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## Quarterly Monitoring Report

Hercules Incorporated Hattiesburg, Mississippi

## Prepared for: Hercules Incorporated

November 2006







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#### **1.0 INTRODUCTION**

Hercules Incorporated (Hercules) commissioned Eco-Systems, Inc. (Eco-Systems) to conduct quarterly groundwater and surface water monitoring at the Hattiesburg, Mississippi facility. The site location is shown in Figure 1. The work is being conducted in accordance with the <u>Corrective Action Plan Revision 01</u> (CAP) prepared by Groundwater & Environmental Services, Inc. (GES) dated January 20, 2005, which was approved by the Mississippi Department of Environmental Quality (MDEQ) in a letter dated January 25,2005.

As discussed in the CAP, groundwater monitoring wells MW-2 through MW-19 and the sampling locations established in Green's Creek are being monitored quarterly to provide groundwater and surface water quality information

This report describes sampling activities and analytical results for the first quarterly monitoring event of the second year of monitoring being conducted under the CAP. During this event, water levels were measured at 18 wells and 15 piezometers, surface water samples were collected from six locations, and groundwater samples were collected from 18 monitoring wells.

Samples collected during this monitoring event were analyzed for Volatile Organic Constituents (VOCs). Samples collected during previous quarterly monitoring events have also been analyzed for dioxathion and dioxenethion. However, the MDEQ approved Hercules request to discontinue dioxathion and dioxenethion analyses in a letter to Hercules dated August 18, 2006. Per the conditions in the August 18, 2006 letter, future analyses for dioxathion and dioxenethion will be conducted during the annual monitoring event scheduled for May 2007 and confined to samples collected from seven monitoring wells designated by the MDEQ. Discussion of detections of dioxathion and dioxenethion will be presented in the annual monitoring report.



#### 2.0 FIELD ACTIVITIES

Field activities conducted during this quarterly sampling event include sample collection from 18 monitoring wells and 6 surface water monitoring locations. Groundwater and surface water samples were analyzed for Appendix IX VOC's.

#### 2.1 GROUNDWATER SAMPLE COLLECTION

On November 28, 2006, Eco-Systems personnel collected groundwater levels from the 18 monitoring wells to be sampled during the quarterly monitoring event and from the 15 piezometers at the site. Piezometer TP-1 was damaged by site activities and the groundwater level could not be measured at this location. A summary of the water level measurements obtained on November 28, 2006 is included as Table 1.

Groundwater sample collection was conducted on November 29-30, 2006. Prior to collecting a groundwater sample, the monitoring wells were purged using either low-flow/low-stress techniques or traditional volume based methods. Purging was conducted until temperature, pH, specific conductance, and turbidity had stabilized. The water quality field parameters were measured with calibrated instruments and recorded in the field book along with the cumulative amount of water evacuated and time of batch parameter testing. Groundwater collection logs are attached as Appendix A.

Once field parameters stabilized, groundwater collected for analysis was sampled simply by collecting water directly into new sample containers supplied by the analytical laboratories. During the collection of field replicates that were collected for QA/QC concerns, alternating aliquots were placed in each replicate bottle until each bottle is filled.

In general, the order of sampling was from least impacted to most impacted based on historical data. Tubing used during purging and sampling was either dedicated to each well or disposed of after use. Subsequent to sampling, sample containers were labeled, placed and sealed on ice and shipped to the designated offsite laboratory for analysis. Chain-of-custody documentation accompanied the sample cooler. Personnel involved in sampling used clean, disposable gloves, which were changed between each sample collection. All non-disposable sampling equipment was decontaminated as outlined in Section 2.4

During this investigation, groundwater samples were collected from permanent monitoring wells MW-2 through MW-19. Filled sample vials were immediately placed in a cooler containing sufficient ice to lower the temperature of the filled sample vials



below 4°C. Groundwater samples were shipped via overnight courier to Severn Trent Laboratories in Savannah, Georgia for VOC analysis.

#### 2.2 SURFACE WATER SAMPLE COLLECTION

On November 28, 2006, six surface water samples were collected from the previously established sampling points along Green's Creek, CM-0 to CM-5. Samples were collected beginning with the most downstream location and proceeding upstream to each successive sampling location. Surface water samples were collected directly into new glass sample containers that were supplied by the analytical laboratory. The filled sample containers were labeled, packed and shipped/delivered in the same manner as groundwater samples discussed in Section 2.2.

#### 2.3 QUALITY ASSURANCE/QUALITY CONTROL

For quality assurance/quality control (QA/QC) purposes, two duplicate groundwater samples, three rinsate samples, one trip blank sample, and three matrix spike and matrix spike duplicate (MS/MSD) were collected during field sampling activities. The duplicate groundwater samples were collected in alternating aliquots that were placed in each replicate bottle until each bottle was filled. The rinsate samples were prepared by pouring deionized water over groundwater sampling tubing and collecting the rinsate into new disposable sample containers supplied by the analytical laboratory. QA/QC samples were labeled, stored and shipped in the same manner as groundwater and surface water samples. QA/QC samples were analyzed for the same constituents as groundwater and surface water and surface water samples.

#### 2.4 DECONTAMINATION

In general, groundwater sampling equipment that would contact the groundwater sample was single-use, disposable equipment. For any re-usable groundwater sampling equipment decontamination was accomplished by the following procedure:

- 1) Phosphate-free detergent wash.
- 2) Potable water rinse.
- 3) Deionized water rinse.
- 4) Isopropanol rinse.
- 5) Organic-free water rinse or air dry.

If it was necessary to store or transport decontaminated equipment, the decontaminated equipment was placed in either a new, disposable plastic bag or wrapped in aluminum foil.



#### **2.5 OTHER PROCEDURES**

Procedures for sample collection, sample containerization and packing, sample shipment, cross-contamination control, drummed material disposal, field documentation, chain-of-custody, data review, and other work items not specifically covered in this document were conducted in accordance with the <u>Environmental Investigations Standard Operating</u> <u>Procedures and Quality Assurance Manual</u> (EPA Region IV, May, 2001), (EISOPQAM)



#### **3.0 LABORATORY ANALYTICAL RESULTS**

Groundwater and surface water samples collected from the Hercules site were analyzed for Appendix IX VOC's according to U.S. EPA Method 8260B. Laboratory analytical reports for the samples collected during this investigation are included in Appendix B and summarized in Table 2 and Table 3.

During this groundwater sampling event, the laboratory reports indicated the presence of Tetrachloroethene at concentrations above regulatory limits in samples collected from monitoring wells MW-03 and MW-04 (is this all) and surface water sample CM-04. Eco-Systems noted that these compounds had not been previously detected in these locations, had all been included in the same laboratory QA/QC batch, and were inconsistent with field duplicate samples. The applicable field duplicate had been analyzed in a separate laboratory QA/QC batch. On request, the laboratory reviewed the data and re-ran the samples (out of hold time). Re-analysis could not confirm the detections. A letter provided by the laboratory and included in Appendix B indicates that a laboratory error may have occurred during the first analysis.

