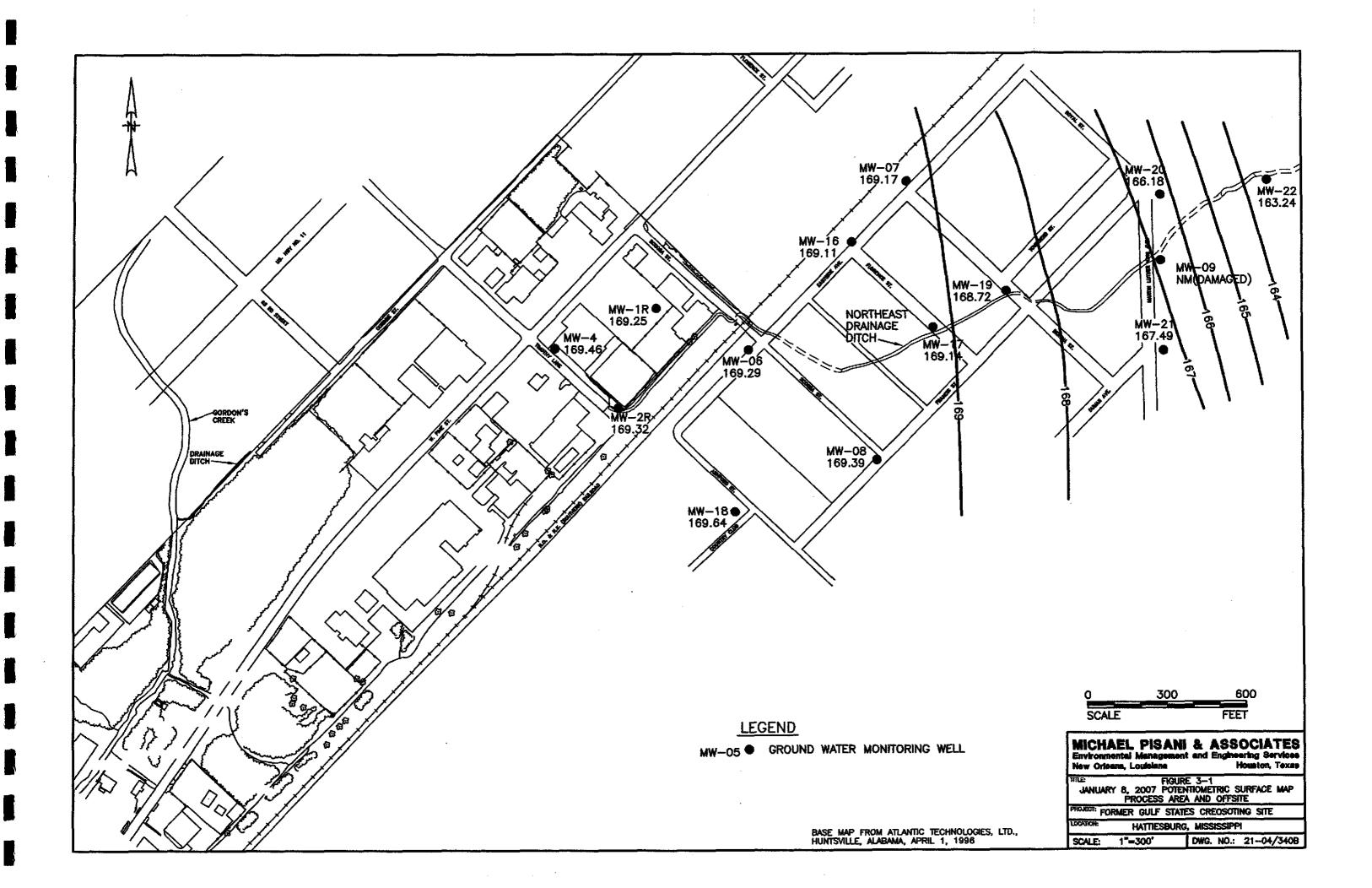
The following summary and conclusions are based on the results of ground water monitoring activities at the site to date:

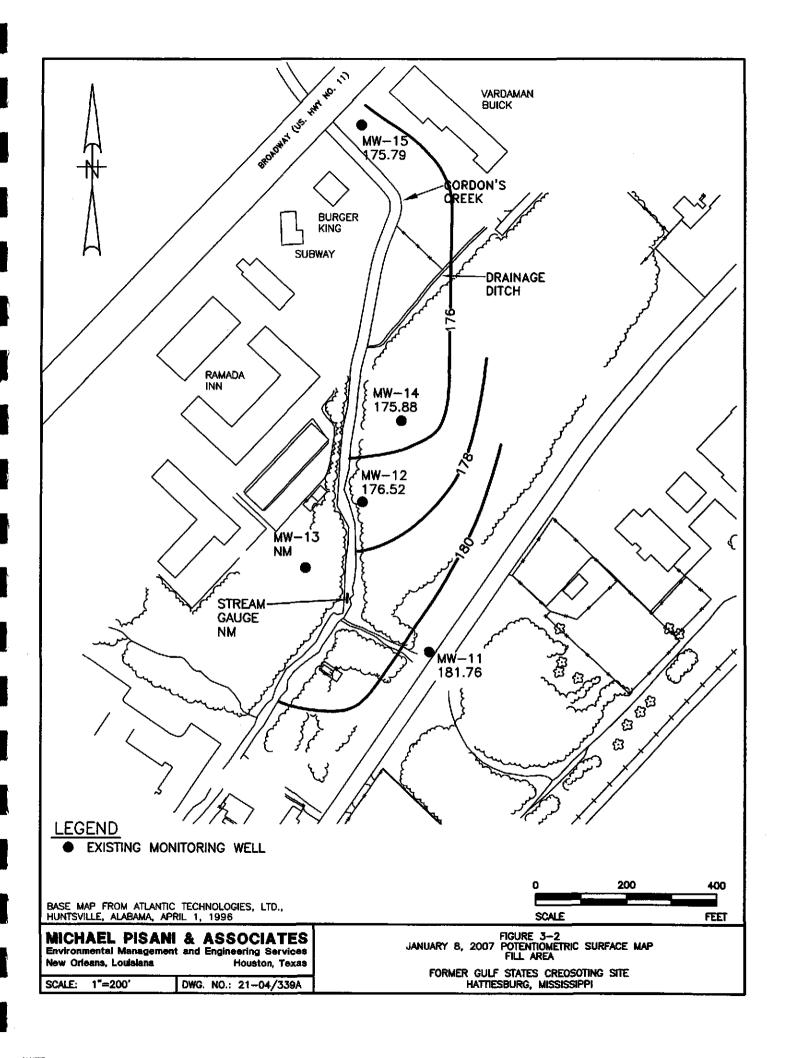
- 1. Tronox has conducted ground water investigations at the site since 1996. Affected ground water is present in two separate and distinct areas. The extent of affected ground water in both areas has been delineated.
- 2. The affected shallow water-bearing zones are not used for any purpose in the Hattiesburg area. Furthermore, a 2002 City ordinance prohibits the development and use of ground water within the City limits.
- 3. Tronox has completed remedial measures that included the removal of potential sources of ground water contamination. In addition, containment measures (i.e., vertical and horizontal barriers) reduce the potential for migration of affected ground water and preclude infiltration/percolation of water through affected soils left in place.
- 4. Constituent concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, sampling results indicate that conditions are favorable for continued natural attenuation of ground water constituents.
- 5. Tronox plans to continue annual ground water monitoring at least through 2008. In addition, Tronox will plug and abandon well MW-09 and install a replacement well before the next monitoring event. Tronox will also plug and abandon well MW-13 when access can be obtained from the surface leaseholder.

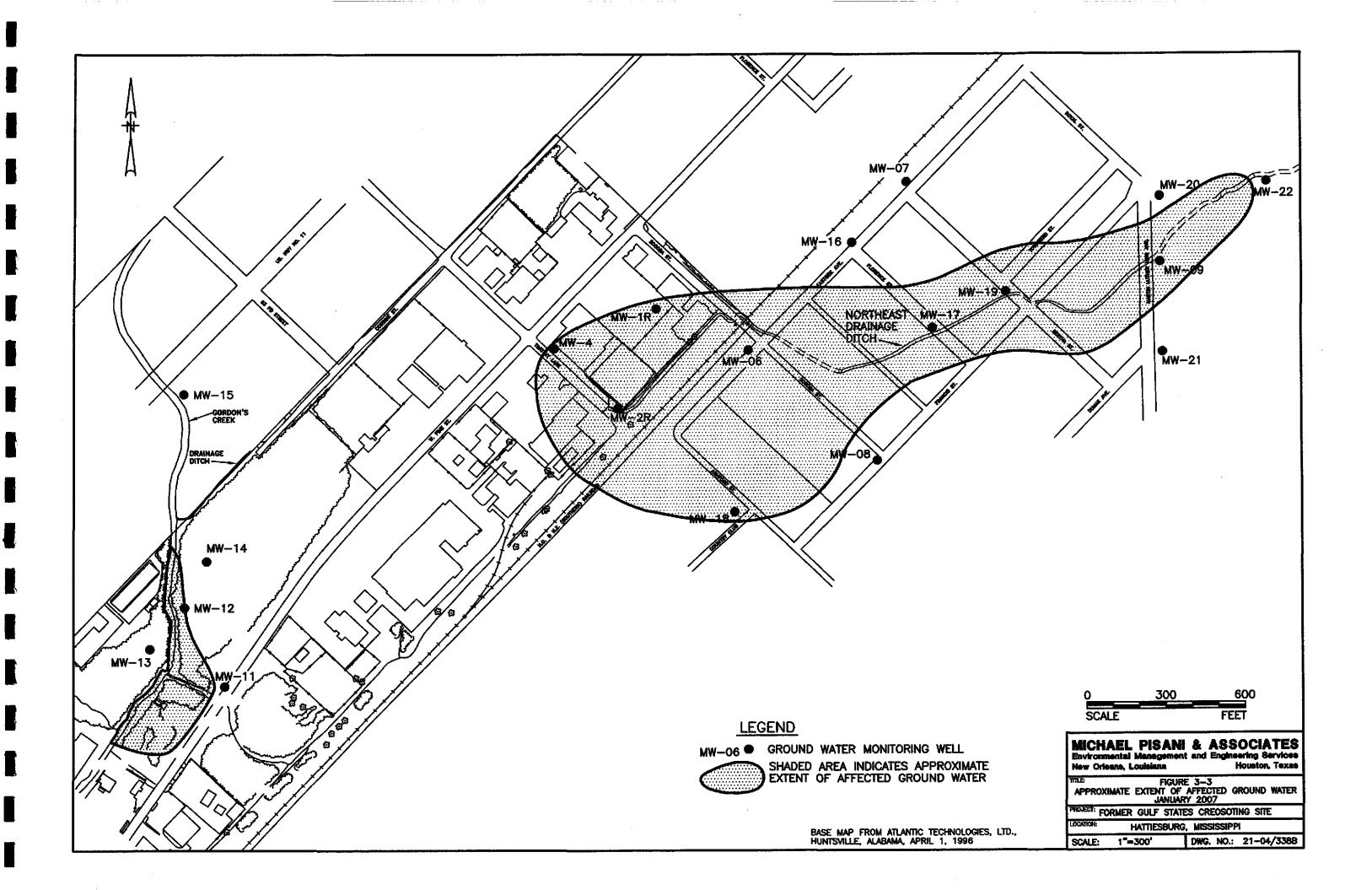
Figures

January 2007 Ground Water Monitoring Report









Tables

January 2007 Ground Water Monitoring Report

Table 2-1 Summary of Monitoring Well Completion Information

Former Gulf States Creosoting Site Hattiesburg, MississIppi

Screened Interval Elevation (ft. msl)	147.06-152.06	146.45-151,45	157.42-167.42	147.44-167.44	148.45-168.45	148.73-168.73	146.99-161.99	173.76-178.76	161,84-166.84	164.98-174.98	163.48-168.48	171.17-176.17	148,42-168.42	147.94-167.94	149.30-164.30	146.50-166.50	146.56-166.56	150,15-165,15	141.92-161.92
Screened Interval (ft. bls)	37-42	39-44	24-34	18-38	18-38	20-40	13-28	9-14	17-22	9-19	17-22	11-16	20-40	12-32	27-42	12-32	13-33	21-36	97-9
Top of Casing <u>Elevation (ft. msl)</u>	189.06	190.45	191.42	185.44	186.45	188.73	174.99	187.76	183.84	183.98	185.48	187.17	188.42	179.94	191.30	178.50	179.56	186.15	167.92
Well Depth (ft. bls)	42	4	34	38	38	4	28	4	22	19	22	16	42	\$	4	æ	35	38	28
Construction <u>Material</u>	Stainless Steel	Stainless Steel	PVC	PVC	PVC	Pvc	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	Pvc	PVC
Welf Diameter (inches)	2	7	4	2	7	7	7	7	7	8	7	2	7	7	7	21	7	7	2
Borehole Diameter (inches)	12/8.25	12/8.25	10.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25
Date Installed	August 2000	August 2000	May 1994	September 1998	September 1998	Saptember 1998	September 1998	September 1998	September 1998	September 1998	November 2001								
Well	MW-1R	MW-2R	MW-4	MW-06	MW-07	MW-08	MW-09	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-21	MW-22

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

Table 2-2 **Analytical Parameters**

Former Gulf States Creosoting Site Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons

Biogeochemical Parameters Nitrate

Naphthalene

Acenaphthylene

Sulfate

Acenaphthene

Methane

Fluorene

Alkalinity

Phenanthrene

Chloride

Anthracene

Fluoranthene

Iron (total and dissolved)

Pyrene

Benzo(a)anthracene

ρН

Chrysene

Temperature

Benzo(b)fluoranthene

Specific conductance

Field Parameters

Benzo(k)fluoranthene

Dissolved oxygen

Benzo(a)pyrene

Ferrous iron

Dibenzo(a,h)anthracene

Oxidation-reduction potential (Eh)

Benzo(g,h,i)perylene

Indeno(1,2,3-c,d)pyrene

Summary of Ground Water Elevation Data Table 3-1

Former Gulf States Creosoting Site Hattiesburg, Mississippi

12/12/2005 1/8/2007	GW Elev. GW Elev.											175.01 175.88			168.00 169.14					
12/13/2004	GW Elev	170,06	170.08	170.33	169.90	169.60	169.78	167.23	181.53	175.74	Ž	174.83	175.57	169.87	169.64	170.15	169.25	167.16	167.85	
10/6/2003	GW Elev	169.78	170.22	170.27	169.49	169.20	169.23	166.56	180.75	175.71	Ž	175.66	175.43	169.42	169.22	169.80	168.74	166.74	167.21	
6/23/2003	GW Elev	171.55	172.10	171.89	171.38	171.09	171.18	168.78	180.47	176.44	176.86	176.42	175.87	171.32	171.13	171.52	170.85	168.80	169.13	
3/24/2003	GW Elev	174.75	175.16	175.54	174.53	173.80	174.51	170.88	181.87	178.21	179.98	179.16	176.46	174.21	174.15	175.08	173.40	170.80	171.87	
12/16/2002	GW Elev.	173.29	173.50	173.71	173.14	172.54	173.25	170.24	181 44	176.54	178.58	177.18	176.05	172.87	172.89	173.92	172.25	170.05	170.92	
9/16/2002	GW Elev	169.11	169.55	169.62	168.86	168.68	168.63	166.89	178.96	174.04	175.73	174.03	175.03	168.87	168.49	169.10	168.28	167.21	167.15	
6/6/02	GW Elev.	170.48	170.70	170.92	170.24	169.95	169.98	167.84	180.14	175.94	176.68	176.23	175.27	170.20	169.92	170.45	169.55	167.96	168.20	
3/18/02	GW Elev.	173.31	173.59	173.71	173.13	172.48	171.14	170.03	181.30	177.11	178.77	177.66	175.79	172.90	172.82	173.64	172.24	169.88	170.64	
12/18/01	GW Elev	170.65	170.70	171.07	170.59	170.25	170.63	168.78	181,28	176.52	177.53	176.68	175.52	170.57	170.69	170.85	170.23	168.65	169.12	
Surveyed	TOC Elev	189.06	190.45	191.42	185.44	186.45	188.73	174.99	187.76	183.84	183.98	185.48	187.17	188.42	179.94	191.30	178.50	179.56	186.15	
	Well	MW-1R	MW-2R	MW-4	MW-06	MW-07	MW-08	90-WW	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-21	

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.

Units Result MDL Result Result Result Result Result Result Result MDL Result		_	₩	2001	March 2002	2002	June 2002	902	Septemb	er 2002	Decemb	er 2002	March	ÇV.	June 2003	003	Octobe	¥ 2003		ember 20		imber 20		nuary 2007
Accinaphthylene 1gg/1 110 110 0.8 4/1 0.9 1.5/1 Cenaphthylene 1gg/1 ND(110) 11 0.9 0.04 0.3 0.04 0.19/1 Cenaphthylene 1gg/1 ND(110) 11 0.9 0.04 0.3 0.04 0.19/1 0.02/1 0.02/1 0.02/1 0.0	_	,	Result	Ā	Result	MO	Result	MDL	Result	IOM	Result MDL	MDL	Result	MOL	Result	MDL	Result	Result MDL	!	Result MDL	'	Result MDL		Result MDL
Anthracene lyg/l ND(110) 11 6 9 8 4 0.9 0.86j Anthracene lyg/l ND(110) 11 0.9 0.04 0.03 0.04 0.19j (ga.l.)perylene lyg/l ND(110) 11 0.06j 0.02 0.03j 0.02 0.02g (ga.l.)perylene lyg/l ND(110) 11 ND(0.99 0.02 0.03j 0.02 0.02g (ga.l.)perylene lyg/l ND(110) 11 ND(0.2) 0.04 0.05j 0.04 ND(0.2) (ga.l.)perylene lyg/l ND(110) 11 ND(0.2) 0.04 0.05j 0.04 ND(0.2) (ga.l.)perylene lyg/l ND(110) 11 ND(0.2) 0.02 0.03j 0.02 ND(0.1) Fluoranthane lyg/l ND(110) 11 ND(0.2) 0.04 ND(0.2) Fluoranthane lyg/l ND(110) 11 ND(0.2) 0.04 ND(0.2) Fluoranthane lyg/l ND(110) 11 ND(0.2) 0.04 ND(0.2) Fluoranthane lyg/l ND(110) 11 ND(0.2) 0.04 ND(0.4) Naphtbalene lyg/l ND(110) 11 O.44 0.2 ND(0.4) 0.02 Naphtbalene lyg/l ND(110) 11 O.44 0.2 ND(0.4) 0.02 Ilinity to pH 4.5 mg/l ND(110) 11 O.44 0.2 ND(0.9) 0.2 ND(0.4) Naphtbalene lyg/l ND(110) 11 O.44 0.02 ND(0.9) 0.2 ND(0.8) Ilinity to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.41 ND(2) 0.41 ND(2) Naphtbalene lyg/l ND(2) 0.41 ND(2) 0.41 ND(0.5) 0.4 1.5 ND(0.8) Ilinity to pH 8.3 mg/l ND(0.5) 0.4 ND(0.5) 0.4 ND(0.5) 0.4 ND(0.5) Naphtbalene lyg/l ND(0.5) 0.4 ND	ene	5	110	Ξ	5	8.0	ৰ	6.0	<u>.</u>	9.0	ND(15)	8	ND(15)	2	4.2	5.	ND(17)							
Anthracene light ND(110) 11 0.9 0.04 0.3 0.04 0.19] (a) Librarcene light ND(110) 11 0.09] 0.02 0.02] 0.02 0.029] (a) Correct olds) 0.02 0.029 0.	_		J (110)	Ξ	80	8.0	₹	6.0	0.86	9.0	ND(15)	7	ND(15)	7	2.6	5.5	ND(17)							
(a) Indication (a) Indication (b) Indication (c) Indicatio	Anthracene	r VBr	JD(110)	7	6.0	0.04	60	9.0	0.19	9.0	0.17	0.0	0.066	0.0	0.3	0.038	ND(0.11)	_		_				_
Chrystone Light ND(110) 11 ND(0.08) 0.02 0.03 0.02 ND(0.1) Other O	_		Q(110)	Ξ	0.09	0.02	0.04j	0.02	0.028	0.02	ND(0.1)	0.02	(60:0)QN	0.02	ND(0.095)	0.019	ND(0.11)	_		_				_
(igh.) iperylene tigf ND(110) 11 ND(0.2) 0.04 0.05i 0.04 ND(0.8) (igh.) iperylene tigf ND(110) 11 ND(0.8) 0.02 ND(0.6) 0.01 ND(0.6) Chrysene tigf ND(110) 11 ND(0.4) 0.08 ND(0.4) 0.09 ND(0.1) ND(0.4) 0.09 ND(0.4) 0.00 ND(0.2) ND(0.4) 0.00 ND(0.2) ND(0.2) ND(0.4) 0.00 ND(0.2) ND(0.4) 0.00 ND(0.2)	_		<u>(0110)</u>	Ξ	ND(0.09)	0.05	0.03	0.02	ND(0.1)	0.05	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(0.22)	_		_			_	_
(g.h.) perylene µg/l ND(110) 11 ND(0.5) 0.09 ND(0.5) 0.1 ND(0.5) Kilburaanthene µg/l ND(110) 11 ND(0.49) 0.02 ND(0.4) 0.08 ND(0.4) 0.08 ND(0.4) 0.09 ND(0.4) ND(0.4) ND(0.4) ND(0.4) ND(0.4) 0.09 ND(0.4) ND(0.4) ND(0.4) 0.09 ND(0.4) ND(0.4) </th <th></th> <th>-</th> <th>D(110)</th> <th>Ξ</th> <th>ND(0.2)</th> <th>0.04</th> <th>0.05</th> <th>0.0</th> <th>ND(0.2)</th> <th>0.04</th> <th>ND(0.2)</th> <th>9,0</th> <th>ND(0.2)</th> <th>0.0</th> <th>ND(0.19)</th> <th>0.038</th> <th>ND(0.65)</th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th>_</th> <th>_</th>		-	D(110)	Ξ	ND(0.2)	0.04	0.05	0.0	ND(0.2)	0.04	ND(0.2)	9,0	ND(0.2)	0.0	ND(0.19)	0.038	ND(0.65)			_			_	_
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Fluorentrhene kg/l ND(110) 11 5 0.2 0.3 0.04 0.27 Fluorent Lg/l ND(110) 11 0.7 0.04 2 0.2 0.3 2.3-cd)pyrene kg/l ND(110) 11 ND(0.4) 0.08 ND(0.4) 0.09 Naphthalene kg/l A700 110 2560 0.9 110 1 36 Phenanthrene kg/l A700 110 2560 0.9 110 1 36 Pyrene kg/l ND(110) 11 0.44 0.2 ND(0.9) 0.2 ND(0.8) Illinity to pH 4.5 mg/l 181 0.41 98.8 0.41 38.7 0.41 27.9 Illinity to ph 8.3 mg/l ND(2) 0.41 ND(2) 0.41 ND(2) 0.41 ND(2) Chloride mg/l 18.1 0.038 8.89 0.038 4.06 0.0349 2 Illinity to ph 8.3 mg/l ND(5) 0.4 ND(0.5) 0.4 ND(0.5) Illinity to ph 8.3 mg/l ND(0.5) 0.4 ND(0.5) 0.4 ND(0.5) 0.4 ND(0.5) Illinity to ph 8.3 mg/l ND(0.5) 0.4 ND(0.5) 0.	_		Ć(110)	=	ND(0.2)	0.04	ND(0.2)	0.0	ND(0.2)	0.0	ND(0.2)	0.04	ND(0.2)	90.0	ND(0.19)	0.038	ND(0.22)	_		_			_	_
Fluorene 1997 559 11 0.7 0.04 2 0.2 0.33 2.3-cd)pyrene 1997 ND(14) 11 ND(04) 0.08 ND(04) 0.09 ND(04) ND(04) 0.09 ND(05) 0.09 N	_		D(110)	£	S	0.2	0.3	0.04	0.27	0.04	0.21	9.0	0.12	0.0	0.25	0.038	0.15	_		_				_
2,3-cd)pyrene µg/I ND(110) 11 ND(0.4) 0.08 ND(0.4) 0.09 ND(0.4) Naphthalene µg/I 4700 110 250 0.9 110 1 36 Phenanthrene µg/I Afgor 110 16 0.08 2 0.09 1.5 36 Pyrene µg/I ND(110) 11 0.44 0.22 ND(0.9) 0.2 ND(0.8) nuation nilinity to pH 8.3 mg/I ND(2) 0.41 38.7 0.41 27.9 Illinity to pH 8.3 mg/I ND(2) 0.41 ND(2) 0.41 ND(2) 0.41 ND(2) Chloride mg/I 1.1 0.33 8.89 0.038 4.15 8.3 Ilmity to pH 8.3 mg/I 1.7.1 0.38 8.18 0.038 4.3 Morbitane ug/I 2.40 50 350 10 7.1 2.4 Mathane ug/I ND(6) 1.5	_		2 6	-	0.7	9.0	C)	0.2	0.93	4.0	0.68	0.2	0.21	0.2	2.6	0.17	0.93				_	_	_	_
Naphthalene Inc. 196 110 10 10 10 10 10 10	_	_	(011)	#	ND(0.4)	90.0	AD(0.4)	60.0	ND(0.4)	90.0	ND(0.4)	0.08	ND(0.4)	90:0	ND(0.38)	9,00	ND(0.43)	_	_	_	_	_	_	_
Phenanthrene µg/l 46j 11 6 0.08 2 0.09 1.5 Pyrene µg/l ND(110) 11 0.4j 0.2 ND(0.9) 0.2 ND(0.8) Illinity to pH 4.5 mg/l 181 0.41 98.8 0.41 38.7 0.41 27.9 Illinity to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.41 ND(2) 0.41 ND(2) Chiloride mg/l 18.1 0.38 8.89 0.38 4.06 0.339 2 Illinity to pH 8.3 mg/l 18.1 0.38 8.89 0.38 4.06 0.339 2 On (Dissolved) mg/l 17.1 0.38 9.12 0.38 3.72 0.349 2 Illinity to pH 8.3 mg/l ND(0.5) 0.4 ND(0.5) 0	_	5	4700	12	520	6.0	19	-	98	_	ដ	-	2.2	-	99	Ξ	4							
Pyrene µg/l ND(110) 11 0.4j 0.2 ND(0.9) 0.2 ND(0.8) nuation limity to pH 4.5 mg/l 181 0.41 98.8 0.41 38.7 0.41 27.9 limity to pH 8.3 mg/l ND(2) 0.41 ND(_	7 0	46	£	φ	0.08	Cŧ	0.09	1.5	0.08	.3	800	0.54	90.0	2.6	0.076	12	_		_				
Illinity to pH 4.5 mg/l 161 0.41 98.8 0.41 38.7 0.41 27.9 Illinity to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.42 ND(2) 0.42 ND(2) 0.43 ND(2) 0.43 ND(2) 0.43 ND(2) 0.43 ND(2) 0.44 ND(2)	_	٠ اق	(D(110)	11	0. 4.	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.5	ND(0.76)	0.17	ND(0.87)		ND(0.77)		7 0.42	2) 0.18		
linity to pH 4.5 mg/l 181 0.41 98.8 0.41 38.7 0.41 27.9 linity to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.63 ND(2) 0.4 ND(0.5) 0.4 ND(0	Attenuation																							
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Chloride mg/l 8.1 1.5 7.8 1.5 7.6 1.5 8.3 n (Total) mg/l 18.1 0.038 8.89 0.038 4.06 0.0349 2 sexted) mg/l 17.1 0.038 9.12 0.038 3.72 0.0349 2 Methane gal 17.1 0.038 9.12 0.0349 2 Methane mg/l 17.1 0.38 9.12 0.0349 2 Nitrogen mg/l ND(0.5) 0.4 ND(0.5) 0.4 0.61 Sulfate mg/l ND(0.5) 1.5 ND(5) 1.5 ND(0.5) 1.5 ND(6) LOxygen mg/l 0.54 0.34 0.76 0.27 rous iron mg/l 8 5.1 5 4 4 dion Pot, volts 14 -20 90 116 pH std. units 6.71 6.17 6.17 4.62 4.93	_	5		0.41	ND(2)	0.41		0.41	ND(2)	0.41	ND(2)	0.41		0.43	XD(2)	0.41	0.1 4 j	0.043						
Authorpean mg/l 18.1 0.038 8.89 0.038 4.06 0.0349 2 second mg/l 17.1 0.038 9.12 0.038 3.72 0.0349 2 Methane ug/l N2400 50 350 10 171 2 4.3 Methane mg/l N2400 50 350 10 ND(0.5) 0.4 ND(0.5		5		L	7.8	<u>1</u>		1.5	8.3	.	7.7	5	7,8	<u>.</u>	7.3	5	97.	1 .5						
ssolved) mg/l 17.1 0.038 9.12 0.038 3.72 0.0349 2 Methane µg/l 2400 50 350 10 71 2 43 Mitrogen mg/l ND(0.5) 0.4 ND(0.5) 0.4 ND(0.5) 0.4 0.61 Sulfrate mg/l ND(3) 1.5 ND(6) 1.5 ND(5) 1.5 ND(5) LOxygen mg/l 0.54 0.34 0.76 0.27 rous lon mg/l 0 5.1 4 4 double volts 14 -20 90 116 pH std. units 6.71 6.17 4.62 4.93	_	5		0.038	8.89	0.038	_	0.0349	8	0.0349	7	0.0349	0.082j	0.035	1.39	0.0453	0.171	0.0453	_	_			_	_
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Nitrogen mg/l ND(0.5) 0.4 ND(0.5) 0.4 0.61 Sulfate mg/l ND(5) 1.5 ND(5) 1.5 ND(5) 1.5 ND(5) Oxygen mg/l 0.54 0.34 0.76 0.27 rous iron mg/l 8 5.1 5 4 sition Pot, volts 14 -20 90 116 pH std. units 6.71 6.17 4.62 4.93	_	æ	2400	S S	320	5		N	4	N	#	7	ND(5)	2	35	7	3.7	7						
Sulfate mg/l ND(5) 1.5 ND(_	<u>~</u>	VD(0.5)	4.0	ND(0.5)	9.0		4.0	0.61	4.0	0.7	4.0	Ξ	0 .	0.81	0.4	4	0.4		0.4	_	1.5) 0.4		.6 0.05
Oxygen mg/l 0.54 0.34 0.76 custon mg/l 8 5.1 5 5 5 5 90 grd hy std. units 6.71 6.17 4.62	-	\$	(S) QQ (S)	<u>π</u>	(S) (S)	<u>ر:</u>		5	ND(5)	1 .5	ND(5)	<u>.</u>	ND(5)	<u>.</u>	ــ چون	5.	<u>.</u>	€ .	ND(5)		5 2.7j			<u>8</u> .
ingl 0.54 0.34 0.76 ingl 8 5.1 5 volts 14 -20 90 std.unlts 6.71 6.17 4.62	ameters																							
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volts 14 -20 90 std. units 6.71 6.17 4.62		<u> </u>	æ		5.4		ų;		4		2,6		0		4		0		0		0			0
std. units 6.71 6.17 4.62	_	ofts	4		გ		8		116		88		327		165		122		147.	5	9		~	83
		anlts	6.71		6.17		4.62		4.93		5.47		4.91		4.96 8		5.24		5.16		9.6	•	1453	5.8
214 101		MOX.	330		214		5		\$		8		88		99		8		75		•		,-	6
24.8	Тетрегавите	ပ္စ	23.1		24.26		24.8		24.74		24.23		23.92		24.75		32.46*		28.8	4	22	o,	Ň	E.

Notes:
mg/l - miltigrams per liter
ug/l - micrograms per centilmeter
oc - 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 tess than quantitation limit or due to fimitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Marie Mari		_	December 2001	2001	March 2002		C)		September		Эесетиры		March 2		June 2003	ğ	October	2003	Decer	December 2004	Decemb	er 2005	Janua	January 2007
Mainthonese		'	Result	델	Result	í	Result	i	Result	•	Result		Result	١.	Result	뒫	Result	₽DE	Result	₩	Result	MD	Result	MDL
Maily Mail	Acenaphthene	lig/l	4	-		8.0	61	6:0				2	25	2	99	£.	88	1.6	80		62		47	
Handlesse Half Milking 1 Milking 2 Milking 2 Milking 3 Milking 3 Milking 4 Milking	Acenaphthylene	J/Gn	æ	-		0.8	50	6.0				7	150	8	120	ا	100	16	130		9		NO.110	
threatene pg N NN(10) 1 0.04 0.02 0.05 0.02 0.04 0.02 0.05 0.02 0.04 0.02 0.05 0.02 0.05 0.02 0.05 0.02 0.05 0.02 0.05 0.02 0.02	Anthracene		(01.)	_	_	20.	ND(0.2)	3 .0				9.0	0.74	0.0	0.72	0.038	0.25	0.02	ND(10)		ND(1)		ND CO SO	
Maintenne Mai	Велг(а)алфияселе		Š	-	_	7.02		0.02				0.02	0.33	000	0.43	0.019	ND(0.1)	9	22.5	_	15.		1	_
Mile	Велхо(а)ругеле		2		_	8		9				200	1000	1 2	200	0000	2000	3 5	100	_	MD0000		200	
Maintheines	Benzo/b)fluoranthene		5			8		200				100	290	900	į	0.03	MDIO 841	5 -	0.045		1000		1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
Maintenne Main	Service billion dens					2		5 .					200	5 .	60.0	000	(10:0)	- 6	200	٠,	pco.n		F 60.0	_
Mathematical Mat	atiantiadiriuralozuaci					3 8		- ;		-		- i	NC(0.6)	_ 	(80.08)	980	0.032	0.05	ND(0.62	_	ND(0.58)		89.0)QN	
Maintenes Main	Benzolkilluoranthene		9	_		20.		0.02				0.02	0.036	0.02	90.0	0.019	S S S	0.41	0.031	_	0.031		0.043	_
Mailtonese Mai	Chrysene		9	-		89.		0.09				90.0	0.35	90.0	0.38	0.077	0.23j	0.081	0.32	_	0.18		0.20	_
Functione 144 14 14 14 14 14 14	Dibenz(a,h)anthracene		4D(10)	_		8		9.04		_	_	0.04	(D(07)	- 0.0	(D(0.19)	0.038	ND(0.2)	0.0	ND(0.21	_	ND(0,19)		ND/0.23	_
Funcione Ippl	Fluoranthene		=	-		9.0		0.2				8.0	6.0	9.0	2	6 .	7.2	0.0	8	Ū	6.8		5.7	_
Image: I			8	_		0.2						e	99	е	83	8.6	51	9	1		25		7	
pyl 12000 20. 8700 56 9800 56 8800 120 110 41 7300 83 600 31 3800 34 41 7300 83 600 31 3800 34 41 720 42 110 4 40 1 40 1 4 40 4 40 1 4 40 1 4 40 2 160 2 160 38 120 41 120 42 10 18 34 40 1 6 18 80 10 2 16 18 18 120 41 120 42 10 11 10 11 <td></td> <td></td> <td>(D)(10)</td> <td>_</td> <td></td> <td>8</td> <td></td> <td>0.09</td> <td></td> <td>_</td> <td>-</td> <td>90.0</td> <td>VD(0.4)</td> <td>90.0</td> <td>(D(0.38)</td> <td>0.077</td> <td>ND(0.41)</td> <td>0.081</td> <td>ND(0.42</td> <td>_</td> <td>ND(0.39)</td> <td></td> <td>ND/O 46</td> <td>_</td>			(D)(10)	_		8		0.09		_	-	90.0	VD(0.4)	90.0	(D(0.38)	0.077	ND(0.41)	0.081	ND(0.42	_	ND(0.39)		ND/O 46	_
Pyrene ip 140 1 110 4 140 4 150 0.8 160 2 150 3.8 120 4.1 120 4.2 110 160 94 150 150 140						22		S				120	11000	110	9700	86	8100	9	7300		8009		200	
Pyrene ig/l 2f 1 2 0 2 0 2 14 0.2 1.1 0.17 1.1 0.18 1.3 0.19 0.73 0.17 0.70 0.71 0						4		4				7	160	2	150	38	120	1.4	120		110		7	
OpyHot St mg/l 22.4 0.41 22.1 0.41 ND(2) 0.41 ND(2) 0.41 0.72 0.71 0.72 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.72 0.74 0.74		, pa	ম	-		0.2		0.2				0.2	-	0.2	9:	0.17	Ξ	0.18	ę.		0.73		0.70	
to pH 4.5 mg/l 22.4 0.41 22.1 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.41 21.7 0.42 0.41 21.4 0.42 0.42 0.41 21.4 0.42 0.42 0.41 21.7 0.41 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44 0.42 0.44																								
to pH 4.5 mg/l 22.4 0.41 22.1 0.41 ND(2) 0.42 0.42 0.41 1 5 5 1.5 5.7 1.5 5.7 1.5 5 1.5 5.7 1.5 5 1.5 5.7 1.5 5 1.5 5.7 1.5 5 1.5 5.7 1.5 5 1.5	atural Attenuation																							
Chichicle mg/l Cal							2							;		;		,	Č	;		•		,
Chicago Chic	Albeita of the last						7 4							£.0	0.12	- ;	- 17	14.0	Z (Z)	.	10.5	9 9	6.1.3	9.
Comparison Com				.			Š,	141						0.41	(Z)	-	0.42	2.04	22.4	4.		9	(S)	94.0
The color of the				ر در	,		! 0				,			بر ون	-	£.	5.8	.	5,7	. .	4	5	5,5	-
Solitate mg/l ND(0.1) 0.0368 ND(0.1) 0.0349 ND(0.1) 0.034 ND(0.1) 0.046 ND(0.2) 0.4	_			88	_		ND(0.1) O	.0349	_	_	_	_	_	7.035	0.0679	0.0453	0.0578	0.0453	ND(0.2)	0.0495	0.0813	0.0378	0.120	0.05
Methene up/l 2.8j 2 2.2j 2 ND(5) 2 2.1j 2 ND(5) 2 2.1j 2 ND(5) 2 2.1j 2 2.1j 2 ND(5) 2 2.1j 2 2.1j 2 ND(5) 2 2.2j 3 2 2.2j 3	_			.038	_		D(0.1) o	0349	_	_	_	_	_	1.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	0.0689	0.0378	0.100	0.052
Nitrogen mg/l ND(0.5) 0.4 ND(0	_			2			ND(5)	CVI						7	ND(6)	~	(6)QN	7	2.1	N	ND(5)	N	23	8
Sulfiale mg/l 19:9 1.5 18.8 1.5 20.9 1.5 21.2 1.5 19.3 1.5 20.9 1.5 21.8 1.5 19.9 1.5 17.9 1.5 18.8 1.5 19 19 15 15 15 15 15 15 15 15 15 15 15 15 15	_			0.4			VD(0.5)	4.0		_	_	-	_	9.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	4.0		4.0	ND(0.5)	0.25
Oxygen mg/l 0.42 0.48 0.26 0.33 0.25 2.04 0.5 1.3 0.36 rous fron mg/l 0 </td <td>_</td> <td></td> <td></td> <td><u></u></td> <td></td> <td></td> <td>20.9</td> <td>3.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>5.5</td> <td>21.8</td> <td>zi.</td> <td>19.9</td> <td>. 5</td> <td>17.9</td> <td>5,1</td> <td>18.8</td> <td>7.5</td> <td>19</td> <td>5.</td>	_			<u></u>			20.9	3.						5.5	21.8	zi.	19.9	. 5	17.9	5,1	18.8	7.5	19	5.
mg/l 0.42 0.41 0.48 0.26 0.33 0.25 2.04 0.5 1.3 0.36 3.05 3.05 3.04 0.0 0 <td>leid Parameters</td> <td></td>	leid Parameters																							
mg/l 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ligh.	0.42		0.41		0.48		0.26		0.33		0.25		2.0		0.5		<u></u>		0.36		4.49*	
volts 409 200 421 307 237 350 268 166 129 115 skd. units 5.56 5.36 5.31 5.31 5.11 µS/cm 102 103 107 113 113 116 113 106 • °C 21.53 22.68 22.23 22.04 22.18 25.41 23.99 22.39			0		0		0		0		0		0		0		0		0		o		9.0	
std. units 5.56 5.36 4.58 4.43 5.4 5 5.08 5.31 5.31 5.11 5.11 1.05/cm 102 108 107 113 113 116 113 106 • • • • • • • • • • • • • • • • • • •	Oxidation-reduction Pot.		409		200		421		307		237		350		268		166		129		115		107	
µS/cm 102 108 107 113 113 116 113 106 • •C 21.8 21.53 22.6 22.68 22.23 22.04 22.18 25.41• 23.99 22.39	ph sto		5.56		5.36		4.58		4.43		5.4		s		5.08		5.31		5.31		5.11		5.33	
°C 21.8 21.53 22.6 22.88 22.23 22.04 22.18 25.41* 23.99 22.39			5 2		108		107		113		13		13		116		113		90		•		15	
		ပ္စ	21.8		21.53		22.6		22.68		22.23		22.04		22.18		25.41		23.99		22.39		22.5	
																							İ	

muft - milligrams per titer

jugf - micrograms per titer

jugf - micrograms per centimeter

oC - degrees Cetstus

ND - Constituent not defected at or above laboratory reporting first shown in perentheses

