ANNUAL MONITORING REPORT

PREPARED FOR:

HERCULES, INC.

CHEMICAL SPECIALTIES

HATTIESBURG, MISSISSIPPI

JULY, 2006

PREPARED BY:

Eco·Systems, Inc.
Consultants, Engineers and Scientists
6360 I-55 NORTH, SUITE 330
JACKSON, MISSISSIPPI 39211
(601) 936-4440

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

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 4th 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. In addition to the volatile organic compound (VOC) and Dioxathion analyses that are specified in the CAP, during the 4th quarterly monitoring event, 17 natural attenuation parameters were also analyzed for the 18 groundwater samples collected. This report also includes the results of hydrogeological testing that was conducted.

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. Per the CAP, groundwater and surface water samples were analyzed for Appendix IX VOC's and for Dioxathion. 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 9, 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. A summary of the water level measurements obtained on May 9, 2006 is included as Table 1.

Groundwater sample collection was conducted on May 9-12 & 15, 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 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 for Dioxathion were delivered to Bonner Analytical and Testing Company (BATCO) for analysis.

2.2 Surface Water Sample Collection

On May 10, 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 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 HYDROGEOLOGICAL TESTING

On May 16, 2005, Eco-Systems conducted slug tests on monitoring wells MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18, and MW-19. The tests were conducted by inserting a solid slug to displace water in the casing. After allowing time for the water level within the well to equilibrate to the level measured prior to the insertion of the slug, the slug was removed and the well recovery was recorded using a Solinst Levelogger Model 3001 pressure transducer and data logger.

On July 16, 2005, Eco-Systems conducted a step-drawdown test on monitoring well MW-8 to determine the maximum sustainable pumping rate for the well. Monitoring well MW-8 is constructed of 2-inch diameter, Schedule 40 PVC casing and screen. The screen is 10 feet long with 0.01 inch slots and is a fully penetrating well set in a 8.25 inch diameter borehole. For the test, a Grundfos model Redi-Flo2 down hole pump was used. Prior to beginning the step test, a water level of 14.89 feet below top of casing (btoc) was recorded. The depth to the bottom of the well was recorded as 18.80 feet btoc, which indicates that there was 3.91 feet of water in the well. Pumping was initiated at a discharge rate of approximately 0.37 gallons per minute. Pump speed was increased at half-hour intervals. After pumping for a period of two hours, it was determined that discharge rates exceeding approximately 0.65 gpm could not be sustained by the narrow band of aquifer intercepted by monitoring well MW-8.

On July 21, 2005, Eco-Systems conducted an aquifer pumping test on monitoring well MW-8. The monitoring well was pumped at a discharge rate of approximately 0.65 gpm for a period of 8 hours. Water levels were simultaneously recorded in piezometers TP-10, TP-16 and TP-17 using an In-Situ model Hermit 3000 datalogger and pressure transducers. Piezometers TP-10, TP-16, and TP-17 are located approximately 6 feet, 105 feet, and 55 feet, respectively, from monitoring well MW-8. After 8 hours of pumping from monitoring well MW-8 and a cumulative discharge of approximately 300 gallons, the water level in TP-10 had been lowered approximately 0.24 feet, but had recovered to approximately 0.074 feet below the water level measured at the start of the test. At the conclusion of the test, the water level in TP-16 remained unchanged. The water level in TP-17, which had been lowered approximately 0.15 feet during the test, recovered to a depth approximately 0.75 feet above the water level at the start of the test. The rise in water level in TP-17 may be due to sporadic precipitation that began approximately 4 hours after start of the test and lasted for approximately 2.5 hours.

2.6 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 17 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.

Slug test data for monitoring wells MW-12 through MW-19 and pumping test data for MW-8 were analyzed, and hydrogeological parameters were estimated based on the data collected. Field data are included in Appendix C. Hydraulic conductivity estimates are summarized in Table 6.

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 9-12 & 15, 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, chloroform, and toluene at concentrations above their respective TRG's. Concentrations of ethylbenzene, xylenes, and cis-1,2-dichloroethene were detected in the sample collected from MW-8 at concentrations less than 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. Concentrations of 1,1-dichloroethene and toluene were detected in the sample collected from MW-09 at concentrations less than their respective TRG's.

Analysis of the groundwater sample collected from monitoring well MW-13 detected benzene, carbon tetrachloride, and chloroform at concentrations greater than their

respective TRG's. Cis-1,2-dichloroethene was detected in the sample collected from MW-13 at a concentration less than the TRG.

Analysis of the groundwater sample collected from monitoring well MW-17 detected benzene, chlorobenzene, carbon tetrachloride and toluene at concentrations above their respective TRG's. Xylene was detected in the sample collected from MW-17 at a concentration less that the TRG.

Analysis of the groundwater sample collected from monitoring well MW-18 detected benzene at a concentration above the TRG. Chlorobenzene, 1,1-dichloroethene, ethylbenzene, tetrachloroethene, and toluene were detected in the sample from MW-18 at concentrations less than their respective TRG's.

Analysis of the groundwater sample collected from monitoring well MW-19 detected benzene at a concentration above the TRG. Chlorobenzene, ethylbenzene, and toluene were detected in the sample collected from MW-19 at concentrations less than their respective TRG's.

3.1.2 Dioxathion

Analysis for dioxathion includes analysis for both the cis- and trans- isomers and for dioxenethion. Cis-dioxathion and trans-dioxathion were not detected in the groundwater samples collected during the February 2006 monitoring event.

Dioxenethion was not detected in the groundwater samples collected from monitoring wells MW-2, MW-3, MW-5, MW-6, MW-7, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-18, and MW-19.

Dioxenethion was detected in the groundwater samples collected from monitoring wells, MW-4, MW-8, and MW-17 at concentrations of 28.8 µg/L, 1,720 µg/L, and 3,580 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 2006 monitoring event:

Total Iron	Sulfate
Ferrous Iron	Sulfide
Total Manganese	Total Organic Carbon
Dissolved Manganese	Phenolics

Chloride	Alkalinity
Ammonia	Methane
Nitrate	Carbon Dioxide
Nitrate/Nitrite	Orthophosphate

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 6.3 mg/L in the up gradient monitoring well MW-7. Concentrations of chlorides in the source area wells, MW-8 and MW-17, were 100 mg/L and 47 mg/L, respectively. Concentrations in samples collected from the down gradient monitoring wells, MW-14, MW-15, and MW-16, were 30 mg/L, 37 mg/L, and 42 mg/L. The increase in chloride concentration in 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 not detected above the detection limit of 1 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 200 mg/l

and 260 mg/L, respectively. Concentrations detected in samples collected from the down gradient wells MW-14, MW-15, and MW-16 were 390 mg/L, 450 mg/L, and 400 mg/L. Therefore, phenol concentrations also indicate microbial degradation of benzene.