#### **3.1 GROUNDWATER**

VOC's were not detected at concentration above TRGs in groundwater samples collected from wells MW-02, MW-05, MW-10, MW-11, MW-12, MW-14, MW-16, and MW-18.

Analysis of the groundwater sample collected from monitoring well MW-03 detected tetrachloroethene and trichloroethene at concentrations greater than their associated TRGs. VOCs have not been previously detected at this location, and as discussed in Section 3.0, the detections of tetrachloroethene and trichloroethene in the sample collected from MW-03 are, in the opinion of the laboratory, indicated to be the result of a laboratory error.

Analysis of the groundwater sample collected from monitoring well MW-04 detected tetrachloroethene and trichloroethene at concentrations greater than their associated TRGs. Tetrachloroethene and trichloroethene have not previously been detected in samples collected from MW-04, and as discussed in Section 3.0, the detections of tetrachloroethene and trichloroethene in the sample collected from MW-04 are, in the opinion of the laboratory, indicated to be the result of a laboratory error.

Analysis of the groundwater sample collected from monitoring well MW-06 detected benzene at a concentration greater than its associated TRG. VOCs have not been previously detected in groundwater samples collected from MW-06.



Analysis of the groundwater sample collected from monitoring well MW-07 detected benzene at a concentration greater than its associated TRG.

Analysis of the groundwater sample collected from monitoring well MW-08 detected benzene, carbon tetrachloride, and toluene at concentrations above their TRG's.

Analysis of the groundwater sample collected from monitoring well MW-09 detected benzene and methylene chloride at concentrations greater than their associated TRGs.

Analysis of the groundwater sample collected from the monitoring well MW-13 detected benzene, carbon tetrachloride, chloroform, and vinyl chloride at concentrations greater than their respective TRG's.

Analysis of the groundwater sample collected from monitoring well MW-15 detected acetone at a concentration greater than its associated TRG.

Analysis of the groundwater sample collected from monitoring well MW-17 detected benzene, chlorobenzene, and carbon tetrachloride at concentrations above their respective TRG's.

Analysis of the groundwater sample collected from monitoring well MW-19 detected benzene at a concentration above its associated TRG.

#### **3.2 SURFACE WATER**

VOC's were not detected in surface water samples collected from locations CM-00, CM-03, and CM-05.

Analysis of the surface water sample collected from location CM-01 detected benzene at a concentration above its associated TRG and concentrations of acetone, chlorobenzene, ethylbenzene, toluene, and total xylenes below their associated TRGs.

Analysis of the surface water sample collected from location CM-02 detected toluene at a concentration below its associated TRG.

Analysis of the surface water sample collected from location CM-04 detected chloroform, tetrachloroethene, vinyl chloride, and trichloroethene at concentrations above their associated TRGs and concentrations of acetone, cis-1,2-dichloroethene and methyl ethyl ketone below their associated TRGs. Tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride have not been previously detected in surface water samples collected from Green's Creek. As discussed in Section 3.0, the detections of tetrachloroethene and trichloroethene in the sample collected from CM-04 are, in the opinion of the laboratory, indicated to be the result of a laboratory error.



#### 3.3 QA/QC

Analytical reports for the QA/QC samples are included in Appendix B and summarized in Table 3.

Duplicate groundwater samples were collected from MW-04 and MW-09. Variation in the analytical results for the detected constituents in the duplicate sample collected from MW-04 ranged from 72% to 99% due to detections of tetrachloroethene, trichloroethene, and cis-1,2-dichloroethene in the regular sample. These compounds were not detected in the duplicate sample and have not been detected in previous samples collected from monitoring well MW-04. Review of the laboratory data indicated that the regular sample collected from monitoring well MW-04 and the duplicate sample (FD-01) were included in separate analytical batches. Additional data review indicated that similar detections of tetrachloroethene and its degradation products were reported for the samples collected from monitoring well MW-03 and surface water sampling location CM-04. Both the MW-03 and CM-04 samples were included in the same analytical batch as MW-04. At Eco-Systems' request, the laboratory reviewed the data and decided to re-analyze the samples. Re-analysis could not confirm the detections, and the second analysis was conducted beyond the sample hold-time. However, the detections of tetrachloroethene and its degradation products, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride, that were detected in groundwater samples MW-03 and MW-04 and surface water sample are, in the opinion of the laboratory, indicate a laboratory error occurred during the original analysis. A letter provided by the analytical laboratory discussing their review of the data, re-analysis and conclusions is included with the analytical reports in Appendix B.

Variation in the analytical results for detected constituents in the duplicate sample collected from MW-09 generally ranged from 1% to 5%. However, one constituent, methyl isobutyl ketone, was detected in the regular sample collected from MW-09 but was not detected in the duplicate sample. This resulted in a 98% variation for this compound. Since methyl isobutyl ketone has not been previously detected in any groundwater or surface water samples collected at the site and it was not detected in other samples collected during this sampling event, the elevated variation in the concentrations for methyl isobutyl ketone is not expected to affect the reliability of the laboratory data.

VOC's were not detected in the rinsate samples collected during this sampling event.

VOC's were not detected in the trip blank that accompanied the samples collected during this sampling event.

Review of the analytical reports for VOC's that were submitted by STL indicates that spike sample recoveries for the spiked volatile organic constituents in the MS and MSD



samples were within the acceptable recovery ranges reported by the laboratory for each of the spiked constituents.

As reported by STL, all method blanks were non-detect for VOC's. The laboratory QC spike sample recoveries for VOC's detected in site samples were within the limits reported by the laboratory. Analyses were conducted within the 14 day holding time.

Based on the information received and reviewed, data generated for samples MW-03, MW-04 and CM-04 are suspect and should be disregarded unless confirmed by subsequent sampling events. Other analytical results that cannot be confirmed by previous or subsequent sampling events, such as the VOC detections in samples collected from monitoring wells MW-06 and MW-07 should also be considered suspect. The remaining data package appears acceptable for use without qualification.