MDL - Method detection limit

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

- Indicates suspect measurement likely due to instrument myelfmoston

Gulf States Creosoting Site Hattlesburg, Mississippi

		December 2007	12001	March 2002	200	June 2002	202	September	1 2002	<u> Ресешбег</u>	2002	March 2	903	June 20	8	October	2003	Decemb	er 2004	Decembe	1 2005	Januar	2007	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	Ā	Result	МО	- 1	MDL	Result	MDL	Result	MDL	Result MD	MDL	Result MOL	MDI	Result MDL	MDL	Result	MDL	Result	MDL	
Acenaphthene	Б	(OL)QN	-	ND(8)	8.0	MD(8)	9.0	NO(8)	8.0	ND(16)	8	ND(15)		ND(15)	1.5	ND(17)	1.7	ND(16)		ND(16)		ND(18)	-	
Acenaphthylene	ğ	OC 10	-	ND(8)	0.8	ND(8)	0.8	ND(8)	8.0	ND(16)	CI	ND(15)		ND(15)	1.5	ND(17)	1.7	ND(18)		ND(16)		ND(18)	9	
Anthracene	ē	() (1)	-	0.08	\$ 0.0	ND(0.2)	2	ND(0.2)	90.0	ND(0.2)	0.04	ND(0.2)		ND(0.19)	0.038	ND(0.1)	0.021	ND(0.2)		ND(0.2)	_	ND(0.22)	0.044	
Benz(a)anthracene	Þ	01,0X	-	ND(0.09)	0.02	(60.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)		ND(0.096)	0.019	ND(0.1)	0.021	ND(0.099)		ND(0.098)		ND(0.11)	0.022	
Benzo(a)pyrene	Г	ND(16)	-	ND(0.09)	0.05	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)		(960 0)QN	0.019	ND(0.21)	0.042	ND(0.099)		ND(0.098)		ND(0.11)	0.022	
Benzo(b)fluoranthene	Ę	(OL)QX	-	ND(0.2)	0.04	ND(0.2)	<u>8</u>	ND(0.2)	9.0	ND(0.2)	900	ND(0.2)		ND(0.19)	0.038	ND(0.83)	0	ND(0.2)		ND(0.2)	_	ND(0.22)	0.044	
Benzo(g,h,l)perylene	Ę	ND(10)	-	ND(0.6)	0.0	ND(0.6)	60:0	ND(0.6)	0.7	ND(0.6)	0.1	ND(0.8)	1.0	ND(0.58)	0.096	ND(0.1)	0.021	ND(0.59)	0.099	ND(0.59)	0.098	ND(0.67)	0.11	
Benzo(k)fluoranthene	ģ	ND(10)	-	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)		(960 0)QN	0.019	ND(2)	0.41	ND(0.099)		ND(0.098)		ND(0.11)	0.022	
Chrysene	<u> 5</u>	ND(10)	-	ND(0.4)	0.08	ND(0.4)	80.0	ND(0.4)	90.0	ND(0.4)	90.0	ND(0.4)		ND(0.38)	7,000	ND(0.42)	0.084	ND(0.4)	_	ND(0.39)	_	ND(0.44)	0.089	
Dibenz(a,h)anthracene	ρ	Ž (2)	-	ND(0.2)	30	ND(0.2)	\$	ND(0.2)	900	ND(0.2)	0.04	ND(0.2)		ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)		ND(0.2)	_	ND(0.22)	0.044	
Fluoranthene	Ę	(OZ)	-	ND(0.8)	0.2	ND(0.2)	<u>8</u>	ND(0.2)	0.04	ND(0.2)	ş	ND(0.2)		ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)		ND(0.2)	_	ND(0.22)	0.04	
Filtorene	ğ	() () ()	-	ND(0.2)	8	ND(0.8)	0.2	0.24	0.2	ND(0.8)	0.2	ND(0.8)		ND(0.77)	0.17	0.26	0.19	0.18		ND(0.78)		ND(0.89)	0.55	
Indeno(1,2,3-cd)pyrene	ğ	(10 (10)	-	ND(0.4)	0.08	ND(0.4)	800	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)		ND(0.38)	0.077	ND(0.42)	0.084	ND(0.4)	_	ND(0.39)	_	ND(0.44)	0.089	
Naphthalene	Ē	5	-	ND(8)	6.0	ND(8)	6.0	29	_	4. ģ.	_	ND(12)		ND(12)	7.2	88	. .	34		ND(12)		88	4.	
Phenanthrene	<u>1</u>	ND(10)	-	ND(0.4)	0.08	ND(0.4)	0.08	0.39	0.08	ND(0.4)	90.0	ND(0.4)		ND(0.38)	0.077	0.35	0.084	0.22	_	ND(0.39)	_	0.16	0.089	
Pyrene	рбп 1	ND(10)	-	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)		ND(0.77)	0.17	ND(0.84)	0.19	ND(0.79)		ND(0.78)		ND(0.89)	0.2	
Natural Attenuation																								
Parameters																								
Alkalinity to pH 4.5	Мgм		0.41	15.3	0.41		D.41		0.41		0.41		0.41		0.41	15.6	0.41	ND(2)	0.41	15.2	0.48	16.4	0.48	
Alkalinity to pH 8.3	Pig.	ND(2)	1	(5) ND(7)	0.41	Q N	0.41		0.41		0.41		0.41		0.41	ND(0,21)	0.042	15.2	0.41	ND(Z)	0.46	ND(Z)	0.46	
Chloride	E E		÷.	9.	L.				ις : -		<u>د</u>		.		5.	7.2		4.4	÷:	6.8	<u>.</u>	7.	-	
Iron (Total)	50		0.038	Z (0.1)	0.035		0.0349	٠,	0349	٠,	0349		0.035	Ψ.	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND 00 23	0.0522	
Hori (Dissolved)	5		30.0	ND(5)	3 6		3400		£ .	•	3.	_	3,		2000	ND(0.2)	200	NL(U.2)	g 5	(2.0)	9	(20)	700	
Nitrate Nitrogen	Š		0 4	ND(0.5)	4.0		4.0		4 6 0		4.0		4.0		40	ND(0.5)	4.0	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.25	
Sulfate	Ē		5.	ND(5)	5.		1.5	ND(5)	1.5	ر. اين	1.5	ND(5)	1.5	ND(6)	1.5	8	5.1	ND(5)	1.5	(g)(QN	₹.	ND(5)	ر ت	
Field Parameters																								
Dissolved Oxygen	mg/l	0.57		800		3.62		80.9		3.5		0.33		2.86		4.0		0.54		3.86		5.18		
Ferrous Iron	Įģ.	0		٥		-		0		0		0		0		0.1		0		o		0		
Oxidation-reduction Pot.	volts	403		288		639		22		308		405		276		1		14 44		17		283		
	std. units	5.67		5.44		9		5.43		3.54		505		5.11		5,38		5.28		5.33		5.17		
Specific Conductance	nS/cm	62		£ 8		æ ;		29		8 :		8		8		\$		69		. 6		9		
lemperature	ş	74.5		23.24		7.47		4		\$		27.08		24.38		37.80		24.34		ZZ 21		7.1.7		

mg/l - miligrams per liter

pg/l - micrograms per liter

pg/l - degrees Celsius

NA - Sample not analyzed for this consittuent

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

MDL - Method detection limit

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

		December 200	¥ 2001	March 2002	3002	June 2002	200	September	1	December	2002	March 2003	8	June 2(සි 	October	2003	Decerit	er 2004	Овсещо	¥ 2005	Januar	2007
Polycyclic Aromatic Hydrocarbons (PAHs)	SILES Calles	Result	MD	Result	₩ W	Result	MD	Result MDL		Result MDL	MD	Result	MDL	Result MD	ď	Result MDL	MD	Result MDL	MDF	Result	MDL	Result	MDL
Acenaphthene	ğ	170	2	92	8.0	140	8.0	8	8.0	<u>8</u>	8			ş	ا .	120	£.	55		8		150	-
Acenaphthytene	Ē	ND(188)	5	150	80	150	8.0	130	9.0	170	2			160	5	120	15	ND(770)		5		ND(160)	160
Anthracene	ē	ND(100)	9	7	0.2	9	0.04	6.6	0.04	8.6	0.4			æ	0.77	ND(0.095)	0.019	6	_	4.5	_	7	0.045
Benz(a)anthracene	Ē	ND(100)	9	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02			(D(0.096)	0.019	ND(0.095)	0.019	ND(0,096)	_	(660 0)QN		ND(0.11)	0.023
Berzo(a)pyrene	5	ND(100)	\$	(60 0)QN	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02			ND(0,096)	0.019	ND(0.19)	0.038	ND(0.096)	_	000 DON		ND(0.11)	0.023
Benzo(b)fluoranthene	Ē	ND(100)	5	ND(0.2)		ND(0.2)	9.0	ND(0.2)	90.0	ND(0.2)	0.04			ND(0.19)	0.038	ND(0.67)	0.096	ND(0,19)	_	ND(0.2)	-	ND(0.23)	0.045
Bertzo(g,h,i)perylene	ğ	ND(188)	6	ND(0.6)	0.08 0	ND(0.6)	-0	ND(0.6)	-	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	960'0	ND(0.095)	0.019	ND(0.58)	960.0	ND(0.59)	0.039	ND(0.68)	0.1
Benzo(k)fluoranthene	Ę	ND(100)	우	ND(0.09)		ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02			ND(0.096)	0.019	ND(2)	0.41	ND(0.096)	_	ND(0.099)		ND(0.11)	0.023
Chrysene	Ē	ND(100)	우	ND(0.4)		ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	90.0			ND(0.38)	0.077	ND(0.38)	0.076	ND(0.39)	_	ND(0.39)		ND(0.45)	0.09
Dibenz(a,h)anthracene	ž	ND(100)	2	ND(0.2)	~	ND(0.2)	0.04	ND(0.2)	20	ND(0.2)	0.04			ND(0.19)	0.038	ND(0.19)	0.038	ND(0.19)	_	ND(0.2)		ND(0.23)	0.045
Fluoranthene	Ž	ND(100)	9	88		8	0.04	2.6	800	2.3	600			2.7	0.038	1.9	0.038	2.4	_	-5		2.5	0.045
Fluorene	ğ	120	2	8		95	_	얾	0.2	120	8			5	3.6	88	80	20		65		35	Ξ
Indeno(1,2,3-cd)pyrene	μğ	80(18)	₽	ND(0.4)	~	ND(0.4)	90.0	ND(0.4)	0.09	ND(0.4)	90.0			ND(0.38)	0.077	ND(0.38)	0.076	ND(0.39)	_	ND(0.39)		ND(0.45)	60.0
Naphthalene	Ē	9100	8	7300		6800	8	8200	_	980	120 120			8200	88	9400	2/	7100		4100		9200	58
Phenanthrene	Г Б	<u>6</u>	₽	8	0.4	67	0.4	8	90.0	æ	8.0			æ	1.5	8	3.8	\$		45		9	1.8
Pyrene	Ď	ND(188)	2	0.6	0.2	0.7	0.2	7.7	0.2	0.77]	0.2			0.74	0.17	0.67	0.17	0.78		42		0.82	0.7
Natural Attenuation																							
Parameters																							
Alkalinity to pH 4.5	MgA	97.6	0.41	11	0.41		0.41		0.41		0.41		0.41	110	0.41	108	0.41	ND(2)	0.41	104	0.46	98.2	0.46
Alkalinity to pH 8.3	₩ Du		0.41	ND(2)	0.41		0.41		0.41		0.41		0.41	ND(2)	0.41	60	0.038	97.5	0.41	ND(2)	9	ND(2)	0.46
Chloride	₩ J		(;	80	5.		1.5		5.		1.5		5.	9.6	1.5	8.4	5,	80	ر دن	, P.	5.	9	-
Iron (Total)	₩		0.038	23	0.038		0.0349	_	0349	_	0348	_	3035	16.8	0.0453	18.8	0.0453	ដ	0.0495	56.9	0.0378	26.1	0.0522
(Dissolved)	Ž,		0.038	23	0.038		0.0349	~	0349	_	.0349	_	.035	17.9	0.0453	18.9	0.0453	22	0.0485	26	0.0378	25.B	0.0522
Methane	Ę		20	1400	5		ş		۲۷		හු		S	1900	ş	40	ස	2500	8	1400	4	2300	200
Nitrate Nitrogen	e i	ND(0.5)	4 4	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	4. 1	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	0	ND(0.5)	0.25
ANNINO	<u></u>		<u>;</u>	a,	<u>.</u>	9	9		o.		0		ū.	(1.7)	ū.	2.2	c,	4, 4,	d.	io S	e.	<u>.</u>	¢.
Field Parameters																							
Olssolved Oxygen	μĝω	0,35		0.26		0.41		0.17		0.33		0.11		2.68		0.3		0.18		0.37		5.87*	
Ferrous Iron	Ď.	~		ιĊ		e		4.5		eQ.		4.2		6.6		5.2		4		4		0	
Oxidation-reduction Pot.	n Pot. volts 58	œ		-177		-116		-8 7		Ŗ		÷		Ŗ		86		60.3		-154		8	
A. H.	td. units	6.19		6.18		4.92		5.46		6.03		6.81		5.37		6.08		5.82		5.78		5.77	
Specific Conductance	₽S/cm	215		246		239		236		5 2		508		346		50 0		213		•		210	
Temperature	ပူ	23.1		21.58		22.5		22.74		22.67		21.2		22.74		32.19*		24.08		21.14		23	
;																							

Notes:

mg/ - milligrams per liter

ug/ - milligrams per liter

ug/ - micrograms per liter

ug/ - micrograms per liter

ug/ - micrograms per liter

ug/ - degrees Celsius

vC - degrees Celsius

NA - Sample not analyzed for this constituent

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

ND - Method detection limit

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

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

- Indicates suspect measurement likely due to instrument maffunction

_	5	December 2001	March 2002	Z,		ħ	Fellipal 7007	Decembe	, 777 F	May Co. Su	3	June 2003						December 2005	ange	January 2007
	ts Result	MDL	Result	달	Result MDI	اء ا.	Result MDL	Result MDL	MDL	Result MDL	1	Result MDL	اد ا	Result MDL	_ _	Resutt MDL		ult MDL	Result	MDL
Son ecertification	MD/10	·	(S)CN	a	MDress	Ž.		MD/161	c										100	
				9 6		2		1000	4 5											
		- ·	(0)	9 ;				i i	¥											
_	ND(10)	6 -	ND(0.2)	200	_	0.0 N N		ND(0.2)	2		_					_		_	ND(0.22	_
	_	e -	(60:0)QN	0.02	_			ND(0.1)	0.02		_					_	_	_	ND(0.11	_
Benzo(a)pyrene µg/l	_	-	(60.0)ON	0.02	ND(0.1) 0.			ND(0.1)	0.02		_			_	_	_	_	_	ND(0.11	_
	1 ND(10)	- 6	ND(0.2)	0.04				ND(0.2)	0.Q		_			_		_		_	ND(0.22	_
Benzo(g,h,i)perylene µg/		- 6	ND(0.6)	0.09				ND(0.6)	0.1		_					_		_	ND(0.65	
Benzo(k)fluoranthene µg/		- -	(60'0)QN	0.02				ND(0.1)	0.02		_					_		_	ND(0.11	_
Chrysene µg/l		-	ND(0.4)	90.0	ND(0.4) 0.			ND(0.4)	90.0		_			_		_		_	ND(0.43	_
		- ദ	ND(0.2)	90				ND(0.2)	90		_			_	_	_			ND(0.22	_
Fluoranthene µg/l		-	ND(0.8)	0.2				ND(0.2)	20.0					_	_	_		_	ND(0.22	_
Fluorene µg/I		- 6	ND(0.2)	0.04		0.2 ND	0.0) 0.2	ND(0.8)	0.2		0.2 N								ND(0.87	
Indeno(1,2,3-cd)pyrene µg/l		-	ND(0.4)	90.0				ND(0.4)	0.08		_			_		_		_	ND(0.43	_
Naphthalene ug/l		<u>-</u>	ND(8)	6.0				ND(12)	_		_								ND(13)	
Phenanthrene µg/l		-	ND(0.4)	90.0				ND(0.4)	90.0	_	_			_		_		_	ND(0.43	_
Pyrene µg/l	(OL)QN 1	-	ND(0.8)	0.2	ND(0.9) 0	Ž.	ND(0.8) 0.2	ND(0.8)	0.2	ND(0.8)	_	VD(0.8) 0.18		ND(0.78) 0.18		ND(0.77) 0.17	7 ND(0.78)	78) 0.17	ND(0.87)	0.2
Natural Attenuation																				
Parameters																				
Alkalinity to pH 4.5 mg/l	1.4		e	0.41	3.2 0.				0.41										2.7	
_		0.41	ND(2)	0.41		0.41	5 0.41		0.41		0.41		_	(0.2) 0.039					ND(2)	
_			22.5	7.5					5.										12.2	
Iron (Total) mg/l			ND(0.1)	0.038			-	_	0.0349	_		_	_	_	_	_		٠	ND(0.2	_
	_	_	ND(0.1)	0.038			-	_	0.0349	_		_	_	_		_		_	ND(0.2	_
	3.6		ND(5)	7	ND(5)				7										(S) ND(S)	
Nitrate Nitrogen mg/l	_		1.47	4.0					4.0										5	
_			6.4	1,5			3.9j 1.5	6.4	1.5	₹		3.4] 1.5		3.4j 1.		3.1j 1.5	3.9	j 1.5	4.2j	7.5
Field Parameters																				
Dissolved Oxygen mg/l			4.31		2.92	2	22	3.45		2.92		3.28	_	15		16	2.1	10	2.96	
Ferrous Iron mg/l			0		o	_	_	٥		0		0		0		0	0		0	
Oxidation-reduction Pot. volts	la 428		528		300	334	7	367		350		396	_	96		188	290	_	284	
pH std. units			4.46		4.49	4	1 3	4. 86		4.3		4.68	4	96		4.7	4.	60	4.79	
Specific Conductance µS/cm			17.		105	=	g	92		8		126		8		12	•		137	
Temperature "C	21.4	_	21.96		21.6	23	24	22.15		21.29	••	88	33	.61*	21	3.87	19.0	ø	21.2	
Notes:																				

Notes:
mg/l - milligrams per liter
pg/n - micrograms per liter
pg/n - micro slemans per centimeter
pg/n - micro slemans per pg/n - micro slemans per pg/n - micro slemans per pg/n - micro slemans pg/n - mi

		December 2001	2001	March 2002	2002	auri	June 2002	Sentem	Pr 2002	December 2002	ar 2002	March 2003	500	June 2003	500	October 2003	2003	Decem	December 2004	Docombor 2006	Tools 2007
Polycyclic Aromatic Hydrocarbone (PAHe)	Units	Result	를	Result	MDL	Result	MDL	Result MDL	₹ E	Result	MDL	Result MDL	절	Result	₩ V	Result	₹ E	Result	MDE	Result MDL	Result MDL
Acenaphthene	ğ	240	27	230	9.0	310	6.0	280	8.0	230	8	8	7	330	ð. 6	220	5 .	200	9.	Damaged	Damaged
Acenaphthylene	ν	12	-	ND(8)		120	6.0	120	8.0	90	N	ND(55)	55	130	9	9	1.6	ND(160)	8	Damaged	Damaged
Anthracene	Ē	5	-	60	4,0	ග	4.0	97	0.8	8.6	8.0	7.6	4.0	9.3	9.79	0.066	0.02	6.	_	Damaged	Damaged
Benz(a)anthracene	Ē	ND (11)	-	0.1		<u>.</u>	0.05	0.085	0.02	0.078	0.02	0.06	0.02	0.082	0.02	ND(0.1)	0.02	0.058)	_	Damaged	Damaged
Вепго(а)ругепе	Š	ND(11)	-	ND(0.09)		ND(0.1)	0.05	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	9.0	ND(0.097)	_	Damaged	Damaged
Benzo(b)fluoranthene	Ē	ND(11)	-	ND(0.2)		ND(0.2)	9	ND(0.2)	0.0	ND(0.2)	9.0	ND(0.2)	\$ 500	ND(0.2)	0.04 0.04	ND(0.61)		MD(0.19)	_	Оатврес	Damaged
Benzo(g,h,i)perylene	Ē	Ę	-	ND(0.6)		ND(0.6)	.	ND(0.6)	<u>.</u>	ND(0.6)	0	ND(0.6)	0.1	ND(0.59)	-5	ND(0.1)	0.02	ND(0.058)	_	Damaged	Damaged
Bertzo(k)fluoranthene	ZĎ.	Ē	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.097)	_	Damaged	Demaged
Chrysene	<u>ē</u> ,	Ŝ	-	ND(0.4)		ND(0.4)	8	ND(0.4)	80	\$00.4 ND(0.4)	0.08	ND(0.4)	90.0	ND(0.4)	90.0	ND(0.4)	0.081	ND(0.39)	_	Damaged	Damaged
Dibenz(a,h)amhracene	<u> </u>	£;	- .	ND(0.2)		ND(0.2)	9 2	ND(0.2)	ğ ;	ND(0.2)	5	ND(0.2)	0.0 M	ND(0.2)	2	ND(0.2)	0.04	ND(0.19)	0.039	Damaged	Damaged
FILLOGRAMMENE	Š.	4 5	-	₽ :		7	4 .	₽ (8.0	₽ ;	80	ca (4.	Ξ.	0.79	₽ :	4.	1.		Damaged	Damaged
Fillorene	<u>ş</u> ,	5	7	2 :		199	7 ;	200	, es	<u> </u>	m ;	9	N	8	3.6	₹	.	130		Damaged	Damaged
Indeno(1,2,3-cd)pyrene	Š	Ç Ç	- !	ND(0.4)	0.08	ND(0.4)	000	ND(0.4)	BO: 9	ND(0.4)	90.0	Q Q Q	90:0	ND(0.4)	0.08	ND(0.4)	0.081	ND(0.39)	_	Damaged	Damaged
Naphrhalene	ğ.	3	×	9		1600	2 ;	2400	₽.	9	23	2	=	200	74	64	2	1300		Damaged	Damaged
Phenanthrene	ğ	=	-	97		₽	6.	120	~	33	7	\$	8.0	<u>8</u>	9.	30	0.81	110		Damaged	Damaged
Pyrene	ğ	<u>6</u>	-	w	0.2	ဇာ	0.2	6 0.	0.2	5.2	0.2	ල ල	0.2	بن 1.	0.18	4.2	0.18	2.7		Damaged	Demaged
Natural Attenuation																					
Parameters																					
Alkalinity to pH 4.5	mg/l	85.5	0.41	8	0.41	80.9	0.41	ND(2)	0.41	73	0.41	9.96	0.41	90.1	0.41	B4.9	0.41	ND(2)	0.41	Damaged	Damaged
Alkalinity to pH 8.3	5	Ω Q	0.41	ND(2)	0.41	SD(2)	0.41	8	14.0		0.41	ND(2)	0.41	ND(2)	0.41	7	9.0	118	0.41	Damaged	Damaged
Chloride	5	5.7	π	6.5	G	~	.	7.6	5.		is	~	1.5	6.9	5,	6.8	1 .	8.4	_	Damaged	Damaged
Iron (Total)	₩.	15.8	0.038	15.3	0.038	15.2	0.0349	\$	0.0349		0.0349	17.3	0.035	15.8	0.0453	₽	0.0453	26.8	0.0495	Damaged	Damaged
Iran (Dissolved)	Ē	15.5	0.038	15.5	0.038	4.8	0.0349	16.2	0.0349		0.0349	17.3	0.035	16.7	0.0453	17.6	0.0453	25.9	0.0495	Damaged	Damaged
Methane	3	280	육 :	8	e	8	₽ ;	8	₽		은	35	뭐	289	2	2	ឧ	1500	Q	Damaged	Damaged
Nitrate Nitrogen	3 6'	ND(0.5)	6	ND(0.5)	4.	ND(0.5)	7	ND(0.5)	4.	_	4	(S) (S) (S)	4	ND(0.5)	0.4	NO(0.5)	0 7	ND(0.5)	<u>0</u>	Dameged	Damaged
Schate	Š	ਲੰ	(,	9.0	r.i	Ŧ	6.1	(c) ND(2)	5.		<u>ر</u> تخ	9.6	6.	6.4	.	13.8	č.	ND(s)	.	Damaged	Damaged
FleM Parameters																					
Dissolved Oxygen	mg/l	0.46		0.3¥		0.4		0.22		0.17		0.16		4.07		0.42		1.69		Damaged	Damaged
Ferrous fron	Ē	ထ		m		^		en		S S		ო		4		4 ,		S.		Damaged	Damaged
Oxidation-reduction Pot.	volts			-179		88		-165		-72		ķ		-70.5		-186		Ę		Damaged	Damaged
\$ F3	pH std. units			6.23		4.73		2.03		6.2		4.77		5.68		96.5		6.34		Damaged	Damaged
Specific Conductance	E Sycar	# # # # # # # # # # # # # # # # # # #		<u>8</u>		£ 5		<u>.</u>		<u>-</u> {		25		88		8 8 8		529		Damaged	Damaged
lemperarura	ş	21.6		<u> </u>		c .12		24.27		7.7		18.92 CH:20		22.03		27.0		58.65		Damaged	Darnaged

Notes:
mg/ - miligrams per liter

pg/ - miligrams per liter

pg/ - miligrams per liter

pg/ - degrees Celsius

NA - Sample not analyzed for this consistent

NA - Sample not analyzed for this consistent

NA - Sample not analyzed for this consistent

NA - Landrod detection first

MDL - Method detection first

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

- indicates suspect measurement likely due to instrument malfunction

		December 2001	March 2002	25	June 2002		September 2002	Decemb	er 2002	March 200		June 2003		Stober 200.		Эесетрег 200		December 2005	Januan	, 2007
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result MDL	Result	MD	Result MDI	j	Result MDL	Result MDL	절	Result MDL		Result MDL	1	Result MDL	1	Result MDL	ŀ	MDL	Result MDL	MDF
Acenaphthene	ğ	ND(10) 1	(8) GN	0.8	ND(8)	8 N		ND(15)	7										ND(19)	
Acenaphthylene	Į,	ND(10)						ND(15)	7										ND(19)	
Anthracene	Įģ.	ND(10)	ND(0.2)	20.0	ND(0.2) 0.0		_	ND(0.2)	800				_	_		_		-	ND(0.24)	_
Benz(a)anthracene	Ē	ND(10)	ND(0.09)					ND(0.1)	0.02					_		_		-	ND(0,12)	_
Benzo(a)pyrene	ľg,	ND(10) 1	_			0.02 ND(ND(0.1)	0.02					_		_		-	ND(0.12)	•
Benzo(b)fluoranthene	Š	ND(10)	ND(0.2)					ND(0.2)	900					_		_		_	ND(0.24)	-
Benzo(g,h,i)perylene	Ž	ND(10)					0.6) 0.1	ND(0.6)	0.1		0.1 NO	(0.59) 0.1		0.095) 0.019		_		_	ND(0.71)	
Benzo(k)fluoranthene	Š	ND(10)	_				-	ND(0.1)	0.02							_		_	ND(0.12)	_
Chrysene	ď	ND(10)			ND(0.4) 0.0	0.08 ND(ND(0.4)	0.08					_		_		_	ND(0.47)	_
Dibenz(a,h)anthracene	ğ	ND(10)	ND(0.2)				_	ND(0.2)	0.0					_		_		_	ND(0.24)	_
Fluoranthene	ğ	ND(10)					_	ND(0.2)	0.04					_		_		_	ND(0,24)	_
Fluorene	νõ	ND(10)	ND(0.2)	- 80:0				ND(0.8)	0.2			_							ND(0.95)	
Indeno(1,2,3-cd)pyrene	ğ	ND(10)						ND(0.4)	0.08					_		_		_	ND(0.47)	_
Naphthalene	ď	ND(10) 1						ND(12)											ND(14)	
Phenanthrene	<u>5</u>	ND(10)	ND(0.4)	Ξ	ND(0.4) 0.08			ND(0.4)	0.08		_			_		_		_	ND(0.47)	-
Pyrene	5	ND(10) 1					ND(0.8) 0.2	ND(0.8)	0.2	ND(0.8) 0		ND(0.78) 0.1		ND(0.76) 0.1		ND(0.76) 0.17	ND(0.77)	7) 0.17	ND(0.95)	0.21
Natural Attenuation																				
Parameters																				
Alkalinity to pH 4.5	mg/	0.68j 0.41						0.7j	0.41										10	0.46
Alkalinity to pH 8.3) D							ND(2)	0.41				_	_					ND(2)	0.46
Chloride	βĜ	5.8 1.5			6.9			7.6	1.5										7.2	-
Iron (Total)	ģ		_	_			_	0.149	0.0349	_	_	_	_	_	_	Ξ	Ĭ	_	ND(0.2)	0.0522
fron (Dissolved)	₩ W	o ≏	ND(0.1)	0.038	ND(0.1) 0.03	349 ND(0.1)	0.1) 0.0349	ND(0.1)	0.0349	ND(0.1) 0.0	0.035 NE	4D(0.2) 0.0453	_	ND(0.2) 0.0453	_	0789) 0.0495	_	j 0.0378	ND(0.2)	0.0522
Methane	Ē							ND(5)	2										(9)QN	8
Nitrate Nitrogen	ğ	0.56 0.4	0.44	0.4 4	0.52 0.4			0.41j	0.4		_		_		_	_	_	_	ND(0.5)	0.25
Sulfate	mg/l		20.8					20.3	1.5							28.6 1.5	24.9		24.4	5.
Field Parameters																				
Dissolved Oxygen	l/gm	3.95	1.32		1.59	ŏ	92	0.61		1.17		71	Ö	63	J	1,63	0.15		5.56*	
Ferrous fron	₩	0	0		0	_	_	Q		0		0	-	C		0	0		٥	
Oxidation-reduction Pot.	volts	336	365		520	řŤ	g	390		515		369	Ö	B	ŕ	56.6	278		353	
Ä	pH std. units		4.18		3.7	4.4	4	4.74		3.16	7	4.57	4	4	4	4.55	3.89		4.4	
Specific Conductance	FS/GH	20	88		82	D	~	8		86		109	_	12	•	117	*		107	
Temperature	ပွ	22.3	18.92		24.9	27.	74	20. 4.		18.97	N	5.12	8	26.23	Cŧ	1.65	22.08		20.7	
Notes																				
Notes.																				

mg/ - milligrams per liter

ug/ - micrograms per liter

ug/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

ND - Analyzed detection itimit

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

* indicates suspect measurement likely due to instrument malfunction

		December 2001	12001	March 2002	2002	June 2002	2002	Septembe	r 2002	Decembe	r 2002	March 2	003	June 2	303	Octobe	r 2003	Decem	ber 2004	December		January	2007
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	3	Result	MD	Result	MDL	Result MDL	MDL	Result MDL	MD	Result MDL	₫	Result MDL	₽	Result	AD.	Result	Result MOL	Result	JON	Result	MDL
Acenaphthene	VČ1	130	-	울	8:0	8	6.0	9	9.0	83	N	5	~ 1	4.5	9,1	2.6		ND(15)		ND(15)		ND(17)	0.95
Acenaphthylene	М	16	_	æ	8.0	æ	6.0	76	9.0	4	21	₹	~	2.5	6.	2.3		ND(15)		ND(15)		2.1	1.5
Anthracene	ř	ন্ত	-	ĸ	3	4	0.0	4	0.04	1.7	500	1.4	0.04	0.08	9. 2.	ND(0.11)	_	0.067]	_	(0,19)		ND(0.21)	0.042
Benz(a)anthracene	701	ND(10)	_	MD(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	_	ND(0.095	_	ND(0.095)	_	ND(0.11)	0.021
Benzo(a)pyrene	r Bri	ND(10)	-	ND(0.1)		ND(0.1)	0.02	ND(0.1)	0.02	(1.0)QN	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.22)	0.043	ND(0.095)	0.019	ND(0.095)	0.019	ND(0.11)	0.021
Benzo(b)fluoranthene	'n	ND(10)	-	ND(0.2)		ND(0.2)	0.04	ND(0.2)	0.0g	ND(0.2)	20.0	ND(0.2)	0.04	ND(0.2)	9. 2.	ND(0.65)		ND(0.19)	_	ND(0.19)	_	ND(0.21)	0.042
Benzo(g,h,l)perylene	Г	ND(10)	-	ND(0.6)		ND(0.6)	0.1	ND(0.6)	2.	ND(0.6)	<u>0.1</u>	ND(0.6)	o T	ND(0.59)	0.1	ND(0.11)	_	ND(0.57)	_	ND(0.57)	_	ND(0.83)	0.11
Benzo(k)fluoranthene	Ę	ND(10)	_	ND(0.1)	0.05	KD(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	MD(2)		ND(0.095	_	ND(0.095)	_	ND(0.11)	0.021
Chrysene	ь	ND(10)	_	ND(0.4)		ND(0.4)	0.09	ND(0.4)	90.0	ND(0.4)	90.0	ND(0.4)	0.08	ND(0.39)	90:08	ND(0.43)	_	ND(0.38)	_	ND(0.38)	_	ND(0.42)	0.084
Dibenz(a,h)anthracene	2	ND(10)	-	ND(0.2)		ND(0.2)	0.0 Q	ND(0.2)	0.04	ND(0.2)	9.	ND(0.2)	0.0	ND(0.2)	0.04	ND(0.22)	_	ND(0.19)	_	ND(0.19)	_	ND(0.21)	0.042
Fluoranthene	Ē	-	,-	89		0,5	0.04	£.	0.04	0.27	9.	ND(0.2)	0.0	0.062	9.0	0.053		0.19j	_	ND(0.19)	_	ND(0.21)	0.042
Fluorene	ē	64	-	0.7		58	0.2	25	m	2*	0.2	6.9	0.2	ND(0.78)	0.18	2.1		ND(0.76)		ND(0.76)		ND(0.84)	0.53
Indeno(1,2,3-cd)pyrene	1	ND(10)	-	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	90.08	ND(0.4)	0.08	ND(0.39)	90.0	ND(0.43)	_	ND(0.38)	_	ND(0.38)	~	ND(0.42)	0.084
Naphthalene	Ž	2600	5	2900	8	2600	8	4800	₽	380	ø	210	-	2.2	1.2	2		ND(11)		7.8		3.7	4.
Phenanthrene	Ž	4	-	88	C)	52	7	Ħ	2	7.4	90:08	3.9	90.0	0.15	0.08	0.63	_	0.20	_	0.12	_	0.097	0.084
Pyrene	<u>1</u>	ND(10)	-	ND(0.8)	0.2	ND(0.9)	0.2	ر	0.5	ND(0.8)	0.2	ND(0.8)	0.2	0.19	0.18	ND(0.87)		ND(0.76)		ND(0.76)		ND(0.84)	0.19
Matural Attamation																							
Parameters																							
Alkalinity to pH 4.5	mg/l	808	0.41	53.5	0.41		0.41	ND(2)	0.41	48.5	0.41	51.7	0.41		0.41	50.9	0.41	ND(2)	0.41	53.5	0.46	54.6	0.46
Alkalinity to pH 8.3	mg/	ND(2)	0.41	ND(2)	0.41		0.41	49.6	0.41	ND(2)	0.41	ND(2)	0.41		0.41	0.47	0.043	49.1	0.41	ND(2)	0.46	ND(2)	0.46
Chloride	ng/	3.3	5.	3,3	5.5		5.	3.3	5.	ო	ر. دن	3.4	5.		<u>.</u>	ო	5.	3.1	1.5	2.5	5.	2.8	-
fron (Total)	mg/	2	0.038	68.	0.038		0.0349	1.78	0.0349	1.58	0.0349	1.7	0.035		0.0453	1.3	0.0453	1.08	0.0485	1.32	0.0378	0.869	0.0522
Low {Dissolved}	ē	1.62	0.038	8	0.038		0.0349	1.69	0.0349	-45	0.0349	<u>.</u>	0.035		0.0453	1.18	0.0453	1.03	0.0495	0.985	0.0378	0.582	0.0522
Methane	<u>5</u>	4 0	2	98	₽		2	0 0	우	240	2	210	2		8	\$	~	ğ	N	ß	7	忌	N
Nitrate Nitrogen	Ē	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	* 0	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	4 ·	ND(0.5)	9.4	ND(0.5)	4.0	(S.O.O.)	4.	ND(0.5)	4.0	ND(0.5)	0.25
Outrate	Ž) E	(c) (N	c:	(c) (N)	č		0	(c)ON	ū.	(c) (c)	<u>c</u>	ND(3)	ų.		<u>e</u>	(c) ND(s)	o,	(c) ND(N	G.	(c) N	Ľ.	Z.1	G.
Field Parameters																							
Dissolved Oxygen	Ē	0.65		9.4		1.25		0.18		0.22		0.27		2.17		0.29		0.5		0.81		5.83*	
_	Ē	4		2.2		3.8		cò		3,5		<u>~</u> ∞:		.		Σ		-		8.0		9.0	
Oxidation-reduction Pot.	volts			Ç.		132		20.8		49.5		97.4		5		-20.6		93		-12		4	
IS Hd	pH std. units	6.43		5.86		3.8		6.02		6.28		2		5.47		6.19		9.5		5.53		α ()	
	m2/cm	97		2		107		<u>e</u>		8		Ε		10,		2		103		•		8	
emperature	ပ္	70.		18.19		<u> </u>		20.86		20.34		18:36		20.18		26.75		77		20.22		20.3	