Oxidation/reduction potential (ORP) in the area was measured at a high of 442 mg/L in the sample from monitoring well MW-7. Source area ORP dropped off sharply to -48.6 mg/L in the sample collected from monitoring well MW-17. ORP in the down gradient wells was mixed. ORP concentrations in monitoring wells MW14 and MW-16 remained low at -39.8 mg/L and -79.6 mg/L, respectively. ORP in the sample collected from MW-15 was 212.5 mg/L. With the exception of the MW-15, the change in ORP across the area is indicative of anaerobic degradation. The rise in ORP in MW-15 indicates that site conditions in some areas may mixed anaerobic and aerobic, which drive the groundwater environment from anaerobic conditions in the source area to aerobic conditions in the vicinity of monitoring well MW-15.

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 indicates that the groundwater environment may be primarily anaerobic. Dissolved oxygen (DO) concentrations, while not available for all locations, was measured at less than 1 part per million (ppm) at MW-17, which is indicative of anaerobic conditions. However, DO was measured at over 12 ppm at MW-15, which may indicate a mixed aerobic/anaerobic groundwater environment.

Ammonia and phosphate, which are limiting nutrients required for microbial growth, are approximately the same, or higher, in the samples collected from source area wells. Phosphate is below detection limits in down gradient wells. This may indicate depletion of phosphate across the area. Ammonia concentrations detected in samples collected from the down gradient wells are above concentrations detected in samples collected from up gradient and source area wells.

Nitrate and nitrite are biodegradation activity indicators that indicate possible denitrification or nitrate reduction. For the groundwater area, nitrate was detected in samples collected from the up gradient and down gradient wells, but was below detection in samples collected from down gradient wells. This is indicative of denitrification (reduction of nitrate to N_2). Nitrite was not detected in samples collected from the groundwater area.

Sulfate and sulfide are also indicators of biodegradation activity. The depletion of sulfate in the source area and the formation of sulfide in the source area both indicate that sulfate reducing activity is occurring.

The relative proportions of ferrous iron (Fe^{+2}) to ferric iron (Fe^{+3}) may indicate if ferrous iron is being reduced to ferric iron. For the area, ferrous iron concentrations are higher than ferric iron concentrations in the source area. However, in the down gradient wells, the reverse is true. Therefore, iron reduction is also indicated to be occurring. Iron and manganese concentrations also increase across the groundwater area. Increases in iron and manganese concentrations in groundwater are additional indicators of microbial degradation of hydrocarbons.

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 have 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. A low DO in the sample collected from MW-12 indicates that anaerobic conditions exist in the groundwater at that locations, and the ratios of ferrous and ferric iron and total and dissolved manganese indicate that iron and manganese reducing conditions may exist in the area.

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 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 85 mg/L and 59 mg/L, respectively. The alkalinity results for the samples collected from MW-2 and MW-3 were 17 mg/L and 1.9 mg/L, respectively. Alkalinity in the sample collected from MW-10 was 2.5 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 DO and methane results for samples collected from monitoring wells MW-4 and MW-11 indicate that dissolved oxygen is lower and methane is higher at the MW-4 and MW-11 locations. Therefore, DO and methane indicate that anaerobic biological activity is occurring beneath portions of the sludge pits. However, carbon dioxide levels for MW-4 and MW-11 are similar to those of the up gradient wells.

Orthophosphate, which was not detected in samples collected from the up gradient wells, was detected in all three down gradient wells. While typically considered a nutrient for bacteria, the presence of orthophosphate may be the result of the degradation of phosphorous compounds in the groundwater.

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 well MW-18 is relatively higher than either MW-7 or MW-19, 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 0.82 mg/L and 1.83 mg/L, which are indicative aerobic groundwater conditions, and the presence of elevated carbon dioxide and methane indicate that increased microbial respiration is occurring in these areas. The microbial nutrients, ammonia and phosphate, were present in both up gradient and down gradient wells, and nutrient depletion is not indicated.

Nitrate was detected in sample collected from the up gradient, but was below detection in samples collected from down gradient wells. This is indicative of denitrification.

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 10, 2006.

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

Cis-dioxathion and trans-dioxathion were not detected in the surface water samples collected during the May 2006 monitoring event. Dioxenethion was detected in the surface water samples collected from surface water sampling locations CM-03 and CM-04 at concentrations of 21.6 µg/L and 22.7 µg/L, respectively.

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 CM-03, MW-9, and MW-18. Analysis of the duplicate groundwater sample collected from CM-03 detected similar concentrations of benzene and dioxenethion as were detected in the regular sample. All other constituents in the duplicate CM-03 sample and the regular CM-03 sample were both below the MDL. Dioxathion constituents were not detected in the regular or duplicate samples collected from CM-03.

Analysis of the duplicate groundwater sample collected from monitoring well MW-9 detected the similar concentrations benzene and 1,1-dichloroethene. Ethylbenzene was detected in the duplicate sample from MW-9 at a concentration slightly above the MDL, but was not detected in the regular sample. All other constituents in both the duplicate MW-9 sample and the regular MW-9 sample were less than the MDL.

Analysis of the duplicate groundwater sample collected from monitoring well MW-18 detected similar concentrations of benzene, chlorobenzene, and 1,1 dichloroethene as the regular sample. Toluene and tetrachloroethene were detected in the regular sample from MW18 at concentrations at, or slightly above, the MDL, but were not detected in the duplicate samples. 1,2-Dichloropropane was detected in the duplicate sample collected from MW-18 at a concentration slightly above the MDL, but was not detected in the regular sample. Dioxathion constituents were not detected in the regular or duplicate samples collected from MW-18.

VOCs and dioxathion constituents were not detected in the three rinsate samples (RS-01, RS-02, and RS-03) collected during the May 2006 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. The laboratory QC spike sample recoveries were reported to be within acceptable limits for all samples except for the samples collected from MW-8 and MW-17. Surrogate recoveries for the MW-8 and MW-17 samples were 1,720% and 1,350% of the spiked amount, respectively. Previous reports from BATCO have indicated that similar surrogate recoveries in samples collected from these two locations were the result of matrix interference. Since the sample collected from MW-8 in February 2003 detected naphthalene, it is reasonable to assume that the matrix interference reported by the laboratory is caused by the presence of naphthalene in the groundwater samples, and the dioxathion analysis for these samples is, therefore, acceptable. Surrogate spike recoveries for other samples ranged from 58.6% to 109%. Based on the information received, the samples were extracted and analyzed within the proscribed time limits for organophosphorous compounds.

3.4 Hydrogeological Testing Results.

3.4.1 Hydraulic Conductivity Estimates

The slug test data were used to estimate hydraulic conductivity for monitoring wells MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18 and MW-19 using methods described by Bouwer and Rice (1976 and 1989). Hydraulic conductivity estimates for these eight wells ranged from 2.66×10^{-2} centimeter per second (cm/s) for monitoring well MW-13 to 1.31×10^{-3}. These estimates are consistent with estimates for monitoring wells MW-2, MW-6, and MW-7 that were reported in the Remedial Action Evaluation (RAE) (Eco-Systems, July 2004). A summary of estimated hydraulic conductivity results

for site monitoring wells is included as **Table 6**. Copies of the hydraulic conductivity calculation reports are included in **Appendix C**.

