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Annual Monitoring Report

Hercules Incorporated
Hattiesburg, Mississippi

Prepared for:

Hercules Incorporated

August 2007

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 information.

This report describes sampling activities and analytical results for the 8th quarterly monitoring event. 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.

The MDEQ approved Hercules request to discontinue dioxathion and dioxenethion analyses in a letter to Hercules dated August 18, 2006. Therefore, samples collected during the August 2006, November 2006 and February 2007 monitoring event were analyzed for Volatile Organic Constituents (VOCs) only. Per the conditions in the August 18, 2006 letter, analyses for dioxathion and dioxenethion were conducted during the annual monitoring May 2007 sampling event and confined to samples collected from seven monitoring wells designated by the MDEQ. In addition to the VOC and Dioxathion analyses, 5 natural attenuation parameters were also analyzed for the 18 groundwater samples collected during the May 2007 event.

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 samples collected from monitoring wells MW-04, MW-08, MW-13, MW-14, MW-15, MW-16 and MW-17 were analyzed for dioxathion constituents (cis-dioxathion, trans-dioxathion, and dioxenethion). Groundwater and surface water samples were analyzed for Appendix IX VOC's. Groundwater samples were also analyzed for natural attenuation parameters to evaluate whether natural attenuation of the VOCs and dioxathion may be occurring and, if so, under what conditions.

2.1 GROUNDWATER SAMPLE COLLECTION

On May 17, 2007, 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. A summary of the water level measurements obtained on May 17, 2007 is included as Table 1. A potentiometric surface map has been prepared from the May 17, 2007 groundwater elevations and is included as Figure 3.

Groundwater sample collection was conducted on May 17-18 & 21-22, 2007. 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 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 was 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 event, groundwater samples were collected from permanent monitoring wells MW-2 through MW-19. Groundwater samples were collected in new sample containers supplied by the analytical laboratories. Filled sample containers were placed on ice in coolers. Groundwater samples for VOC and natural attenuation parameter analyses were shipped via overnight courier to Severn Trent Laboratories in Savannah, Georgia for analysis. Groundwater samples collected for analysis of dioxathion constituents were delivered to Bonner Analytical and Testing Company (BATCO) for analysis.

2.2 Surface Water Sample Collection

On May 17, 2007, 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 sample containers that were supplied by the analytical laboratories. The filled sample containers were labeled, packed and shipped/delivered in the same manner as groundwater samples discussed in Section 2.1.

2.3 Quality Assurance/Quality Control

For quality assurance/quality control (QA/QC) purposes, three duplicate groundwater samples, three rinsate samples, six trip blank samples, 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 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 and for Dioxathion according to the Sampling and Analysis Protocol for the Determination of Dioxathion in Water (Hercules, 2002). Groundwater samples were also analyzed for 5 monitored natural attenuation parameters according to U.S. EPA SW-846 methods. Laboratory analytical reports for the samples collected during this monitoring event are included in Appendix B and summarized in Table 2, Table 3, Table 4 and Table 5.

3.1 GROUNDWATER ANALYTICAL RESULTS

Discussion presented in this section summarizes the analytical results for groundwater samples collected from monitoring wells MW-2 through MW-19 on May 17-18 & 21-22, 2006.

3.1.1 Volatile Organic Compounds

VOC's were not detected in groundwater samples collected from wells MW-02, MW-03, MW-04, MW-05, MW-06, MW-07, MW-10, MW-11, MW-12, MW-14, MW-15, and MW-16.

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

Analysis of the groundwater sample collected from monitoring well MW-09 detected benzene at a concentration above its TRG of 5 µg/L.

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

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

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

3.1.2 Dioxathion

Analysis for dioxathion includes analysis for both the cis- and trans- isomers and for dioxenethion. Dioxathion samples were collected from monitoring wells MW-4, MW-8, MW-13, MW-14, MW-15, MW-16, and MW-17.

Cis-dioxathion and trans-dioxathion were detected in groundwater samples collected from MW-08 at concentrations of 18.20 µg/L and 8.83 µg/L, respectively.

Cis-dioxathion and trans-dioxathion were detected in the groundwater samples collected from a duplicate of MW-13 at concentrations of 1.14 µg/L and 1.34 µg/L, respectively.

Cis-dioxathion was detected in groundwater samples collected from MW-17 at a concentration of 62.17 µg/L, which is above the TRG for dioxathion of 54.8 µg/L.

Dioxenethion was not detected in the groundwater samples collected from monitoring well MW-15.

Dioxenethion was detected in the groundwater samples collected from monitoring wells, MW-4, MW-8, MW-13, MW-14, MW-16 and MW-17 at concentrations of 47.43 µg/L, 560.81 µg/L, 29.73 µg/L, 32.05 µg/L, 22.16 µg/L and 4,873.32 µg/L, respectively. A TRG has not been established for dioxenethion.

3.1.3 Monitored Natural Attenuation Parameters

The following indicators of intrinsic biodegradation of organic groundwater contaminants (monitored natural attenuation parameters) were analyzed during the May 2007 monitoring event:

- Phenolics
- Chloride
- Methane
- Carbon Dioxide
- Alkalinity

In addition to the listed parameters, the field parameters, temperature, pH, specific conductance, dissolved oxygen, and oxidation/reduction potential, were measured during field sampling activities. Analytical results for monitored natural attenuation parameters are summarized in **Table 5**.

The relative proportions of the various parameters to each other in affected wells, background wells, and down gradient wells can provide indication of whether biological

reduction of organic groundwater constituents and, if so, whether the biological action is primarily aerobic or anaerobic.

Groundwater

With regard to the organic constituents in groundwater at the site that exist in the vicinity of monitoring wells MW-8 and MW-17, the best example of a background well that is included in the groundwater monitoring program would be monitoring well MW-7. Monitoring well MW-7 has similar soil and groundwater characteristics to wells in the affected area and VOCs and dioxathion have not been previously detected in samples collected from MW-7. Monitoring wells MW-14, MW-15, and MW-16 are located down gradient of monitoring wells MW-8 and MW-17 and analyses of groundwater samples from these wells have not detected dioxathion and VOC detections have been minor.

In the groundwater area discussed in the preceding paragraph, chlorides, which are metabolic byproducts of anaerobic degradation of chlorinated solvents, were detected at a concentration of 6.5 mg/L in the up gradient monitoring well MW-7. Concentrations of chlorides in the source area wells, MW-8 and MW-17, were 160 mg/L and 63 mg/L, respectively. Concentrations in samples collected from the down gradient monitoring wells, MW-14, MW-15, and MW-16, were 26 mg/L, 36 mg/L, and 28 mg/L. The increase in chloride concentration across the area indicates that anaerobic degradation of chlorinated groundwater constituents is occurring at the site.

For this same area, phenols, which are metabolic byproducts of anaerobic degradation of benzene, were detected in the samples collected from source area wells. Phenols were not detected in samples collected from either up gradient or down gradient monitoring wells. The presence of phenols in the source area wells indicates that anaerobic degradation of benzene is occurring in the source area. Another indicator of benzene degradation is the presence of alkalinity. Alkalinity was detected at a concentration of 5.6 mg/L in the sample collected from monitoring well MW-7. Alkalinity was detected in the samples collected from monitoring wells MW-8 and MW-17 at 170 mg/l and 270 mg/L, respectively. Concentrations detected in samples collected from the down gradient wells MW-14, MW-15, and MW-16 were 390 mg/L, 460 mg/L, and 380 mg/L, respectively. Therefore, alkalinity concentrations also indicate microbial degradation of benzene.

Oxidation/reduction potential (ORP) in the area was measured at a high of 330 mg/L in the sample from monitoring well MW-7. Source area ORP dropped off sharply to -115 mg/L in the sample collected from monitoring well MW-17. ORP in the down gradient wells was similar. ORP concentrations in monitoring wells MW14, MW-15, and MW-16 remained low at -107 mg/L, -114 mg/L, and -130 mg/L, respectively. The change in ORP across the area is indicative of anaerobic degradation.