Notes:
mg/l - militgrams per liter

ug/l - micrograms per liter

ug/l - degrees Celsius

NA - Sample not analyzed for this constituent

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

NDI - Method detection limit

NDI - Method detection limit

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

- Indicates suspect measurement likely due to instrument malfunction

- Indicates suspect measurement likely due to instrument malfunction

Gulf States Creosoting Site Hattiesburg, Mississippi

Marcia M	Maintenane Lange Maintenane Lange Maintenane Maintenane Lange Maintenane M			December 2001	2001	March 2002	.005	June 2002	8	September	r 2002	Decembe	± 2002 ±		3003	June 2003	83	October 2003	2003	Decer	Ē	December 2005	er 2005	Januar	72007
Militory	Mathematic Mat	Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	릹	Result	夏		힣	Result	₽	Result	MD	Result	g	ļ	Ę	Result	MDL	Result	MDL	Result		Result	절
pict Mixton 1 NUCIO	Mathematical Mat	Acenaphthene	hgu!	න	-	ND(8)	9.0	(8)QN	9,0	98	9.0	ND(15)	2	ND(15)	2	ND(15)	2	ND(15)	6	4		ND(16)		2.4	
Mainthonese	Implemente jaj NUCIO 1 NUCIO	Acenaphthylene	ğ	ND(10)	<u>.</u>	ND(8)	9.0	ND(8)	9.0	0.83	9.0	ND(15)	7	ND(15)	8	ND(15)	8	ND(15)	<u>.</u>	0		ND/16)		ND(18)	
Milking Milk	NUCL 1 NUCL 1 NUCL 2 NUCL 1 NUCL 2 NUCL 1 NUCL 2 NUCL 3	Anthracene	ğ	ND (10)	-	ND(0.2)	9.0	ND(0.2)	8	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.2)	0.04	ND(0,096)	0.019	0.0	_	ND(0.2)		0.049	_
Michical Nicology Oz. Nicology	ani-physical pg NG (1) 1 NG (10,0) 0.2 NG (1) Benz(a)anthracene	9	ND(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(0.09)	0.02	ND(0.096)	0.019	ND(0.09	_	00'0'0N		ND(0.12)	-	
ranthere ppi NDCii 1 NDQCii 0 CA NDCii 0 CA	Micros Micro Mic	Benzo(a)pyrene	9	NO (10)	-	ND(0.09)	0.00	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	(60:0)QN	0.02	(61.0)QN	0.038	80:0)QN	_	ND(0.099		ND(0.12)	_
Image: Major	convienee pdf NDICtion 1.1 NDICtion 1.1 NDICtion 1.1 NDICtion 1.1 NDICtion 1.1 NDICtion	Benzo(b)fluoranthene	2	ND(10)	•	ND(0.2)	9	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	9.0	ND(0.2)	9	ND(0.2)	0.0 Ø	ND(0.58)	9600	ND(0.19	_	ND(0.2)		ND(0.23)	_
Mile	Figure Diff	Benzo(g,h,i)perylene	ğ	ND(10)	-	ND(0.6)	60.0	ND(0.6)	0.1	(9:0)QN	0.1	ND(0.6)	0,1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.096)	0.019	ND(0.57	_	ND(0.59)		ND(0.69)	
Microsolario Interviewe Big/Interviewe Big/	NUCLION 1 NUCL	Benzo(k)fluoranthene	5	ND(10)	-	(60 O)QN	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	(60 0)QN	0.02	ND(2)	0.41	ND(0.09	_	ND(0.099		ND(0.12)	_
Interviewe by NOI(10) 1 NOI(10) 2 O.4 NOI(2) 0.04 NOI(Lyd NUT(10) 1 NUT(20) 1 NUT(20) 1 NUT(20) 1 NUT(20) 0.04 NUD(0.2) 0.04 NUD	Chrysene	Ē	ND(10)	-	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	90.0	ND(0.4)	80.0	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	7,00	ND(0.38	_	ND(0.4)		ND(0.46)	-
NICLOS 1 NICLOS 0.2 NICLOS	Flucience Light NIVICAC 1 NIVICAC 0.04	Dibenz(a,h)anthracene	Ē	ND(10)	-	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	90.0	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19	_	ND(0.2)		ND(0.23)	_
Publication	Functione µg/ 3 1 ND(0.2) 0.04 0.02 0.02 0.02 0.04 0.08 ND(0.4) 0	Fluoranthene	3	ND(10)	-	ND(0.8)	0.5	ND(0.2)	0.04	MD(0.2)	0.04	ND(0.2)	8.0	ND(0.2)	9.0	ND(0.2)	9.	ND(0.19)	0.038	ND(0.15	-	ND(0.2)		ND(0.23)	_
District	Image: big Image	Fluorene	Ę	ਲ	-	MD(0.2)	90	0.2	0.2	0.43	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	1.7		ND(0.79)		66.0	
Lydy 31 1 23 0.9 10 4 4 4 4 4 4 4 4 4 4 4 4 1 ND(14) 1 ND(14) 1 ND(14) 1 ND(15) 0 ND(15) 0 ND(15) 0 ND(15) 0 ND(15) 0 ND(15) ND(15) </td <td>typical simple in pig 1 3j 1 23 0.9 10 1 42 1 62j 1 ND(11) 1 ND(12) 1 ND(12) 1 ND(13) 0 1 ND(13) 0 ND(14) ND(15) ND(15)</td> <td>Indeno(1,2,3-cd)pyrene</td> <td>50.</td> <td>ND(10)</td> <td>-</td> <td>ND(0.4)</td> <td>0.08</td> <td>ND(0.4)</td> <td>0.08</td> <td>ND(0.4)</td> <td>0.08</td> <td>ND(0.4)</td> <td>90.0</td> <td>ND(0.4)</td> <td>80.0</td> <td>ND(0.4)</td> <td>0.08</td> <td>ND(0.38)</td> <td>0.077</td> <td>ND(0.38</td> <td>_</td> <td>ND(0.4)</td> <td></td> <td>ND(0.46)</td> <td>_</td>	typical simple in pig 1 3j 1 23 0.9 10 1 42 1 62j 1 ND(11) 1 ND(12) 1 ND(12) 1 ND(13) 0 1 ND(13) 0 ND(14) ND(15)	Indeno(1,2,3-cd)pyrene	50.	ND(10)	-	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0 .08	ND(0.4)	90.0	ND(0.4)	80.0	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38	_	ND(0.4)		ND(0.46)	_
4gh ND(10) 1 ND(04) 0.06 0.19 0.019 0.019 0.02 ND(04) 0.06 0.14 0.07 0.64 0.07 0.64 0.07 0.64 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.07 0.04 0.04 0.07	Pyrene Light NDI(4) 1 NDI(4) 1 NDI(4) 1 NDI(4) 0.08 0.14 0.08 NDI(4) 0.09 NDI(4) 0.08 NDI(4) 0.08 NDI(4) 0.09 NDI(4) 0.08 NDI(4) 0.09 NDI(4) <	Naphthalene	è	ë	-	ន	6.0	9	-	4	-	62	-	ND(11)	-	ND(11)	-	ND(12)	7	\$		ND(12)		· -	
Pyrene jugit ND(10) i ND(0.8) 0.2 ND(0.8)	Pyrene lugif ND(10) 1 ND(10) 1 ND(08) 0.2 ND(0.8) 0.2	Phenanthrene	ğ	ND(10)	-	ND(0.4)	0.08	0.1	0.08	0.19	0.08	MD(0.4)	90.0	ND(0.4)	90.0	ND(0.4)	90.0	0.14	0.077	9	_	ND(0.4)		0.35	_
Dio PH 45 moft 137 0.41 137 0.41 138 0.41 ND(2) 0.41 127 0.41 127 0.41 127 0.41 108 0.41 137 0.41 138 0.41 ND(2) 0.41 </td <td>pop H 45 mg/l 287 0.41 137 0.41 127 0.41 108 0.41 137 0.41 ND(2) 0.42 ND(2) 0.41 ND(2) 0.42 ND(2) 0.41 ND(2)</td> <td>Pyrene</td> <td>μĝη</td> <td>ND(10)</td> <td>₹~</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.8)</td> <td>0.2</td> <td>ND(0.77)</td> <td>0.17</td> <td>ND(0.76</td> <td></td> <td>ND(0.79)</td> <td></td> <td>ND(0.92)</td> <td></td>	pop H 45 mg/l 287 0.41 137 0.41 127 0.41 108 0.41 137 0.41 ND(2) 0.42 ND(2) 0.41 ND(2) 0.42 ND(2) 0.41 ND(2)	Pyrene	μĝη	ND(10)	₹~	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.76		ND(0.79)		ND(0.92)	
topH 4.5 mg/l 28.7 0.41 13.7 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 10.8 0.41 15 4.5 1.5 4.4 1.5 <th>to pH 4.5 mg/l 28.7 0.41 13.7 0.41 13.7 0.41 13.7 0.41 13.8 0.41 13.7 0.41 10.6 0.41 13.7 0.41 ND(2) 0.42 ND(2) 0.42 ND(2) 0.42 ND</th> <th>Natural Attenuation</th> <th></th>	to pH 4.5 mg/l 28.7 0.41 13.7 0.41 13.7 0.41 13.7 0.41 13.8 0.41 13.7 0.41 10.6 0.41 13.7 0.41 ND(2) 0.42 ND(2) 0.42 ND(2) 0.42 ND	Natural Attenuation																							
to pH 45 mg/l 28.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.7 0.44 13.8 0.44 10.0 0.44 13.9 0.44 14.5 4.4 15.2 4.4 </td <td>to pH 45 mg/l 28.7 0.41 13.7 0.41 13.7 0.41 13.7 0.41 13.8 0.41 ND(2) to pH 83 mg/l A.5 0.41 ND(2) 0.41 ND(0) 0.42 ND(0) 0.42 ND</td> <td>Parameters</td> <td></td>	to pH 45 mg/l 28.7 0.41 13.7 0.41 13.7 0.41 13.7 0.41 13.8 0.41 ND(2) to pH 83 mg/l A.5 0.41 ND(2) 0.41 ND(0) 0.42 ND(0) 0.42 ND	Parameters																							
to pH 83 mg/l NDC3 0.41 NDC3 0.42 4.5 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 1.5 4.6 <t< td=""><td>to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.42 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7</td></t<> <td>Alkalinity to pH 4.5</td> <td>Jg.</td> <td></td> <td>0.41</td> <td>13.7</td> <td>0.41</td> <td></td> <td>0.41</td> <td></td> <td>0.41</td> <td></td> <td>0.41</td> <td>10.8</td> <td>0.41</td> <td></td> <td>0.41</td> <td>13.8</td> <td>0.41</td> <td>ND(2)</td> <td>0.41</td> <td>4</td> <td>0.46</td> <td>15.8</td> <td>0.46</td>	to pH 8.3 mg/l ND(2) 0.41 ND(2) 0.42 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7	Alkalinity to pH 4.5	Jg.		0.41	13.7	0.41		0.41		0.41		0.41	10.8	0.41		0.41	13.8	0.41	ND(2)	0.41	4	0.46	15.8	0.46
Chlorides mg/l 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.4 1.5 4.5 1.5 4.7 1.5 4.5 1.5 4.7 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7	Chloride mg/l 4.4 1.5 4.4 1.5 4.6 1.5 4.1 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.5 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 4.7 1.5 0.045 1.4 0.035 1.2 0.0453 0.7695	Alkalinity to pH 8.3	ng.		0.41	XD(2)	0.41		0.41		0.41		0.41	Q (2)	0.41		0.41	ND(0.19)	0.038	15.9	0.41		0.46	ND(2)	0.46
m (Total) mg/l 1.56 0.036 1.36 0.0349 1.43 0.0349 1.43 0.0349 1.43 0.0356 1.26 0.0453 1.58 0.0453 1.58 0.0456 1.24 0.0379 2.62 issolved) mg/l 0.356 0.036 0.0349 1.43 0.034 1.43 0.0349 1.43 0.0455 1.23 0.0453 1.04 0.0496 1.21 0.0379 1.45	mol Total) mg/l 1.56 0.036 1.32 0.0349 1.09 0.0349 1.4 0.035 1.26 0.0453 0.796 0.0453 1.58 0.0453 1.59 0.0453 1.29 0.0453 1.59 0.0453 1.59 0.0453 1.59 0.0453 1.59 0.0453 1.69 0.0453 1.4 0.035 1.25 0.0453 0.0453 0.0453 1.50 0.0453	Chloride	₩ I		<u></u>	4.4	5.		5.		7 .		£.	4.5	(5		5.	4	7	4.5	5,5	9.4	Ł.	4	-
isablewed) mg/l 0.355 0.035 0.675 0.0453 1.04 0.0495 1.21 0.035 1.25 0.0453 1.04 0.0495 1.21 0.0376 1.45 1.45 1.45 1.45 1.47 2 400 1.0 2 146 1.45	isableved) mg/l 0.355 0.036 0.872 0.0349 1.59 0.0349 0.0349 1.41 0.035 1.23 0.0453 0.896 0.0453 1.04 1.04 1.04 1.04 0.0453 0.896 0.0453 1.04 0.0453 1.04 0.04 1.04 0.04 1.04 0.04 1.04 0.04	Iron (Total)	₩		0.038	1.36	0.038		0.0349		2.0349	_	0.0349	4.	0.035	_	0.0453	0.796	0.0453	1.58	0.0495	1,24	0.0378	2.62	0.0522
Methane µg/l 100 2 100 2 150 10 47 2 400 10 2 160 100 2 160 160 2 160 160 160 2 160 160 160 2 160 160 2 160 160 160 160<	Methane µg/l 100 2 210 10 1100 40 120 2 63 2 150 10 47 2 400 Nitrogen mg/l A/1 1.5	Iron (Dissolved)	78E		0.038	0.872	0.038		0.0349	_	0.0349	_	0.0349	1.1	0.035	_	0.0453	0.896	0.0453	7	0.0495	1.21	0.0378	1.45	0.0522
Nitrogen mg/l ND(0.5) 0.4 ND(0	Nitrogen mg/l ND(0.5) 0.4 ND(0	Methane	Š		7	5	7		5		4		7	63	2		5	47	7	400	10	100	7	90	4
Sulfate mg/l 4.1j 1.5 7.5 1	Sulfate mg/l 4.1j 1.5 7.5 1.5 9.6 1.5 17.1 1.5 14.2 1.5 15.7 1.5 14.1 LOxygen mg/l 1.9l 0.29 0.81 0.29 0.2 0.32 3.2 0.23 0.69 rous fron mg/l 0.8 1.5 3 3.5 2.5 1.2 2 0.4 2 Allon Pot volls 345 -90 33 -72 491 18.4 -29.7 17.8 21.5 Autotence µS/cm 78 68 5.8 5.8 5.8 5.81 ductance µS/cm 78 68 83 80 69 82 speciature °C 19.6 18.16 18.7 20.32 19.86 18.09 18.7 19.7	Nitrate Nitrogen	<u> </u>		4.0	ND(0.5)	0.4		0.4		4.0		9.0	ND(0.5)	0.4		0.4	ND(0.5)	4.0	ND(0.5	0.4		0.4	ND(0.5)	0.25
Oxygen mg/l 1.91 0.29 0.81 0.29 0.2 3.2 0.23 0.69 3.95 rous fron mg/l orb 1.5 3 3.5 2.5 1.2 2 0.4 2 1.6 Alor port volts 345 -90 33 -72 49,1 18,4 -29,7 17.8 2.15 -21 All control with mg/l or side in the per volts 8.6 472 5,6 5,8 5,8 5,1 5,1 5,1 5,1 5,3 4,7 5,1 5,1 5,1 5,3 4,7 5,8 5,8 5,3 4,7 5,8 5,8 5,3 4,7 5,8 5,8 5,3 4,7 5,8 5,8 5,3 4,7 5,8 5,8 5,9 6,8 8	Oxygen mg/l 1.91 0.29 0.81 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.4 </td <td>Sulfate</td> <td>Шĝ,</td> <td></td> <td>7.</td> <td>7.5</td> <td>1.5</td> <td></td> <td>5.1</td> <td></td> <td>5.</td> <td></td> <td>1.5</td> <td>17.1</td> <td>1.5</td> <td></td> <td>1.5</td> <td>15.7</td> <td>1.5</td> <td>4.4</td> <td>3.5</td> <td>19.2</td> <td>1.5</td> <td>17.5</td> <td>5.</td>	Sulfate	Шĝ,		7.	7.5	1.5		5.1		5.		1.5	17.1	1.5		1.5	15.7	1 .5	4.4	3.5	19.2	1.5	17.5	5.
1 mg/l 1.91 0.29 0.81 0.29 0.2 0.32 3.2 0.23 0.69 3.95 1.0 mg/l 0.8 1.5 3 3.5 2.5 1.2 2 0.4 2 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	I mg/l 0.29 0.29 0.29 0.29 0.29 0.29 0.23 3.2 0.23 I mg/l 0.8 1.5 3 3.5 2.5 1.2 2 0.4 I volts 345 -72 49,1 18,4 -29,7 17,8 I std. units 8.8 5.6 5.6 5.8 5.8 5.8 I pS/cm 78 68 83 80 69 I mg/l 18,7 20.32 19,96 18,09 18,83 34,39*	Field Parameters																							
1 mg/l 0.8 1.5 3 3.5 2.5 1.2 2 0.4 2 1.6 1.6 1.2 2 0.4 2 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1 mg/l 0.8 1.5 3 3.5 2.5 1.2 2 0.4 2.5 1.2 2 0.4 2.5 1.2 2 0.4 2.5 1.5 1.5 3.4 3.5 2.5 1.2 2 0.4 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Dissolved Oxygen	Jō.	1.9		0.29		0.81		0.29		0.2		0.32		3.2		0.23		69.0		3.95		6.19*	
volts 345 -90 33 -72 49.1 18.4 -29.7 17.8 21.5 -21 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.	volts 345 -90 33 -72 49,1 18.4 -29,7 17.8 1std. units B.B 5.6 4,72 5.65 5.8 5.08 6.34 5.8 1 LiSten 78 64 68 75 68 83 80 69 69 18.09 18.83 34.39*	Ferrous fron	J.	9'0		1,5		က		3.5		2.5		1.2		7		0.4		CI		1.6		0	
std. units B.B 5.6 4.72 5.65 5.8 5.08 5.34 5.8 5.81 5.31 5.31 t.25/cm 76 64 68 75 68 83 80 69 62 ° ° ° 19.5/cm 76 18.16 18.7 20.32 19.96 18.09 18.83 34.39° 19.7 19.72	std. units 6.8 5.6 4.72 5.65 5.8 5.08 5.34 5.8 5.8 5.04 5.8 5.8 5.04 5.8 5.8 5.04 5.8 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.8 5.04 5.94 5.04 5.04 5.04 5.04 5.04 5.04 5.04 5.0	Oxidation-reduction Pot.	volts	345		8		ĸ		2		49.1		18.4		-29.7		17.8		21.5		Ķ		12	
µ <i>Slicin</i> 76 64 68 75 68 83 80 69 82 °. °C 19.6 18.16 18.7 20.32 19.96 18.09 18.83 34.39° 19.7 19.72	µ <i>Slcm</i> 78 64 68 75 68 83 80 69 °C 19.6 18.16 18.7 20.32 19.96 18.09 18.83 34.39*	* FG	nd. units			5.6		4.72		5.65		9 .0		5.08		5.34		5.8		5.81		5.31		Ω O	
°C 19.6 18.16 18.7 20.32 19.86 18.09 18.83 34.39* 19.7 19.72	°C 19.6 18.16 18.7 20.32 19.96 18.09 18.83 34.39*	Specific Conductance	uS/cm	78		2		8		75		8		83		80		69		8		•		78	
		Temperature	ပ္စ	19.6		18.16		18.7		20.32		19.66		18.09		18.83		34.39		19.7		19.72		<u>6</u>	

Notes:

mg/l - milligrams per liter

tug/l - milligrams per liter

tug/l - micro slamens per inter

vc - degrees Celstus

NA - Sample not analyzed for this constituent

ND - Constituent of delected at or above laboratory reporting limit shown in parentheses

ND - Constituent into delected interest in the constituent
		December 2001	12001	March 2002	2002	June 2002	200	Septembe	r 2002	Decembe	- 2002	March 2	803	June 2	ğ	October	2003	Decem	Per 2004	Decemb	er 2005	Januar	2007
Polycyclic Aromatic Hydrocarbons (PAHs)	Chatts	Result MDL	MDL	Result	₽	Resuit	MDL	Result MDL	J∰	Result MDL	₩DF	Result MDL	MDL	Resuft MDL	MDL	Result MDL	MDL	Result MDL	₹ Z	Result	₹ E	Result MDL	₩
Acenaphihene	ğ	ත	-	<i>⊛</i>	9.0	ন	8.0	(8)QN	8.0	ND(16)	8	ND(16)	24	2.1	1.6	23	1.5	2.3	1.5	2.6		ND(18)	-
Acenaphthylene	Į,	ND(10)	- -	ND(8)	9.0	ND(8)	9.0	ND(B)	9.0	ND(15)	7	ND(15)	~	ND(16)	1.6	ND(15)	1.5	ND(15)	£.	ND(18)		ND(18)	6
Anthracene	<u>5</u>	(OL)	-	ND(0.2)	0.0	0.2	0.0	6	900	0.13	8	0.095	90.0	0.13	900	0.028	0.019	0.10	0.038	0.13	0.039	0.080	0.045
Benz(a)anthracene	Ē	ND(10)	-	0.03	0.02	0.03	0.02	0.037	0.02	ND(0.1)	0.02	ND(0.09)	0.02	0.021	0.02	ND(0.095)	0.019	0.022	0.019	0.026		ND(0.11)	0.023
Benzo(a)pyrene	Ę	ND(10)	-	ND(0.09)	0.05	E 00.	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.19)	0.038	ND(0.096)	0.019	ND(0.098	_	ND(0.11)	0.023
Benzo(b)/fuoranthene	Ę	ND(10)	-	ND(0.2)	0.0	ND(0.2)	0.0 M	ND(0.2)	90	MD(0.2)	8	ND(0.2)	0.04	ND(0.2)	3	ND(0.57)	0.095	ND(0.19)	0.038	ND(0.2)	_	ND(0.23)	0.045
Benzo(g, h,i)perylene	ş	ND(10)	-	ND(0.6)	900	ND(0.6)	-0	ND(0.6)	, 1,	ND(0.6)	5.	ND(0.8)	60.0	ND(0.59)	0.1	ND(0.095)	0.019	ND(0.58)	960 0	ND(0.59)	_	ND(0.68)	0.11
Benzo(k)fluoranthene	ρģ	(10) (10)	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	0.019	ND(0.098)	_	ND(0.11)	0.023
Chrysene	ğ	(O) (O) (O)	-	ND(0.4)	90.0	ND(0.4)	0.08	ND(0.4)	0.08	-	0.08	0.63	0.08	0.45	90.0	ND(0 7)	0.7	ND(0.38)	0.077	ND(0.39)	_	ND(0.45)	0.091
Dibenz(a,h)anthracene	Ē	ND(10)	-	ND(0.2)	9.0	ND(0.2)	9	ND(0.2)	0.04 0.04	ND(0.2)	0.04	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.19)	0.038	ND(0.19)	0.038	ND(0.2)	_	ND(0.23)	0.045
Fluoranthene	ьбд	ন	.	0.7]	0.5	-	0.04	[2	0.04	6.0	9. 8	0.72	9.04	-	90.0	<u>~</u>	0.038	0.98	0.038	0.83	_	0.69	0.045
Fluorene	ž	ম	-	-	9.0	0. 8	0.2	0.79	65	0.56	0.2	0.38 0	0.2	0.7j	0.18 8	0	0.17	0.47]	0.17	ND(0.78)		ND(0.91)	0.57
Indeno(1,2,3-cd)pyrene	ş	ND(10)	_	ND(0.4)	0.08	ND(0.4)	90.0	NO(0.4)	0.08	MD(0.4)	0.08	MD(0.4)	90.0	(60°0)QN	0.08	ND(0.38)	0.076	ND(0.38)	0.077	ND(0.39)	_	ND(0.45)	0.091
Naphthalene	Š	ND(10)	-	ND(8)	60	ND(8)	-	ND(8)	-	ND(12)	-	ND(11)	,- -	ND(12)	7.	ND(11)	<u>-</u> :	ND(12)	5.	ND(12)		ND(14)	5.
Phenanthrene	를	Ŋ	-	0.5	0.08	9.0	90.0	0.47	0.08	0.24	0.08	0.17	90.0	0.24	90.0	0.29	9.00	0.18	0.077	0.20	_	0.0	0.091
Pyrene	1	-	-	0.7]	0.2	6.0	0.2	7	0.2	0.65j	0.2	0.48	0.5	0.68j	0.18	0.83	0.17	0.73	0.17	0.67]		0,49j	0.5
Natural Attenuation																							
Parameters																							
Alkalinity to pH 4.5	уĎш		0.41	182	0.41		0.41		0.41		0.41		0.41	137	0.41	124	0.41	ND(2)	0.41	147	0.46	171	0.46
Alkalinity to pH 8.3	mg/	ND(2)	0.41	ND(5)	0.41		0.41		0.41		0.41		0.41	ND(2)	0.41	0.14	0.038	হ	0.41		0.46	ND(2)	0.46
Chloride	Ě		6 .	4.5	6 .		1 2		9		,		5.	4.2	5.	4.7	.	4.2	5.	3.6	1,5	۳. ۲.	-
Iron (Total)	М		0.038	38.7	0.038		0.0349	_	2.0349	_	0.0349	_	0.035	30.7	0.0453	31.2	0.0453	30.2	0.0495	34.3	0.0378	35.9	0.0522
Iron (Dissolved)	Jg W		0.038	37.8	0.038		0.0349	~	0.0349	_	0.0349	_	0.035	31.7	0.0453	31.1	0.0453	29.8	0.0495	32.7	0.0378	36.8	0.0522
Methane	Ē	9	5	1500	4		S,		တ္တ		8		38	6	8	1800	8	1800	\$	1800	8	1300	8
Nitrate Nitrogen	æ,	ND(0.5)	4.0	ND(0.5)	4:	ND(0.5)	4.0	ND(0.5)	4.	ND(0.5)	4.0	ND(0.5)	4.	ND(0.5)	4.0	ND(0.5)	4.0	ND(0.5)	6.0		0.4	ND(0.5)	0.25
Sulfate	Jâ	ē.	.	7	<u>.</u>	(g) NO(N	5		9:		č.		£.	থ	.	<u>o.</u>	((S) ND	1.5	6.7	5.	22	1 .5
Field Parameters																							
Dissolved Oxygen)ď	90:1		9.0		9.0		98.0		0.35		0.23		3.95		0.63		960		0.38		5.05	
Ferrous Iron	Д Б	5.8		4.5		5.8		۲.		_		£		7.1		5.8		S		4.5		ന	
Oxidation-reduction Pot.	volts	28		¥		77		Ŗ		8		6,40		-52.6		9		47.7		듁		ģ	
¥	pH std. units	6.44		6.15		5.95		6.39		6. 3.3		6.26		28		6.16		6.11		5.93		60	
Specific Conductance	LS/CH	8		\$		8		287		392		<u>\$</u>		369		99		365		•		88	
Temperature	ပွ	24.6		21.2		25.3		28.77		24.63		20.68		28.3		28.45		26.5		22.7		22.9	

Notes:
mg/l - micrograms per liter
tug/l - micrograms ceistus
NA - Sample not analyzed for this constituent
NDL - Martinod detection in mit
tug/l - Martinod detection in mit
tug/l - Martinod detection in mit
tug/l - Martinod detection in mit
tug/liter liter li

_		December 2001	March 2002	*	4		STATE OF STATE	Decembe	2007	March 24		Ñ.	5	October 2003	3	December 2004		December	3	January	2007
Hydrocarbons (PAHs)	Units Re	Result MDL	Result MDL	절	Result MDL	J	Result MDL	Result MDL	MDL	Result MDL	'	Result A	MDL	Result	MDL	Result	,	Result MDL	ĕ ĕ	Result MDL	₫
Acenaphthene µg/l		ND(10) 1	ND(8)	8.0	0 (6)QN	9 8		ND(16)	7										91	ND(17)	98
Acenaphthylene µg/l		ND(10) 1	ND(8)	8.0	ND(9)	ON OF		ND(16)	8										4	Z 17	r.
Anthracene µg		ND(10) 1	ND(0.2)	9.0	_		-	ND(0.2)	0.0										6600	ND/O 22	0.044
Benz(a)anthracene ug	N S	(10)	ND(0.09)	0.02	_	0.02 ND(ND(0.1)	0.02										200	ND(011)	000
_	S Se	ND(10) 1	ND(0.09)	0.02			0.1) 0.02	ND(0.1)	0.02		0.02								200	ND(0.11)	0.00
Benzo(b)fluoranthene µg	SN Nor	ND(10) 1	ND(0.2)	<u>9</u>				ND(0.2)	90.0										0.039	ND(0.22)	0.044
Benzo(g,h,i)perylene µg/l		ND(10) 1	ND(0.6)	0.09		0.1 ND(ND(0.6)	0.1										0 088	AD(0.68)	1
Benzo(k)fluoranthene µg		1(10)	ND(0.09)	0.02				ND(0.1)	0.02										000	MD(0.11)	000
Chrysene ug		1 (01)	ND(0.4)	90.0				ND(0.4)	0.08										0.078	ND/0 44)	0 DB7
_		1 (01)	ND(0.2)	9.0				ND(0.2)	0.0										6500	ND/0 22)	0.044
Fluoranthene µg/		ND(10) 1	ND(0.8)	0.2				ND(0.2)	90.0										0039	MD(0.22)	0.04
Fluorene µg		ND(10) 1	ND(0.2)	0.04		0.2 ND(ND(0.8)	0.2		_								0.49	MD(0.87)	550
_		ND(10) 1	ND(0.4)	0.08			_	ND(0.4)	90.0										0.078	SD(0.44)	0.087
Naphthalene µg/l		1 (01)	ND(8)	6.0				ND(12)	-										1.6	ND(13)	4
Phenanthrene µg		ND(10) 1	ND(0.4)	0.08		0.09 ND((_	ND(0.4)	90:0	-									0.078	(D)(0.44)	0.087
Pyrene µg/l		ND(10) 1	ND(0.8)	0.2	ND(0.9) 0.	.2 ND(0.8)		ND(0.8)	0.2	ND(0.8)	_	ND(0.77) 0	0.17	ND(0.76)	0.17	ND(0.76)	0.17 N	ND(0.78)	0.18	ND(0.87)	0.2
Natural Attenuation																					
ranannetarb Albalioter to out 4 e - mo								•	;						3				•		:
								0 0	- -				£ ;		14.0				\$ 5	<u>ا</u> و	9 :
				. u				ND(2)	4.0					_	2007				5 4 .	ND(Z)	94.
		3 0 038	_	28		NON BASO O	~	0.0505	0.00	_	•		J. 5		5		-		C.L.	4. S	- 2
	•		_	9 6				0.000	0.00	•			2 2	- '	3 5			_ `	0.03/6	5 3	0.0522 0.0522
	-	17 2		900			-	NO(S.)	940	_	-	_	50	_	50.0	_		_	8/87	1,342	0.0522
				٠ 5				6	۷ 5				v 2		۷ 5				٧,	Ç,	N S
_		3.1) 1.5	2.7	1.5	3.1	1.5 15.3	3 1.5	§ 6.	, L	. 	. . 5	12.6	. .	38.6	i e	. .	1.5	8.8	. . .	29	3 5
Field Parameters																					
Dissolved Oxygen mgt/l	•	66.	5.33		4.64	3.6	ø	4.93		4.83		561		3.49		2.15		er.		7.34	
		0	o		0	0	!	0		0		0		0		-		0		0	
Oxidation-reduction Pct. votts		茎	492		613	8	es	405		390		603		382		154		272		340	
	•	5.42	4.69		4.21	4.4	gy	5.08		5.19		4.42		5.07		5.05		6.		8	
Specific Conductance µS/cm		49	\$		47	K	~	83		8		2		8		8				7.	
Temperature °C	ē.	0.9	21.28		21.5	21.	Z,	21.39		20.13		21.61		27.19*		23.26		21.01		8	
Notes:																					

mg/l-milligrams per liter

ug/l - micrograms per liter

ug/l - micrograms per liter

ug/l - micrograms per centimeter

c_c-dgress Captes Cabitis

NA - Sample not analyzed for this constituent

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

MDL - Method detection limit

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

*- indicates suspeed measurement likely due to instrument malfunction

		December 2001	2001	March 2002	002	June 2002	3002	Septembe	ar 2002	Decembe	r 2002	March 2	003	June	2003	October	2003	Decem	er 2004	Овсешре	r 2005	January	2007
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDI	Result	MDL	Result	MDL	Result M	MDL	Result MDL	MDL	Result	MDL	Result	MDE	Result	MDL	Result MDL	MDt	Result	MDL	Result	MDL
Acenaphihene	V6nt	88	_	51	8.0	*8	0.8	33	0.8	8	8	œ	CI	6.8	6.	<u>5</u>	5:	23	9.1	9,6	6 .	2.1	-
Acenaphthylene	μĝ	į,	_	(8) NO (8)	8.0	7	0.8	7.7)	8.0	Ŧ	~	6.9	7	ल	.	₹	5.	ND(16)	9	8	6 .	ND(18)	9.
Anthracene	ρâ	ম	-	C)	0.0	7	9.0	5	0.04	<u>.</u>	9.0	0.68	0.04	0.26	9. 8	0.046	0.019	0.83	ŝ	0.55	0.04	0.058	0.045
Benz(a)anthracene	Ď	ND(11)	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.035	0.019	ND(0.1)	0.02	0.025	0.02	ND(0.11)	0.022
Benzo(a)pyrene	PB1	ND(13)	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.087)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.04	0.038	ND(0-1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022
Benzo(b)fluoranthene	<u> 5</u>	ND(11)	-	ND(0.2)	0.04	ND(0.2)	9. 8	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	<u>8</u>	ND(0.19)	90.0	ND(0.57)	0.095	ND(0.2)	ŝ	ND(0.2)	90.0	ND(0.22)	0.045
Benzo(g,h,i)perylene	Ę	ND(11)	•	ND(0.6)	60.0	ND(0.6)	0.1	ND(0.6)	<u>-</u> 0	ND(0.6)	-0	ND(0.6)	0.09	ND(0.58)	-0	0.022	0.019	ND(0.6)	1.0	ND(0.6)	1.0	ND(0.67)	0.11
Benzo(k)fluoranthene	10	ND(11)	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022
Chrysene	ě	ND(11)	_	ND(0.4)	0.08	ND(0.4)	90:0	ND(0.4)	90.0	0.36	90.0	0.17]	90.0	ND(0.39)	90.0	0.083	0.076	ND(0.4)	0.081	ND(0.4)	90.0	ND(0.45)	0.089
Dibenz(a,h)anthracene	76	ND(1)	-	ND(0.2)	0.0 A	ND(0.2)	9.0	ND(0.2)	9.04	0.044	0.0 40.0	ND(0.2)	9.0	ND(0.19)	0.04	ND(0.19)	0.038	ND(0.2)	3 .0	ND(0.2)	0.04	ND(0.22)	0.045
Fluoranthene	Vân.	ND(11)	-	82	0.2	60	8	0.96	90.0	0.69	\$	0.49	\$ 00	0.28	0.04	0,76	0.038	4	0.0	0.29	90.0	ND(0.22)	0.045
Fluorene	Ē	21	-	-	9.0	ន	0.2	22	0.2	7	0.2	*	0.5	2 .	0.17	6.2	0.17	Ą	91	5.2	0.5	4	0.56
Indeno(1,2,3-cd)pyrene	νBri	ND(1)	.	ND(0.4)	0.08	ND(0.4)	90.0	ND(0.4)	0.08	ND(0.4)	90:0	ND(0.4)	0.08	ND(0.39)	0.08	ND(0,38)	0.076	ND(0.4)	0.081	ND(0.4)	90.0	ND(0.45)	0.089
Naphthalene	Ę	720	Ξ	29	40	299	ω	20G	ç	480	9	5	-	ND(12)	7	5	Ξ	330	9	¥	9.	9.6	4.
Phenanthrene	767 7	*	-	9	4.0	7	90.0	<u>‡</u>	80:0	₽.	80.0	3.3	0.08	1.7	0.08	0.094	0.076	63	0.081	чo	90.0	0.56	0.089
Pyrene	PB4	ND(11)	-	0. <u>A</u> .	0.2	0.4 <u>;</u>	0.2	0.62	0.2	0.26j	0.2	ND(0.8)	0.2	ND(0.78)	0.17	0.54	0.17	0.22	0.18	ND(0.8)	0.18	ND(0,89)	0.2
Natural Attenuation																							
Parameters																							
Alkalinity to pH 4.5	₩ J		0.41	#	0.41	43.8	0.41	ND(2)	0.41	39.2	0.41		0.41	17.3	0.41	27.5	0.41	ND(2)	0.41		0.46	13	0.46
Alkalinity to pH 8.3	/bu	(S)	14.	ND(2)	0.41	(S)	0.41	44.8	0.41	ND(2)	0.41		0.41	(S)	0.41	0.27	0.038	32.4	14.0		0.46	ND(2)	0.46
Chloride	Ē		Č.	3.5	c.	19	.	6	ı.	12.7	5		6	17.9	.	17.1	5.5	1.8	5		5	40	-
Iron (Total)	ğ i		0.038	4.40 0.10	0.038	 	0.0349	8.36	0.0349	5.07	0.0349		0.035	- -	0.0453	9.4	0.0453	7.85	0.0495		0.0378	3.45	0.0522
(Descrived)	5 5		25.4	200	5 C	5. 5 5. 5	9450.0	- G	8 C C C C C C C C C C C C C C C C C C C	9 G	90.0349		666	<u> </u>	50,00	3.06	5040.0	3 9	0.0495		9,03/8	5.75 6.75	2.0522
Nitrate Nitrogen	Ì	ND(0.5)	6.0	ND(0.5)	5 4	ND(0.5)		ND(0.5)	9.	ND(0.5)	9 F	ND(0.5)	0.4	ND(0.5)	9 6	ND(0.5)	2 O	ND(0.5)	4.0	_	0.4	ND(0.5)	0.25
Sulfate	V BE	2.9	.	2.1	. 5.	2.7]	6.	3.8	1.5	₩	1.5		7,	4.4	<u></u>	5.6	£.	6.3	rci	8.6	1.5	6.7	1.5
Field Parameters																							
Dissolved Oxygen	ģ	0.79		0.3		0.62		0.33		0.31		0.49		2.6		0.5		0.33		4.0		5.98	
Ferrous from	mg/	1,2		ហ		5		5.5		4,5		2.2		4.		2.5		νo		4		-	
Oxidation-reduction Pot.	silo.			13.1		윷		60.3		113		208		278		162		÷		-12		122	
s Hq	std. units			6.89		3.86		3.71		5.57		2.15*		4.5		5.15		5.86		5.36		5.12	
	ES/CEI	=		47		<u>.</u>		126		1 6		± 10.		112		129		윤 ;		. 8		123	
lemperame	۶	-8		0.0		3.		86.U2		6 0.33		16.92		70.07		8.8		*		80.F3		50.0	