TABLES

### TABLE 1

#### SUMMARY OF GROUNDWATER ELEVATION DATA

November 28, 2006 Hercules, Incorporated Hattiesburg, Mississippi

	TOC ELEVATION	WATER DEPTH	GROUNDWATER
WELL NO.	(ft.) <sup>1</sup>	(ft) <sup>2</sup>	ELEVATION (ft.)
	PERMANENT	MONITOR WELLS	
MW-1	174.12	NA <sup>3</sup>	NA
MW-2	160.07	6.43	153.64
MW-3	160.03	7.55	152.48
MW-4	159.75	11.38	148.37
MW-5	160.99	8.81	152.18
MW-6	174.05	9.64	164.41
MW-7	NA	14.64	NA
MW-8	179.99	NA	NA
MW-9	NA	13.07	NA
MW-10	159.88	11.45	148.43
MW-11	157.18	8.49	148.69
MW-12	162.17	8.71	153.46
MW-13	175.23	10.04	165.19
MW-14	169.23	15.29	153.94
MW-15	172.21	20.48	151.73
MW-16	175.62	17.55	158.07
MW-17	186.13	18.56	167.91
MW-18	165.31	6.33	158.98
MW-19	172.25	11.42	160.83
	STAF	FF GAUGES	
SG-1	NA	NA	NA
SG-2	NA	NA	NA
SG-3	NA	NA	NA
SG-4	NA	NA	NA
	PIEZ	OMETERS	
TP-1	172.18	NA	NA
TP-2	171.72	11.61	160.11
TP-3	169.74	10.77	158.97
TP-4	163.64	7.70	155.94
TP-5	160.54	9.70	150.84
TP-6	158.63	9.05	149.58
TP-7	167.17	9.28	157.89
TP-8	183.79	14.73	169.06
TP-9	163.44	6.05	157.39
TP-10	179.69	15.36	164.33
TP-11	162.26	10.50	151.76
TP-12	159.95	11.63	148.32
TP-13	156.99	8.35	148.64
TP-14	162.59	5.86	156.73
TP-16	179.72	13.80	165.92
TP-17	182.71	17.53	165.18

NOTES:

1- Elevations are in feet relative to mean sea level.

2 - Depth to water is in feet below top of casing. Staff gauge readings are in feet above the base of the staff.

3 - Data not available.

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	CM-00	Sep-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	NA	NA
		Aug-05	< <sup>1</sup> 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	1 1
	lí –	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	
		Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0				1	1		
	i i	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0		< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<10		< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
1		Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
$\Box$	CM-01	Feb-03	NA	2.8	< 10.0	3.03	2.34		< 1A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
		Sep-03	NA	< 1.0		1		< 10.0	< 10.0	< 10.0	20.5	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
-		Aug-05	< 25	< 1.0	6.6	< 1.0	< 1.0	1.71	< 10	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	NA	NA
		Nov-05		1	< 1.0	< 1.0	< 1.0	< 1.0	< 1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	1		< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
-		May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
		Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	C1 ( 02	Nov-06	62	8.4	24.0	< 1.0	< 1.0	< 1.0	< 1'A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	CM-02	Feb-03	NA	1.17	< 10.0	1.5	< 10.0	< 10.0	< 13.0	< 10.0	15.6	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
_		Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1'A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1:A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1/A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
0		May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
		Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< l'A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
		Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1/A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	CM-03	Feb-03	NA	3.7	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	8.42	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
		Aug-05	< 25	1.1	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
-		Nov-05	< 25	1.4	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		Feb-06	< 25	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1'A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
		May-06	< 25	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
		Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
-		Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	CM-04	Feb-03	NA	2.25	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	3.43	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
		Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
0		Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1'A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0		< 10.0
-		Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1A	< 1.0		< 1.0	NA	NA		< 5.0	< 10.0	
		May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0					< 1.0		< 1.0		< 5.0	< 10.0	
		Aug-06	< 25	< 1.0					< 11A			< 1.0		< 1.0		< 5.0	< 10.0	
		Nov-06	31	< 1.0		< 1.0			< 1[A			< 1.0	NA	17.0		< 5.0		< 10.0
	CM-05	Feb-03	NA	4.04		< 10.0			< 10.0			< 10.0	< 10.0	< 10.0		< 13.0		
		Aug-05	< 25			< 1.0			< 1/A			< 1.0	NA	NA			NA	NA
		Nov-05	< 25						< 1 <sub>A</sub>			< 1.0	NA	NA		< 5.0	< 10.0	
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		May-06	< 25	< 1.0					< 1.0	1		< 1.0	NA NA	NA			< 10.0	
		Aug-06	< 25									< 1.0		< 1.0		< 5.0	< 10.0	
		Nov-06	< 25	< 1.0								< 1.0		< 1.0		< 5.0	< 10.0	
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a transfer		Mathan	Benjetin		i a	Cistoretrum	2 Unichterretherne	- Maria	Second mark and	"unitation of the	(	ottyrt tertet up transpare.	eik-1,2	100 - 10 v l'ue tractur	वर्षांग्रेसंच्याः आणितीतः	and the second	The first state of the state of
MW-02	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0		-1		1	5	書	Ê.	NG1	- Internet	十十二	1 FE
	Nov-05	32	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 JA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1JA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 < 1.0	< 1 <sub>IA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
ļ	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1,10	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
MW-03	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<11A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 < 1	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>IA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>1</sub> A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>JA</sub> < 1 <sub>JA</sub> < 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>IA</sub>	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0		< 1	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
MW-04	Dec-02	ND3	14.0	1.81	10.0	ND	ND	ND	< 1.0	< 1.0	< 1.0	NA	7.5	NA	< 5.0	54	< 10.
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0		< 1 <sub>0.0</sub>	ND	63.0	1.72	ND	ND	1.26	ND	NA	NA
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	15 1.0	1510	< 10.0	< 12.0		< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 17.	< 5.0 < 1.0	< 5.0 < 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	NA	NA
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1 ~ 1.0	1 1/4	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 A	< 1.0	< 1.0	< 1.0 < 1.0	NA NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1 - 1.0	1 1 0	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 < 1 < 1	< 1.0	< 1.0	< 1.0	NA	< 1.0 < 1.0	NA NA	< 5.0	< 10.0	< 10.
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	<u> </u>	AL I	< 1.0	< 1.0	< 1.0	NA	3.6	NA	< 5.0	< 10.0	< 10.
MW-05	Aug-05	< 25	< 1.0	1.3	< 1.0	< 1.0	< 1.0	$< 1\frac{\Lambda}{\Lambda}$	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0 < 5.0	< 10.0 < 10.0	
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< I.0	< I.,	< 1.0	< 1.0	< 1.0	NA	NA		< 5.0	< 10.0	< 10.0 < 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	1.8	< 1.0	< 1.0	1 - 1.0	1 1 1 1	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0		< 10.0
	Aug-06	< 25	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1 <sup>.0</sup>	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
MW-06	Nov-06 Aug-05	60 < 25	< 1.0	< 1.0	< 1.0	< 1.0	1~1.0		< 1.0	< 1.0	< 1.0	NA	< 1.0		< 5.0		< 10.0
1 ··· ···	Nov-05	< 25 < 25	< 1.0 < 1.0	< 1.0 < 1.0	< 1.0	< 1.0	< 1.0	$< 1 \frac{A}{A}$	< 1.0	< 1.0	< 1.0	NA	NA		< 5.0	< 10.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0 < 1.0	< 1.0	- 1.0	A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0 < 1.0	< 1.0 < 1.0	A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	1	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0		< 5.0		< 10.0
	Nov-06		56.0		< 1.0	< 1.0	< 1.0				< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
MW-07	Aug-05	< 25	< 1.0		< 1.0	< 1.0			< 1.0		< 1.0		< 1.0		< 5.0	< 10.0	
	Nov-05	< 25	< 1.0	1	< 1.0	< 1.0	< 1.0	$< \frac{1}{A}$			< 1.0	NA	NA		< 5.0	< 10.0	
	Feb-06	< 25	< 1.0		< 1.0	< 1.0	< 1.0	< 1. < 1. < 1. A			< 1.0	NA	NA	NA	< 5.0	< 10.0	
	May-06	< 25	< 1.0	1	< 1.0	< 1.0	< 1.0	~1'A			< 1.0	NA	NA			< 10.0	
	Aug-06	< 25	< 1.0	1	< 1.0	< 1.0	< 1.0		< 1.0		< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Nov-06	< 25	93.0	ł	< 1.0	< 1.0	< 1.0				< 1.0		< 1.0	NA	< 5.0	< 10.0	< 10.0
Harrison and Andrewson and Andre							1 * 410		< 1.0	< 1.0	< 1.0	NA	< 1.0	NA		< 10	