The results for methane and carbon dioxide analyses are lowest in the samples collected from monitoring well MW-7, elevated in the samples collected from MW-8 and MW-17,

and highest in the down gradient wells. Both gasses are generated by microbial respiration. The elevated concentrations in the down gradient wells indicate that the groundwater environment may be primarily anaerobic.

Landfill Area

With regard to the former landfill, there is not a nearby, up gradient, monitoring well that is representative of background conditions. Down gradient of the former landfill area would be monitoring wells MW-5, MW-12, and MW-14. Groundwater directly beneath the former landfill has not been sampled, and based on the analytical results from samples collected from the down gradient monitoring wells, there has been no indication that the landfill has released constituents of concern to the groundwater. Review of the analytical results for the metabolic byproducts chloride, phenol, and alkalinity indicate that monitoring well MW-12 is not down gradient of ongoing biodegradation. The absence of biodegradation up gradient of MW-12 is supported by the elevated ORP and relatively low methane and carbon dioxide concentrations.

Natural attenuation parameters for monitoring well MW-5 are similar to those of monitoring well MW-14, which is down gradient of the groundwater area. The conditions at MW-5, therefore, appear to be related to the up gradient groundwater conditions and not, necessarily the former landfill area.

Sludge Pits

With regard to the sludge pits, wells that would be considered up gradient of the sludge pits would be monitoring wells MW-2 and MW-3. Down gradient of the sludge pits would be monitoring wells MW-4, MW-10, and MW-11. Groundwater beneath the sludge pits has not been sampled, and, based on analytical results from samples collected from the down gradient monitoring wells; there has been little indication that the sludge pits have released constituents of concern above the TRGs to the groundwater. Review of the analytical results for the metabolic byproducts, chloride, phenol, and alkalinity, indicate that there is little or no, difference in up gradient and down gradient chlorides and phenol, which indicates that chlorinated compounds and benzene are not being degraded. However, alkalinity results for samples collected from monitoring wells MW-4 and MW-11 were 130 mg/L and 29 mg/L, respectively. The alkalinity results for the samples collected from MW-2 and MW-3 were 17 mg/L and 6.1 mg/L, respectively. Alkalinity in the sample collected from MW-10 was 3.5 mg/L. The change in alkalinity results may indicate that petroleum compounds are being metabolized in the groundwater under the central and eastern portions of the sludge pit area.

Compared to the up gradient wells, the methane results for samples collected from monitoring wells MW-4 and MW-11 indicate that methane is at higher concentrations at the MW-4 and MW-11 locations. Therefore the concentrations of methane may indicate that anaerobic biological activity is occurring beneath central and eastern portions of the

sludge pits. However, DO and carbon dioxide levels for MW-4 and MW-11 are similar to those of the up gradient wells.

Eastern Plant Area

To evaluate potential biodegradation along the eastern site boundary, monitoring well MW-7 is up gradient representative of background conditions. Monitoring wells MW-18 and MW-19 are on the eastern boundary and VOC constituents have been detected in these wells. Review of the analytical results for the metabolic byproducts chloride, phenol, and alkalinity, indicate that chloride in the sample collected from monitoring wells MW-18 and MW-19 are relatively higher than MW-7, which indicates that degradation of chlorinated compounds may be occurring in this area. Alkalinity detected in the samples from monitoring wells MW-18 and MW-19 are elevated relative to the alkalinity for monitoring well MW-7, which indicates that petroleum compounds are being metabolized in the groundwater.

DO in monitoring wells MW-18 and MW-19 was 4.77 mg/L and 2.73 mg/L, which may indicate aerobic groundwater conditions, and the presence of elevated carbon dioxide and methane indicate that increased microbial respiration is occurring in these areas.

3.2 Surface Water Analytical Results

Discussion presented in this section summarizes the analytical results for surface water samples collected from sampling locations CM-0 through CM-5 on May 17, 2007.

3.2.1 Volatile Organic Compounds

VOC's were not detected in surface water samples collected from locations CM-00, CM-01, CM-02, CM-04, and CM-05. Benzene was detected in the surface water sample collected from location CM-03 at a concentration less than the TRG.

3.2.2 Dioxathion

Dioxenethion, cis-dioxathion and trans-dioxathion were not analyzed in the surface water samples collected during the May 2007 monitoring event.

3.3 QA/QC Sample Analytical Results

Analytical reports for the QA/QC samples are included in Appendix B and summarized in Table 4.

Duplicate groundwater samples were collected from MW-04, and MW-13. Analysis of the duplicate groundwater sample collected from MW-04 and the original MW-04 indicated all constituents were below MDL. Dioxenethion was detected in the sample collected from MW-04.

Analysis of the duplicate groundwater sample collected from monitoring well MW-13 detected the similar concentrations of benzene, carbon tetrachloride, chlorobenzene, and chloroform. All other VOC constituents in both the duplicate MW-13 sample and the regular MW-13 sample were less than the MDL. Dioxenethion was detected at similar concentrations in both the duplicate and original samples collected at MW-13. Cis-dioxathion and trans-dioxathion were detected in the duplicate sample, but was not detected in the regular sample collected from MW-13.

Toluene was detected in similar concentrations in the three rinsate samples (RS-01, RS-02, RS-03) collected during the May 2007 sampling event. Dioxathion constituents were not detected in the three rinsate samples (RS-01, RS-02, and RS-03) collected during the May 2007 sampling event.

VOC's were not detected in either of the trip blanks.

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, the VOC analyses were conducted under controlled conditions and the data package is acceptable for use as reported, without qualification.

As reported by BATCO, all method blanks, were non-detect for dioxathion constituents. Surrogate spike recoveries for samples ranged from 44.4% to 97.4%. Based on the information received, the samples were extracted and analyzed within the proscribed time limits for organophosphorous compounds.

4.0 FINDINGS AND CONCLUSIONS

The findings and conclusions in this section are based on data obtained during the August 2006, November 2006, February 2007, and May 2007 quarterly monitoring events.

4.1 SLUDGE PITS

VOCs have not been detected in samples collected from monitoring wells MW-2, MW-10, and MW-11 for the four quarterly groundwater monitoring events. Cis-dioxathion and trans-dioxathion have not been detected in samples collected from monitoring wells MW-2, MW-10, and MW-11 for the May 2007 monitoring event. VOCs were detected in samples collected from monitoring wells MW-03 and MW-04 during the November 2006 monitoring event. However, a review by the laboratory indicates that these detections are likely to be laboratory artifacts. Dioxenethion was detected in groundwater samples collected from monitoring well MW-4 during the May 2007 monitoring event. Dioxathion constituents were not analyzed for monitoring wells MW-2, MW-3, MW-10, and MW-11.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not migrating from the sludge pits at concentrations above TRGs. Dioxenethion has been detected in monitoring well MW-4 in this area.

4.2 GREEN'S CREEK

VOCs have been detected in samples collected from surface water monitoring locations CM-00, CM-01, CM-02, CM-03, CM-04, and CM-05 during the four quarterly monitoring events. Acetone has been detected in samples collected from surface water monitoring location CM-00 during the February 2007 event at a concentration below its TRG. Acetone, chlorobenzene, ethylbenzene, toluene, and total xylenes have been detected in samples collected from CM-01 during the November 2006 event at concentrations below their TRGs. During the same event, benzene was detected in samples collected from CM-01 at a concentration above its TRG. Acetone was detected in samples collected from CM-01 during the February 2007 event at a concentration below its TRG. Toluene and Acetone were detected in samples collected from CM-02 during the November 2007 and February 2007 events respectively at concentrations below their TRGs. Acetone and benzene were detected in samples collected from CM-03 during the February 2007 and May 2007 events respectively at concentrations below their TRGs. Acetone, cis 1,2-dichloroethene, and methyl ethyl ketone were detected in samples collected from CM-04 during the November 2006 event at concentrations below their TRGs. During the same event, chloroform, tetrachloroethene, vinyl chloride, and trichloroethene were detected in samples collected from CM-04 at concentrations above

their TRGs. However, a review by the laboratory indicates that these detections are likely to be laboratory artifacts. Acetone and benzene were detected in samples collected from CM-04 during the February 2007 event at concentrations below their TRGs.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not present in Green's Creek at concentrations above TRGs.