Notes:
rng/1 - milligrams per titer
ptg/1 - milligrams per titer
ptg/1 - milligrams per titer
ptg/1 - milligrams per titer
ptg/2 - milligrams per centimeter
oC - degrees Celsius
NA - Sample not analyzed for this constituent
NA - Sample not analyzed for this constituent
MDL - Marthod detection limit
MDL - Method detection limit
- qualifier denotes estimated value either less than quantitation firmit or due to firmitations discovered by data validation effort.
- Indicates suspect measurement likely due to instrument malfunction

Gulf States Creosoting Site Hattiesburg, Mississippi

		December 2001	- 2001	March 2002	005	June 2002	202	September	2002	December	2002	March 20		June 20	03	October	2003	Decemb	er 2004	December	2006	Vanuary	2002
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	JQ.	Result	MDL	Result MDI	MDL	Result	MDL	Result MDL	MDL	Result	MD	Result	MDL
Acenaphthene	Ď	92	-	42	8.0		9.0	<u>.</u> 9.	6.0	42	C4		C4	ND(16)	9.1	ND(15)	1.5	ន	1.7	e,	9.1	<u>4</u>	0.97
Acenaphthytene	<u></u>	2		ĸ	0.8		9.0	(6)QN	6.0	50	7		2	ND(18)	1.6	ND(15)	1.5	ND(17)	17	ND(16)	6.	9.0	5.
Anthracene	Ē	E)Q	-	ND(0.2)	800		0.04	MD(0.2)	9.0	0.092j	9.0	_	90	0.09	90.0	ND(0,095)	0.019	ND(0.21)	0.2	0.056	0.039	0.078	0.043
Benz(a)anthracene	Ē	ND(11)	-	ND(0.09)	0.02		0.02	ND(0.1)	0.02	ND(0.1)	0.02	_	0.02	0.082	0.02	ND(0.095)	0.019	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021
Benzo(a)pyrene	PE .	ND(11)	-	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.23	0.02	ND(0.19)	0.038	ND(0.1)	0.021	ND(0.098)	0.02	ND(0.11)	0.021
Benzo(b)/fuoranthene	ğ	ND(11)	-	ND(0.2)	5 .0		0.04	ND(0.2)	0.04	ND(0.2)	9.0	_	0.04	0.098	9.0	ND(0.57)	0.095	ND(0.21)	0.042	ND(0.2)	0.039	ND(0.21)	0.043
Benzo(g,h,i)perylene	Ē	E Q	-	ND(0.6)	0.09		0.1	ND(0.6)	0.1	ND(0.6)	0.1		0.1	0.11	0.1	ND(0.095)	0.019	ND(0.63)	0	ND(0.59)	0.098	ND(0.64)	0.11
Benzo(k)ffuoranthene	ğ	ND(11)	_	ND(0.09)	0.02		0.02	ND(0.1)	0.02	ND(0.1)	0.02	_	0.02	0.085	0.02	ND(2)	0.41	ND(0.1)	0.021	ND(0.098)	0.02	NO(0.11)	0.021
Chrysene	Ē	<u>E</u>	-	ND(0.4)	0.08		0.08	ND(0.4)	0.09	ND(0.4)	90.0	_	0.08	0.096	0.08	ND(0.38)	0.076	ND(0.42)	0.084	ND(0.39)	0.078	ND(0.43)	980.0
Dibenz(a,h)anthracene	Ē	ND(11)	_	ND(0.2)	8		900	ND(0.2)	20.0	ND(0.2)	0.04	_	0.04	0.1j	0.04	ND(0.19)	0.038	ND(0.21)	0.042	ND(0.2)	0.039	ND(0.21)	0.043
Fluoranthene	ž	ND(11)	_	52	0.2		<u>75</u>	0.086	40.0	0.28	0.04	_	0.D	0.087	0.04	ND(0.19)	0.038	0.46	0.042	0.33	0.039	0.61	0.043
Fluorene	Ē	ā	-	0.7	9.		0.2	2.7	0.2	89	0.2		0.2	VD(0.78)	0.18	0.96	0.17	52	0.19	13	0.48	8	0.54
indeno(1,2,3-cd)pyrane	호	ND(11)	_	ND(0.4)	90.0		89.0	ND(0.4)	0.09	ND(0.4)	90'0	_	88.0		0.08	ND(0.38)	0.076	.ND(0.42)	0.084	ND(0.39)	0.078	ND(0.43)	0.086
Naphthalene	Ē	470	φ	8	G		-	27	-	35	-		-	ND(12)	12	₽	- -	8	8.4	8	9,	88	<u>ئە.</u>
Phenanthrene	Š	5	-	24	0 .4		90.0	17	60.0	6.9	0.08	_	0.08	ਲ 0	0.08	0.39	0.076	9	0.084	F	0.078	17	0.088
Pyrane	νõt	ND(11)	-	ND(0.8)	0.2		0.2	(6:0)QN	0.2	ND(0.8)	0.2		0.2	ND(0.78)	0.18	ND(0.76)	0.17	ND(0.84)	0.19	ND(0.78)	0.18	ND(0.86)	0.19
Notice Attended																							
Parameters																							
Alkalinity to pH 4.5	ýĐŒ	23.1	0.41	11.3	0.41		0.41		0.41		0.41		0.41	8.5	0.41	6.5	0.41	ND(2)	0.41	10.4	0.46	14.2	0.46
Alkalinity to pH 8.3	ē		0.41	ND(2)	0.41	ND(2)	0.41		0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038	4	0.41	ND(2)	0.46	ND(2)	0.46
Chloride	mg/l		ť.	12.8	£.		.5 .5		1.5		ان		5.5	22.5	1.5	23.3	5.5	17.9	1.5	22.1	7.5	17.9	-
Iron (Total)	Į,		0.038	ND(0.1)	0.038	-	.0349	~	0349	-	0349	_	3.035	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522
Iron (Dissolved)	Ē.		0.038	ND(0.1)	0.038	_	0349	_	0348	_	10349	_	0.036	ND(0.2)	0.0453	ND(0.2)	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522
Mitrate Nitrodeo	<u> </u>	₹ P.	7 C	4. C	v 6		7 0		۷ ر 0 م		7 7		7 0	() E	7 0	22	^ C	<u> </u>	7 6	() () ()	, o	£	0.25
Sulfate	ě		5.	9.2	1.5		1.5	7.9	1.5		1.5		5	5.6	1,5	6.9	1.5	1.6	1.5	8.6	1.5	9.7	1.5
Field Parameters																							
Dissolved Oxygen	Ē	0.67		0.37		0.63		0.37		0.36		0.38		2.39		0.37		88		0.82		5.49	
Ferrous Iron	мgл	0		0		0		0		0		0		0		0		٥		0		0	
Oxidation-reduction Pot.	valts	377		348		423		338		358		410		292		352		Ξ		262		283	
3 Hd	pH std. units			4 .93		4.55		3.71		6.28		4.42		4.69		5.23		5.17		4.66		5.48	
	ES/SH	호		5		6		38		136		8		132		2		1		•		122	
Temperature	ပ္	22.2		22.58		22.3		23.27		22.78		22.38		22.97		36.81*		23.5		22.41		21.3	

Notes:

mg/l - miligrams per lifer

ug/l - miligrams per lifer

ug/l - miligrams per lifer

ug/l - microgians per lifer

ug/l - degrees Celsius

v.C. - degrees Celsius

NA - Sample not neal/zard for this constituent

NA - Sample not neal/zard for this constituent

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

NDL - Method detection limit

- quantitation detection limit

- quantitation firm or due to limitations discovered by data validation effort.

- indicates suspect measurement likely due to instrument malfunction

		December 2001	r 2001	March 2002	2002	June 2002	005	Septembe	r 2002	Decembe	3r 2002	March 2	500	June 2	003	Octobe	v 2003	Decen	ber 2004	Decemb	er 2005	namel.	7007
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MD	Result	MOL	Result	MDL	Result MDL	MD	Result MDL	MDL	Result	MDL	Result MDI	MDL	Result MDL	₩ Z	Result	Result MDL	Result MDL	MDL	Result	MDL
Acenaphinene	ğ	48	-	8	0.0	83	9.0	F	0.8	2	N	88	8	8	9.	8		23		6	9	ę	Ξ
Acenaphthylene	, Ba	মে	-	(8) ND(8)	9.0	8	8.0	=	0.8	æ	2	8	2	37	9.	æ		8		ND(26)	8	ND(28)	8
Anthracene	Г	ম	-	4	_	en	0.04	2.1	8 00	3.6	0.04	3.7	0.04	ო	0.0	ND(0.1)	0.021	2.5	0.038	, 2,5 ,	0.039	· N	0.047
Benz(a)anthracene	ğ	(JD)	-	ND(0.09)	_	ND(0.09)	0.02	ND(0:09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07	0.02	ND(0.1)		ND(0.09£	_	ND(0.098)	0.02	ND(0.12)	0.023
Benzo(a)pyrene	rg/	ND(10)	-	ND(0.09)	0.05	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.16	0.05	ND(0.21)	_	ND(0.096	_	ND(0.098)	0.02	ND(0.12)	0.023
Benzo(b)fluoranthene	Ē	D(10)	-	ND(0.2)	_	ND(0.2)	9.0	ND(0.2)	0.0	MD(0.2)	0.04	ND(0.2)	0.04	0.081	0.0	ND(0.63)	_	ND(0.19	_	ND(0.2)	0.039	ND(0.23)	0.047
Benzo(g,h,i)perylene	ē	(D) (10)	-	ND(0.6)	_	ND(0.6)	90.0	ND(0.6)	60.0	ND(0.6)	-0	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.1)		ND(0.57)	_	ND(0.59)	0.098	ND(0.70)	0.12
Benzo(k)flucranthene	ľĝ.	Ž (10	-	ND(0.09)	_	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07	0.02	ND(2)		ND(0.096	_	ND(0.098)	0.02	ND(0.12)	0.023
Chrysene	Ē	ND(10)	-	ND(0.4)	_	ND(0.4)	90.0	ND(0.4)	90.0	0.08	0.08	ND(0.4)	0.08	0.11	0.08	ND(0.42)	_	ND(0.38)	_	0.10	0.079	0 (2)	0.094
Dibenz(a,h)anthracene	VB1	ND(10)	-	ND(0.2)	_	ND(0.2)	9.0	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.D4	0.083	9	ND(0.21)	_	ND(0.19	_	ND(0.2)	0.039	ND(0.23)	0.047
Fluoranthene	ğ	ZQ.	-	æ		-	0.0	4.	0.04	6	0.04	2.2	9. 4	87	9	1.7		1.8	_	5.1	0.039	6 0	0.047
Fluorene	ğ	ß	-	0	_	8	0.2	8	0.2	88	2	ස	7	8	0.18	ş		22		22	0.49	22	0.59
Indeno(1,2,3-cd)pyrene	Pg.	ND(10)	-	ND(0.4)	_	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.1	90.0	ND(0.42)	_	ND(0.38)	_	ND(0.39)	0.079	ND(0.47)	0.094
Naphthalene	ğ	8	ιņ	980		890	ø	ŝ	40	±	Ξ	0	Ŧ	970	건	1000		830		640	7.9	270	1.5
Phenanthrene	ğ	4	+- -	8	9.0	<u>ب</u>	9.8	24	9.4	37	9.0	ස	6.8	32	0.78	37		5 0		22	0.39	6	0.47
Pyrene	PE PE	ND(10)	-	8.0		0.7]	0.2	ر ن	0.2	0.69	0.2	0.67	9	0.81	0.18	0.77		0.85		0.58	0.18	0.84	0.21
Natural Attenuation																							
Parameters																							
Alkalinity to pH 4.5	ng Pa	68.6	0.41	82.3	0.41	78.4	0.41	ND(2)	0.41	92.2	0.41	87.5	0.41	8 4.9	0.41	88.6	0.41	ND(2)	0.41	112	0.46	109	0.46
Alkalinity to pH B.3	шg	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	78.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	3.1	0.042	96.6	0.41	ND(2)	0.46	ND(2)	0.46
Chloride	Ē	10.5	6.	10.2	ر ئ	10.1	5.	1020	50	9.8	4. 10.	8.7	.	10.7	1.5	10.2	,	11.5	1.5	10.4	1,5	10.3	-
Iron (Total)	E '	4.69	0.038	5.71	0.038	5.75	0.0349	5.47	0.0349	6.76	0.0349	9	0.035	6	0.0453	5.61	0.0463	6.07	0.0496	7.25	0.0378	60	0.0522
Iron (Lissaivea)	Ē:	9 6	999	57.0	200	19.0	8450.0	5.48	8 CO.O.	9 5	0.0348	o ;	0.035	20.02	3	9.49	2.08 3.03 3.03 3.03 3.03 3.03 3.03 3.03 3	60.9	0.0485	99	8/20.0	7	7700
Nitrate Milyonen		ND(0.5)	5 6	NO. 5	3 2	ND:00 5)	2 6	NO. 5	€ ¢	90 UN	4 C	10 UN	9 6	12.00 10.00	9 6	N (50)	8 2	200 V	7	NO A	7 2	3 6 6 6	ر د د
Sulfate	E E	6.7	6.	£.3	1.5	43	1.5	ND(5)	6	3.3	5	4.1	6.	47]	10.	2.8	3.	2.1	1.5	2.3	1.5	2.1)	1.5
Field Parameters																							
Dissolved Oxygen	Pig.	0.81		<u>t.</u>		0.61		0.19		0.24		0.23		2.13		0.39		0.82		0.38		5.56	
Ferrous Iron	<u> 1</u>	4.6		40		~		5.5		40		8.4		4 .		¥		4		ςò		ю	
Oxidation-reduction Pot.	volts	177		ģ		178		49		-6.7		26.4		5		-127		92		-114		\$	
3 Hd	pH std. units	5.88		6.07		5.15 5		5.07		8		4.12		5.35		5.95		90.9		5.73		5.55	
_	uS/cm	176		183		179		192		첧		198		503		ğ		208		•		2	
Temperature	ပ္စ	22.3		19.9		2.7		23.42		2.1		19.98		22.02		22.41		27.24		22.07		20.9	

Notes:
mg/f - militorans per liter
ug/f - militorans per liter
ug/f - militorans per liter
ug/f - militorans per centimeter
vC - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent of defected for this constituent
ND - Constituent of defected at or above laboratory reporting limit shown in parentheses
NDL - Method defected nimit
- Mullifler denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.

• indicates suspect measurement likely due to instrument melfunction

Summary of Ground Water Monitoring Data Monitoring Well MW-20

Gulf States Creosoting Site Hattiesburg, Mississippi

		December 2001	3001	March 2002	ξğ.	June 2002		ptember .		ecemper,	2002	March 200	ø	June 2003	m	October 2	3003	Decemb	er 2004	Оесещр	er 2005	Janua	y 2007
Polycyclic Aromatic	Units	Result	뒣	Result	질	Result M	질	Result MOL	•	Result MDL	•	Result MDL	1	Result		Result MDL	MDL	Result MDL	짇	Result	Result MDL	Result	Result MDL
Hydrocarbons (PAHs)		į				į																	
Acenaphthene	Š	ND(10)	_	(8) ND(8)	8.0	ND(8)	8									ND(15)	<u>.</u>	ND(15)	5	ND(16)		ND(17)	
Acenaphthylene	ē	ND(10)	-													ND(15)	3	ND(15)	-2	ND(16)		ND(17)	
Anthracene	Ę	ND(10)	-		9.04 X						_	_		_		VD(0.096)	0.019	ND(0.19)	0.038	ND(0.2)	_	ND(0.22	_
Benz(a)anthracene	l/Bri	ND(10)	-						_			_		_		ND(0.096)	0.019	ND(0.095)	0.019	00'0'0N		ND(0.11	_
Benzo(a)pyrene	lgi,	ND(10)	_						_		_	_	_	-		ND(0.19)	0.039	ND(0.095)	0.019	ND(0.099		ND(0.11	_
Benzo(b)fluoranthane	VBr.	ND(10)	_						Ī		_	_		_		ND(0.58)	960.0	ND(0.19)	0.038	ND(0.2)	_	ND(0.22	_
Benzo(g,h,i)perylene	ğ	ND(10)	-						Ξ		_			_		(D(0.096)	900	ND(0.57)	0.095	ND(0.59)	_	ND(0.65	
Benzo(k)fluoranthene	Ser.	ND(10)	_								_		_	_		ND(2)	0.41	ND(0.095)	0.019	ND(0.099		NDO.11	_
Chrysene	Ē	ND(10)	-		0.08 N	ND(0.4) 0.	0.08 NC		0.08	ND(0.4) 0	90.0	_	ON 80.0	_	0.077	ND(0,39)	0.077	ND(0.38)	0.076	MD(0.39)	0.079	ND(0.43	_
Dibenz(a,h)anthracene	yBri	ND(10)	-								_	_		_		ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	_	ND(0.22	_
Fluoranthene	V	ND(10)	_						_		_	_		_		ND(0.19)	0.039	ND(0.19)	0.038	ND(0.2)	_	ND(0.22	_
Fluorene	/Br	ND(10)	_		0.04 N				_		_					ND(0.77)	0.17	ND(0.76)	0.17	ND(0.79)		ND(0.87	
Indeno(1,2,3-od)pyrane	Par.	ND(10)	_						_		_	_		_		ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	_	ND(0.43	_
Naphthelene	цбц	ND(10)	_													ND(12)	<u>1.</u>	ND(11)	5.	ND(12)		ND(13)	
Phenanthrene	γôd	ND(10)	_		20.08 N	ND(0.4) 0.	0.08 NC		_		_			_		ND(0.39)	0.077	ND(0.38)	0.076	ND(0.39)	_	ND(0.43	_
Pyrene	yBrt	ND(10)	-	ND(0.8)	Ī			ND(0.8) 0	_		_	ND(0.8) 0		ND(0.77)		ND(0.77)	0.17	ND(0.78)	0.17	ND(0.79)		ND(0.87)	0.2
Metural Attanuation																							
Deremotere																							
Alkalinity to pH 4.5	Page Total	9.7 0	0.41	8.0		7.8									.41		0.41	MD(2)	0.41	10.6	0.46	11.7	0.46
Alkalinity to pH 8.3) Jon					ND(2) 0.									7.41	_	0.039	(n)	4	ND(S)	0.46	ND(2)	0.46
Chloride)BI	10.2	5.	9.2	r.	10.4	5.		1.5		5,		1.5		(.		5,	11.3	5.	10,7	5	8.6	-
Iron (Total)	шgу					ID(0.1) 0.0		_	_	Ξ	_	_		_	0453	_	0.0453	ND(0.2)	0.0485	0.164	0.0378	0.136	0.0522
Iran (Dissalved)	₩g/I	_				10(0.1) 0.0		_	_	Ξ	_	_		_	0453	_	0.0453	ND(0.2)	0.0495	ND(0.2)	0.0378	ND(0.2)	0.0522
Methane	y _B ri	3.5			2	ND(5)									7		2	9.6	2	ND(5)	7	6	2
Nitrate Nitrogen	Įģ.		0.4				0.4		_	_	_				0.4		0.4	0.45	0.4	0.47]	0.4	0.32	0.25
Sulfate) D							2.0)		3.9		3.4		<u></u>	5.	5.8	5.	ND(5)	L κύ	1.6	1.5	5.5	3.
Field Parameters																							
Dissolved Oxygen	mg/	1.27		0.89		1.84	٠	7.64		9.0		0.58	•	83	,	0.45		0.88		0.41		5.73	
Ferrous Iron	mg/	0		0		0		0		0		0		0		٥		0		٥		0	
Oxidation-reduction Pot.	volts	478		쭚		591	. •	272		417		495	•	286		327		185.2		58 2		321	
	std. units			4.78		3.57	4	1.97		5.21		4.62	•	29		5.14		5.01		4.41		4.89	
Specific Conductance	mo/Srd	67		8		2		49		72		20		2		5		74				88	
Temperature	ပ္စ	22.7		21.08		87	CN.	4.25		23.2		20.22	8	3,11	٠	34.16		28.74		22.54		22.1	
Modes																							

rivide - militigrams per liter
1.02f - micrograms per liter
1.02f - micrograms per liter
1.05/cm - micro siemens per centimeter
1.05/cm - micro siemens per liter
1.05/cm - micrograms per liter
1.05/cm

Summary of Ground Water Monitoring Data Monitoring Well MW-21

Gulf States Creosoting Site Hattiesburg, Mississippi

		December 2007	1 2001	March 2002	2002	June 2002	3002	Septembe	r 2002	Оесетре	r 2002	March 2	003	June 2003	303	October		Decemb	er 2004	Decembe	r 2005	Januar.	2007
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MOL	Result	MOL	Result MDL	MDL	Result MDL	MDL	Result MDL	MDL	Result	MDL	Result	MDL	Result MDL	MDL	Result MDL	MDL	Result	MDL
Acenaphthene	ð	ND(10)	-	ND(8)	8.0	ND(9)	6.0	ND(8)	9.0	ND(15)	N	ND(15)	N	ND(16)	1.6	ND(16)	1 .	ND(15)		ND(15)		ND(17)	96.0
Acenaphthylene)ôri	ND(10)	-	ND(8)	8.0	(6)QN	6.0	ND(8)	9.0	ND(15)	7	ND(15)	۲,	ND(16)	(0)	ND(16)	9.	ND(15)		ND(15)		ND(17)	1.5
Anthracene	ğ	ND(10)		ND(0.2)	0.0	ND(0.2)	0.04	ND(0.2)	<u>\$</u>	ND(0.2)	0.04	ND(0.2)	0.04	MD(0.2)	9	ND(0.1)	0.02	ND(0.19)		(61.0)QN	_	ND(0.21)	0.042
Benz(a)anthracene	Ē	ND(10)	-	ND(0.1)	0.05	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)	0.05	ND(0.095)		ND(0.097)	_	ND(0.11)	0.021
Benzo(a)pyrene	ğ	ND(10)	-	ND(0.1)	0.05	ND(0.1)	0.05	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04	ND(0.095)	_	ND(0.097)	_	ND(0.11)	0.021
Benzo(b)fluoranthene	ğ	ND(10)	_	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.2)	0.0 40.0	ND(0.2)	0.0 \$0.0	ND(0.2)	0.04	ND(0.2)	40.0	ND(0.6)	0.1	ND(0.19)	_	ND(0.19)	_	ND(0.21)	0.042
Benzo(g,h,i)perylene	VBri	ND(10)	-	ND(0.6)	<u>.</u>	ND(0.6)	<u>.</u>	ND(0.6)	-1.	ND(0.6)	<u>.</u>	ND(0.6)	2.	ND(0.59)		ND(0.1)	0.05	ND(0.57)	_	ND(0.58)	_	ND(0.63)	0.11
Benzo(k)fluoranthene	r _B r	ND(10)	Ψ-	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41	ND(0.095)	_	ND(0.097)	_	ND(0.11)	0.021
Chrysene	ě	ND(10)	-	ND(0.4)	90.0	ND(0.4)	0.09	ND(0.4)	90:08	ND(0.4)	90'0	ND(0.4)	90:0	ND(0.39)	90.08	ND(0.4)	0.08 0.08	ND(0.38)	_	ND(0.39)	_	ND(0.42)	0.084
Dibenz(a,h)anthracene	\$	ND(10)	-	ND(0.2)	0.0	ND(0.2)	0.04	ND(0.2)	9.0	ND(0.2)	0.04	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.19)	0.038	(61.0)QN	0.039	ND(0.21)	0.042
Fluoranthene	<u>5</u>	ND(10)	-	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	9.0 8	ND(0.2)	9.0	ND(0.2)	9.0	ND(0.2)	9. 2	ND(0.2)	<u>\$</u>	ND(0.19)	_	ND(0.19)	_	ND(0.21)	0.042
Fluorene	ğ	ND(10)	-	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0,2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18	ND(0.76)		ND(0.77)		ND(0.84)	0.53
Indeno(1,2,3-cd)pyrene	ligi.	ND(10)	_	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	90:0	ND(0.4)	0.08	ND(0.4)	90.0	ND(0.39)	90.0	ND(0.4)	90.0	ND(0.38)		(60.0)DN	_	ND(0.42)	0.084
Naphthalene	ğ	ND(30)		ND(8)	Ψ-	(6) QN	-	ND(8)	-	ND(15)	-	MD(11)	-	ND(12)	~	ND(12)	1,2	NO(11)		ND(12)		ND(13)	4.
Phenanthrene	ğ	ND(10)	-	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	90:0	ND(0.4)	90.08	ND(0.4)	90.0	ND(0.39)	90.0	ND(0.4)	90.0	ND(0.38)	_	ND(0.39)	_	ND(0.42)	0.084
Pyrene	ě	ND(10)	-	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18	ND(0.78)		ND(0.77)		ND(0.84)	0.19
Natural Attenuation																							
Parameters																							
Alkalinity to pH 4.5	шбу	6.5	0,41	4.1	0.41	₩.	0.41		0.41		0.41		0.41		0.41	4,6	0.41	ND(3)	0.41	3.7	0.46	3.5	0.46
Alkalinity to pH 8.3	Mg.	(S)	0.43	ND(2)	0.41	ND(2)	0.43		0.41		0.41		0.41		64,	ND(0.2)	ğ ;	თ ;	0.41	ND(2)	0.46	ND(2)	0.46
Chloride	Ē	- '	9	7	2		<u>.</u>						 5		<u>.</u>	10.6	Ç.	11.8		12	9	13.3	- !
Iron (Total)	ě	- 4	0.038	0.172	0.038		0.0349	- '	0348	- :	0.0349		0.035	_	0.0453	0.054	0.0453	ND(0.2)	0.0495	0.0417	0.0378	ND(0.2)	0.0522
ion (Lissolved)	ē	(L.O.)	0.038	(L.0)CIV	90.0		0.0348		3.0348	_	0.0349		c (C)	_	U.U453	ND(0.2)	0.0453	ND(0.2)	C. C4835	ND(0.2)	9760	ND(02)	7700.0
Nitrate Nitrogen	Ē	12.5	4.0	12	4.0) (2)	4 0		4.0		4.0		4 8		4.0	2	4 6	2	4 6		4.0	<u>}</u> -	0.25
Sulfate	5	3.1	5.	2.9	£.		1.5	ਲ	5.	ल	5.	2.1]	1.5	য	7.5	2.1	5.	2.4j	£.	4.6	T.	3.4	rci
Field Parameters																							
Dissolved Oxygen	mgA	4.4		4.52		4.54		90.4		4.22		4 34		90'9		3.78		1		3.51		6.57	
Ferrous fron	m F	0		0		0		0		0		٥		0		0		0		o		0	
Oxidation-reduction Pot.	volts			270		516		274		405		423		57.1		360		164		264		326	
Ha	pH std. units	٠.,		4.5		4.73		5.02		5.14		3.84		4 .5		5.18		4.96		4.51		4.79	
Specific Conductance	ms/cm			8		8 8		2 5		<u>د</u> ر		86		6		6 6		æ 5		* ;		4.6	
emperature	د	3		77 .00		9		0.77		1.7		5.17		7.77		45.14		7.77		00:77		F.37	

Notes:
mg/l - miltigrams per liter

ug/l - micrograms per liter

ug/l - micrograms per liter

Uc/l - micrograms per liter

C- degrees Cestisus

NA - Sample not analyzed for this constituent

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

MDL - Method detection fimit

- 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 maiturction

Summary of Ground Water Monitoring Data Monitoring Well MW-22

Gulf States Creosoting Site Hattiesburg, Mississippi

MOL Result Result Result MOL Result Result Result MOL Result Result MOL Result Result MOL Result Result MOL Result MOL Result Result MOL Result Result MOL Result MOL Result MOL Result MOL Result MOL Result Result MOL Result MOL Result MOL Result MOL Result MOL Result MOL			December 2001	2001	March 2002	200	June 2002		栗	2002	ģ		March 2	g	Ň	63	October	2003	Decem	December 2004	December 2005	er 2005	January	2007
March Marc	Polycyclic Aromatic	Units		힣			- 1	, اــ	ŀ		Result	MDF.	Result	Į Į	Result	MDL	Result	ď M	Result	₩DF	Result	Z Z	Result	Į
The control of the co	Hydrocarbons (PAHs)																							
National N	Acenaphthene	ě	ND(10)		(8) Q	9.0	(8)QN	8.0		_		C)	ND(15)		ND(15)	.	ND(16)	9.	ND(15)		ND(16)		ND(20)	-
and billion in the color of the co	Acenaphthylene	ě	ND(10)	-	<u>(8)</u>	9.0	(8)QN	9.0		_		C4	ND(15)		ND(15)	5.	ND(16)	1.6	ND(15)		ND(16)		ND(20)	1.7
match pdf NRCH 1 NRCH	Anthracene) On	ND(10)	-	ND(0.2)	_	_		_	_		0.04	ND(0.2)		ND(0.19)	0.04	ND(0.099)	0.02	ND(0.19)	_	ND(0.2)		ND(0.25)	90.0
γγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγγ	Benz(a)anthracene	ě	ND(10)	_	ND(0.1)				_	_		0.02	ND(0.1)		ND(0.1)	0.02	ND(0.099)	0.02	ND(0.096)	_	ND(0.098)		ND(0.12)	0.025
WINCLO 1 NUICLO Oct NUICLO 1 NUICLO 0 NUICLO NUICLO	Benzo(a)pyrene	Ž	ND(10)	_	ND(0.1)				_	_		0.02	ND(0.1)		ND(0.1)	0.02	ND(0.2)	900	ND(0.096)	_	ND(0.098)		ND(0.12)	0.025
γγγγκεν μη (1) 1 NOCCO 0.1 NOCCO 0.0 NOCCO	Benzo(b)fluoranthene	<u>7</u>	ND(10)	_	ND(0.2)				_	_		0.04	ND(0.2)		ND(0.19)	9.0	ND(0.59)	0.099	ND(0.19)	_	ND(0.2)		ND(0.25)	90.0
National Column National C	Benzo(g,h,i)perylene	Ē	ND(10)	_	ND(0.6)					_		1.0	ND(0.8)		ND(0.58)	0.1	ND(0.099)	0.02	ND(0.58)	_	ND(0.59)		ND(0.75)	0.12
National Parameter 15 National Parame	Benzo(k)fluoranthene	Ē	ND(10)	-	ND(0.1)				_	_		0.02	ND (0.1)		ND(0.1)	0.02	ND(2)	0.41	ND(0.096)	_	ND(0.098)		ND(0.12)	0.025
pg4 NCP (12) 1 NCP (12) 0.04	Chrysene	Š	ND(10)	_	ND(0.4)				-	_		90'0	ND(0.4)		ND(0.39)	90.0	ND(0.4)	0.079	ND(0.38)	_	ND(0.39)		ND(0.50)	5
PATE IN INDICATO 1 NUNICATO 1 NUNICATO 2 COAR NUNICATO 3 COAR NUNICATION 3 <t< th=""><th>Dibenz(a,h)anthracene</th><th>764</th><th>ND(10)</th><th>_</th><th>ND(0.2)</th><th></th><th></th><th></th><th>-</th><th>_</th><th></th><th>0.04</th><th>ND(0.2)</th><th></th><th>ND(0.19)</th><th>0.04</th><th>ND(0.2)</th><th>90</th><th>ND(0.19)</th><th>_</th><th>ND(02)</th><th></th><th>ND(0.25)</th><th>0.05</th></t<>	Dibenz(a,h)anthracene	7 64	ND(10)	_	ND(0.2)				-	_		0.0 4	ND(0.2)		ND(0.19)	0.04	ND(0.2)	90	ND(0.19)	_	ND(02)		ND(0.25)	0.05
Number Marco Mumor Mum	Fluoranthene	Š	ND(10)	_	ND(0.8)							9.0	0.14		4	9.0	0. (61	9. 8	ND(0.19)	_	ND(0.2)		ND(0.25)	0.05
Pythology of the billiong of the billio	Fluorene	/B1	ND(10)	_	ND(0.2)					_		0.2	4	_	ND(0.77)	0.17	ND(0.79)	0.18	ND(0.77)		ND(0.78)		(0.1)QN	0.62
No.	Indeno(1,2,3-cd)pyrene	ron.	ND(10)	-	ND(0.4)					_		0.08	ND(0.4)		ND(0.39)	0.08	ND(0.4)	0.079	ND(0.38)	_	ND(0.39)		ND(0.50)	-0
Harten High ND(16) 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) 0.09 ND(0.4) 0.04	Naphthalene	767	ND(10)	-	ND(8)							-	KD (11)		ND(12)	7.	ND(12)	1.2	ND(12)		ND(12)		ND(15)	9.
Pyyene iig1 ND(10) 1 6ig1 0.2 0.8 0.2 0.78 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.7 0.8 0.4 ND(2) 0.0 0.4 3.2 0.4 ND(2) 0.0 0.0 0.0 <t< th=""><th>Phenanthrene</th><th>Į, P</th><th>ND(10)</th><th>-</th><th>ND(0.4)</th><th>90.0</th><th></th><th></th><th></th><th>_</th><th></th><th>90.0</th><th>ND(0.4)</th><th>-</th><th>(6E 0)QN</th><th>90.0</th><th>ND(0.4)</th><th>0.079</th><th>ND(0.38)</th><th>_</th><th>ND(0.39)</th><th></th><th>ND(0.50)</th><th><u>.</u></th></t<>	Phenanthrene	Į, P	ND(10)	-	ND(0.4)	90.0				_		90.0	ND(0.4)	-	(6E 0)QN	90.0	ND(0.4)	0.079	ND(0.38)	_	ND(0.39)		ND(0.50)	<u>.</u>
PH 45 mg/l 48,4 0.41 52.1 0.41 50.6 0.41 ND(2) 0.42 1.52 1.43 1.5 </th <th>Pyrene</th> <th>Š</th> <th>ND(10)</th> <th>-</th> <th>90</th> <th>0.2</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.2</th> <th>0.83</th> <th></th> <th>0.76j</th> <th>0.17</th> <th>0.61</th> <th>0.18</th> <th>ND(0.77)</th> <th></th> <th>ND(0.78)</th> <th></th> <th>ND(1.0)</th> <th>0,22</th>	Pyrene	Š	ND(10)	-	90	0.2						0.2	0.83		0.76j	0.17	0.61	0.18	ND(0.77)		ND(0.78)		ND(1.0)	0,22
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Charles May Academy	Parameters	,		;		3				3		3		*		•	9	;			ŭ	9	000	9
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Sulfate mg/l 6.3 1.5 5/g 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.8 1.5 4.6 1.5 5.2 1.5 1.5 5.2 1.5 1.	Nitrate Nitrogen	È		0.4			ND(0.5)			0.4		0.4	_	4.0		0.4	ND(0.5)	4	0.42	0.4	0.54	4.0	0.37	0.25
d Oxygen mg/l 1.63 0.3 0.16 0.43 0.44 0.21 1.74 0.3 0.6 0.56 rous from reg/l or size 0 0 0 0 0 0.4 0 1 Ation Pacture 2.78 420 2.07 182 2.40 2.74 369 1/1 1.27 PH skd unlish 5.9 5.6 5.59 5.69 5.18 5.83 4.92 Auckland 3.5 4.3 1.27 149 168 161 91 114 • pperature 6 2.1 2.1 2.1 2.1 2.1 2.0 2.1	Sulfate	W _B		1.5			6.0			1.5		1.5		1.5		3.5	4.1	3.1	6	1.5	5.2	ć.	5.2	1
LOxygen mgf 1.63 0.3 0.16 0.43 0.44 0.21 1.74 0.3 0.6 0.56 1 rous lron mgf 0 0 0 0 0 0 0 1 chick 2.7 0.1 0 0 0 0 1 1 1.27 per atom 3.7 4.20 2.74 369 1.11 1.27 ducksmen 4.50 5.9 5.5 5.5 5.18 5.8 4.82 ducksmen 4.50 1.27 1.49 1.68 1.61 91 1.14 ** pperature *C 21 20.13 21.31 21.42 20.09 21.0B 22.14 26 20.71	Field Parameters																							
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skd unlis 5.97 5.61 5.06 5.3 5.86 5.15 5.59 5.18 5.63 4.82 µS/cm 131 143 134 127 149 158 161 91 114 * °C 21 20.13 21.3 21.91 21.42 20.09 21.08 22.14 26 20.71		volts	420		278		420		207		182		240		274		9 <u>6</u> 9		1		127		₹	
µS/cm 131 143 134 127 149 168 161 91 114 * °C 21 2013 21.3 21.91 21.42 20.09 21.08 22.14 26 20.71	PH 84	d units			5.61		5.06		5.3		289		5.15		5.50 5.00		5.18		5.63		4.92		5.46	
°C 21 20.13 21.3 21.91 21.42 20.09 21.08 22.14 26 20.71		mS/cm	131		5		134		127		45		58		161		8		1		•		121	
	Temperature	ပ္စ	7		20		21.3		21.91		21 42		20.0g		21.08		22.14		83		20.71		20.3	

Notes:

mg/l - militgrams per liter

mg/l - microsenens per certimeter

mg/l - degrees Celsius

Mar - Sample not analyzed for this consituent

NA - Sample not analyzed for this consituent

MDL - Method detection timit

MDL - Method detection timit

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

- indicates suspect measurement likely due to Instrument malfunction

Comparison of Affected Wells to Background Wells Natural Attenuation Parameters

Gulf States Creosote Site

Hattlesburg, Mississippi

	Jan 07 4,32 ⁽²⁾ 4,49 ⁽²⁾ 5,67 ⁽²⁾	77 CD	5.67 ⁽²⁾ Damaged	5.98 ⁽²⁾ 5.56 ⁽²⁾		5.83 ⁽²⁾	2 to
	Dec-05 7.02 ⁽²⁾ 0.36 0.37			0.38	5.50 14.00 10.00 10.00 10.00	0.81	98 G
	Dec-04 0.98 1.3 0.18	5 S	0.18 99.1	0.33	2 55 5 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	0.5	MA 0.08
ntration	Sep-03 0.22 0.5 0.3	9 6 C	0.3	0.5	949E	0.29	1940 0.634
Dissolved Oxygen (mg/L) Plume Concentration < Background Concentration	Jun-03 2.14 2.04 2.68	15 E 15 N	2.68	2.6 2.13	5 61 2 82 2 83 2 83 4 84 4 84 4 84 4 84 8 84 8 84 8 84 8	2.17	316
Dissolved Oxygen (mg/L) entration < Background C	Mar-03 0.29 0.25 0.11	6 B	0.16	0.49	留居的方向 4000年6	0.27	340 800
Dissolve oncentration	Dec-02 0.32 0.33 0.33	68 to	0.33	0.31	88 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0.22	98'0 97'0
Plume C	Sep-02 0.27 0.26 0.17	E 15	0.17	0.33	84888	0.18	980
	Jun-02 0.76 0.48 0.41	4 C	0.41	0.62 0.51	36859 36-49	1.25	90 00
	Mar-02 0.34 0.41 0.26	5 k	0.26	0.3 1.3	84888 8488	0.4	90 220
	Dec-01 0.54 0.42 0.35	60 ± 00	0.35	0.79 0.81	100 121 121 186	0.65	90 ·
ation (1)	Well I.D. MW-1R MW-2R MW-06		MW-06 MW-09	MW-17 MW-19	More 48 More 48 More 52 More 52 More 52 More 52 More 52 More 52 More 52 More 52 More 53 More 5	MW-12	\$600-13 \$800-15
Indicator of Natural Attenuation ⁽¹⁾	Well Type Plume Plume		Plume Plume	Plume Plume	Montheest Draines	Plume	Bestground Receptored
Indicator of	ser Area	Proce	,59T/	ye Ditch +	genisrQ teserthoM		A III.