3.4.2 Aquifer Test Analysis

Review of the aquifer pumping test for monitoring well MW-8 indicates that, even at maximum sustainable pumping rate, pumping from the thin band of aquifer intercepted by monitoring well MW-8, which is only a two-inch diameter well, indicates that maximum drawdown in piezometer TP-10, which is located approximately 6 feet from the pumped well was 0.24 feet and it occurred approximately 3 hours and 20 minutes after beginning the test. Water level at this location began to recover and continued to rise until the end of the test. The maximum drawdown in piezometer TP-17, which is located approximately 55 feet from the pumped well, was 0.15 feet, and it occurred approximately 3 hours after beginning the test.

The test data were analyzed according to methods described by Jacobs and Cooper using a commercially available software package. Due to the relatively low drawdown created in the observation wells during the pumping test, transmissivity could not be estimated using the software. However, transmissivity is a function of hydraulic conductivity and aquifer thickness. Using the average hydraulic conductivity determined from the slug tests and the aquifer thickness at monitoring well MW-8 measured at the time of the pumping test, the transmissivity is approximately 1.02 ft^2/min.

4.0 FINDINGS AND CONCLUSIONS

The findings and conclusions in this section are based on data obtained during the August 2005, November 2005, February 2006, and May 2006 quarterly monitoring events.

4.1 SLUDGE PITS

VOCs, cis-dioxathion and trans-dioxathion have not been detected in samples collected from monitoring wells MW-2, MW-3, MW-4, MW-10, and MW-11 for the four quarterly groundwater monitoring events. Dioxenethion was detected in groundwater samples collected from monitoring well MW-4 during the August 2005, February 2006 and May 2006 monitoring events and in samples collected from monitoring well MW-11 during the August 2005 monitoring event. Dioxenethion has not been detected in the samples collected from monitoring wells MW-2, MW-3, and MW-10.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not migrating from the sludge pits at concentrations above TRGs, and only one dioxathion constituent, dioxenethion has been detected in monitoring wells in this area.

4.2 GREEN'S CREEK

VOCs have not been detected in samples collected from surface water monitoring locations CM-00, CM-01, CM-02, CM-04, and CM-05 during the four quarterly monitoring events. Benzene has been detected in the samples collected from surface water monitoring location CM-03 during the four monitoring events at concentrations less than the TRG.

Cis-dioxathion and trans-dioxathion have not been detected in samples collected from CM-00, CM-01, CM-02, CM-03, CM-04, and CM-05 during the four quarterly monitoring events. Dioxenethion was detected in the samples collected from surface water monitoring location CM-03 during the August 2005 and May 2006 monitoring events. Dioxenethion was also detected in the samples collected from surface water monitoring locations CM-04 and CM05 during the May 2006 monitoring event.

Based on the analytical results of the four quarterly groundwater monitoring events, VOCs are not present in Green's Creek at concentrations above TRGs, and only one dioxathion constituent, dioxenethion has been detected in surface water samples collected from Green's Creek.

4.3 FORMER LANDFILL

VOCs have not been detected in samples collected from monitoring wells MW-6 and MW-12 during the four quarterly monitoring events. Chlorobenzene has been detected in samples collected from monitoring wells MW-5 at concentrations less than the TRG during the August 2005, February 2006, and May 2006 monitoring event. Acetone has been detected in samples collected from monitoring wells MW-14 at concentrations less than the TRG during the August 2005, November 2005 and February 2006 monitoring event. In samples collected from the up gradient wells MW-8 and MW-13, concentrations of benzene, chlorobenzene, carbon tetrachloride, chloroform, and toluene (MW-8 only) persist at concentrations above TRGs. However, the concentrations of these compounds have generally remained stable or diminished. 1,2-dichloroethane and toluene have been detected in samples collected from monitoring well MW-8 at concentrations above TRGs but during the most recent sampling event were below either the laboratory reporting limit or the TRG. Vinyl chloride has been detected in samples collected from monitoring well MW-13 at concentrations above the TRG but during the most recent sampling event was below either the TRG.

Cis-dioxathion and trans-dioxathion have not been detected in groundwater samples collected from monitoring wells MW-5, MW-6, MW-8, MW-12 and MW-13 during the four quarterly monitoring events. Dioxenethion has been detected in samples collected from monitoring wells MW-8 during the four monitoring events. Dioxenethion was also detected in the samples collected from monitoring well MW-13 during the August 2005 and February 2006 monitoring events and from monitoring wells MW-6 during the February 2006 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, and only one dioxathion constituent, dioxenethion has been detected in monitoring wells in this area.

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 concentrations of benzene and chlorobenzene have fluctuated. The concentration of carbon tetrachloride is has generally risen during the four quarterly events. Concentrations of chloroform were detected above the TRG in samples collected from MW-17 during the August 2005, November 2005, and February 2006 events, but chloroform was not detected during the May 2006 event. Toluene was detected at concentrations above the TRG in samples collected from MW-17 during the August 2005 and May 2006 monitoring events. 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. Concentrations of 1,1-dichloroethene and toluene less than the TRG have also been detected in samples collected from monitoring well MW-9. Concentrations of benzene and toluene less than TRGs were detected in the samples collected from monitoring well MW-16 during the August 2005 and November 2005 monitoring events. Other detections of VOCs have not occurred in samples collected from MW-16. Concentrations of acetone were detected in the groundwater samples collected from monitoring well MW-15 at concentrations less than the TRG during the August 2005 and May 2006 monitoring events, and concentrations of benzene less than the TRG were detected in the groundwater sample collected from MW-15 during the August 2005 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 August 2005, November 2005, and February 2006.

Cis-dioxathion and trans-dioxathion have not been detected in groundwater samples collected from monitoring wells MW-14, MW-15, MW-16 and MW-17. Dioxenethion has been detected in the four samples collected from MW-17, and concentrations have fluctuated. Dioxenethion was also detected in the sample collected from MW-16 during the August 2005 sampling event. Dioxenethion has not been detected in samples collected from monitoring wells MW-14 and MW-15.

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. Only one dioxathion constituent, dioxenethion has been detected in monitoring wells in this area and for the most recent three quarterly monitoring events, detection of dioxenethion in monitoring wells installed in the groundwater area has been limited to monitoring wells MW-8, MW 13, and MW-17.

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 been stable. Chlorobenzene and ethylbenzene were detected in samples collected from monitoring wells MW-19 at concentrations below the TRG during the four monitoring

events. Toluene was also detected in the sample collected from monitoring well MW-19 at a concentration less than the TRG during the May 2006 monitoring event.

Benzene was detected at concentrations above the TRG in samples collected from monitoring well MW-18 during the August 2005 and May 2006 sampling events. Benzene was detected in samples collected from monitoring well MW-18 during the November 2005 and February 2006 monitoring events at concentrations less than the TRG. Chlorobenzene, 1-1dichloroethene, 1,2 dichloropropane, ethylbenzene, tetrachloroethene, and toluene have been detected at concentrations less than TRGs in samples collected from monitoring well MW-18 during at least one sampling event.