4.3 Former Landfill

VOCs were detected in samples collected from monitoring wells MW-5, MW-6 and MW-12 during three of the four events. Acetone has been detected in samples collected from MW-5 at concentrations below its TRG during the November 2006 and February 2007 monitoring events. Chlorobenzene was detected in samples collected from MW-05 during the August 2006 event at concentrations below its TRG. Acetone has been detected in samples collected from monitoring wells MW-12 at concentrations less than the TRG during the November 2006 monitoring event. Ethylbenzene, toluene, and total xylenes were detected in samples collected from MW-06 during the November 2006 event at concentrations below their TRGs. During the same event, Benzene was detected from samples collected from monitoring well MW-06 at concentrations above its TRG. In samples collected from the up gradient wells MW-8 and MW-13, concentrations of benzene, chlorobenzene (MW-8 only), carbon tetrachloride, and chloroform persist at concentrations above TRGs. Tetrachloroethene, vinyl chloride, chloroethane, methlene chloride and toluene have been detected in samples collected from monitoring well MW-8 and/or MW-13 at concentrations above TRGs but during the most recent sampling event were below either the laboratory reporting limit or the TRG.

Cis-dioxathion and trans-dioxathion were detected in groundwater samples collected from monitoring well MW-8 during the May 2007 monitoring event at concentrations less than the TRG. Dioxenethion has been detected in samples collected from monitoring wells MW-8 during the May 2007 monitoring event.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not migrating from the landfill at concentrations above TRGs.

4.4 Groundwater

Concentrations of benzene, chlorobenzene, and carbon tetrachloride above the TRG persist in samples collected from monitoring well MW-17, which is located in the suspected source area. The concentration of benzene has generally risen during the four quarterly events. Concentrations of chlorobenzene and carbon tetrachloride have fluctuated during the four quarterly events. Concentrations of chloroform were detected above the TRG in samples collected from MW-17 during the August 2006, February 2007, and May 2007 events, but chloroform was not detected during the November 2006 event. Toluene was detected at concentrations above the TRG in samples collected from

MW-17 during the February 2007 and May 2007 monitoring events. Tetrachloroethene was detected at concentrations above the TRG in samples collected from MW-17 during the August 2006 and May 2007 events. Acetone and methyl isobutyl ketone were detected at concentrations above their TRGs in samples collected from MW-17 during the May 2007 event. Methylene chloride was detected at concentrations above the TRG in samples collected from the August 2006 event. Discussion of monitoring wells MW-8 and MW-13, which are near the suspected source area, is included in Section 4.3.

Concentrations of benzene above the TRG have been detected in samples collected from monitoring well MW-9 for the four quarterly monitoring events. Methylene chloride was detected in samples collected from MW-09 during the November 2006 event at concentrations above its TRG. Concentrations of 1,1-dichloroethene, ethylbenzene, acetone, methyl isobutyl ketone, and toluene less than the TRG have also been detected in samples collected from monitoring well MW-9. VOCs have not occurred in samples collected from MW-16 during the four monitoring events. Concentrations of acetone were detected in the groundwater samples collected from monitoring well MW-15 at concentrations above the TRG during the November 2006 monitoring event. Concentrations of acetone were also detected in the groundwater samples collected from monitoring well MW-14 at concentrations less than the TRG during the November 2006 event.

Trans-dioxathion has not been detected in groundwater samples collected from monitoring wells MW-14, MW-15, MW-16 and MW-17. Cis-dioxathion was detected in samples collected from MW-17 at concentrations above its TRG during the May 2007 monitoring event. Dioxenethion has been detected in samples collected from MW-14, MW-16, and MW-17.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not migrating from the previously defined groundwater area at concentrations above TRGs. Dioxathion constituents have been detected in monitoring wells in this area and for the most recent quarterly monitoring event.

4.5 Eastern Plant Area

Monitoring wells MW-18 and MW-19, which are located east of plant buildings, were installed as part of the CAP, but potentiometric information has not indicated that these wells are part of the previously defined area of groundwater containing volatile organic constituents. Therefore, monitoring wells MW-18 and MW-19 are discussed separately.

Concentrations of benzene above the TRG have been detected in the samples collected from monitoring well MW-19 during the four monitoring events. The concentrations of benzene detected in the samples collected from monitoring well MW-19 have shown an increase over the last four monitoring events. Chlorobenzene and ethylbenzene were

detected in samples collected from monitoring wells MW-19 at concentrations below the TRG during the four monitoring events.

Benzene, chlorobenzene, 1,2-dichloropropane, acetone, ethylbenzene, and 1,1-dichloroethene were detected at concentrations below the TRGs in samples collected from monitoring well MW-18 during one or more monitoring events.

Based on the analytical results of the four quarterly groundwater monitoring events, benzene is present in groundwater in the vicinity of monitoring well MW-19 at a stable concentration that is above the TRG.

5.0 RECOMMENDATIONS

The following recommendations are based on information obtained and data collected during the August 2006, November 2006, February 2007, and May 2007 monitoring events.

With the exception of recent increases in concentrations of some groundwater constituents in the vicinity of wells MW-08, MW-13 and MW-17, the groundwater constituents in site wells are either below detection or present at relatively stable concentrations. It is recommended that groundwater monitoring be reduced from a quarterly cycle to a semi-annual cycle. It is proposed that the first semi-annual monitoring event be conducted in November 2007 and be consistent with recent quarterly monitoring events. The second semi-annual sampling event would be conducted in May 2008 and would be consistent with the May 2007 sampling event.

TABLES

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA

May 17, 2007

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	6.84	153.23
MW-3	160.03	7.03	153.00
MW-4	159.75	10.50	149.25
MW-5	160.99	8.85	152.14
MW-6	174.05	8.73	165.32
MW-7	183.96	13.75	170.21
MW-8	179.99	NA	NA
MW-9	181.97	12.25	169.72
MW-10	159.88	10.25	149.63
MW-11	157.18	7.75	149.43
MW-12	162.17	8.04	154.13
MW-13	175.23	8.02	167.21
MW-14	169.23	14.79	154.44
MW-15	172.21	18.36	153.85
MW-16	175.62	17.70	157.92
MW-17	186.13	16.65	167.91
MW-18	165.31	5.83	159.48
MW-19	172.25	10.95	161.30
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	11.25	160.47
TP-3	169.74	9.35	160.39
TP-4	163.64	7.35	156.29
TP-5	160.54	8.36	152.18
TP-6	158.63	7.75	150.88
TP-7	167.17	9.03	158.14
TP-8	183.79	13.90	169.89
TP-9	163.44	6.20	157.24
TP-10	179.69	14.30	165.39
TP-11	162.26	8.99	153.27
TP-12	159.95	10.20	149.75
TP-13	156.99	7.51	149.48
TP-14	162.59	5.39	157.20
TP-16	179.72	16.66	163.06
TP-17	182.71	12.61	170.10

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.