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 maifunction 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.

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

Guir States Creosote Site	Hattiesburg, Mississippi	

ron - Fe+2 (mg/L) Plume Concentration > Background Concentration	Jun-02 Sep-02 Dec-02 Mar-03 Jun-03 Sep-03 Dec-04 Dec-05 5 4 2.6 0 1.4 0 0 0 0 0 0 0 0 0 0 0 3 4.5 5 4.2 6.6 5.2 4 4		3 4.5 5 4.2 6.6 5.2 4 4	7 5 5.5 3 4 4.6 5 Damaged	5.5 5.5 4.5 2.2 1.4 2.5 5 4	7 5.5 5 4.8 4.8 NM 4 5		1.8 NM 1.9
Plum		es es	က	7	5.5	7		
lion (1)	Well I.D. Dec-01 MW-1R 8 MW-2R 0 MW-06 7	MW 16 0	MW-06 7	9	1.2	MW-19 4.6	WW 16 0 WW 20 0 WW 21 0	MW-12 1.4
Indicator of Natural Attenuation (1)	Well Type Plume Plume Plume	Proc Bases Care Care Care Care Care Care Care Care	Plume	Plume	Plume	Dlume	genistO tzeerthoM Grand Brand Grand br>Grand Brand Grand Grand Brand Grand Grand Brand Grand br>Grand Brand Grand Bran	вел. П Ш Ф Е

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.

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

Gulf States Creosote Site Hattiesburg, Mississippi

	Jan-07 10 2.3j 2300	9 E	2300 Damaged	140	99.20 99.20	50	1988
	Dec-05 ND(5) ND(5) 1400	G (6)	1400 Damaged	300	66.4 6.66 1.4	50	908
	Dec-04 2.2j 2.1j 2500	3.63		550 1300	26.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	64	18.00 18.00
entration	Sep-03 3.7j ND(5) 1400	66 29	1400	390 1300	999 <u>9</u> 8	140	9 (3) (5) (4) (4)
Methane (µg/L) Plume Concentration > Background Concentration	Jun-03 35 ND(5) 1900		1900 580	300		170	2.6
Methane (µg/L) tion > Backgro	Mar-03 ND(5) ND(5) 1200	(3.00 (3.00)	1200	470 1400	SIGN SIGN	210	988
Concentration	Dec-02 48 ND(5) 1900	669 200	1900	640 1400	COON COON COON COON COON COON COON COON	240	3081 23
Plume	Sep-02 43 ND(5) 1900	# E	1900 340	930 1000	#000 #1100	400	4.5 22.00
	Jun-02 71 ND(5) 1400	3.3 NEDIS	1400 480	910 1200	#252 #222	370	1300
	Mar-02 350 2.2] 1400	i e P	1400 380	1400 1400	2012 2012 2013 2013	360	15.0
	Dec-01 2400 2.8j 1200	- T	1200 590	850 590	1 TARE	400	4.2
ation (1)	Well I.D. MW-1R MW-2R MW-06	0 0 2 4 2 2 4 2	MW-06 MW-09	MW-17 MW-19	MAN 15 MAN 15 MAN 25 MAN 25 MA	MW-12	EW 13
Indicator of Natural Attenuation ⁽¹⁾	Well Type Plume Plume Plume	69544773310 6874870310	Plume			Plume	Sackground Background
Indicator o	ocess Area	MG	s91A	dojich	Northeast Drainag	,rea	A III3

µg/L - microgram per liter

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

(2) - Indicates suspect measurement likely due to instrument malfunction
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⁽¹⁾ Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication Policy on Use of Natural Attenuation for Site Remediation, 1997

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

Gulf States Creosote Site Hattiesburg, Mississippi

	1.9j 1.9j 1.9j 1.9j	1.9j d Damaged 6.7 2.1j	on en e n con en en	2.1j
	Dec-05 2.7j 18.8 3.6j	3.6j 3.6j Damaged 9.8 2.3j	9 4 8 3 1 2 0 - 4 4	ND(5)
	Dec.04 ND(5) 17.9 3.4j	3.4j ND(5) 6.3 2.1j	***************************************	ND(5)
ntration	Sep-03 1.5j 19.9 5.2	5.2 13.8 5.6 5.6 2.8j	68 to 144 6 to to 144 15 to 144	ND(5)
ound Conce	Jun-03 1.8j 21.8 2.7j	2.7j 6.4 4.4j 4.7j	និទួតជទួ	ND(5)
Sulfate (mg/L) ion < Backgro	Mar-03 ND(5) 20.9 4.8j	4.8j 9.6 3.1j 4.1j	5 * 5 ° 4 ° 1	ND(5)
Sulfate (mg/L) Plume Concentration < Background Concentration	Dec-02 ND(5) 19.3 6	6 5.3 3.4j 3.3j	சுக்கு _{சு} ரு எடைச் செரி	ND(5)
Plume	Sep-02 ND(5) 21.2 4.1j	4.1j ND(5) 3.8j ND(5)	2000年	ND(5)
	Jun-02 ND(5) 20.9 3.7j	3.7j 4j 2.7j 4.3j	# = # # # # = # # # #	ND(5)
	Mar-02 ND(5) 18.8 4.9j	4.9j 6.6 2.1j 4.3j	Casa,	ND(5)
	Dec-01 ND(5) 19.9 3j	33 3.4j 2.9j 6.7	#5 ### #5 # # #	ND(5)
ation (1)	Well I.D. MW-1R MW-2R MW-06	MW-06 MW-09 MW-17 MW-19	9 E G 6 G 8 E S 8 E 8 E S 8 E S 8 E S 8 E 8 E S 8 E S 8 E S 8 E 8 E S 8 E S 8 E S 8 E S 8 E 8 E S 8 E S 8 E S 8 E S 8 E S 8 E S 8 E 8 E S	MW-12 BB/ 13 BB/ 13
Indicator of Natural Attenuation ⁽¹⁾	Well Type Plume Plume Plume	Bersemmer Plume Plume Plume	Backgrand Backgrand Backgrand Backgrand Backgrand	Plume Sering and
Indicator of	E91A S29001 ^C	RenA rhatir Geg	snisrQ teserthoM	Fill Area

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

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

Gulf States Creosote Site Hattiesburg, Misslssippi

	Jan-07 1.6 ND(0.5) ND(0.5)		ND(0.5) Damaged ND(0.5) ND(0.5)		ND(0.5)	
	Dec-05 J ND(0.5) ND(0.5) N ND(0.5) N	014. E +	ND(0.5) N Damaged De ND(0.5) N ND(0.5) N	04 E 9 8	ND(0.5) N	24 (S. SEC.)
	Dec-04 1.5 ND(0.5) ND(0.5)		ND(0.5) ND(0.5) I ND(0.5) ND(0.5)	5 - 5 - 5 5 - 5 - 5 5 - 5	ND(0.5)	NA. Mari
ntration	Sep-03 1.4 ND(0.5) ND(0.5)	e es	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	22 Macs 18 18 18 18 18 18 18 18 18 18 18 18 18	ND(0.5)	NEW ST
Nitrate (mg/L) Plume Concentration < Background Concentration	Jun-03 0.81 ND(0.5) ND(0.5)		ND(0.5) ND(0.5) ND(0.5) ND(0.5)	15 MAGG 0.8 (Mg 6.8)	ND(0.5)	S O'CHI
Nitrate (mg/L) on < Backgro	Mar-03 1.1 ND(0.5) ND(0.5)	1 1:	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	14 17 NDOS; 1	ND(0.5)	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Soncentratio	Dec-02 0.7 ND(0.5) ND(0.5)	5 	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	100 P	ND(0.5)	
Plume (Sep-02 0.61 ND(0.5) ND(0.5)	31.	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	8 50 7 6 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND(0.5)	18 O KIR
	Jun-02 ND(0.5) ND(0.5) ND(0.5)	0 	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	15.0 1.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	ND(0.5)	600M
	Mar-02 ND(0.5) ND(0.5) ND(0.5)	2 1.0 2 0	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	058 057 041 123 M055	ND(0.5)	(2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (
	Dec-01 ND(0.5) ND(0.5) ND(0.5)	¥ 0	ND(0.5) ND(0.5) ND(0.5) ND(0.5)	4 8 9 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	ND(0.5)	6 6 6 6 6 8 8 8
ation (1)	Well I.D. MW-1R MW-2R MW-06	2 % 2 % 2 %	MW-06 MW-09 MW-17 MW-19	9 # 6 2 8 8 # 2 # 1	MW-12	2 2 2 2 2 8
Indicator of Natural Attenuation ⁽¹⁾	Well Type Plume Plume Plume		sen Arich Area Plume Plume Cume e e e e e e e e e e e e e e e e e e e	Sanisro Izsanthok	Plume Plume	4 III
Indicator	•		- 1100	" 	•	

Notes

mg/L - milligram per liter

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

Policy on Use of Natural Attenuation for Site Remediation, 1997

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

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

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Appendix A

Site Background Information

Former Gulf States Creosoting Site Hattiesburg, Mississippi

1.0 Introduction

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

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

1.1 Site Description and Background

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

The property was developed commercially beginning in approximately 1962. During the redevelopment of the site, fill materials containing crossote 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

January 2007 Laboratory Reports

Former Gulf States Creosoting Site Hattiesburg, Mississippi



ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1020889. Samples arrived at the laboratory on Wednesday, January 10, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
DUP01 Grab Water Sample	4955351
MW-11 Grab Water Sample	4955352
MW-12 Grab Water Sample	4955353
MW-21 Grab Water Sample	4955354
MW-20 Grab Water Sample	4955355
MW-16 Grab Water Sample	4955356
MW-18 Grab Water Sample	4955357
Trip_Blank Water Sample	4955358

METHODOLOGY

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

1 COPY TO ELECTRONIC COPY TO 1 COPY TO Michael Pisani & Associates

Tronox LLC

Data Package Group

Attn: David Upthegrove Attn: Roy Widmann

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organic Quanners		morganio adminoro
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
, E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TiCs only)	U	Compound was not detected
P	Concentration difference between primary and	w	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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

Respectfully Submitted,

boot Reisey Sr. Specialist



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ΙU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualiflers

	· · · · · · · · · · · · · · · · · · ·		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Page 1 of 2

Lancaster Laboratories Sample No. WW 4955351

DUP01 Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected: 01/09/2007

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:12

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

2104D SDG#: HMS61-01FD

					As Received	As Received		
CAT			As Rec	eived	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	:	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	N.D.		0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	14.4		2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	18.6		2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	9.4		5.0	1.5	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	1.1		0.50	0.25	mg/l	. 5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	N.D.		5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	280.		13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	9.3	J	17,	1.5	ug/l	1
00783	Acenaphthene	83-32-9	12.	J	17.	0.94	ug/l	1
00784	Fluorene	86-73-7	21.		0.84	0.52	ug/l	1
00785	Phenanthrene	85-01-8	17.		0.42	0.084	ug/l	1
00789	Anthracene	120-12-7	0.082	J	0.21	0.042	ug/l	1
00807	Fluoranthene	206-44-0	0.61		0.21	0.042	ug/l	1
00811	Pyrene	129-00-0	N.D.		0.84	0.19	ug/l	1
00812	Benzo(a) anthracene	56-55-3	N.D.		0.10	0.021	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.		0.21	0.042	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.		0.10	0.021	ug/l	1
00895	Dibenz(a,h)anthracene	53 - 70-3	N.D.		0.21	0.042	ug/l	1
00898	Indeno (1,2,3-cd) pyrene	193-39-5	N.D.		0.42	0.084	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.63	0.10	ug/1	1
07409	Chrysene	218-01-9	N.D.		0.42	0.084	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.		0.10	0.021	ug/1	1
	Due to the nature of the sampl	e matrix, a re	educed a	liquot	was used for		₹.	•

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

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

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
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TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ĮŪ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mĺ	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ). J
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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

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Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 4955351

DUP01 Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected: 01/09/2007

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:12 Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

2104D SDG#: HMS61-01FD

As Received

As Received

CAT No.

Analysis Name

As Received CAS Number Result

Limit of Quantitation* Method Detection

Dilution Units Factor

Limit

Laboratory Chronicle

CAT		_		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:10	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00202	Alkalinity to pH 4.5	BPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/11/2007 01:59	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 01:59	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 01:59	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	. 1	01/11/2007 20:09	Robert I Pusch	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 06:16	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	ī
03337	PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1



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

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
umhos/cm C mea	micromhos/cm degrees Celsius milliequivalents	F lb.	degrees Fahrenheit pound(s)
g ug ml m3	gram(s) microgram(s) milliliter(s) cubic meter(s)	kg mg I ul	kilogram(s) milligram(s) liter(s) mictoliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			<u> </u>
Α	TIC is a possible aidol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ē	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
€ N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
-	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
X,Y,Ž	Defined in case narrative		

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Page 1 of 2

Lancaster Laboratories Sample No. WW 4955352

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

Collected:01/09/2007 08:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:12

Tronox LLC P.O. Box 268859

Discard: 03/21/2007

Oklahoma City OK 73126-8859

10411 SDG#: HMS61-02

CAT			As Received	As Received Limit of	As Received Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	1.0 J	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.2	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	24.4	5.0	1.5	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	14.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	19.	1.7	ug/l	.1
00783	Acenaphthene	83-32-9	N.D.	19.	1.1	ug/1	1
00784	Fluorene	86-73-7	N.D.	0.95	0.59	ug/1	1
00785	Phenanthrene	85-01-8	N.D.	0.47	0.095	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.24	0.047	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.24	0.047	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.95	0.21	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.12	0.024	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.24	0.047	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.12	0.024	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.24	0.047	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0,47	0.095	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.71	0.12	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.47	0.095	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.12	0.024	ug/1	1
	Due to the nature of the sampl	e matrix, a re	duced aliquot	was used for		 -	•
	analysis. The reporting limit	s were raised	accordingly.	i i	•		•

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

Lancaster Laboratories, Inc.

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

				
Α	TIC is a possible aldol-condensation product	B	Value is <crdl, but="" th="" ≥ldl<=""><th></th></crdl,>	
В	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 sample not within control limits	
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used	
	the instrument		for calculation	
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected	
Р	Concentration difference between primary and	W	Post digestion spike out of control limits	
•	confirmation columns >25%		Duplicate analysis not within control limits	
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995	
.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.

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4955352

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

Collected:01/09/2007 08:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:12

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10411 SDG#: HMS61-02

CAT No. Analysis Name

CAS Number Result

As Received As Received

As Received

Limit of Quantitation*

Method

Limit

Dilution Detection Units Factor

Laboratory Chronicle

· ·	Laboracory	CILLO	TTTCTC		
			Analysis		Dilution
Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
Iron	SW-846 6010B	1	01/15/2007 09:41	Joanne M Gates	1
Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
Chloride	EPA 300.0	1	01/11/2007 03:26	· · · · · · · · · · · · · · · · · · ·	5
Sulfate	EPA 300.0	1	01/11/2007 03:26	_	5
Nitrate Nitrogen	EPA 300.0	1	01/11/2007 03:26		5
Volatile Headspace Hydrocarbon	SW-846 8015B modified	ļ	01/11/2007 20:22	Robert I Pusch	1
PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 06:55	Mark A Clark	1
WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1
	Iron Alkalinity to pH 8.3 Alkalinity to pH 4.5 Chloride Sulfate Nitrate Nitrogen Volatile Headspace Hydrocarbon PAH'S in Water by HPLC WW SW846 ICP Digest (tot rec)	Analysis Name Iron SW-846 6010B Alkalinity to pH 8.3 BPA 310.1 Alkalinity to pH 4.5 Chloride Sulfate Sulfate Witrate Nitrogen Volatile Headspace Hydrocarbon PAH's in Water by HPLC SW-846 8015B modified SW-846 ICP Digest (tot SW-846 3005A	Analysis Name Method Trial# Iron SW-846 6010B 1	Analysis Name Iron	Analysis Name Method Trial# Date and Time Analyst Iron SW-846 6010B 1 01/15/2007 09:41 Joanne M Gates Alkalinity to pH 8.3 EPA 310.1 1 01/15/2007 13:14 Susan A Engle Alkalinity to pH 4.5 EPA 310.1 1 01/15/2007 13:14 Susan A Engle Chloride EPA 300.0 1 01/11/2007 03:26 Ashley M Heckman Sulfate EPA 300.0 1 01/11/2007 03:26 Ashley M Heckman Witrate Nitrogen EPA 300.0 1 01/11/2007 03:26 Ashley M Heckman Volatile Headspace SW-846 8015B modified 1 01/11/2007 03:22 Robert I Pusch Hydrocarbon PAH's in Water by HPLC SW-846 8310 1 01/12/2007 06:55 Mark A Clark WW SW846 TCP Digest (tot SW-846 3005A 1 01/13/2007 18:25 Helen L Schaeffer rec)



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ΙU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- < 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			-
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03



Page 1 of 2

Lancaster Laboratories Sample No. 4955353

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

Collected:01/09/2007 09:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00 Reported: 01/19/2007 at 12:12

SDG#: HMS61-03

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

Discard: 03/21/2007

10412

CAT			As Received	As Received Limit of	As Received Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	0.869	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	54.6	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	2.8	2.0	1.0	mg/l	5
00228	Sulfate	14808-79~8	2.1 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	50.	5.0	2.0	ug/l	1 ·
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	3.7 J	13.	1.4	uq/l	1
00782	Acenaphthylene	208-96-8	2.1 J	17.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	17.	0.95	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.84	0.53	ug/1	1
00785	Phenanthrene	85-01-8	0.097 J	0.42	0.084	ug/1	1
00789	Anthracene	120-12-7	N.D.	0.21	0.042	ug/1	1
00807	Fluoranthene	206-44-0	N.D.	0.21	0.042	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.84	0.19	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.021	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.21	0.042	ug/1	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.021	ug/1.	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.21	0.042	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0,42	0.084	ug/l	1
00907	Benzo(g,h,i)perylana	191-24-2	N.D.	0.63	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.42	0.084	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.11	0.021	ug/l	1
	Due to the nature of the sample analysis. The reporting limit			was used for			

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

Lancaster Laboratories, Inc.

*=This limit was used the the levaluation of the final result PO Box 12425

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ŧU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	l l	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	<u> </u>		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N-	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
*	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.

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3768.03

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4955353

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

Collected:01/09/2007 09:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:12

Tronox LLC P.O. Box 268859

Discard: 03/21/2007

Oklahoma City OK 73126-8859

10412 SDG#: HMS61-03

CAT No.

Analysis Name

As Received CAS Number Result

As Received Limit of

As Received

Quantitation*

Method Detection

Dilution Units Factor

Limit

Laboratory Chronicle

	_		Analysis		Dilution
Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
Iron	SW-846 6010B	1	01/15/2007 10:15	Joanne M Gates	1
Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
Chloride	EPA 300.0	1	01/11/2007 03:44	Ashley M Heckman	5
Sulfate	EPA 300.0	1	01/11/2007 03:44		5
Nitrate Nitrogen	BPA 300.0	1	01/11/2007 03:44	Ashley M Heckman	5
Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/11/2007 21:03	Robert I Pusch	1
PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 07:33	Mark A Clark	1
WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1
	Iron Alkalinity to pH 8.3 Alkalinity to pH 4.5 Chloride Sulfate Nitrate Nitrogen Volatile Headspace Hydrocarbon PAH's in Water by HPLC WW SW846 ICP Digest (tot rec)	Analysis Name Iron SW-846 6010B Alkalinity to pH 8.3 Alkalinity to pH 4.5 EPA 310.1 Chloride Sulfate EPA 300.0 Sulfate EPA 300.0 Nitrate Nitrogen Volatile Headspace Hydrocarbon PAH's in Water by HPLC WW SW846 ICP Digest (tot SW-846 8015B Wester SW-846 8310 SW-846 8305A	Analysis Name	Analysis Name Method Trial* Date and Time Iron SW-846 6010B 1 01/15/2007 10:15 Alkalinity to pH 8.3 EPA 310.1 1 01/15/2007 13:14 Alkalinity to pH 4.5 EPA 310.1 1 01/15/2007 13:14 Chloride EPA 300.0 1 01/11/2007 03:44 Sulfate EPA 300.0 1 01/11/2007 03:44 Nitrate Nitrogen EPA 300.0 1 01/11/2007 03:44 Volatile Headspace SW-846 8015B modified 1 01/11/2007 03:44 Volatile Headspace SW-846 8310 1 01/11/2007 07:33 Hydrocarbon PAH's in Water by HPLC SW-846 8310 1 01/13/2007 18:25 rec)	Analysis Name Method Trial* Date and Time Analyst Iron SW-846 6010B 1 01/15/2007 10:15 Joanne M Gates Alkalinity to pH 8.3 EPA 310.1 1 01/15/2007 13:14 Susan A Engle Alkalinity to pH 4.5 EPA 310.1 1 01/15/2007 13:14 Susan A Engle Chloride EPA 300.0 1 01/11/2007 03:44 Ashley M Heckman Sulfate EPA 300.0 1 01/11/2007 03:44 Ashley M Heckman Nitrate Nitrogen EPA 300.0 1 01/11/2007 03:44 Ashley M Heckman Volatile Headspace SW-846 8015B modified 1 01/11/2007 03:44 Ashley M Heckman Hydrocarbon PAH's in Water by HPLC SW-846 8310 1 01/12/2007 07:33 Mark A Clark WW SW846 ICF Digest (tot SW-846 3005A 1 01/13/2007 18:25 Helen L Schaeffer rec)



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	lb.	pound(s)
ġ	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĩ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ). J
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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.
- parts per billion ppb

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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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

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Page 1 of 2

Lancaster Laboratories Sample No. WW 4955354

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

Collected:01/09/2007 10:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

P.O. Box 268859

As Received

Tronox LLC

Discard: 03/21/2007

Oklahoma City OK 73126-8859

As Received

10421 SDG#: HMS61-04

				As Kecelved	As Keceived		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	3.5	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	13.3	2.0	1.0	mg/1	5
00228	Sulfate	14808-79-8	3.4 J	5.0	1.5.	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	1.7	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon			:			
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC			•			4
00775	Naphthalene	91-20-3	N.D.	13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	17.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	17.	0.95	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.84	0.53	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.42	0.084	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.21	0.042	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.21	0.042	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.84	0.19	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.021	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.21	0.042	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.021	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.21	0.042	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.42	0.084	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.63	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.42	0.084	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.021	ug/l	1
	Due to the nature of the sampl	e matrix, a re	educed aliquot	was used for			•

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

*=This limit 3/35 traed in the level aution of the final result PO Box 12425

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



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

n Level
;

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

В Value is <CRDL, but ≥IDL TIC is a possible aldol-condensation product Estimated due to interference В Analyte was also detected in the blank Ε Duplicate injection precision not met М C Pesticide result confirmed by GC/MS Spike sample not within control limits Ν D Compound quantitated on a diluted sample Method of standard additions (MSA) used S Е Concentration exceeds the calibration range of for calculation the instrument Ν Presumptive evidence of a compound (TICs only) U Compound was not detected Concentration difference between primary and Post digestion spike out of control limits W Duplicate analysis not within control limits confirmation columns >25% Correlation coefficient for MSA < 0.995 Compound was not detected X,Y,ZDefined 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.

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03

Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4955354

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

Collected:01/09/2007 10:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Tronox LLC P.O. Box 268859

Discard: 03/21/2007

Oklahoma City OK 73126-8859

10421 SDG#: HMS61-04

CAT

As Received

Analysis Name

As Received CAS Number Result

Limit of Quantitation* As Received

Method Detection

Dilution Units Pactor

Limit.

Laboratory Chronicle

	•	Danoracory	CIII O	nicie .		
CAT			Dilution			
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:29	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/11/2007 04:01	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 04:01	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 04:01	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/11/2007 21:16	Robert I Pusch	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 08:12	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
03337	PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mĪ	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	0.9a.m		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
. z	Defined in case parrative		·

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

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03



Page 1 of 2

Lancaster Laboratories Sample No. WW 4955355

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

Collected:01/09/2007 14:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10420 SDG#: HMS61-05

CAT No.	Analysis Name	CAS Number	As Receiv	As Received Ved Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.136 J	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	11.7	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	9.8	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	5.5	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.32 J	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	3.3 J	5.0	2:0	ug/l	1
00774	PAH's in Water by HPLC	·					-
00775	Naphthalene	91-20-3	N.D.	13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	17.	1.5	ug/1	1
00783	Acenaphthene	83-32-9	N.D.	17.	0.98	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.87	0.54	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.43	0.087	ug/l	1
00789	Anthracene	120-12-7	N.D.	0.22	0.043	ug/1	1
00807	Fluoranthene	206-44-0	N.D.	0.22	0.043	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.87	0.20	ug/1	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.22	0.043	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.11	0.022	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.22	0.043	ug/l	1.
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.43	0.087	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.65	0.11	ug/1	1
07409	Chrysene	218-01-9	N.D.	0.43	0.087	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.022	ug/l	1
	Due to the nature of the sample	e matrix, a re	duced aliq	uot was used for			

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

*=This limit Was Need I Pene evaluation of the final result PO 80x 12425



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
i U	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- < 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	y ,		-
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
. N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
บ	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.

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03



Page 2 of 2

Lancaster Laboratories Sample No. WW 4955355

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

Collected:01/09/2007 14:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00 Reported: 01/19/2007 at 12:13

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

Discard: 03/21/2007

10420

SDG#: HMS61-05

As Received

CAT

Analysis Name

As Received CAS Number Result

Limit of Quantitation* As Received Method

Dilution

Limit

Detection Units **Factor**

Laboratory Chronicle

				TTT-0-T-C		
CAT		_		Analysis		Dilution
No.	Analysis Nama	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:33	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/11/2007 04:18	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 04:18	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 04:18	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	l 1	01/11/2007 21:29	Robert I Pusch	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 08:51	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
03337	PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ເດ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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 Residence basis cond

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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	Е	Estimated due to interference
Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
	N	Spike sample not within control limits
	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TICs only)	U	Compound was not detected
	W	Post digestion spike out of control limits
confirmation columns >25%	*	Duplicate analysis not within control limits
Compound was not detected	+	Correlation coefficient for MSA < 0.995
Defined in case narrative	•	
	Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% Compound was not detected	Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% Compound was not detected

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

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03



Page 1 of 2

Lancaster Laboratories Sample No. WW 4955356

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

Collected:01/09/2007 15:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10416 SDG#: HMS61-06

				As Received	As Received		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	0.980	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaĆO3	1
00202	Alkalinity to pH 4.5	n.a.	6.1	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.3	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	6.2	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.1	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	17.	1.5	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	17.	0.98	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.87	0.55	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.44	0.087	ug/I	1
00789	Anthracene	120-12-7	N.D.	0.22	0.044	ug/1	1
00807	Fluoranthene	206-44-0	N.D.	0.22	0.044	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.87	0.20	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.22	0.044	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.44	0.087	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.66	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.44	0.087	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.022	ug/l	1
	Due to the nature of the samp	le matrix, a re	educed aliquot	was used for		- -	

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

*=This limit was vised from the evaluation of the final result PO Box 12425

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			•
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
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 sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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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3768.03



Page 2 of 2

Lancaster Laboratories Sample No. 4955356

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

Collected:01/09/2007 15:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10416 SDG#: HMS61-06

CAT No.

Analysis Name

CAS Number

As Received Result

As Received Limit of Quantitation* As Received

Method Detection

Dilution Unite **Factor**

Limit

Laboratory Chronicle

		Daboracory	CITTO	IIICIC		
CAT		_		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:38	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	. 1
00224	Chloride	EPA 300.0	1	01/11/2007 04:36	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 04:36	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 04:36	Ashley M Heckman	Š
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/11/2007 21:43	Robert I Pusch	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 09:30	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
03337	PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1



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

, RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
иg	microgram(s)	mg	milligram(s)
ml	milliliter(s)	ļ	liter(s)
m3	cubic meter(s)	ui	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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.
- parts per billion ppb

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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers;

Organic Qualifiers

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

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

Lancaster Laboratories Sample No. WW 4955357

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

Collected:01/09/2007 18:30

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10418 SDG#: HMS61-07

CAS Number CAS Number					As Received	As Received		
101754 Iron	CAT			As Received	Limit of	Method		Dilution
00201 Alkalinity to pH 8.3 n.a. N.D. 2.0 0.46 mg/l 1 as Caco3 Caco3 mg/l 1 as Caco3 Caco	No.	Analysis Name	CAS Number	Result	Quantitation*		Units	Factor
O0202 Alkalinity to pH 4.5 n.a. 14.2 2.0 0.46 mg/l 1 as as CaCO3 as as CaCO3 as as CaCO3 as as CaCO3 cacO33 c			7439-89-6	N.D.	0.200	0.0522	mg/l	1
10224 Chloride			n.a.			0.46	as	1
00224 Chloride 16887-00-6 17.9 2.0 1.0 mg/1 5 00228 Sulfate 14808-79-8 9.7 5.0 1.5 mg/1 5 00368 Nitrate Nitrogen 14797-55-8 1.1 0.50 0.25 mg/1 5 07105 Volatile Headspace Hydrocarbon	00202	Alkalinity to pH 4.5	n.a.	14.2	2.0	0.46	as	1
00228 Sulfate 14808-79-8 9.7 5.0 1.5 mg/l 5 00368 Nitrate Nitrogen 14797-55-8 1.1 0.50 0.25 mg/l 5 07105 Volatile Headspace Hydrocarbon	00224	Chloride	16887-00-6	17.9	2.0	1.0		5
07105 Volatile Headspace Hydrocarbon 07106 Methane 74-82-8 N.D. 5.0 2.0 ug/l 1 00774 PAH's in Water by HFLC 00775 Naphthalene 91-20-3 290. 13. 1.4 ug/l 1 00782 Acenaphthylene 208-96-8 9.0 J 17. 1.5 ug/l 1 00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Pluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo(a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00825 Benzo(a) anthracene 50-32-8 N.D. 0.11 0.021 ug/l 1 00826 Benzo(a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00839 Dibenz(a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00839 Indeno(1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo(g, h, i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 00740 Benzo(k) fluoranthene 218-01-9 N.D. 0.43 0.086 ug/l 1	00228	Sulfate						
### Hydrocarbon 07106 Methane 74-82-8 N.D. 5.0 2.0 ug/1 1 00774 PAH's in Water by HFLC 00775 Naphthalene 91-20-3 290. 13. 1.4 ug/1 1 00782 Acenaphthylene 208-96-8 9.0 J 17. 1.5 ug/1 1 00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/1 1 00784 Pluorene 86-73-7 20. 0.86 0.54 ug/1 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/1 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/1 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/1 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/1 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/1 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/1 1 00818 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/1 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/1 1 00825 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/1 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/1 1 00896 Ug/1 1 00897 Benzo (g, h, i) perylene 191-24-2 N.D. 0.43 0.086 ug/1 1 007409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/1 1 007410 Benzo (k) fluoranthene 207-08-9 N.D. 0.43 0.086 ug/1 1	00368	Nitrate Nitrogen						=
00774 PAH's in Water by HFLC 00775 Naphthalene 91-20-3 290. 13. 1.4 ug/l 1 00782 Acenaphthylene 208-96-8 9.0 J 17. 1.5 ug/l 1 00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00784 Pluorene 86-73-7 20. 0.86 0.54 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Pluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo(a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo(b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo(a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz(a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno(1,2,3-cd) pyrene 193-39-5 N.D. 0.21 0.043 ug/l 1 00907 Benzo(g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	07105							
00775 Naphthalene 91-20-3 290. 13. 1.4 ug/l 1 00782 Acenaphthylene 208-96-8 9.0 J 17. 1.5 ug/l 1 00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00784 Fluorene 86-73-7 20. 0.86 0.54 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00786 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo(a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo(b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo(a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz(a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno(1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo(g,h,i) perylene 191-24-2 N.D. 0.43 0.086 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1	07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00782 Acenaphthylene 208-96-8 9.0 J 17. 1.5 ug/l 1 00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00784 Fluorene 86-73-7 20. 0.86 0.54 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-	00774	PAH's in Water by HPLC		4.				
00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00784 Fluorene 86-73-7 20. 0.86 0.54 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5	00775	Naphthalene	91-20-3	290.	13.	1.4	ug/l	1
00783 Acenaphthene 83-32-9 12. J 17. 0.97 ug/l 1 00784 Pluorene 86-73-7 20. 0.86 0.54 ug/l 1 00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Pluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo(a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5<	00782	Acenaphthylene	208-96-8	9.0 J	17.	1.5	ug/l	1
00785 Phenanthrene 85-01-8 17. 0.43 0.086 ug/l 1 00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g, h, i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07410 Benzo (k) fluoranthene	00783	Acenaphthene	83-32-9	12, J	17.		ug/l	1
00789 Anthracene 120-12-7 0.078 J 0.21 0.043 ug/l 1 00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g, h, i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00784	Fluorene	86-73-7	20.	0.86	0.54	ug/l	1 -
00807 Fluoranthene 206-44-0 0.61 0.21 0.043 ug/l 1 00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g, h, i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00785	Phenanthrene	85-01-8	17.	0.43	0.086	ug/1	1
00811 Pyrene 129-00-0 N.D. 0.86 0.19 ug/l 1 00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a, h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1, 2, 3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g, h, i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00789	Anthracene	120-12-7	0.078 J	0.21	0.043	ug/1	1
00812 Benzo (a) anthracene 56-55-3 N.D. 0.11 0.021 ug/l 1 00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00807	Fluoranthene	206-44-0	0.61	0.21	0.043	ug/l	1
00818 Benzo (b) fluoranthene 205-99-2 N.D. 0.21 0.043 ug/l 1 00823 Benzo (a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz (a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00811	Pyrene	129-00-0	N.D.	0.86	0.19	ug/l	1
00823 Benzo(a) pyrene 50-32-8 N.D. 0.11 0.021 ug/l 1 00895 Dibenz(a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno(1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo(g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00812	Benzo(a) anthracene	56-55-3	N.D.	0.11	0.021	ug/l	. 1
00895 Dibenz (a,h) anthracene 53-70-3 N.D. 0.21 0.043 ug/l 1 00898 Indeno (1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo (g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo (k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.21	0.043	ug/l	1
00898 Indeno(1,2,3-cd) pyrene 193-39-5 N.D. 0.43 0.086 ug/l 1 00907 Benzo(g,h,i) perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00823	Benzo (a) pyrene	50-32-8	N.D.	0.11	0.021	ug/l	1
00907 Benzo(g,h,i)perylene 191-24-2 N.D. 0.64 0.11 ug/l 1 07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k)fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.21	0.043	ug/1	1
07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0, 43	0.086	ug/l	1
07409 Chrysene 218-01-9 N.D. 0.43 0.086 ug/l 1 07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/l 1	00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.64	0.11	uq/1	1
07410 Benzo(k) fluoranthene 207-08-9 N.D. 0.11 0.021 ug/1 1	07409	Chrysene	218-01-9	N.D.	0.43	0.086	- -	1
	07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.021		
		Due to the nature of the sample	e matrix, a r	educed aliquot	was used for			1

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

*=This limit ** As viset in the evaluation of the final result PO Box 12425

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	l	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
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- 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. All other results are reported on an as-received basis,

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			
	A TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
	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 sample not within control limits
	E Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
	N Presumptive evidence of a compound (TiCs only)	IJ	Compound was not detected
	P Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
	U Compound was not detected	+	Correlation coefficient for MSA <0.995
X,Y,	·		

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3768.03



Page 2 of 2

Lancaster Laboratories Sample No. WW 4955357

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

Collected:01/09/2007 18:30

by BB

CAS Number

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/19/2007 at 12:13

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

10418 SDG#: HMS61-07

CAT No. Analysis Name

As Received Result

As Received Limit of

As Received

Method Quantitation*

Dilution Detection Units **Pactor**

Limit

Laboratory Chronicle

			~** - ~			
CAT		_		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:43	Joanne M Gates	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/15/2007 13:14	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/11/2007 04:53	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 04:53	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 04:53	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/11/2007 22:09	Robert I Pusch	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/12/2007 10:09	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1
03337	PAH Water Extraction	SW-846 3510C	1	01/11/2007 10:30	Olivia Arosemena	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
ġ	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
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- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organio addinioro		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Page 1 of 1

Lancaster Laboratories Sample No. WW 4955358

Trip_Blank Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected: 01/09/2007

Account Number: 11947

Submitted: 01/10/2007 09:00 Reported: 01/19/2007 at 12:13 Tronox LLC P.O. Box 268859

Discard: 03/21/2007

Oklahoma City OK 73126-8859

104TB SDG#: HMS61-08TB

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

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

Laboratory Chronicle

CAT No.