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NW-08         De-02         ND         6.90         29         16,000         1800         20         NM4         4.07         6.0         3.22         4.43         19         4.6         24.1         NA         NA           P6-03         NA         < 500         230         12,000         3.00         230         12,000         550         220         250         100         11A         200         100         11A         100							3												
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)	U,				Margan Sand										in the				
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)	-						4			41E				E					
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)		Eventient	Nov.				Left.		amte	there				dura	il treat		-		and a second
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)		English	THE			ix dent		6		Thing	hame		men	in an	1	neen	diam'r	L let	(IF)at
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)				e e		- Hereit	al an		ale la la		(here)	e the	Used	liani	aufi	s, Bec	Aue 10	alle.	a di unita
MW-08         Dec-02         ND         6,000         120         1,800         20         1,800         500         1300         79.         1(72         1(10)         85.5         3.34         1(10)         17.5         4.35         (13.0)         77.8         1(72         1(10)         85.5         3.34         1(10)					and a			E	J. Di		-Ome	Eleve	Hore	h'up	1 3	in the	in Head	and the second	attr.
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	ļ	MW-08	Dec-02	ND	6,900		and the second sec	And the second second	and the second second second	All and a second se		and the second division of the second divisio	and the second se			And the owned where the	and the second se	the second se	
Aug.03         6 4300         18,000         220         3,500         510         220         210         210         NA         NA         NA         S10         2100         1100										< 1(72			1						1
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		MW-09		ND	9.15	ND			1								-		
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			-	_	1			1			< 1.0	< 1.0	< 1.0	1				1	1
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$											< 1.0		< 1.0	NA	NA				
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$						1													
$ \begin{vmatrix} Nov-05 & 29 & 78 & 9.3 & 53 & 56 & <1.0 & <1.0 & <1.0 & <1.0 & <1.0 & NA & NA & <3.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <10.0 & <1$		MW-13																	
$ \begin{vmatrix} Feb-06 &< 25 \\ May-06 &< 25 \\ Aug-06 &< 25 \\ Aug-06 &< 25 \\ Now 06 &< 25 \\ N$				29	78					5 area 11									
$ \begin{vmatrix} May - 06 \\ Aug - 06 \\ < 25 \\ Nov - 06 \\ < 25 \\ \end{vmatrix} $						22	77	63											
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l n Mur	Date			â	tised that the		uerthane	متتديك يتبته بماناتهم	atur	4	ane	or arriet.	າ ແຫຼ່ງມີນອ	izeru.	and the	uthis lature	attended and
		without the	-	Cution damage	Cambro Ret	Citionali mar	aroathaftel 2.1	Woman and	8 tur ane lina	Jequare den e	Otherestration	librer additionary dent	and the mither	u prago literaziena.	ech, line abla da	uerh si cathai	
MW-14	Aug-05	34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>NA</sub>	< 1.0	< 1.0	< 1.0	NA	NA NA	NA	< 5.0	< 10.0	< 10
	Nov-05	35	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< \\A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	
	Feb-06	180	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
	Nov-06	440	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
MW-15	Aug-05	84	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>NA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10
	May-06	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
	Nov-06	1,500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	
MW-16	Aug-05	< 25	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	-
	Nov-05	< 25	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< \\A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< I <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< \varbox{varbox}{A}	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
111 17	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1 <sub>NA</sub>	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
MW-17	Aug-05	< 6300	6,200	340	1,500	1,200	< 250	< NA	< 250	< 250	< 250	NA	NA	NA	< 1,300	< 10.0	<
	Nov-05	< 13,000	1,500	< 500	17,000	1,600	< 500	< 51A	< 500	< 500	< 500	NA	NA	NA	< 2,500	<	<
	Feb-06	< 13,000	1,300	600	37,000	2,600	< 500	< 5 <sub>NA</sub>	< 500	< 500	< 500	NA	NA		< 2,500	<	<
	May-06	< 6,300	4,200	530	30,000	< 250	< 250	< 250	< 250	< 250	< 250	NA	< 250	NA	< 1,300	<	<
	Aug-06	570	1,000	610	33,000	3,000	< 1.0	< 1 <sub>1A</sub>	< 1.0	3.0	< 1.0	NA	26	NA	10	< 10.0	< 10.
MW-18	Nov-06	< 5,000	2,100	470	26,000	< 200	< 200	< 21A	< 200	200	< 200	NA	< 200	NA	< 1,000	< 2,000	< 2,0
VI W-10	Aug-05	< 25	10	45	< 1.0	< 1.0	< 1.0	AA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Nov-05	< 25	3.9	26	< 1.0	< 1.0	< 1.0	< 1 <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.
	Feb-06	< 25	4.2	31	< 1.0	< 1.0	< 1.0	< I <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	6.5	35	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.
	Aug-06	< 25	4.8	34	< 1.0	< 1.0	< 1.0	2 <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
1W-19	Nov-06	61	2.9	23	< 1.0	< 1.0	< 1.0	INA	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0		< 10.0
VI VV - 1.7	Aug-05	< 25	20	7.5	< 1.0	< 1.0	< 1.0	< INA	< 1.0	< 1.0	< 1.0	NA	NA		< 5.0	< 10.0	< 10.0
	Nov-05	< 25	19	6.4	< 1.0	< 1.0	< 1.0	< 1 <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	NA	1	< 5.0	< 10.0	< 10.0
	Feb-06	< 25	22	9.8		< 1.0	< 1.0	< 1 <sub>VA</sub>	< 1.0	< 1.0	< 1.0	NA	NA		< 5.0	< 10.0	< 10.0
	May-06	28	21	7.2		< 1.0	< 1.0	< 1_0	< 1.0	< 1.0	< 1.0	NA	< 1.0		< 5.0	< 10.0	< 10.0
	Aug-06	< 25 < 25	18	6.3	< 1.0	< 1.0	< 1.0	< 1 <sub>NA</sub>	< 1.0	< 1.0	< 1.0	NA	< 1.0		< 5.0	< 10.0	< 10.0
RG <sup>4</sup> ∣	Nov-06	<u> </u>	20	6.2	< 1.0	< 1.0	< 1.0	< 1 <sub>NA</sub>	< 1.0	1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0

1 - NA indicates that the analyte was not analyzed.