Location	Date	Acetone	Benzene	Chlorobenzene	Carbon Tetrachloride	Bromomethane	Chloroethane	Chloromethane	Dibromochloromethane	cis-1,2-dichloroethene	isopropylbenzene	methylene chloride	methyl ethyl ketone	methyl isobutyl ketone
CM-00	Sep-03	NA[1]	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Feb-07	42	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
CM-01	Feb-03	NA	2.8	< 10.0	3.03	< 10.0	**20.5**	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0	NA	NA
	Sep-03	NA	< 1.0	6.6	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Nov-06	62	**8.4**	24.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Feb-07	49	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 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	**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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Feb-07	92	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 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	**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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	1.4	< 1.0	< 1.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Feb-07	63	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	4.8	< 1.0	< 1.0	< 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	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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 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	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Nov-06	31	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	17.0	NA	< 5.0	160.0	< 10.0
	Feb-07	160	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
CM-05	Feb-03	NA	4.04	< 10.0	< 10.0	< 10.0	< 12.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	NA	NA	< 5.0	< 10.0	< 10.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Aug-06	< 25	< 1.0	< 1.0	< 1.0	< 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	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	Feb-07	< 25	2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0
	May-07	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0	< 10.0	< 10.0

TABLE 3
SUMMARY OF DIOXATHION ANALYTICAL RESULTS

Hercules Incorporated

Hattiesburg, MS

May 2007

Location	Date	Concentrations in µg/L			
		Dioxenethion	Dioxathion (cis)	Dioxathion (trans)	Total Dioxathion[1]
CM-00	Sep-03	< 0.400	< 0.400	< 0.400	< 0.800
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
CM-01	Feb-03	< 2.19	< 4.75	< 3.04	< 7.79
	Sep-03	< 0.400	< 0.400	< 0.400	< 0.800
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
CM-02	Feb-03	< 2.19	8.72	< 3.04	8.72
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
CM-03	Feb-03	3.16	< 4.75	< 3.04	< 7.79
	Aug-05	1.05	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	21.6	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
CM-04	Feb-03	< 2.19	< 4.75	< 3.04	< 7.79
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	22.7	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
CM-05	Feb-03	3.07	< 4.75	< 3.04	< 7.79
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	11.3	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-02	Dec-02	< 0.220	< 0.480	< 0.300	< 0.780
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-03	Dec-02	< 0.220	< 0.480	< 0.300	< 0.780
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-04	Dec-02	12.9	3.34	< 0.300	3.34
	Aug-03	6.34	1.82	< 0.400	1.82
	Aug-05	5.57	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	19.7	< 0.400	< 0.400	< 0.800
	May-06	28.8	< 0.400	< 0.400	< 0.800
	May-07	47.43	< 0.400	< 0.400	< 0.800
MW-05	Dec-02	< 0.220	< 0.480	< 0.300	< 0.780
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA

TABLE 3
SUMMARY OF DIOXATHION ANALYTICAL RESULTS
Hercules Incorporated
Hattiesburg, MS
May 2007

Location	Date	Concentrations in µg/L			
		Dioxenethion	Dioxathion (cis)	Dioxathion (trans)	Total Dioxathion[1]
MW-06	Dec-02	1.12	< 0.480	< 0.300	< 0.780
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	2.48	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-07	Dec-02	9.57	< 0.480	< 0.300	< 0.780
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-08	Dec-02	94.3	< 0.480	53.9	53.9
	Aug-05	539	< 0.400	< 0.400	< 0.800
	Nov-05	2,492	< 0.400	< 0.400	< 0.800
	Feb-06	1,669	< 0.400	< 0.400	< 0.800
	May-06	1,720	< 0.400	< 0.400	< 0.800
	May-07	560.81	18.20	8.83	27.03
MW-09	Dec-02	5.9	12.8	< 0.300	12.8
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-10	Dec-02	< 0.220	< 0.480	< 0.300	< 0.780
	Aug-03	< 0.400	< 0.400	< 0.400	< 0.800
	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-11	Dec-02	50.3	5	< 0.300	5
	Aug-03	6.24	< 0.400	< 0.400	< 0.800
	Aug-05	1.26	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-12	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-13	Aug-05	8.11	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	60.5	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	29.73	< 0.400	< 0.400	< 0.800
MW-14	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	32.05	< 0.400	< 0.400	< 0.800
MW-15	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	< 0.400	< 0.400	< 0.400	< 0.800
MW-16	Aug-05	1.01	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800

TABLE 3
SUMMARY OF DIOXATHION ANALYTICAL RESULTS

Hercules Incorporated

Hattiesburg, MS

May 2007

Location	Date	*Concentrations in µg/L*			
		Dioxenethion	Dioxathion (cis)	Dioxathion (trans)	Total Dioxathion[1]
	May-07	22.16	< 0.400	< 0.400	< 0.800
MW-17	Aug-05	2,210	< 0.400	< 0.400	< 0.800
	Nov-05	2,802	< 0.400	< 0.400	< 0.800
	Feb-06	1,436	< 0.400	< 0.400	< 0.800
	May-06	3,580	< 0.400	< 0.400	< 0.800
	May-07	4,873.32	62.71	< 0.400	**62.710**
MW-18	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	7.25	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
MW-19	Aug-05	< 0.400	< 0.400	< 0.400	< 0.800
	Nov-05	< 0.400	< 0.400	< 0.400	< 0.800
	Feb-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-06	< 0.400	< 0.400	< 0.400	< 0.800
	May-07	NA	NA	NA	NA
TRG[3] -		N/E[4]			54.8

1 - Total Dioxathion is the sum of the cis- and trans- isomers.

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

3 - Target Remediation Goals are taken from the Tier 1 Target Remedial Goal Table of the Final Regulations Governing Brownfields Voluntary Cleanup and Redevelopment in Mississippi, MDEQ, March 2002.
Concentrations shown in **bold** are above TRGs

4 - No established Target Remediation Goal.

TABLE 4
SUMMARY OF QA/QC SAMPLE ANALYTICAL RESULTS
Hercules Incorporated
Hatiiesburg, Mississippi
May 2007

Location		Concentrations in µg/L														
	Acetone	Benzene	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Toluene	Tetrachloroethene	Chloromethane	1,2-Dichloropropane	Dioxenethion	Dioxathion (cis)	Dioxathion (trans)
MW-04	< 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	< 0.400	< 0.400	< 0.400
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	N/A	N/A	N/A
% variation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	N/A	N/A	N/A
MW-13	< 250	320	< 10	1400	13	130	< 10	< 10	< 50	< 10	< 10	< 10	< 10	29.73	< 0.400	< 0.400
MW-13 DUP	< 250	330	< 10	1400	14	130	< 10	< 10	< 50	< 10	< 10	< 10	< 10	24.60	1.14	1.34
% variation	0%	3%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	17%	185%	235%
RS-01	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	5.1	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
RS-02	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	5.2	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
RS-03	< 25	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	2.2	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
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	N/A[2]	N/A	N/A
TB-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	N/A	N/A	N/A
TB-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	N/A	N/A	N/A
TB-04	< 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	N/A	N/A	N/A
TB-05	< 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	N/A	N/A	N/A