Analysis Name 07105 Volatile Headspace

Analysis Trial# Date and Time

Dilution Factor

Hydrocarbon

SW-846 8015B modified 1 01/11/2007 22:23

Analyst Robert I Pusch

Lancaster Laboratories, Inc.



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

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umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
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g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- ppb parts per billion
- Dry weight basis

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Organic Qualifiers

			-
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3768.03



Page 1 of 3

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1020889

Reported: 01/19/07 at 12:13 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>LOQ**</u>	Blank <u>MDL</u>	Report Units	LCS <u>}rec</u>	LCSD <u>%RBC</u>	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 07010196602A	Sample nu	mber(s): 4	955351-49	55357					
Chloride	N.D.	0.40	0.20	mg/i	102		90-110		
Sulfate	N.D.	1.0	0.30	mg/1	102		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	97		90-110		
Batch number: 07010WAF026	Sample nu	mber(s): 4	955351-49	55357					
Naphthalene	N.D.	12.	1.3	ug/l	93	86	55-94	8	1 30
Acenaphthylene	N.D.	16.	1.4	ug/l	95	88	59-96	8	30
Acenaphthene	N.D.	16.	0.90	ug/l	95	88	60-116	7	30
Fluorene	N.D.	0.80	0.50	ug/l	100	93	66-106	8	30
Phenanthrene	N.D.	0.40	0.080	ug/l	102	94	67-115	8	30
Anthracene	N.D.	0.20	0.040	ug/l	95	.88	67-109	7	30
Fluoranthene	N.D.	0.20	0.040	ug/l	96	89	70-112	В	30
Pyrene	N.D.	0.80	0.18	ug/l	97	91	69-113	6	30
Benzo (a) anthracene	N.D.	0.10	0.020	ug/l	98	93	73-114	6	30
Benzo(b) fluoranthene	N.D.	0.20	0.040	ug/l	97	92	72-113	6	30
Benzo(a)pyrene	N.D.	0.10	0.020	ug/l	100	92	68-112	8	30
Dibenz (a, h) anthracene	N.D.	0.20	0.040	ug/l	86	79	30-121	9	30
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	98	92	60-111	6	30
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/1	84	77	9-127	8	30
Chrysene	N.D.	0.40	0.080	ug/l	98	95	70-111	3	30
Benzo(k) fluoranthene	N.D.	0.10	0.020	ug/1	98	92	72-119	7	30
Batch number: 070110020A	Sample nu	mber(s): 4	955351-49	55358					
Methane	N.D.	5.0	2.0	ug/l	92		80-120		
Batch number: 070121848003	Sample nu	mber(s): 4	955351-49!	55357			100		
Tron	N.D.	0.200	0.0522	mg/l	99		90-112		
Batch number: 07015020201A Alkalinity to pH 4.5	Sample nu	mber(s): 4	955351-49	55357	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

	ns	MSD	ns/msd		RPD	BKG	DUP	DUP	Dup
Analysis Name	%RBC	%REC	<u>Limite</u>	RPD	MAX	Conc	Conc	RPD	RPD Max
Batch number: 07010196602A Chloride Sulfate Nitrate Nitrogen	Sample 121* 123* 113*	number	(s): 495535 90-110 90-110 90-110	1-4955	357 UNS	PK: 495535 18.6 9.4 1.1	1 BKG: 49553 17.7 8.9 1.0	551 5* 5* (1) 5* (1)	3 3 2

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

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



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meg	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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Organic Qualifiers

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X,Y,Z	Defined in case narrative		

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Page 2 of 3

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1020889

Reported: 01/19/07 at 12:13 PM

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

	ms	msd	MS/MSD		RPD	BRG	DAB	DUP	Dup
Analysis Name	%REC	%REC	<u>Limits</u>	RPD	MAX	Conc	Conc	RPD	RPD Max
Batch number: 070110020A Methane	Sample 90	number 90	(s): 4955351 63-124	1-49553 0	58 UNSP 20	K: 4955352			
Batch number: 070121848003 Iron	Sample 102	number 103	(8): 4955351 75-125	-49553 1	57 UNSP 20	K: 4955352 N.D.	BKG: 4955352 N.D.	2 6 (1)	20
Batch number: 07015020201A Alkalinity to pH 8.3	Sample	number	(a): 4955351	-49553	57 UNSF	R: P956267	BKG: P956267		_
Alkalinity to pH 4.5	76	55*	64-130	23*	2	51.0	48.9	0 (1) 4	4 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: 07010WAF026

	Nitrobenzene	Triphenylene	· · · · · · · · · · · · · · · · · · ·
4955351	102		
	103	100	
4955352	95	95	
4955353	.102	102	and the second of the second o
4955354	104	97	
4955355	101	94	
4955356	102	97	
4955357	103	103	
Blank	100	100	
LCS	105	104	
LCSD	100	99	
Limits:	71-128	55-130	

Analysis Name: Volatile Headspace Hydrocarbon Batch number: 070110020A Propene

4955351	69
4955352	63
4955353	74
4955354	70
4955355	60
4955356	59
4955357	59
4955358	77
Blank	92
LCS	92
MS	62
MSD	62

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

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



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

RL N.D.	Reporting Limit	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			•
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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3768.03



Page 3 of 3

Quality Control Summary

Client Name: Tronox LLC

Reported: 01/19/07 at 12:13 PM

Group Number: 1020889

Surrogate Quality Control

Limits:

38-129

*- Outside of specification

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

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

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



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TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umnos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mĺ	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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.
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- ppb parts per billion

Dry weight basis

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualiflers

	9		•
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
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N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
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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.

3768.03

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

Acct. # 11947 Group# 102.0889 Sample # 4955 351-58

COC# 0141759

Time (9 9 Time Time Tine Ē Date Date Date Date T=Thiosulfate B=NaOH Preservation Codes Q-Other For Lab Use Only Remarks N-HNO S=H.SO. 모모 SCR Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2590 Fax: (717) 558-6786 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client Time Received by: Time Received by: Reserved by: Time Received by Time Received by: V Preservation Codes Time **∕**₹ ď Please print. Instructions on reverse side correspond with circled numbers. ~ ٦ Date Date Date 16 5 4 Relinquished by: Relinquished by: Refinquished by: Religquished by: elinquished by: (m) X10000 14% 8/ P.O.# 2/- 04 SDG Complete? 1500 0600 0000 630 00% 000 $\boldsymbol{\theta}$ Rush E-mail Site-specific QC (MS/MSD/Dup)? Yes No (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) ¥es PWSID #: Quote #: Turnaround Time Requested (TAT) (please circle): Noting A001.# Internal COC Required? Yes / No Ä 13 Phone S S S S Name of state where semples were collected: Data Package Options (please circle if required) Rush results requested by (please circle): **1X TRRP-13** MAMCP Project Manager: DAVC UD 1001 BLANK Client: AP+ A Date results are needed: Sampler: Rexo Type 1 (validation/NJ Reg) Type VI (Raw Data Only) Type III (Reduced NJ) Project Name#:__ 25.20 Type IV (CLP SOW) 87 - W NW-18 E-mail address: Ww. al () - W M Type II (Tier II) DUDO Phone #:__ <u>...</u>



ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1020903. Samples arrived at the laboratory on Wednesday, January 10, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
DUP01 Filtered Grab Water Sample	4955410
MW-11 Filtered Grab Water Sample	4955411
MW-12 Filtered Grab Water Sample	4955412
MW-21 Filtered Grab Water Sample	4955413
MW-20 Filtered Grab Water Sample	4955414
MW-16 Filtered Grab Water Sample	4955415
MW-18 Filtered Grab Water Sample	4955416

METHODOLOGY

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

1 COPY TO ELECTRONIC COPY TO 1 COPY TO Michael Pisani & Associates

Tronox LLC

Data Package Group

Attn: David Upthegrove Attn: Roy Widmann



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
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- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers	
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""><th></th></crdl,>	
В	Analyte was also detected in the blank	E	Estimated due to interference	
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met	
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits	
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P	Concentration difference between primary and	W	Post digestion spike out of control limits	
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U	Compound was not detected	+	Correlation coefficient for MSA < 0.995	
X,Y,Z	Defined in case narrative			

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

Respectfully Submitted,

May E Lavely

Max E. Snavely

Senior Specialist



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RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
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g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
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m3	cubic meter(s)	ul	microliter(s)

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- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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

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U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
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Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
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X,Y,Z	Defined in case narrative		

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Page 1 of 1

Lancaster Laboratories Sample No. WW 4955410

DUP01 Filtered Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected: 01/09/2007

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

DUP1F SDG#: HMS62-01FD

CAT

As Received

As Received Limit of As Received Method

Dilution

No.

Analysis Name

CAS Number

Result

Quantitation*

Detection Limit Units Factor

01754

Iron

7439-89-6

N.D.

0.200

0.0522

mg/l 1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT			-	Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:48	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1



Inorganic Qualifiers

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

A B

C

D

Ε

Ν

X.Y.Z

TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	E	Estimated due to interference
Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TICs anti-)		Communication and data at all

Presumptive evidence of a compound (TICs only)

Concentration difference between primary and

W

Compound was not detected

W

Post digestion spike out of control limits

confirmation columns >25%

* Duplicate analysis not within control limits

U Compound was not detected

* 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.

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Defined in case narrative

Organic Qualifiers

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Page I of I

Lancaster Laboratories Sample No. 4955411

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

Collected:01/09/2007 08:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

MW11F SDG#: HMS62-02

CAT

As Received

As Received

As Received

No.

Analysis Name

CAS Number Result Limit of Quantitation*

Method Detection Dilution Factor

01754

Iron

7439-89-6

Limit 0.0522

Units

mg/1

0.200

3

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT		•	_	Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:52	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ľŪ	International Units	υти	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers sible aldol-condensation product B

A	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
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D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)		
		U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
7	Defined in case parrative		

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Page 1 of 1

1

Lancaster Laboratories Sample No. 4955412

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

Collected:01/09/2007 09:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

MW12F SDG#: HMS62-03

As Received As Received CAT As Received Limit of Method Dilution No. Analysis Name CAS Number Result Quantitation* Detection Units Factor Limit 01754 Iron 7439-89-6 0.582 0.0522 mg/l

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 10:57	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	ı

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value ~ The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qu	alifiers	Inorganic Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
С	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		33.47.47.47.4

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

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 1

Lancaster Laboratories Sample No. 4955413 WW

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

Collected:01/09/2007 10:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

MW21F SDG#: HMS62-04

CAT

As Received

As Received Limit of Quantitation*

As Received Method

Dilution

No. 01754 Analysis Name

Iron

CAS Number 7439-89-6

Result N.D.

0.200

Detection Limit 0.0522

Factor Units

mg/l 1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 11:02	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1

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



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
₽	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

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Page 1 of 1

Lancaster Laboratories Sample No. 4955414

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

Collected:01/09/2007 14:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00

Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

MW20F

SDG#: HMS62-05

CAT No.

Analysis Name

As Received

As Received Limit of Quantitation* As Received

Method Dilution Detection

01754

Iron

CAS Number 7439-89-6

Result N.D.

0.200

Limit

Units **Factor**

0.0522

mq/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT No. Analysis Name 01754 Iron 01848 WW SW846 ICP Digest (tot rec)

Method SW-846 6010B SW-846 3005A

Date and Time 01/15/2007 11:07 1 1 01/13/2007 18:25

Analysis

Analyst Joanne M Gates Helen L Schaeffer

Factor 1 1

Dilution



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		,
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- fess 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 1

Lancaster Laboratories Sample No. 4955415

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

Collected:01/09/2007 15:00

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00 Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Analysis Name

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

CAT No.

MW16F

SDG#: HMS62-06

As Received

As Received

As Received

Limit of Quantitation*

hod tell Detection Dilution

CAS Number

Result

Limit

Units

Factor

01754 Iron 7439-89-6

0.342

0.200

0.0522

mg/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

						Dilution
CAT			Analysis			
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/15/2007 11:11	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1



Inorganic Qualifiers

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	UTN	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
սց	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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.

parts per billion ppb

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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	• • • • • • • • • • • • • • • • • • • •		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Ρ	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
7	Defined in case parrative		

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

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 1

Lancaster Laboratories Sample No. 4955416

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

Collected: 01/09/2007 18:30

by BB

Account Number: 11947

Submitted: 01/10/2007 09:00 Reported: 01/15/2007 at 18:18

Discard: 03/17/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

MW18F SDG#: HMS62-07

CAT

As Received

As Received Limit of

As Received

Dilution.

No.

Analysis Name

CAS Number Result

Quantitation*

Method Detection Limit

Units **Factor**

01754

Iron

7439-89-6 N.D. 0.200

0.0522

mg/l 1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Pactor
01754	Iron	SW-846 6010B	1	01/15/2007 11:26	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/13/2007 18:25	Helen L Schaeffer	1

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
m)	milliliter(s)	ľ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Quaimers		inorganic Qualitiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
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.

Measurement uncertainty values, as applicable, are available upon request.

Organia Ouglifiana

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.



Page 1 of 1

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1020903

Reported: 01/15/07 at 06:18 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>LOO</u> **	Blank MDL	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 070121848003 Iron	Sample nu N.D.	mber(s): 4 0.200	955410-495 0.0522	5416 mg/l	99		90-112		

Sample Matrix Quality Control

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

	ms	MSD	MS/MSD		RPD	BKG	DOP	DOP	Dup RPD
Analysis Name	*REC	%REC	<u>Limits</u>	RPD	MAX	Conc	Conc	RPD	Max
Batch number: 070121848003	Sample	number	(s): 495541 75-125	0-49554 1	116 UNS: 20	PK: P95535 N.D.	2 BKG: P955 N.D.	352 6 (1)	20

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

^{*-} Outside of specification

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



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

RL N.D.	Reporting Limit	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
JU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kitogram(s)
ug	microgram(s)	mg	milligram(s)
mí	milliliter(s)	i	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

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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.

Analysis Request/ Environmental Services Chain of Custody

Lancaster

11947 Group# 1020889 Sample # 4955 351-58 For Lancaster Laboratories use only Acct. #

COC # 0141759

[• Laboratories	Please pri	Please print. Instructions on Teverse side correspond with one	0% 3 erse side correspo	7955	1-0148	A		‡	0141/59) ()	
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Ą	Project Manager: DAVC (1)D.	P.O.# 21-04	10		אר מני	-			H=HCI TE	T=Thiosulfate	4.	9
S					5 6	ابہ (ن				O=Other		
N S	Name of state where samples were collected: ${\cal M}{\cal S}$	ited: MS			31 (201	9¥.						
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2	M W - 20	1,400	0		76	16						
₹	M w - (6	1500	00	49	76	7						
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8 Dat	(please	ired) SDG Complete?	T				Yec.	Keceived by:		<u>~</u>	Date Time	<u> </u>
동물	Type I (validation/NJ Reg) TX TRRP-13 Type II (Tier II) MA MCP	CT RCP Yes	Relinquished by:	od by:		Date	Time Reco	Received by:			Date Time	Φ
<u>₹</u> 2	Type III (Reduced NJ) Site-specific C	Site-specific QC (MS/MSD/Dup)? Yes No				-+			-			
; <u>&</u>)	Only)	if yet, indeete Ot temple and submit topicate volume.) Internal COC Required? Yes / No	Relinquished by:	ed by:		Date Til	Time Rec	Received by:	(a //	Date Time	a /

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2360 Fax: (717) 656-6766 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

2102.03



ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1021308. Samples arrived at the laboratory on Thursday, January 11, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-R1 Grab Water Sample	4957385
MW-04 Grab Water Sample	4957386
MW-22 Grab Water Sample	4957387
MW-19 Grab Water Sample	4957388
MW-17_Unspiked Grab Water Sample	4957389
MW-17_Matrix_Spike Grab Water Sample	4957390
MW-17_ Matrix_Spike_Dup. Grab Water Sample	4957391
MW-17_Duplicate Grab Water Sample	4957392
MW-08 Grab Water Sample	4957393
MW-06 Grab Water Sample	4957394
Trip_Blank Water Sample	4957395

METHODOLOGY

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

1 COPY TO 1 COPY TO Michael Pisani & Associates Data Package Group

Attn: David Upthegrove

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than >
- J estimated value - The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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.
- parts per billion ppb
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	IJ	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
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X,Y,Z	Defined in case narrative		

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

Respectfully Submitted,

Max E. Snavely

Senior Specialist



Inorganic Qualifiers

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umhos/cm	micromhos/cm		•
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g	gram(s)	kg	kilogram(s)
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m3	cubic meter(s)	ul	microliter(s)

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- ppb parts per billion
- Dry weight
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Page 1 of 2

Lancaster Laboratories Sample No. WW 4957385

MW-R1 Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected:01/10/2007 07:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

1RHAT SDG#: HMS61-09

				As Received	As Received		
CAT	-		As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	44.7	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.2	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	1.9	1.0	0.30	mg/l	1
00368	Nitrate Nitrogen	14797-55-8	1.6	0.10	0.050	mg/l	1
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	10.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	14.	1.5	uq/l	1
00782	Acenaphthylene	208-96-8	N.D.	18.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	18.	1.0	ug/1	1
00784	Fluorene	86-73-7	N.D.	0.90	0.56	ug/l	1
00785	Phenanthrene	85-01-8	1.0	0.45	0.090	ug/1	1
00789	Anthracene	120-12-7	0.29	0.23	0.045	uq/l	1
00807	Fluoranthene	206-44-0	1.6	0.23	0.045	ug/l	1
00811	Pyrene	129-00-0	1.1	0.90	0.20	ug/1	1
00812	Benzo(a)anthracene	56-55-3	0.044 J	0.11	0.023	ug/1	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.23	0.045	ug/1	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.023	ug/1	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.23	0.045	ug/l	1
86800	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.090	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.68	0.11	ug/1	1
07409	Chrysene	218-01-9	N.D.	0.45	0.090	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.023	ug/1 ug/1	1
	Due to the nature of the sample	matrix, a re	duced aliquot			- 9 , -	*

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

analysis. The reporting limits were raised accordingly.

tancaster Laboratories, Inc.
*=This limit Was New I Glim Mellevaluation of the final result
PO Box 12425
Lacorter PA 17605 2425



Inorganic Qualifiers

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RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
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IU	International Units	UTN	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
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ug	microgram(s)	mg	milligram(s)
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- 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.
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- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

X,Y,Z

	or game additions		morganic dualiners
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
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P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
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Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Defined in case narrative

Organic Qualifiers

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Page 2 of 2

Lancaster Laboratories Sample No. 4957385

MW-R1 Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected:01/10/2007 07:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

1RHAT SDG#: HMS61-09

CAT No.

Analysis Name

As Received CAS Number Result

As Received

As Received

Limit of Quantitation* Method

Detection

Dilution Units Factor

Limit

Laboratory Chronicle

		Danoratory	CHEO	HICIE		
CAT		•		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 02:59	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/11/2007 23:56	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/11/2007 23:38	Ashley M Heckman	1
00368	Nitrate Nitrogen	EPA 300.0	1	01/11/2007 23:38	Ashley M Heckman	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/17/2007 17:34	Glorines Suarez- Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 19:25	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

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TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ΙU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		,
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
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- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	-		-
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
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С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
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. Z	Defined in case narrative		

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Page 1 of 2

Lancaster Laboratories Sample No. 4957386

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

Collected:01/10/2007 08:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05 Reported: 01/22/2007 at 15:03 Discard: 03/24/2007

SDG#: HMS61-10

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

04HAT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	mg/1	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	16.4	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	7.1	2.0	1.0	mg/1	5
00228	Sulfate	14808-79-8	N.D.	5.0	1.5	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	38.	13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	18.	1.6	ug/1	1
00783	Acenaphthene	83-32-9	N.D.	18.	1.0	ug/l	1
00784	Fluorene	86-73-7	N.D.	0.89	0.55	ug/l	1
00785	Phenanthrene	85-01-8	0.16 J	0.44	0.089	ug/1	1
00789	Anthracene	120-12-7	N.D.	0.22	0.044	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.22	0.044	ug/1	1
00811	Pyrene	129-00-0	N.D.	0.89	0.20	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.22	0.044	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.22	0.044	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.44	0.089	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.67	0.11	ug/1	1
07409	Chrysene	218-01-9	N.D.	0.44	0.089	ug/l	1
07410	Benzo(k)fluoranthene	207-08-9	N.D.	0.11	0.022	ug/l	1
	Due to the nature of the sample analysis. The reporting limits	matrix, a re were raised	duced aliquot a accordingly.	was used for		2.	

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

Lancaster Laboratories, Inc. Lancaster, PA 17605-2425

717-656-2300 Fax: 717-656-2681



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umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
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g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
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Dry weight basis

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U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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Page 2 of 2

Units

Lancaster Laboratories Sample No. WW 4957386

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

Collected:01/10/2007 08:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

04HAT SDG#: HMS61-10

CAT No.

Analysis Name

CAS Number Result

As Received As Received

Limit of Quantitation* As Received

Method Detection

Dilution Factor

Limit

Laboratory Chronicle

CAT	•	·		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:13	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/12/2007 00:13	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/12/2007 00:13	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/12/2007 00:13	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/17/2007 17:47	Glorines Suarez- Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 20:04	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		, , , , , , , , , , , , , , , , , , ,
С	degrees Celsius	F	degrees Fahrenheit
meq	millieguivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĩ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	s	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	บ	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
Ų	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

Lancaster Laboratories Sample No. WW 4957387

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

Collected:01/10/2007 11:30 by BB Account Number: 11947

Submitted: 01/11/2007 09:05 Tronox LLC

Reported: 01/22/2007 at 15:03 P.O. Box 268859

Discard: 03/24/2007 Oklahoma City OK 73126-8859

22HAT SDG#: HMS61-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	14.2	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	32.8	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.8	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	5.2	5.0	1.5	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	0.37 J	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	9.7	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	15.	1.6	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	20.	1.7	ug/l	1
00783	Acenaphthene	83-32-9	N.D.	20.	1.1	ug/l	1
00784	Fluorene	86-73-7	N.D.	1.0	0.62	ug/l	1
00785	Phenanthrene	85-01-8	N.D.	0.50	0.10	ug/1	1
00789	Anthracene	120-12-7	N.D.	0.25	0.050	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.25	0.050	ug/l	1
00811	Pyrene	129-00-0	N.D.	1.0	0.22	ug/l	1
00812	Benzo(a) anthracene	56-55-3	N.D.	0.12	0.025	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.25	0.050	ug/1	1
00823	Benzo(a) pyrene	50-32-8	N.D.	0.12	0.025	ug/1	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.25	0.050	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.50	0.10	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.75	0.12	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.50	0.10	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.12	0.025	ug/l	1
	Due to the nature of the sampl	le matrix, a r	educed aliquot	was used for			

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

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

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)
1113	canic meter(s)	uı	micronter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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/t), 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	-		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	ε	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 2 of 2

Lancaster Laboratories Sample No. WW 4957387

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

Collected:01/10/2007 11:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03 Discard: 03/24/2007

P.O. Box 268859

Oklahoma City OK 73126-8859

SDG#: HMS61-11

As Received

Tronox LLC

As Received

CAT No.

22HA**T**

Analysis Name CAS Number As Received

Result

Limit of Quantitation* Method

Dilution Units

Limit

Detection

Factor

Laboratory Chronicle

		manora cori	~1114 V	****		
CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:17	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	BPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/12/2007 00:31	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/12/2007 00:31	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/12/2007 00:31	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/17/2007 18:00	Glorines Suarez- Rivera	1
00774	PAH's in Water by HPLC	SW-846 0310	1	01/15/2007 20:43	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1

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



Inorganic Qualifiers

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

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
umhos/cm	micromhos/cm		,
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĩ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			morganic wanniers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U X,Y,Z	Compound was not detected Defined in case narrative	+	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

Lancaster Laboratories Sample No. WW 4957388

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

Collected: 01/10/2007 13:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

19HAT SDG#: HMS61-12

				As Received	As Received		
CAT			As Receive	d Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	00.8	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	109.	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	10.3	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	2.1 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	, 5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	700.	25.	10.	ug/l	5
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	270.	14.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	26.	26.	ug/1	1
00783	Acenaphthene	83-32-9	46.	19.	1.1	ug/l	1
00784	Fluorene	86-73-7	22.	0.94	0.59	ug/l	7
00785	Phenanthrene	85-01-8	19.	2.3	0.47	ug/l	5
00789	Anthracene	120-12-7	2.0	0.23	0.047	ug/l	1
00807	Fluoranthene	206-44-0	1.8	0.23	0.047	ug/l	1
00811	Pyrene	129-00-0	0.84 Ј	0.94	0.21	ug/l	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.12	0.023	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.23	0.047	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.12	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.23	0.047	ug/1	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.47	0.094	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.70	0.12	ug/l	1 .
07409	Chrysene	218-01-9	0.12 J	0.47	0.094	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.12	0.023	ug/l	1
	Due to the nature of the co	mnle materia a re	advacd alice	ot was used for			

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 acenaphthylene. The reporting limit for this compound was raised accordingly.

Lancaster Laboratories, Inc.

*=This limit Was vised in the final result PO Box 12425

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



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ì	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	•		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
₽	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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Page 2 of 2

Lancaster Laboratories Sample No. 4957388

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

Collected:01/10/2007 13:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Analysis Name

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

19HAT SDG#: HMS61-12

CAT No.

As Received

As Received As Received

Limit of

Method

Dilution

CAS Number Result Quantitation* Limit

Detection Units Factor

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

Laboratory Chronicle

CAT		•		Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:22	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	-
00224	Chloride	EPA 300.0	1	01/12/2007 00:48	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/12/2007 00:48	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	ז	01/12/2007 00:48	Ashley M Heckman	=
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/18/2007 19:04	Glorines Suarez-	5 5
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 21:21	Rivera Mark A Clark	•
00774	PAH's in Water by HPLC	SW-846 8310	ī	01/17/2007 02:57	Mark A Clark	5
01848	WW SW846 ICP Digest (tot	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	Ę	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ì	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

Duplicate analysis not within control limits

Correlation coefficient for MSA < 0.995

U.S. EPA CLP Data Qualifiers:

Α TIC is a possible aldol-condensation product В Value is <CRDL, but ≥IDL В Analyte was also detected in the blank Ε Estimated due to interference C Pesticide result confirmed by GC/MS М Duplicate injection precision not met D Compound quantitated on a diluted sample Spike sample not within control limits N E Method of standard additions (MSA) used Concentration exceeds the calibration range of S the instrument for calculation Ν Presumptive evidence of a compound (TICs only) U Compound was not detected P Concentration difference between primary and W Post digestion spike out of control limits

confirmation columns > 25%

Organic Qualifiers

- U Compound was not detected
- 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.

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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.



Page 1 of 2

Lancaster Laboratories Sample No. 4957389

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

Collected:01/10/2007 14:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Tronox LLC P.O. Box 268859

Reported: 01/22/2007 at 15:03

Oklahoma City OK 73126-8859

Discard: 03/24/2007

17HAT SDG#: HMS61-13BKG

CAT				As Received	As Received		
No.	5 - 3 - 3		As Received	Limit of	Method		Dilution
	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Vnits	Factor
01754	Iron	7439-89-6	3 - 45	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	13.0	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	14.9	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	6.7	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	140.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	9.6 ј	13.	1.4	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	18.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	2.1 J	18.	1.0	ug/l	1
00784	Fluorene	86-73-7	1.4	0.89	0.56	ug/1	1
00785	Phenanthrene	85-01-8	0.56	0.45	0.089	ug/l	1
00789	Anthracene	120-12-7	0.058 J	0.22	0.045	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.22	0.045	ug/1	1
00811	Pyrene	129-00-0	N.D.	0.89	0.20	ug/l	1
00812	Benzo(a) anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.22	0.045	ug/1	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.022	ug/1	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.22	0.045	ug/1	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.089	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.67	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.45	0.089	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.022	ug/l	1
	Due to the nature of the sample	matrix, a re	duced aliquot	was used for			-
	analysis. The reporting limits	were raised	accordingly.				

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

Lancaster Laboratories, Inc.

*=This limit 3938 used 977118 evaluation of the final result PO Box 12425

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ານ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers;

Organ	210	Auglifiare
Viyai	110	Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 2 of 2

Lancaster Laboratories Sample No. 4957389

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

Collected:01/10/2007 14:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03 Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17HAT

SDG#: HMS61-13BKG

CAT No.

Analysis Name

CAS Number

As Received

Result

As Received Limit of Quantitation* As Received

Method Detection

Dilution Units **Factor**

Limit

Laboratory Chronicle

		naporacory	CIIIO	HICIE		
CAT	4			Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 02:26	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	BPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/12/2007 01:23	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/12/2007 01:23	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/12/2007 01:23	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/17/2007 18:27	Glorines Suarez-	ĭ
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 16:50	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	-	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ). J
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	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 sample not within control limits
Ε	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
z.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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

Lancaster Laboratories Sample No. WW 4957390

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

Collected:01/10/2007 14:45

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Tronox LLC P.O. Box 268859

Discard: 03/24/2007

Oklahoma City OK 73126-8859

17HAT SDG#: HMS61-13MS

CAT				As Received	As Received		
No.	Analysis Name	<i>~</i>	As Received	Limit of	Method		Dilution
	· ·	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	3.77	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	202.	2.0	0.46	mg/l as	1
00224	Chloride	16887-00-6	30.9	4.0	2.0	CaCO3 mg/l	10
00228	Sulfate	14808-79-8	56,4	10.0	3.0	mg/l	10
00368	Nitrate Nitrogen	14797-55-8	14.8	1.0	0.50	mg/l	10
	The second trial run past hold	for nitrate				mg/I	10
	was 9.9138 mg/L.	·					
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	180.	10.	4.0	ug/1	2
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	210.	13.	1.4	uq/l	1
00782	Acenaphthylene	208-96-8	180.	17.	1.5	ug/1	i
00783	Acenaphthene	83-32-9	180.	17.	0.96	ug/l	1
00784	Fluorene	86-73-7	23.	0.85	0.53	ug/l	1
00785	Phenanthrene	85-01-8	7.8	0.43	0.085	ug/l	1
00789	Anthracene	120-12-7	3.1	0.21	0.043	ug/l	i
00807	Fluoranthene	206-44-0	2.9	0.21	0.043	ug/1	1
00811	Pyrene	129-00-0	20.	0.85	0.19	ug/1	1
00812	Benzo (a) anthracene	56-55-3	1.5	0.11	0.021	ug/1	1
00818	Benzo(b) fluoranthene	205-99-2	1.2	0.21	0.043	ug/1 ug/1	1
00823	Benzo(a) pyrene	50-32-8	1.5	0.11	0.021	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	2.8	0.21	0.043	ug/l ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	5.8	0.43	0.085	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	11.	0.64	0.11		
07409	Chrysene	218-01-9	5.9	0.43	0.085	ug/l ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	1.2	0.11	0.021		
	Due to the nature of the sample				4.VAI	ug/l	1
	analysis. The reporting limits	were raised	accordingly.	abed for			

Lancaster Laboratories, Inc.

*=This limit 3/435 Nesector the level and the final result

PO Box 12425

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



Inorganic Qualifiers

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

RL.	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
, IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis,

U.S. EPA CLP Data Qualifiers:

alifiers

	<u> </u>		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TiCs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 2 of 2

Lancaster Laboratories Sample No. 4957390

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

Collected:01/10/2007 14:45

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17HAT SDG#: HMS61-13MS

CAT No.

Analysis Name

CAS Number

As Received

Result

As Received Limit of Quantitation* As Received

Method Detection Limit

Dilution Units Factor

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 02:40	Eric L Eby	1
00201	Alkalinity to pH 8.3	BPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	î
00224	Chloride	EPA 300.0	1	01/15/2007 15:25	Ashley M Heckman	10
00228	Sulfate	EPA 300.0	1	01/15/2007 15:25	Ashley M Heckman	10
00368	Nitrate Nitrogen	EPA 300.0	1	01/12/2007 03:07	Ashley M Heckman	10
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/18/2007 19:18	Glorines Suarez- Rivera	2
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 17:28	Mark A Clark	1
01848	WW SW846 ICP Digest (tot	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ĩ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

rga	INIC	Qua	uner	5			
					_		

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	Ų	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

4957391 Lancaster Laboratories Sample No.

 $\begin{tabular}{lll} MW-17_& Matrix_Spike_Dup.& Grab& Water& Sample\\ Gulf& States& Creosoting/Hattiesburg&,& MS \end{tabular}$

Collected:01/10/2007 14:45

by BB

Account Number: 11947

Tronox LLC

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

P.O. Box 268859

Discard: 03/24/2007

Oklahoma City OK 73126-8859

SDG#: HMS61-13MSD 17HAT

				As Received	As Received		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Unite	Factor
01754	Iron	7439-89-6	4.29	0.200	0.0522	mg/1	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	203.	2.0	0.46	mg/l as CaCO3	1
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	140.	10.	4.0	ug/l	2
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	220.	14.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	190.	18.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	200.	18.	1.0	ug/ 1	1
00784	Fluorene	86-73-7	24.	0.92	0.57	ug/l	1
00785	Phenanthrene	85-01-8	8.2	0.46	0.092	ug/l	1
00789	Anthracene	120-12-7	3.3	0.23	0.046	ug/1	1
00807	Fluoranthene	206-44-0	3.1	0.23	0.046	ug/l	1
00811	Pyrene	129-00-0	21.	0.92	0.21	ug/l	1
00812	Benzo(a) anthracene	56-55-3	1.6	0.11	0.023	ug/l	1
00818	Benzo(b) fluoranthene	205-99-2	1.2	0.23	0.046	ug/l	1
00823	Benzo (a) pyrene	50-32-8	1.6	0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	2.9	0.23	0.046	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	6.1	0.46	0.092	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	11.	0.69	0.11	ug/l	1
07409	Chrysene	218-01-9	6.1	0.46	0.092	ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	1.2	0.11	0.023	ug/l	1
	Due to the nature of the sampl	e matrix, a r	educed aliquot	was used for			

analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories, Inc.

*=This limit 3/25 Used the levaluation of the final result

PO 8ox 12425

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



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C meq	degrees Celsius milliequivalents	F lb.	degrees Fahrenheit pound(s)
g ug ml m3	gram(s) microgram(s) milliliter(s) cubic meter(s)	kg mg i ul	kilogram(s) milligram(s) liter(s) microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 2 of 2

Lancaster Laboratories Sample No. WW 4957391

MW-17_ Matrix Spike Dup. Grab Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected:01/10/2007 14:45

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05 Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17HAT SDG#: HMS61-13MSD

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 02:44	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/18/2007 19:32	Glorines Suarez- Rivera	2
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 18:07	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- ppm parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous fiquids, 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic	Qualitiers
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Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Е	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
,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.

Measurement uncertainty values, as applicable, are available upon request.

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Lancaster Laboratories Sample No. WW 4957392

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

Collected:01/10/2007 14:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17HAT SDG#: HMS61-13DUP

Analysis Name

Iron

CAT

No.

01754

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	3.51	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as	1
00202	Alkalinity to pH 4.5	n.a.	13.3	2.0	0.46	CaCO3 mg/l as	1
00224	Chloride	16887-00-6	11.6	2.0	1.0	CaCO3	_
00228	Sulfate	14808-79-8				mg/l	5
00368	· · · ·		7.6	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	0.37 J	0.50	0.25	mg/l	5

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

		_	Analysis	
	Method	Trial#	Date and Time	Analyst
	SW-846 6010B	1	01/17/2007 02:35	Eric L Ebv
m77 0 3	777 544 4			

Laboratory Chronicle

Alkalinity to pH 8.3 00201 EPA 310.1 01/16/2007 09:07 Susan A Engle 00202 Alkalinity to pH 4.5 EPA 310.1 1 01/16/2007 09:07 Susan A Engle 00224 Chloride EPA 300.0 1 01/12/2007 02:49 Ashley M Heckman 00228 Sulfate EPA 300.0 01/12/2007 02:49 1 Ashley M Heckman 00368 Nitrate Nitrogen EPA 300.0 01/12/2007 02:49 Ashley M Heckman WW SW846 ICP Digest (tot 01848 SW-846 3005A 01/16/2007 20:07 James L Mertz

Dilution

Factor

1

1

1

5

5

5

1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- ppm parts per million One ppm is equivalent to one milligram per kilogram (rng/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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	3		o. game danners
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
С	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
Ν	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
7	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Lancaster Laboratories Sample No. 4957393

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

Collected:01/10/2007 15:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Tronox LLC P.O. Box 268859

Discard: 03/24/2007

Oklahoma City OK 73126-8859

08HAT S	DG#:	HMS61-14	Ļ
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				As Received	As Received		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	N.D.	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	2.7	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	12.2	2.0	1.0	mg/1	5
00228	Sulfate	14808-79-8	4.2 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	1.9	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	N.D.	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	13.	1.4	ug/1	1
00782	Acenaphthylene	208-96-8	N.D.	17.	1.5	ug/1	1
00783	Acenaphthene	83-32-9	N.D.	17.	0.98	uq/l	1
00784	Fluorene	86 - 7 3 - 7	N.D.	0.87	0.54	uq/1	1
00785	Phenanthrene	85-01-8	N.D.	0.43	0.087	uq/l	1
00789	Anthracene	120-12-7	N.D.	0.22	0.043	ug/l	1
00807	Fluoranthene	206-44-0	N.D.	0.22	0.043	ug/l	1
00811	Pyrene	129-00-0	N.D.	0.87	0.20	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.11	0.022	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.22	0.043	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.11	0.022	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.22	0.043	ug/l	1
00898	Indeno (1,2,3-cd) pyrene	193-39-5	N.D.	0.43	0.087	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.65	0.11	ug/1	1
07409	Chrysene	218-01-9	N.D.	0.43	0.087	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.022	uq/l	1
	Due to the nature of the sample	e matrix, a re	duced aliquot	was used for		-3, -	_

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc.