2 - "<" indicates that the concentration of the analyte is less than the concentrations shown.

3 - ND = Non Detect / No detection limit available.

4 - Target Remediation Goals are taken from the Tier 1 Target Remedial Goal Table of the Final

5 - TRG not yet established for this analyte.

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TABLE 3 SUMMARY OF QA/QC SAMPLE ANALYTICAL RESULTS Hercules Incorporated Hatiiesburg, Mississippi November 2006

Concentrations in Ug/I

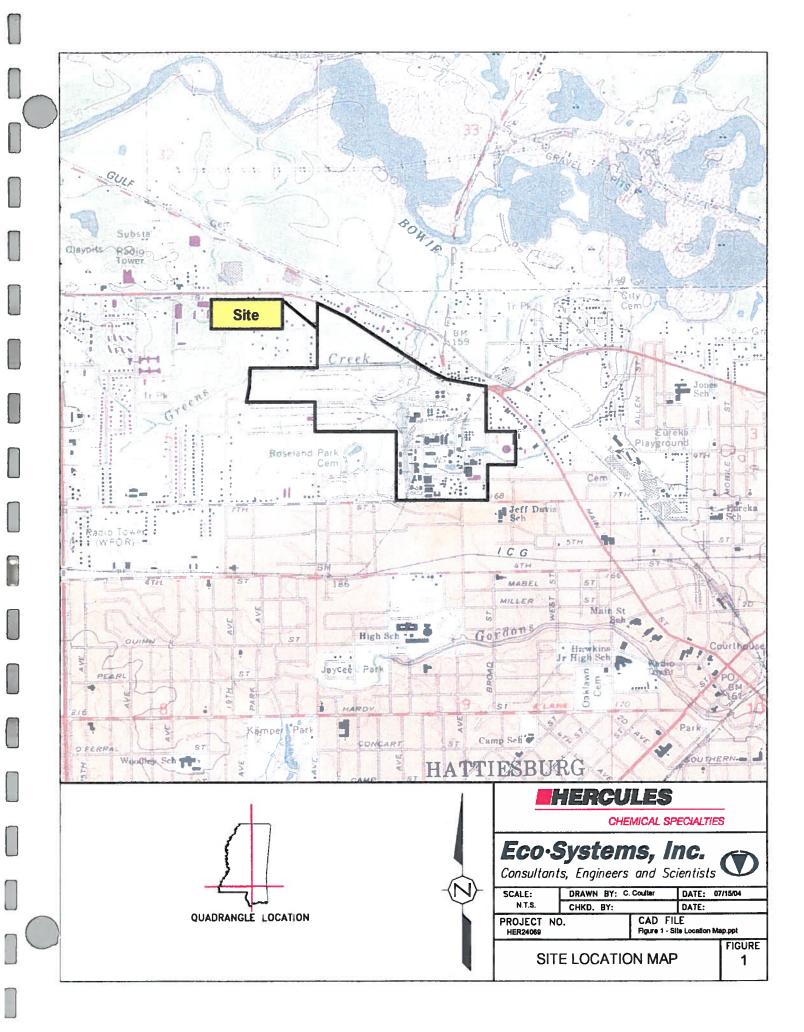
95% 1.0 1.0 %0 1.0 1.0 1.0 1.0 1.0 21 Trichloroethene v ٧ v v v v v 72% 1.0 < 1.0 1.0 1.0 1.0 1.0 3.6 %0 1.0 cis-1,2-Dichloroethene v v v v v v 98% 1.0 1.0 1.0 1.0 1.0 1.0 1.0 % 48 methyl isobutyl ketone v v v v v ٧ ۷ %66 1.0 1.0 1.0 1% 1.0 1.0 1.0 1.0 Теtrachloroethene 68 ٧ ٧ v v ٧ ۷ v < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 %0 4.2 4.3 2% ansuloT < 5.0 < 5.0 < 5.0 5.0 6.9 < 5.0 < 5.0 %0 6.8 1%Methylene Chloride v < 1.0 < 1.0 %0 3.8 4.0 5% < 1.0 < 1.0 < 1.0 < 1.0 Ethyldenzene < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 3% % 6.5 6.7 1,1-Dichloroethene < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 %0 < 1.0 % Chloroform < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 %0 %0 Chlorobenzene < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 %0 % Carbon Tetrachloride < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 %0 < 1.0 % Bromomethane < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 1%< 1.0 %0 18 17 Benzene %0 %0 < 25 < 25 < 25 < 25 < 25 < 25 34 34 **Acetone** % variation % variation MW-04 DUP MW-09 DUP Location **MW-04** 60-MW **RS-02 RS-03** TIB-01 **RS-01** 

"<" indicates that the concentration of the analyte is less than the concentrations shown.</li>
 Trip blanks were not analyzed for dioxathion constituents.



## **FIGURES**

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### APPENDIX A GROUNDWATER COLLECTION LOGS