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

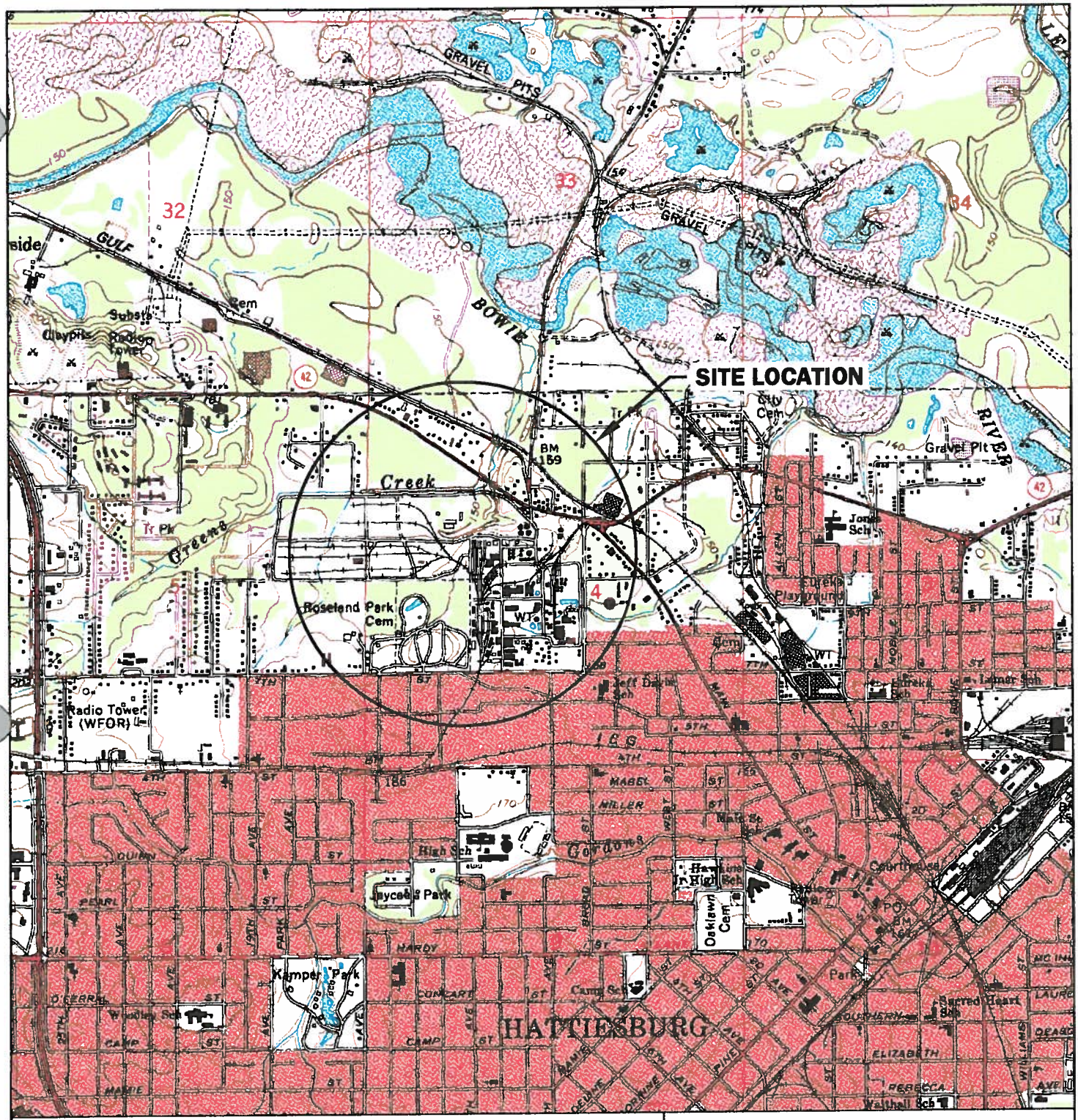
2 - Trip blanks were not analyzed for dioxathion constituents.

TABLE 5
Summary of Natural Attenuation Parameters in Groundwater
Hercules, Incorporated
Hattiesburg, MS
May 2007

Location	Date	Temperature (°C)	pH (Standard Units)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation/Reduction Potential (mV)	Methane (ug/L)	Chloride (mg/L)	Phenolics (mg/L)	Alkalinity (mg/L)	Carbon Dioxide (mg/L)
MW-02	17-May-07	18.12	5.37	1.17	3.06	82	20	4.4	< 0.05	16	9.2
MW-03	17-May-07	18.17	4.79	2.83	2.96	148	23	10	< 0.05	6.1	19
MW-04	18-May-07	21.5	6.15	2.96	2.8	-74	2500	12	0.085	130	21
MW-05	18-May-07	19.01	6.24	3.96	6.96	-89	5000	18	< 0.05	560	150
MW-06	18-May-07	20.22	5.58	0.287	3.84	251	< 0.19	3.9	< 0.05	31	11
MW-07	21-May-07	21.07	4.9	0.133	5.44	330.0	6.2	6.5	< 0.05	5.6	24
MW-08	22-May-07	23.04	6.03	0.97	2.58	-81	2300	160	0.11	170	150
MW-09	22-May-07	20.35	5.83	0.723	3.1	-50	5000	38	< 0.05	130	91
MW-10	17-May-07	19.18	5.28	0.05	3.89	149	2.7	2.7	< 0.05	3.5	3.5
MW-11	17-May-07	19.27	5.56	2.7	3	20	220	9.1	< 0.05	29	15
MW-12	18-May-07	19.48	5.4	0.201	3.66	86	160	4.2	< 0.05	5.5	10
MW-13	21-May-07	21.17	5.96	0.699	2.49	-27	2100	9	< 0.05	140	51
MW-14	21-May-07	20.65	6.32	3.04	2.75	-107	11000	26	< 0.05	390	140
MW-15	21-May-07	21.8	6.25	2.72	5.23	-114	8500	36	< 0.05	460	190
MW-16	21-May-07	21.43	6.24	2.22	4.35	-130	9500	28	< 0.05	380	150
MW-17	22-May-07	20.55	6.15	0.77	2.82	-115	5600	63	0.27	270	150
MW-18	18-May-07	22.45	6.17	4.16	4.77	-72.0	4600	97	< 0.05	210	56
MW-19	18-May-07	22.51	6.23	1.94	2.73	-90	7400	12	< 0.05	210	47

ESI

FIGURES



QUADRANGLE LOCATION

SOURCE: DeLORME 3D TopoQuads – HATTIESBURG, MISSISSIPPI

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI

Eco-Systems, Inc.
Consultants, Engineers and Scientists

SCALE: 1"=2000'	DRAWN BY: N. SISSON	DATE: 5/17/2007
	CHKD. BY:	DATE:
PROJECT NO. HER25080	CAD FILE HER25080-TOPO.dwg	

SITE LOCATION MAP

FIGURE 1

ESI

APPENDIX A
GROUNDWATER COLLECTION LOGS

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-2
Site Location:

Start Date: 5/17/2007 Finish Date: 5/17/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d): 2"
Total Depth (TD): 20.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 13.66
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 2.23 | 3 vol = 6.68 | 5 vol = 11.13

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1235	6.84

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/17/07 1245	0.0	5.51	0.120	18.77	94.9	6.37	202	
1250	0.5	5.48	0.343	18.15	110	4.19	216	
1254	1.5	5.41	0.720	18.07	44.5	3.64	121	
1300	2.5	5.41	0.918	18.05	31.5	3.47	106	
1305	3.5	5.41	1.33	18.07	19.6	3.19	94	
1308	4.5	5.40	1.10	18.08	13.6	3.13	89	
1312	5.5	5.39	1.02	18.09	9.8	3.11	86	
1317	6.0	5.38	1.05	18.10	9.3	3.16	85	
1319	6.5	5.38	1.11	18.09	9.5	3.08	84	
1322	7.0	5.37	1.17	18.12	9.3	3.06	82	

Sample Identification: HER-MW02-0507 (MS/MSD)

Weather Conditions During Sampling: ~~Sunny; 90°C~~ Sunny / partly cloudy 80°

Comments:

Sample Technician: CT Date: 5/17/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-17-2007	1330	9 x 40mL VOA	HCl
	1330	3-40ml VOA	
	1330	1-250ml PL	
	1330	1-125 mL PL	
	1330	1-500 ml GL	H_2SO_4

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW. 3
Site Location:

Start Date: 5-17-2007 Finish Date: 5-17-2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d): 2"
Total Depth (TD): 18
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): ~~18~~ 10.97
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): ~~1.78~~ 9 JB | 3vol = 5.37 | 5vol = 8.95

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/17/07 JB	1230	7.03

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity ~~(uS)~~ mg/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/17/07 - 1040	0.0	4.95	0.134	18.39	24.8	4.36	241	
1042	0.5	4.84	0.132	18.18	~~30.~~ JB 29.2	3.81	244	
1045	1.0	4.68	0.151	18.10	47.9	3.45	235	
1048	1.5	4.58	0.449	18.17	63.3	3.31	236	
1051	2.0	4.56	0.803	18.21	76.3	3.25	231	
1055	2.5	4.56	1.52	18.21	79.8	3.07	224	
1057	3.0	4.57	2.67	18.21	80.6	3.03	204	
1101	3.5	4.59	3.64	18.22	94.5	3.00	190	
1104	4.0	4.62	4.38	18.21	90.3	2.97	179	
1107	4.5	4.64	5.07	18.21	90.8	2.96	173	
1111	5.0	4.67	5.90	18.21	92.0	2.98	168	
1115	5.5	4.71	6.70	18.18	105.0	2.97	163	
1119	6.0	4.73	6.89	18.17	106.0	2.97	159	
1122	6.5	4.74	5.94	18.17	114.0	2.95	158	
1126	7.0	4.75	4.05	18.19	140.0	2.97	155	