Neither cis-dioxathion nor trans-dioxathion have been detected in samples collected from monitoring wells MW-18 and MW-19. Dioxenethion was detected in the sample collected from MW-18 during the November 2005 monitoring event. Dioxenethion has not been detected in samples collected from monitoring well MW-19.

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. Cis-dioxathion and trans-dioxathion have not been detected in samples collected from monitoring wells MW-18 and MW-19. Dioxenethion has only been detected in one sample from monitoring well MW-18.

5.0 RECOMMENDATIONS

The following conclusions are based on information obtained and data collected during the August 2005, November 2005, February 2006, and May 2006 monitoring events.

Cis-dioxathion and trans-dioxathion have not been detected in samples collected from either monitoring wells or surface water samples during the four quarterly monitoring events, which makes statistical analysis impossible. Dioxenethion, which is a degradation product of dioxathion, does not have an established TRG. Therefore, it is recommended that analysis for dioxathion and dioxenethion be discontinued.

TABLES

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA
May 9, 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	5.42	154.65
MW-3	160.03	6.60	153.43
MW-4	159.75	11.07	148.68
MW-5	160.99	8.83	152.16
MW-6	174.05	8.88	165.17
MW-7	NA	13.90	NA
MW-8	179.99	NA	NA
MW-9	NA	12.50	NA
MW-10	159.88	10.92	148.96
MW-11	157.18	8.22	148.96
MW-12	162.17	8.03	154.14
MW-13	175.23	9.19	166.04
MW-14	169.23	15.33	153.90
MW-15	172.21	19.14	153.07
MW-16	175.62	17.35	158.27
MW-17	186.13	18.22	167.91
MW-18	165.31	5.39	159.92
MW-19	172.25	10.88	161.37
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	11.37	160.35
TP-3	169.74	9.71	160.03
TP-4	163.64	6.77	156.87
TP-5	160.54	8.89	151.65
TP-6	158.63	8.23	150.40
TP-7	167.17	8.95	158.22
TP-8	183.79	14.02	169.77
TP-9	163.44	5.45	157.99
TP-10	179.69	14.92	164.77
TP-11	162.26	10.22	152.04
TP-12	159.95	10.98	148.97
TP-13	156.99	8.15	148.84
TP-14	162.59	5.14	157.45
TP-16	179.72	13.58	166.14
TP-17	182.71	17.25	165.46

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	Chloroform	Trichloroethene	Bromodichloromethane	Bromomethane	Chloroethane	Chloromethane	Dibromochloromethane	cis-1,2-dichloroethene	isopropylbenzene	methylene chloride
CM-00	Sep-03	NA[1]	< 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
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
CM-01	Feb-03	NA	2.8	< 10.0	3.03	**2.34**	10.0	< 10.0	< 10.0	**20.5**	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Sep-03	NA	< 1.0	6.6	< 1.0	< 1.0	1.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
CM-02	Feb-03	NA	1.17	< 10.0	1.5	< 10.0	10.0	< 10.0	< 10.0	**15.6**	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
CM-03	Feb-03	NA	3.7	< 10.0	< 10.0	< 10.0	10.0	< 10.0	< 10.0	**8.42**	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Aug-05	< 25	1.1	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	1.4	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	1.1	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	1.6	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
CM-04	Feb-03	NA	2.25	< 10.0	< 10.0	< 10.0	10.0	< 10.0	< 10.0	3.43	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
CM-05	Feb-03	NA	4.04	< 10.0	< 10.0	< 10.0	10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
MW-02	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	32	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
MW-03	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
MW-04	Dec-02	ND[3]	**14.0**	1.81	**10.0**	ND	ND	ND	ND	**63.0**	**1.72**	ND	ND	1.26	ND
	Feb-03	NA	< 10.0	< 10.0	< 10.0	< 10.0	10.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	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
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	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
MW-05	Aug-05	< 25	< 1.0	1.3	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	1.0	< 1.0	< 1.0	1.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	1.8	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0

Location	Date	Acetone	Benzene	Chlorobenzene	Carbon Tetrachloride	Chloroform	Trichloroethene	Bromodichloromethane	Bromomethane	Chloroethane	Chloromethane	Dibromochloromethane	cis-1,2-dichloroethene	isopropylbenzene	methylene chloride
MW-06	Aug-05	< 25	< 1.0	< 1.0	<1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-07	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-08	Dec-02	ND	**6,900**	**290**	**16,000**	**1,800**	.8	**6.84**	4.07	**66.0**	**39.2**	**4.45**	19	4.6	**26.1**
	Feb-03	NA	**< 500.0**	**230**	**12,000**	**1,300**	.2	**4.72**	< 10.0	**85.5**	**3.34**	< 10.0	17.5	4.35	< 13.0
	Aug-05	< 6300	**18,000**	**< 250**	**3,500**	**510**	50	NA	< 250	< 250	< 250	NA	NA	NA	< 1,300
	Nov-05	< 2,500	**17,000**	**160**	**1,000**	**260**	00	NA	< 100	< 100	< 100	NA	NA	NA	< 500
	Feb-06	< 2,500	**11,000**	**160**	**480**	**130**	00	NA	< 100	< 100	< 100	NA	NA	NA	< 500
	May-06	<630	**11,000**	170	**2,200**	**280**	5	< 25	< 25	< 25	< 25	NA	29	NA	380
MW-09	Dec-02	ND	**9.15**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.48
	Feb-03	NA	**64.3**	J 5.85	**20.7**	J **9.83**	0.0	< 10.0	< 10.0	**19.7**	< 10.0	< 10.0	< 10.0	J 1.92	< 13.0
	Aug-05	< 25	**12**	1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	**16.0**	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	**18.0**	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	**8.1**	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-10	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-11	Dec-02	ND	**114**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Feb-03	NA	J **6.39**	< 10.0	< 10.0	< 10.0	0.0	< 10.0	< 10.0	< 12.0	< 10.0	< 10.0	< 10.0	< 10.0	< 13.0
	Aug-03	NA	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-12	Aug-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-13	Aug-05	< 25	**120**	10	**260**	**96**	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	29	**78**	9.3	**53**	**56**	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	**110**	22	**77**	**63**	.0	NA	1.6	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	**48**	5.4	**110**	**33**	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	1	NA	< 5.0
MW-14	Aug-05	34	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	35	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	180	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-15	Aug-05	84	1.7	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	50	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-16	Aug-05	< 25	2.3	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	1.2	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	< 1.0	< 1.0	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0

