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Quarterly Monitoring Report

**Hercules Incorporated
Hattiesburg, Mississippi**

Prepared for:
Hercules Incorporated

November 2006

Eco-Systems, Inc.
Consultants, Engineers, and Scientists





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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 Corrective Action Plan Revision 01 (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 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 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (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

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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

WELL NO.	TOC ELEVATION (ft.) ¹	WATER DEPTH (ft) ²	GROUNDWATER ELEVATION (ft.)
PERMANENT MONITOR WELLS			
MW-1	174.12	NA ³	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
STAFF GAUGES			
SG-1	NA	NA	NA
SG-2	NA	NA	NA
SG-3	NA	NA	NA
SG-4	NA	NA	NA
PIEZOMETERS			
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.

Experiment	Date	Concentration (ppm)															
		Acetone	Benzene	Chlorobenzene	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1,1-Trichloroethane	Hydroquinone	Chlorophenol	Chloroacetic Acid	1,1-Dichloroethane	1,1,2,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1,1-Trichloroethane	
MW-08	Dec-02	ND	6,900	290	16,000	1,800	20	N.84	4.07	66.0	39.2	4.45	19	4.6	26.1	NA	NA
	Feb-03	NA	< 500.0	230	12,000	1,300	79.8	< 1(72	< 10.0	85.5	3.34	< 10.0	17.5	4.35	< 13.0	NA	NA
	Aug-05	< 6300	18,000	< 250	3,500	510	500	< 25A	< 250	< 250	< 250	NA	NA	NA	< 1,300	< 10.0	< 10.0
	Nov-05	< 2,500	17,000	160	1,000	260	< 100	< 1(A	< 100	< 100	< 100	NA	NA	NA	< 500	< 10.0	< 10.0
	Feb-06	< 2,500	11,000	160	480	130	< 100	< 1(A	< 100	< 100	< 100	NA	NA	NA	< 500	< 10.0	< 10.0
	May-06	< 630	11,000	170	2,200	280	< 25	< 25	< 25	< 25	< 25	NA	29	NA	380	< 10.0	< 10.0
	Aug-06	750	15,000	220	640	450	< 1.0	< 1(A	< 1.0	< 1.0	< 1.0	NA	34	NA	510	< 10.0	< 10.0
Nov-06	< 2,500	13,000	< 100	330	< 100	< 100	< 1(A	< 100	< 100	< 100	NA	< 100	NA	< 500	< 1,000	< 1,000	
MW-09	Dec-02	ND	9.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.48	NA	NA
	Feb-03	NA	64.3	J 5.85	20.7	J 9.83	J 1.43	< 10.0	< 10.0	19.7	< 10.0	< 10.0	< 10.0	J 1.92	< 13.0	NA	NA
	Aug-05	< 25	12	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	16.0	< 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	18.0	< 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	8.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	10	< 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	34.0	18.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	6.8	< 10.0	48.0	
MW-10	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	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
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 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.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	
MW-11	Dec-02	ND	114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	Feb-03	NA	J 6.39	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	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
	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	< 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	
MW-12	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
	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	< 1.A	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
Nov-06	91	< 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	
MW-13	Aug-05	< 25	120	10	260	96	< 1.0	< 1.A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	29	78	9.3	53	56	< 1.0	< 1.A	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Feb-06	< 25	110	22	77	63	< 1.0	< 1.A	1.6	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	48	5.4	110	33	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	1	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	72	17	45	35	< 1.0	< 1.A	< 1.0	< 1.0	< 1.0	NA	3.1	NA	< 5.0	< 10.0	< 10.0
Nov-06	< 25	94	19	27	30	< 1.0	< 1.A	< 1.0	< 1.0	< 1.0	NA	4.0	NA	< 5.0	< 10.0	< 10.0	

Location	Date	Acetone	Benzene	Chloroform	Chlorobenzene	Dibromochloroethane	Dibromodichloroethane	Dibromofluoroethane	Dibromomethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane	Dibromonitroethane
MW-14	Aug-05	34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-05	35	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Feb-06	180	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	440	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-15	Aug-05	84	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	May-06	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	1,500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-16	Aug-05	< 25	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-05	< 25	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-17	Aug-05	< 6300	6,200	340	1,500	1,200	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
	Nov-05	< 13,000	1,500	< 500	17,000	1,600	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
	Feb-06	< 13,000	1,300	600	37,000	2,600	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
	May-06	< 6,300	4,200	530	30,000	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
	Aug-06	570	1,000	610	33,000	3,000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	< 5,000	2,100	470	26,000	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200
MW-18	Aug-05	< 25	10	45	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-05	< 25	3.9	26	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Feb-06	< 25	4.2	31	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	May-06	< 25	6.5	35	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-06	< 25	4.8	34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	61	2.9	23	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MW-19	Aug-05	< 25	20	7.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-05	< 25	19	6.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Feb-06	< 25	22	9.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	May-06	28	21	7.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Aug-06	< 25	18	6.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nov-06	< 25	20	6.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TRG*		608	5.0	100	5.0	0.155	5.0	5,168	8.52	3.64	1.43	0.126	70	679	5.0	1,910	139	

- 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.