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	•		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	IJ	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
Ų	Compound was not detected	+	Correlation coefficient for MSA < 0.995
X,Y,Z	Defined in case narrative		

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Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. WW 4957393

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

Collected:01/10/2007 15:30

by BB

CAS Number

Account Number: 11947

Submitted: 01/11/2007 09:05 Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

TAH80 SDG#: HMS61-14

CAT No.

Analysis Name

As Received

As Received

Quantitation*

As Received

Limit of Method

Dilution Detection Units Factor

Limit

Laboratory Chronicle

Result

	Daboratory	CILLO	rit CT C		
			Analysis		Dilution
Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
Iron	SW-846 6010B	1	01/17/2007 03:27	Eric L Eby	1
Alkalinity to pH 8.3	BPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
Chloride	EPA 300.0	1	01/12/2007 01:40	Ashley M Heckman	5
Sulfate	EPA 300.0	1	01/12/2007 01:40	Ashley M Heckman	5
Nitrate Nitrogen	EPA 300.0	1	01/12/2007 01:40	Ashley M Heckman	5
Volatile Headspace Hydrocarbon	SW-846 8015B modified	1 1	01/17/2007 19:20	Glorines Suarez- Rivera	1
PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 22:39	Mark A Clark	1
WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1
	Iron Alkalinity to pH 8.3 Alkalinity to pH 4.5 Chloride Sulfate Nitrate Nitrogen Volatile Headspace Hydrocarbon PAH's in Water by HPLC WW SW846 ICP Digest (tot rec)	Analysis Name Iron SW-846 6010B Alkalinity to pH 8.3 BPA 310.1 Alkalinity to pH 4.5 BPA 300.0 Sulfate Sulfate Nitrate Nitrogen Volatile Headspace Hydrocarbon PAH's in Water by HPLC WW SW846 ICP Digest (tot SW-846 8015A SW-846 3005A	Analysis Name	Analysis Name Method Trial# Date and Time Iron SW-846 6010B 1 01/17/2007 03:27 Alkalinity to pH 8.3 EPA 310.1 1 01/16/2007 09:07 Alkalinity to pH 4.5 EPA 310.1 1 01/16/2007 09:07 Chloride EPA 300.0 1 01/12/2007 01:40 Sulfate EPA 300.0 1 01/12/2007 01:40 Nitrate Nitrogen EPA 300.0 1 01/12/2007 01:40 Volatile Headspace SW-846 8015B modified 1 01/17/2007 19:20 Hydrocarbon PAH's in Water by HPLC SW-846 8310 1 01/15/2007 22:39 WW SW846 ICP Digest (tot SW-846 3005A 1 01/16/2007 20:07 rec)	Analysis Name



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ). J
- 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.
- parts per billion ppb
- **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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Inorganic Qualifiers TIC is a possible aldol-condensation product В Value is <CRDL, but ≥IDL В Analyte was also detected in the blank Ε Estimated due to interference C Pesticide result confirmed by GC/MS М Duplicate injection precision not met D Compound quantitated on a diluted sample Ν Spike sample not within control limits Ε Concentration exceeds the calibration range of S Method of standard additions (MSA) used the instrument for calculation N Presumptive evidence of a compound (TICs only) U Compound was not detected Р Concentration difference between primary and W Post digestion spike out of control limits 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.

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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.



Lancaster Laboratories Sample No. WW 4957394

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

Collected:01/10/2007 16:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC

P.O. Box 268859

As Received

Oklahoma City OK 73126-8859

As Received

06HAT SDG#: HMS61-15

				THE MOCETICE	us vecetives		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Factor
01754	Iron	7439-89-6	26.1	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	98.2	2.0	0.46	mg/l as	1
00224	Chloride	16887-00-6	7.6	2.0	1.0	CaCO3 mg/l	5
00228	Sulfate	14808-79-8	1.9 J	5.0	1.5	mg/1 mg/1	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/1	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	2,300.	1,300.	500.	ug/1	250
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	6,500.	270.	29.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D.	160.	160.	ug/1	1
00783	Acenaphthene	83-32-9	120.	18.	1.0	ug/1	1
00784	Fluorene	86 -7 3-7	94.	18.	11.	ug/1	20
00785	Phenanthrene	85-01-8	76.	9.0	1.8	ug/1	20
00789	Anthracene	120-12-7	7.1	0.23	0.045	ug/1	1
00807	Fluoranthene	206-44-0	2.5	0.23	0.045	ug/l	1
00811	Pyrene	129-00-0	0.82 J	0.90	0.20	ug/l	1
00812	Benzo(a) anthracene	56-55-3	N.D.	0.11	0.023	ug/1	1
00818	Benzo(b) fluoranthene	205-99-2	N.D.	0.23	0.045	ug/l	1
00823	Benzo(a) pyrene	50-32-8	N.D.	0.11	0.023	ug/l	1
00895	Dibenz(a,h)anthracene	53-70-3	N.D.	0.23	0.045	ug/1 ug/1	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.090	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.68	0.11	ug/1 ug/1	1
07409	Chrysene	218-01-9	N.D.	0.45	0.090	•	
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.023	ug/l ug/l	1
	Due to the nature of the sample				0.023	ag/ I	*
	analysis The reporting limits						

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.

analysis. The reporting limits were raised accordingly.

*=This limit *#48 \text{\text{Head} florthe levaluation of the final result PO Box 12425}

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	•		3
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4957394

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

Collected:01/10/2007 16:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC

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

06HAT

SDG#: HMS61-15

CAT

No.

Analysis Name

CAS Number

As Received Result

As Received Limit of Quantitation*

As Received

Method

Dilution Units Factor

Limit

Detection

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:32	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/12/2007 02:32	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/12/2007 02:32	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/12/2007 02:32	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/18/2007 17:56	Glorines Suarez- Rivera	250
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 23:18	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/17/2007 03:43	Mark A Clark	20
01848	WW SW846 ICP Digest (tot	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1

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



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RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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.
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- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
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- ppb parts per billion

Dry weight basis

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	3 ·		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	ប	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. WW 4957395

Trip Blank Water Sample Gulf States Creosoting/Hattiesburg, MS

Collected: n.a.

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC

P.O. Box 268859

Oklahoma City OK 73126-8859

17TBT SDG#: HMS61-16TB

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

07105 Volatile Headspace

Hydrocarbon

07106 Methane

74-82-8

N.D.

5.0

2.0

ug/1

1

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

Laboratory Chronicle

CAT No. Analysis Name 07105

Volatile Headspace Hydrocarbon

SW-846 8015B modified

Analysis Trial# Date and Time

1 01/17/2007 19:46

Analyst Glorines Suarez-Rivera

Dilution **Factor**

Lancaster Laboratories, Inc.

*=This limit 3435 Msed 4h the evaluation of the final result

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
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IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/crn		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
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- ppb parts per billion
- Dry weight basis

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U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			90 0
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
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Quality Control Summary

Client Name: Tronox LLC

Group Number: 1021308

Reported: 01/22/07 at 03:03 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank LOQ**	Blank MDL	Report <u>Units</u>	lcs <u>%rec</u>	LCSD %REC	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 07011196102A	Sample nur	mber(s): 4	957385-499	57390,49573	92-49573	94			
Chloride	N.D.	0.40	0.20	mq/1	93	• -	90-110		
Sulfate	N.D.	1.0	0.30	mg/l	99		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	99		90-110		
Batch number: 07012WAC026	Sample nu	mber(s): 4	957385-499	57391,49573	93-49573	94			
Naphthalene	N.D.	12.	1.3	ug/l	79		55-94		
Acenaphthylene	N.D.	16.	1.4	ug/l	82		59-96		
Acenaphthene	N.D.	16.	0.90	ug/l	82		60-116		
Fluorene	N.D.	0.80	0.50	ug/1	88		66-106		
Phenanthrene	N.D.	0.40	0.080	ug/l	89		67-115		
Anthracene	N.D.	0.20	0.040	ug/l	87		67-109		
Fluoranthene	N.D.	0.20	0.040	ug/l	84		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	89		69-113		
Benzo (a) anthracene	N.D.	0.10	0.020	ug/l	89		73-114		
Benzo (b) fluoranthene	N.D.	0.20	0.040	ug/1	87		72-113		
Benzo (a) pyrene	N.D.	0.10	0.020	ug/l	91		68-112		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	88		30-121		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	91		60-111		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	86		9-127		•
Chrysene	N.D.	0.40	0.080	ug/l	89		70-111		
Benzo(k) fluoranthene	N.D.	0.10	0.020	ug/l	88		72-119		
Batch number: 070160021A	Sample nu	mber(s): 4	957385-49	57391,49573	93-49573	95			
Methane	N.D.	5.0	2.0	ug/l	97		80-120		
Batch number: 07016020201A	Sample nu	mber(s): 4	957385-499	57394					
Alkalinity to pH 4.5	•				101		98-103		
Batch number: 070161848001	Sample num	mber(s): 4	957385-49	57394					
Iron	N.D.	0.200	0.0522	mg/l	96		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

	ms	MSD	ms/msd		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	%REC	%REC	Limits	RPD	<u>MAX</u>	Conc	Conc	RPD	Max
Batch number: 07011196102A Chloride Sulfate Nitrate Nitrogen	Sample 80* 99 148*	number	(s): 4957385 90-110 90-110 90-110	-49573	90,4957	7392-4957394 14.9 6.7 N.D.	UNSPK: 11.6 7.6 0.37	4957389 BKG: 25* 13* (1) J 200* (1)	4957389 3 3 2

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

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



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RL N.D.	Reporting Limit none detected	BMQL Mpn	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	UTM	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Í	liter(s)
m3	cubic meter(s)	ui	microliter(s)

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- > greater than
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- 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

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Page 2 of 3

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1021308

Reported: 01/22/07 at 03:03 PM

Sample Matrix Quality Control

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

	MS	MSD	ms/msd		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	%REC	<u>rec</u>	<u>Limits</u>	RPD	MAX	Conc	Conc	RPD	Max
Batch number: 07012WAC026	Sample	number	(s): 495738	35 -4 9573	391,495	7393-49573	94 UNSPK: 4:	957389	
Naphthalene	93	93	54-112	7	30				
Acenaphthylene	84	83	63-104	6	30				
Acenaphthene	85	84	59-114	7	30				
Pluorene	102	99	66-102	4	30	•			
Phenanthrene	114	110	66-115	4	30				
Anthracene	95	93	6B-104	5 5	30				
Fluoranthene	91	89	67-104	5	30				
Pyrene	92	90	66-106	5	30				
Benzo (a) anthracene	93	90	63-111	4	30				
Benzo(b) fluoranthene	91	88	71-106	4	30				
Benzo (a) pyrene	94	92	69-109	4	30				
Dibenz(a,h)anthracene	87	83	62-115	3	30				
Indeno(1,2,3-cd)pyrene	91	88	56-112	4	30				
Benzo(g,h,i)perylene	85	82	56-115	4	30				
Chrysene	92	89	69-107	4	30				
Benzo(k) fluoranthene	92	89	70-109	5	30				
Batch number: 070160021A	Sample	number	(a): 495738	35-4957	391,495	7393-49573	95 UNSPK: 4:	957389	
Methane	33*	0*	63-124	25*	20				
Batch number: 07016020201A	Sample	number	(s): 495738	35-4957	394 UNS		9 BKG: 4957		_
Alkalinity to pH 8.3	100	101	64 330			N.D.	N.D.	0 (1)	4 4
Alkalinity to pH 4.5	100	101	64-130	O	2	13.0	13.3	2	4
Batch number: 070161848001	Sample	number	(s): 495738	35-49573	94 UNS	PK: 495738	9 BKG: 4957	389	
Iron	31*	84	75-125	13	20	3.45	3.51	2	20

Surrogate Quality Control

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

Analysis Name: PAH's in Water by HPLC Batch number: 07012WAC026

	Nitrobenzene	Triphenylene	
4957385	93	88	
4957386	100	92	
4957387	101	93	
4957388	103	93	
4957389	100	90	
4957390	107	95	
4957391	102	91	
4957393	104	93	
4957394	103	89	
Blank	103	96	
LCS	97	92	

- *- Outside of specification
- **-This limit was used in the evaluation of the final result for the blank
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N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
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- ppb parts per billion
- **Dry** weight basis

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

В

C

D

E

TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	E	Estimated due to interference
Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation

- Presumptive evidence of a compound (TICs only) IJ Compound was not detected
- Concentration difference between primary and W Post digestion spike out of control limits 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

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Page 3 of 3

Quality Control Summary

Client Name: Tronox LLC

Reported: 01/22/07 at 03:03 PM

Group Number: 1021308

			Surrogate	Quality	Control
MS	107	95	-	-	
MSD	102	91			

Limits: 71-128 55-130

Analysis Name: Volatile Headspace Hydrocarbon Batch number: 070160021A Propene

	Propere			
4957385	83	 		
4957386	82			
4957387	51		•	
4957388	89			
4957389	84			
4957390	88			
4957391	87			
4957393	81			
4957394	94			
4957395	89			
Blank	95			
LCS	94			
MS	88			
MSD	87			
Limits:	38-129	 		

*- Outside of specification

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

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

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm C meq	micromhos/cm degrees Celsius milliequivalents	F lb.	degrees Fahrenheit pound(s)
g	gram(s) microgram(s) milliliter(s) cubic meter(s)	kg	kilogram(s)
ug		mg	milligram(s)
ml		i	liter(s)
m3		uí	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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 Results printed un basis concentration to a

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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Α	TIC is a possible aldot-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
₽	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.

2102.03

Analysis Request/ Environmental Services Chain of Custody

Group# 1031308 Sample # 4987385595 COC # 0141762 For Lancaster Laboratories use only Acct. # 11947

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

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-	Type IV (CLP SOW) Type VI (Raw Data Only)	(if yes, indicate OC sample and submit toplease wolume.) Internal COC Required? Yes / No.	Yes / No		<u></u>	Relinquished by:	; ,		<u> </u>	Date	Time /	Received by	Les Riv	JOH	1-11-	ogo S
J		Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766 (Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.	ratories, Ir low should	nc., 2425 Ne accompany	w Holland samples	Pike, Lanc to Lancaste	aster, PA r Laborat	17601 (ories. The	(717) 656-2300 Fax: (717) 656-6766 re pink copy should be retained by the	2300 Fa / should	c. (717) o oe retain	356-6766 ed by the cli	ient.			2102.03

Directions For Completing This Form

(1) Client: Your company's name

Acct. #: Your account number with Lancaster Laboratories

Project Name#: The way your company refers to the work involved with these samples. You may want to include project location as part of the description.

PWSID: Potable Water Source ID#

Project Manager: The person at your company responsible for overseeing the project

P.O.#: Your company's purchase order number

Sampler: The name of the person who collected the samples

Quote #: The reference number that appears on your quote (if Lancaster Laboratories gave you a number)

State where sample was collected: Please indicate where the sample was taken, e.g., PA, NJ, etc.

(2) Sample Identification: The unique sample description you want to appear on the analytical report

Date Collected/Time Collected: When the sample was collected

- (3) Grab: Check here if sample was taken at one time from a single spot. Composite: Check here if samples were taken from more than one spot, or periodically, and combined to make one sample.
- (4) Matrix: Check the type of sample you are submitting. If it is a water sample, please indicate if it is a potable water or if it is an NPDES sample.

Number of Containers: Indicate the total number of containers for each sampling point.

(5) Analyses Requested: Write the name of each analysis (or an abbreviation of it) here, and use the catalog number that appears at the beginning of each line in the Schedule of Services. Be sure to indicate which analyses are to be performed on which samples.

- (6) Remarks: List special instructions about the sample here (e.g., hazardous elements, high levels of analyte, etc.). The space can also be used (if needed) for listing additional analyses.
- (7) Turnaround Time Requested: Circle Normal if you want routine TAT, which is usually within 10-15 days. If you need your results faster, call ahead to schedule Rush work.

Rush Results Requested by: Circle Fax or Phone and include the number.

(8) Data Package Options: Call our Client Services Group (717-656-2300) if you have questions about these choices.

SDG Complete? Indicate **Yes** if this is a complete sample delivery group or **No** if you will be submitting additional samples to be included in the same data package.

Note: We need to have one quality control (QC) sample for every 20 samples you send, if you are requesting site-specific QC. Please give us this sample in triplicate volume and identify it by writing "QC" in the **Remarks** column.

The internal chain of custody is a hand-to-hand documentation recording a sample's movement throughout the company. We routinely start a chain of custody for data package samples unless we are told otherwise. There is a \$25 per sample charge for the chain-of-custody documentation.

(9) Relinquished by/Received by: The form must be signed each time the sample changes hands. We can supply chain-of-custody seals for the outside of your packages if you require them.

Note: Federal and State regulations require documentation of sample name and sampling location, date, and time in order for sample data to be legally defensible.



ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1021309. Samples arrived at the laboratory on Thursday, January 11, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description	Lancaster Labs Number
MW-1R_Filtered Grab Water Sample	4957396
MW-04_Filtered Grab Water Sample	4957397
MW-22_Filtered Grab Water Sample	4957398
MW-19_Filtered Grab Water Sample	4957399
MW-17_Filtered_Unspiked Grab Water Sample	4957400
MW-17_Filtered_Matrix_Spike Grab Water Sample	4957401
MW-17_Filtered_Matrix_ Spike_Dup. Grab Water	4957402
MW-17_Filtered_Duplicate Grab Water Sample	4957403
MW-08_Filtered Grab Water Sample	4957404
MW-06_Filtered Grab Water Sample	4957405

METHODOLOGY

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

1 COPY TO

Michael Pisani & Associates Data Package Group

Attn: David Upthegrove

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	-		<u> </u>
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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

Respectfully Submitted,

Max E. Snavely

Senior Specialist



Inorganic Qualifiers

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

RL N.D. TNTC	Reporting Limit none detected Too Numerous To Count	BMQL MPN CP Units	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units
ານ umhos/cm C	International Units micromhos/cm degrees Celsius	NTU F	nephelometric turbidity units degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
m)	milliliter(s)	i	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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.
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- ppb parts per billion
- **Dry weight**Basis
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U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
Ç	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
· D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
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Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. 4957396

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

Collected:01/10/2007 07:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

1RFMT SDG#: HMS62-08

CAT

No. Analysis Name

As Received As Received Limit of

As Received

Method Dilution Detection

01754

Iron

CAS Number

Result

Quantitation*

Limit

Units **Factor**

1

7439-89-6

N.D.

0.200

0.0522

mg/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT No. 01754 01848

Analysis Name

WW SW846 ICP Digest (tot rec)

Method SW-846 6010B SW-846 3005A

Analysis Trial# Date and Time 1 01/17/2007 10:54 1 01/16/2007 20:18

Analyst. Joanne M Gates James L Mertz

Factor 1 1

Dilution

Lancaster Laboratories, Inc.

*=This limit 3/25 Next Holland Pievaluation of the final result

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



Inorganic Qualifiers

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RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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
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U.S. EPA CLP Data Qualifiers:

Organic	Qualifier	S
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= - 3		
TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	E	Estimated due to interference
Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Concentration difference between primary and	W	Post digestion spike out of control limits
confirmation columns >25%	*	Duplicate analysis not within control limits
Compound was not detected	+	Correlation coefficient for MSA < 0.995
Defined in case narrative		
	Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% Compound was not detected	Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% * Compound was not detected

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Lancaster Laboratories Sample No. 4957397

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

Collected:01/10/2007 08:00

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

04FMT SDG#: HMS62-09

CAT

As Received

As Received

As Received

No.

Analysis Name

CAS Number

Result

Limit of Quantitation* Method Detection

Dilution **Factor**

01754

Iron

7439-89-6

N.D.

Limit

Units

0.200

0.0522

mg/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

			,			
CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 10:58	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1



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N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
เบ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- ppb parts per billion

Dry weight basis

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U.S. EPA CLP Data Qualifiers:

Organi	ic (વ્રેua	liti	ers

A B	TIC is a possible aldol-condensation product Analyte was also detected in the blank	B E	Value is <crdl, but="" ≥idl<br="">Estimated due to interference</crdl,>
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N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
₽	Concentration difference between primary and	W	Post digestion spike out of control limits
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Lancaster Laboratories Sample No. 4957398

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

Collected:01/10/2007 11:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

22FMT SDG#: HMS62-10

CAT No.

Analysis Name

As Received

As Received Limit of

Quantitation*

As Received

Method Detection

Dilution Units **Factor**

01754

CAS Number 7439-89-6

Result 0.185 J

0.200

Limit 0.0522

mg/11

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT			-	Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Pactor
01754	Iron	SW-846 6010B	1	01/17/2007 11:09	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1

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



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

RL N.D.	Reporting Limit none detected	BMQL Mpn	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value - The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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

Measurement uncertainty values, as applicable, are available upon request.

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.



Lancaster Laboratories Sample No. WW 4957399

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

Collected:01/10/2007 13:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC

P.O. Box 268859

Oklahoma City OK 73126-8859

19FMT SDG#: HMS62-11

CAT No.

Analysis Name

CAS Number

As Received Result As Received Limit of Quantitation* As Received Method Detection

Dilution Units Factor

01754

Iron

7439-89-6

7.54

0.200

Limit 0.0522 its fact

mg/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT			_	Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 11:13	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	łb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	นโ	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	_		_
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
B	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
,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.

Measurement uncertainty values, as applicable, are available upon request.

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Lancaster Laboratories Sample No. WW 4957400

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

Collected:01/10/2007 14:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC

P.O. Box 268859

Oklahoma City OK 73126-8859

17FMT SDG#: HMS62-12BKG

CAT No.

CAS Number

As Received Result As Received Limit of Quantitation* As Received Method

Dilution

01754

Analysis Name

Iron

7439-89-6

2.19

0.200

Detection Limit 0.0522 Units Factor

mg/l 1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 10:31	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ΙU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		,
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA < 0.995
,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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Lancaster Laboratories Sample No. WW 4957401

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

Collected: 01/10/2007 14:45

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17FMT SDG#: HMS62-12MS

CAT Analysis Name CAS Number Result

As Received ed Limit of Quantitation* As Received Method Detection Limit

Dilution Units Factor

01754 Iron

7439-89-6

0.200

0.0522

mg/l 1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

2.82

CAT			Analysis			Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 10:43	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1

717-656-2300 Fax: 717-656-2681



Inorganic Qualifier

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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meg	milliequivalents	lb.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Quantiers		morganic Quanners
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
IJ	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.

Measurement uncertainty values, as applicable, are available upon request.

Organic Qualifiers

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.

Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. WW 4957402

MW-17_Filtered Matrix_ Spike_Dup. Grab Water Gulf States Creosoting/Hattiesburg, MS

Collected:01/10/2007 14:45

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17FMT SDG#: HMS62-12MSD

CAT

As Received

2.86

As Received Limit of

As Received

No.

CAT

Analysis Name

CAS Number Result Quantitation*

Method Detection

Dilution Factor

01754

Iron

7439~89-6

Limit

Unita

0.200

0.0522

mg/11

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

No. Analysis Name 01754 Iron 01848 WW SW846 ICP Digest (tot

Method SW-846 6010B SW-846 3005A

Analysis Trial# Date and Time 01/17/2007 10:46 1 1 01/16/2007 20:18

Analyst Joanne M Gates James L Mertz

Factor 1 1

Dilution

Lancaster Laboratories, Inc. *=This limit 2425 New Holland Pike Lancaster, PA 17605-2425

717-656-2300 Fax: 717-656-2681



Inorganic Qualifiers

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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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**Besults 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	•		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 1

Lancaster Laboratories Sample No. WW 4957403

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

Collected: 01/10/2007 14:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

17FMT SDG#: HMS62-12DUP

CAT

As Received

As Received Limit of As Received

No.

Analysis Name

CAS Number Result

2.19

Limit of Quantitation* Method Detection Limit Dilution Factor

01754

Iron

7439-89-6

0.200

0.0522

mg/l 1

Units

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT No. 01754 01848

Analysis Name Iron WW SW846 ICP Digest (tot rec) Method SW-846 6010B SW-846 3005A Analysis
Trial# Date and Time
1 01/17/2007 10:39
1 01/16/2007 20:18

Analyst Joanne M Gates James L Mertz Factor 1 1

Dilution

Lancaster Laboratories, Inc.
*=This limit 3/45 018/et/3/in the evaluation of the final result
PO 80x 12425

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



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			_
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Ð	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W.	Post digestion spike out of control limits
	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.

Measurement uncertainty values, as applicable, are available upon request.

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.

Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. 4957404

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

Collected:01/10/2007 15:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC

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

08FMT SDG#: HMS62-13

CAT No.

Analysis Name

As Received As Received

As Received Result

Limit of Quantitation* Method Detection

Dilution Units Factor

01754 Iron

CAS Number 7439-89-6

N.D.

0.200

Limit 0.0522

mg/l1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT			_	Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 11:17	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		,
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers;

Organic Qualifiers

	- g		g
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
Ê	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

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Page 1 of 1

Lancaster Laboratories Sample No. 4957405

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

Collected:01/10/2007 16:30

by BB

Account Number: 11947

Submitted: 01/11/2007 09:05

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

06FMT

SDG#: HMS62-14

CAT No.

Analysis Name

CAS Number

As Received Result

As Received Limit of Quantitation* As Received Method Detection

Dilution Units Factor

01754

Iron

7439-89-6

25.A

0.200

Limit

1

0.0522

mg/l

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT Analysis Dilution No. Analysis Name Method Trial# Date and Time Analyst Factor 01754 Iron 01/17/2007 11:20 SW-846 6010B 1 Joanne M Gates 1 01848 WW SW846 ICP Digest (tot SW-846 3005A 1 01/16/2007 20:18 James L Mertz 1 rec)



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- j estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organic Quantiers		morganic Quaimers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
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Page 1 of 1

Quality Control Summary

Client Name: Tronox LLC

Reported: 01/19/07 at 11:58 AM

Group Number: 1021309

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

Blank Blank Blank Report T.CS LCSD LCS/LCSD Analysis Name Result MDL L00** <u>Units</u> %REC BREC <u>Limits</u> RPD RPD Max Batch number: 070161848002 Sample number(s): 4957396-4957405 Iron 0.200 0.0522 mg/1102 90-112

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

MŞ MS/MSD RPD RKG DUP DUP Dup RPD Analysis Name **%REC** Limits RPD <u>MAX</u> Conc Conc RPD Max Batch number: 070161848002 Sample number(s): 4957396-4957405 UNSPK: 4957400 BKG: 4957400 63* 67* 75-125 1 20 2.19 20

*- Outside of specification

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

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

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



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

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĩ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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/t), 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

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	3		morganio adamicio
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
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P	Concentration difference between primary and	W	Post digestion spike out of control limits
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บ	Compound was not detected	+	Correlation coefficient for MSA < 0.995
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ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1021325. Samples arrived at the laboratory on Friday, January 12, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description

MW-2R Grab Water Sample MW-15 Grab Water Sample MW-14 Grab Water Sample Lancaster Labs Number

4957573 4957574 4957575

METHODOLOGY

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

1 COPY TO 1 COPY TO Michael Pisani & Associates Data Package Group

Attn: David Upthegrove



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	łb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
m!	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	9		gaine dadinio.c
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
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₽	Concentration difference between primary and	w	Post digestion spike out of control limits
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Questions? Contact your Client Services Representative Gwen A Birchall at (717) 656-2300

Respectfully Submitted,

Max E. Snavely

Senior Specialist



Inorganic Qualifiers

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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius milliequivalents	F lb.	degrees Fahrenheit pound(s)
g	gram(s) microgram(s)	kg	kilogram(s) milligram(s)
ml m3	milliliter(s) cubic meter(s)	mg I ul	liter(s) microliter(s)

- 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.
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- ppb parts per billion
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U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			_
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Ε	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
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Page 1 of 2

Lancaster Laboratories Sample No. 4957573

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

Collected:01/11/2007 07:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35 Reported: 01/22/2007 at 15:03

SDG#: HMS61-17

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

Discard: 03/24/2007

2RHAT

CAT No.	Analysis Name	CAS Number	As Rec Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
01754	Iron	7439-89-6	0.120	J	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.		2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	21.9		2.0	0.46	mg/l as	1
00224	Chloride	16887-00-6	5.5		2.0	1.0	CaCO3 mg/l	5
00228	Sulfate	14808-79-8	19.0		5.0	1.5	mg/1	5
00368	Nitrate Nitrogen	14797-55-8	N.D.		0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon							
07106	Methane	74-82-8	2.3	J	5.0	2.0	ug/l	1
00774	PAH's in Water by HPLC							
00775	Naphthalene	91-20-3	5,800.		270.	30.	ug/l	20
00782	Acenaphthylene	208-96-8	N.D.		110.	110.	ug/l ug/l	1
00783	Acenaphthene	83-32-9	47.		18.	1.0	ug/l	1
00784	Fluorene	86-73-7	54.		18.	11.	ug/1 ug/1	20
00785	Phenanthrene	85-01-8	94.		9.1	1.8	ug/1 ug/1	20
00789	Anthracene	120-12-7	N.D.		0.50	0.50	ug/l	1
00807	Fluoranthene	206-44-0	5.7		0.23	0.046	ug/1	1
00811	Pyrene	129-00-0	0.70	J	0.91	0.21	ug/1	1
00812	Benzo(a) anthracene	56-55-3	0.15	-	0.11	0.023	ug/1 ug/1	1
00818	Benzo(b) fluoranthene	205-99-2	0.064	J	0.23	0.046	ug/l ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	_	0.11	0.023	ug/l	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.		0.23	0.046	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.46	0.091	ug/1 ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.		0.69	0.11	ug/l	
07409	Chrysene	218-01-9	0.20	J	0.46	0.091	ug/l ug/l	1
07410	Benzo(k) fluoranthene	207-08-9	0.043	J	0.11	0.023	ug/1 ug/1	1
	Due to the nature of the sample	matrix, a re				*****	491 7	1

analysis. The reporting limits were raised accordingly.

Due to the presence of interferents near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

Lancaster Laboratories, Inc.

*=This limit 3425 first Holland Evaluation of the final result

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



Inorganic Qualifiers

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
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ΙÜ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
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m l	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ui	microliter(s)

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- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	_		organio adamiero
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	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 sample not within control limits
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N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
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X,Y,Z	Defined in case narrative		

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Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4957573

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

Collected:01/11/2007 07:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC

P.O. Box 268859

Oklahoma City OK 73126-8859

2RHAT SDG#: HMS61-17

CAT No.

Analysis Name

CAS Number

As Received Result

As Received Limit of Quantitation* As Received

Method

Dilution

Limit

Detection Units Factor

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

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:36	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/13/2007 06:13	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/13/2007 06:13	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/13/2007 06:13	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	. 1	01/17/2007 22:11	Glorines Suarez- Rivera	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/15/2007 23:57	Mark A Clark	1
00774	PAH's in Water by HPLC	SW-846 8310	1	01/17/2007 04:28	Mark A Clark	20
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL N.D.	Reporting Limit none detected	BMQL Mpn	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
ΙŪ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	Æ	Estimated due to interference
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D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
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X,Y,Z	Defined in case narrative		

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Measurement uncertainty values, as applicable, are available upon request.

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.



Page 1 of 2

Lancaster Laboratories Sample No. WW 4957574

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

Collected:01/11/2007 08:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Tronox LLC P.O. Box 268859

Reported: 01/22/2007 at 15:03 Discard: 03/24/2007

Oklahoma City OK 73126-8859

15HAT SDG#: HMS61-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Unit s	Dilution Factor
01754	Iron	7439-89-6	35.9	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as	1
00202	Alkalinity to pH 4.5	n.a.	171.	2.0	0.46	CaCO3 mg/l as	1
00224	Chloride	16887-00-6	3.7	2.0	1.0	CaCO3 mg/l	5
00228	Sulfate	14808-79-8	2.2 J	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon				•		-
07106	Methane	74-82-8	1,300.	500.	200.	ug/l	100
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	N.D.	14.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	18.	1.6	ug/1	ī
00783	Acenaphthene	83-32-9	N.D.	18.	1.0	ug/1	1
00784	Fluorene	86-73-7	N.D.	0.91	0.57	ug/1	` 1
00785	Phenanthrene	85-01-8	0.10 J	0.45	0.091	ug/1	1
00789	Anthracene	120-12-7	0.080 J	0.23	0.045	ug/l	1
00807	Fluoranthene	206-44-0	0.69	0.23	0.045	ug/l	1
00811	Pyrene	129-00-0	0.49 J	0.91	0.20	ug/1	1
00812	Benzo (a) anthracene	56-55-3	N.D.	0.11	0.023	ug/1	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.23	0.045	ug/l	1
00823	Benzo (a) pyrene	50-32-8	N.D.	0.11	0.023	ug/1	1
00895	Dibenz (a, h) anthracene	53-70-3	N.D.	0.23	0.045	ug/1	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.45	0.091	ug/1	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.68	0.11	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.45	0.091	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.11	0.023	ug/l	1
	Due to the nature of the sample	e matrix, a re	duced aliquot	was used for	-		-
	amalassis - Mha wamassis - 13-14						

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

analysis. The reporting limits were raised accordingly.

Lancaster Laboratories, Inc. *=This limit ইপরি গাছেপ্রথাকার ভিতে valuation of the final result PO Box 12425 Lancaster, PA 17605-2425



Inorganic Qualifiers

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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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

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Analysis Report



Page 2 of 2

4957574 Lancaster Laboratories Sample No. WW

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

Collected:01/11/2007 08:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Reported: 01/22/2007 at 15:03

Discard: 03/24/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

15HAT

SDG#: HMS61-18

As Received

As Received

CAT No.

Analysis Name

As Received Result CAS Number

Limit of Quantitation* Method

Dilution Units Factor

Detection Limit

Laboratory Chronicle

CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:41	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/13/2007 07:34	Ashley M Heckman	· 5
00228	Sulfate	EPA 300.0	1	01/13/2007 07:34	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300.0	1	01/13/2007 07:34	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	. 1	01/18/2007 18:50	Glorines Suarez- Rivera	100
00774	PAH's in Water by HPLC	SW-846 8310	1	01/16/2007 00:36	Mark A Clark	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	1
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1

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



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	Ib.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
m!	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			<u> </u>
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	М	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
Ε	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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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.

Analysis Report



Page 1 of 2

Lancaster Laboratories Sample No. WW 4957575

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

Collected:01/11/2007 09:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35 Reported: 01/22/2007 at 15:03

Tronox LLC P.O. Box 268859

Discard: 03/24/2007

Oklahoma City OK 73126-8859

14HAT SDG#: HMS61-19*

				As Received	As Received		
CAT			As Received	Limit of	Method		Dilution
No.	Analysis Name	CAS Number	Result	Quantitation*	Detection Limit	Units	Pactor
01754	Iron	7439-89-6	2.62	0.200	0.0522	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	0.46	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a,	15.8	2.0	0.46	mg/l as CaCO3	1
00224	Chloride	16887-00-6	4.9	2.0	1.0	mg/l	5
00228	Sulfate	14808-79-8	17.5	5.0	1.5	mg/l	5
00368	Nitrate Nitrogen	14797-55-8	N.D.	0.50	0.25	mg/l	5
07105	Volatile Headspace Hydrocarbon						
07106	Methane	74-82-8	180.	10.	4.0	ug/l	2
00774	PAH's in Water by HPLC						
00775	Naphthalene	91-20-3	1.9 ј	14.	1.5	ug/l	1
00782	Acenaphthylene	208-96-8	N.D.	18.	1.6	ug/l	1
00783	Acenaphthene	83-32-9	2.4 J	18.	1.0	ug/1	1
00784	Fluorene	86-73-7	0.99	0.92	0.58	ug/1	1
00785	Phenanthrene	85-01-8	0.35 ј	0.46	0.092	ug/1	1
00789	Anthracene	120-12-7	0.049 J	0.23	0.046	ug/1	1
00807	Fluoranthene	206-44-0	N.D.	0.23	0.046	ug/1	1
00811	Pyrene	129-00-0	N.D.	0.92	0.21	ug/l	1
00812	Benzo(a)anthracene	56-55-3	N.D.	0.12	0.023	ug/l	1
00818	Benzo(b)fluoranthene	205-99-2	N.D.	0.23	0.046	ug/l	1
00823	Benzo(a)pyrene	50-32-8	N.D.	0.12	0.023	ug/l	1
00895	Dibenz(a,h) anthracene	53-70-3	N.D.	0.23	0.046	ug/l	1
00898	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.46	0.092	ug/l	1
00907	Benzo(g,h,i)perylene	191-24-2	N.D.	0.69	0.12	ug/l	1
07409	Chrysene	218-01-9	N.D.	0.46	0.092	ug/1	1
07410	Benzo(k) fluoranthene	207-08-9	N.D.	0.12	0.023	ug/1	1
	Due to the nature of the sample	matrix, a re	duced aliquot			79/ -	_

analysis. The reporting limits were raised accordingly.