 $\widehat{}$ 

Eco-Systems,			Ground	lwater	San	nple			Pagelof
Environmental Engine	ers and Scientist.	2	Coll	ection	Log	ł			
ect Name:	He HER	<u>rcule</u> 25080	s -cc-MS	34		Boring ID: Site Location:	Hc	MWOZ Hiesburg, M	ls
Start Date: Sample Technician: Purge/Sample Method: Well Diameter (d):	 CAris Pe	Terre r:stalt	11 /Trais	11-29- Beard	2006		Depti Date ((~28~06 ((~24~06	n-to-Water (DTW) I Time 11.55 08 (1	Measurements DTW (ft-btoc) L-43 L.72
Total Depth (TD): Approximate Depth of (h= TD - DTW [ft-bto Calculated Well Volum	c]):	h)	20.5 14.0	·····.	.0	- - -	"	0415	6.72
(V = vol in gal; d = we			2.20	9 gal	8	-			
	·····		WELL DEVEL	OPMENT/PU	JRGING I	DATA			
Date/Time	Cumulative Volume (gal)	рН	Specific Conductivity (mS/cm)	Temperature (°C)		`urbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
11-29-2006 080		5.43	94.1	20.3		<u>15</u>			
0808	0.25	5.93	<u> </u>	20.6		12		·	
0811	0.50	5.85	<u>94.4</u> 95.0	20.5		12			
0818	+	5.84	93.9	20.5		(  }		· · · ·	·
082	1.25	5.78	98.6	20.4	•	7.9		h	
0825	1,50	5.79	99.1	20.4		7.			
2									
						16 Y			
Sample Identification:	HER-N	W02-	12906 (M	13/MSD	)			R SAMPLE CONT	
Weather Conditions D	uring Sampling	_ Llou	dy 70°7	2	MW02	Date 11-29-2006	Time 0130	Sample Container 9-40-1 VOA	Preservative HG
Comments:					MWUF				
Sample Technician:	C4/48	Date:	(1-29-200	<u>p</u> b		· · · · · · · · · · · · · · · · · · ·		i i	
Notes:	ft-btoc = feet be gal = gallons.	•	0				2		
	mS/cm = milliS °C = degrees Ce NTU = Nephelo mg/L = milligra mV = millivolts	elsius. ometric Tur ms per liter	bidity Units.						

	Eco-Systems,	Inc.		Ground	water	Sam	ple			Page_of
-	Environmental Enginee	rs and Scientists		Coll	ection	Τωσ	-			
	ect Name:	He HER-	<u>rcul</u> 25080	es -cc-ms			Boring ID: Site Location:	H.	MW03 Hicsbury,	MS
	Start Date: Sample Technician:	11-29-2 Chrts 7		Finish Date:	<u>11-29-1</u>	2006		Depth Date	i-to-Water (DTW) M Time	Measurements DTW (ft-btoc)
	Purge/Sample Method: Well Diameter (d):	Per	istaltic Z	Pump				11-28-06		7.55
	Total Depth (TD): Approximate Depth of (h= TD - DTW [ft-btoc	]):	ı) 	11.2				ι/ 	0140	7.95
	Calculated Well Volum (V = vol in gal; d = wel	• •		1.839	×			<u>.                                </u>		
U	ſ			WELL DEVEL		IRGING D	ΑΤΑ	·		
	Date/Time	Cumulative Volume (gal)	pН	Specific Conductivity MS (mS/orfn)	Temperature (°C)	T	urbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
_	11-29-2006 0730		5.45	85.3	19.9		33			
	0732	0.25	5.30	84.4	20.		21			
	0735		5.31	83.4	20.0		20		· · · · · · · · · · · · · · · · · · ·	
	0737	0.75	5.25	84.2	20.0		15			
	0740	1.00	5.21	83.8	20.0		12		·	
	0744	1.25	5.20	1001	19.9		12			
	0746	1.50	5.22	83.7	19.9		<u>8.4</u>			
		2								
			L					l		
	Sample Identification:	HER-MI	103-11	2906	<u></u>		GR( Date	DUNDWATE Time	R SAMPLE CONT Sample Container	AINERS Preservative
	Weather Conditions Du	uring Sampling:	Cloud	ly 70°F		MW03			3-40mL VOA	HC1
	Comments:			····.						
	Sample Technician:	CT/TB	Date:	11-29-200	<u>l</u> b					
	Notes:	ft-btoc = feet be gal = gallons.	-	-	9. 9					
		mS/cm = milliS °C = degrees Co NTU = Nephelo	elsius.							•1
		mg/L = milligra mV = millivolts	-	r. , (* * *	- <b>18</b> 99					

Eco-Systems,	Inc. 🤇	Í	Ground	water	Sam	ple			Page of 1
Environmental Enginee	rs and Scientists		Colle	ection	Log				
Cect Name:	HER.	<u>lercu</u> 25080	es -cc-MS		U	Boring ID: Site Location:	M	WO4 Htcsbucg ~ N	15
Start Date:	11-29-2		Finish Date:	11-29-	2006		Depth Date	n-to-Water (DTW) N Time	Measurements DTW (ft-btoc)
Sample Technician: Purge/Sample Method: Well Diameter (d):	Chris I Per	istalt	/Travis Be c Pump/le	w flow	-low str	ess	11-28-06 11-29-06	1213	11.31
Total Depth (TD):			19.5	0			11-01-06	1001	11.49
Approximate Depth of V (h= TD - DTW [ft-btoc]	]):	1)	7.12	<u> </u>				2	
Calculated Well Volume (V = vol in gal; d = well			1.14	gal					
~		N	WELL DEVEL	OPMENT/PU	JRGING D	ATA			
Date/Time	Cumulative Volume (gal)	pН	Specific Conductivity (mSycm)	Temperature (°C)		urbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
11-29-2006 0955	0.0	5.91	371	22.2		10 8.2			
0959	0.25	5,94 5.94	374	22.4		<u>8. C</u> 10			
1005	0.75 1.00	5.95	375 368	22.5		7.0 5.9			
1009		242	200	~~~~~		<u> </u>			
						<u></u>			
	10 M						8 a		
								a -	
Sample Identification:	HER. MN	104-11	7906			GRO	OUNDWATE	R SAMPLE CONT	AINERS
	HER-FI	211-1129	06		-	Date	Time	Sample Container	Preservative
Weather Conditions Du	ring Sampling:		oudy 70°7	e	MW04 FD1	11-29-2006	1015	3-40 al VOA 3-40 mL VOA	14C1
Comments:			ei ei						
Sample Technician:	CT/TB	Date:	11-29-200(	<u> </u>	- 1			12	
-	ft-btoc = feet be		·	F					
	gal = gallons.	-	-						
	mS/cm = milliS °C = degrees Ce	-	centimeter.						
	NTU = Nephelo mg/L = milligra								
	mV = millivolts	-	4.						
					1.50				