Sample Identification: HER - MW03 - 0507

Weather Conditions During Sampling: ~~Sunny; 90°C~~ JB Sunny & Partly Cloudy 77°

Comments:

Sample Technician: CT Date: 5-17-2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-17-2007	1150	3-40mL VOA	HCl
5-17-2007	1150	1-500ml-GL	H_2SO_4
5-17-2007	1150	1-250ml PL	—
5-17-2007	1150	1-125ml PL	—
5-17-2007	1150	3-40ml VOA	—

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-3 continued
Site Location:

Start Date: 5-17-2007 Finish Date: 5-17-2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d): 2"
Total Depth (TD): 18
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 10.97
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.79 | 3 vol = 5.37 | 5 vol = 8.95

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-16-07	1230	7.03

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/17/07 1130	7.5	4.76	3.59	18.18	158	2.99	153	
1134	8.0	4.78	3.13	18.18	200.	3.04	150	
1139	8.5	4.78	3.02	18.18	198	3.03	149	
1145	9.0	4.79	2.83	18.17	209	2.96	148	

Sample Identification: HER-MW03-0507

Weather Conditions During Sampling: ~~Sunny; 90°F~~ Sunny / Partly Cloudy 77°

Comments:

Sample Technician: CT Date: 5-17-2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-1		3-40mL VOA	HCl

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 75080
Boring ID: MW-11
Site Location:

Start Date: 5/17/2007 Finish Date: 5/17/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 17
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 9.25
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.51 | 3 vol = 4.52 | 5 vol = 7.53

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1251	7.75

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/17/2007 1552	0.0	5.78	0.237	20.59	28.5	5.84	7	
1555	0.5	5.62	0.284	19.29	10.4	3.37	8	
1558	1.0	5.62	0.287	19.36	11.9	3.20	6	
1602	1.5	5.61	0.329	19.32	11.8	3.09	9	
1607	2.0	5.58	0.396	19.37	10.6	3.04	14	
1609	2.5	5.55	0.368	19.32	10.9	3.01	19	
1613	3.0	5.54	0.330	19.31	11.1	2.99	19	
1621	4.0	5.53	0.537	19.34	35.3	3.01	21	
1630	5.0	5.52	0.850	19.29	45.4	3.06	23	
1638	6.0	5.53	1.82	19.26	45.8	2.99	23	
1645	7.0	5.54	2.28	19.32	47.8	2.99	22	
1653	8.0	5.56	2.70	19.27	52.8	3.00	20	

Sample Identification: HER-MW11-0507
Weather Conditions During Sampling: Sunny; 90°C (80°)
Comments: Sunny partly cloudy 80°

Sample Technician: CT Date: 5/17/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/17/2007	1700	3-40mL VOA	HCl
	1700	1-250 ml PJ	
	1700	1-125 ml PJ	
	1700	1-500 ml GJ	H_2SO_4
	1700	3-40 ml VOA	

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

Eco-Systems, Inc. *Environmental Engineers and Scientists*

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-10
Site Location:

Start Date: 5/17/2007 Finish Date: 5/17/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 18.50
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 8.25
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.34 | 3 vol = 4.03 | 5 vol = 6.72

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1244	10.25

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
5/17/2007 1345	0.0	5.79	0.050	19.50	131	6.22	145	
1352	0.5	5.36	0.105	19.20	84	3.49	178	
1357	1.0	5.25	0.215	19.25	91.4	3.23	190	
1402	2.0	5.20	0.339	19.20	158	3.38	194	
1413	3.0	5.18	0.175	19.20	157	3.67	162	
1427	4.0	5.24	0.100	19.18	210	3.84	154	
1434	5.0	5.26	0.078	19.16	227	3.85	151	
1441	6.0	5.28	0.057	19.17	234	3.85	148	
1453	7.0	5.28	0.050	19.18	213	3.89	149	

Sample Identification: HER-MW10-0507

Weather Conditions During Sampling: Sunny, 90°C
Comments: Sunny partly cloudy 80°

Sample Technician: CT Date: 5/17/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-17-2007	1500	3-40mL VOA	HCl
	1500	1-250ml PL	
	1500	1-125 ml PL	
	1500	1-500 ml GL	H_2SO_4
	1500	3-40 ml VOA	

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-04-~~BS~~
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d):
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 8
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.30 | 3Vol = 3.91 | 5Vol = 6.52

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1249	10.50

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 0803	0.0	6.03	0.428	21.46	21.7	5.40	-41	
0805	0.5	6.09	0.427	21.51	20.8	3.66	-51	
0807	1.0	6.10	0.429	21.53	15.8	3.35	-54	
0808	1.5	6.11	0.435	~~21.~~ JB 21.53	9.0	3.19	-56	
0810	2.0	6.11	0.455	21.54	18.7	3.00	-59	
0814	3.0	6.13	0.495	21.54	40.0	2.97	-63	
0818	4.0	6.13	0.509	21.57	47.2	2.94	-66	
0824	5.0	6.14	0.732	21.56	49.0	2.90	-69	
0829	6.0	6.15	1.04	21.57	68.4	2.81	-72	
0835	7.0	6.15	2.96	21.50	75.8	2.80	-74	

Sample Identification: HER-MW04-0507 ; HER-RS2-051807
HER-FD1-051807
Weather Conditions During Sampling: Sunny ~~90°C~~ 79°
Comments:

Sample Technician: CT Date: 5/18/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/07	0835	3-40mL VOA	HCl
	0835	3-40ml VOA	
	0835	1-500ml GL	H_2SO_4
	0835	1-250ml PL	
	0835	1-125ml PL	
RS2	0830	3-40ml VOA	HCl
FD1	—	3-40ml VOA	HCl
		2-1L Amber	

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

Eco-Systems, Inc. *Environmental Engineers and Scientists*

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-05
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 9.65
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.57 | 3vol = 4.71 | 5vol = 7.86

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1422	8.85

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) ~~mS~~	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 0920	0.0	6.59	1.13	19.26	212.0	7.71	-107	
0925	1.0	6.47	1.08	19.04	31.2	3.63	-107	
0929	2.0	6.32	1.13	19.02	13.9	3.23	-101	
0934	3.0	6.27	1.25	19.01	2.1	3.10	-96	
0940	4.0	6.23	3.22	19.00	129.1	3.96	-90	
0945	5.0	6.22	3.90	19.00	124.0	6.15	-88	
0951	6.0	6.23	3.89	19.07	140.0	7.31	-88	
0956	7.0	6.24	3.97	19.04	134.0	7.34	-89	
1000	8.0	6.24	3.96	19.01	142.0	6.96	-89	

Sample Identification: HER-MW05-051807 (MS/MSD)

Weather Conditions During Sampling: ~~Sunny, 90°C~~ Sunny, 90

Comments: effervescence observed

Sample Technician: CT Date: 5/18/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/2007	1000	9-40mL VOA	HCl
	1000	3-40mL VOA	
	1000	1-500mL AGL	H_2SO_4
	1000	1-250mL PL	
	1000	1-125mL PL	

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

Eco-Systems, Inc. *Environmental Engineers and Scientists*

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW 12
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 12
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 3.96
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 0.65 | 3 vol = 1.93 1.94 | 5 vol = 3.23

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1425	8.04

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~ mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 1022	0.0	6.64	0.197	19.27	185	6.59	-31	
1024	0.5	5.86	0.214	19.59	119	3.91	52	
1026	1.0	5.43	0.303	19.65	94.4	3.60	82	
1028	1.5	5.40	0.201	19.48	94.2	3.66	86	
1030	2.0							well dry

Sample Identification: HER-MW12-051807

Weather Conditions During Sampling: ~~Sunny; 90°C~~ Sunny 79°

Comments:

Sample Technician: CT Date: 5/18/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/07	1200	3-40mL VOA	HCl
	1200	3-40ml VOA	
	1200	1-500ml GL	H_2SO_4
	1200	1-250 ml PL	
	1200	1-125ml PL	