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

Lancaster Laboratories, Inc. *=This limit 4426 three downther evaluation of the final result

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	นไ	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

		o. gaine dudinioro
TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	Ε	Estimated due to interference
Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Concentration difference between primary and	W	Post digestion spike out of control limits
confirmation columns >25%	*	Duplicate analysis not within control limits
Compound was not detected	+	Correlation coefficient for MSA < 0.995
Defined in case narrative		
	Analyte was also detected in the blank Pesticide result confirmed by GC/MS Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% Compound was not detected	Analyte was also detected in the blank Pesticide result confirmed by GC/MS M Compound quantitated on a diluted sample Concentration exceeds the calibration range of the instrument Presumptive evidence of a compound (TICs only) Concentration difference between primary and confirmation columns >25% * Compound was not detected

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Analysis Report



Page 2 of 2

Lancaster Laboratories Sample No. 4957575

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

Collected:01/11/2007 09:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Tronox LLC P.O. Box 268859

Reported: 01/22/2007 at 15:03 Discard: 03/24/2007

Oklahoma City OK 73126-8859

14HAT

SDG#: HMS61-19*

As Received

As Received

CAT No.

Analysis Name

CAS Number

As Received Limit of Result Quantitation* Method

Dilution **Factor**

Limit

Detection Units

Laboratory Chronicle

		-1020202027	CIII O			
CAT				Analysis		Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 03:46	Eric L Eby	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	01/16/2007 09:07	Susan A Engle	1
00224	Chloride	EPA 300.0	1	01/13/2007 07:50	Ashley M Heckman	5
00228	Sulfate	EPA 300.0	1	01/13/2007 07:50	Ashley M Heckman	5
00368	Nitrate Nitrogen	EPA 300_0	1	01/13/2007 07:50	Ashley M Heckman	5
07105	Volatile Headspace Hydrocarbon	SW-846 8015B modified	1	01/18/2007 19:59	Glorines Suarez- Rivera	2
00774	PÄH's in Water by HPLC	SW-846 8310	I	01/16/2007 01:14	Mark A Clark	7
01848	WW SW846 ICP Digest (tot	SW-846 3005A	1	01/16/2007 20:07	James L Mertz	ī
03337	PAH Water Extraction	SW-846 3510C	1	01/13/2007 02:20	Michael E Cunningham	1



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
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IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ī	liter(s)
m3	cubic meter(s)	ul	microliter(s)

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- > greater than
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
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- ppb parts per billion

Dry weight basis

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Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

	2		
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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		

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Page 1 of 3

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1021325

Reported: 01/22/07 at 03:03 PM

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

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>LOO**</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS %REC	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	RPD	RPD Max
Batch number: 07012196602B	Sample nu	mber(s): 4	957573-49	57575					
Chloride	N.D.	0.40	0.20	mg/l	99		90-110		
Sulfate	N.D.	1.0	0.30	mg/l	98		89-110		
Nitrate Nitrogen	N.D.	0.10	0.050	mg/l	99		90-110		
Batch number: 07012WAC026	Sample nu	mber(s): 4	957573-495	57575					
Naphthalene	N.D.	12.	1.3	ug/l	79		55-94		
Acenaphthylene	N.D.	16.	1.4	ug/1	82		59-96		
Acenaphthene	N.D.	16.	0.90	ug/l	82		60-116		
Fluorene	N.D.	0.80	0.50	ug/l	88		66-106		
Phenanthrene	N.D.	0.40	0.080	ug/l	89		67-115		
Anthracene	N.D.	0.20	0.040	ug/I	87		67-109		
Fluoranthene	N.D.	0.20	0.040	ug/l	84		70-112		
Pyrene	N.D.	0.80	0.18	ug/l	89		69-113		
Benzo (a) anthracene	N.D.	0.10	0.020	ug/l	89		73-114		
Benzo(b) fluoranthene	N.D.	0.20	0.040	ug/l	87		72-113		
Benzo (a) pyrene	N.D.	0.10	0.020	ug/l	91		68-112		
Dibenz(a,h)anthracene	N.D.	0.20	0.040	ug/l	88		30-121		
Indeno(1,2,3-cd)pyrene	N.D.	0.40	0.080	ug/l	91		60-111		
Benzo(g,h,i)perylene	N.D.	0.60	0.10	ug/l	86		9-127		
Chrysene	N.D.	0.40	0.080	ug/l	89		70-111		
Benzo(k) fluoranthene	N.D.	0.10	0.020	ug/l	88		72-119		
Batch number: 070160021A	Sample nu	mber(s): 4:	957573-499	7575					
Methane	N.D.	5.0	2.0	ug/l	97		80-120		
Batch number: 07016020201A	Sample nu	mber(s): 4:	957573-499	7575					
Alkalinity to pH 4.5				· · - · · ·	101		98-103		
Batch number: 070161848001	Sample nu	mber(s): 4:	957573-499	7575					
Iron	N.D.	0.200	0.0522	mg/l	96		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

	MS	MSD	ms/msd		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	*REC	<u>%REC</u>	<u>Limits</u>	RPD	<u>MAX</u>	Conc	Conc	RPD	Max
Batch number: 07012196602B Chloride Sulfate Nitrate Nitrogen	Sample 115* 114* 109	number	(a): 495757 90-110 90-110 90-110	3-4957	575 UNS	PK: 495757 5.5 19.0 N.D.	73 BKG: 4957 5.6 18.9 N.D.	573 0 (1) 1 (1) 0 (1)	3 3 2

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

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



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mì	milliliter(s)	Į	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For ppm 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.
- parts per billion ppb
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
Р	Concentration difference between primary and confirmation columns >25%	W	Post digestion spike out of control limits Duplicate analysis not within control limits
U X,Y,Z	Compound was not detected Defined in case narrative	+	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.

Measurement uncertainty values, as applicable, are available upon request.

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.



Page 2 of 3

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1021325

Reported: 01/22/07 at 03:03 PM

Sample Matrix Quality Control

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

	MS	MSD	MS/MSD		RPD	BKG	DUP	DUP	Dup RPD
Analysis Name	*REC	%REC	<u>Limits</u>	RPD	MAX	Conc	Conc	RPD	Max
Batch number: 07012WAC026	Sample	number	(s): 49575	73-4957	575 UNS	PK: P957389	ı		
Naphthalene	93 .		54-112	7	30				
Acenaphthylene	84	83	63-104	6	30				
Acenaphthene	85	84	59-114	7	30				
Fluorene	102	99	66-102	4	30	-			
Phenanthrene	114	110	66- 1 15	4	30				
Anthracene	95	93	68-104	5	30				
Pluoranthene	91	89	67-104	5	30	•			
Pyrene	92	90	66-106	5	30				
Benzo(a) anthracene	93	90	63-111	4	30				
Benzo(b) fluoranthene	91	88	71-106	4	30				
Benzo(a) pyrene	94	92	69-109	4	30				
Dibenz(a,h)anthracene	87	83	62-115	3	30				
Indeno(1,2,3-cd)pyrene	91	88	56-112	4	30				
Benzo(g,h,i)perylene	85	82	56-115	4	30				
Chrysene	92	89	69-107	4	30				
Benzo(k)fluoranthene	92	89	70-109	5	30				
Batch number: 070160021A	Sample	number	(s): 49575	73-49579	575 UNS	PK: P957389			
Methane	33*	0*	63-124	25*	20				
Batch number: 07016020201A	Sample	number	(s): 49575	73-49579	575 UNS	PK: P957389	BKG: P957	389	
Alkalinity to pH 8.3	_					N.D.	N.D.	0 (1)	4
Alkalinity to pH 4.5	100	101	64-130	0	2	13.0	13.3	2	4
Batch number: 070161848001	Sample	number	(s): 49575	73-49579	575 UNS	PK: P957389		389	
Iron	31*	84	75-125	13	20	3.45	3.51	2	20

Surrogate Quality Control

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

Analysis Name: PAH's in Water by HPLC Batch number: 07012WAC026

Nitrobenzene Triphenylene 4957573 113 4957574 102 91 4957575 102 91 Blank 103 96 LCS 97 92 MS 107 95 MSD 102 91 Limits: 71-128 55-130

Analysis Name: Volatile Headspace Hydrocarbon

*- Outside of specification

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

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IŲ	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ui	microliter(s)
ug ml	microgram(s) milliliter(s)	mg	milligram(s) liter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

			9
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
В	Analyte was also detected in the blank	E	Estimated due to interference
С	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
·	the instrument		for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	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.

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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.



Page 3 of 3

Quality Control Summary

Client Name: Tronox LLC

Reported: 01/22/07 at 03:03 PM

Group Number: 1021325

Surrogate Quality Control

Batch number: 070160021A

9	r	o	D	eı	1	9

4957573	88
4957574	96
4957575	83
Blank	95
LCS	94
MS	88
MSD	87

Limits:

_ ---

*- Outside of specification

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

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

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



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

RL N.D.	Reporting Limit	BMQL	Below Minimum Quantitation Level
		MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value -- The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

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

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ANALYTICAL RESULTS

Prepared for:

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

405-775-5429

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1021326. Samples arrived at the laboratory on Friday, January 12, 2007. The PO# for this group is ZAKW1CEOK0A50149.

Client Description

MW-2R_Filtered Grab Water Sample MW-15_Filtered Grab Water Sample MW-14_Filtered Grab Water Sample Lancaster Labs Number

4957576 4957577 4957578

METHODOLOGY

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

I COPY TO

Michael Pisani & Associates

1 COPY TO

Data Package Group

Attn: David Upthegrove



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	UTM	nephelometric turbidity units
umhos/cm	micromhos/cm		· ·
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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. All other results are reported on an as-received basis.

Inorganic Qualifiers

U.S. EPA CLP Data Qualifiers:

В

C

D

E

N

TIC is a possible aldol-condensation product Value is <CRDL, but ≥IDL В Analyte was also detected in the blank E Estimated due to interference Pesticide result confirmed by GC/MS M Duplicate injection precision not met Compound quantitated on a diluted sample N Spike sample not within control limits Concentration exceeds the calibration range of S Method of standard additions (MSA) used the instrument for calculation

Presumptive evidence of a compound (TICs only)

Concentration difference between primary and

W

Compound was not detected

Post digestion spike out of control limits

confirmation columns >25%

* Duplicate analysis not within control limits

J Compound was not detected + Correlation coefficient for MSA <0.995

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.

Measurement uncertainty values, as applicable, are available upon request.

Organic Qualifiers

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

Respectfully Submitted,

Max E. Snavely

Senior Specialist



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

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N.D.	none detected	MPN	Most Probable Number
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umhos/cm	micromhos/cm		•
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ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
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- ppb parts per billion
- Dry weight basis

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Organic Qualifiers

Inorganic Qualifiers TIC is a possible aldol-condensation product В Value is <CRDL, but ≥IDL В 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 sample not within control limits E S Concentration exceeds the calibration range of Method of standard additions (MSA) used the instrument for calculation N U Presumptive evidence of a compound (TICs only) Compound was not detected Concentration difference between primary and W Post digestion spike out of control limits confirmation columns >25% Duplicate analysis not within control limits Compound was not detected Correlation coefficient for MSA < 0.995 X.Y.Z Defined in case narrative

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Page 1 of 1

Lancaster Laboratories Sample No. 4957576

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

Collected:01/11/2007 07:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

2RFMS SDG#: HMS62-15

CAT

As Received Limit of As Received

No.

Analysis Name

CAS Number

Result

As Received Quantitation*

Method Detection

Dilution Units Factor

01754

7439-89-6

0.100 J

0.200

Limit 0.0522 mg/1

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT	Analysis					
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	01/17/2007 11:24	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1

717-656-2300 Fax: 717-656-2681



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ui	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LQQ).
- 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 Results printed under this heading have been adjusted for moisture content. This increases the analyte weight basis concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

	Organic Qualifiers		Inorganic Qualifiers
Α	TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥ldl<=""></crdl,>
В	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 sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
₽	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
Ü	Compound was not detected	+	Correlation coefficient for MSA < 0.995
X,Y,Z	Defined in case narrative		

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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.

Analysis Report



Page 1 of 1

Lancaster Laboratories Sample No. 4957577

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

Collected:01/11/2007 08:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC

P.O. Box 268859

As Received

Quantitation*

Limit of

Oklahoma City OK 73126-8859

SDG#: HMS62-16 15FMS

CAT No.

Analysis Name

CAS Number

As Received Result

As Received Method Detection

Dilution Factor Units

01754

Iron

Limit

7439-89-6

36.8

0.200

0.0522

mg/11

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

		_aaoctacory	C111 C			
CAT			Analysis			Dilution
No.	Analysis Name	Method	Trial#	Date and Time	Analyst	Factor
01754	Iron	SW-846 6010B	1	01/17/2007 11:28	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	01/16/2007 20:18	James L Mertz	1



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

RL N.D. TNTC IU umhos/cm	Reporting Limit none detected Too Numerous To Count International Units micromhos/cm	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
mi	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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. All other results are reported on an as-received basis.

Inorganic Qualifiers

Post digestion spike out of control limits

Correlation coefficient for MSA < 0.995

Duplicate analysis not within control limits

U.S. EPA CLP Data Qualifiers:

A В C D E

TIC is a possible aldol-condensation product	В	Value is <crdl, but="" th="" ≥idl<=""></crdl,>
Analyte was also detected in the blank	E	Estimated due to interference
Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
Compound quantitated on a diluted sample	N	Spike sample not within control limits
Concentration exceeds the calibration range of	S	Method of standard additions (MSA) used
the instrument		for calculation
Presumptive evidence of a compound (TiCs only)	U	Compound was not detected

N Concentration difference between primary and confirmation columns >25%

Organic Qualifiers

U Compound was not detected

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.

Measurement uncertainty values, as applicable, are available upon request.

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Page 1 of I

Lancaster Laboratories Sample No. 4957578

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

Collected:01/11/2007 09:00

by BB

Account Number: 11947

Submitted: 01/12/2007 09:35

Reported: 01/19/2007 at 11:58

Discard: 03/21/2007

Tronox LLC P.O. Box 268859

Oklahoma City OK 73126-8859

14FMS SDG#: HMS62-17*

CAT No.

Analysis Name

As Received

As Received Limit of Quantitation* As Received Method

Dilution

01754

Iron

CAS Number 7439-89-6

Result 1.45

0.200

Detection Limit 0.0522

Units Factor

mg/l

This sample was field filtered for dissolved metals.

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

Laboratory Chronicle

CAT	Analysis				
No.	Analysis Name	Method	Trial# Date and Time Analyst	Dilution Factor	
01754	Iron	SW-846 6010B	1 01/17/2007 11:32 Joanne M	Gates 1	
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1 01/16/2007 20:18 James L M	lertz 1	



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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
9	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	Ĭ	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- 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
- J estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).</p>
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

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

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Analysis Report



Page 1 of 1

Quality Control Summary

Client Name: Tronox LLC

Group Number: 1021326

Reported: 01/19/07 at 11:58 AM

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

Blank Blank Blank Report LCS LCS/LCSD Analysis Name Result LOQ** MDL Unite %REC **REC** <u>Limita</u> RPD RPD Max Batch number: 070161848002 Sample number(s): 4957576-4957578 Iron 0.200 0.0522 N.D. 102 90-112 mg/1

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

MS/MSD MSD RPD BKG DUP DUP Dup RPD Analysis Name %REC %REC <u>Limits</u> RPD <u>MAX</u> Conc Conc RPD Max Batch number: 070161848002 Sample number(s): 4957576-4957578 UNSPK: P957400 BKG: P957400 75-125 20 2.19 2.19 20

*- Outside of specification

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

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

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



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

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm		•
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	1	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- less than The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.
- greater than
- estimated value The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- 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.
- parts per billion ppb
- 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. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic	Qual	lifiers
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	Organic Qualifiers		inorganic Qualitiers
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В	Analyte was also detected in the blank	E	Estimated due to interference
Ç	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and	W	Post digestion spike out of control limits
	confirmation columns >25%	*	Duplicate analysis not within control limits
Ü	Compound was not detected	+	Correlation coefficient for MSA < 0.995
Z.Z	Defined in case parrative		

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Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only Acct. # 11947 Group# 103/33をSample # サタジョンプレーイド COC # 0141761

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

			(5)	Sesvices	5) Analyses Requestedth. (4		FSC:		
Client MICHAEL PISANI & HSSOC. Acct. #.	Acct. #:		ı	Preservation Codes	n Codes		SCR#:		
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Date results are needed:		D-16/10	18/18/	#W//	1300	/		1	T
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Data Package Options (please circle if required)	SDG Complete?				-		/		-
Type I (validation/NJ Reg) TX TRRP-13 Type II (Tier II) MA MCP CT RCP	×es Ves	Relinquished by:		Date	Time Receiv	Received by:		Date Tir	ime
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					7	*	XXXX		

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

2102.03

Directions For Completing This Form

(1) Client: Your company's name

Acct. #: Your account number with Lancaster Laboratories

Project Name/#: The way your company refers to the work involved with these samples. You may want to include project location as part of the description.

PWSID: Potable Water Source ID#

Project Manager: The person at your company responsible for overseeing the project

P.O.#: Your company's purchase order number

Sampler: The name of the person who collected the samples

Quote #: The reference number that appears on your quote (if Lancaster Laboratories gave you a number)

State where sample was collected: Please indicate where the sample was taken, e.g., PA, NJ, etc.

(2) Sample Identification: The unique sample description you want to appear on the analytical report

Date Collected/Time Collected: When the sample was collected

- (3) Grab: Check here if sample was taken at one time from a single spot. Composite: Check here if samples were taken from more than one spot, or periodically, and combined to make one sample.
- (4) Matrix: Check the type of sample you are submitting. If it is a water sample, please indicate if it is a potable water or if it is an NPDES sample.

Number of Containers: Indicate the total number of containers for each sampling point.

(5) Analyses Requested: Write the name of each analysis (or an abbreviation of it) here, and use the catalog number that appears at the beginning of each line in the Schedule of Services. Be sure to indicate which analyses are to be performed on which samples.

- (6) Remarks: List special instructions about the sample here (e.g., hazardous elements, high levels of analyte, etc.). The space can also be used (if needed) for listing additional analyses.
- (7) Turnaround Time Requested: Circle Normal if you want routine TAT, which is usually within 10-15 days. If you need your results faster, call ahead to schedule Rush work.

Rush Results Requested by: Circle Fax or Phone and include the number.

(8) Data Package Options: Call our Client Services Group (717-656-2300) if you have questions about these choices.

SDG Complete? Indicate **Yes** if this is a complete sample delivery group or **No** if you will be submitting additional samples to be included in the same data package.

Note: We need to have one quality control (QC) sample for every 20 samples you send, if you are requesting site-specific QC. Please give us this sample in triplicate volume and identify it by writing "QC" in the **Remarks** column.

The internal chain of custody is a hand-to-hand documentation recording a sample's movement throughout the company. We routinely start a chain of custody for data package samples unless we are told otherwise. There is a \$25 per sample charge for the chain-of-custody documentation.

(9) Relinquished by/Received by: The form must be signed each time the sample changes hands. We can supply chain-of-custody seals for the outside of your packages if you require them.

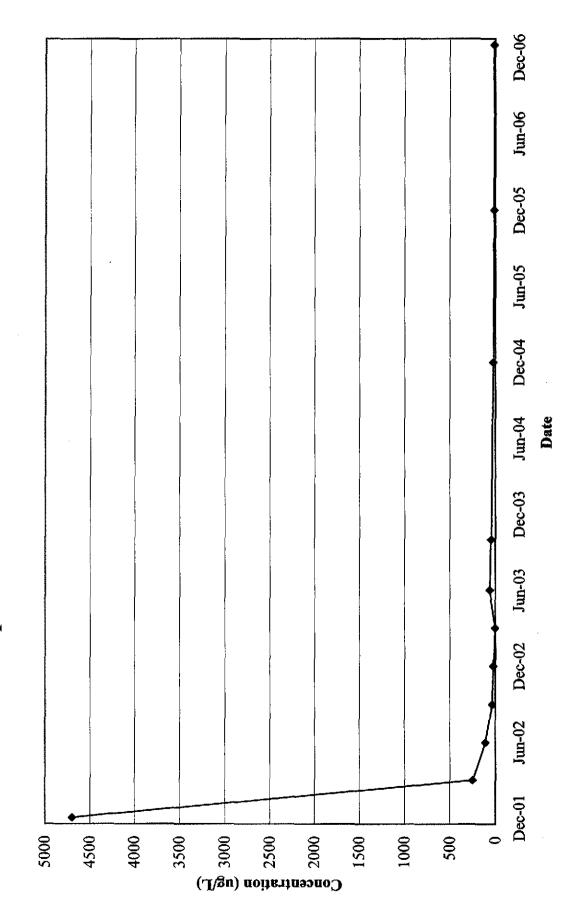
Note: Federal and State regulations require documentation of sample name and sampling location, date, and time in order for sample data to be legally defensible.

Appendix C

Charts Depicting Naphthalene Concentrations vs. Time

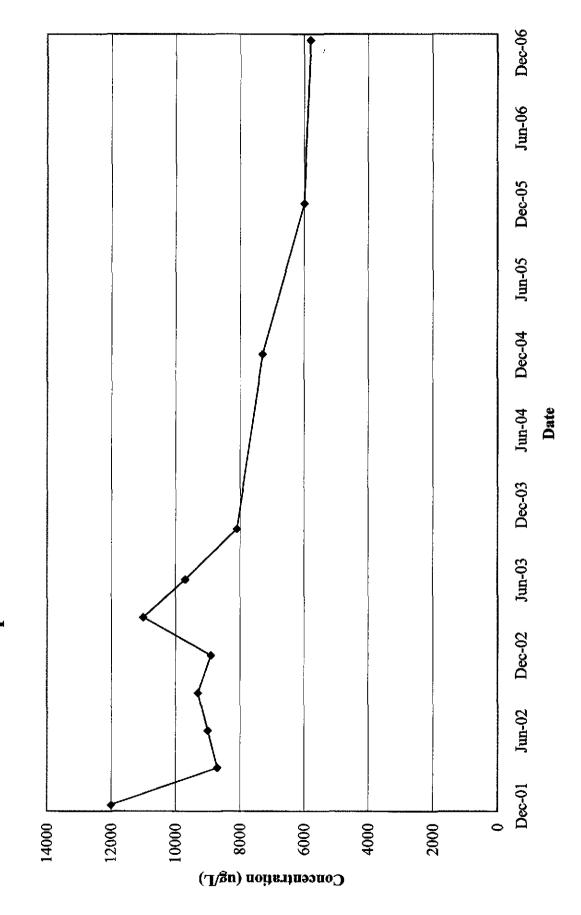
Former Gulf States Creosoting Site Hattiesburg, Mississippi

Naphthalene Concentrations in MW-1R

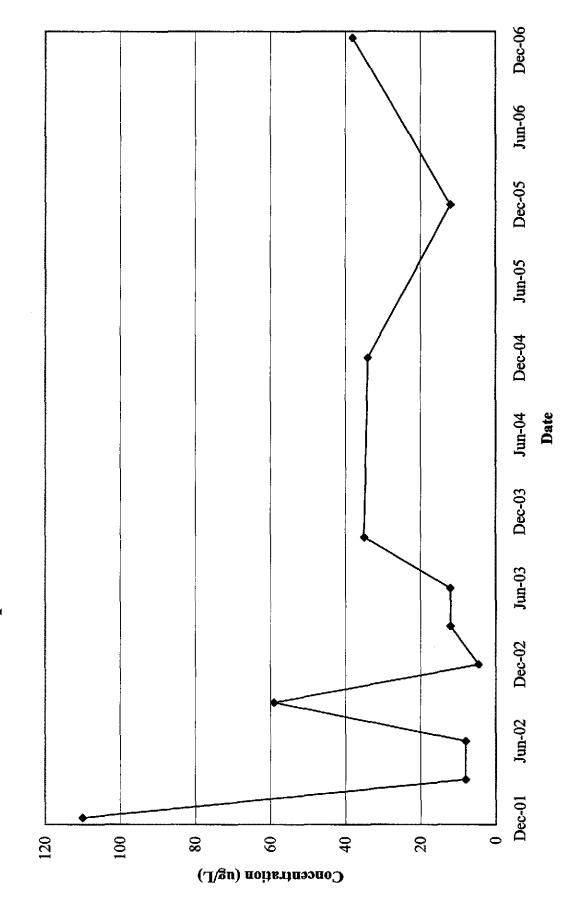


Dec-06 90-unf Dec-05 Naphthalene Concentrations in MW-1R Jun-05 Dec-04 (Logarithmic) Jun-04 Date Dec-03 Jun-03 Dec-02 Jun-02 Dec-01 10000 100 10 1000 Concentration (ug/L)

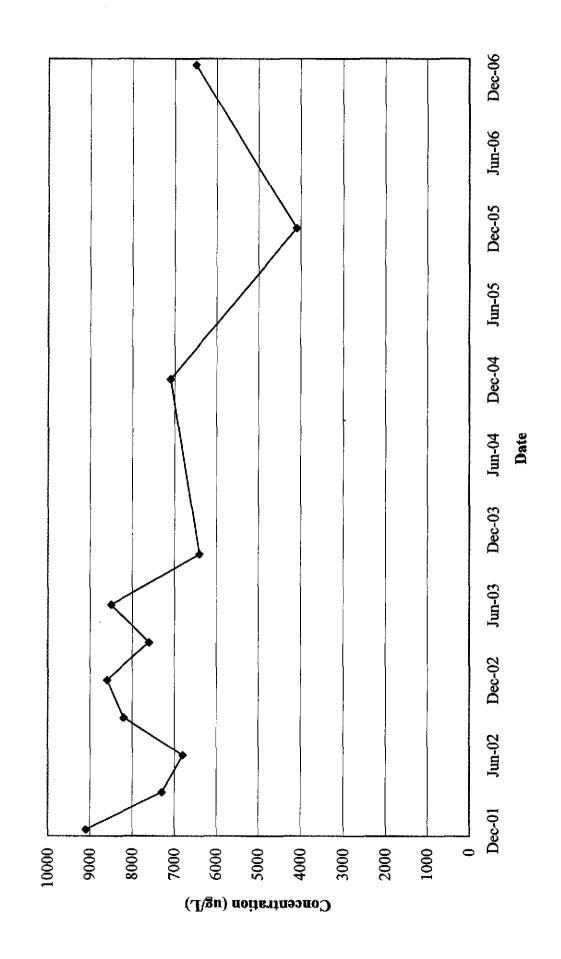
Naphthalene Concentrations in MW-2R



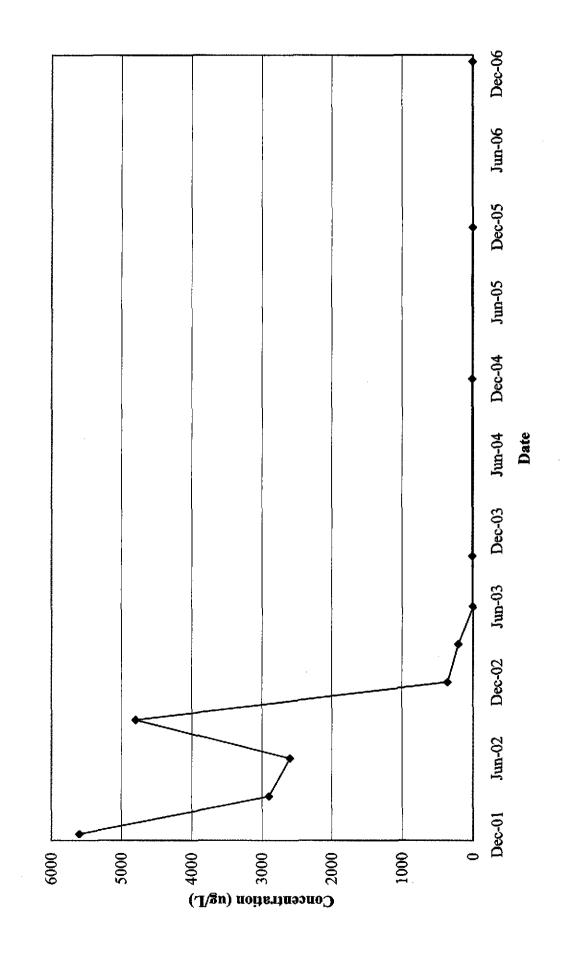
Naphthalene Concentrations in MW-4



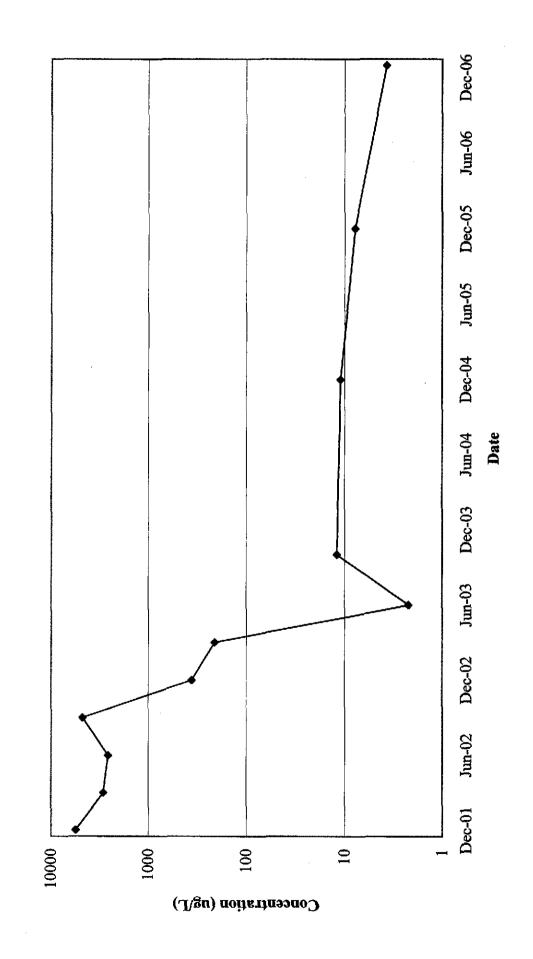
Naphthalene Concentrations in MW-06



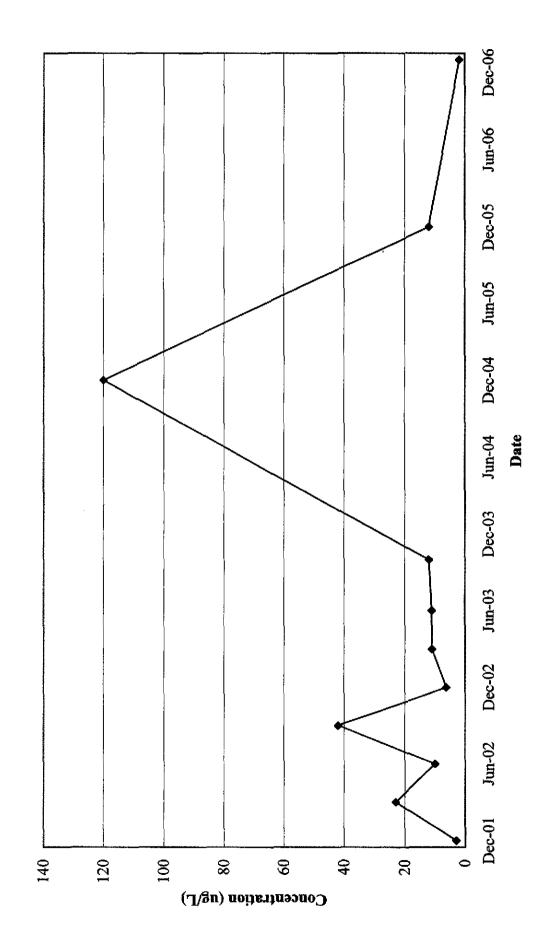
Naphthalene Concentrations in MW-12



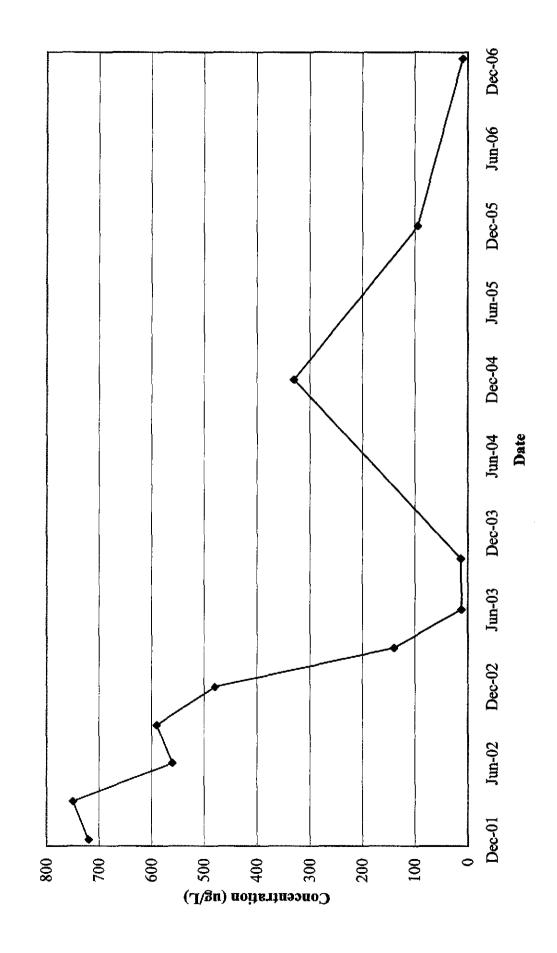
Naphthalene Concentrations in MW-12 (Logarithmic)



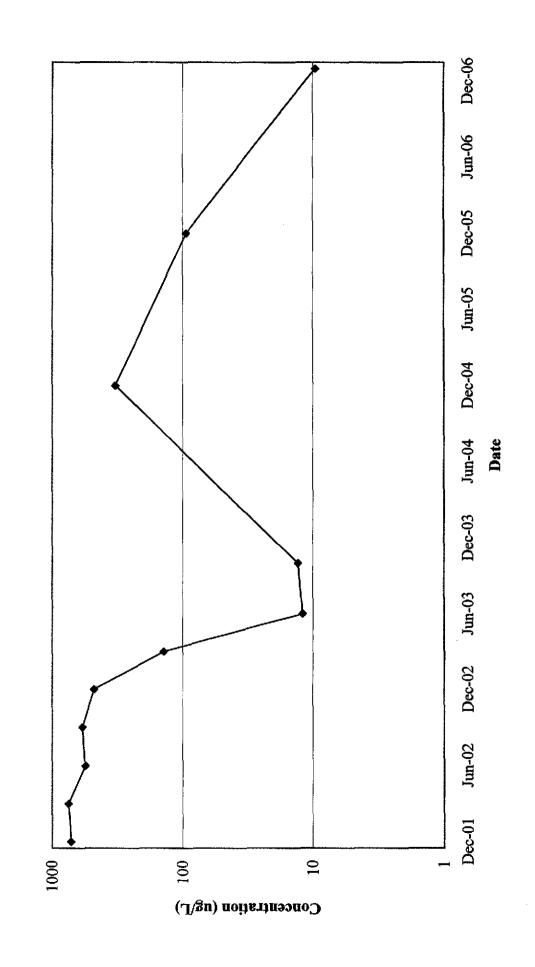
Naphthalene Concentrations in MW-14



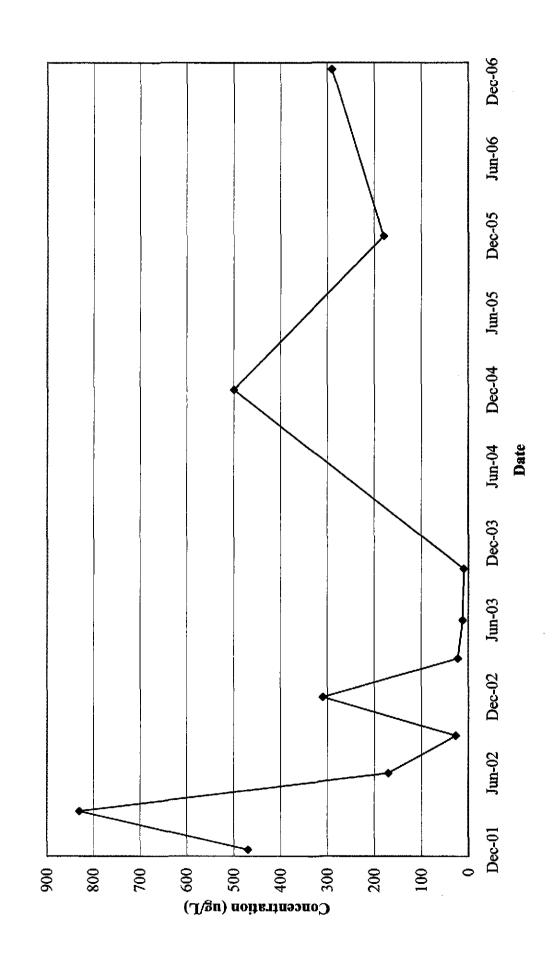
Naphthalene Concentrations in MW-17



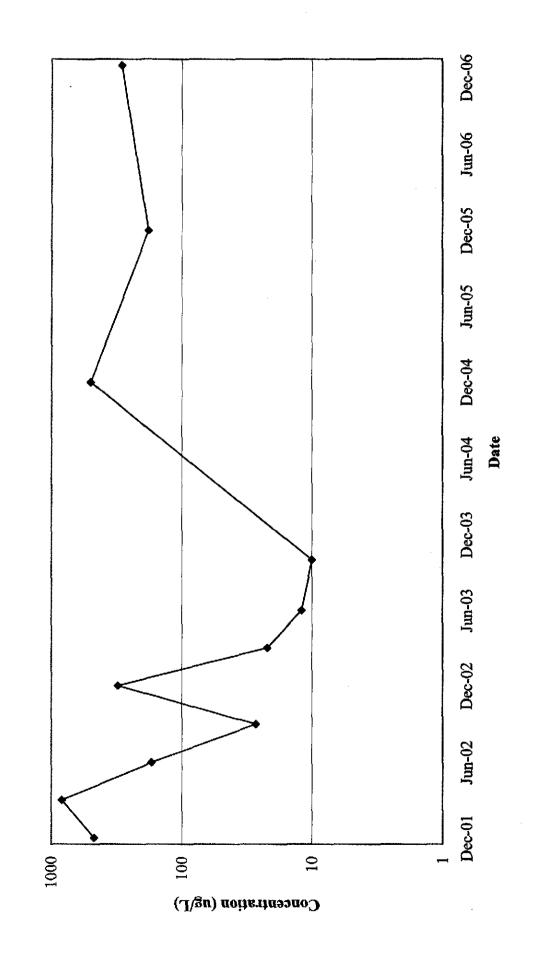
Naphthalene Concentrations in MW-17 (Logarithmic)



Naphthalene Concentrations in MW-18



Naphthalene Concentrations in MW-18 (Logarithmic)



Naphthalene Concentrations in MW-19