	Eco-Syste				Ground			-		I	Page_1of_1.
	Environmental E	Enginee				ection	-		٨٨١	105	
_(	ect Name:	-	H4R 2	2508	les 0-cc-m:	٢		Boring 1D: Site Location:		Hesburg, M	3
U	Start Date:		11-29-			11-29-2	004		Depth Date	to-Water (DTW) M	leasurements DTW (ft-btoc)
	Sample Technic Purge/Sample M Well Diameter (	lethod:	7eristalti			fress		11-28-06 11-29-06	1313	8,81	
	Total Depth (TE Approximate De	):			18.5 '				ч 10	1129 1135	11.45
	(h= TD - DTW [ft-btoc]): Calculated Well Volume (V=6hd <sup>2</sup> )										
	(V = vol in gal; d = well diam. in ft):     1.58gal       WELL DEVELOPMENT/PURGING DATA										
	Date/Tim	e	Cumulative Volume (gal)	pН	Specific Conductivity	Temperature (°C)	т	urbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
_	11-29-2006	1115	0.0	6.49	722	22.1		340			
		1121 1125	0.25	6.50	709	22.5		700			· · · · · · · · · · · · · · · · · · ·
_		1129	0.75	6.50	697	22.7	· [	60			
		1135	1.00	6.51	732	22.8		45			
		(140 1145	1.25	6.47	732	22.9		<u>33</u> 48	v		
		1150	1.75	6.42	754	23.1		18			
		1155	2.00	6.44	757	22.6		9,8			
			14								
	p					3				8	
	1										
	Sample Identifi	cation:	HER-N	lwos	-112906					R SAMPLE CONT	
	Weather Condit	tions Du	uring Sampling:	Che	Judy 75	۰F	NNOS	Date	Time [200	Sample Container 3-40mL VOA	Preservative HC (
	Comments:	<u> </u>	Effervesce	4		ological	B				
	Sample Technic	2 2	sheen ob		in purse was 11-29-2001		-				
	-					4					
U	Ν	lotes:	ft-btoc = feet be gal = gallons.		-						,
			mS/cm = milliS °C = degrees Co	elsius.							
			NTU = Nephelo mg/L = milligra	*	-						
			mV = millivolts	i.							

Environmental Engineers and Scientusts         Collection Log         Mumber: <u>Hercules</u> Boring ID:       MWO6         MWO6         Start Date:       (1.25-2006       Finish Date:       MUC1-24-2006       Depth-to-Water (ID)         Start Date:       (1.25-2006       Finish Date:       MUC1-24-2006         Start Date:       (1.25-2006       Finish Date:       MUC1-24-2006         Start Date:       (1.25-2006       Finish Date:       MUC1-24-2006         Purge/Sample Method:       Purge/Sample Method:       Depth-to-Water (ID)         Total Depth (TD):       2.3.72       II       (S121:06       Date // Iou       D	DTW) Measurements DTW (ft-btoc) 9.64
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	DTW) Measurements DTW (ft-btoc) 9.64 1.0.05
Well Diameter (d):       2         Total Depth (TD):       23.25         II $Clobe TD = T$ Approximate Depth of Water Column (h)         (h = TD - DTW [ft-btoc]):         Calculated Well Volume (V=6hd²)         VELL DEVELOPMENT/PURGING DATA         Date/Time       Cumulative         PH       Specific       Turbidity       Dissolved       Oxidation/Re         Quime (gal)       PH       Specific       Turbidity       Oxigen       Potentie         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Joot       0.0       5.72       J78.3       2.3.4       J2       J2       J2         Joot       0.25       5.65       J78.5       2.3.7       4.6       J2       J3       J3 <td>DTW (ft-btoc) 9.64 1 (0.05</td>	DTW (ft-btoc) 9.64 1 (0.05
Well Diameter (d):       2         Total Depth (TD):       23.25         II $Clobe TD = T$ Approximate Depth of Water Column (h)         (h = TD - DTW [ft-btoc]):         Calculated Well Volume (V=6hd²)         VELL DEVELOPMENT/PURGING DATA         Date/Time       Cumulative         PH       Specific       Turbidity       Dissolved       Oxidation/Re         Quime (gal)       PH       Specific       Turbidity       Oxigen       Potentie         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Joot       0.0       5.72       J78.3       2.3.4       J2       J2       J2         Joot       0.25       5.65       J78.5       2.3.7       4.6       J2       J3       J3 <td>DTW (ft-btoc) 9.64 1 (0.05</td>	DTW (ft-btoc) 9.64 1 (0.05
Well Diameter (0):       2 $23.25$ $110001700$ $13001$ Approximate Depth of Water Column (h) $13.60$ $11000170$ $13.60$ (h = TD - DTW [ft-btoc]): $13.60$ $13.60$ $11000170$ Calculated Well Volume (V=6hd <sup>2</sup> ) $V = 2.22 gel$ $1100000000000000000000000000000000000$	1 10.05
Well Diameter (d):       2         Total Depth (TD):       23.25         II $Clobe TD = T$ Approximate Depth of Water Column (h)         (h = TD - DTW [ft-btoc]):         Calculated Well Volume (V=6hd²)         VELL DEVELOPMENT/PURGING DATA         Date/Time       Cumulative         PH       Specific       Turbidity       Dissolved       Oxidation/Re         Quime (gal)       PH       Specific       Turbidity       Oxigen       Potentie         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Marce /Time       Cumulative       PH       Specific       Turbidity       Oxygen       Oxidation/Re         Joot       0.0       5.72       J78.3       2.3.4       J2       J2       J2         Joot       0.25       5.65       J78.5       2.3.7       4.6       J2       J3       J3 <td></td>	
Approximate Depth of Water Column (h) (h= TD - DTW [ft-btoc]): Calculated Well Volume (V=6hd <sup>2</sup> ) (V = vol in gal; d = well diam. in ft): $13.61$ WELL DEVELOPMENT/PURGING DATA         WELL DEVELOPMENT/PURGING DATA         Date/Time       Cumulative Volume (gal)         pH       Specific Conductivity pJ (mp/m)       Turbidity (NTU)       Dissolved Oxygen (mg/l)       Oxidation/Ree Potentie (my/l) $\mu$ :Z9-Zeob       BoS       0.0       5.72       178.3       23.4 $12$ $100$ $\mu$ :Z9-Zeob       BoS       0.0       5.72       178.3       23.4 $12$ $130$ $1307$ 0.25       5.68       173.6       23.7 $9.4$ $12$ $130$ $1309$ 0.50 $5.65$ $178.5$ $23.7$ $9.4$ $12$ $1311$ $0.75$ $5.6$ $179.2$ $23.8$ $8.9$ $12$ <	
Calculated Well Volume (V=6hd²) $V = L D = V = V = V = V = V = V = V = V = V =$	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	al Comments
1309 0.50 5.65 178.5 23.7 8.8 1311 0.75 5.68 179.2 23.8 8.9	
1311 0.75 5.68 179.2 23.8 8.9	
Image: state	
Sample Identification: HER-UWD6-UZGO6 GROUNDWATER SAMPLE	CONTAINERS
Sample Identification: HER-UW06-U2906 GROUNDWATER SAMPLE Date Time Sample Con	
Weather Conditions During Sampling: Choudy 75°F WWO6 11-29-2006 1315 3.40mL	
Comments:	
Sample Technician: <u>CT/TB</u> Date: <u>11-29-2006</u>	
Notes: ft-btoc = feet below top of casing.	
gal = gallons. mS/cm = milliSiemens per centimeter.	
$^{\circ}C = degrees Celsius.$	
NTU = Nephelometric Turbidity Units.	
mg/L = milligrams per liter. $mV = millivolts.$	