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25090
Boring ID: MW-06
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 23.25
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 14.52
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 2.36 | 3Vol = 7.10 | 5Vol = 11.83

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1428	8.73

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 1052	0.0	5.60	0.206	20.64	129.0	5.78	117	
1055	0.5	5.52	0.293	20.29	55.3	3.58	161	
1058	1.0	5.53	0.329	20.22	35.6	3.52	185	
1104	2.0	5.57	0.271	20.21	57.1	3.60	205	
1110	3.0	5.55	0.262	20.20	28.1	3.58	223	
1115	4.0	5.55	0.268	20.20	18.6	3.67	232	
1120	5.0	5.54	0.280	20.17	18.0	3.78	246	
1126	6.0	5.54	0.281	20.18	10.0	3.76	245	
1132	7.0	5.57	0.290	20.19	8.5	3.80	247	
1138	8.0	5.58	0.287	20.22	7.0	3.84	251	

Sample Identification: HER-MW06-051807

Weather Conditions During Sampling: ~~Sunny, 90°C~~ (05) sunny 80°

Comments:

Sample Technician: CT Date: 5/18/07

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

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/07	1140	3-40mL VOA	HCl
	1140	3-40mL VOA	—
	1140	1-500ml AGL	H_2SO_4
	1140	1-250ml PL	—
	1140	1-125ml PL	—

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Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW 18
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 16.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 10.67
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.74 | 3 Vol = 5.22 | 5 Vol = 8.70

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1435	5.83

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~) mS	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 1230	0.0	6.14	1.08	22.14	113.0	6.56	-31	
1233	1.0	6.12	0.99	21.89	14.4	7.37	-51	
1238	2.0	6.13	0.97	22.16	13.9	6.84	-59	
1243	3.0	6.12	1.80	22.30	13.5	6.39	-61	
1248	4.0	6.11	3.19	22.40	16.8	6.09	-63	
1253	5.0	6.12	3.97	22.43	18.8	5.77	-64	
1300	6.0	6.12	4.11	22.43	28.9	5.52	-66	
1305	7.0	6.14	4.25	22.42	103	5.28	-66	
1310	8.0	6.15	4.16	22.43	103	5.01	-70	
1314	9.0	6.17	4.16	22.45	103	4.77	-72	

Sample Identification: HER-MW18-051807

Weather Conditions During Sampling: ~~Sunny; 90°C~~ JB sunny 80°

Comments:

Sample Technician: CT Date: 5/18/2001

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/2007	1315	3-40mL VOA	HCl
	1315	3-40ml VOA	—
	1315	1-500ml AG	H_2SO_4
	1315	1-250ml PL	—
	1315	1-125ml PL	—

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

Eco-Systems, Inc. **Groundwater Sample Collection Log**

Environmental Engineers and Scientists

Project Name: Hercules
Project Number: 25030
Boring ID: MW-19
Site Location:

Start Date: 5/18/2007 Finish Date: 5/18/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 20.7
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 9.75
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.59 | 3vol = 4.77 | 5vol = 7.95

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/18/2007	1438	10.95

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity ~~(µS)~~ mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/18/07 1330	0.0	6.27	0.519	22.66	921.0	4.30	-62	
1335	1.0	6.25	0.552	22.53	112.0	3.18	-74	
1340	2.0	6.23	0.799	22.50	204	2.97	-79	
1346	3.0	6.22	1.23	22.48	158	2.84	-82	
1351	4.0	6.22	2.00	22.52	200	2.78	-85	
1356	5.0	6.21	1.99	22.47	177	2.85	-86	
1401	6.0	6.22	2.05	22.51	73.4	2.75	-88	
1406	7.0	6.23	2.00	22.50	263	2.73	-90	
1411	8.0	6.23	1.94	22.51	207.0	2.73	-90	

Sample Identification: HER-MW19-051807

Weather Conditions During Sampling: ~~Sunny 90°C~~ JB
Sunny 80°

Comments:

Sample Technician: CT Date: 5/18/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/18/2007	1415	3-40mL VOA	HCl
	1415	3-40ml VOA	
	1415	1-500ml GC	H_2SO_4
	1415	1-250ml PI	
	1415	1-125ml PI	

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

Eco-Systems, Inc. **Groundwater Sample Collection Log**

Environmental Engineers and Scientists

Project Name: Hercules
Project Number: 25080
Boring ID: MW-07
Site Location:

Start Date: 5/21/2007 Finish Date: 5/21/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump
Well Diameter (d):
Total Depth (TD): 22.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 8.75
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): ~~1.43~~ JB 1.43 | 3Vol = 4.28 | 5Vol = 7.13

Depth-to-Water (DTW) Measurements		
Date	Time JB	DTW (ft-btoc)
5/16/07	1448	13.75

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/21/2007 1021	0.0	5.09	0.147	21.38	676	7.30	301	
1026	1.0	4.97	0.133	21.08	160	6.36	330	
1030	2.0	4.98	0.131	21.07	108	5.90	331	
1036	3.0	4.92	0.135	21.03	268	5.73	337	
1042	4.0	4.93	0.139	21.06	167	5.99	340	
1048	5.0	4.92	0.136	21.07	181	5.72	341	
1053	6.0	4.91	0.137	21.08	151	5.58	340	
1058	7.0	4.91	0.134	21.11	135	5.47	334	
1101	7.5	4.90	0.133	21.07	109	5.44	330	

Sample Identification: HER-MW-07-052107; HER-RS3-052107 (MS/MSD)

Weather Conditions During Sampling: ~~Sunny 90°C~~ JB (HOT) Sunny 90°

Comments:

Sample Technician: CT Date: 5/21/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/21/2007	1105	3-40mL VOA	HCl
	1105	3-40ml VOA	—
	1105	1-500ml AG	H_2SO_4
	1105	1-250ml PI	—
	1105	1-125ml PI	—
↓	1045	3-40ml VOA	HCL

RS3

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

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Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-16
Site Location:

Start Date: 5/21/2007 Finish Date: 5/21/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d):
Total Depth (TD): 28.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 10.8
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.76 | 3vol = 5.28 | 5vol = 8.80

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1506	17.70

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS) mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/21/07 1122	0.0	6.17	0.963	22.81	187	5.87	-107	
1126	1.0	6.20	0.999	21.45	57.3	2.76	-119	
1132	2.0	6.20	1.07	21.43	47.3	2.90	-122	
1137	3.0	6.20	1.71	21.41	46.0	4.59	-124	
1143	4.0	6.19	2.10	21.44	122.0	5.70	-125	
1148	5.0	6.20	2.16	21.46	40.3	5.78	-125	
1154	6.0	6.21	2.10	21.41	202.	5.29	-127	
1158	7.0	6.22	2.17	21.39	117	4.99	-128	
1203	8.0	6.23	2.18	21.42	265 JB	4.66	-129	
1208	9.0	6.24	222	21.43	287	4.35	-130	

Sample Identification: HER-MW16-052107 (MS/MSD)

Weather Conditions During Sampling: ~~Sunny, 90°C~~ JB
Hot Sunny 90°

Comments: (MS/MSD for Dissolution samples only)
No Free Product observed

Sample Technician: CT Date: 5/21/07

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/21/07	1210	3-40mL VOA	HCl
	1210	3-40ml VOA	—
	1210	1-500ml Pl	H_2SO_4
	1210	1-250ml Pl	—
	1210	1-125ml Pl	—
	1210	6-1L Amber	

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-13
Site Location:

Start Date: 5/21/2007
Finish Date: 5/21/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d):
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 10.48
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.71 | 3vol = 5.12 | 5vol = 8.54