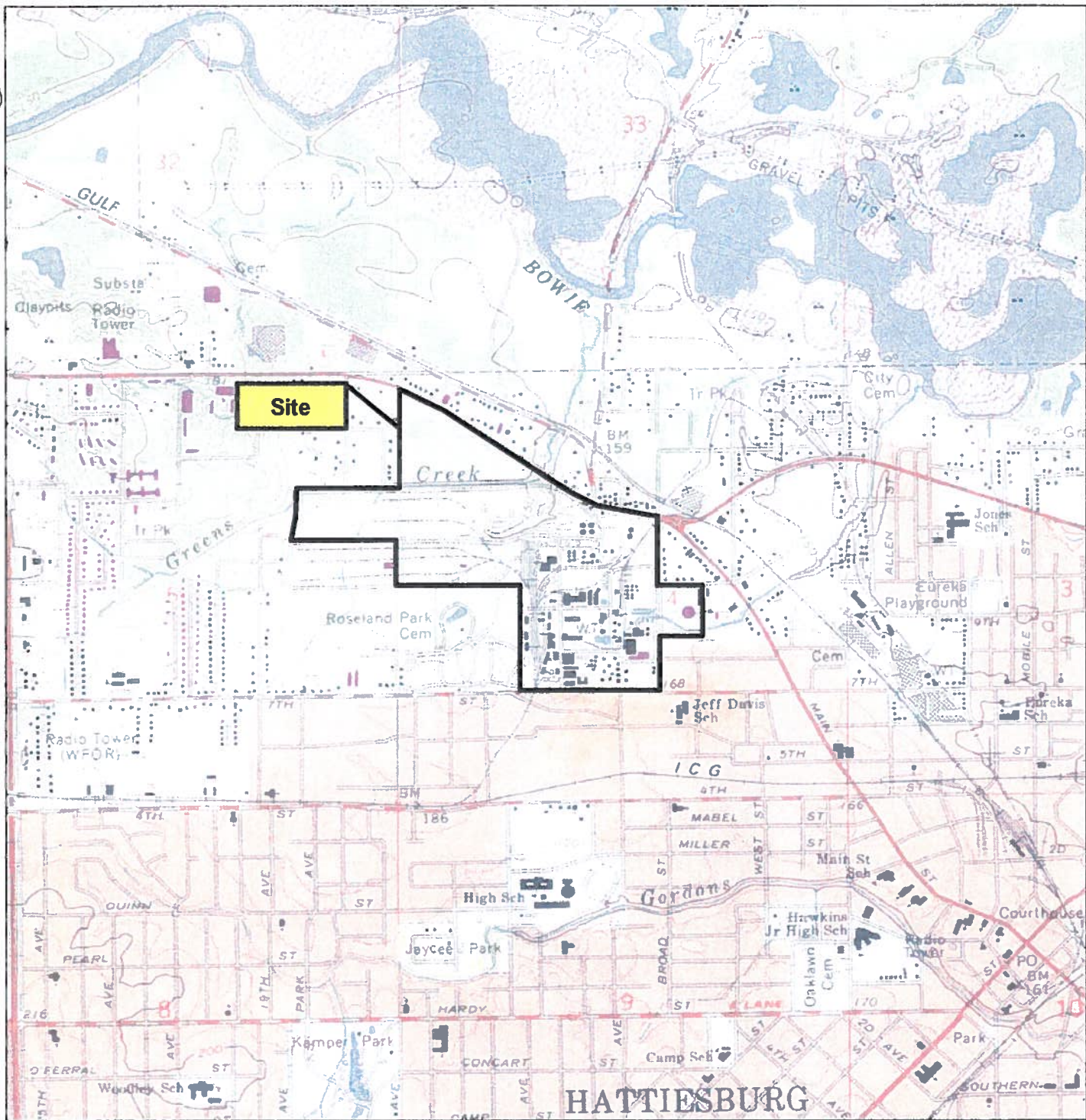
TABLE 3
SUMMARY OF QA/QC SAMPLE ANALYTICAL RESULTS
Hercules Incorporated
Hattiesburg, Mississippi
November 2006