Eco-Systems,			Givunu	water	Sample			Page_lof
Environmental Enginee	rs and Scientists	•	Coll	ection	Log			
ct Name:		rcule 2.5080			Boring ID: Site Location:		WO7 tesburg, MS	
tart Date: Sample Technician: Purge/Sample Method: Well Diameter (d):	11-30-7 Chris Teristaltiz	Torrel	1 Truck	11-30-; Beard low stres	· · · ·	Depth Date 11-28-06 11-30-06	n-to-Water (DTW) M Time 1353 0725	Measurements DTW (ft-btd 14.64 14.77
Total Depth (TD): Approximate Depth of h= TD - DTW [ft-btoc		1)	22.5			11	0743	14.79
Calculated Well Volum V = vol in gal; d = wel	e (V=6hd²)		*	Bgol			2	-15
			WELL DEVEL	OPMENT/PU	RGING DATA			
Date/Time	Cumulative Volume (gal)	рН	Specific Conductivity (mSrcm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comment
11-30-2006 0715	0.0	5.48	141.5	23.3	85			
0720	0.25	5.38	144.1	23.7	<u> </u>			
0725	0.50	5.37	143.4	23.6	45	· · · · · · · · · · · · · · · · · · ·		
0730	0.75	5.28	141.7	23.9	27			
0735	1.00	5,28	140.7	23.7	23	ļ		R.,
0740	1.25	5.24	137.5	23.8	21		1	
0743	1.50	5,22	137,3	23.8	18			·
0746	1.75	5.14	137.0	23.8	13			
0749	200	5.18	132.4	23.8	12			
0753	2,25	5.14	130.4	23.9	9.6			
	<u>ي</u>							
					······································			
Sample Identification:	HER-1	NWAT	- 113006	<u>.</u>	GR	OUNDWATE	ER SAMPLE CONT	AINERS
					Date	Time	Sample Container	Preservativ
Weather Conditions Du	ring Sampling:	Cleu	dy 70°	F	11-30-2006	0100	3-40,-1 VDA	Hel
Comments:		<i></i>						
Sample Technician:	CT/TR	Date:	11-30-200	þ				
Notes:	ft-btoc = feet be	low top of	casing.			2		
	gal = gallons. mS/cm = milliS °C = degrees Ce NTU = Nephelo mg/L = milligra mV = millivolts	elsius. ometric Tur ms per liter	bidity Units.		L		I	<u> </u>

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Eco-Systems,		Ground		-		F	Pageof
Environmental Enginee		Colles zsozo - cc-	ection L	Boring ID: Site Location:	l-tait4	NWO8 respurs, M	1
Start Date: Sample Technician: Purge/Sample Method:	11-30-200 Chris T	6 Finish Date: Ferrell / Travits	11-30-20 Beard	<i>РЬ</i>	Depth Date	n-to-Water (DTW) M Time	easurements DTW (ft-bt
Well Diameter (d): Total Depth (TD): Approximate Depth of (h= TD - DTW [ft-btoor Calculated Well Volum (V = vol in gal; d = well	]): ne (V=6hd²)	18.5	, /				
(v = voi in gai; u - wei		WELL DEVEL	OPMENT/PURG	ING DATA	3		
Date/Time	Cumulative Volume (gal)	pH Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comment
	1668-1	W08-11300		GP		ER SAMPLE CONT	AINERS
Sample Identification:	HEN T			Date	Time	Sample Container	Preservat
Weather Conditions D	uring Sampling:	Cloudy	70°F	11-30-Zeob	1420	3-40 mL VOA	HCI
Comments:							
Sample Technician:	CT/TB	Date: 11/30/2	mu				
Notes:	ft-btoc = feet below gal = gallons. mS/cm = milliSien	w top of casing. nens per centimeter.					
	°C = degrees Celsi	us. etric Turbidity Units.					

U	Eco-Syst	-			Ground			•			Page <u>l</u> of <u>1</u> .
		Enginee	ers and Scientist:		1	ection	Log			11.)09	
_(	ect Name:	r:	HER-	eray	103 25080-cc	-115		Boring ID: Site Location:	14 His	Shurg, MS	
	Start Date: <u>11-30-2006</u> Finish Date: <u>11-30-</u> Sample Technician: <u>Chris</u> Terrell / Travis Report						2006	-		n-to-Water (DTW) Time	Measurements DTW (ft-btoc)
	Sample Technician: Chris Terrell Travis Beard Purge/Sample Method: Peristaltic Pump / Iow flow - low Stree							-	Date	1425	13.07
$\Box$	Well Diameter		2						11-30-06	1151	13.15
	Total Depth (T	-			201			-	h	1157	13.15
	Approximate D (h= TD - DTW	-	Water Column (1	1)	10	93					
	Calculated We								-		
	(V = vol in gal;	; d = wel	l diam. in ft):		1.	13921		-			<u>a</u> :
U	[				WELL DEVEL	OPMENT/PL	JRGING E	DATA	10		
			Cumulative		Specific	Temperature	Т	urbidity	Dissolved	Oxidation/Reduction	
	Date/Tin	ne	Volume (gal)	pH	Conductivity $\mu (m_{2}/cm)$	(°C)	(NTU)		Oxygen (mg/l)	Potential (mV)	Comments
	11-30-2006	1145	0,0	5.84	615	24.2		12			
R		1151	0.25	5.91	631	24.2		4.4			-
		11 54	0.50	5.88	649	24.3		5.3			
		#57	0.75	5.88	654	24.2		5.6			
		1201	1.25	5.85	676	24.		4.8			
	- 53	1205	1.50	5.83	635	24.0	21				
$\square$	·			<u></u>					·		
$\square$		1					8				
		~					-				
	·		·								
				2			-	ð			
	1		<u>_</u>		3						
								· · ·	······		
			11.00	• •				· · · · · · · · · · · · · · · · · · ·		21	
	Sample Identifi	ication:	HER-MU	109-1	3006		с. -		UNDWATE Time	R SAMPLE CON	
~	Weather Condi	tions Du	ring Sampling:	Clau	dy 75°F	-	MW09	Date (1-30-2006	1215	Sample Container 3.40 mL VOA	HCI
					Jourd 10			11-30-2006	1215	3-40ml VOA	Itc I
	Comments:		52 								
								2		: 	
	Sample Technician: CT/VB Date: 11-30-7.006							······································			
-			/	22					. ,		
	٢		ft-btoc = feet be gal = gallons.	low top of	casing.				1710 <b>7</b> 817		
	gal = gallons. mS/cm = milliSiemens per centimeter.								- 192 - 192	M.	L
			°C = degrees Ce	lsius.	2						
			NTU = Nephelo	a	•						
7			mg/L = milligra mV = millivolts	-	r <b>.</b>						