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/2007	1458	8.07

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity ~~(mS)~~ mS/cm	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/21/2007 1508	0.0	5.21	0.286	21.75	227	4.82	83	
1512	1.0	5.10	0.296	21.71	122	3.04	87	
1515	2.0	5.64	0.358	21.17	85.5	2.77	30	
1519	3.0	5.77	0.483	21.14	81.3	2.74	8	
1522	4.0	5.86	0.587	21.21	139	2.74	-6	
1528	5.0	5.89	0.598	21.17	99.2	2.61	-14	
1534	6.0	5.91	0.571	21.19	97.2	2.54	-18	
1537	7.0	5.93	0.483	21.20	69.7	2.48	-22	
1541	8.0	5.95	0.589	21.18	72.5	2.50	-25	
↓ 1545	9.0	5.96	0.699	21.17	91.6	2.49	-27	

Sample Identification: HER-MW13-052107 ; HER-FD2-052107

Weather Conditions During Sampling: ~~Sunny; 90°C~~ JB
Hot Sunny 90°

Comments:

Sample Technician: CT Date: 5/21/07

GROUNDWATER SAMPLE CONTAINERS

Date	Time	Sample Container	Preservative
5/21/2007	1550	3-40mL VOA	HCl
	1550	3-40 ml VOA	—
	1550	1-500 ml PL	H_2SO_4
	1550	1-250 ml PL	—
	1550	1-125 ml PL	—
		2-1L Amber	
FD2 ↓	←	3-40 ml VOA	HCl
		~~2-1L Amber~~	~~HCl~~
		1L Amber	HCl

2

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-14
Site Location:

Start Date: 5/21/2007 Finish Date: 5/21/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d):
Total Depth (TD): 24.3
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 9.51
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.55 / 3vol=4.65 / 5vol=7.75

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/2007	1510	14.79

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~) mS	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/21/2007 1411	0.0	6.31	0.945	21.60	504	6.09	-90	
1416	1.0	6.22	1.27	20.68	216	3.06	-97	
1421	2.0	6.23	1.87	20.74	247	2.90	-100	
1425	3.0	6.22	2.73	20.70	457	2.83	-102	
1431	4.0	6.19	3.15	20.65	367	2.75	-101	
1436	5.0	6.14	3.22	20.67	480	2.75	-98	
1440	6.0	6.20	3.03	20.68	437	2.75	-101	
1445	7.0	6.25	3.04	20.67	481	2.61	-104	
1450	8.0	6.32	3.04	20.65	596	2.75	-107	

Sample Identification: HER-MW14-052107

Weather Conditions During Sampling: ~~Sunny, 90°C~~ Hot Sunny 90°

Comments: ~~effervescence~~ observed

Sample Technician: CT Date: 5/21/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-21-2007	1455	3-40mL VOA	HCl
↓	1455	3-40 ml VOA	—
	1455	1-500 ml Gl	H2SO4
	1455	1-250 ml Pl	—
	1455	1-125 ml Pl	—
	1455	2-1L Amber	—

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number:

Boring ID: MW-15
Site Location:

Start Date: 5/21/2007 Finish Date: 5/21/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 26.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 8.14
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.33 | 3vol = 3.98 | 5vol = 6.63

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/07	1508	18.36

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~ mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/21/2007 1306	0.0	6.32	1.25	22.96	380	6.60	-91	
1312	1.0	6.23	2.16	21.85	418	3.20	-102	
1316	2.0	6.26	2.98	21.90	403	2.91	-109	
1321	3.0	6.27	2.94	21.77	292	2.97	-111	
1325	4.0	6.27	2.91	21.82	680	3.97	-113	
1330	5.0	6.27	2.80	21.84	643	4.95	-114	
1335	6.0	6.26	2.80	21.83	544	5.39	-114	
1340	7.0	6.25	2.72	21.80	492	5.23	-114	

Sample Identification: ~~HER~~-MW15-052107

Weather Conditions During Sampling ~~Sunny, 90°C~~ Hot Sunny 900

Comments: effervescence observered

Sample Technician: CT Date: 5/21/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/21/2007	1345	3-40mL VOA	HCl
	1345	3-40ml VOA	—
	1345	1-500ml PL	H_2SO_4
	1345	1-250ml PL	—
	1345	1-125ml PL	—
		~~2-1L Amber~~	JB
		2-1L Amber	

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

Eco-Systems, Inc. *Environmental Engineers and Scientists*

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-9
Site Location:

Start Date: 5/22/2007 Finish Date: 5/22/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume Based
Well Diameter (d):
Total Depth (TD): 20
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 7.75
Calculated Well Volume ($V=6hd^2$)
(V = vol in gal; d = well diam. in ft): 1Vol | 3Vol = 3.79 | 5Vol = 6.32

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/2007	1450	12.25

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~ mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/22/07 0740	0.0	5.72	0.713	20.26	45.7	6.45	5	
0745	1.0	5.76	0.643	20.33	86.2	2.73	-21	
0749	2.0	5.78	0.601	20.35	117.0	2.65	-27	
0754	3.0	5.80	0.607	20.35	115	2.57	-33	
0758	4.0	5.81	0.609	20.35	149.0	2.58	-40	
0803	5.0	5.82	0.627	20.36	159.0	2.69	-44	
0807	6.0	5.83	0.697	20.36	147.0	2.96	-49	
0809	6.5	5.83	0.723	20.35	158.0	3.10	-50	

Sample Identification: HER-MW09-052207

Weather Conditions During Sampling: ~~Sunny, 90°C~~ Foggy, 75°

Comments:

Sample Technician: CT Date: 5/22/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/22/2007	0810	3-40mL VOA	HCl
	0810	3-40ml VOA	—
	0810	1-500ml GL	H_2SO_4
	0810	1-250ml PL	—
	0810	1-125ml PL	—

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 250PD
Boring ID: MW-17
Site Location:

Start Date: 5/22/2007 Finish Date: 5/22/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump / Volume based
Well Diameter (d):
Total Depth (TD): 22.7
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 6.05
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 0.97 / 3vol = 2.96 / 5vol = 4.93

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/2007	1454	16.65

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/22/2007 0830	0.0	5.97	0.96	20.62	551.0	7.76	-77	
0836	1.0	6.07	0.844	20.49	208.0	2.72	-99	
0842	2.0	6.11	0.770	20.49	155.0	2.71	-107	
0847	3.0	6.13	0.751	20.51	161.0	2.70	-111	
0853	4.0	6.15	0.766	20.53	168.0	2.68	-114	
0858	5.0	6.15	0.770	20.55	147	2.82	-115	

Sample Identification: HER-MW17-052207

Weather Conditions During Sampling: ~~Sunny; 90°C~~ Foggy 790

Comments:

Sample Technician: CT Date: 5/22/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/22/2007	0900	3-40mL VOA	HCl
	0900	3-40ml VOA	—
	0900	1-500ml Gl	H_2SO_4
	0900	1-250ml A	—
	0900	1-125 ml A	—
	0900	2 1L Amber	

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

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: 25080
Boring ID: MW-8
Site Location:

Start Date: 5/22/2007 Finish Date: 5/22/2007
Sample Technician: CT / JB
Purge/Sample Method: Peristaltic Pump
Well Diameter (d):
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 3.95
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 0.64 / 3vol = 1.93 / 5vol = 3.22

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5/16/2007	1517	14.55

WELL DEVELOPMENT/PURGING DATA

Date/Time	Cumulative Volume (gal)	pH	Specific Conductivity (~~µS~~) mS	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Oxidation/Reduction Potential (mV)	Comments
5/22/07 0949	0.0	6.04	1.02	22.90	353.0	5.71	-60	
0954	1.0	6.02	1.00	23.05	444.0	2.57	-72	
0959	2.0	6.05	0.98	23.03	423.0	2.45	-78	
1003	3.0	6.03	0.98	22.98	432	2.50	-79	
1006	3.5	6.03	0.97	23.04	411.0	2.58	-81	

Sample Identification: HER-MW08-052207

Weather Conditions During Sampling: ~~Sunny, 90°C~~ FOGGY - 79°

Comments:

Sample Technician: CT Date: 5/22/2007

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5/22/2007	1010	3-40mL VOA	HCl
	1010	~~3~~-40 ml VOA	—
	1010	1-500 ml Gl	H_2SO_4
	1010	1-250 ml PL	—
	1010	1-125 ml PL	—
	1010	2-1L Amber	—

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