Location	Date	Acetone	Benzene	Chlorobenzene	Carbon Tetrachloride	Chloroform	Trichloroethene	Bromodichloromethane	Bromomethane	Chloroethane	Chloromethane	Dibromochloromethane	cis-1,2-dichloroethene	Isopropylbenzene	methylene chloride
MW-17	Aug-05	< 6300	**6,200**	**340**	**1,500**	**1,200**	50	NA	< 250	< 250	< 250	NA	NA	NA	< 1,300
	Nov-05	< 13,000	**1,500**	< 500	**17,000**	**1,600**	00	NA	< 500	< 500	< 500	NA	NA	NA	< 2,500
	Feb-06	< 13,000	**1,300**	**600**	**37,000**	**2,600**	00	NA	< 500	< 500	< 500	NA	NA	NA	< 2,500
	May-06	< 6,300	**4,200**	**530**	**30,000**	< 250	50	< 250	< 250	< 250	< 250	NA	< 250	NA	< 1,300
MW-18	Aug-05	< 25	10	45	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	3.9	26	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	4.2	31	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	< 25	**6.5**	35	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
MW-19	Aug-05	< 25	**20**	7.5	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Nov-05	< 25	**19**	6.4	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	Feb-06	< 25	**22**	9.8	< 1.0	< 1.0	.0	NA	< 1.0	< 1.0	< 1.0	NA	NA	NA	< 5.0
	May-06	28	**21**	7.2	< 1.0	< 1.0	.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	NA	< 5.0
TRG[4]		608	5.0	100	5.0	0.155	.00	0.168	8.52	3.64	1.43	0.126	70	679	5

1 - NA indicates that the analyte was not analyzed.

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

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

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

5 - TRG not yet established for this analyte.

TABLE 3
SUMMARY OF DIOXATHION ANALYTICAL RESULTS

Hercules Incorporated
Hattiesburg, MS
May 2006

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
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
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
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
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
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
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
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
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
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
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
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

TABLE 3
SUMMARY OF DIOXATHION ANALYTICAL RESULTS
Hercules Incorporated
Hattiesburg, MS
May 2006

Location	Date	*Concentrations in µg/L*			
		Dioxenethion	Dioxathion (cis)	Dioxathion (trans)	Total Dioxathion[1]
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
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
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
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
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
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
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
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
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
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
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
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
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 2006

Location	Concentrations in µg/L															
	Acetone	Benzene	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	1,1-Dichloroethene	Ethylbenzene	Methylene Chloride	Toluene	Tetrachloroethe	Chloromethane	1,2-Dichloropro	Dioxenethion	Dioxathion (cis)	Dioxathion (trans)
CM-03	< 25	1.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	21.6	< 0.400	< 0.400
CM-03 DUP	< 25	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	8.78	< 0.400	< 0.400
% variation	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%
MW-18	< 25	6.5	< 1.0	< 1.0	35	< 1.0	2.3	1.1	< 5.0	1.2	1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
MW-18 DUP	< 25	8.0	< 1.0	< 1.0	36	< 1.0	2.1	1.2	< 5.0	< 1.0	< 1.0	< 1.0	1.9	< 0.400	< 0.400	< 0.400
% variation	0%	38%	0%	0%	2%	0%	8%	9%	0%	16%	1%	0%	9%	0%	0%	0%
MW-09	< 25	8.1	< 1.0	< 1.0	< 1.0	< 1.0	3.2	< 1	< 5.0	1.1	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
MW-09 DUP	< 25	8.8	< 1	< 1	< 1.0	< 1.0	3.3	1.4	< 5.0	1.1	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
% variation	0%	9%	0%	0%	0%	0%	3%	40%	0%	0%	0%	0%	0%	0%	0%	0%
RS-01	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	1.5	< 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	< 1.0	< 1.0	< 1.0	< 1.0	< 0.400	< 0.400	< 0.400
RS-03	< 25	< 1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0	< 1.0	< 5.0	< 1.0	< 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
TB-06	< 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.

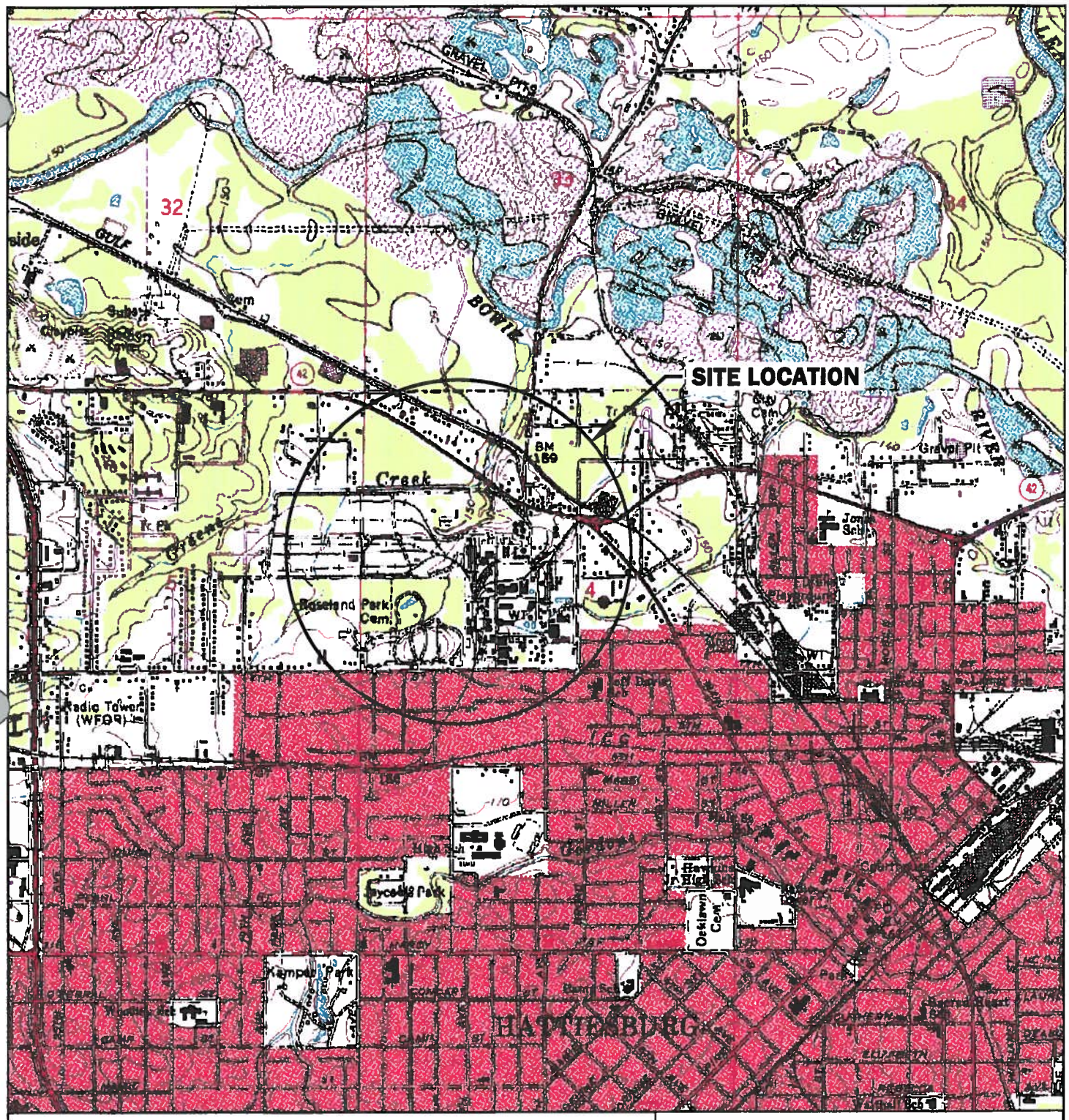
Location	Date	Temperature (°C)	pH (Standard Units)	Conductivity	Sulfide	Total Organic Carbon	Phenolics	Alkalinity	Carbon Dioxide
MW-02	11-May-06	18.02	5.42	0.09	0.1	1.9	< 0.05	17	120
MW-03	11-May-06	18.19	4.79	0.08	0.1	1.5	< 0.05	1.9	63
MW-04	11-May-06	21.52	6.01	0.37	0.44	17	< 0.05	84	150
MW-05	11-May-06	19.62	6.02	0.93	0.1	79	< 0.05	490	360
MW-06	11-May-06	20.82	4.94	0.17	0.1	< 0.1	< 0.05	32	77
MW-07	12-May-06	20.86	4.82	0.09	0.1	1.8	< 0.05	< 1	< 1
MW-08	10-May-06	na	na	na	0.11	75	0.26	200	320
MW-09	15-May-06	20.77	5.76	0.58	0.62	16	< 0.05	85	47
MW-10	11-May-06	18.95	5.21	0.03	0.1	1.8	< 0.05	2.5	19
MW-11	11-May-06	20.03	5.64	0.18	0.1	22	< 0.05	59	160
MW-12	11-May-06	21.09	5.18	0.06	0.1	1.4	< 0.05	3.3	56
MW-13	12-May-06	21.59	6.15	0.55	0.17	22	< 0.05	240	220
MW-14	12-May-06	20.46	6.38	0.82	0.1	41	< 0.05	390	180
MW-15	10-May-06	23.55	5.66	1.07	0.1	57	< 0.05	450	240
MW-16	12-May-06	21.40	6.24	0.95	0.1	36	< 0.05	400	340
MW-17	15-May-06	21.00	6.01	0.63	0.24	56	0.16	260	110
MW-18	9-May-06	22.56	5.93	0.94	0.1	19	< 0.1	210	180
MW-19	9-May-06	23.46	5.94	0.48	0.11	32	< 0.05	210	170
RS-1	9-May-06	na	na	na	0.1	< 1	< 0.05	< 1	< 1
RS-3	12-May-06	na	na	na	0.1	< 1	< 0.05	< 1	< 1