Location	Concentrations in µg/L													
	Acetone	Benzene	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Toluene	Tetrachloroethene	methyl isobutyl ketone	cis-1,2-Dichloroethene	Trichloroethene
MW-04	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	68	< 1.0	3.6	21
MW-04 DUP	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
% variation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	99%	0%	72%	95%
MW-09	34	18	< 1.0	< 1.0	< 1.0	< 1.0	6.5	3.8	6.8	4.2	< 1.0	48	< 1.0	< 1.0
MW-09 DUP	34	17	< 1.0	< 1.0	< 1.0	< 1.0	6.7	4.0	6.9	4.3	< 1.0	< 1.0	< 1.0	< 1.0
% variation	0%	1%	0%	0%	0%	0%	3%	5%	1%	2%	1%	98%	0%	0%
RS-01	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RS-02	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
RS-03	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TB-01	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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

2 - Trip blanks were not analyzed for dioxathion constituents.

FIGURES



QUADRANGLE LOCATION



HERCULES

CHEMICAL SPECIALTIES

Eco-Systems, Inc.

Consultants, Engineers and Scientists



SCALE: N.T.S.	DRAWN BY: C. Coulter	DATE: 07/15/04
	CHKD. BY:	DATE:
PROJECT NO. HER24069	CAD FILE Figure 1 - Site Location Map.ppt	

SITE LOCATION MAP

FIGURE
1

**APPENDIX A
GROUNDWATER COLLECTION LOGS**



Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER 25080-CC-MS

Boring ID: MW05
Site Location: Hattiesburg, MS

Start Date: 11-29-2006 Finish Date: 11-29-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: Peristaltic Pump / low flow low stress
Well Diameter (d): 2"
Total Depth (TD): 18.5'
Approximate Depth of Water Column (h) (h = TD - DTW [ft-btoc]): 9.69
Calculated Well Volume (V = 6hd²) (V = vol in gal; d = well diam. in ft): 1.58 gal

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
11-28-06	1313	8.81
11-29-06	1121	10.63
"	1129	11.45
"	1135	11.21

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
11-29-2006 1115	0.0	6.49	722	22.1	340			
1121	0.25	6.50	709	22.6	700			
1125	0.50	6.53	714	22.5	1100			
1129	0.75	6.50	697	22.7	60			
1135	1.00	6.51	732	22.8	45			
1140	1.25	6.47	732	22.5	33			
1145	1.50	6.47	740	22.9	28			
1150	1.75	6.42	754	23.1	18			
1155	2.00	6.44	757	22.6	9.8			

Sample Identification: HER-MW05-112906

Weather Conditions During Sampling: Cloudy 75°F MW05

Comments: Effervescence observed, biological chemical sheen observed in purge water TB

Sample Technician: CT/TB Date: 11-29-2006

- Notes:
- ft-btoc = feet below top of casing.
 - gal = gallons.
 - mS/cm = milliSiemens per centimeter.
 - °C = degrees Celsius.
 - NTU = Nephelometric Turbidity Units.
 - mg/L = milligrams per liter.
 - mV = millivolts.

GROUNDWATER SAMPLE CONTAINERS

Date	Time	Sample Container	Preservative
11-29-2006	1200	3-40mL VOA	HCl



Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER 25080

Boring ID: MW07
Site Location: Hattiesburg, MS

Start Date: 11-30-2006 Finish Date: 11-30-2006
Sample Technician: Chris Ferrell / Travis Beard
Purge/Sample Method: Peristaltic pump / low flow - low stress
Well Diameter (d): 2"
Total Depth (TD): 22.5
Approximate Depth of Water Column (h)
(h = TD - DTW [ft-btoc]): 7.86
Calculated Well Volume (V = 6hd²)
(V = vol in gal; d = well diam. in ft): 1.28 gal

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
11-28-06	1353	14.64
11-30-06	0725	14.77
"	0743	14.79

WELL DEVELOPMENT/PURGING DATA								
Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
11-30-2006 0715	0.0	5.48	141.5	23.3	85			
0720	0.25	5.38	144.1	23.7	85			
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			
0740	1.25	5.24	137.5	23.8	21			
0743	1.50	5.22	137.3	23.8	18			
0746	1.75	5.14	137.0	23.8	13			
0749	2.00	5.18	132.4	23.8	12			
0753	2.25	5.14	130.4	23.9	9.6			

Sample Identification: HER-MW07-113006
Weather Conditions During Sampling: Cloudy 70° F
Comments: _____

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
11-30-2006	0800	3-40-1 VDA	HCl

Sample Technician: CF/TR Date: 11-30-2006

- Notes:
- ft-btoc = feet below top of casing.
 - gal = gallons.
 - mS/cm = milliSiemens per centimeter.
 - °C = degrees Celsius.
 - NTU = Nephelometric Turbidity Units.
 - mg/L = milligrams per liter.
 - mV = millivolts.