TABLE 6
SUMMARY OF HYDRAULIC CONDUCTIVITY ESTIMATES
Hercules Incorporated, Hattiesburg, Mississippi

WELL ID	HERCULES HYDRAULIC CONDUCTIVITY K (CM/sec)
MW-2	4.19×10^{-3}
MW-6	2.87×10^{-3}
MW-7	1.31×10^{-3}
MW-12	4.30×10^{-3}
MW-13	2.66×10^{-2}
MW-14	1.03×10^{-3}
MW-15	2.38×10^{-3}
MW-16	2.95×10^{-2}
MW-17	6.91×10^{-3}
MW-18	1.34×10^{-3}
MW-19	2.02×10^{-3}


AVERY

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:
	CHKD. BY:	DATE:
PROJECT NO. HER25080	CAD FILE HER25080-TOPO.dwg	

SITE LOCATION MAP

FIGURE 1

APPENDIX A
GROUNDWATER COLLECTION LOGS

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW02
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 20.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 20.5 - 5.42 = 15.08
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 2.46

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0813	5.42
5-11-2006	0906	5.85

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
5-11-2006 0856	0.0	5.65	0.086	18.11	50	2.11	245.6	
" 0906	2.46	5.46	0.095	17.98	16	0.64	371.0	
" 0917	4.92	5.39	0.098	18.02	6.4	0.68	436.5	
" 0928	7.38	5.42	0.099	18.02	4.9	0.88	468.3	

Sample Identification: HER-MW02-0506

Weather Conditions During Sampling: Clear 70°F

Comments:

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
MW02 5-11-2006	0930		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW03
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 18-6.6 = 11.4
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.86

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0810	6.60
5-11-2006	0810	7.42

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
5-11-2006 0751	0.0	5.47	0.086	17.95	55	1.41	202.4	
" 0801	1.86	4.76	0.084	18.15	8.1	0.88	284.7	
" 0810	3.72	4.77	0.084	18.16	4.9	0.81	315.5	
" 0819	7.44	4.79	0.083	18.19	4.3	0.75	330.7	

Sample Identification: HER-MW03-0506

Weather Conditions During Sampling: Clear 70°F

Comments:

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	0830		

MW03

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW04
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18.5'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 18.5 - 11.07 = 7.43
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.21

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-5-2006	0822	11.07
5-11-2006	1059	11.22

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
5-11-2006 1052	0.0	5.97	0.363	21.43	16	2.28	244.4	
" 1059	1.21	6.03	0.370	21.49	4.7	0.20	197.0	
1104	2.42	6.02	0.370	21.50	4.6	0.11	114.0	
1109	3.63	6.01	0.370	21.52	4.4	0.08	79.9	

Sample Identification: HER-MW04-0506

Weather Conditions During Sampling: Clear 75°F

Comments:

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
MW04 5-11-2006	1115		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW05
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 18.5 - 8.83 = 9.67
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.58

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0949	8.83
5-11-2006	1237	8.83

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
5-11-2006	1230	0.0	6.08	0.576	20.41	170	0.22	405.1	
"	1237	1.58	6.02	0.606	19.79	27	0.07	464.8	
"	1245	3.16	6.01	0.764	19.62	6.6	0.04	360.1	
"	1252	4.74	6.00	0.853	19.57	4.9	0.05	240.6	Foam
"	1300	6.32	6.02	0.906	19.56	4.2	0.05	138.2	↓
"	1307	7.90	6.02	0.931	19.62	4.1	0.04	93.1	↓

Sample Identification: HER-MW05-0506

Weather Conditions During Sampling: Clear 75°F

Comments: observed effervescense, could not get zero headspace

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	1310		

MW05

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.

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

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW06
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 23.25'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 23.25 - 8.88 = 14.37
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 2.34

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0956	8.88
5-11-2006	1450	10.82

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
5-11-2006 1440	0.0	4.87	0.179	21.13	14	0.19	370.0	
" 1450	2.34	4.84	0.178	20.79	37	0.14	611.4	
" 1500	4.68	4.90	0.179	20.86	8.6	0.15	629.9	
" 1510		4.94	0.179	20.82	4.9	0.16	644.2	

Sample Identification: HER-MW06-0506

Weather Conditions During Sampling: Clear 75°F

Comments:

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	1515		

MW06

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.

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

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW07
Site Location: Hattiesburg, Mississippi

Start Date: 5-12-06 Finish Date:
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 22.5
Approximate Depth of Water Column (h) (h= TD - DTW [ft-btoc]): 22.5 - 13.90 = 8.6
Calculated Well Volume (V=6hd²) (V = vol in gal; d = well diam. in ft): 1.40

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-06	1018	13.90
5-12-06	0812	13.99

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
5-12-2006 0750	0.0	5.93	0.120	20.59	75		302.1	
" 0812	1.40	5.03	0.115	20.81	14		415.7	
" 0819	2.80	4.85	0.096	20.85	5.8		434.2	
" 0826	4.20	4.82	0.094	20.86	4.7		442.0	

Sample Identification: HER-MW07-0506

Weather Conditions During Sampling: Clear 70° F

Comments: Pump stopped at 0.0 volume due to DO sensor malfunction.

Sample Technician: CT Date: 5-12-2006

GROUNDWATER SAMPLE CONTAINERS

Date	Time	Sample Container	Preservative
5-12-2006	0830		

MW07

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.

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

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW-08
Site Location: Hattiesburg, Mississippi

Start Date: 5-10-2006 Finish Date:
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18.5'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]):
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft):

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)

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

Sample Identification: HER-MW08-0506

Weather Conditions During Sampling: Cloudy 85°F

Comments:

Sample Technician: CT Date: 5-10-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-10-2006	1315		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules Quarterly GW Monitoring
Project Number: HER25080-CC-MS
Boring ID: MW09
Site Location: Hattiesburg, Mississippi

Start Date: 5-15-2006 Finish Date: 5-15-2006
Sample Technician: Chris Ferrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 20.00
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 20 - 12.55 = 7.45
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.21

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-06	1029	12.50
5-15-06	1023	12.55
5-15-06	1115	12.82

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
5-15-2006 1105	0.0	5.78	0.709	20.74	4.8	1.15	202.2	
" 1111	1.21	5.72	0.595	20.73	4.9	0.49	157.0	
" 1117	2.42	5.75	0.589	20.75	3.9	0.35	132.4	
" 1123	3.63	5.76	0.587	20.76	3.6	0.36	105.0	
" 1128	4.84	5.76	0.588	20.76	3.6	0.29	75.8	
" 1135	6.05	5.76	0.586	20.77	3.6	0.31	56.5	

Sample Identification: HER-MW09-0506

Weather Conditions During Sampling: Clear 70°F

Comments:

Sample Technician: CT Date: 5-15-2006

GROUNDWATER SAMPLE CONTAINERS			
	Date	Time	Sample Container	Preservative
MW09	5-15-2006	1145		
FD3	5-15-2006			

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.

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

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW10
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 18.5 - 10.92 = 7.58
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.24

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0817	10.92
5-11-2006	1015	12.03

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
5-11-2006 0955	0.0	5.77	0.020	19.17	80	8.42	320.0	
" 1000	1.24	5.20	0.032	18.95	60	0.86	429.9	
" 1006	2.48	5.19	0032	18.96	65	0.89	456.1	
" 1011	3.72	5.20	0.032	18.96	65	1.02	464.6	
" 1018	4.96	5.20	0.032	18.95	60	1.24	470.9	
" 1025	6.20	5.21	0.032	18.95	55	1.23	475.4	

Sample Identification: HER-MW10-0506

Weather Conditions During Sampling: Clear 70°F

Comments:

Sample Technician: CT Date: 5-11-2006

MW10

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	1030		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW11
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 17
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 17 - 8.22
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.43

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0824	8.22
5-11-2006	1146	8.79

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
5-11-2006 1132	0.0	5.90	0.198	20.00	8.9	1.80	223.0	
" 1138	1.43	5.61	0.188	20.02	6.6	0.15	342.9	
" 1144	2.86	5.62	0.185	20.03	23	0.07	387.7	
" 1151	4.29	5.63	0.184	20.02	34	0.05	405.1	
" 1157	5.72	5.64	0.184	20.03	21	0.04	413.0	
" 1203	7.15	5.64	0.184	20.03	15	0.04	421.5	

Sample Identification: HER-MW11-0506
Weather Conditions During Sampling: Clear 75°F
Comments:

Sample Technician: CT Date: 5-11-2006

MW11

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	1205		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Page__of__

Project Name: Hercules
Project Number: HER25080
Boring ID: MW12
Site Location: Hattiesburg, Mississippi

Start Date: 5-11-2006 Finish Date: 5-11-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 12'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 12 - 8.03 = 3.97
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 0.65

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0953	8.03
5-11-2006	1341	10.52

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
5-11-2006 1330	0.0	7.15	0.120	20.90	220	0.20	310.7	
" 1332	0.65	5.45	0.074	20.66	110	0.14	463.0	
" 1337	1.3	5.21	0.075	20.72	85	0.28	520.5	
" 1346	1.95	5.08	0.067	20.60	29	0.22	551.5	
" 1356	2.60	5.12	0.070	20.94	20	0.17	565.8	
" 1406	3.25	5.18	0.068	21.09	16	0.16	563.3	

Sample Identification: HER-MW12-0506

Weather Conditions During Sampling: Clear 75°F

Comments:

Sample Technician: CT Date: 5-11-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-11-2006	1410		

MW12

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW13
Site Location: Hattiesburg, Mississippi

Start Date: 5-12-2006 Finish Date: 5-12-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 18.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 18.5 - 9.19 = 9.31
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.52

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-06	1026	9.19
5-12-06	0905	9.50

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
5-12-2006 0850	0.0	5.17	0.191	21.19	14		290.0	
" 0901	1.52	5.65	0.283	21.44	13		279.5	
" 0910	3.04	6.04	0.491	21.49	6.9		278.2	
" 0919	4.56	6.12	0.539	21.52	5.6		232.3	
" 0926	6.08	6.15	0.554	21.54	4.7		171.0	
" 0932	7.60	6.15	0.554	21.59	4.4		131.6	

Sample Identification: HER-MW13-0506

Weather Conditions During Sampling: Clear 70°F

Comments: DO meter malfunction

Sample Technician: CT Date: 5-12-2006

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.

MW13

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-12-2006	0940		

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

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW14
Site Location: Hattiesburg, Mississippi

Start Date: 5-12-2006 Finish Date:
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 24.3'
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 24.3 - 15.33 = 8.97
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.46

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-06	0945	15.33
5-12-06	1010	15.61

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
5-12-2006 1003	0.0	6.29	0.829	20.61	12		229.4	Foam
" 1010	1.46	6.33	0.834	20.38	12		42.4	
" 1017	2.92	6.37	0.829	20.40	6.8		-13.7	
" 1025	4.38	6.39	0.827	20.41	7.5		-27.1	
" 1033	5.84	6.40	0.826	20.46	5.8		-35.7	
" 1042	7.30	6.38	0.824	20.46	4.9		-39.8	

Sample Identification: HER-MW14-0506

Weather Conditions During Sampling: Clear 75°F

Comments: Observed effervescence, could not get zero head space, DO meter malfunction

Sample Technician: CT Date: 5-12-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
MW14 5-12-2006	1045		
RS 5-12-2006	1020		

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.

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

Groundwater Sample Collection Log

Page__of__

Project Name: Hercules
Project Number: HER25080
Boring ID: MW-15
Site Location: Hattiesburg, Mississippi

Start Date: 5-10-2006 Finish Date: 5-10-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 26.5'
Approximate Depth of Water Column (h) (h= TD - DTW [ft-btoc]): 7.36
Calculated Well Volume (V=6hd²) (V = vol in gal; d = well diam. in ft): 1.20

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	0943	19.14
5-10-2006	1050	18.94
"	11:00	19.77
"	1110	19.77

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
5-10-2006 1041	0.0	6.32	1.138	22.61	16	6.44	52.9	Foam
1045	0.25	6.10	1.125	22.51	14	8.88	30.8	oily sheen
1050	0.50	6.07	1.105	22.63	15	10.45	26.3	
1055	0.75	6.04	1.097	22.89	16	12.45	23.0	
1100	1.00	5.97	1.088	22.71	8.9	11.47	33.8	
1105	1.25	5.92	1.080	22.87	7.3	12.09	38.1	
1110	1.50	5.81	1.078	22.85	6.7	13.23	74.5	
1115	1.75	5.77	1.076	23.09	6.4	14.52	134.4	
1119	2.00	5.70	1.076	23.32	5.9	13.69	169.4	
1125	2.25	5.62	1.079	23.42	5.3	12.38	233.4	
1130	2.50	5.66	1.079	23.55	4.9	12.59	212.5	

Sample Identification: HER-MW15-0506 (MS)(MSD)

Weather Conditions During Sampling: Cloudy 85°F

Comments: Observed efferescense, could not get zero head space

Sample Technician: CT Date: 5-10-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
MW15 5-10-2006	1140		
MS 5-10-2006	1140		
MSD 5-10-2006	1140		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW16
Site Location: Hattiesburg, Mississippi

Start Date: 5-12-2006 Finish Date: 5-12-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 28.5
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 28.5 - 17.35 = 11.15
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 1.82

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-4-06	0938	17.35
5-12-06	1120	17.33

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
5-12-2006 1111	0.0	6.26	0.961	21.51	13		140.1	
" 1120	1.82	6.20	0.955	21.34	8.3		-63.0	
" 1130	3.64	6.23	0.956	21.39	5.3		-76.4	
" 1140	5.46	6.24	0.956	21.40	4.9		-79.6	

Sample Identification: HER-MW16-0506

Weather Conditions During Sampling: Clear 75°F

Comments: DO meter malfunction observed effervescense could not get zero headspace

Sample Technician: CT Date: 5-12-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
MW16 5-12-2006	1145		

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.

Eco-Systems, Inc.
Environmental Engineers and Scientists

Groundwater Sample Collection Log

Project Name: Hercules
Project Number: HER25080
Boring ID: MW17
Site Location: Hattiesburg, Mississippi

Start Date: 5-15-2006 Finish Date: 5-15-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD): 22.7"
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]): 22.7 - 18.22 = 4.48
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft): 0.73

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-06	1032	18.22
5-15-06	1210	18.20
5-15-06	1215	18.52

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
5-15-2006 1212	0.0	5.76	0.771	21.30	8.0	3.16	177.1	
" 1215	0.73	5.69	0.715	21.11	9.0	0.97	157.0	
" 1219	1.46	5.83	0.656	21.06	9.5	0.54	13.2	
" 1223	2.19	5.90	0.641	21.08	6.4	0.46	-23.8	
" 1227	2.92	5.95	0.634	20.85	6.2	0.42	-40.5	
" 1231	3.65	6.01	0.635	21.00	4.1	0.40	-48.6	

Sample Identification: HER-MW17-0506

Weather Conditions During Sampling: Clear 75°F

Comments:

Sample Technician: CT Date: 5-15-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-15-2006	1235		

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.

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

Groundwater Sample Collection Log

Page__of__.

Project Name: Hercules
Project Number: HER25080
Boring ID: MW 18
Site Location: Hattiesburg, Mississippi

Start Date: 5-9-2006 Finish Date: 5-9-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD):
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]):
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft):

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	1004	5.39
"	1129	5.55
"	1144	5.55

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
5-9-2006 1125	0.0	6.12	1.014	22.54	21	0.98	255.6	
1130	0.25	5.69	0.996	22.56	7.4	1.14	241.5	
1135	0.50	5.73	0.979	22.62	5.6	1.30	234.6	oily sheen
1139	0.75	5.82	0.969	22.48	5.6	1.83	210.7	chemical odor
1144	1.00	5.88	0.954	22.47	5.3	1.04	184.4	
1149	1.25	5.92	0.944	22.53	4.9	0.83	169.0	
1153	1.50	5.93	0.943	22.56	4.6	0.82	160.0	

Sample Identification: HER-MW18-0506
HER-FD1-0506
Weather Conditions During Sampling Cloudy 85°F
Comments:

MW18
FD1

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-9-06	1200		
5-9-06	1200		

Sample Technician: CT Date: 5-9-2006

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.

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

Groundwater Sample Collection Log

Page__of__

Project Name: Hercules
Project Number: HER25080
Boring ID: MW-19
Site Location: Hattiesburg, Mississippi

Start Date: 5-9-2006 Finish Date: ~~5-10-2006~~ 5-9-2006
Sample Technician: Chris Terrell / Travis Beard
Purge/Sample Method: peristaltic pump
Well Diameter (d): 2"
Total Depth (TD):
Approximate Depth of Water Column (h)
(h= TD - DTW [ft-btoc]):
Calculated Well Volume (V=6hd²)
(V = vol in gal; d = well diam. in ft):

Depth-to-Water (DTW) Measurements		
Date	Time	DTW (ft-btoc)
5-9-2006	1007	10.88
"	1354	10.97
"	1404	10.97

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
5-9-2006 1345	0.0	6.08	0.502	23.50	8.4	2.42	294.3	
" 1349	0.25	5.88	0.489	23.29	12	1.74	307.3	
" 1354	0.50	5.83	0.491	23.48	9.5	1.71	311.5	
" 1359	0.75	5.83	0.490	23.46	7.4	1.72	316.4	Oily sheen
" 1404	1.00	5.88	0.489	23.35	5.6	1.81	293.2	↓
" 1410	1.25	5.94	0.488	23.46	5.0	1.72	253.0	
" 1415	1.50	5.94	0.488	23.46	4.5	1.83	244.4	

Sample Identification: HER-MW19-0506 (MS)(MSD)

Weather Conditions During Sampling: Cloudy 85°F

Comments:

Sample Technician: CT Date: 5-9-2006

GROUNDWATER SAMPLE CONTAINERS			
Date	Time	Sample Container	Preservative
5-9-2006	1420		
5-9-2006	1420		
5-9-2006	1420		

MW19
MS
MSD

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.